

FOREWORD

A full description of the activities of the eight divisions of the New Jersey Department of Agriculture for the fiscal year July 1, 1972, to June 30, 1973, is contained in the report that follows. A much abbreviated version of the report, covering only the highlights of the year, was previously issued and widely distributed. Lack of funds has made it impossible to print the entire report. However, a limited number of copies have been made available and will be kept on permanent file in the Department to meet the needs of those requiring a detailed account of the various programs of the Department.

PHILLIP ALAMPI

Secretary of Agriculture

NEW JERSEY

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NEW JERSEY

DEPARTMENT OF AGRICULTURE

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WILLIAM M. CRANSTOUN, Director, Division of Plant Industry
DELMAR K. MYERS, Director, Division of Regulatory Services
FRANCIS A. RAYMALEY, Director, Division of Rural Resources

1/ Messrs. Plenge and Hepner retire from the Board on June 30.
The new members of the Board will be Walter Ellis, Jr., of
Trenton and Charles J. Miserendino of Westville Grove.

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STATE BOARD OF AGRICULTURE

STATE BOARD MEETINGS

The Board met once each month. Special meetings with the Governor and other State officials were concerned with the future of New Jersey agriculture, open spaces, marketing and farm labor. Board members individually participated in numerous other sessions and, individually and as a group, visited farms and agribusiness operations in the State.

Board members also met the Department's market expansion units for apples, asparagus, poultry products, sweet and white potatoes, advisory groups of the equine, swine and ornamental horticulture industries, and dairy and general farm interest organizations. All Board meetings were attended by the Secretary of Agriculture, by the Assistant Secretary of Agriculture, and frequently by Division directors who also submitted monthly written reports. The Board continued the tradition of "Old Grads Day" --- the reunion meeting with former Board members. The Dean of College of Agriculture and Environmental Science (now Cook College) of Rutgers University or his designee was a guest at nearly all Board meetings. There was one joint meeting with the College Board of Managers to exchange information on the respective services to the public conducted by the two agencies.

The report of the Blueprint Commission on the Future of New Jersey Agriculture commanded much attention during the rest of the year after its submission to the Governor in the spring. Among its thirteen recommendations was a land policy for permanent agriculture in New Jersey, a recommendation unique in the United States. Members of the Board personally participated in many of the deliberations of the Commission.

With the Board's approval of all penalty actions concerning fertilizers, liming materials, animal feeds, eggs, white potatoes and milk, heavier penalties were imposed under the law where appropriate.

An economically severe outbreak of hog cholera in 1972 brought a variety of quarantine actions by the Board. Actions were also taken in such areas as brucellosis and tuberculosis, dairy equipment and other dairy matters, Standardbred breeder award percentages and other equine matters, eggs, agricultural liming materials, fertilizer and tomato plants.

A two-step reorganization of the Department of Agriculture was approved by the Board during the year. The director of the Division of Administration became Assistant Secretary of Agriculture on January 1, and was succeeded by the coordinator of vital resources, Division of Rural Resources. To become effective at the beginning of the new fiscal year, the Division of Information was abolished, the personnel of the Division being assigned to various other divisions and the Office of the Secretary.

OFFICE OF THE SECRETARY

The laws of New Jersey creating the State Board and the State Department of Agriculture stipulate that the Secretary of Agriculture is responsible to "administer, direct and cause to be performed the functions and duties of the Department." The Board is a policy-making body and through the statutory powers given to it, established the rules and regulations for the "government and control of the Department and the officers and employees therein." Through the Secretary of Agriculture, the Board assigns "their proper functions and duties" to Department employees.

The Secretary maintains close relationships and supervision over each of the programs of the eight divisions of the Department through meetings with the division directors at least once each month and more frequently as the need arises. He also evaluates very carefully the monthly, annual and special reports emanating from the various divisions. These reports are also shared with the State Board members.

A firm policy of the Department is that new laws and rules and regulations or revisions of those in existence are not acted upon until after they have been reviewed and checked out carefully with those involved. By exchanging ideas, the Department has found that invariably the laws and rules and regulations can be developed in a more effective manner through this procedure. Similarly, new projects are established and major changes in existing projects are made only after those involved have had an ample opportunity to present their views and general agreement is reached. Throughout the year the Secretary, Board members and departmental employees participated in many preliminary conferences with those involved in these changes. After a course of proposed action is determined, the documents pertaining to it are prepared. The Board as a whole and the Secretary study the proposals thoroughly and promulgate them in accordance with the requirements of the New Jersey Administrative Procedure Act. All actions relating to rules and regulations are published in the New Jersey Register and required by law. Legislative actions are first cleared with the Governor's office and then become a matter of legislative record.

RELATIONS WITH LOCAL AND FEDERAL GOVERNMENT

The Department, through the Office of the Secretary, actively participates in the programs and benefits from the services of the National Association of State Department of Agriculture (NASDA). Through NASDA, and individually, the New Jersey Secretary of Agriculture continues to foster good relationships and to maintain lines of communications with counterpart agencies in other states and with key officials in the Federal government.

On many occasions, the Department has found it necessary to seek assistance from the State of New Jersey office in Washington, D. C., which operates under the leadership of Edgar Morgan. Mr. Morgan has been most helpful in keeping the Department informed of happenings in Washington, particularly matters involving legislation in the Congress. By working closely with this office after first clearing with the Governor, effective leadership has been

provided to help legislate those matters at the Federal level that are of particular interest to New Jersey agriculture and related industries.

There is a continuing emphasis upon improving the Federal-State programs in which New Jersey is involved and upon moving in the direction of decentralizing Federal governmental programs. Through such efforts, the states can assume more responsibility and carry out many programs more efficiently than might otherwise be accomplished.

RELATIONS WITH INDUSTRIAL AND BUSINESS ALLIES OF AGRICULTURE

Throughout the year, the Secretary of Agriculture and key members of his staff represented the interests of New Jersey agriculture at many functions sponsored by industrial and business allies of the farmer. Such an effort is mutually desirable and brings about a kind of understanding for many cooperative programs. In addition to statewide organizations such as the New Jersey State Chamber of Commerce, the New Jersey Manufacturers Association and The New Jersey Bankers Association, meetings were attended of associations of food merchants, food processors, local businessmen, consumers, public health officers, municipal and county government officials, sportsmen, educators, research workers, newspaper correspondents, radio and television commentators and legislators.

AGRICULTURAL WASTE

Throughout the year, the Office of the Secretary provided leadership and guidance in the development of programs that would lead towards the more efficient use of agricultural waste. Supported by the members of the Agricultural Waste Task Force, progress was made during the year in evaluating systems and technology that are practical for recycling agricultural waste in New Jersey. Adequate technology now seems to be available and, hopefully, in the near future, through the cooperation of producers, manufacturers and marketers, agricultural waste recycling installations can be established that will increase the profits of our livestock and poultry farmers.

During the year, the Blueprint Commission on the Future of New Jersey Agriculture adopted a recommendation that would establish an Agricultural Waste Council by law in the Department of Agriculture with adequate funding to accomplish the following:

- a. Development of legislation to provide uniform guidelines, rules and regulations to control the disposition of livestock and poultry waste.
- b. Promotion of research, testing and extension programs in the recycling of biodegradable waste into livestock and poultry feeds or other usable products.
- c. Development of methods and feasibility studies on the lagooning, spray irrigation, soil incorporation and other means of disposing of both agricultural and mineral waste.

- d. Structuring of cooperative efforts of farmers, governmental agencies, private business and municipal governments in the development of acceptable ways by which various forms of biodegradable waste can be collected and recycled into animal feeds or soil additives.

AGRICULTURAL EDUCATION ADVISORY COMMITTEE

During the year, the Office of the Secretary continued to play a vital role in giving assistance to the Agricultural Education Advisory Committee in coordinating matters relating to agricultural education. Two key projects were completed during the year: (1) providing staff and financial assistance for the completion of a report entitled "New Jersey Manpower Needs in Natural Resources and/or Agriculture" and (2) providing assistance in the establishment of the first Future Farmers of America Alumni (FFA) Association of New Jersey. The manpower study report should provide an excellent basis for allocation of educational funds to meet job training needs in agriculture and/or natural resources during the next five years, and the FFA Alumni Association should provide a fine base of support for vocational agriculture programs.

CLEAN AIR COUNCIL

The Office of the Secretary continued its active interest in the work of the Clean Air Council as a part of its function of coordinating the environmental services offered by the Department. Public hearings and numerous Council meetings were held throughout the year that resulted in the promulgation of some new rules and regulations, as well as providing the basis for numerous recommendations to the Commissioner of Environmental Protection for the effective implementation of State environmental laws. In numerous instances, the Department was called upon for its input into these recommendations as they relate to New Jersey agriculture. A continuing emphasis is being placed on the recycling of agricultural waste into more useful purposes that are non-polluting.

CLEAN WATER COUNCIL

The Office of the Secretary continued its representation on the Clean Water Council and dealt with issues relating to water pollution and its impact on agriculture. Visits were made to various locations in the State to review water pollution problems. As a result of these visits, it was made obvious that there is a tremendous need for trained manpower for the operation of waste water treatment facilities and other water pollution abatement programs. During the year, considerable funds were received by the Department of Environmental Protection for implementation of the Federal Clean Water Act as it relates to New Jersey.

YOUTH WORK PERMITS

The Office of the Secretary continued to maintain an interest in proposed legislation that would update our child labor laws. The Department was represented at the New Jersey Child Labor Law Conference which was sponsored by the New Jersey Association of Youth Employment Services and the New Jersey Congress of Parents and

Teachers. Once again, this conference pointed out the need to update our child labor laws which were developed in the early forties. A recent survey indicated the youth work force consciously or unconsciously violates present youth work laws in more than 80 percent of the cases. Oftentimes this is a result of a complete lack of understanding of our antiquated youth laws by teenagers, parents and employers. Hopefully, this conference will provide the stimulus for a new look at our child labor laws, with the hope that they can be revised during the next session of the Legislature.

AGRICULTURAL CONVENTION

During the 1973 New Jersey Farmers Week, the Agricultural Convention approved nine resolutions dealing with important matters facing New Jersey agriculture. Two new Board members were elected, and discussions of other key agricultural matters were held. A complete report of the official proceedings of the 58th Annual Agricultural Convention is set forth at the end of this report.

DEPARTMENTAL REORGANIZATION PROGRAM

The Secretary of Agriculture, in cooperation with the State Board, continued to reorganize various programs within the Department into a more efficient organization. Such a reorganizational effort is on a continuing basis as the need arises in order to implement the recommendations of the Governor's Management Study Commission and other desired changes.

NEW JERSEY PESTICIDE COUNCIL

The Council conducted meetings on a monthly basis for the purpose of developing rules and regulations primarily related to the distribution, sale and use of pesticides throughout the State. The Secretary of Agriculture is a standing member of this Council. Several meetings were devoted to pesticide allied industries for the purpose of obtaining their views and considerations in regulatory matters. Pesticide industries and other groups in the Council's investigation programs included research, pesticide manufacturing, pest control operators, aerial applicators of pesticides and the Camden Regional Legal Services, Inc., representing safe use of pesticides for farm workers.

A total of 13 tentative drafts of rules and regulations was prepared and refined. It is expected that the final tentative draft which has been submitted to the Commissioner of Environmental Protection for his consideration, will be reviewed at a public hearing late in 1973.

It is the desire of the Council to develop new pesticide rules and regulations in cooperation and compatibility with Federal regulations. It is very possible that agriculture will be using pesticides under State regulations for the 1974 crops.

NATIONAL EGG PRICING SYSTEM STUDY COMMITTEE

The National Egg Pricing System Study Committee, of which the Secretary of Agriculture is chairman, held two meetings during the

year, one in Atlanta, Georgia, and one in Sea Isle City. The Committee is continuing to survey the egg pricing situation and will make recommendations from time to time that it feels will be of interest and help to the egg industry.

ADMINISTRATIVE PROCEDURE ACT

During the year, the Division of Administrative Procedure has developed a new production system for preparation of its update changes. Each division director now has an up-to-date set of rules and regulations that should prove to be very helpful in bringing about uniform law enforcement procedures. The Department of Agriculture was one of the first State agencies to reach this objective. Because of printing delays in the Division of Administrative Procedure, the Department has requested that quicker production of enacted regulations be made available in printed form to the Department. The response has been that the Division of Administrative Procedure is working with a new production company that, hopefully, will be able to provide the various agencies with printed copies of all rules and regulations that are reasonably current.

HEARING AND VIOLATIONS OFFICER

After many years of effort, the Department was successful in securing a hearing and violations officer. As a result, the Department has been able to handle administrative hearings relating to violations involving eggs, potatoes, lime, fertilizer, feed, seed, licensing and bonding, and milk pricing in a very efficient manner. Likewise, the hearing and violations officer has been able to provide assistance to the Secretary and the division directors on various legislative bills.

During the year, legislation was introduced (Assembly Bill 2367) which would coordinate all of the hearings officers for the State into one division in the Department of State under the Division of Administrative Procedure. The Department of Agriculture feels that this legislation is unnecessary at this time, and if applicable to the Department, would drastically reduce the efficiency of its present hearings and violations procedures.

EMERGENCY OPERATIONS PLAN

On June 27, 1973, the Secretary of Agriculture approved the Department of Agriculture's annex to the New Jersey State Emergency Operations Plan. This Annex was forwarded to the Department of Defense for inclusion in the State Plan. The State admission for the Department of Agriculture is twofold as follows:

- a. Provide such services as are available to meet the emergency needs of agriculture. These include, but are not limited to, the sale of feed grains at or below the support price, loans to disaster-affected farmers; and provisions for the removal of debris, wreckage and damaged timber from farmlands.
- b. Establish and implement procedures to support a declared emergency in a major disaster area with Federal food commodities.

This Annex will be reviewed periodically for updating as necessary.

AGRICULTURAL DEVELOPMENT

This program was designed to work in conjunction with the New Jersey Agricultural Society in building and maintaining "a climate of goodwill and understanding relating to agriculture among the general public through a broad program of education and information."

A coordinator of agricultural development was employed in May 1972 to design and execute a public relations program. A program was outlined and approved by July 1972 and implementation was begun immediately.

The program includes the following elements:

Radio and Television - A series of 13 public service announcements (with both tapes and written copy) has been sent to 48 radio stations in New Jersey, New York City and Philadelphia. In addition, numerous radio and television interviews have been conducted.

Print Media - Extensive feature stories have been run in major newspapers throughout the State. Additional articles have appeared in a variety of magazines, along with local newspaper coverage following speeches. Contacts with press personnel have been established to pave the way for good coverage of agricultural news stories.

Bus Car Card Advertisements - A series of three bus car cards with slogans promoting agriculture has been displayed at three-month intervals in 1,000 Transport of New Jersey buses. These cards, in exhibit form, are also being displayed in schools, retail stores, flower and garden centers, flower and garden shows, roadside markets, extension offices, soil conservation district offices, etc.

Legislative Tour - State Legislators and their wives were taken on a two-day tour of Hunterdon County agriculture. The purpose was to show our legislators innovations in agricultural techniques and problems threatening agriculture's survival. A public relations kit is being produced to enable laymen to assist in spreading New Jersey agriculture's story. This will be a tool by which to multiply the efforts of the existing program. The coordinator is assisting county boards of agriculture in taking on public relations projects of their own. The coordinator has acted as liaison between the Department and General Electric Company, developers of Seabrook - Farmington (a planned community retaining prime farmland as open space).

Other Activities - The coordinator has spoken numerous times before service clubs, women's clubs and the like. A copy of the film "FOOD --- FROM FARM TO YOU" was purchased for use in presenting school programs. It is a 14½-minute sound color 16 m.m. film, which beautifully portrays food production from farm to consumer.

D I V I S I O N O F A D M I N I S T R A T I O N

Samuel Garrison, Director

Division of Administration programs are directed to maintain effective and efficient administrative control of Department resources and to provide required services for all divisions of the Department. More specifically, its responsibilities in the Department include:

1. Directing budget preparation and providing fiscal operation control for all Department programs.
2. Providing and maintaining a qualified staff through appropriate personnel programs.
3. Developing and installing improved management systems and supporting the establishment of essential operating policies and procedures.
4. Providing appropriate office, laboratory, and field facilities and internal operating services.

FISCAL AFFAIRS

The Division of Administration provides budget and accounting services to all Department programs in conformance with the requirements of the Department of the Treasury. The ultimate objectives are the acquisition and efficient utilization of appropriated and dedicated funds and the accurate processing of all program revenues.

During the past year, Department revenues transmitted to the State Treasurer included license and inspection fees, product promotion taxes, and penalty assessments. Special accounts were kept of dedicated funds for use by the apple, asparagus, poultry, sweet potato, and white potato councils. Revenues obtained by the New Jersey Racing Commission under Chapter 40, Laws of 1967, were also maintained as dedicated funds under the New Jersey Horse Breeding and Development Fund.

Primary operating funds were provided by the State of New Jersey and the Federal government. State funds, the major source of support, were provided by regular appropriation. Cooperative agreements with the U. S. Department of Agriculture provided Federal funds for the support of specific programs.

TABLE 1. DEPARTMENT EXPENDITURES FOR 1972-73

<u>Source of Funds</u>	<u>Amount Expended</u>
General Treasury funds	\$ 4,031,784
Revolving State funds	679,762
State Board of Agriculture	
Federal Loan Fund	30,170
Federal funds	846,637
Promotion tax and Racing	
Commission funds	<u>1,007,385</u>
TOTAL	\$ 6,595,738

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The basic plan of work for the fiscal section included the preparation and submission of all budget requests and the allocation of appropriated funds according to program priorities. By order of the Department of the Treasury, the Department operated under a formal program budget system while maintaining an object budget system. Program budget and object accounting records were maintained and monthly statements were issued to all program leaders. These statements allowed program leaders to plan and control the effective use of their financial resources for the accomplishment of program objectives. Further, the fiscal section monitored all fiscal transactions and decisions on a Department-wide basis and processed all expenditures in accordance with Department of the Treasury procedures.

Performance indicators employed by the fiscal section included cost ratios, i.e. - administrative costs: total budget; administrative costs: number of program budgets; administrative costs: the total number of invoices, requisitions and purchase orders processed.

STATE BOARD OF AGRICULTURE FEDERAL LOAN FUND

The State Board of Agriculture Loan Fund was established in 1952. By law, the U. S. Department of Agriculture began to transfer cash assets of the defunct Rural Rehabilitation Corporation to the New Jersey Secretary of Agriculture. Transferred assets now total \$365,000.

Funds are used to make loans to qualified New Jersey farmers and others for the purchase of farms, equipment and livestock, the installation of irrigation facilities, the construction of farm labor housing, and other purposes provided under the original Corporation. As effected by the Division of Administration, all outstanding loans have been made through the Farmers Home Administration of the U. S. Department of Agriculture with one exception; a direct loan to a cooperative. Negotiated in 1962, that loan was made for new equipment to improve the handling and packaging of eggs. All Farmers Home Administration loans are government insured and Farmers Home Administration supervisors provide management advice to the borrowers. The outstanding success the fund has enjoyed must be credited to the efforts of the supervisors. There are now 45 loans totaling \$360,000. Interest earnings for the year were \$25,000. This income was partially used to support rural resource development efforts conducted by the Division of Rural Resources.

PERSONNEL

The personnel section maintains appropriate programs for the achievement of Department personnel objectives. Objectives include the maintenance of an efficient and effective work force, conducting employee actions in conformance with Department of the Treasury and Department of Civil Service merit system regulations, the development of employee capabilities, and the servicing of employee personnel needs.

In addition to regular personnel-payroll transactions and the maintenance of personnel records, some of the special personnel activities performed during the year are listed here.

1. Employee Orientation: Orientation for new employees on a formal basis was conducted biennially. Also, an annual Department employees conference was produced.

2. Employee Recognition: The American Federation of Technical Engineers was recognized by the Public Employees Relations Committee as the bargaining unit for our inspection personnel. Contract negotiations commenced in mid-1972 with William E. Kenny and Harry A. VanSciver alternating as Department representatives at weekly negotiation sessions.
3. Emergency Employment Act (EEA): Last year, in response to Federal government action to reduce unemployment in the area, 32 persons were hired primarily for conservation related jobs. At the end of this year, 11 persons remained in this Federally financed program. With the job market improving, it is expected this program will end next year.
4. Employee Performance Evaluation and Improvement System: The new performance rating system, which requires direct employee-supervisor job goal setting and employee evaluation, was supported during the year. This included essential supervision over the system to insure its timely and correct application. The end result of the system is an employee rating which ties in with salary increments.
5. Student Assistant Cooperative Program: Three high school students were employed under a cooperative work-training program.

The Division directed several fund-raising functions including the annual U. S. Savings Bond Drive, the Delaware Valley United Way Drive, the Cancer Crusade, and the March of Dimes.

A summary of personnel transactions for the year follows.

TABLE 2. PERSONNEL ACTIONS

<u>Division</u>	<u>Appointments</u>		<u>Promo-</u>	<u>Reclassi-</u>	<u>Termin-</u>	<u>Retire-</u>
	<u>Regular</u>	<u>Seasonal</u>	<u>tions</u>	<u>fications</u>	<u>ations</u>	<u>ments</u>
Administration	5	3	2	7	5	1
EEA Positions ^{1/}	1				1	
Animal Health	3		1	4	2	1
EEA Positions ^{1/}					1	
Dairy Industry	3		3	3	2	
Information	2			1	2	
Markets	2	1	3	2	5	1
Plant Industry	16	42	5	1	17	1
EEA Positions ^{1/}					2	
Regulatory Services	9	10		5	13	
Rural Resources	1		1	1	3	
EEA Positions ^{1/}					5	
Office of Secretary	3		1	1	3	1
TOTAL	45	56	16	25	61	5

^{1/} EEA - Emergency Employment Act

The following employees retired during 1972-73 following many years of loyal service to the Department:

William M. Boyd, chief, Bureau of Entomology, 30 years service, retired January 1, 1973.

Dr. Edwin L. Brower, director, Division of Animal Health, 35 years service, retired July 1, 1972.

Margaret D. Brown, principal clerk stenographer, Division of Markets, 41 years service, retired July 1, 1972.

Charles B. Robinson, senior procedures analyst, Division of Animal Health, 36 years service, retired November 1, 1972.

Gerald E. Zich, executive assistant to the Secretary of Agriculture, 31 years service, retired November 1, 1972.

ADMINISTRATIVE SERVICES

The administrative services section provided those general support functions required by operating programs which were best maintained on a centralized basis. It includes internal services, management systems, and property management.

INTERNAL SERVICES

Printing, graphic arts and electronic data processing services continued to be made available to the entire Department. Forms control, records retention, employee suggestion and service award programs, library and carpenter shop services were also provided. Department fund raising drives such as the D.V.U.W., U. S. Bond Drive, March of Dimes, and Cancer Fund were centered in this unit.

The Word Processing Center, composed of four magnetic tape selectric typewriters linked with the Centrex telephone system, operated during the year. This system accommodated most of the dictation needs for the Department. Some 50 dictators were serviced by the system, resulting in improved staff efficiency and production of consistently high quality documents.

The Health-Agriculture consolidated print shop provided over 2,000,000 reproductions which included reports, forms, publications and other miscellaneous material produced by the offset method. Forms, letter-heads, business cards, reports and exhibit materials were also designed and produced by this section.

MANAGEMENT SYSTEMS

The purpose of the management systems section is to assist in improving the operating efficiency of Department programs.

A Department-wide standard receipts system was designed and implemented, using the "peg board" technique, to ensure improved accountability for all incoming funds. An audit by the State Auditor confirmed the validity of this new system.

During the past year, program plans of work were improved to more adequately define specific goals and performance evaluators. Each program was evaluated specifically and reported in a program plans statement. Legal references, purposes, objectives, plans of work, short term goals, and performance evaluators were among the criteria listed. All budgetary performance evaluation data was coordinated through this section as well.

The Department's Policy and Procedures Manual was continued with new policies relating to conflicts of interest, dual employment, and accidents being added. Too, several existing policies were updated.

The employee time report and leave record system, now in its third year, was again modified to meet State employee benefit changes. This system is designed to give employees and supervisors up-to-date leave balances and thus improve supervisory control and payroll verification.

An intensive effort was made to reeducate Department employees in a safety program dealing with defensive driving techniques. Of 223 eligible Department drivers, 90 percent were instructed in this life-saving course in a period of less than two months. Each received a certificate from the National Safety Council.

A dual employment survey was completed on all Department employees. Results shown were that 46 employees, or 12.6 percent of the Department's labor force, held dual employment. However, there was no evidence of any conflicts of interest in this outside employment as verified by supervisors and division directors.

A systems study of the Division of Markets Food Distribution Section was conducted jointly with the Data Processing Section, Department of Health, and Management Improvement Section, Department of the Treasury. Recommendations resulting from this study will place the preparation of Food Distribution forms on data processing equipment. This will reduce in-house labor time and cost in developing monthly order forms used by schools and institutional agencies served by that Section.

In cooperation with the Public Service Institute, a comprehensive training program for executive, middle management, supervisory, clerical, and skills oriented employees was developed. The first in-house offering was a comprehensive six-week course entitled "Executive Secretarial Development" for 23 top secretarial employees. The Department is the first of the smaller State departments to organize staff training to pointedly upgrade job performance at all levels of its organization.

PROPERTY MANAGEMENT

The property management section provided and maintained appropriate physical facilities and equipment for all Department programs. The section continued to survey office laboratory and field station space requirements. The entire Department equipment inventory was audited and computerized for future utilization.

An equipment replacement schedule, based on item maintenance cost, condition, and utilization, was also maintained. This schedule encompasses every item of office furniture and equipment associated with

the Department and allows for depreciation and usage. Performance evaluators used in appraising various property management programs included a comparison of construction costs (exhibits and equipment) against purchase price; equipment maintenance against replacement cost (plus or minus); and a comparison of maintenance cost to contract service cost.

In summary, the Division performed well this past year. One illustration of this was the completion of a Department audit by the State Auditor, Office of Fiscal Affairs. Only four limited recommendations for improvement were received which, therefore, indicated most satisfactory performance. Of course, these recommendations will be quickly implemented.

D I V I S I O N O F A N I M A L H E A L T H

Dr. C. K. Jewell, Director

BUREAU OF LIVESTOCK DISEASE CONTROL

Brucellosis and Tuberculosis

Legislation was introduced to change Title 4, Chapter 5 of the Agricultural Laws where indemnities were involved. The bill would provide for a uniform system of indemnifying livestock or poultry owners for loss of animals that are condemned by the Department of Agriculture to control or prevent the spread of infectious diseases; to remove existing inadequate limitations on indemnities in the law; and to give the Board of Agriculture authority to promulgate rules and regulations for indemnity payments and disposal costs.

This legislation was signed into law and regulations passed by the State Board of Agriculture allowed us to increase indemnity payments to a maximum of \$500 for a grade and \$600 for a purebred animal. These indemnities are now more realistic with the times.

The State maintained its certified bovine brucellosis free status during the year. Three reactors were disclosed which were eligible for State indemnity. There were 962 lots of cattle and goats tested, comprising 12,488 animals.

Nine samples out of 3,972 brucellosis milk ring samples were suspicious. The eight New Jersey herds were immediately blood tested and one out of the eight disclosed a reactor. The one suspicious sample from out-of-state was sent to the proper officials.

There were no reactors disclosed in the testing of 29,189 animals in 1,092 herds for bovine tuberculosis. Seventy-three animals were classed as suspicious to the test. We started using the new comparative cervical tuberculin test on suspects. The test is applied up to seven days following observation of the candal fold test or after 60 days. Two injections are made in the cervical area using avian purified protein derivative tuberculin in one

and bovine purified protein derivative in the other. Comparison of swellings at injection sites and plotting them on a chart enables us to make our final determination.

Herds disclosing suspects or reactors are retested the following year to keep a tight control on the tuberculosis program.

Anthrax

This is the 12th year that not a single case of anthrax has been reported in New Jersey. In an effort to prevent this disease from reappearing, livestock owners in the endemic areas of Salem County were offered free vaccination once again. Two hundred and ninety-two animals on six premises were vaccinated.

Sheep Diseases

Scrapie

One more case of scrapie was found in the State. Origin of the infection was from a flock in Massachusetts, that also caused the disease in the New Jersey flock found last year. Both flocks had imported sheep from the Massachusetts flock, which has been destroyed.

So far two sheep demonstrated symptoms of the disease and were destroyed. The flock will remain under quarantine for at least 40 months from the appearance of the last case. All sheep move from the farm on a permit to slaughter only.

Scabies

The annual inspection of sheep for scabies was not conducted this year. At the time we usually conduct this inspection we were in the throes of the hog cholera outbreak. The necessary hog cholera investigations made it impossible to attempt to carry out a complete sheep inspection.

All sheep will be examined at the various county fairs.

Auction Markets

Six livestock auction markets are under the supervision of area veterinarians. The main duty of the auction market veterinarian is to see that all animals are eligible for slaughter and those beef and dairy animals weighing over 200 pounds are S branded and sent to slaughter. The number of livestock that passed through these markets totaled 94,336 head.

Swine Disease Control

New Jersey has one of the largest garbage-feeding swine industries in the United States. All garbage-feeding farms must be inspected and licensed annually. Eighty-two licenses were issued to garbage-feeding swine farms this year. Four of these farms depopulated or switched to grain feeding during the year, leaving a total of 78 licensed garbage-feeding farms containing 45,128 swine.

The garbage-cooking law requires that these farms be maintained in a sanitary condition and that garbage fed to swine be properly heat treated. Biweekly inspections are made of all garbage-feeding farms and temperatures of cooking garbage are taken at least monthly. This work is done by Division and Federal livestock inspectors. From July 1, 1972, to June 30, 1973, 1,548 inspections were made.

The cooking of garbage is very vital to the control of swine diseases like foot-and-mouth disease, hog cholera, vesicular exanthema and trichinosis, which may be spread through raw garbage.

Swine inspectors are constantly on the lookout for any disease conditions in swine. These diseases are reported to area veterinarians who then make an investigation.

Hog Cholera Eradication

The year 1972-73 was a disastrous one for hog cholera. Sixteen herds were found to be infected and 28,472 swine were destroyed because of the disease.

The first case appeared in July affecting 6,896 swine. Quarantines were established and the necessary surveillance was made. There was no extension of the outbreak.

In September, a serious outbreak of hog cholera occurred affecting the states of Kentucky, Tennessee, Ohio, Indiana, North Carolina and Georgia. Forty-nine cases had been reported up to September 29.

As New Jersey is an importer of feeder pigs from these areas, it was decided to prohibit all movement of feeder pigs into New Jersey until the situation had been brought under control. The embargo was declared on September 13, 1972, and was lifted on October 24, 1972.

A severe outbreak of hog cholera involving 11 farms in five counties occurred during November. Gloucester County had seven farms involved. Burlington, Hunterdon, Middlesex and Sussex counties had one farm each. The farm in Sussex had only two pigs which had been purchased at Hackettstown Auction Market for slaughter purposes. They were traced back to the infected herd in Hunterdon County.

The Federal government set up a task force in Bellmawr, Gloucester County, to deal with the problem. All available State personnel were sent to the task force. Federal personnel were brought in from all over the country to help in controlling the outbreak. Teams were set up for inspection, surveillance, diagnosis, appraisal, depopulation, etc. The task force was comprised of between 35 and 40 persons.

At this time, no definite conclusion as to where the infection came from can be made. It could have been in ships, raw or improperly cooked garbage, or baby pig syndrome. No connection can be made between the outbreaks in North Jersey on bakery waste-feeding farms and the waste-feeding farms in South Jersey.

By the end of November a total of 10,310 swine had been destroyed.

In December, two more farms became infected with hog cholera. One of the farms had been considered an exposed herd. The two farms contained a total of 4,491 swine.

On December 1, 1972, a quarantine was placed on the movement of all swine in the State. The purpose was to locate all swine in the State and inspect them so that we could determine if there were any pockets of infection. On December 7, the quarantine was partially lifted to allow swine to move directly from the farm to the slaughter house on a permit issued by State or Federal personnel. Again on December 26, the quarantine was reduced to allow slaughter swine only to move to state auction markets. The holiday season hampered the task force operation in that personnel were allowed to go home to be with their families when possible.

We were severely hurt by not being able to send our slaughter swine to Pennsylvania, our main marketing area. Pennsylvania will not allow swine to come into their State from any area that is under quarantine. Secretary Alampi called directly to James A. McHale, the Secretary of Agriculture of Pennsylvania, trying to get approval for our slaughter swine.

The task force continued to survey all swine farms throughout the State. Great emphasis was placed on checking the garbage feeding farms to make sure that their equipment could properly cook garbage. Several farms were found to be feeding raw or improperly cooked garbage and will be prosecuted as provided by law.

On January 2, 1973, the State quarantine was lifted from all counties except Gloucester County and Southampton, Tabernacle and Medford townships in Burlington County.

On January 3, 1973, a quarantine was placed on Egg Harbor Township in Atlantic County. One farm containing 177 swine was found to be infected.

On January 18, 1973, the quarantine on Southampton, Tabernacle and Medford townships in Burlington County was released.

During the epidemiological study of the swine herds, some high serum neutralizing titres were encountered. These caused great concern, as 21 herds were involved. The Federal government was willing to call these exposed and destroy them. The State and farmers involved felt a more thorough study should be made before this was done. The farmers admitted to using vaccines on their old sows, serum on some feeders, etc. This confused the picture.

A meeting was held in Washington, D.C. on February 1, 1973. Attending were Secretary of Agriculture Phillip Alampi; Associate Administrator Dr. G. H. Wise; Deputy Administrator Dr. E. E. Saulmon; Senator Joseph Maressa; Assemblyman Kenneth Gerwertz; representatives of Senators Williams and Case; representatives of the New Jersey Livestock Association; Dr. C. K. Jewell, Dr. Robert Alkire, and other Federal veterinarians. The hog cholera problem was thoroughly discussed by all in attendance, and the Federal government stated they would come up with a plan for the 21 herds showing serum neutralization titres. The plan was received on February 7 and a meeting was held February 13 with industry to present the plan. The plan provided that the Federal quarantine would be lifted from the State if a State quarantine was continued on the 21 suspect herds. These herds would be subjected to blood serum tests over a three-week period. If the tests indicated a rise in titres, the herds would be deemed infected and depopulation would be mandatory. If the titres remained stabilized or decreased, the herds would be declared free of the disease and removed from quarantine.

The affected herd owners agreed to the plan and the bleeding commenced on February 14. The owners of two herds decided to depopulate and take the 75 percent Federal indemnity, and the owner of one small herd of less than 10 head sold his animals to slaughter. On the initial bleeding, one herd was completely negative and all tissue submitted since November 29 was also negative, it was removed from quarantine. The second bleeding of the remaining herds was planned for March 5, 6 and 7.

The township of Egg Harbor in Atlantic County was released from quarantine on February 5. The quarantine on Gloucester County was removed on February 20 and on this same date the Federal quarantine was removed from the entire State.

The second bleeding of the 17 suspicious herds was accomplished on March 5, 6 and 7. Sixteen of the herds showed either a decrease or stabilized titres and were released from quarantine. One herd showed an increase in titre and was destroyed. The swine herd was composed of 952 sows, 36 boars and 4,104 feeder pigs. This was the largest breeding farm in the State.

The Federal task force left soon after the results of the testing were known. The Division immediately reorganized the swine inspection program to concentrate on cooking and sanitation requirements and other related duties.

The hog cholera outbreak cost the State of New Jersey \$532,225.64 in indemnity. The Federal government paid \$1,503,915.80 in indemnity funds.

Six hearings were held for swine violations which resulted in convictions and penalty actions.

Equine Diseases

Encephalomyelitis

There were only 12 positive cases of encephalitis in equines reported by the Department of Health laboratory.

Seventeen suspected horse cases were submitted. There were also seven cases in pheasants, one case of pigeons and one case of finches. These bird cases ranged from Newfield to Dover, indicating the virus was well dispersed over the State.

Eleven of the horse cases confirmed involved ponies that had not been vaccinated. The one horse also had a history of no vaccination. It was reported that there were more ponies that died of the disease than were reported. Many of the ponies were not vaccinated as the cost of the vaccination was too great when compared to the purchase price of the animal. This indicates to us that a large percentage of the horses were probably vaccinated.

Equine Infectious Anemia (Swamp Fever)

The interest in equine infectious anemia continued to mount. Many 4-H groups, horse shows and fairs made it a mandatory requirement that all horses pass a negative Coggins test for entry. New York State also passed the same requirement for all horses entering agricultural fairs and the State Fair, effective July 1, 1973. These requirements added to the interest in the program and 11,743 samples were received in the laboratory for testing. Three hundred and four were found to be positive. Some of these samples were retests of known positives due to a new policy started in May of 1973.

From May 24 on, all horses found to be positive for equine infectious anemia were quarantined to the premise. Authority for this was covered by N.J.S.A. title 4:5-6 "Quarantine of infected or exposed animals; regulations -- Upon receiving information that an infectious or contagious disease exists or is suspected to exist in any herd or in any locality, the Department may investigate or cause an investigation to be made. If the Department deems it to be advisable it may quarantine such animals, take such precautionary measures with relation to other animals exposed to the disease as shall be deemed necessary, and enforce such regulations in relation to the disease as it may adopt."

These horses were identified and rebled to assure us that we had quarantined the proper horses. Quarantined horses were able to move only on a permit issued by a regulatory veterinarian. These permits were issued for the movement of horses to slaughter primarily.

MEAT AND POULTRY INSPECTION

The yearly Federal reviews of State meat inspection plants have indicated that almost all establishments equal or exceed Federal requirements.

During the year, the United States Department of Agriculture Office of the Inspector General audited the poultry inspection program. Their report was generally favorable, stating that "The New Jersey Department of Agriculture was administering an effective poultry inspection program."

Many new regulations regarding standards and restrictions for processed product have been instituted, the most noteworthy being new standards for cooked sausage products (frankfurters, bologna, etc.).

To further safeguard the public against tuberculosis, a requirement was implemented in 1972 to heat treat the meat from all livestock reacting to the tuberculin test, even though no tuberculosis lesions are found on post mortem.

To further insure production of clean beef and make more efficient use of personnel, AQL (statistical sampling) inspection of boneless beef was instituted.

To insure compliance of certain processed products, more efficient controls were instituted, i.e., fat-moisture control of finely comminuted cooked sausage.

To further insure the control of hog cholera, samples of swine blood are now taken at time of slaughter from all sows originating in New Jersey and from approximately 10 percent of other swine.

As an added control for brucellosis, blood samples are now taken from all cows and bulls over two years of age, which can be identified at time of slaughter.

A new ruling from Washington has resulted in the exemption from inspection of retailers who only smoke product and sell it directly to the consumer.

A new training program was instituted for field personnel. In addition, four field inspectors were sent to Federal processing school for specialized training.

Personnel changes involved the hiring and training of a new field inspector and assigning a different supervisor to the southern area.

A food poisoning outbreak was traced to head cheese produced by the processor, Pulaski Meat Products. The plant was closed pending complete general cleanup and review of processing procedures. Two thousand and five hundred pounds of product was embargoed and condemned. The plant was allowed to reopen after five days.

Eight truck accidents on the New Jersey Turnpike were investigated, resulting in the embargo of 163,363 pounds of product, 729 pounds of which was condemned.

The meat laboratory received 2,605 samples of processed meat for tests, and 13,368 tests were conducted on these samples. Three hundred and seventy-one violations were found, 384 letters of warning were sent out, and 214,793 pounds of processed meat was embargoed. These embargoed products were either destroyed or allowed to be reworked to be brought into compliance.

During the year, 1,186 formulas were reviewed. Also, 1,122 labels were submitted for review of which 418 were given final approval, 147 were given temporary approval, 473 were given sketch approval, and 84 were disapproved.

There were 89,498 animals slaughtered under inspection; of these, 275 animals were condemned.

It was necessary to condemn and destroy a total of 313,607 pounds of animal food products.

At the conclusion of the fiscal year, the Department had under license 34 red meat slaughterhouses, 67 poultry slaughterhouses, 184 processing plants, 289 meat brokers, 78 transporters, 27 renderers, 15 animal food manufacturers and 34 warehousemen.

A total of 86,720 inspections was made by our inspectors of these licensees.

TABLE 1. CONDEMNATION SLAUGHTER AND PROCESSING, 1972-73

		SLAUGHTERHOUSES					PROCESSING PLANTS	
		Animals		Animals	Parts	Livers	Meat	Total
No. of Visits		Animals	Condemned	Condemned	Condemned	Condemned	Condemned	Condemned
Slaughter and								Slaughter
Processing								and
Plants								Processing
		--number--		-----pounds-----				
July 1972	6,681	5,397	15	2,475	3,197	2,390	17,362	25,424
August	7,032	9,204	18	7,719	3,327	3,704	27,399	42,149
September	8,608	6,248	19	3,453	1,965	2,447	14,683	22,548
October	6,731	7,690	19	3,039	4,407	1,994	22,630	32,070
November	6,399	13,067	44	7,141	6,435	3,245	11,057	27,878
December	8,168	11,742	45	4,736	5,069	2,266	6,761	18,832
January 1973	6,300	10,107	43	6,276	5,417	2,978	15,826	30,497
February	6,519	3,938	11	2,203	3,005	1,485	6,910	13,603
March	8,731	7,320	22	4,153	4,627	2,666	14,811	26,257
April	6,786	5,671	18	5,986	3,677	1,498	11,552	22,713
May	6,797	5,412	12	3,141	4,271	2,042	17,543	26,997
June	<u>7,968</u>	<u>3,702</u>	<u>9</u>	<u>4,497</u>	<u>3,158</u>	<u>1,453</u>	<u>15,531</u>	<u>24,639</u>
Total	86,720	89,498	275	54,819	48,555	28,168	182,065	313,607

STATE LICENSED PLANTS

Red meat slaughterhouses	34
Poultry slaughterhouses	67
Processing plants	184
Meat brokers	289
Transporters	78
Renderers	27
Animal food plants	15
Warehouseman	<u>34</u>
	728
Total inspections by inspectors	86,720

POULTRY DISEASE CONTROL

Pullorum Disease

There was no pullorum disease found this year in chickens tested under the National Poultry Improvement Plan or in commercial egg production chickens.

Fowl Typhoid

No reports of fowl typhoid were received during the year.

When fowl typhoid is reported, a complete investigation is made. In most cases, we are able to send the infected chickens to slaughter. The poultrymen are informed that these infected chickens are a danger to the remainder of their poultry operation. This educational program of disease control was put into effect several years ago to replace the quarantine program. Cooperation between the poultrymen and the Department has been excellent and is largely responsible for the reduced incidence of fowl typhoid.

Avian Tuberculosis

There was no Division involvement with avian tuberculosis during the year. Flock surveillance continues with the hope that none will be discovered in the coming year.

Paratyphoid

Sixteen cases of paratyphoid were reported since July 1, 1972.

1 case - chickens
15 cases- pigeons

All 16 cases were diagnosed by routine laboratory examinations. Paratyphoid is still causing much concern among avian disease workers and is being investigated continually.

Cleaning and Disinfecting

When avian diseases were a problem, the poultry houses were cleaned and disinfected. We assisted by advising good sanitary practices and the proper disinfectant to be used. Information was provided on sources of supply of disinfectant and the proper preparation and application of the disinfecting solutions.

Cooperation with Other Agencies

The cooperative reporting system with the Animal Health Division, United States Department of Agriculture, on avian disease investigations has progressed satisfactorily.

Reports at various poultry meetings indicate more accurate knowledge of the health status of the nation's poultry. Poultry diagnostic laboratories in and out of the State continued their fine cooperation in reporting avian diseases.

Mycoplasma Gallisepticum (PPLO)

One flock of 44 chickens and one flock of 1,400 turkey breeders were classified as Mycoplasma gallisepticum clean this year.

Testing for Mycoplasma gallisepticum continued throughout the 1972-73 season. Hatcherymen must meet the demand for Mycoplasma gallisepticum negative chicks for export shipments and for future breeding stock.

Poultry Standardization

This is the 50th year of Department service in poultry standardization work to the poultry industry of New Jersey and the 38th year of such service under the identity of the National Poultry & Turkey Improvement Plans. 1972-73 completes the 11th year for chickens tested and the 20th year for turkeys tested in which they maintained their N.J.-U.S. Pullorum-Typhoid Clean Status with no reactors found

Department personnel selected and blood tested 12,920 birds.

Eleven foreign countries received 359,338 cockerels and pullets from New Jersey hatcheries and flocks.

The breeding and health classifications used were:

<u>Breeding Stages</u>	<u>Disease Control Classes</u>
N.J.-U.S. Certified	N.J.-U.S. Pullorum-Typhoid Clean
N.J.-U.S. Approved	N.J.-U.S. <u>M. Gallisepticum</u> Tested

The scope of the services the poultry standardization program rendered is indicated in Table 2.

TABLE 2. POULTRY STANDARDIZATION PROGRAM, 1972-1973

<u>N.J.-U.S. Improvement Plans</u>	<u>1972-73</u>
Number of flocks cooperating	111
Total number of breeders	12,920
Number of hatcheries cooperating	50
Hatchery capacity cooperating	900,400
Number of birds in <u>M. gallisepticum</u> class (chickens)	44
Number of birds in Approved Stages	12,920
Number of birds in Certified Stages	0.00
Percentage of birds reacting to the pullorum-typhoid test	0.00
Number of birds in <u>M. gallisepticum</u> class (turkeys)	1,400

TABLE 3. PULLORUM-TYPHOID CONTROL, 1972-73

Number fowl tested in field	10,547
Number reacting	--
Percent reacting	--
Number fowl tested in laboratory	297
Number reacting	--
Percent reacting	--
Total fowl tested	10,844
Total fowl reacting	--
Percent reacting	--

Table 4 gives the classification and distribution of birds under supervision, and the number of birds banded by breeds and by counties.

New Jersey has completed the fifth year permitting multiplier flocks to qualify as Pullorum-Clean under the National Poultry and Turkey Improvement Plans with 20 percent random sample test of the breeding birds. No problems have developed and the participants seem quite satisfied and in agreement with the reduction in the amount of tests.

The Division is cooperating with noncommercial poultry flock owners to qualify their flock for movement into shows and fairs in other states. Approximately 5,134 fancy poultry and bantams, pheasants, quail, etc., have been classified pullorum-typhoid clean. No reactors were found in these flocks.

Lists of participating breeding flocks and hatcheries, with their official rating, were published in circular form.

TABLE 4. NUMBER OF BREEDERS, BY COUNTIES, BREEDS OR VARIETIES, 1972-73

County	<u>White Leghorns</u>	<u>Rhode Island Reds</u>	<u>White Rock</u>	<u>Others</u>	<u>Turkeys</u>	<u>Total</u>
Atlantic	--	--	--	--	--	--
Bergen	--	--	--	31	--	31
Burlington	--	--	--	46	--	46
Camden	--	--	--	--	--	--
Cape May	--	--	--	--	--	--
Cumberland	--	185	485	44	--	714
Essex	--	--	--	--	--	--
Gloucester	--	--	--	--	--	--
Hudson	--	--	--	--	--	--
Hunterdon	1,500	250	--	2,560	--	4,310
Mercer	--	--	--	29	1,400	1,429
Middlesex	1,000	--	--	101	--	1,101
Monmouth	--	--	--	--	--	--
Morris	--	--	--	75	--	75
Ocean	--	--	--	2,400	--	2,400
Passaic	--	--	--	31	--	31
Salem	252	--	193	--	--	445
Somerset	--	--	--	178	--	178
Sussex	--	--	--	--	--	--
Union	--	--	--	81	3	84
Warren	--	--	--	2,076	--	2,076
Total	2,752	435	678	7,652	1,403	12,920

NEW JERSEY STATE LIBRARY

Registered Poultry Vaccinators

This is the eighth year for registration of lay poultry vaccinators by the Department. The New Jersey Board of Veterinary Medical Examiners and Rutgers College of Agriculture and Environmental Science are cooperating with the Department in the registration of the vaccinators.

The eighth review session was held at Bordentown November 3. Lay vaccinators attend these sessions and continue to be registered as lay poultry vaccinators. The active registered vaccinators have been checked on by Department personnel when they were vaccinating poultry. Some registered vaccinators are not actively doing any vaccinations and others are vaccinating only their own or employer's flocks. Considerable improvement has taken place in the vaccination of poultry. All crews now clean their footwear, clothing and equipment between farms. Practically all vaccinations are done as a sideline by the vaccinators.

TABLE 5. SUMMARY OF REPORTED VACCINATIONS, 1972-73

<u>Month</u>	<u>Pigeon</u>		<u>Fowl</u>		<u>Laryngo-</u>	
	<u>Pox</u>		<u>Pox</u>		<u>tracheitis</u>	
	lots	birds	lots	birds	lots	birds
July	3	11,536	--	--	7	66,978
August	1	6,000	--	--	2	21,000
September	1	7,000	--	--	3	27,800
October	2	43,768	1	11,000	4	58,368
November	3	29,431	--	--	5	56,231
December	--	--	--	--	2	24,000
January	1	27,876	--	--	5	62,642
February	--	--	--	--	3	38,450
March	--	--	--	--	--	--
April	1	12,200	--	--	3	42,800
May	1	23,115	--	--	3	39,415
June	<u>1</u>	<u>6,020</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>
Total	14	166,946	1	11,000	37	437,684

TABLE 6. NEW JERSEY EXPORTS OF HATCHING EGGS AND POULTRY, 1972-73

<u>Destination</u>	<u>Permits Issued</u>	<u>Cockerels</u> --number--	<u>Pullets</u>
Belgium	3	180	2,220
Bermuda	6	1,400	100
British West Indies	4	2,620	16,500
Dutch Guiana	52	205,680	2,860
Korea	5	850	7,700
Malaysia	4	2,200	4,700
Nigeria (West)	1	--	1,200
Portugal	1	720	6,000
Puerto Rico	53	76,000	27,000
Africa (West)	1	1,000	--
Trinidad	<u>2</u>	<u>224</u>	<u>184</u>
Total	131	290,874	68,464

TABLE 7. CATTLE UNDER SUPERVISION, 1963-73

<u>Year</u>	<u>Herds</u>	<u>Animals</u>	<u>Tuberculosis Reactors Indemnified</u> --number--	<u>Brucellosis Reactors Indemnified</u>	<u>Calves Officially Brucella Vaccinated</u>
1963-1964	4,714	143,653	147	155	13,402
1964-1965	4,305	134,423	146	83	14,009
1965-1966	3,806	119,462	58	31	11,913
1966-1967	3,529	118,484	11	9	12,875
1967-1968	3,179	116,973	22	3	12,729
1968-1969	3,000	109,384	14	--	11,537
1969-1970	2,641	97,547	1	1	10,813
1970-1971	2,392	91,014	7	1	10,037
1971-1972	2,257	87,122	4	10	7,083
1972-1973	2,180	81,682	--	6	6,765

TABLE 8. CATTLE AND GOAT SURVEY, 1972-73

<u>County</u>	<u>Herds</u>	<u>Cattle</u>		<u>Herds</u>	<u>Animals</u>
		<u>Adults</u>	<u>Heifers</u>		
		--number--			
Atlantic	25	73	34	13	26
Bergen	9	133	15	4	12
Burlington	180	6,659	3,897	5	22
Camden	15	35	30	6	55
Cape May	8	36	24	--	--
Cumberland	78	1,996	736	1	1
Essex	1	52	20	2	13
Gloucester	90	1,548	707	17	90
Hudson	--	--	--	1	10
Hunterdon	427	9,809	3,012	45	202
Mercer	59	1,290	383	8	15
Middlesex	35	590	72	4	14
Monmouth	92	2,113	384	25	65
Morris	89	2,339	423	33	98
Ocean	25	230	134	5	16
Passaic	9	101	14	3	13
Salem	233	7,647	3,041	3	8
Somerset	156	3,768	1,501	41	128
Sussex	332	11,766	2,163	2	4
Union	5	25	--	1	3
Warren	312	11,954	2,928	10	73
Total	2,180	62,164	19,518	229	868

TABLE 9. SUMMARY OF TESTING, 1972-73

Tuberculosis Eradication Program

Veterinarians Testing	<u>Cattle</u>		<u>Goats</u>	
	<u>Lots</u>	<u>Animals</u>	<u>Lots</u>	<u>Animals</u>
	--number--			
State	388	14,920	22	62
Federal	184	5,295	18	103
Practitioner (State expense)	4	7	9	13
Practitioner (Owner's expense)	<u>516</u>	<u>8,967</u>	<u>19</u>	<u>88</u>
Total	1,092	29,189	68	266
Suspects - 73				
Reactors - 0 - 0.00%				

Brucellosis Eradication Program, Blood Testing

	<u>Cattle</u>		<u>Goats</u>	
	<u>Lots</u>	<u>Animals</u>	<u>Lots</u>	<u>Animals</u>
	--number--			
State	190	2,166	26	66
Federal	86	755	23	100
Practitioner (State expense)	2	3	8	12
Practitioner (Owner's expense)	<u>595</u>	<u>9,299</u>	<u>32</u>	<u>87</u>
Total	873	12,223	89	265
Reactors - 3 - 0.02%				

Brucellosis Eradication Program, Milk Ring Testing

	<u>Division of Animal Health Laboratory</u>	<u>Out-of-State Laboratories</u>	<u>Total</u>
	--number--		
Herds tested (includes retests)	3,353	580	3,933
Animals in tested herds	188,939	36,491	225,430
Clean herds	3,346	580	3,926
Animals in clean herds	188,440	36,491	224,931
Suspicious herds	7	--	7
Animals in suspicious herds	499	--	499

Brucellosis Tests of Imported Animals

<u>Veterinarians Testing</u>	<u>Cattle</u>	
	<u>Lots</u>	<u>Animals</u>
	--number--	
State	12	88
Federal	--	--
Accredited	<u>55</u>	<u>1,188</u>

TABLE 11. SUMMARY OF BRUCELLOSIS REACTORS INDEMNIFIED, 1972-73

	<u>Registered</u>	<u>Average per Head</u>	<u>Grade</u>	<u>Average per Head</u>	<u>Total</u>
Salvage	\$ --	\$ --	\$1,154.60	\$ 192.43	\$1,154.60
State indemnity <u>1/</u>	--	--	450.00	75.00	450.00
Federal indemnity	<u>--</u>	<u>--</u>	<u>300.00</u>	<u>50.00</u>	<u>300.00</u>
Total	\$ --	\$ --	\$1,904.60	\$ 317.43	\$1,904.60
Cattle appraised, number	--		6		6

1/ Total State indemnity paid for brucellosis test reactors from the beginning of this work in 1940 to June 30, 1973, ~~\$1,153,796.30.~~

~~\$ 1,069,612.67~~ CORR.
1-2-74 MVH

ERROR FY 1961-62
1962-63

TABLE 12. BRUCELLOSIS AND TUBERCULOSIS SERVICE FEES AND INDEMNITY PAID, 1963-1973

<u>Year</u>	<u>State Indemnity Paid</u>	<u>Federal Indemnity Paid</u>	<u>State Veterinary Service Fees for Testing</u>	<u>State Veterinary Service Fees for Testing</u>
			<u>Brucellosis</u>	<u>Tuberculosis</u>
1963-1964	12,701.51	4,246.01	13,615.90	--
1964-1965	6,895.09	2,300.00	18,401.60	--
1965-1966	2,923.34	975.00	20,309.45	--
1966-1967	750.00	250.00	20,054.00	--
1967-1968 ^{1/}	2,000.00	725.00	21,310.50	--
1968-1969	--	--	1,795.00	24,161.00
1969-1970	150.00	50.00	2,685.50	19,264.00
1970-1971	75.00	25.00	1,788.00	18,956.50
1971-1972	750.00	475.00	120.50	2,058.00
1972-1973	450.00	300.00	52.50	64.00

^{1/} These totals include \$50 of State funds and \$75 in Federal funds for a purebred sheep indemnified because of exposure to scrapie.

TABLE 13. CATTLE, FEEDER STEERS, GOATS, SHEEP AND HORSES
IMPORTED AND RELEASED, 1972-73

<u>Origin</u>	<u>Cattle</u>	<u>Feeder Steers</u>	<u>Goats</u>	<u>Sheep</u>	<u>Horses</u>
		--number--			
Alabama	--	--	--	--	1
Argentina	--	--	--	--	2
Arizona	--	--	8	--	16
Arkansas	--	--	--	--	9
Australia	--	--	--	--	2
Belgium	--	--	--	--	5
California	--	--	--	--	30
Canada	1,344	7	--	1	159
Colorado	--	--	--	--	8
Connecticut	178	--	--	7	10
Delaware	491	--	--	--	15
England	--	--	--	--	12
Florida	42	--	--	--	371
France	--	--	--	--	15
Georgia	--	--	--	--	41
Germany	--	--	--	--	14
Idaho	--	--	--	3	2
Illinois	2	--	--	--	25
Indiana	3	--	--	--	4
Iowa	--	--	1	--	15
Ireland	3	--	--	--	3
Kansas	--	--	--	--	3
Kentucky	--	--	--	--	208
Maine	--	--	--	1	1
Maryland	99	40	--	--	27
Massachusetts	3	--	1	--	9
Michigan	--	--	--	--	4
Minnesota	282	--	--	--	3
Missouri	--	--	5	--	4
Montana	--	--	--	--	2
Nebraska	5	--	--	--	27
New Hampshire	9	--	--	--	11
New Mexico	--	--	--	--	334
New York	2,287	--	--	--	52
New Zealand	--	--	--	--	23
North Carolina	11	--	--	--	10
Ohio	30	--	1	--	19
Oklahoma	1	--	--	--	46
Pennsylvania	636	339	2	4	90
Poland	--	--	--	--	1
South Carolina	--	--	--	--	4
South Dakota	--	--	--	--	18
Tennessee	--	--	--	--	14
Texas	15	100	1	200	40
Utah	--	--	--	--	2
Vermont	48	--	--	--	5
Virginia	24	1,080	--	11	19
Washington	--	--	--	--	4
West Virginia	--	--	--	--	19
Wisconsin	724	--	--	--	5
Wyoming	1	--	--	--	9
Total	6,238	1,566	19	227	1,772

TABLE 14. CATTLE, GOATS, SHEEP, SWINE AND HORSES SHIPPED OUT OF NEW JERSEY

Destination	<u>Cattle</u>		<u>Goats</u>		<u>Sheep</u>		<u>Swine</u>		<u>Horses</u>
	<u>Lots</u>	<u>Animals</u>	<u>Lots</u>	<u>Animals</u>	<u>Lots</u>	<u>Animals</u>	<u>Lots</u>	<u>Animals</u>	<u>Animals</u>
	--number--								
Alabama	4	88	--	--	--	--	--	--	--
Arizona	--	--	--	--	--	--	--	--	11
Arkansas	3	18	--	--	--	--	--	--	--
California	4	15	3	3	--	--	--	--	2
Canada	2	4	--	--	--	--	--	--	1,115
Colorado	1	1	--	--	--	--	--	--	6
Connecticut	9	56	--	--	--	--	--	--	17
Costa Rica, C.A.	2	6	--	--	--	--	--	--	--
Delaware	12	33	--	--	--	--	--	--	4
Dominican Republic	3	7	--	--	--	--	--	--	--
England	--	--	--	--	--	--	--	--	1
Florida	13	197	1	13	--	--	--	--	130
Georgia	5	81	--	--	--	--	--	--	1
Guatemala	1	1	--	--	--	--	--	--	--
Illinois	3	28	1	2	--	--	--	--	--
India	1	2	--	--	--	--	--	--	--
Indiana	10	255	--	--	--	--	--	--	--
Iowa	4	35	1	1	--	--	--	--	1
Kentucky	14	143	--	--	--	--	--	--	25
Maine	8	44	1	2	--	--	--	--	23
Maryland	42	216	2	9	--	--	--	--	17
Massachusetts	4	116	4	17	--	--	--	--	25
Michigan	6	143	--	--	--	--	--	--	2
Minnesota	--	--	--	--	--	--	--	--	1
Mississippi	5	81	--	--	--	--	--	--	--
Missouri	1	2	--	--	--	--	--	--	1
Montana	1	2	--	--	--	--	--	--	1
New Hampshire	3	10	--	--	--	--	--	--	3
New York	96	1,174	4	6	--	--	--	--	167
North Carolina	75	1,016	2	2	--	--	--	--	7
Ohio	18	91	4	6	--	--	--	--	14
Oklahoma	2	33	--	--	--	--	--	--	11
Oregon	--	--	--	--	--	--	--	--	3
Pennsylvania	535	3,791	17	40	2	7	1	10	125
Rhode Island	--	--	1	1	--	--	--	--	2
South Carolina	11	54	--	--	--	--	--	--	2
South Dakota	1	28	--	--	--	--	--	--	--
Tennessee	13	160	--	--	--	--	--	--	3
Texas	4	229	--	--	--	--	--	--	6
Utah	1	30	--	--	--	--	--	--	--
Vermont	6	100	--	--	--	--	--	--	56
Virginia	39	296	--	--	1	2	--	--	19
West Virginia	3	29	--	--	--	--	--	--	1
Wisconsin	4	4	3	3	--	--	--	--	--
Wyoming	2	32	--	--	--	--	--	--	1
Total	971	8,651	44	105	3	9	1	10	1,803

TABLE 15. SUMMARY OF SHEEP INSPECTION FOR SCABIES, 1972-73

<u>Item</u>	<u>Flocks</u> --number--	<u>Sheep</u> --number--
Farms under supervision	633	8,711
Annual inspections	--1/	--
Other inspections during year	34 ² /	503
Farms infested	--	--
Farms exposed	--	--
Farms suspicious	--	--
Farms remaining under quarantine at end of year	--	--

1/ No annual inspections conducted during 1972-73 fiscal year.

2/ Included in above figures are 13 lots of inships with 227 sheep.

TABLE 16. SUMMARY OF INSPECTION OF SWINE HERDS, 1972-73

<u>Item</u>	<u>State</u>	<u>Federal</u> --number--	<u>Total</u>
Inspections of farms feeding grain	194	25	219
Inspections of farms feeding heat-treated garbage	<u>737</u>	<u>592</u>	<u>1,329</u>
Total	931	617	1,548

TABLE 17. NUMBER OF SWINE IMPORTED FOR FEEDING AND BREEDING, 1972-73

Feeders	53,783
Breeders	<u>8</u>
Total	53,791

TABLE 18. SURVEY OF GARBAGE-FED SWINE, 1972-73

<u>County</u>	<u>Licensed</u>	
	<u>Herds</u>	<u>Animals</u>
	--number--	
Atlantic	7	1,067
Bergen	-	-
Burlington	9	8,128
Camden	1	20
Cape May	5	755
Cumberland	5	631
Essex	-	-
Gloucester	32	22,452
Hudson	-	-
Hunterdon	1	28
Mercer	3	845
Middlesex	1	250
Monmouth	9	4,162
Morris	5	1,180
Ocean	2	5,060
Passaic	-	-
Salem	-	-
Somerset	2	550
Sussex	-	-
Union	-	-
Warren	-	-
Total	82	45,128

BUREAU OF VETERINARY DIAGNOSTIC LABORATORY

The diagnostic laboratory is vital in all of the programs of the Division of Animal Health.

This year, 27,147 plate and tube blood tests were conducted for brucellosis and 3,555 for leptospirosis of cattle and goats.

The laboratory also received samples of tissue, milk and other specimens submitted for diagnostic purposes by veterinary practitioners. Such diseases as mastitis, anthrax and encephalitis are reported. The use of the laboratory by veterinarians for the benefit of the farmer has steadily increased.

TABLE 19. SUMMARY OF LABORATORY TESTING, 1972-1973

BLOOD TESTS MADE FOR BRUCELLOSIS ON INSHIPPED ANIMALS

<u>Item</u>	<u>Number</u>
Samples received	1,276
Unfit for test	--
Samples tested	1,276
Suspicious	9
Reactors	--
Negative	1,267

BLOOD TESTS MADE FOR BRUCELLOSIS ON ANIMALS IN HERDS
UNDER SUPERVISION

Samples received	12,487
Unfit for test	2
Samples tested	12,485
Reactors	3
Suspicious	126
Negative	12,356

MILK RING (BRT) TESTS FOR BRUCELLOSIS

Samples received	3,730
Unfit for test	1
Samples tested	3,729
Suspicious	8
Negative	3,721

BLOOD TESTS MADE FOR LEPTOSPIROSIS OF ANIMALS

Samples received	3,555
Unfit for test	--
Samples tested	3,555
1:10-1:40 titres	493
1:160 or higher titres	63
Negative	2,999

BLOOD TEST FOR VIBRIO OF ANIMALS

Samples received	247
Unfit for test	--
Samples tested	247
Reactors	3
Suspicious	29
Negative	215

BLOOD TESTS FOR MARKET CATTLE TESTING

<u>Item</u>	<u>Number</u>
Samples received	9,395
Unfit for test	92
Samples tested	9,303
Reactors	4
Suspicious	17
Negative	9,282

MILK TEST FOR MASTITIS OF ANIMALS

Number of animals	53
Number of samples	93
Streptococci	13
Staphylococci	23
Other organisms	25
Negative	30

BLOOD TESTS MADE FOR PULLORUM DISEASE OF POULTRY

Samples received	300
Unfit for test	--
Samples tested	300
Reactors	--
Negative	300

BLOOD TESTS FOR PLEUROPNEUMONIA-LIKE ORGANISMS (PPLO)

Samples received	652
Unfit for test	--
Samples tested	652
Reactors	45
Suspicious	--
Negative	607

SENSITIVITY TESTS

Antibiotic sensitivity	49
------------------------	----

MEDIA

Media prepared	18,000
Media used	18,000

TABLE 20: CLINICAL PATHOLOGY AND POST MORTEM EXAMINATIONS, 1972 - 73

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
8	Avian	8	Culture	Salmonella	<u>S. typhimurium</u> <u>var. copenhagen</u> <u>S. enteritidis</u>
5	Bovine	5	Blood	Heart Worm	(3) Negative (2) Positive
6	Bovine	6	Blood	Complete Blood Count	
1	Bovine	1	Lesion Scraping	Fungus and Bacteria Culture	No bacterial growth and no growth on fungal media.
1	Bovine	3	Ear, Spleen Blood	Anthrax	Negative
11	Bovine	13	Milk	Whey	Negative
9	Bovine	19	Serum	Anaplasmosis	Negative
2	Bovine	2	Blood Culture	Brucella	Negative Not isolated
11	Bovine	12	Milk	Brucellosis Ring Test	Negative
54	Bovine	119	Serum	Para Influenza 3	
50	Bovine	100	Serum	Infectious Bovine Rhinitis	
23	Bovine	43	Serum	Bovine Virus Diarrhea	

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
1	Bovine	1	Swab and Fetus	Culture	Listeria sp. <u>E. subtilis</u>
1	Bovine	1	Whole blood from cardiac puncture	Culture	No pathogens
2	Bovine	2	Blood	Culture	Coliform <u>E. coli</u>
2	Bovine	3	Calf	Cause of Death	Salmonella Para Influenza 3
4	Bovine	34	Blood & Quarter Milk Samples	Brucella	Negative
3	Bovine	4	Raw Milk	B.R.T. Whey	Negative Negative
1	Bovine	4	Swabs	Salmonella	<u>S. typhimurium</u> var. <u>copenhagen</u>
1	Bovine	1	Blood	Salmonella	Not present
2	Bovine	2	Feed	Salmonella	Negative
1	Bovine	1	Ear	Anthrax	B. anthracis not demonstrated
1	Bovine	1	Blood	Johne's Disease	Negative
1	Bovine	1	Blood	Listeria Monocytogenes	Indirect fluorescent antibody neutrali- zation test less than 1:1 Essentially negative
1	Bovine	6	Intestine, Liver, Spleen, Kidney, Blood, Stomach, cont.	Cyanide Lead	Negative 2.9 u (Lvr.) 1.6 u (Kd.)

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
1	Bovine	1	Blood	Lead	53 micrograms (essentially positive)
1	Bovine	1	Mummified Fetus	Pathogens	None isolated
2	Bovine	2	Blood	Blue Tongue	Negative
6	Canine	6	Blood	Hemoglobin Erythrocyte Count Leucocyte Count Hematocrit	
16	Canine	23	Blood	Complete Blood Count	
34	Canine	36	Blood	Heart Worm	(6) Positive (30) Negative
30	Canine	31	Blood	Brucella	(6) Positive (25) Negative
15	Canine	15	Swabs	Culture & Sensitivity	Streptococcus Staphylococcus <u>E. coli</u> <u>Pseudomonas</u> sp. <u>Proteus</u> sp. No Growth Hemolytic streptococcus
1	Canine	1	Skin Scrapings	Microsporum Fungus Culture	Not isolated <u>Alternaria</u> sp. (a saprophyte)
1	Canine	1	Urine	Specific Gravity	
1	Canine	1	Tumor	Histopathology	Staphylococcus Abscess

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
1	Canine	1	Intestine, Liver, Lung, Spleen	Culture	<u>E. coli</u>
1	Canine	1	Intestine, Liver, Lung, Spleen	Salmonella	Not isolated
1	Canine	1	Feces	Coccidia	Negative
2	Canine	2	Feces	Salmonella	Negative
15	Canine	15	Urine	Culture & Sensitivity	<u>Proteus</u> sp. Coliform Group No growth <u>E. coli</u> Staphylococcus Hemolytic Staphylococcus
1	Canine	1	Toe with tumor	Tumor identification	<u>Adeno carcinoma</u>
2	Canine	2	Urine	Analysis	
2	Canine	2	Hair & Scabs	Fungus	Negative
2	Canine	2	Hair & Scabs	Culture	Staphylococcus
1	Canine	1	Tumor	Identify	Lipoma
1	Canine	1	Liver	Histopathology	Show fatty degeneration with hemorrhage and edema.
1	Canine	1	Blood	Urea Nitrogen	Less than 10 mg.
1	Canine	2	Ear & Skin Swabs	Culture & Sensitivity	Staphylococcus
1	Canine	1	Skin Scrapings	Fungus & Parasites	Sarcoptic mites and ova present.

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
1	Canine	1	Toe	Pathology	<u>Adeno carcinoma</u>
1	Canine	1	Abscess Fluid	Culture & Sensitivity	No growth
1	Canine	1	Serum	Histoplasmosis	Negative
1	Canine	1	Serum	<u>Brucella canis</u>	Positive
2	Canine	2	Serum	<u>Brucella abortus</u>	Negative
1	Canine	1	Feces	Parasites	None demonstrated
1	Canine	1	Blood	Differential	
2	Canine	2	Blood	Culture	No growth
1	Canine	1	Dead Puppy	Hepatitis	Negative
1	Caprine	1	Blood	Blue Tongue	Negative
1	Caprine	1	Udder Secretion	Culture & Sensitivity	Streptococcus
2	Caprine	2	Stool	Parasites	Coccidiosis <u>Eimeria orlongi</u> present
1	Caprine	1	Feces	Worms	Coccidial ocysts (<u>Eimeria orlongi</u>) Lung worm larvae present
1	Caprine	1	Blood	Arsenichead	Negative 3 u/100 ml.
1	Caprine	1	Swab	Mastitis & Sensitivity	Staphylococcus
2	Cervine	2	Deer	Cause of Death	(1) Starvation (1) Cause unknown

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
2	Cervine	2	Lice	Identify	<u>Dermacentor nigrolineatus</u> (brown watertick) <u>Lipoptena depressa</u> (house fly)
1	Cervine	1	Deer	Pathogens	None observed Only shotgun wound observed
1	Cervine	1	Blood	Lead Poison	11 ug/100 ml. (normal lead content)
170	Equine	474	Blood	Hemoglobin Erythrocyte Count Leucocyte Count Hematocrit	
42	Equine	72	Blood	Complete Blood Count	
167	Equine	214	Blood	Pregnancy	(67) Negative (147) Positive
1	Equine	1	Blood	Culture & Sensitivity	<u>E. coli</u>
1	Equine	2	Blood & Urine	Mercury	Negative
1	Equine	2	Spleen & Blood	Infectious Anemia	No pathogens demonstrated <u>E. coli</u> isolated
5,354	Equine	11,743	Blood	Infectious Anemia	(7954) Negative (3789) Positive
74	Equine	194	Blood	Infectious Anemia	(103) Negative (91) Positive

-1
Tests done by laboratory in New Jersey other than N. J. D. A.

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
200	Equine	235	Blood	Infectious Anemia	(48) Negative (187) Positive
3	Equine	4	Culture Plate	Culture & Sensitivity	<u>Proteus</u> sp. <u>Streptococcus</u> Hemolytic <u>E. coli</u> No growth Not isolated <u>Corynebacterium</u> sp.
1	Equine	1	Skin Scraping	Culture	<u>Streptococcus</u> sp.
6	Equine	7	Hair & Scabs	Fungus Culture	<u>Scopulareopsis</u> sp. Saprophytic fungi: <u>Alternaria</u> sp. <u>Fusarium</u> sp. <u>Rhizopus</u> sp. <u>Geotrichum</u> sp. No growth
2	Equine	2	Scabs	Culture Fungus Culture	<u>Rhizopus</u> sp. <u>Alternaria</u> sp. No pathogenic fungus isolated
1	Equine	1	Skin Scraping	Fungus & Parasites	<u>Geotrichum</u> sp. <u>Alternaria</u> sp.
155	Equine	143	Swabs	Culture & Sensitivity	<u>Micrococcus</u> sp. <u>Pseudomonas</u> <u>E. coli</u> <u>Streptococcus</u> No growth <u>Staphylococcus</u> Gram-negative rods

Tests done by out-of-state laboratory.

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
	Equine		Swabs	Culture & Sensivity	Coliform B. Subtilis Hemolytic <u>E. coli</u> Providencia al califacien Alpha Hemolytic Streptococcus Beta Hemolytic Streptococcus Hemolytic Streptococcus Hemolytic Staphylococcus Coagulase positive Staphylococcus <u>Flavobacterium</u> sp. <u>Corynebacterium</u> sp. Yeast <u>Providencia stuartis</u> (<u>Enterobacter aerogenes</u>)
1	Equine	1	Blood	Brucella	Not isolated
9	Equine	10	Blood	Piroplasmosis	(9) Negative (1) Positive
2	Equine	2	Semen	Motility Count Morphology	
1	Equine	1	Urine	Analysis Culture	Hemolytic streptococcus
1	Equine	1	Swab	Fungus	Not isolated
1	Equine	1	Swabs	Culture	No growth
1	Equine	1	Hair & Scabs	Ringworm	<u>Trichophyton equinum</u>
1	Equine	1	Blood	Erythrocyte Count	
2	Equine	2	Blood	Differential	
1	Equine	1	Blood	Dourine	Negative

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
1	Equine	1	Blood	Glanders	Negative
1	Equine	2	Spleen & Blood	Infectious Anemia	No pathogens demonstrated <u>E. coli</u> isolated
1	Equine	1	Throat Culture	Culture & Sensitivity	<u>B. subtilis</u> Streptococcus
1	Equine	1	Hair & Scabs	Pathogens	None isolated
1	Equine	1	Feces	Culture & Sensitivity	<u>Pseudomonas</u> sp.
1	Equine	1	Blood	Leucocyte Count	
1	Equine	1	Insects (taken from skin of horse)	Identify	<u>Haematopinus asini</u> (sucking louse)
1	Equine	1	Joint Fluid	Culture Microscopic	No growth Not remarkable
1	Equine	1	Serum	Dourine	Negative
1	Equine	2	Serum	Rhinopneumonitis	Negative
1	Equine	6	Heart, lung, kidney, liver, spleen, intestine	Salmonella	Negative
2	Equine	2	Hair	Fungus	<u>Cladosporium</u> sp. <u>Alternaria</u> sp.
1	Equine	1	Feed	Culture	<u>E. coli</u>
1	Equine	1	Fluid	Culture and Sensitivity	No Growth

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
1	Equine	1	Skin	External Parasites	None demonstrated
1	Equine	1	Semen	Culture & Sensitivity	<u>E. coli</u>
1	Equine	1	Blood	Leptospirosis	Negative
1	Equine	2	Synovial Fluid	Mycoplasma	No growth Not isolated <u>Corynebacterium</u> sp.
1	Equine	1	Abscess	Culture & Sensitivity	<u>Corynebacterium</u> sp. Staphylococcus Streptococcus
1	Feline	1	Blood	Complete Blood Count	
1	Feline	1	Blood	Hemobartonella	Negative
1	Feline	1	Feces	Parasites	Negative
1	Feline	1	Feces	Salmonella	Negative
1	Feline	1	Urine	Culture	No growth
1	Lapin	1	Wild Rabbit	Cause of Death	Shock and Peritonitis
1	Ovine	1	Brain	Scrapie	Lesions observed are compatible with the diagnosis of scrapie.
1	Ovine	1	Kid	Cause of Death	Pneumonia probably involving the P.I.3 virus complicated by coccidiosis. <u>Eimeria arloingi</u>
2	Porcine	19	Blood	Leucocyte Count	

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
1	Porcine	31	Serum	Hog Cholera	(10) Positive (21) Negative
1	Porcine	3	Baby Pigs	Cause of Death	Transmissible gastroenteritis
1	Porcine	2	Spleen Gland	Staphylococcus Erysipelas	Negative Negative
62	Porcine	220	Lymph Nodes Spleens Tonsils Blood Lung Baby Pig	Erysipelas Salmonella Hog Cholera (Fluorescent Antibody Tissue Section technique	Negative (4) Positive (216) Negative (4) Positive (216) Negative
5	Porcine	5	Sera	Leptospirosis Brucella Card Test	Negative Negative
1	Porcine	2	Feces and Whey	Salmonella	Not isolated
1		1	Hamster	Bacterial Infection	None isolated
1		2	Dog Food	Toxic Substance	Negative
1		1	Dog Food	Salmonella	Negative
1		3	Feed	Salmonella	(3) Positive
2		2	Feed (Bovine)	Salmonella	Negative
1		1	Water	Fluoride Content	Negative
1		2	Tubes with parts of bees.	American or European foul Broad	Gram-positive Hemolytic Bacillus isolated

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
1		1	Vine	Poison Plant	Vine belongs to night shade family. Unable to identify species w/o berries.
1		1	Muskrat Liver	Abnormalities	Encysted tapeworms present.
1		1	Rabbit	Tapeworm Cysts	Many tapeworm cysts scattered throughout the body.
2		2	Spore Strips	Sterility Test	No growth
1		5	Uterus, Spleen, Brucellosis, Man. Gland, Liver, Lymph Nodes.		Not demonstrated in tissues submitted.
1		2	Ferrets	Culture & Sensitivity	<u>E. coli</u>
1		1	Fox	Cause of Death	Distemper
1		1	Dressed Chicken	Medication	No odor of medication. No ill effects by participants.
				Pathogens	Negative
				Salmonella	Negative
1		1	Pork (Boston Butt)	Abnormal Condition	Lymphosarcoma (malignant tumor)
1		1	Portion of Ham	Abnormal Condition	Old healed abscess.
1		1	Chicken Salad	Standard Plate Count	3000/gm.
				Staphylococcus	Negative
				<u>E. coli</u>	1/gm.

<u>Lots</u>	<u>Animals</u>	<u>No.</u>	<u>Material</u>	<u>Condition Suspected</u>	<u>Findings</u>
1		1	Pork Shoulder Butt	Abnormal Condition	Indurated abscess
1		1	Beef Round (Sirloin)	Identify Growth	Steatosis
1		3	Glands: (Mesenteric) (Cervical & Mandibular) Pork	Tuberculosis	Tuberculosis
1		4	Lymph Nodes (Man. - Supra.) (PAR. Pres.)	Actinobacillosis	Actinobacillosis

Potable water samples examined:

Number samples examined - 1,627; Number contaminated with E. coli - 58;

Antibiotic sensitivity tests----- 180

Brucellosis supplemental tests;

Acid plate antigen ----- 1,154

Mercaptoethanol ----- 384

Rivanol ----- 418

Plate Tests:

Routine checks and infected herds ----- 1,936

Viability counts ----- 4

Whey counts ----- 57

Chemistry:

Electrophoresis ----- 1

A/G ratio ----- 5

Phosphorous ----- 1

Serum glutamic oxyacetic transaminase ----- 20

Serum giltamic pruvic transaminase ----- 24

Calcium ----- 12

Blood urea nitrogen ----- 16

Glucose ----- 3

Total protein ----- 32

Albumin ----- 3

Globulin ----- 1

Icterus index ----- 2

Vandenberg (indirect) ----- 2

Anaplasmosis ----- 1,056

Piroplasmosis ----- 8

Brucella card test ----- 39

Hog cholera ----- 958

Hog cholera (survey)----- 1,667

D I V I S I O N O F D A I R Y I N D U S T R Y

Woodson W. Moffett, Jr., Director

The Division of Dairy Industry is directed to maintain for the consumer an adequate milk supply, appropriately priced. The Division is further devoted to establishing for the farmer a milk market at reasonable selling prices. Essentially, it is incumbent on the Division to sustain a stable milk market through the proper balance of supply and demand, utilizing the forces of regulation and enforcement.

Implementation of the programs assigned is accomplished by a staff of auditors, investigators and inspectors.

The unanimous decision of the New Jersey Supreme Court which upheld the constitutionality of the Milk Control Act and affirmed Order 69-1, dominated Division activities during fiscal year 1972-73. Nevertheless, many other important things took place during the year. For example, regulations setting guidelines for the supplying of equipment, prohibiting false and misleading advertising, and requiring additional information for evaluating license applications were adopted; work related to dairying was further consolidated in the Division with the transfer from the Division of Regulatory Services of responsibility for enforcement of the Butterfat Testing Law and the Milk Dealers Bonding Law; and positive action was taken to deny licenses to persons operating as dealers under so called leases.

COURT CASE

Annual reports since 1969 have included statements concerning the pending appeal of Order 69-1, but to keep this report in proper perspective a very brief background is included here.

Following entry of Order 69-1 in May 1969, two appeals were taken. They were styled Garden State Farms, Inc. vs. Joseph C. Mathis, Jr., and Cumberland Farms of New Jersey vs. Phillip Alampi. The cases were certified directly to the New Jersey Supreme Court, by the Appellate Division of the Superior Court, where they were combined for review. Following the filing of briefs, the Supreme Court called a conference with the parties. During the conference, the Court propounded a general question concerning whether the Milk Control Act was currently in the public interest and six specific questions concerning the order. Answers submitted by the Division apparently did not satisfy the Court and in June 1970, the matter was remanded with instructions to take testimony on the questions which had been asked by the Court. In addition to delays caused by a change in directors, one of the attorneys for appellants was involved in a lengthy case before the Insurance Commission (also on remand from the Supreme Court). As a consequence, the hearing did not begin until early 1971. It was finally adjourned in April 1971

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after 36 days of testimony. The finding of fact on the record was filed with the Court on October 19, 1971. Briefs were filed and oral argument was heard on May 22 and 23, 1972. The decision was handed down in September 8, 1972.

In a strongly worded unanimous opinion, the Court upheld the constitutionality of the act (which was under attack) and affirmed the order. The court found that milk price control was in the public interest and rejected the argument that the act was depression-born emergency legislation. Instead they said that the act was intended as permanent legislation and "clearly passes muster in 1972." They also found that dairy farmers benefited in many ways from regulations such as Order 69-1 even though their prices were fixed by Federal Orders. As to the argument that the only regulation required is one prohibiting sales below cost, the Court said that such regulations could not be effectively enforced and "would not be satisfactory for New Jersey."

The Court's decision resulted in the adoption of the "single point" pricing concept recommended by a committee of economists in a report to Secretary Phillip Alampi in 1963. Under Order 69-1, the only price established is the retail price --- and this only on whole milk in quart, one-half gallon, gallon and larger than one gallon packages sold to consumers for their personal use. Prices are no longer fixed for sales between dealers, subdealers, or to stores. Because price increases had been stayed pending the decision, minimum prices to consumers were increased effective September 18, 1972, by two cents per quart to 30 cents per quart, 56 cents per half-gallon and \$1.00 per gallon. Increases in prices to farmers resulted in further increases of 1/2 cent per quart on January 1, 1973, February 1, 1973, and June 1, 1973, respectively. On June 30, 1973, minimum prices stood at 31½ cents, 58 cents, and \$1.10 for quarts, one-half gallons and gallons, respectively.

NEW REGULATIONS

Following many meetings with industry representatives, the regulations relating to the supplying of equipment to stores were completely rewritten. The revised regulations which appear as N.J.A.C. 2:53-2.1 et seq. were adopted effective December 1, 1972, on all equipment placed on stores from and after October 1, 1972.

An emergency regulation was adopted effective October 30, 1972, to prevent false and misleading advertising of milk and milk products. Its adoption followed widespread use of store signs advertising low-fat milk as "milk" at prices below regular milk prices in order to attract customers. The regulation was effective in stopping the practice although several citations were necessary following its adoption.

In order to provide for closer scrutiny of license applicants and determination that the marketing areas of the State are properly served, the Division adopted a regulation requiring additional information from dealer and subdealer licensees and license applicants. This information in-

cluded a statement of experience in the dairy industry, copies of financial statements, a statement of administrative and court proceedings involving the licensee or applicant during the last two years, and a statement concerning the area in which the licensee was operating. Amended licenses were issued for the marketing area in which the licensees were actually operating.

Work was begun during the year on a complete revision of all regulations. Several conferences were held with industry representatives but the revisions were not made during 1972-73.

NEW PROGRAMS

The need to consolidate all dairy work into one Division --- to the maximum extent possible --- resulted in the transfer from the Division of Regulatory Services of the Milk Bonding Law and the Butterfat Testing Law. The Bonding Law work was absorbed by assigned Division personnel. However, the butterfat testing work resulted in the transfer to the Division of two senior milk test inspectors.

After the bonding work was transferred to the Division, financial failure of Sisco Dairy, Inc. resulted in the calling of that bond. Sisco Dairy, Inc., had operated a bulk tank unit under the New York-New Jersey Marketing Order for many years and was currently covered by bond issued by the Great American Insurance Company. The company was very prompt in making settlement and the farmers received full payment for all except one months' delivery. For the one month, they received 91 percent of the amount due.

For many years, the butterfat check testing work of the Department has consisted of testing randomly selected composite samples and comparing the results with the tests obtained by the dairy. This method of check testing does not reflect sampling procedures being followed by the driver which can drastically affect the outcome of the test. The use of fresh milk samples run on randomly selected days throughout the month provides checks on the accuracy of both the testing techniques of the laboratory technician and the sampling procedure of the driver.

After the testing work was transferred, the Division began to explore ways of changing to fresh milk sample check tests. It was determined that the tests could best be conducted by a laboratory equipped with electronic testing equipment. As a result, a decision was made to transfer one of the senior milk test inspectors to a senior investigator's position and to contract with Quality Control Laboratory, Inc., South Hampton, Pennsylvania for check testing services. The first tests under such contract were made by the laboratory in mid-May 1973, and the results look very good. A request was initiated with the Purchasing Bureau for renewal of the contract. The remaining inspector will be responsible for working with the plants to correct deficiencies noted through the check testing; to assure that only qualified persons are licensed to sample and test the farmers' milk; and to pick up ring

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samples for brucellosis testing. The brucellosis tests are run by the Division of Animal Health.

MARKET STATISTICS AND INFORMATION

The contract with the Department of Agricultural Economics of Rutgers to supply the services of an agricultural economist was renewed for 1972-73 and the many hours of planning and work on the computer program began to bear fruit during the year. Under the program, data from dealer reports to the Division are put on computer for month to month and annual summaries. Information generated by the reports was published in a monthly "Market Bulletin" beginning in January 1973. Copies are being mailed to dairy farmers, dealers, subdealers and others who have requested information of this kind.

In addition to the new publication, the Division has continued the publication of statistical series which have been mailed for many years to the Statistical Reporting Service of the United States Department of Agriculture and to others requesting the information.

In the preparation of the above publications, 1,207 reports were received and processed. Of these, 730 were for Order #2 dealers and 477 were for Order #4 dealers.

LICENSING

For a number of years, persons have been issued licenses as "milk dealers" even though they owned no plant. These licenses were based upon so called "leases" under terms of which the licensee would "lease" a plant for "X" hours per day. The effect of these leases was to permit some large store groups and some subdealers to have advantages over their competitors in the purchase of packaged milk. Notices of intent to deny licenses of this kind were sent to these licensees but because of the pressure of other activities no positive action had been taken in the past. However, following removal of minimum wholesale prices, licensees in this category were each notified that their licenses would be denied for the new licensing year. Many conferences were held with these persons and at year's end it appeared that few, if any, hearings would be required on the applications. Wherever possible, subdealer licenses were issued but in other cases no licenses will be issued without a hearing. The latter applied in the case of chain stores which will still be required to purchase licenses for individual stores.

Licenses were issued during the year as follows:

Stores	10,855	Manufacturers	9
Vending Machines	412	Producer dealers	8
Subdealers	498	Permits to Purchase	13
Milk dealers	49	Milk Testers	151
Processors	6	Milk Dealer - Bonding	22
Total - 12,023			

Income from license fees totaled \$195,905.80.

ENFORCEMENT

Personnel shortages throughout the year continued to plague our efforts toward effective enforcement. Nevertheless, stepped up activity in this area is apparent in the collection of penalties during the year.

In an attempt to mitigate the personnel shortage in this area, one of the senior investigators was moved into the office full time effective March 1, 1973 to assist in review of investigators' and auditors' reports for violations, and holding hearings. This has helped but there continues to be a very serious backlog of violations awaiting enforcement action.

During the year, no formal hearings were held, but 58 informal hearings were scheduled. Forty-five of the hearings resulted in penalties being assessed, five of which were suspended. Six were dismissed and four were pending at the end of the period. Two of the hearings involved a question related to changes in milk suppliers and following the hearing permission was granted for the changes. One hearing involved failure to pay dairy farmers. Following the hearing, a decision was made to call the bond as reported above for Sisco Dairy, Inc.

Also, during the year 29 stores waived their right to an informal hearing and were assessed penalties for operating without a license ranging from \$10 to \$25 per store. Twenty received suspended penalties.

Penalties collected during the year from dealers and stores totaled \$4,990.

Regulations of the Division require stores and dealers to notify this office of intent to change source of supply at least 60 days in advance of the change. During 1972-73, forms received pursuant to these regulations were processed as follows:

	<u>H-2A</u>	<u>H-8A</u>
On hand July 1, 1972	48	67
Received	413	170
Approved	228	149
Denied	66	0
Returned, withdrawn, cancelled	108	22
On hand June 30, 1973	59	66

Investigators made a total of 2,779 calls on licensees and other wholesale accounts not required to be licensed as follows:

Dealers	11
Subdealers	35
Stores	2,730
Consumers	3

Investigators worked an accumulation of 349 days in the office and travelled a total of 68,987 miles. This increase in days in the office as compared with prior years reflects primarily the full-time office assignment of one senior investigator as referred to above.

AUDITING

During the 1972-73 fiscal year, emphasis on field audits was continued. Regular audits of 12 dealers and 105 subdealers were completed. Special audits were completed in six cases concerning special problems relating to disputes between licensees and between the Division and licensees.

New equipment regulation, effective December 1, 1972, requires the filing by licensees of all rental contracts, bills of sale or sales contracts for all refrigeration equipment rented or sold to customers. During 1972-73, 224 such contracts were filed.

In connection with a general revision of our regulations, a comprehensive regulation was developed relating to books and records to be maintained by licensees. At the end of the year, these regulations were being reviewed by industry representatives.

PRODUCER MILK PRICING ORDERS

A memorandum of agreement between the New Jersey Departments of Agriculture provides for joint and concurrent milk pricing orders for the State of New Jersey. Pursuant to this agreement, New Jersey jointly administers Federal Orders No. 2 and No. 4. Order No. 2 covers the New York-New Jersey milk marketing area (North Jersey) and Order No. 4, the Middle Atlantic milk marketing area (South Jersey). Prices paid to dairy farmers under the orders are shown in Table 5 of this report.

During the fiscal year, only one joint public hearing was held. This hearing was convened in New York City on November 16, 1972, to consider requests for adjustments to hauling rates and to the pool credit for Class II milk. The hauling rate adjustment, as proposed by the cooperative associations, was termed as a "stop charge" and provided for a flat charge of \$1.50 for each bulk tank milk pick-up. The additional pool credit on Class II milk was designed to offset some of the costs incurred by the cooperatives in servicing the market and handling the reserve Class II supplies.

After two days of testimony in New York City, the hearing was recessed to Syracuse for additional testimony on November 20 and 21 and December 14 at which time it was adjourned. This Division and the Division of Milk Control of the New York Department of Agriculture and Markets agreed that the hearing record justified an amendment to increase the pool credit on Class II milk. However, United States Department of Agriculture representatives took an opposite position. As a result, many conferences were held concerning the hearing record including meetings with the Secretary of Agriculture and his assistant. However, because of changing market

conditions, the states finally agreed to a finding denying the amendments which had been requested. The finding was entered on July 2, 1973.

SCHOOL MILK LAW ENFORCEMENT

The administration of the School Milk Purchase Bill developed into a very time-consuming job during the 1972-73 fiscal year. Regulations promulgated just prior to the beginning of the fiscal year required schools to supply copies of agreements for both the 1971-72 and 1972-73 school years. Also, dealers were required to report sales to schools on a monthly basis and to report purchases of milk from New Jersey dairy farmers. These amounts were correlated to determine that the dairies are purchasing the required milk supplies from New Jersey dairy farmers. Thus, in the process of administering the School Milk Purchase Act, reports are received and processed from over 600 school districts each month and on an annual basis on milk purchased and sold to New Jersey schools by the milk dealers and subdealers serving the schools.

MISCELLANEOUS

During the 1972-73 licensing year, plant closures included Shoemaker Dairies, Inc., Bridgeton; Conover's Guernsey Dairy, Inc., Heightstown; and Evans-Haines Dairy Farms, Inc., Hurffville. Also, two producer dealers closed their plant operations. These were Bio Science Resources, Inc., Division of Adelpia Dairy, Asbury Park; and Frank and Stanley DeBoer, Trading as Brookside Dairy, Fair Lawn. No new plant facilities were opened during the year.

As noted in the annual report for 1971-72, United Milk Producers Co-operative Association began dissolution on October 1, 1971, following financial failure. Final action on the dissolution was still pending at the end of the 1972-73 fiscal year. Some relatively small amounts were paid to the producers during the year, but pending litigation coupled with the need to sell some property delayed the process.

PENDING LEGISLATION

During the first part of 1973, three bills affecting the Division were introduced into the New Jersey Legislature. Assembly Bill No. 2226 was introduced March 19, 1973, by Assemblyman Carl A. Orechio. This bill would completely abolish the Division of Dairy Industry.

The other bills would amend the Milk Control Act by removing the authority of the Division to establish minimum prices and substituting therefor a prohibition against sales of milk below cost. Senate Bill 2130 was introduced February 22, 1973, by Senator Garrett W. Hagedorn and five co-sponsors and Assembly Bill 2244 was introduced March 19, 1973, by Assemblymen Albert Burstein and four others. Secretary Alampi and

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the director appeared for a hearing before the Assembly Committee on Agriculture, Conservation and Natural Resources on the Orechio bill following which it received an unfavorable report. No legislative hearings were held on the other two bills while the Legislature was in session but Senator James H. Wallwork conducted hearings on the bills in Wayne on May 23 and in Woodstown on May 29. Testimony at the hearings was overwhelmingly in favor of continuing the minimum pricing authority of the Division. The director presented prepared statements at each hearing. Also, dairy farmers and dairy farmer representatives gave strong support to the Milk Control Act. No legislative action had been taken on either bill at the end of the fiscal year.

PERSONNEL CHANGES

Personnel changes during the year included the following: Joseph A. Loh promoted to auditor I, July 22, 1972; Joseph Barraci and James DeRitter, senior milk test inspectors, transferred from Division of Regulatory Services, effective September 30, 1972; Frank Blatchford, auditor III, resigned October 27, 1972; Margaret C. Chamberlain, secretarial assistant II, deceased October 31, 1972; William J. Ochanas, promoted to principal audit account clerk, January 6, 1973; Benjamin Panzer appointed chief accountant, January 15, 1973; Arthur Brecknell reclassified from chief accountant to auditor II, January 6, 1973 and resigned June 22, 1973; Francis J. Kowalski transferred to Division of Regulatory Services, January 20, 1973; Sandra P. Ashmore promoted to secretarial assistant III, January 20, 1973; Geraldine Cattani promoted to principal clerk stenographer, February 3, 1973; Joseph Barraci reclassified from senior milk test inspector to senior investigator, February 3, 1973; Frank M. Black, appointed audit account clerk, February 15, 1973, resigned August 31, 1973; Faye Chavous promoted to senior clerk typist, April 28, 1973; Rosemary Osvai appointed clerk typist, May 19, 1973, resigned July 2, 1973; and Patricia A. Brennan promoted to principal clerk, June 23, 1973.

TABLE 1. PRODUCTION OF MILK AS REPORTED BY DEALERS
AND PRODUCER DEALERS IN NEW JERSEY, 1972-73

	<u>North Jersey</u>	<u>South Jersey</u>	<u>New Jersey Total</u>
	-- pounds --		
1972			
July.....	30,028,878	18,148,174	48,177,052
August.....	30,265,979	18,674,798	48,940,777
September.....	28,843,724	17,812,914	46,656,638
October.....	26,320,097	20,968,365	47,288,462
November.....	25,246,506	19,911,503	45,158,009
December.....	27,048,403	20,807,284	47,855,687
1973			
January.....	27,499,182	21,546,534	49,045,716
February.....	25,379,419	19,651,805	45,031,224
March.....	28,886,925	22,042,070	50,928,995
April.....	27,754,673	21,760,214	49,514,887
May.....	28,912,107	22,543,799	51,455,906
June.....	<u>25,577,811</u>	<u>20,207,966</u>	<u>45,785,777</u>
Total 1972-73	331,763,704	244,075,426	575,839,130
Monthly average 1972-73	27,646,975	20,339,619	47,986,594
Total 1971-72	405,151,640	226,381,542	631,533,182
Percent change 1972-73 compared with 1971-72	-18.12	+7.81	-8.82

TABLE 2. NUMBER OF PRODUCERS, TOTAL AMOUNT OF MILK DELIVERED,
TOTAL VALUE AND AVERAGE PRICE PER MONTH
NORTH JERSEY, 1972-73

	<u>Producers</u>	<u>Milk</u> -- pounds --	<u>Value</u>	<u>Price per</u> <u>Hundredweight</u>
1972				
July.....	626	29,008,321	\$1,834,428.59	\$6.32
August.....	627	29,234,089	2,010,706.77	6.88
September.....	623	27,859,399	1,991,631.96	7.15
October.....	514	25,445,201	1,874,744.00	7.37
November.....	511	24,331,387	1,768,615.34	7.27
December.....	511	26,097,857	1,841,514.76	7.06
1973				
January.....	497	26,519,848	1,874,358.53	7.07
February.....	492	24,490,226	1,744,948.55	7.13
March.....	489	27,965,362	1,915,453.45	6.85
April.....	482	26,816,431	1,782,281.00	6.65
May.....	470	27,958,335	1,832,944.62	6.56
June.....	454	<u>24,683,384</u>	<u>1,632,896.69</u>	6.61
Total 1972-73		320,409,840	22,104,524.26	
Monthly average 1972-73	525	26,700,820	1,842,043.68	6.90
Total 1971-72	669	393,776,981	25,128,551.34	6.38
Percent change 1972-73 compared with 1971-72	-21.53	-18.64	-12.04	+8.10

TABLE 3. NUMBER OF PRODUCERS, TOTAL AMOUNT OF MILK DELIVERED,
TOTAL VALUE AND AVERAGE PRICE PER MONTH
SOUTH JERSEY, 1972-73

	<u>Producers</u>	<u>Milk</u> -- pounds --	<u>Value</u>	<u>Price per</u> <u>Hundredweight</u>
1972				
July.....	348	17,741,464	\$1,200,053.91	\$6.76
August.....	347	18,216,703	1,239,588.78	6.81
September.....	338	17,410,338	1,220,542.69	7.01
October.....	432	20,598,536	1,488,552.80	7.23
November.....	429	19,552,371	1,446,484.02	7.40
December.....	417	20,378,739	1,513,017.44	7.42
1973				
January.....	428	21,133,194	1,576,322.83	7.46
February.....	413	19,233,601	1,464,026.32	7.61
March.....	407	21,594,562	1,630,160.96	7.55
April.....	402	21,379,548	1,584,292.49	7.41
May.....	398	22,136,050	1,647,665.01	7.44
June.....	396	<u>19,797,854</u>	<u>1,477,733.20</u>	7.46
Total 1972-73		239,172,960	17,488,440.45	
Monthly average 1972-73	396	19,931,080	1,457,370.03	7.31
Total 1971-72	339	223,837,895	15,354,537.01	6.86
Percent change 1972-73 compared with 1971-72	+16.81	+6.85	+13.89	+6.60

TABLE 4. NUMBER OF PRODUCERS, TOTAL AMOUNT OF MILK DELIVERED,
TOTAL VALUE AND AVERAGE PRICE PER MONTH
NEW JERSEY, 1972-73

	<u>Producers</u>	<u>Milk</u> -- pounds --	<u>Value</u>	<u>Price per</u> <u>Hundredweight</u>
1972				
July.....	974	46,749,785	\$3,034,482.50	\$6.49
August.....	974	47,450,792	3,250,295.55	6.85
September.....	961	45,269,737	3,212,174.65	7.10
October.....	946	46,043,737	3,363,296.80	7.31
November.....	940	43,883,758	3,215,099.36	7.33
December.....	928	46,476,596	3,354,532.20	7.22
1973				
January.....	925	47,653,042	3,450,681.36	7.24
February.....	905	43,723,827	3,208,974.87	7.34
March.....	896	49,559,924	3,545,614.41	7.15
April.....	884	48,195,979	3,366,573.49	6.92
May.....	868	50,094,385	3,480,609.63	6.94
June.....	850	<u>44,481,238</u>	<u>3,110,629.89</u>	6.99
Total 1972-73		559,582,800	39,592,964.71	
Monthly average 1972-73	921	46,631,900	3,299,413.72	7.08
Total 1971-72	1,007	617,614,876	40,483,088.35	6.55
Percent change 1972-73 compared with 1971-72	-8.54	-9.40	-2.20	+7.94

TABLE 5. MINIMUM PRICES PER HUNDREDWEIGHT PAID TO PRODUCERS
BY HANDLERS FOR 3.5 PERCENT BUTTERFAT MILK, 1972-73

	<u>New York-New Jersey</u>			<u>Middle Atlantic</u>		
	<u>Class I</u>	<u>Class II</u>	<u>Uniform</u>	<u>Class I</u>	<u>Class II</u>	<u>Uniform</u>
1972						
July.....	\$7.34	\$4.98	\$6.06	\$7.72	\$5.00	\$6.61
August.....	7.35	5.14	6.64	7.73	5.16	6.85
September.....	7.41	5.14	6.88	7.79	5.16	6.90
October.....	7.47	5.24	6.97	7.85	5.26	6.97
November.....	7.50	5.36	6.87	7.88	5.38	7.08
December.....	7.58	5.47	6.61	7.96	5.49	7.06
1973						
January.....	7.72	5.46	6.66	8.10	5.48	7.19
February.....	7.58	5.47	6.72	8.19	5.49	7.28
March.....	7.83	5.50	6.48	8.21	5.52	7.27
April.....	7.85	5.54	6.29	8.23	5.56	7.17
May.....	7.95	5.54	6.22	8.33	5.56	7.22
June.....	<u>8.03</u>	<u>5.62</u>	<u>6.27</u>	<u>8.41</u>	<u>5.64</u>	<u>7.29</u>
Monthly average 1972-73	\$7.63	\$5.37	\$6.56	\$8.03	\$5.39	\$7.07

TABLE 6. WHOLE MILK SALES IN NEW JERSEY, 1972-73
(Product Pounds)

	<u>North Jersey</u>	<u>South Jersey</u>	<u>New Jersey Total</u>
1972			
July.....	80,265,490	49,874,423	130,139,913
August.....	85,002,017	53,858,771	138,860,788
September.....	91,208,578	53,483,198	144,691,776
October.....	91,135,633	53,518,262	144,653,895
November.....	89,221,630	52,047,230	141,268,860
December.....	90,823,567	51,475,075	142,298,642
1973			
January.....	90,101,858	53,832,196	143,934,054
February.....	81,457,283	49,197,832	130,655,115
March.....	92,330,356	53,436,260	145,766,616
April.....	83,384,844	47,229,264	130,614,108
May.....	87,951,447	50,108,872	138,060,319
June.....	<u>82,306,626</u>	<u>46,551,890</u>	<u>128,858,516</u>
Total 1972-73	1,045,189,329	614,613,273	1,659,802,602
Monthly average 1972-73	87,099,110	51,217,773	138,316,883
Total 1971-72 ^{1/}	1,182,224,135	551,623,705	1,727,688,138
Percent change 1972-73 compared	-11.60	+11.41	-3.93

^{1/} Revised

TABLE 7. TOTAL PACKAGED FLUID MILK SALES IN NEW JERSEY, 1972-73
(Product Pounds)

	<u>North Jersey</u>	<u>South Jersey</u>	<u>New Jersey Total</u>
1972			
July.....	93,682,045	58,028,852	151,710,897
August.....	99,256,727	62,585,546	161,842,273
September.....	107,115,119	62,371,119	169,486,238
October.....	107,115,875	62,970,644	170,086,519
November.....	105,414,076	61,623,175	167,037,251
December.....	108,671,508	61,618,285	170,289,793
1973			
January.....	106,404,536	64,363,503	170,768,039
February.....	96,765,031	59,751,840	156,516,871
March.....	110,600,025	65,498,537	176,098,562
April.....	99,688,976	58,196,122	157,885,098
May.....	105,804,848	62,047,873	167,852,721
June ^{1/}	<u>100,374,000</u>	<u>56,770,000</u>	<u>157,144,000</u>
Total 1972-73	1,240,892,766	735,825,496	1,976,718,262
Monthly average 1972-73	103,407,731	61,318,791	164,726,522

^{1/} Estimated

D I V I S I O N O F I N F O R M A T I O N

Robert D. McMillen, Director

PRESS AND PUBLICATIONS

Press Services

A total of 205 news releases was issued during the year. Mailed at least once a week to a mailing list of about 600, the releases were used by daily and weekly newspapers in New Jersey and nearby cities, radio and television stations, and farm magazines and trade publications. They are also distributed to such persons as members of the State Board of Agriculture, county agricultural agents, county boards of agriculture and officers of various State farm organizations to keep them directly informed of Department activities.

Special events for which press coverage was provided included the 1973 New Jersey Farmers Week, the 1972 New Jersey Marketing Institute, the 1972 State Grange Convention, the 1973 annual meeting of the New Jersey Agricultural Society, the annual meeting of the New Jersey Association of Natural Resource Districts, and the annual meeting of present and former members of the State Board of Agriculture.

Two news conferences were held during the year. One, which was held in Centerton in April, was general in nature with the purpose of acquainting the South Jersey news media more fully on Department programs and on agriculture in general. It was well attended, very successful, and resulted in several helpful new contacts for the Department's information staff. Similar future conferences are planned for Central and North Jersey.

The second new conference was held in Trenton to announce the completion of the report of the Blueprint Commission on the Future of New Jersey Agriculture. This, too, was well attended and the recommendations of the Commission received widespread attention in the newspapers.

A severe outbreak of hog cholera in New Jersey aroused much interest by the press. As many as 20 telephone calls a day from reporters were handled by this office during the height of the epidemic.

In addition to the regular release service, special articles were prepared for a number of publications. Also, a number of writers for newspapers or farm and trade publications were assisted in finding material and photographs for articles prepared by them. Similar assistance was given to radio and television stations.

Publications

This section edits and handles the processing details for all Department publications. In addition, it is responsible for the complete preparation of several periodicals and other publications. The Department's quarterly, Farm Service News, was discontinued with the

winter 1973 issue and was replaced by a new quarterly, Report from NJDA. The new quarterly contains two additional pages, for a total of six, and utilizes more modern type and makeup and two colors of ink. It is mailed to about 8,000 rural residents. Three issues of New Jersey Equine News were written here and mailed to approximately 6,000 New Jersey horse owners. Two issues of the New Jersey Fair Quarterly were prepared and distributed, as were four issues of Advance Notice, a listing of coming events of agricultural interest. The "Highlights of the 1971-72 Annual Report of the New Jersey Department of Agriculture" was prepared in this section, as well as a number of flyers and other printed items. Three issues of Agri-Gram, the Department's house organ, were prepared.

The following Department circulars, reports, and special publications were published commercially during fiscal 1972-73:

- | | |
|---------------|---|
| Circular 461 | - 1971 New Jersey Agricultural Statistics |
| Circular 462 | - 1971 New Jersey Export Marketing Survey |
| Circular 463 | - 1972 New Jersey Orchard and Vineyard Survey |
| Circular 464 | - 1971-72 New Jersey Analytical Report
--- Commercial Feeds, Fertilizers, Liming Materials |
| Circular 465 | - 1972-73 List of Licensed Agricultural Dealers --- Milk Dealers; Produce Dealers; Egg and Live Poultry Dealers; Hay, Grain and Straw Dealers; Cattle, Sheep and Swine Dealers |
| Reports | - Highlights of the 1971-72 Annual Report of the New Jersey Department of Agriculture

- Annual reports for 1971 of five soil conservation districts: Warren, Morris, Northeast Jersey, Somerset-Union and Sussex |
| Miscellaneous | - New Jersey Standards for Erosion and Sediment Control

1972 List of New Jersey Certified Nurserymen and Dealers

New Jersey Sire Stakes Program

Fifth Annual New Jersey Bred All Breed Horse Show |

Internal Printing

This section is responsible for the supervision of other than routine items to be printed in the Health-Agriculture Print Shop. One hundred and eighty-six items were processed during fiscal 1972-73.

Audio-Visual Services

Although the audio-visual section is no longer in existence, some work is still being done in this field. Interviews took place on the following radio stations: WCAM, WWBZ, WJIC and twice on WSNJ. Three television segments were produced for the Bill Bennett Show, WCAU-TV, Channel 10, Philadelphia. In addition, guests appeared on two segments of the "Philadelphia Today" show on KYW-TV, Channel 3, Philadelphia.

Approximately 750 black and white photographs and color slides were taken. These were widely distributed to the press and various publications as well as being used by members of the Department staff for record keeping.

FAIRS AND SHOWS

Agricultural Fairs

The Department furnished financial assistance to 20 county fairs and the New Jersey State Fair. Over \$50,000 was again distributed as reimbursement to these fairs for costs of many educational programs and events. More than 1,100,000 visitors were attracted to New Jersey fairs during the season. While State Government takes no part in the management or operation of any of these fairs, the coordinator of fairs and shows serves as secretary-treasurer of the Agricultural Fair Association of New Jersey and works closely with its membership during the year.

Fairs offer special educational opportunities to all youth, including 4-H Club members and students of vocational agriculture. These traditional events provide an excellent showcase opportunity for agriculture and are broad based, in most cases including industry and business of the area. For the most part, fairs are conducted by nonprofit organizations and presented by volunteer labor. They are both educational and entertaining. Much community pride is connected with them.

State Fair Coordination

At the request of the Governor, the Department annually assumes the task of coordinating participating State departments for the presentation of exhibits at the State Fair. The work is conducted through policies established by the coordinating committee made up of representatives of each departments. Current State programs and objectives are brought to the attention of the viewing public through these efforts. The Department was presented the George A. Hamid Memorial Award for the best noncommercial exhibit at the fair.

Six departments or agencies of State government were represented in the exhibition. Department of Agriculture staff members planned and coordinated this effort, including the exhibit area of the Department.

Exhibits

Exhibits are an effective means of communication and were displayed during the year at 49 locations throughout the State. In all 84 exhibits were used. These were displayed at county fairs, the State Fair, trade shows, conventions, educational meetings, the State Agricultural Convention, and other events to promote and improve farm-city understanding, encourage increased use of farm products, for consumer education, and as educational tools for the production and marketing of farm products. These exhibits were also used to provide information regarding Department programs. The New Jersey Flower and Garden Show exhibit presented by the Department received a Silver Medal award.

Commodity Shows and Exhibitions

Competitive public shows of various New Jersey-produced farm products are conducted annually with cooperating commodity organizations. These presentations offer an excellent opportunity to improve the marketing of these products by bringing to the attention of the consuming public their availability and uses.

Commodity shows offer the producer a place to evaluate his products in the light of consumer acceptance. The opportunity for better merchandising, advertising and sales of farm products is enhanced through the knowledge gained from these exhibits. Cooperating commodity groups during the year were dairy, honey and ornamental horticulture.

The seventh annual New Jersey Flower and Garden Show was held March 17 through 25, 1973, in the Morristown Armory. More than 48,700 people attended the outstanding event. Homeowners visiting the show received considerable timely information concerning the planting, use and care of lawns, shrubbery, trees, plants and flowers. Preparation is being made for the eighth annual show to be held March 9 through 17, 1974, in the same location.

The annual New Jersey Honey and Beeswax Show was again held in the State House Rotunda during New Jersey Farmers Week in January. This location offers an excellent opportunity to bring public attention to New Jersey apiary products. Trophies, ribbons and cash awards were provided by the Department for this show.

Cooperation was extended to the annual Dairy Princess Contest and to the product promotion councils of the Division of Markets in various exhibitions.

Livestock Shows and Sales

Annual statewide livestock shows offer breeders an opportunity to evaluate their production programs and to select animals to represent New Jersey in regional and national shows. Noteworthy performances in national competition bring favorable recognition to New Jersey livestock and thereby increase their worth. Department funds were allocated to major livestock associations to help defray expenses at shows. Funds were allocated to the following organizations for adult shows: New Jersey Holstein-Friesian Association, New Jersey Brown Swiss Breeders' Association, and the New Jersey Sheep and Wool Association.

Youth shows included the State 4-H Baby Beef Show and Sales and the State 4-H Quality Lamb Show and Sale. Assistance was given in connection with the State 4-H Dairy Show and the Future Farmers of America Dairy Show. Cooperation was also extended in making New Jersey Junior Breeders' Fund and New Jersey Agricultural Society awards.

Cooperation was extended to the Division of Markets in connection with the New Jersey Horse Industry Show during Farmers Week, the annual New Jersey-Bred All Breeds Horse Show, and special breed shows and exhibits during the year.

New Jersey Farmers Week

Traditional New Jersey Farmers Week predates the Department. Each January, farm groups throughout the State meet in Trenton to participate in educational meetings and the official State Agricultural Convention. The New Jersey Agricultural Society, Rutgers College of Agriculture and Environmental Science, and State farm organizations cooperate in the presentation of Farmers Week.

Farmers Week offers the State Board of Agriculture and the Department staff an opportunity to introduce new ideas, obtain producer reaction to current programs, learn the needs for changes and adjustments in programs, and identify problems of the agricultural community.

New Jersey Farmers Week was observed during January 20 through 27, 1973. The seven days of activity included the official State Agricultural Convention and approximately 35 meetings of State farm, breed and commodity organizations with a one-day horse industry show. A general session on a subject of broad significance to the agricultural industry again occupied a prominent place on the program. Held on Wednesday, January 24, the topic was "The Report of The Blueprint Commission on the Future of New Jersey Agriculture." The principal speakers were Secretary of Agriculture Phillip Alampi; Dr. William L. Park, chairman, Department of Agricultural Economics and Marketing, Rutgers College of Agriculture and Environmental Science; Arthur H. West, President, New Jersey Farm Bureau; Lloyd B. Wescott, dairy farmer; William A. Haffert, Jr., publisher, Garden State Publishing Company; and the Rev. Reinhardt Van Dyke, former director, New Jersey Council of Churches.

New Jersey Junior Breeders' Fund

During the year, the New Jersey Junior Breeders' Fund made 114 loans totaling \$20,404. The breakdown of loans for the year is as follows: 28 dairy loans, 76 beef loans, one swine loan, eight lamb loans, and one poultry loan. Since the inception of the Fund in 1921 a total of 5,829 loans, amounting to \$554,356, have been made to 4-H Club members and vocational agriculture students.

In 1972-1973, interest earnings from loans were used to provide all borrowers with one-year subscriptions to breed journals, ribbons, cash premiums and trophies at State livestock shows. The cost of these items was \$326. The New Jersey Agricultural Society awards were also continued. Interest from Farmers Home Administration notes provided \$1,100 in scholarship funds granted to Rutgers College of Agriculture and Environmental Science.

Emergency fund coverage was provided to borrowers for all loans with the exception of sheep. In the case of death of an animal, the note is cancelled and payments returned to the borrower. In the case of nonbreeding dairy animals, one-half the salvage is retained by the Fund and the note is cancelled. There were no claims made or paid during this fiscal year.

Members of the State Board of Agriculture serve as trustees for the New Jersey Junior Breeders' Fund. The officers this year were Joseph K. Hepner, Jr., president; William H. Plenge, vice president; Phillip Alampi, secretary-treasurer; Robert D. McMillen, assistant secretary-treasurer; and Warren B. Cook, supervisor.

D I V I S I O N O F M A R K E T S

John J. Repko, Director

FOREWORD

During the year, several lines of work assumed new importance in the program of the Division of Markets.

The development of export markets for New Jersey agricultural products was explored through several new types of activities. These include: The air transportation of samples and experimental shipments of blueberries, sweet corn and lettuce to London and other foreign cities; the demonstration to food editors and fruit distributors in London, by our food information specialist, of the use of fresh blueberries as a dessert and in a variety of baked products; and attendance at a weeklong National Export Marketing Workshop at College Park, Md., where the advantages of and procedures for becoming involved in export marketing were discussed in detail.

The ornamental horticulture promotional program, initiated to solidify the rather diverse groups into a cohesive industry organization through the establishment of the New Jersey Ornamental Horticulture Advisory Board, progressed markedly during the year. New projects undertaken included the production of a top quality film on the use of the products of the industry to attain the Board's slogan "Enjoy Life with Living Beauty," the development of a full-color brochure having the same theme, and the publication of a pamphlet calling attention to the job opportunities available in the industry. Legislation which would provide sustained financing for an expanded program through payment of a self-imposed assessment on all phases of the industry is being considered.

Late in the fiscal year, funds became available from a national milk promotional source, which made it possible to conduct some consumer-oriented promotions featuring milk and dairy products, either alone or in combination with some compatible product. To contact the largest possible number of consumers with the funds available, promotions were staged at several of the larger shopping malls, where attractive exhibits were arranged to attract passersby and samples, literature or catchy buttons ("Milk Makes It") were distributed to induce consumers to include dairy products in their menus.

The Sire Stakes program of races for Standardbred (harness) horses sired by New Jersey stallions, for which funds began to be accumulated in 1971, experienced its first full racing season in 1972. The results exceeded expectations. The times for most of the races compared favorably with those in open races. Even more gratifying was the increased demand for eligible foals, resulting in sharply increased prices, the movement of superior Standardbred stallions into the State to make their offspring eligible and upgrade the quality of Standardbreds in the State, and the establishment of several new Standardbred breeding farms to supplement the supply of horses to run at the tracks.

It is the objective of the Division of Markets to promote the efficient and economical distribution of farm products through

the various marketing channels. Activities directed toward this objective will result in the commodities reaching the consumer in the most desirable form, condition and quantity and will also result in the producers deriving the maximum benefits from producing and marketing their products.

The activities of the Division are widely diversified, ranging from the distribution of horse and pony breeder awards to the provision of market news and Crop Reporting Service information, the promotion of New Jersey commodities, and the distribution of federally donated food commodities. The various lines of work fall within the Division's broad functions of market service, market expansion, marketing facilities development and food distribution.

Details of the work undertaken in the various work areas are described below.

MARKET EXPANSION AND PRODUCT PROMOTION

GENERAL MARKET DEVELOPMENT ACTIVITIES

During the past year the highlights of the market expansion program were: the "peachless" peach tour conducted as the Food Editors Tour on August 10, the commodity council participation in the New Jersey Education Association Convention at Atlantic City in November, the expansion of promotional activities in behalf of New Jersey milk and dairy products, an all-New Jersey promotion conducted by the Kings Supermarket chain, and the promotion of New Jersey blueberries in London by the food information specialist.

Food Editors Tour

Peaches were to be featured in this year's tour, concentrated in Gloucester and Cumberland counties. However, adverse weather including frost and hail minimized the crop. This provided an opportunity to conduct a "peachless" peach tour and to dramatize to the food editors the uncertainty of production agriculture, the investments involved and the risks undertaken by the farmers in attempting to produce an adequate supply of high quality foods. This twist resulted in more publicity than would have been generated by the usual tour, where an abundance of fine fruits would have been displayed, since the unexpected change gave the editors something new and different to write about. Other features of the tour included an explanation of the Agri-City plan for developing the Seabrook, N.J. area, a review of the Cook College reorganization by Dean Charles Hess and dinner, preceded by an all-fruits buffet at Centerton Golf Club. Secretary Alampi presented the "Communicator of the Year" award to Amos Kirby before the approximately 100 persons who attended.

New Jersey Education Association (Teachers) Convention

All members of the Market Expansion staff were involved in the New Jersey commodity exhibit and booth at the New Jersey Education Association at Atlantic City, November 6-9, 1972. The theme of the exhibit was "Produced Expressly for You" and featured a back-drop showing a train loaded with line drawing caricatures of New Jersey products. A new "Color Me Happy" coloring book was offered and was greeted by the teachers with enthusiasm, since its pages were designed to be used as "masters" and basic information concerning the commodity portrayed was also provided. Nine products were featured including the five council products plus ornamental horticulture, dairy, peaches and blueberries.

Milk and Milk Products Promotion

Milk promotion activities were considerably expanded during the year. The expansion was made possible by a \$4,000 grant from the Milk Marketing Order #4 budget. The promotions included a "Moo In" at the Cherry Hill Mall. Live calves were included in the exhibit and attracted large crowds. The State Dairy Princess distributed samples of fresh, cold milk and literature was also distributed.

Later in the year, a similar promotion was conducted at Livingston Mall in Essex County. The completely new "Milk Makes It" exhibit

was used, featuring a miniature barn, silo and fenced area with two baby calves. Several princesses dispensed milk buttons saying "Milk Makes It" and recipe material.

The grant of funds made possible the purchase of quantities of various publications from the American Dairy Association, which were later distributed at various promotional functions. These publications, which are excellent, have never been available for use at our exhibits, because no funds were available to purchase them.

The food information specialist was involved to a greater extent than previously in the activities related to the selection of the New Jersey Dairy Princess, culminating in the coronation ceremony and dinner in connection with the Flemington Fair.

Kings Supermarket Promotion

An all-New Jersey produce promotion was held during August at the various retail stores of Kings Supermarkets in northern New Jersey. To the greatest possible extent, New Jersey fruits and vegetables were offered for sale. The New Jersey Poultry Princess and the New Jersey Blueberry Queen participated in in-store promotions. Secretary Alampi visited participating stores with top officers of the chain to present awards to the produce managers who arranged the award winning displays. The officers expressed enthusiasm for the promotion and indicated the plan to repeat it next year.

New Jersey Blueberry Promotion in London

The food information specialist spent two weeks in London meeting with representatives of the trade, press, editorial home economists and food home economists to acquaint them with the product and to develop interest in future export sales and product promotion in the United Kingdom. A press party was held at the American Embassy as a highlight of this program. Several brokers later indicated interest in receiving shipments of fresh and frozen blueberries and the marketing facilities staff arranged the details pertaining to suitable shipping containers, shipping schedules and air freight arrangements.

NEW JERSEY ASPARAGUS INDUSTRY COUNCIL

The income of this Council decreased sharply this year because of greatly reduced yields in the crop. This reduction triggered investigations concerning the reasons for the reduction which revealed that a widespread and serious fusarium infection exists. Experimental work directed toward its control was initiated.

The asparagus recipe contest which has been a popular event for several years was continued. Entries were received from most of the states and several foreign countries.

The period November 11-17 was designated as Asparagus Week and information concerning this event and the recipe contest was sent to 326 major metropolitan newspapers. Asparagus Week is held in November to generate demand for processed asparagus products, since a large proportion of the Council's income is generated from the sales of asparagus for processing.

NEW JERSEY APPLE INDUSTRY COUNCIL

The New Jersey Apple Harvest Festival, conducted by the Orange Savings Bank with considerable assistance from the Department staff, is the largest single promotion for apples during the year. It includes an apple art contest for school children, displays of apples, guessing contests and free apples in the Bank's various offices, an apple pie baking contest and the selection of the New Jersey Apple Princess, culminating in a coronation dinner. The bulk of the expenses are paid by the Bank, but considerable publicity for New Jersey apples is generated, a type of promotion which should be encouraged.

The Trenton Savings Fund Society also conducted an Apple Harvest Festival, but this one is more limited, consisting of an apple guessing contest in their bank, coupled with the distribution of New Jersey apples to their customers.

Secretary Alampi was involved in negotiations to keep the plant of the National Fruit Products Co. in Glassboro open as an outlet for New Jersey apples. Difficulty had been experienced in meeting the requirements of environmental protection agencies regarding the disposition of processing plants waste material and the company at one time proposed closing the Glassboro plant and limiting its processing to the company's plants in other states.

The Apple Council established an Executive Planning and Review Committee to evaluate the Council's past activities and recommend a course of action for the future, in the light of anticipated revenues. Recommendations included the hiring of Louis Garrison as manager of the Apple Council as a Department of Agriculture employee, rather than an employee of the Council's advertising agency. Also, no contract with an agency will be negotiated for 1973-1974, since limited funds will be available for media advertising.

NEW JERSEY POULTRY PRODUCTS PROMOTION COUNCIL

The income of this Council has been sharply reduced during the 16 years since its establishment, because of the sharp reduction in the size of the industry in the State. As a result, media advertising has been reduced and the council manager has been involved in contacts with the "decision makers" of the larger food retailing organizations in attempts to induce them to use more New Jersey eggs.

There has also been increased emphasis on "direct from the farm" retailing programs as a method of getting a premium price. Advertising including the names and addresses of producers selling eggs at retail has been placed in a large number of local weekly papers in attempts to stimulate this kind of marketing.

NEW JERSEY SWEET POTATO INDUSTRY COMMISSION

Continuation of the New Jersey Sweet Potato Industry Commission for another three years was approved by a referendum conducted among the producers. Retention of the Commission was approved by

78.41 percent of the growers producing 85.93 percent of the 1972 crop. An affirmative vote of 65 percent of the growers producing 51 percent of the crop or 51 percent of the growers producing 65 percent of the crop was required for continuation.

The budget of the Commission is not large (\$5,100 for 1972-73) and the members decided the most effective use of their funds would be to use it for salary and expenses of a part-time person to call on produce buyers and merchandisers in behalf of their product. Accordingly, Joseph T. Lynch was authorized to act as their manager and he made calls on the trade in New Jersey, New York, Connecticut, Massachusetts, Pennsylvania, Illinois, Minnesota, Missouri.

Major emphasis was placed on the "old-fashioned dry yellow sweet potato" which is a variety produced almost exclusively in New Jersey and one which has many devotees who write after they move away from New Jersey to determine how they can obtain a supply of sweet potatoes of this type.

NEW JERSEY WHITE POTATO INDUSTRY COUNCIL

The promotional program of this Council has, for the past several years, consisted of a series of trips by the manager to call on produce buyers and merchandisers of the major food retailing chains to obtain their reports on their experience with New Jersey potatoes or to induce them to order some.

Emphasis has been placed on nearby customers because the short hauls involved result in less complaints of breakdown in transit and it is possible to visit the buyers more frequently and determine whether they are satisfied and if not, why not.

During the year the crop moved to market in an orderly fashion. There were no serious gluts and as a consequence, the price received by the grower was higher than in the past few years.

AGRICULTURAL PROMOTION TAX COLLECTION

Four agricultural industry promotion councils and one agricultural industry promotion commission now operate in New Jersey and represent the apple, asparagus, poultry products, white potato and sweet potato interests in the State. The laws creating the four councils and the one commission also impose a tax on the grower when his products are sold, delivered or used. This tax is collected by the Department and administered by the particular council or commission involved to finance programs of marketing, advertising, promotion and research for the benefit of that particular industry.

Poultry Promotion Council and Tax Act

The Poultry Products Promotion Council and Tax Act enacted in 1957 was the first of the New Jersey agricultural promotion tax programs. This act imposes a tax of one cent per hundred pounds on all feeds sold, delivered or used for poultry within the State (excluding feed used for the production of meat chickens). The tax is due on or before February 1 and August 1 of each year and covers the six-month period immediately preceding January 1 and July 1. Tax revenues

continue to decline as evidenced by the following summary of tax collections for the years 1963-1972:

TABLE 1. SUMMARY OF POULTRY TAX DOLLARS COLLECTED 1963-1972

<u>Year</u>	<u>Amount Collected</u>
1963	\$ 114,793.06
1964	92,775.10
1965	80,406.34
1966	72,352.62
1967	64,213.99
1968	48,899.68
1969	40,730.64
1970	39,012.95
1971	33,496.79
1972	27,760.46

Apple Industry Promotion Tax

A tax of three cents a bushel on apples sold for marketing as fresh apples and three cents one hundredweight on apples sold for processing, other than for cider or apples for juice, is imposed by a law which became effective July 1, 1959. This tax is collected quarterly, on the 15th of October, January, April and July and covers sales of apples during the previous three-month period. The tax yield fluctuations from year to year are influenced by the size of the crop and the proportions used for processing. A five-year collection summary follows:

TABLE 2. SUMMARY OF APPLE TAX DOLLARS COLLECTED 1968-1972

<u>Crop Year</u>	<u>Fresh Market</u>	<u>Processed</u>	<u>Total</u>	<u>Bushels</u>
1968	\$ 29,818.03	\$ 10,310.62	\$ 40,128.65	1,853,152
1969	35,180.40	9,262.74	44,443.14	1,944,573
1970	29,928.08	5,496.61	35,424.69	1,445,654
1971	32,547.41	6,275.98	39,323.39	1,649,579
*1972	21,980.00	4,200.38	26,180.38	1,082,699

Asparagus Industry Promotion and Tax Act

The revenue collected by this tax is paid by the growers and the processors of New Jersey asparagus. Imposed by law effective July 1, 1959, an excise tax is levied upon any sale, delivery or use at the rate of \$0.002 for each pound of pay weight, of which \$0.001 is paid by the grower and \$0.001 is paid by the processor for processed asparagus. For fresh market asparagus the rate of \$0.02 for each standard crate or its equivalent is paid by the grower. Collections for the past five years are summarized in the following table:

* 1972 totals are for the first three tax quarters only.

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TABLE 3. SUMMARY OF ASPARAGUS TAX DOLLARS COLLECTED 1968-1972

<u>Taxing Period</u>	<u>Fresh Market</u>	<u>Processed</u>	<u>Total</u>
1968	\$ 7,723.90	\$ 66,968.56	\$ 74,692.46
1969	6,451.91	47,412.27	53,864.18
1970	6,287.77	35,407.05	41,694.82
1971	6,234.42	22,943.55	29,177.97
1972	5,240.19	13,642.01	18,882.20

White Potato Industry Promotion and Tax Act

This law, in existence since 1957, imposes a tax of five cents per hundredweight on all sales, delivery or use within the State of white seed potatoes. The tax is due August 1, and covers the 12-month period immediately preceding July 1. The steady decline in tax revenue for the past five years reflects an annual decline in acreage devoted to this crop.

TABLE 4. SUMMARY OF WHITE POTATO TAX DOLLARS COLLECTED 1968-1972

<u>Taxing Season</u>	<u>Amount Collected</u>
1968	\$ 12,384.60
1969	12,307.75
1970	10,144.26
1971	10,157.06
1972	8,603.77

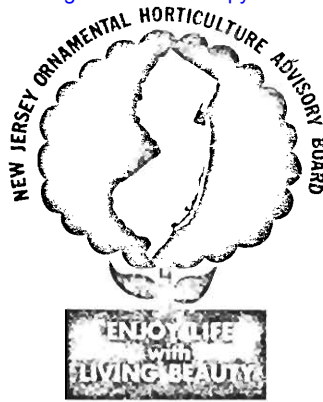
Sweet Potato Industry Promotion and Assessment Act

This act which became effective July 1, 1966, levies a tax of \$0.02 per bushel upon any sweet potatoes produced within the State and offered for sale, delivery or use. The tax is due on or before February 1 and August 1 for each six-month period immediately preceding January and July, respectively.

TABLE 5. SUMMARY OF SWEET POTATO ASSESSMENT COLLECTED 1966-1972

<u>Crop Year</u>	<u>Fresh Market</u>	<u>Processed</u>	<u>Total</u>	<u>Bushels</u>
1966	\$ 7,287.63	\$ 1,867.18	\$ 9,154.81	457,735
1967	6,361.46	928.66	7,290.12	364,506
1968	5,494.15	870.72	6,364.87	318,244
1969	5,626.13	782.82	6,408.95	320,448
1970	4,154.94	142.56	4,297.50	214,875
1971	4,441.00	291.84	4,732.84	236,642
1972 <u>1/</u>	2,244.61	119.62	2,464.23	123,212

1/ First half totals only.



ORNAMENTAL HORTICULTURE PROGRAM

Promotional activities for the industry included the preparation of a booklet entitled "Careers in Ornamental Horticulture in New Jersey" which was distributed to industry people and educators at the New Jersey Education Association convention in Atlantic City. A film on the ornamental horticulture industry is presently being developed under the direction of John Cunningham, noted historian and author. Approximately 80 percent of filming has been completed and the film is expected to be finished by November 1, 1973. An exhibit was developed for the Advisory Board and was displayed at the State House Rotunda, New Jersey Association of Nurserymen, Flemington Fair, and the New Jersey State Florists' Association annual dinner.

Extensive time was spent preparing proposed legislation for the ornamental horticulture industry in New Jersey which would provide a mandatory assessment on the industry in order to fund a permanent promotion and merchandising program. Further investigations will continue. A series of county and regional meetings was conducted throughout the State in order to better inform the ornamental horticulture businessmen of the program of the New Jersey Ornamental Horticulture Advisory Board. A contribution letter was prepared and mailed out to the ornamental horticulture industry in New Jersey with a total of \$1,935 received to date. A complete and accurate mailing of the entire ornamental horticulture industry was prepared and coded by each county. The present list comprises approximately 3,000 businesses.

The ornamental horticulture representative supervised the designing and planting of the Department's exhibit at the New Jersey Flower and Garden Show and the New Jersey State Fair. The exhibit was awarded two trophies for best in the State Fair. Continued assistance was provided to Mercer County Community College in planning the ornamental horticulture curriculum.

Investigations into the development of a "Buyers Guide for Nursery Stock" were pursued with James Toomey from the Federal-State Improvement Program, U.S. Department of Agriculture. It is expected that the Buyers Guide will be completed during the 1974 fiscal year.

Continued liaison was maintained with the mass marketing retail outlets, informing them of the availability of New Jersey-produced stock and names and addresses of suggested growers. A large number of placements were made during the fiscal year to the following stores: Twin County Grocers, Two Guys and Builders Emporium.

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Two 15-minute radio programs were taped on WJKL with Mrs. Peggy Crooks, garden editor, Asbury Park Press, on the new promotion and merchandising program. Also discussed were Arbor Day, Rose Month, New Jersey Flower and Garden Show, and the handout materials that are available through the Department.

Arrangements were made for the Governor's official proclamation of Rose Month in New Jersey during the month of June.

A day was spent in Washington with Wayne Dickson of the American Association of Nurserymen to discuss the adaptability of their national program on a State level. Much information was provided and it is expected that we will begin a State "Green Survival Program" in New Jersey. Public service announcements on Green Survival have been prepared and contacts with radio stations on their use have been approved.

MARKETING ORGANIZATION AND FACILITIES DEVELOPMENT

The fiscal year saw some pronounced changes in the marketing of New Jersey agricultural products. Many growers used outlets new to them and products were shipped to markets farther away from New Jersey. An increased amount of interest in exporting was shown, particularly to Canada, but also to the Caribbean and to Europe.

The earlier proposal to form a master sales organization for fresh fruits and vegetables remained dormant during the year. Some disastrously low returns to growers in the fall of 1972 prompted growers to discuss the possibility of reviving the proposed "Garden State Marketing Association." Nothing was done and by the spring of 1973, better prices and returns overshadowed the need for a joint sales organization. There has been a continued shift of growers toward selling through the Vineland Cooperative Produce Auction, which set a record of sales of close to \$15,000,000 during the 1973 crop year. With other marketing groups losing members to Vineland, these organizations will have a lesser number of packages sold, decreased sales and a decline which may lead to closing.

New Site and Facilities

While a number of cooperatives are declining, the Cooperative Growers Association of Tabernacle has shown considerable growth since September 1972. A new manager was hired with the help of the coordinator and his aggressive, efficient leadership has worked a miracle for the cooperative. The sale of the property in Beverly was completed, and the funds used to satisfy commitments to local financial institutions and the Springfield Bank for Cooperatives.

The marketing coordinator assisted the new manager materially in completing unfinished work on buildings and with plans for bulk handling through cooling, storing and shipping. One hydrocooler was enlarged to cool palletized loads rather than feeding and unloading one package at a time by hand handling. Plans drawn earlier by the coordinator for a concrete floor in the hydrocooler building were modified and a new floor poured. Excavation took place for a four-truck loading dock and a portable vacuum cooler. This should insure more complete cooling

of sweet corn. A loading pit for trucks to receive bulk fertilizer resulted in farmers getting loaded and on their way in 20 minutes.

To further generate income for the cooperative, a garden center was opened and thousands of dollars of sales were realized this first spring season. Fresh fruits and vegetables were made available for roadside market operations, diners and restaurants. This all is a prime example of the progress that can be made when a board of directors selects a capable manager and allows him to manage.

Another marketing organization, the Gloucester County Agricultural Cooperative Association, Inc., at Glassboro, sold its old cold storage at Pitman. The coordinator had encouraged this for several years and previous constant losses will be eliminated. Renewed effort has been made to sell the property at Glassboro and a firm offer has been received. Upon final sale, the cooperative will relocate to its Mullica Hill property. Efforts to generate income through the sale of flowers and garden supplies has helped the cash flow problem. Direct sales of peaches rather than by auction is the method planned for the 1973 crop. A new cold storage is not possible at present because of the loss of growers and the tight money situation.

Cooling of Products

With more hydrocoolers being changed over to handle pallet loads (such as at Tabernacle), cost reductions will be realized in saving four to six men per hydrocooler. More hydrocoolers need to be converted to mechanical refrigeration to save on excess costs for ice and the work involved in handling it. With the addition of more vacuum coolers for longer periods of the harvest season, more products are being thoroughly cooled. Two such vacuum coolers were in position for the mid-1973 harvest season (Tabernacle and Vineland) that were not in use in 1972. Here again, the coordinator advocated such cooling in previous years, but only now is it being realized. Converting the hydrocooler at Tabernacle to handle pallet loads means the pallet load can be thoroughly soaked with well water, then vacuum cooled, with all handling by lift truck from the farmer's truck, through the hydrocooler, vacuum cooler and into cold storage or onto the tractor trailer for shipment.

With cold, wet weather during the fall lettuce harvest, growers were in trouble because of poor keeping quality. An insufficient amount of free moisture was removed during vacuum cooling. Sales were lost to the military and other buyers. The coordinator and military representative arranged with the Agricultural Research Service office of the U.S. Department of Agriculture at Belle Mead to gather samples of lettuce for shelf life study during storage, with the idea of developing recommendations to help eliminate early spoilage. The study is to be continued during the fall of 1973.

Containers

A major effort was made to assist growers and shippers of blueberries meet the need for lighter weight shipping containers and 1/2-pint retail units. Fifteen different 12-pint trays were assembled, shown and discussed with leaders of the blueberry industry. Various styles and different products were checked out for pints and 1/2-pints.

Industry leaders responded with major switches away from the heavier, traditional wooden tray to lighter corrugated cartons. Firm orders were placed for 1/2-pint containers as samples and for commercial lots. Plans are underway to export 1/2-pints to London as well as some fresh, loose blueberries in 25-pound shallow corrugated cartons with a poly liner.

Marketing Institute

The Fifteenth New Jersey Marketing Institute was held at Forsgate Country Club, Jamesburg, on November 30, 1972, with approximately 150 in attendance. The use of the two rooms at the country club was modified with better physical arrangements for the Institute resulting. A fine cross section of agricultural and business leaders from the Northeast attended the all-day affair. The theme of "Bargaining in Agriculture" attracted speakers from Iowa, Missouri, Washington, D.C., and Illinois.

Kenneth Hood, secretary, Market Development and Research, of the American Farm Bureau Federation, Park Ridge, Ill., and Oren Lee Staley, president of the National Farmers' Organization, Corning, Iowa, made up the morning program. The afternoon session heard Randall Torgerson, assistant professor of agricultural economics at the University of Missouri, Columbia, Mo.; Ronald Knutson, staff economist, Agricultural Marketing Service, U.S. Department of Agriculture, Washington, D.C.; and Peter Nash, general counsel for the National Labor Relations Board, Washington, D.C. Many favorable comments were received on the program.

Export Activity

More time and effort were given to the export of agricultural products than in any previous year. Following the ground work in the spring of 1972 with the agricultural attache's office in London, a sample shipment of fresh blueberries was flown to London on July 12, 1972. They were in excellent condition upon arrival and distribution and sales resulted in a firm order of 200 trays twice a week. A nationwide strike by dock workers in England stopped all movement through July. By the first of August, sample shipments of both blueberries and sweet corn to another importer in London resulted in firm orders for blueberries of 180 trays twice a week. The exporter in New Jersey declined to ship, stating he was unable to meet the high quality of fruit already sent to London. The importer advised they wanted blueberries in containers smaller than a pint.

The food information specialist spent two weeks in London to introduce blueberries to the communications media and users of fresh and frozen products. The trip was financed by the Foreign Agricultural Service, U.S. Department of Agriculture, and the North American Blueberry Council. Frozen blueberries were shipped to London in May and fresh blueberries in early June for demonstration purposes. Advertising and promotion material shipped in April helped in a most successful two weeks of promoting blueberries to London buyers.

Agricultural Research Service personnel from Belle Mead, N.J., and Rotterdam, Holland, assisted with quality evaluation and shelf life studies on the berries shipped to London in early June. Additional studies are planned on cooling fresh packed berries in pallet loads.

Several more companies have been added to the "Trade Opportunity Referral System" (TORS), U.S. Department of Agriculture, which matches United States products for export with the needs of foreign buyers. Close liaison has been maintained with the Foreign Agricultural Service in Washington. The coordinator spoke at the National Export Workshop at College Park, Md., in March on the exporting of blueberries to London.

Sales to the Military

As in past years, continued liaison has been maintained with the New York Subsistence Regional Headquarters (Defence Personnel Support Center) and with the buyers in the field. Additional staff meetings were arranged to fully discuss changing conditions of product and to indicate some quality study work on fall lettuce.

With increased emphasis on other work, the farm products representative for military purchases still maintained sufficient contact with shippers and military buyers to achieve maximum consideration on New Jersey products. This again resulted in the armed forces receiving the highest quality available. Again, the produce purchased was shipped to domestic outlets as well as to England, West Germany and to the U.S. Navy for ship resupply.

Poor harvesting conditions reduced the purchase of 1972 fall iceberg lettuce but the more suitable spring crop resulted in the normal resumption of purchases. During the year, packages of fresh produce purchased by the military amounted to 109,650 with an approximate value of \$710,955. The lower number of packages purchased during the year can be attributed to a general reduction in numerical strength of the armed forces, while the relatively small reduction in dollar value can be attributed to higher unit prices. For the previous year, 340,825 packages were purchased with an approximate value of \$985,089.

Both the commanding officer and his staff and the New Jersey produce growers and shippers selling to the military have expressed their appreciation for the State's assistance to them in the military procurement program.

Administrative and Other Duties of the Export Representative

The export representative assisted in the inspection of Certified Roadside Markets and visited Certified and other markets in a statewide survey; made all internal arrangements at Forsgate Country Club for the Marketing Institute; and worked as ringmaster in the Annual New Jersey Bred All Breed Horse Show.

Roadside Marketing

In a continuing effort to assist the roadside marketing of Garden State products, more attention was devoted to a determination of the status of this direct selling method. Considerable time was spent in assisting with the roadside market survey undertaken by the New Jersey Crop Reporting Service. Assistance was provided with compiling an up-to-date mailing list of markets to be surveyed. Subsequently, it became necessary to follow up on the market operators who

did not respond initially to the survey. The farm product representatives contacted over 250 market operators to determine the required information.

More than 1,000 roadside market operators received letters cautioning them to be careful about misrepresenting out-of-state produce as Jersey grown. This letter, likewise, reminded operators about the need to conform to the regulations of the Division of Weights and Measures concerned with proper labeling of their consumer packages.

The representative participated as a panelist in the Fifth New Jersey Roadside Market Conference sponsored by the Cooperative Extension Service at Rutgers; attended the Ohio State Roadside Market Conference at Columbus, Ohio, as well as the Pennsylvania Certified Markets Annual Meeting at Hershey, Pa. Many of the ideas and marketing tips gathered at these conferences are helpful in working with Garden State roadside markets.

Routine evaluations of the member markets of Jersey Certified Farm Markets, Inc., were conducted throughout the active marketing period. The representative was instrumental in arranging for a model Certified Market to be set up in Cherry Hill Mall during the last week of September. Under the direction of the Certified manager, 14 member markets participated by providing produce as well as market personnel to handle the crowds of the Mall's shoppers. The Department provided one of its attractive exhibits to inform the public of its services. Point of sale pieces and recipe leaflets were made available. This promotion was so successful that it will be repeated twice in 1973. Daily inspections at the market were conducted to assure consumers of top quality products.

In conjunction with Weight Watchers, Inc., 50,000 special recipe giveaways incorporating the use of in-season fruits and vegetables were distributed.

All meetings of Certified's board of directors were attended in an advisory capacity. Monthly "Roadside Market Chats" articles were prepared for the Certified monthly "Market News" which has a mailing list of over 350. The representative also participated in the annual clerk workshop and at the annual membership dinner meeting.

In executing the roadside market survey, an opportunity to visit non-certified markets was provided and the services of the Department were offered. These visits provided an opportunity to make recommendations on proper labeling, packaging, market layout and potential sources of supply.

Institutional Food Service

During the year, many contacts with food service managers were made in an attempt to increase their purchases of fresh produce or processed items from New Jersey packers. Where possible, sources of particular products were identified.

A one-day tour of South Jersey processing facilities was conducted for the manager and senior buyer of Trans World Airlines, Kennedy International Airport. This included an extended visit and tour at Seabrook Farms institutional food processing plant. Our guests had the opportunity to sample all of the prepackaged portion control entrees being manufactured. Also, a visit to a poultry processing plant near Vineland was made. Interest was expressed in a newly created frozen chicken sausage patty that Trans World Airlines could incorporate in their inflight breakfast menus. Discussions on procurement and delivery took place.

Several visits were made with Allied Stores Marketing Corporation of New York to discuss their desire to update their bid specifications for 1973 supply for the manufacture and sale of over 3,000,000 blueberry muffins in their retail stores.

Periodic visits and phone contacts were made to more than 15 food service managers to keep them apprised of new and interesting items available. Promotional material was made available on request for special promotions.

Assistance was provided when requested by the export marketing representative in the trial shipments of Jersey products to England. Photographic coverage resulted in favorable publicity in the trade and public media regarding these efforts.

The representative cooperated with the New Jersey Crop Reporting Service in conducting their asparagus acreage survey. Sixty-three South Jersey growers were contacted to complete this survey.

Assistance was given with the plans and preparations concerned with the annual New Jersey Marketing Institute. Responsibility was assumed for all audio-visual material and equipment required.

MARKET NEWS AND COOPERATIVE SERVICES

Market News

A cooperative agreement between the New Jersey Department of Agriculture and the Agricultural Marketing Service of the U.S. Department of Agriculture enables the New Jersey Department of Agriculture Market News Service to provide accurate, up-to-the-minute information of the supply, demand, prices and movement of agricultural products grown in New Jersey.

Trading is reported at major terminal markets as well as in important production and shipping areas. In New Jersey, the concentration is on shipping point areas with offices located in Bridgeton and Trenton. For rapid exchange of information, all Federal and Federal-State market news offices are connected by a network of leased wire teletype lines.

Reports are mailed direct to people requesting information on the various commodities. The reports are also released to radio stations and newspapers and through the telephone answering service.

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Livestock

The six livestock auction markets continued their weekly sales, giving the number of head, class of all sales and prices received. Reports from the six markets showed a decrease in the number of animals sold and an increase in the total value of sales.

The following table shows the sales at the cooperating markets for 1971-72 and 1972-73.

TABLE 6. SUMMARY OF SALES AT THE LIVESTOCK AUCTION MARKETS

<u>Market</u>	<u>No. Animals</u>		<u>Value</u>	
	<u>1971-72</u>	<u>1972-73</u>	<u>1971-72</u>	<u>1972-73</u>
Flemington	6,026	4,749	\$ 402,395.87	\$ 351,979.91
Hackettstown	46,672	48,405	4,819,939.37	6,326,796.20
Freehold	885	833	76,215.74	88,652.02
Sussex, Jaegers	22,194	17,083	2,170,270.70	2,166,115.14
Woodstown				
Cowtown	17,480	15,730	1,545,596.18	1,876,548.06
Woodstown				
Community	<u>8,755</u>	<u>7,536</u>	<u>1,177,356.05</u>	<u>1,393,006.61</u>
Total	102,012	94,336	\$10,191,773.91	\$12,203,097.94
1970-71 Totals	104,262		\$9,547,235.48	

The Market News Service mailed approximately 18,815 weekly feed and livestock reports during the year to people requesting the information. The report consisted of the following information: Current feed and grain prices, hay and straw prices, the current week's sales at the six livestock auction markets, and the less than carlot meat prices at New York secured from the U.S. Department of Agriculture leased wire service.

Poultry and Eggs

The Division has continued to cooperate with the U.S. Department of Agriculture in securing information from poultry and egg dealers on supply, demand and prices received. A Monday morning inventory report was continued during the past year. The market reporter calls egg dealers each Monday morning to secure their inventory of the various size eggs as well as ungraded eggs on hand at the beginning of business each week. Information gathered from poultry and egg sources within the State is compiled and reported to the Philadelphia Office of the Agricultural Marketing Service, U.S. Department of Agriculture.

The weekly egg and poultry report was continued throughout the year, giving the following information: Wholesale selling prices of eggs at the New Jersey Egg Marketing Association; the New York wholesale selling prices of eggs secured from the U.S. Department of Agriculture leased wire service; the cold storage holdings of eggs; the New York market truck lot and carlot supply; demand and price for broilers and fryers; and, too, the eastern Pennsylvania and New Jersey live poultry report.

Cooperative Poultry and Egg Marketing

During the fiscal year, the Vineland and South Jersey Egg Cooperative sold its business and dissolved the cooperative. The Livestock Cooperative Auction Market Association of North Jersey, Inc., Hackettstown, continues to sell live poultry and eggs by auction.

The cooperatives marketed products total value was \$1,202,518.78 during the current fiscal year compared with a total value of \$1,317,134.95 for last year.

Table 7 is a summary showing the volume and value of eggs and poultry handled by each cooperative market, and the totals thereof, as well as a comparison with last year of the price per dozen for eggs and the price per pound for all poultry.

Poultry Slaughter

An informative program has been implemented with the U.S. Department of Agriculture since the fall of 1972. Each Wednesday, the market reporter calls the slaughter plants in the State and secures the number of head and the pounds of poultry slaughtered in each plant the past week. This information is compiled and forwarded to the U.S. Department of Agriculture office in Philadelphia. To date, the Federal agency has made no decision upon releasing this data to the industry.

Fur Markets

During the year, an auction market selling furs and pelts reported their sales to the Department. This information was included in the feed and livestock report which is mailed weekly. During the marketing season, approximately 35,000 furs and pelts were sold by auction. They consisted of muskrats, racoons, foxes, opossums, skunk, beavers, weasels and other hides.

Fruits and Vegetables

The primary function of the New Jersey Fruit and Vegetable Market News Service, which functions under a Federal-State Agreement with the U.S. Department of Agriculture, is to collect and disseminate supply and price information on locally grown crops. During 1972, f.o.b. prices were reported on eight different crops and auction prices were reported on 15 crops. The information collected is fed back to producers, shippers, wholesalers and consumers.

Price and supply information collected from producers and shippers in New Jersey is transmitted over the nationwide leased wire teletype service of the U.S. Department of Agriculture and in exchange, information vital to orderly marketing in New Jersey is received. In addition to the leased wire system, another method of disseminating market news information is the telephone tape recorded announcers.

Two such phones were in operation in New Jersey, one in Hightstown used seasonally and one in Bridgeton used year round. Messages on these phones were changed at least once and sometimes three or more times daily and were available to the caller 24 hours a day. A

TABLE 7. SUMMARY OF SALES OF EGG AND POULTRY COOPERATIVE AUCTION MARKETS

July 1, 1972 to June 30, 1973

<u>Market</u>	<u>30-Dozen Cases of Eggs</u>	<u>Value of Eggs</u>	<u>Crates of Poultry</u>	<u>Pounds of Poultry</u>	<u>Value of Poultry</u>	<u>Total Value</u>
Hackettstown	26,085	\$ 371,384.03	3,978	111,913	\$36,013.45	\$ 407,397.48
Vineland <u>1/</u>	<u>74,139</u>	<u>795,121.30</u>	<u>-----</u>	<u>-----</u>	<u>-----</u>	<u>795,121.30</u>
Total	99,900	\$1,166,505.33	3,978	111,913	\$36,013.45	\$1,202,518.78

Average price per dozen of eggs, 1972-73: \$0.3890

Average price per dozen of eggs, 1971-72: \$0.2864

Average price per lb. of live poultry, 1972-73: \$0.32

Average price per lb. of live poultry, 1971-72: \$0.31

1/ Figures for Vineland are for July 1, 1972, through March 31, 1973.

total of 8,012 calls was received on these phones during 1972-73, an increase of 2,044 over the previous year. Radio was also used to disseminate information. For 11 years, station WSNJ in Bridgeton (1240 AM and 107.7 FM) has made five minutes available daily Monday through Friday for a market news message. The message was recorded by phone direct from the market news office and was aired daily at 12:10 p.m. Other stations, such as WWBZ in Vineland, record for rebroadcast portions of the messages on the telephone tape announcers.

The industry is also kept informed of marketing conditions via the printed report that is issued on a year round basis. It was issued daily from late April until November and biweekly for the balance of the year. Lack of Federal funds prevented resumption of daily mailings in the spring of 1973. With the cooperation of the U.S. Department of Agriculture, it was resolved so that a triweekly report would be issued during the current year.

This report provides growers, buyers and other interested parties with current New Jersey f.o.b. prices and supply information. Similar data from competing growing and marketing areas were also provided. A total of 62,900 reports was mailed during the past season.

Other reports were issued on the daily truck shipments of white potatoes. Information was also compiled on the daily shipments of iceberg lettuce in the spring and fall and on the daily movement of blueberries. The Division of Markets in cooperation with the Statistical Reporting Service, U.S. Department of Agriculture and the National Oceanic and Atmospheric Administration, Department of Commerce, issued a "Weekly Digest on Crops, Weather and Markets" in New Jersey. A total of 22,286 of these reports was mailed during the 1972-73 season.

After the main shipping season was over, four summaries comprising some 109 pages were prepared, analyzing the previous marketing season of 13 of New Jersey's major crops. These booklets are valuable tools to the producer in planning new marketing programs and expansion for the coming season. A total of 1,267 booklets was mailed this year to all segments of the agricultural industry.

Volume on the eight New Jersey fruit and vegetable cooperatives and auctions during 1972-73 showed an increase of 191,516 packages or 4 percent over the previous year and an increased total value of \$4,765,637.54 or 2 percent over the previous year.

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TABLE 8. SUMMARY OF ALL SALES AT EIGHT NEW JERSEY FRUIT AND VEGETABLE COOPERATIVES AND AUCTIONS

<u>Auction</u>	<u>Volume</u>			
	<u>1971-72</u>	<u>1972-73</u>	<u>1971-72</u>	<u>1972-73</u>
Tabernacle	224,147	156,757	\$ 685,752.00	\$ 426,367.55
Cedarville	8,833	---	20,302.00	---
Glassboro	113,771	27,548	372,517.00	113,679.85
Hammonton	65,048	72,970	435,593.80	486,977.00
Hightstown	388,118	332,831	668,401.07	765,243.30
Landisville	368,732	440,142	1,002,027.50	1,696,501.10
Swedesboro	420,256	423,215	2,192,784.35	2,064,236.41
Vineland	<u>3,412,019</u>	<u>3,738,977</u>	<u>9,436,590.21</u>	<u>14,026,600.26</u>
Totals	5,000,924	5,192,440	\$14,813,967.93	\$19,579,605.47

Processors

The Market News Service has been cooperating with processors in the compiling of information on two major New Jersey crops. A processed asparagus report has been issued for the past six years and a processed tomato report for two years.

The asparagus report is a weekly tabulation of the gross pounds of asparagus received by processors located in New Jersey, Maryland, Delaware and Virginia. The tomato report covers only New Jersey processors and is based on the weekly gross tons received. Both reports contain comparative data for previous years on a weekly and season total to date basis. The information compiled is a valuable instrument in packing and marketing programs. There were 564 of these reports issued in 1972-73.

Cooperative Services

Bureau activities consist of providing advice and direction to agricultural cooperative associations on matters of organization, incorporation procedure, merger, changes in bylaws, dissolution of inactive associations and the supervision for filing the various annual cooperative association reports and fees with the Secretary of Agriculture.

TABLE 9. SUMMARY OF NEW JERSEY AGRICULTURAL COOPERATIVES

<u>Total Number of Cooperatives Operating in New Jersey</u>	<u>Number of Memberships in New Jersey Cooperatives</u>	<u>Net Annual Business Volume</u>
72	27,502	\$135,467,000

As of the 1972-73 listing, 72 agricultural cooperative associations are incorporated or domesticated in New Jersey under the New Jersey Agricultural Co-operative Associations Act.

During the past year, eight cooperative associations became inactive and were dissolved and one out-of-state cooperative registered under

the Co-operative Act. Since 1970, 20 cooperative associations have closed operations in New Jersey and several more are in the process of liquidating.

Regulatory Functions

Under the provisions of the New Jersey Agricultural Co-operative Associations Act, this Bureau maintains on file the certificate of incorporation for the 72 agricultural cooperative associations operating in this state. Each of these associations is required to file an annual audit report and cooperative questionnaire listing current information on association activities, memberships, officers, directors and management. This Bureau received and reviewed such annual audits and reports along with the required filing fees for each agricultural cooperative association operating under this act.

Service Functions

Organizational Assistance

Bureau services have been utilized by a number of agricultural associations other than cooperatives in the area of guidance in the incorporation process and bylaws development and changes. Assistance of this kind is given to marketing, educational and other agricultural oriented organizations. The Bureau also cooperated actively with various Task Forces compiling information for the Governor's Blueprint Commission on the Future of New Jersey Agriculture.

New Jersey Council of Farmer Cooperatives

Working with the New Jersey Council of Farmer Cooperatives, this Bureau assembled and disseminated information on legislation, tax matters, member relations and public relations to agricultural cooperatives. This Council is composed of 25 marketing, purchasing and service cooperatives located throughout the State.

In an ever-expanding program with rural youth, the Council provided assistance to 4-H and FFA Chapters in their programs on leadership development and cooperative projects. The groups that were judged to be the New Jersey winners of the various competitions were then sponsored by the Council to participate in regional and national meetings of their organization.

In connection with the national observance of October as Cooperative Month, the New Jersey Council held a statewide membership meeting with "Cooperatives Serve" as its theme.

The Cooperative Marketing Associations in New Jersey, Inc.

Bureau assistance was provided this group of 13 cooperatives in the area of market information exchange and reports on current legislative issues of importance to their industry. Monthly meetings held by this group provided them with the opportunity to exchange information on problems of mutual interest.

HORSE INDUSTRY

Thoroughbred and Standardbred Breeder Awards

During the fiscal year, a total of \$214,465 was paid to 179 individual owners, breeders, and stallion owners of New Jersey bred Thoroughbreds. One hundred and fifty-eight individual New Jersey bred horses participated in the program. Star Edition, a two-year-old stallion, was named New Jersey bred Thoroughbred of the Year.

A total of nearly \$47,000 was paid to 114 owners, breeders, and stallion owners of New Jersey Standardbreds. A total of 126 individual New Jersey bred horses participated in the program.

New Jersey Sire Stakes Program

The first year, 1972, has surpassed the most optimistic expectations of its sponsors. In one brief season, the New Jersey Sire Stakes Program has firmly established itself as an unqualified success. During the year, 209 horses were nominated with 160 competing in 72 races which were held for New Jersey-sired two, three and four-year-olds. Purses totaled \$465,000. Purse money is derived from withholding 49 percent of 1 percent of the total parimutuel handle at New Jersey harness tracks, plus nominating, sustaining and starting fees put up by the horsemen themselves.

New Jersey Horse Breeding and Development Program

A successful Farmers Week Horse Industry Program was conducted on January 20, 1973, at the Governor Morris Inn. Over \$50,000 in non-racing breeder awards was presented to winners in the 11 breeds of horses. Fifteen hundred persons attended the day's events and 25 exhibitors took part.

Seven new delegates and alternates were appointed by the State Board of Agriculture to the New Jersey Equine Advisory Board.

The 1973 New Jersey Stallion Directories were printed and distributed.

Ernest C. Bell of Woodstown and Stephen G. Colando of Colts Neck were named permanent, voting special advisors to the New Jersey Equine Advisory Board.

The Opinion Research Survey of the horse industry was reprinted.

The New Jersey Equine Advisory Board approved and recommended to the State Board of Agriculture that a \$2,400 zoning study be contracted between the New Jersey Department of Agriculture and the New Jersey Horse Council. The purpose of the study is to find ways to combat the discriminatory zoning laws passed in local townships adjoining horse farms.

The response of New Jersey's equine industry to the publication of a monthly calendar of equine events has surpassed all expectations. The requests for the list have doubled since it was introduced less than a year ago with more coming in daily. At the present time, 600 are mailed out each month.

TABLE 10.

DIVISIONAL EARNINGS CHAMPIONS

<u>Division</u>	<u>Horse</u>	<u>Sire Stakes Earnings Only</u>
Two-year-old-Filly-Trot	MERJOD-bf, by Caton Hanover-Mercury Cindy Pearl & Mendie Joffe, Springfield, N.J.	\$21,544.00
Two-year-old-Colt and Gelding-Trot	LOOKOUT KLEINMAN-br.c, by High Walter-Take Out Dr. Robert Blease, Stewartsville, N.J.	15,657.50
Two-year-old-Filly-Pace	LUCKY MAE-bf, by Luca's Luck-Mae Forester Joe Pat Farm, Inc., Syosset, N.Y.	18,711.80
Two-year-old-Colt-and Gelding-Pace	J. M. PETTER-bc, by Adios Ronnie-Warbling Byrd Joe Mar Stable, Allentown, N.J.	17,591.70
Three-year-old-Filly-Trot	KAYCOL KEY-bf, by Boot Key-Kathleen Colby Jack Adams, Gettysburg, Pa.	23,285.00
Three-year-old-Colt and Gelding-Trot	SQUINKY BIRD-br.c, by Butler Byrd-Clancy Girl Andrew M. & Marcos Andreadis, Farmingdale, N.J.	19,430.94
Three-year-old-Filly-Pace	BUTLER'S QUEEN-bf, by Butler Byrd-Lady Gay Gus Nicholas, Minas & John Papadakis, Palisades Park, N.J.	17,670.35
Three-year-old-Colt and Gelding-Pace	J. M. COMMANDER-bg, by Adios Ronnie-Rhythm Lass Joe Mar Stable, Allentown, N.J.	13,537.47
Four-year-old-Trot	MARION CATON-bg, by Caton Hanover-Ann Will Circle W Stable, Whitestone, N.Y.	13,193.80
Four-year-old-Pace	J. M. ROCKET-bg, by Adios Ronnie-Shadydale Duchess Joe Mar Stable, Allentown, N.J.	11,570.40

TABLE 11. NEW JERSEY SIRE STAKES TIME RECORDS SET IN THE FIRST YEAR

Times on a Half-Mile TrackTimes on a Five-Eighths Track

<u>Division</u>	<u>Time</u>	<u>Horse</u>	<u>Division</u>	<u>Time</u>	<u>Horse</u>
Two-year-old-Filly Trot	2:22.1	Merjod	Two-year-old-Filly Trot	2:20.1	Merjod
Two-year-old-Colt and Gelding Trot	2:17.1	Lookout Kleinman	Two-year-old-Colt and Gelding Trot	2:27	Lookout Kleinman
Two-year-old-Filly Pace	2:06.4	Lucky Mae	Two-year-old-Filly Pace	2:07.4	Lucky Mae
Two-year-old-Colt and Gelding Pace	2:06.4	J. M. Peter	Two-year-old-Colt and Gelding Pace	2:09.4	J. M. Peter
Three-year-old-Filly Trot	2:12.1	Kaycol Key	Three-year-old-Filly Trot	2:08.2	Kaycol Key
Three-year-old-Colt and Gelding Trot	2:15.1	Squinky Bird	Three-year-old-Colt and Gelding Trot	2:11.4	Doc Reed
Three-year-old-Filly Pace	2:06.2	Butler's Queen	Three-year-old-Filly Pace	2:06	Butler's Queen
Three-year-old-Colt and Gelding Pace	2:01.4	Parading Home	Three-year-old-Colt and Gelding Pace	2:02.4	Butler's Prince
Four-year-old-Trot	2:08.3	Marion Caton	Four-year-old-Trot	None	None
Four-year-old-Pace	2:02.2	J. M. Rocket	Four-year-old-Pace	None	None

A directory which will list not only the names and telephone numbers of breed group officials, but also officials of the State's various horse associations, as well as individuals playing leading roles in New Jersey's equine industry, is currently in the planning stage.

Special events included the annual Thoroughbred Mare and Foal Show (cash breeder awards are presented by the Equine Advisory Board through the Department); the inauguration of a \$5,000 Sussex County Jumper Classic as an additional feature of the Sussex County Farm and Horse Show, at which the top trophy and ribbon were presented by entertainer Pat Boone; and the participation of a large group of Arabian horses in the Miss America Beauty Pageant held in Atlantic City.

During June, the New Jersey Equine Advisory Board presented a \$1,000 check for the use of the 4-H camp at Beemerville with Equine Advisory Board Chairman Robert Haag, Secretary of Agriculture Phillip Alampi, and Thomas J. Murphy, supervisor of the Camp present.

Finally, on June 16, 1973, the Fifth Annual New Jersey Bred All Breed Horse Show was held at Thompson Park in Jamesburg. A record of 537 entries were received and 388 individual horses competed for the \$7,000 in prize money.

FOOD DISTRIBUTION SECTION

The Food Distribution Section, through processing agreements utilizing Federal food commodities, saved State institutions and agencies, schools, and other eligible recipient agencies approximately \$891,000 during fiscal year 1973. State institutions and agencies received \$761,700 of Federal government commodities which included \$14,223 in food processing costs and \$46,000 in storage, handling and administrative costs.

During fiscal 1973, the eligible recipient agencies received over \$7,000,000 (including processed items) of government furnished foods. Over 1,800 recipient agencies, involving more than 650,000 individuals, were supported.

Processed Foods

Correspondence is underway involving two contracts to be awarded by the Purchase Bureau, Department of the Treasury, for the processing of soya bean oil into mayonnaise and durum wheat into spaghetti, macaroni, shells and egg noodles. These items will be made available to all eligible schools, institutions, agencies and summer camps with at least a 50 percent savings in cost. Savings to the eligible recipient agencies is expected to exceed \$350,000 during fiscal year 1974.

A 60,000-pound carload of soya bean oil was processed into one-gallon plastic containers of mayonnaise. Four one-gallon containers cost the eligible recipient agencies \$3.80, compared with the wholesale cost of \$6.50 to \$9.50. Approximately \$11,000 was saved per carload of oil. This item was highly acceptable in schools and institutions.

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During February, the Purchase Bureau awarded a contract to Keebler Company for biscuits and crackers utilizing government commodities for the amount of \$20,000. Dollar savings to the recipients in the Department of Institutions and Agencies was approximately 18 to 20 percent.

In September 1972, the U.S. Department of Agriculture offered the State of New Jersey 18 carloads of raw whole turkeys. Ten carloads of the raw turkey were processed into cooked boneless turkey rolls.

Brigadier General John Mc Whorter, Commanding General, U.S. Army Natick Laboratories, sent the coordinator information involving the latest concepts on military feeding. Some of the items involved freeze-dried foods and dehydrated-compressed-rehydrated foods.

Shortages

Notification was received from the U.S. Department of Agriculture that there will be a shortage of fresh butter. During the past year, the State of New Jersey received \$2,300,000 (market value) of butter. It is expected that all recipient agencies will be eliminated for the issue of butter except those agencies in the National School Lunch Programs.

Fresh, frozen chicken and turkeys were substituted for red meat that was not available from the Federal government.

Notification was received from the U.S. Department of Agriculture that nonfat, dry milk is in extremely short supply. Sufficient stocks are on hand to support bakeries producing bread and bread products utilizing government food commodities for the next school year. The high price and raw product shortage are the main reasons for the overall national shortages in the School Lunch and other Federal food programs.

School Lunch Program

A "pilot test" was conducted to determine the acceptability of chicken noodle dinner in the National School Lunch Program. A contract was negotiated by the Purchase Bureau, Department of the Treasury, with Venice Maid Company in Vineland to produce approximately 360 cases. Ninety cases of U.S. Department of Agriculture canned chicken were included in the end product. The wholesale market value of this item per case was \$19.75; however, the cost to the schools was one-third of this cost. Acceptability was approximately 50 percent.

Preliminary meetings took place with representatives of the Toms River School system regarding the National School Lunch Program. Toms River Schools will enter the program this coming school year. The current school population is 16,000.

The U.S. Department of Agriculture purchased 1 1/2 million cans of boned chicken in 29-ounce cans. Some lots of this commodity did not meet the Federal specifications. New Jersey received a share of this inferior product. To help move the item from storage and "off the shelf" in school cafeteria storerooms, Campbell Soup Company agreed to research and develop recipes for this item. The acceptable recipes were distributed nationwide and assisted in depleting stocks.

Information was received from the U.S. Department of Agriculture that the Food Distribution Section has been given the additional mission of supporting the military dependent schools in Europe with Federal government food commodities. The first shipment will be out of Bayonne during August.

Meetings and Conferences

The annual meeting of the Northeast Area Food Distribution Association and the U.S. Department of Agriculture's Northeast Region was held in Atlantic City during the first full week of May. Representatives from the U.S. Department of Agriculture, 15 states and the District of Columbia attended. It was considered the "biggest and best" conference ever held in the Northeast. The coordinator of the Department's Food Distribution Section was reelected president for the term 1973-74.

The coordinator was appointed a member of the Elderly Advisory Assistance Review Committee which is chaired by J. J. Pennestri of the Department of Community Affairs. The first official meeting of the committee for the Title VII Nutrition Program for the Elderly was held at the Ramanda Inn, New Brunswick. The State Plan was reviewed. The second official meeting was held at the same location. Preliminary plans to enter the program involving Atlantic City, Vineland, Millville and Camden were reviewed.

The coordinator attended a three-day Southeast Commodity Distribution Association Conference in Mobile, Ala. Participants included representatives of the southeastern states and the U.S. Department of Agriculture from the Southeast Region and Washington, D.C. Topics of discussion included: The National Program Overview, Food and Nutrition Service Program Implementation, Processing Contracts and the Commodity Distribution Outlook.

The coordinator made the opening speech to approximately 250 members of the Middle Atlantic Society for Hospital Dietary Directors during their two-day fall convention at Cherry Hill Inn, Cherry Hill.

The coordinator was invited to Washington, D.C., during the last week of September 1972 to brief personnel of the U.S. Department of Agriculture on "What New Jersey Is Doing in the Food Processing Field."

A briefing was given by the coordinator to attendees at a Department of Defense staff meeting on the emergency food support given by the Department of Agriculture to the Wilkes-Barre/Scranton disaster area.

NEW JERSEY CROP REPORTING SERVICE

The New Jersey Crop Reporting Service is a cooperative effort of the New Jersey Department of Agriculture and the Statistical Reporting Service, U.S. Department of Agriculture. The cooperative arrangement more effectively utilizes the capabilities of both State and Federal personnel in the collection, analysis and publication of agricultural statistics than could be realized through the individual efforts of each Department. The agreement is similar to that in effect in 47 other states. The program of work provides statistics at the State level for combining with other states to generate national crop,

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livestock and other estimates necessary for efficient agricultural production. These estimates are a vital component of the farm income estimates, which in turn are included in the national product and income accounts. Statistics relating to production, price, value, movement, stocks, marketings, quantities processed and other utilization of crops, inventories of livestock and their products are compiled and published on a regular basis. State-Federal cooperative funds provide for the adaptation and expansion of the national statistical series to fulfill the specific local needs.

The regular staff consists of 14 employees -- 11 Federal and three State -- and 24 part-time employees. The staff serves in one of four broad areas: (1) Professional statisticians; (2) clerical and other support personnel; (3) data processing systems and computer programming; (4) part-time employees, who, during the year, participated in field work for 10 special surveys.

During the fiscal year, 287 monthly, quarterly or annual surveys were conducted. From these surveys, 15,835 questionnaires and 3,624 telephone or personal interviews provided basic indications for 493 statistical reports and related comments submitted to the Crop Reporting Board, Washington, D.C. A total of 141 statistical and narrative releases was prepared from these reports and 80,931 copies were distributed. Most of the State and county data prepared by this office were published in Circular 461, "1971 New Jersey Agricultural Statistics." About 2,100 copies were distributed to individuals, firms, and agencies servicing the agricultural production and distribution complex.

Releases issued regularly by the New Jersey Crop Reporting Service included: General summary, monthly; poultry and eggs, monthly; prices, monthly; livestock slaughter, monthly; crop digest, weekly in season; vegetables, quarterly and special issues, May through November; fruit, monthly, June through November; timely reports on intended crop acreage for the current year; an annual summary of crop production; stocks of grain; potatoes, monthly in season; sweet potatoes; blueberries; cranberries; apple varieties; livestock and poultry numbers; pig crop and numbers; livestock, dairy, poultry and their products, disposition and value; turkeys; bees and honey; flowers and foliage plants; mushrooms; cash receipts and farm income; number of farms and land in farms. Special reports and data summaries also were prepared in response to specific requests, and nearly 1,100 mail, telephone or personal inquiries were serviced during the year. Liaison with Department information specialists was increased in order to review the Crop Reporting press release program, to develop needed additional issues and to improve the timeliness of releases.

The results of three special surveys were published during the year. One of these publications, the "1971 New Jersey Export Marketing Survey," provided, for the first time, complete data on exports of New Jersey grown fresh fruits and vegetables. Based on State average prices for all sales of fresh produce, the study indicated that the value of New Jersey fresh fruits and vegetables exported to other countries amounted to \$4,206,800 in 1971. Shipments to Canada accounted for 79 percent of this amount. The next areas of importance were the Caribbean and Central America. Vegetables, potatoes and sweet potatoes accounted for 64 percent of the total value and fresh fruits and berries 36 percent. Forty-six exporters were included in the survey. The

"1972 New Jersey Orchard and Vineyard Survey" was published and served as a needed update to a similar study conducted for 1967. The survey indicated 229 commercial apple growers, 248 peach producers, and 24 vineyards having 500 or more vines. In terms of fruit acreage, Gloucester was by far the leading county with 30 percent of the State's apple acreage and 55 percent of its peach acreage. At the request of grower representatives and with the support of other industry leaders, the "1972 New Jersey Commercial Asparagus Survey" was completed. Survey results indicated 381 commercial (one acre or more of asparagus) growers had 13,988 acres of producing age asparagus compared with 597 growers and 19,877 acres as shown from a similar survey conducted for 1969.

Field work for a survey of roadside farm markets was well advanced by the close of the fiscal year. Survey results will include the number of markets, an indication of their relative size and the type of physical marketing facility. A roadside market directory showing the market location and the major types of products handled also will be prepared.

The review of the national program of vegetable estimates was completed in consultation with data users. As a result, the monthly program of fresh market vegetable acreage and production forecasts was converted to a quarterly acreage forecast program with quarterly postharvest estimates for acreage, production, price and value. The major change in the program was the elimination of monthly production forecasts and estimates preceding harvest or during the harvest season and the shift from estimating for seasonal groups to estimates by quarters. Because of the vagaries of weather which have pronounced influence on vegetable production, it was believed forecasts of acreage planted or harvested by quarters released near the beginning of each quarter would more nearly pinpoint the supply source for specified quarterly periods. Several of the processing vegetable reports formerly released on an individual crop basis were combined.

A major activity during the year was the continued modification of mailings systems for survey questionnaires and report releases. The impending conversion to automated list maintenance and addressing will improve survey sampling capabilities as well as permit the increased selectivity in report release mailings which is necessary for limiting increases in postage costs.

The review of county crop acreage or production estimates was completed for 1965-71. This review was conducted following the review of State estimates at the time of publication of the Census of Agriculture and other data which had become available following the annual estimates. The county estimates for 1965 to date were prepared for publication in the forthcoming annual statistical circular.

Most of the aerial photography used in the regular area sampling program was updated. Many of the older photographs no longer reflected current land use or farm and field boundaries. The updated photography was an important asset to this work.

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Two farm expenditure surveys were conducted as a part of a national program of estimates to update the U.S. Index of Prices Paid by Farmers. In-depth interviews of a very small sample of farmers was undertaken. One survey obtained information on expenditures for items used in farm production. Another was a three-stage farm family living expenditure survey begun in April 1973 and extending through early 1974. These surveys will provide current information on the relative importance of farm expenditure items in the Index of Prices Paid.

D I V I S I O N O F P L A N T I N D U S T R Y

William M. Cranstoun, Director

BUREAU OF ENTOMOLOGY

Nursery Inspection

During the year, 983 nurseries were inspected for issuance of the nursery certificate of this Department. This is a decrease of 25 from last year. Infestations which required control measures before qualification for certification were found in 225 nurseries, a decrease of 18 from last year.

TABLE 1. INFESTATIONS MOST COMMONLY FOUND DURING NURSERY INSPECTIONS, 1972-1973

<u>Insect</u>	<u>Number of Finds</u>
Red spider mites, <u>Tetranychus telarius</u>	84
Spruce gall aphids, <u>Chermes abietis</u> and <u>Chermes cooleyi</u>	37
Bagworm, <u>Thyridopteryx ephemeraeformis</u>	31
Lace bugs (misc.)	29
Azalea lace bug, <u>Stephanitis pyrioides</u>	27
Aphids (misc.)	25
White fly (azalea), <u>Aleyrodes azaleae</u>	20
Taxus mealybug, <u>Pseudococcocus cuspidatae</u>	20
Birch leaf miner, <u>Fenusa pusilla</u>	20
European pine shoot and pine tip moth, <u>Rhyacionia buoliana</u> Schiff and R. <u>frustrana</u>	18
Scales (misc.)	18
Euonymus scale, <u>Unaspis euonymi</u>	17
Webworm (misc.)	15
Gypsy moth, <u>Porthetria dispar</u>	14
Oyster shell scale, <u>Lepidosaphes ulmi</u>	12
Pine bark aphid, <u>Pineus strobi</u>	8
Azalea leaf roller, <u>Gracilaria azaleella</u>	8
Borers (misc.)	8
Rhododendron wilt, <u>Phytophthora cinnamomi</u>	7

Dealers Certificates

Certificates were issued to 339 dealers in nursery stock, a decrease of 14 from last year. Dealer certification is granted only when the Department is satisfied that the nursery stock obtained from listed sources is certified.

During the spring and fall, 522 inspections were made of dealer establishments to determine whether held-over stock was free of plant pests and diseases. Infested plant material requiring control measures was found on the premises of 19 dealers.

Special Certificates

Special certificates were issued to 501 residents of New Jersey desiring to ship plant material out of the state, in accordance with special regulations of other states and foreign countries.

Canadian Certificates

A total of 144 special certificates was issued for the movement of plant material to Canada, in accordance with the requirements of that Dominion.

Special Request Inspections

Forty-eight inspections were made at the request of New Jersey residents desiring information about control of insects and diseases affecting their premises.

Winter Nursery Inspections

During the winter months, the premises of 481 nurserymen were inspected for the presence of overwintering insects. Control measures were required at 48 establishments.

Gypsy Moth Inspections

During the year, 1,003 nursery and dealer establishments were inspected for gypsy moth egg masses. Egg masses were found in or near 65 establishments.

Vegetable Plant Inspections

Four nursery inspectors spent a total of 64.5 days inspecting vegetable plants imported into the State for proper certification and freedom from injurious insect pests and diseases.

Farmers Week and Flower and Garden Show

Five nursery inspectors spent a total of 6.5 days setting up and manning Department exhibits during Farmers Week and at the New Jersey Flower and Garden Show.

Crop Reporting Orchard and Vineyard Survey

Cooperating with the Crop Reporting Service, two nursery inspectors devoted 73 days to contacting market operators in an effort to expedite completion and return of survey questionnaires mailed to them.

Post-Entry Quarantine Inspection

During the year, 131 inspections were made of plant materials imported under permit from foreign countries and growing under the supervision of this Department, in cooperation with the U. S. Department of Agriculture.

TABLE 2. PLANT MATERIAL IMPORTED, BY GENUS, 1972-1973

<u>Genus of Plants</u>	<u>Number Imported</u>	<u>Genus of Plants</u>	<u>Number Imported</u>
<u>Acer</u>	148	<u>Hibiscus</u>	4
<u>Anthurium</u>	1	<u>Jasminum</u>	10
<u>Castanea</u>	15	<u>Ribes</u>	1
<u>Cedrus</u>	12	<u>Rosa</u>	59

Total 250

TABLE 3. PLANT MATERIAL RELEASED, BY GENUS, 1972-1973

<u>Genus of Plants</u>	<u>Plants Originally Imported</u>	<u>Plants Released</u>
<u>Acer</u>	415	367
<u>Aesculus</u>	200	165
<u>Euonymus</u>	25	7
<u>Hydrangea</u>	32	13
<u>Jasminum</u>	2	0
<u>Juniperus</u>	2	1
<u>Rosa</u>	268	233
<u>Rubus</u>	6	2
<u>Salix</u>	2	2
Totals	952	790

Blueberry Plant Certification

Certification of blueberry plants and cutting wood for freedom from stunt disease and other viruses is based on two inspections. Cutting beds, nursery plants, and enough mother plants to supply cutting wood are inspected in the spring and again in the fall. Plants showing symptoms of the various virus diseases are tagged by inspectors of this Department and must be removed by the grower.

During the calendar year 1972, eight growers entered plantings for certification. After the fall inspection, 86,413 mother plants, 1,029,014 nursery plants, and 1,676,941 rooted cuttings were certifiable. During both inspections, 369 diseased plants were found. Thirty-seven were infected with stunt disease, 191 with red ringspot, and 141 with the parasitic plant, dodder.

TABLE 4. SUMMARY OF BLUEBERRY PLANT CERTIFICATION, 1972-1973

(Certifiable Blueberry Plants)

<u>Growers</u>		<u>Mother Plants</u>		<u>Nursery Plants</u>		<u>Rooted Cuttings</u>	
<u>1971</u>	<u>1972</u>	<u>1971</u>	<u>1972</u>	<u>1971</u>	<u>1972</u>	<u>1971</u>	<u>1972</u>
8	8	155,936	86,413	792,566	1,029,014	1,648,865	1,676,941

(Incidence of Virus Diseases)

<u>Diseases</u>	<u>Mother Plants</u>				<u>Isolation Plants</u>			
	<u>Spring</u>		<u>Fall</u>		<u>Spring</u>		<u>Fall</u>	
	<u>1971</u>	<u>1972</u>	<u>1971</u>	<u>1972</u>	<u>1971</u>	<u>1972</u>	<u>1971</u>	<u>1972</u>
Stunt	6	22	13	7	4	4	0	4
Mosaic	2	0	4	0	0	0	1	0
Shoestring	3	0	0	0	0	0	0	0
Dodder	2	0	62	141	0	0	0	0
Red Ringspot	0	0	493	191	0	0	115	0
Total	13	22	572	339	4	4	116	4

Red Stele Disease of Strawberries

During March, strawberry plantings of four growers, representing a total of 29 acres, were inspected. All 29 acres were certified to be free of red stele disease.

TABLE 5. RED STELE DISEASE CERTIFICATION PROGRAM, 1972

<u>County</u>	<u>Number of Growers</u>	<u>Acreage</u>
Atlantic	2	22.50
Gloucester	1	5.
Sussex	1	1.50
Total	<u>4</u>	<u>29.00</u>

Japanese Beetle Quarantine Enforcement

This program is a year-round project certifying plant materials for movement from New Jersey outside the regulated area.

The certification is primarily for nursery and greenhouse establishments throughout the State and is based on inspection and certification of individual plants, potting soil and field acreage. During the year, 1,422 visits were made to these establishments and 2,108,609 plants with an estimated value of \$1,981,633 were certified. In addition, 1,403 1/2 cubic yards of bulk soil and 318 acres of surface soil were treated with residual insecticides.

Gypsy Moth Chemical Control Program

The Division's gypsy moth manned display was shown at the Sussex, Warren, Monmouth, Ocean, Flemington, and New Jersey State Fairs. Approximately 85,000 persons visited the exhibits. Nonstaffed displays were shown at other county fairs, meetings, and conventions.

Communities where known infestations are located and communities where the aerial defoliation survey revealed severe defoliations were notified that they might have a serious problem in the spring of 1973. If they desired additional ground surveys, the Department would conduct them and forward its recommendations to their governing boards. In the communities requesting additional surveys, one was done using a systematic one-half mile grid, with additional sites located to delimit the infestation. At each site, the number of egg masses was counted inside a one-tenth acre circular plot. Any sites which had 10 or more egg masses were considered to be positive and could expect a high population. Approximately 11,000 sites were inspected.

During the survey in the various communities, nonresidential and non-recreational lands were deleted and the following areas were surveyed:

1. Forested communities, with at least 20 homes per 100 acres, defoliated once or expecting heavy defoliation in 1973.
2. Municipal and county park and recreational areas defoliated once or expecting heavy defoliation in 1973.
3. Forested communities, with from 5 to 19 homes per 100 acres, defoliated once or expecting heavy defoliation in 1973.
4. Watershed areas defoliated once or expecting defoliation in 1973.

Each community which was going to participate in the 1973 aerial control program appointed a municipal supervisor through whom all communications and working arrangements could be made. Maps of the proposed areas were sent to each municipal supervisor. Every community, following the State statutes, notified all residents in the areas to be treated by personal contact or certified mail at least 10 days prior to the application.

The program began on May 10 and was completed on June 15. Multi-engine and single engine aircraft were used during the program. Sevin-4 oil or Dylox at a rate of one pound per acre was used for the chemical application. The breakdown by township follows:

TABLE 6. 1973 GYPSY MOTH CONTROL PROGRAM

COUNTY	Acres Treated			County Total
	Township (Agency)	Sevin-4-Oil	Dylox	
BURLINGTON				
	Evesham	427.0	---	
	Washington	149.5	---	
				576.5
CAPE MAY				
	Dennis	150.0	---	
	Upper	622.5	---	
				772.5
ESSEX				
	East Orange Water Dept.	455.7	---	
				455.7
HUNTERDON				
	Alexandria	1,144.0	---	
	Bethlehem	529.9	---	
	Raritan	958.8	---	
	N. J. Dept. Defense	40.0	---	
	Tewksbury	331.1	---	
	Union	140.0	---	
				3,143.8
MERCER				
	Hopewell	1,129.8	---	
	Princeton	353.8	---	
				1,483.6
MIDDLESEX				
	Madison	---	1,765.5	
	Monroe	---	1,219.5	
				2,985.0
MONMOUTH				
	Monmouth Co. Shade Tree Comm.	800.0	8,520.5	
	N. J. Highway Authority	---	1,100.0	
				10,420.5
MORRIS				
	Mt. Olive	393.6	---	
				393.6
OCEAN				
	Dover	4,848.0	---	
	Brick	2,222.5	---	
	Jackson	7,945.0	---	
	Lakewood	4,638.0	---	

TABLE 6. 1973 GYPSY MOTH CONTROL PROGRAM

(continued)

COUNTY	Township (Agency)	Acres Treated		County Total
		Sevin-4-Oil	Dylox	
OCEAN				
	Manchester	1,158.0	---	
	Ocean	580.0	---	
	Point Pleasant	459.0	---	
	Stafford	519.0	---	
	Union	732.0	---	
	N. J. Dept. Defense	30.0	---	
	N. J. Highway Authority	---	1,226.5	
				24,358.0
SOMERSET				
	Bedminster	55.0	---	
	Bridgewater	344.4	---	
	Green Brook	123.2	---	
	Montgomery	641.9	---	
	Watchung	110.0	---	
				1,274.5
SUSSEX				
	Byram	345.0	---	
				345.0
UNION				
	Union Co. Park Comm.	181.6	---	
				181.6
WARREN				
	Blairstown	214.4	---	
	Hardwick	182.1	---	
	Harmony	265.0	---	
	Liberty	170.4	---	
	White	120.0	---	
	Camp Mohican	101.5	---	
				1,053.4

County Total

<u>County</u>	<u>Sevin-4-Oil</u>	<u>Dylox</u>	<u>Total</u>
Burlington	576.5	---	576.5
Cape May	772.5	---	772.5
Essex	455.7	---	455.7
Hunterdon	3,143.8	---	3,143.8
Mercer	1,483.6	---	1,483.6
Middlesex	---	2,985.0	2,985.0
Monmouth	800.0	9,620.5	10,420.5
Morris	393.6	---	393.6
Ocean	23,131.5	1,226.5	24,358.0
Somerset	1,274.5	---	1,274.5
Sussex	345.0	---	345.0
Union	181.6	---	181.6
Warren	1,053.4	---	1,053.4
TOTAL	33,611.7	13,832.0	47,443.7

Fifty communities in 11 counties participated in the voluntary program. In addition, four public recreational areas, two National Guard properties, and sections of the Garden State Parkway were included in the program.

Bee Inspection

One thousand and forty-nine registered and new apiaries, consisting of 10,824 colonies of honeybees, were inspected or surveyed this year.

Inspections were made in 591 registered apiaries, consisting of 7,745 colonies. American foulbrood was found in 52 apiaries, consisting of 123 colonies. Thus, 1.6 percent of the colonies in the registered apiaries were infected. European foulbrood was found in 78 registered apiaries, consisting of 483 colonies.

Three hundred and ninety-eight colonies were inspected in 92 new apiaries. American foulbrood was found in nine apiaries, consisting of 20 colonies. European foulbrood was found in six colonies in three apiaries. Thus, five percent of the new apiaries were infected with American foulbrood and 1.5 percent with European foulbrood.

One hundred and thirty-one apiaries in 20 counties were removed from the beekeeping list this year.

Microscopic diagnoses of four samples of dead brood and bees were made. Results showed two samples were infected with American foulbrood, one with European foulbrood, and one with Para foulbrood.

Thirteen certificates of transfer and four queen-rearing certificates were issued during the year.

A good honey flow was enjoyed by New Jersey beekeepers during July and August. Wet, cool weather during September, October and November curbed the normal surplus of honey that bees generally collect from plants (goldenrod and asters) in the fall. The winter was very mild and open; as a result, colonies of honeybees consumed more food. The spring found large clusters of bees and little food. Beekeepers who did not feed lost colonies of honeybees in the spring months. Blueberries yielded a fair surplus of nectar this year and, in spite of rain and floods during June, bees collected nectar between showers.

Ethylene Oxide Chamber

The development of a sanitation program through the use of an ethylene oxide fumigation chamber has been continued with outstanding success. This chamber, valued at \$31,000 when used by the Space Administration, was donated to the Department in October 1971. Cooperative efforts by interested apiarists, Rutgers University, and the Department resulted in a usable piece of surplus equipment by March 1972. To date, over 3,375 pieces of bee equipment have been sterilized in this chamber.

Studies conducted to determine the results of the fumigation process have been encouraging. Of the 65 three-pound packages put on sterilized equipment, only six have become infected with American foulbrood.

Pollen Trap

Tests were conducted to determine the effectiveness of pollen traps in reducing mortality of honeybees from insecticide exposure. The pollen trap consists of a double strip of corrugated aluminum sheeting to which a sheet of hardware cloth is perpendicularly attached. The bees can crawl through the meshed hardware cloth, but the pollen is brushed off the legs when the bees go through. The tests were made in an area where carbaryl (Sevin 4 oil) was applied by aircraft at the rate of one quart of insecticide plus four ounces of kerosene per acre. This dosage rate is equivalent to one pound of active ingredient per acre.

Three bee hives were moved into the treatment area, and then two of the three hives were outfitted with the pollen traps just prior to the spraying. Dead bee traps were installed on each hive to assist in the counting of affected bees. The counts of the bees taken from the three hives follow:

TABLE 7. DEAD BEES TAKEN FROM HIVES OUTFITTED WITH POLLEN TRAPS

<u>Date</u>	<u>Pollen Trap</u> <u>Dead Bee Trap</u>	<u>Pollen Trap</u> <u>Dead Bee Trap</u>	<u>No Pollen Trap</u> <u>Dead Bee Trap</u>	<u>Temperature</u>
	<u>Colony A</u>	<u>Colony B</u>	<u>Colony B</u>	
5/73	15	6	2,260	50 - 80's
6/ 1/73	68	63	706	50 - 80's
6/ 2/73	39 <u>1/</u>	29	298	50 - 75
6/ 3/73	103	3	229	50 - 75
6/ 4/73	169	110 <u>1/</u>	117	55 - 80's
6/ 5/73	10	165	73	60 - 90's
6/ 6/73	0	0	39	65 - 95
6/ 7/73	6	9	75	60 - 90's
6/ 8/73	8	6	63	60 - 90's
6/ 9/73	0	0	55	60 - 90's
6/10/73	4	7	51	60 - 90's
6/11/73	6	9	50	60 - 90's
6/12/73	0	0	45	60 - 80's
6/13/73	37	48	107	60 - 80's
6/14/73	8	0	40	60 - 80's
6/15/73	7	0	35	60 - 80's
Total	480	455	4,243	

Additional colonies on another property located one-quarter of a mile outside the treated area were equipped with pollen traps. In this case, there appeared to be no serious losses of bees. There was also an increase in nectar within the one and only scale hive. All colonies had gained in weight.

The reductions in bee losses as a result of the installations of pollen traps were substantial. Also noteworthy are the data which indicate that the dead bees were comprised mostly of nurse bees and of relatively few field bees. There is a definite indication that the nurse bees are killed after the field bees bring the contaminated pollen into the hives. After the nurse bees are killed, the field

1/ Took off pollen trap.

bees must change their role and begin to take over the function of the nurse bees. Thus, the field force is reduced---not by direct pesticide kill, but by a necessary change in hive function.

There is every evidence that the pollen trap, with certain modifications, can substantially reduce the impact of pesticides upon honeybees. Hopefully, further testing will be performed with a different type of pollen trap under different crop situations, hive strengths, temperatures, humidities, and pesticide uses.

Miscellaneous

The supervisor of bee culture assisted in judging honey shows at Monmouth County Fair, Warren County Fair and Flemington Fair. Five bee demonstrations were given each day at the Warren County Fair and Flemington Fair. The inspectors and supervisor also participated in the honey show and meetings during Farmers Week. A two-day bee inspectors seminar was attended in March at the University of Maryland by the supervisor and two inspectors. The supervisor and inspectors also participated in several meetings of beekeepers organizations and lectured on bee diseases. They also instructed the annual short course in beekeeping at Rutgers University in June. Through this work, beekeepers are kept informed of dangerous and harmful bee diseases and of the need for their control.

TABLE 8. SUMMARY OF SURVEYS BY MONTH, 1972-1973

Month	<u>Apiaries</u>		<u>Colonies</u>	
	<u>Registered</u>	<u>New</u>	<u>Registered</u>	<u>New</u>
July	10	2	110	3
August	--	1	--	1
September	--	3	--	7
October	21	1	292	1
November	23	--	203	--
December	72	1	425	1
January	73	13	366	32
February	86	5	865	21
March	27	1	138	4
April	4	--	37	--
May	17	4	93	28
June	1	1	50	4
Total	334	32	2,579	102

TABLE 9. SUMMARY OF SURVEYS BY COUNTY, 1972-1973

County	<u>Apiaries</u>		<u>Colonies</u>	
	<u>Registered</u>	<u>New</u>	<u>Registered</u>	<u>New</u>
Atlantic	46	7	347	19
Bergen	1	--	3	--
Burlington	34	3	322	5
Camden	29	--	148	--
Cape May	22	2	124	2
Cumberland	7	1	44	4
Essex	7	--	44	--
Gloucester	29	4	477	21

TABLE 9. SUMMARY OF SURVEYS BY COUNTY, 1972-1973

(continued)

<u>County</u>	<u>Apiaries</u>		<u>Colonies</u>	
	<u>Registered</u>	<u>New</u>	<u>Registered</u>	<u>New</u>
Hudson	2	--	5	--
Hunterdon	3	2	40	4
Mercer	1	--	18	--
Middlesex	5	1	38	4
Monmouth	10	1	84	1
Morris	58	2	244	6
Ocean	13	4	53	6
Passaic	10	--	83	--
Salem	--	1	--	2
Somerset	3	2	65	23
Union	19	--	165	--
Warren	2	--	10	--
	33	2	265	5
Total	<u>334</u>	<u>32</u>	<u>2,579</u>	<u>102</u>

TABLE 10. BEEKEEPERS REMOVED FROM LIST (BY MONTH) 1972-1973

<u>Month</u>	<u>Apiaries</u>	<u>Month</u>	<u>Apiaries</u>
July	18	January	15
August	12	February	18
September	9	March	5
October	13	April	1
November	13	May	10
December	12	June	5
		Total	<u>131</u>

TABLE 11. BEEKEEPERS REMOVED FROM LIST (BY COUNTY) 1972-1973

<u>County</u>	<u>Apiaries</u>	<u>County</u>	<u>Apiaries</u>
Atlantic	3	Middlesex	5
Bergen	--	Monmouth	3
Burlington	22	Morris	33
Camden	12	Ocean	14
Cape May	9	Passaic	1
Cumberland	1	Salem	1
Essex	1	Somerset	4
Gloucester	5	Sussex	1
Hudson	1	Union	3
Hunterdon	8	Warren	3
Mercer	1	Total	<u>131</u>

TABLE 12. SUMMARY OF INSPECTIONS BY MONTH
1972 - 1973

	Colonies					American Foulbrood					European Foulbrood					Microscopic		
	Inspected	Dead	Live	Collected	Released	Apiaries	Colonies	Apiaries	Colonies	Released	Apiaries	Colonies	Released	Apiaries	Colonies	Released	Apiaries	Colonies
August	99	7	1,189	97	--						11	2	75	4	--	--	--	--
September	44	14	457	61	--						1	--	3	--	--	--	--	--
October	99	5	1,094	15	--						6	--	22	--	10	--	--	--
November	33	2	228	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	5	2	24	2	--	--	2	--	3	--	--	--	--	--	--	--	--	--
January	14	4	90	18	--	--	2	1	6	1	--	--	--	--	4	1	--	--
February	14	1	47	2	--	--	1	1	1	1	--	--	--	--	--	--	--	--
March	19	4	416	25	--	--	1	1	3	1	10	--	24	--	--	--	--	1
April	31	7	759	41	--	--	7	--	9	--	14	--	61	--	--	--	--	--
May	99	27	1,511	77	7	--	6	3	10	4	15	1	81	2	2	--	--	--
June	34	7	753	10	--	--	4	--	12	--	5	--	20	--	--	1	1	--
Totals	591	92	7,745	398	7	44	52	9	123	20	78	3	483	6	16	2	1	1

TABLE 13. SUMMARY OF INSPECTIONS BY COUNTY
1972 - 1973

County	Apiaries		Colonies		Nu- clei	Crossed Comb	American Foulbrood				European Foulbrood				Colonies Burned	Microscopic			
	Regis- tered	New	Regis- tered	New			Apiaries		Colonies		Apiaries		Colonies			Determination	AFB	EFB	PFB
							Regis- tered	New	Regis- tered	New	Regis- tered	New	Regis- tered	New					
Atlantic	31	8	634	23	--	--	7	3	21	4	9	--	35	--	--	--	--	--	
Bergen	19	1	170	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Burlington	32	5	935	30	--	--	8	1	16	7	23	1	218	1	10	--	--	--	
Camden	15	--	195	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cape May	7	2	41	9	--	--	1	1	2	4	--	--	--	--	--	1	--	--	
Cumberland	19	1	396	3	--	--	1	--	2	--	3	--	16	--	--	--	--	--	
Essex	33	--	153	--	--	--	1	--	1	--	--	--	--	--	--	--	--	--	
Gloucester	51	1	981	2	--	42	7	--	22	--	10	--	75	--	--	--	--	--	
Hudson	1	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Hunterdon	63	7	1,021	25	--	--	4	--	4	--	4	--	7	--	--	--	--	--	
Mercer	20	5	660	77	--	--	1	--	1	--	9	1	49	3	--	--	--	--	
Middlesex	20	3	167	9	--	--	2	1	6	2	1	--	1	--	2	--	--	--	
Monmouth	41	12	529	55	--	--	4	1	6	1	12	--	41	--	--	1	1	--	
Morris	73	6	436	12	7	--	4	1	8	1	--	--	--	--	4	--	--	--	
Ocean	27	10	126	28	--	--	1	--	1	--	5	1	31	2	--	--	--	--	
Passaic	16	1	91	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Salem	10	5	135	11	--	2	1	--	1	--	2	--	10	--	--	--	--	--	
Somerset	31	8	266	31	--	--	4	1	10	1	--	--	--	--	--	--	--	--	
Sussex	41	9	420	49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Union	3	--	48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Warren	38	8	339	19	--	--	6	--	22	--	--	--	--	--	--	--	--	1	
Totals	591	92	7,745	398	7	44	52	9	123	20	78	3	483	6	16	2	1	1	

Forest Pest Surveys

Cooperative Forest Pest Detection and Control Programs

The cooperative forest pest detection program was initiated in New Jersey in April 1964. This program is conducted under a cooperative agreement, financed by State and Federal funds. The program is planned by representatives of the New Jersey Department of Agriculture, the State Department of Environmental Protection, and the U. S. Forest Service. The primary objective of the program is to obtain more complete information on injurious forest pest populations throughout the state. Such information gathering is essential for the purposes of determining the impact these pests have upon the state's forest resources as well as forming the base from which the control decision can be reached. This fiscal year, New Jersey received \$15,000 of U. S. Forest Service funds for support of the detection phase of the program and \$278,000 for the control of epidemic gypsy moth populations.

Red Pine Scale, Matsucoccus resinosae

Surveys of red pine scale, Matsucoccus resinosae, were conducted during the winter months in portions of Sussex, Passaic, Bergen, and Morris counties. A total of 62 red pine plantations totaling 288 acres was inspected. In addition, 330 ornamental red and Japanese black pines in residential areas were examined. All inspections for the scale insect proved negative.

Fall Cankerworm, Alsophila pometaria

Upon request, two surveys for infestation of the fall cankerworm, Alsophila pometaria, were conducted during November and December in Camden and Gloucester counties. Using branch sampling and tree banding survey techniques, approximately 825 acres of woodland were examined. Of the 810 acres sampled near Turnersville (Whitman Square community), 350 acres had sufficient infestation of cankerworm to warrant a control recommendation. The other woodland examined near Braddock was found entirely infested and treatment of 15 acres was recommended.

Also, heavy flights of the male cankerworm moths were observed in many parts of the state during November and December, indicating the problem was on the increase, and aerial and ground checks confirmed these observations.

Spring feeding surveys for the fall cankerworm showed increased defoliation by the pest in portions of Union, Somerset, Atlantic, Camden, Burlington, Middlesex, and Monmouth counties. Towns most seriously affected included Tabernacle, Presidential Lakes, Berlin, Burr Mills, Fort Dix, Four Mile, New Egypt, and Millstone. In all, approximately 15,000 acres contained moderate to heavy defoliation damage.

Leaf Rollers, Croesia semipurpurana and Archips argyrospilus

This spring, generally increased populations of the leaf rollers on trees primarily of the Red Oak group were observed in portions of central New Jersey. Defoliation damage was heaviest in Middlesex,

Somerset, and Hunterdon counties. Unfortunately, many of the forests defoliated during May by the leaf rollers were again defoliated in June by the gypsy moth, Porthetria dispar, thereby increasing the possibility of tree loss. An estimated 20,000 acres were involved in the two-pronged defoliation attack.

Larch Sawfly, *Pristiphora erichsonii*

Severe infestations of the larch sawfly, *Pristiphora erichsonii*, were observed in nearly every stand of larch growing in the northern half of the state. The heaviest concentration of larch plantations are located on the Newark Watershed, and nearly all of the trees sustained 60-100 percent defoliation. However, larch is not a widely planted tree species in New Jersey, and only several hundred acres were involved.

Diplodia Wilt of Austrian Pine

Widespread tip blight caused by the disease *Diplodia pinea* has been observed wherever mature Austrian pine, *Pinus nigra*, trees are found in the state. The past years of wet weather seem to have augmented its spread and severity of attack. It is rare to find Austrian pines above 12 inches in diameter not showing symptoms of the disease, and in many cases, trees once showing the tip dieback tend to succumb totally to the disease within a five-year period. Seedlings and saplings do not show the same severity of attack.

Sycamore Anthracnose, *Gnomonia platani*

Wet weather during the month of May enhanced the spread and development of anthracnose leaf blight, *Gnomonia platani*, on sycamore, *Platanus occidentalis*, growing throughout the northern half of the state. The infestation was the heaviest ever observed in recent years, and in several isolated cases, mortality was observed. Numerous calls were received by this office concerning the leaf blight problem on ornamental sycamore trees.

Gypsy Moth Aerial Survey

Statewide aerial sketch mapping of gypsy moth, *Porthetria dispar*, defoliated forests was completed during the month of July. Leaf feeding damage by the gypsy moth occurred on an estimated 254,865 acres. This acreage represents an increase from the 226,140 acres defoliated by this pest last year. The results of the forest acres damaged by the gypsy moth, by county, are shown in Table 14 (opposite page).

A total of 14 of the state's 21 counties sustained varying degrees of defoliation, and 132 municipalities within these counties were affected.

Generally, there were substantial increases in infestation levels in Burlington, Cape May, Hunterdon, Mercer, Middlesex, Monmouth, Sussex, Warren, Somerset, Union, and Ocean counties. Substantial decreases in population levels occurred in Passaic and Morris counties, and the gypsy moth remained at the same level in Essex County.

TABLE 14. GYPSY MOTH AERIAL SURVEY, 1973, ACREAGE DEFOLIATED BY COUNTY

<u>County</u>	<u>0-30%</u>	<u>30-60%</u>	<u>60-100%</u>	<u>Total</u>
Burlington	805	3,335	1,290	5,430
Cape May	--	5,470	3,040	8,510
Essex	85	255	490	830
Hunterdon	6,810	12,135	3,940	22,885
Mercer	460	2,905	140	3,505
Middlesex	730	10,110	2,780	13,620
Monmouth	2,245	25,025	12,215	39,485
Morris	6,000	3,110	2,900	12,010
Ocean	475	34,860	21,380	56,715
Passaic	170	--	--	170
Somerset	6,280	13,045	645	19,970
Sussex	18,830	14,100	3,035	35,965
Union	555	1,725	--	2,280
Warren	12,295	14,505	6,690	33,490
Totals	55,740	140,580	58,545	254,865

Journal of Economic Entomology Publishes Department Study

A manuscript entitled "Oak Mortality Caused by Repeated Gypsy Moth Defoliations in New Jersey," authored by John D. Kegg, was published in the June 1973 issue of the Journal of Economic Entomology.

The study showed that as a result of repeated defoliations of oak by the gypsy moth, Porthetria dispar, mortality on the Newark Watershed increased nearly tenfold from 6.5 percent in 1968 to 63.4 percent in 1972. Mortality rates for white oak, chestnut oak, red oak, scarlet oak, and black oak were 84.1%, 66.0%, 41.1%, 27.3%, and 47.5%, respectively. An estimated 1,143,911 trees were lost on the 17,855-acre study area. The net basal area loss for all trees was 44.1 percent. Mortality among less-favored tree species remained mostly below six percent throughout the five-year study.

The study recommended that, where new infestations of the gypsy moth occur and the objective is to prevent economic tree loss, direct control measures using chemical insecticides should be considered, especially when the forest is threatened with a second consecutive year of heavy defoliation.

Forest Pest Control

Fall Cankerworm Suppression Programs

Two communities treated 365 acres of woodland for control of epidemic fall cankerworm infestation as a result of the Department's recommendations. The spray material used was carbaryl (Sevin), and the results were highly effective. The woodlands treated were located near Turnersville (Gloucester County) and near Braddock (Camden County).

Red Pine Scale Control

Although no new infestations of the red pine scale were found this year, control work continued on existing infestations on the Wanaque Reservoir in Passaic County and near Darlington in Bergen County. During the

winter months, 855 cords of infested material were salvaged and used for pulp at the Johns-Manville plant in Manville. The value of the delivered cordwood was \$20,520.

In the five acres of infested red pine near Darlington on private residences, one owner had cut and burned two acres of infestation. The other still refused to take any action, and the Department plans to destroy the trees by girdling this fall.

Gypsy Moth Control Test

A field test, using Sevin 4-oil insecticide applied at one-half the normal dosages, was conducted on three spray blocks totaling 600 acres near Stewartsville in Warren County. The project was financed with approximately \$10,000 of U. S. Forest Service funds. Preliminary data from frass and larval counts conducted during May and June indicate the one-half pound rate per acre of Sevin-4-oil yielded satisfactory control of gypsy moth larvae. Data from the treated blocks indicate an overall frass reduction of 83.4 percent and a larval reduction of 86.7 percent. Data on egg mass reduction will be conducted in the fall.

Blackbird Control

Nesting success studies of red-winged blackbirds were continued in the salt marsh areas near Tuckerton, Ocean County. These studies were conducted in the same areas where reproductive inhibitors (TEM and Orni-...) had been used in previous years. Data indicate that breeding successes were similar to those of preceding years. However, the numbers of nests are less. The results of the nesting are found in Table 15 (opposite page).

In addition, an attempt was made to disrupt the breeding and nesting success by the use of a fright-producing compound. The material, commonly known as Avitrol (4-aminopyridine), was applied to cracked corn and offered on elevated feeding platforms to wild red-winged blackbirds. The results of this work may be found in Table 15. The data collected indicated that the material reduced the numbers of breeding birds, thereby decreasing the numbers of young birds produced. The total nesting success (eggs hatched) was extremely high when compared to the previous year's results.

Evaluations were also continued to determine the resistant capabilities of various field corn varieties. Although light damage was detected throughout the various varieties, the damage to a given variety was consistent in each test plot.

The testing of a corn damage appraisal method was continued. Two hundred and thirteen one-half-acre modules were selected and studied in corn fields in Pilesgrove Township, Salem County. All corn fields in that township were mapped, divided into one-half-acre modules, examined, and classified according to the degree of bird damage. Data collected showed that a great many more samples were necessary in lightly damaged fields than from fields which experienced higher damage levels.

Considerable time has been spent in determining the number of monk parakeets, Myropsitta monachus, presently living in New Jersey. This bird, an exotic species imported by the pet industry from South America,

TABLE 15. RED-WING BLACKBIRD NESTING SUCCESS, TUCKERTON, N. J. AREAS

Location	No. Nests		No. Nests With Eggs		Eggs Laid		Eggs Hatched				Eggs Unhatched			
	1971 1972		1971 1972		1971 1972		1971		1972		1971		1972	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<u>Road Sites</u>														
Roads End	61	70	51	52	160	179	78	48.8	98	54.8	51	31.8	64	35.7
Buffer	54	88	38	80	120	236	70	58.3	156	65.7	31	25.8	40	16.9
Woody's	67	49	46	42	114	133	25	21.9	72	54.1	50	43.9	16	12.0
Zero	<u>17</u>	<u>24</u>	<u>14</u>	<u>21</u>	<u>39</u>	<u>68</u>	<u>44</u>	<u>35.8</u>	<u>27</u>	<u>39.7</u>	<u>43</u>	<u>35.0</u>	<u>22</u>	<u>32.4</u>
Total for 4 sites	199	231	149	195	433	616	217	50.1	353	57.3	175	40.4	142	40.2
North Island (Avitrol Exposure)	49	23	42	18	123	56	17	43.6	38	67.9	11	28.2	4	7.1
Total for all road sites	248	254	191	213	556	672	234	42.1	391	58.2	186	33.5	146	21.7
Off Shore Sites (Islands)	87	65	62	38	177	119	61	34.5	35	29.4	14	7.9	34	28.6

has the capabilities of becoming an economic pest of the small fruit and grain industry. Original importations of the bird in 1968 have now resulted in the establishment of a population in New Jersey. It is presently believed that the New Jersey population numbers approximately 100 birds. To date, eight nests have been destroyed, and approximately five specimens have been captured.

An attempt has been made to develop a trap which could be used as a population control tool. A decoy trap with attached leg snares shows some promise.

BUREAU OF PLANT PATHOLOGY,

The purpose of the Bureau is to be the "eyes and ears" of the Division with regard to plant pest detection and monitoring -- to sound the alarm for control of plant pests new to the State before they are well established; and to provide statistical guides for use in proper timing of application of measures for control of well-known crop pests of economic importance. To this end, the activities of the Bureau were apportioned in three main areas: (1) economic plant pest survey, (2) shade tree pest survey, and (3) plant pathological diagnostic services.

Economic Plant Pest Detection and Evaluation (Calendar Year 1972)

Southern Corn Leaf Blight

Southern corn leaf blight, caused by the fungus Helminthosporium maydis, which was responsible for extensive damage to corn in 1971, was found to be almost nonexistent in New Jersey in 1972. This was attributable in large degree to nationwide use of varieties resistant to the disease.

Insect Detection Black Light Trapping

Black light traps were operated in 1972 near major ports of entry and in farming areas in search of insects new to New Jersey. Major import sites included in the program were Camden, Hoboken, McGuire Air Force Base, Newark and Trenton. Insects captured in traps operated at other population monitoring sites along with those from the port areas were submitted to Rutgers College of Agriculture and Environmental Science for identification of Lepidoptera (moths). A few collections were forwarded to U. S. Department of Agriculture identification facilities in Gulfport, Miss., for additional screening. Identifications were received from the U. S. Department of Agriculture for the remaining portion (106 specimens) of a group of Lepidoptera submitted in October 1970. Although no new species were identified in this collection, the specimens will be valuable additions to the insect reference collections at Rutgers.

Cereal Leaf Beetle Detection

The cereal leaf beetle, Oulema melanopa, which spread from Michigan to eastern Pennsylvania since 1962, was not found during 1972 in scouting grain fields, corn fields and grassy areas throughout the state.

Leaf Miners in Alfalfa

Survey of alfalfa fields throughout the state in 1972 indicated relatively high infestations. Information was received from the U. S. Department of Agriculture that leaf miners of the "blotch" type found abundant in alfalfa in some areas of New Jersey during the past two years were Agromyza frontella (Rondani). The taxonomy of some of the alfalfa leaf miners was previously confused. Apparently, this species recently was accidentally introduced from Europe into the northeastern area of the United States.

White-Fringed Beetle Detection

No evidence of the white-fringed beetle, Graphognathus sp., was found in searches along major highways and in municipalities in the central and southern areas of the State.

Khapra Beetle Detection

Inspection of grain handling establishments in southern and central counties failed to detect any khapra beetles, Trogoderma granarium.

Witchweed Detection

The parasitic weed known as witchweed, Striga lutea, was still not known to occur in New Jersey, although corn fields throughout the state were scouted for the pest weed.

Asparagus Aphid

The asparagus aphid, Brachycolus asparagi, was again found to be much less abundant in 1972 than it had been in 1970, when it was widespread in the state. The insect was first found in New Jersey in 1969.

European Chafer Detection

Searches were made for the European chafer, Amphimallon majalis, by means of chemical and light traps and visual observations at dusk when the insects fly from the ground to trees. Results of the statewide survey were negative for the third consecutive year.

Geranium Rust

The geranium rust disease, caused by Puccinia pelargonii-zonalis, was again found in the greenhouse in Willingboro where it was first detected in 1971. Immediate control measures were advised.

Soybean Cyst Nematode Detection

Soybean fields in the central and southern areas were inspected during the summer of 1972 for symptoms of infestation by the soybean cyst nematode, Heterodera glycines. Soil samples taken from many fields were found to be negative for the nematode cysts in microscopic examination. The nematode is not known to occur in New Jersey.

Golden Nematode Detection

Survey for the golden nematode, Heterodera rostochiensis, not known to occur in New Jersey, was negative in 1972. Debris from potato graders in central and southern counties were sampled during the fall harvest season. The samples were processed to extract cysts, and examined microscopically for purposes of identification of golden nematode suspects. All cysts were found to be negative.

Imported Vegetable Plant Inspection

A total of 882 lots of imported vegetable plants was inspected at canner and dealer distribution points during April, May, and June. The plants were examined for compliance with certification requirements, for freedom from diseases and insects and adherence to quality standards.

As usual, tomato transplants made up the bulk of the shipments, but large quantities of peppers, eggplants, cabbage, collards and escarole were also included among the 12 types of plants inspected.

Imported from Georgia were 779 of the plant lots, 77 lots originated in Florida, 22 lots were from Alabama and two lots each from North Carolina and Virginia. With four relatively minor exceptions, all shipments were found to conform to certification standards and procedures.

Disease problems were found to be minimal. Bacterial wilt was confirmed in two lots of tomatoes and one lot with apparent ozone injury was found.

Plant quality was generally satisfactory, although some oversize plants and excess bloom and fruit set were noted. Broken and cut plants were also more in evidence than usual. Plant count problems were few, and usually satisfactory adjustments were agreed upon when counts were low.

Spotted Alfalfa Aphid Seasonal Population

Spotted alfalfa aphid, Therioaphis maculata, populations were found to be relatively low during the fall months in alfalfa fields inspected in the southern and central counties.

Asparagus Beetle Overwintering Population

Late winter 1971-72 populations of asparagus beetles, Crioceris asparagi and C. duodecimpunctata, in 44 asparagus fields in Cumberland, Gloucester, and Salem counties, were found to be relatively low. Thus, the infestation potential for 1972 was considered to be moderate.

European Corn Borer Overwintering Population

Survey of corn fields throughout the state in the fall of 1972 indicated a relatively moderate overwintering population of the European corn borer, Ostrinia nubilalis.

European Corn Borer Larval Parasites

European corn borer larvae were collected in late fall 1972 from sites throughout the state and submitted to the Bureau of Plant Laboratory for parasite determination. Results will be evaluated and presented in a subsequent report.

Potato Aphid Overwintering Population

On the basis of egg counts, the initial 1972 early spring population potential of the potato aphid, Macrosiphum solanifolii, was determined to be moderate. Survey sampling was at 24 sites in the central and southern areas of the state during the winter.

Alfalfa Weevil Potential Populations for Spring 1972

A count of eggs of the overwintering alfalfa weevil, Hypera postica, in alfalfa fields sampled throughout the state showed low levels of infestation.

Growing Season Insect Population Black Light Trapping

Population fluctuations of eight economically important crop pests were monitored by means of black light traps operated in major agricultural areas in the central and southern counties during the 1972 growing season.

Data on the abundance of the following pests were included in the Rutgers Insect-Disease Newsletter: armyworm, Pseudaletia unipuncta; cabbage looper, Trichoplusia ni; corn earworm, Heliothis zea; European corn borer, Ostrinia nubilalis; fall armyworm, Spodoptera frugiperda; tobacco hornworm, Protoparce sexta; tomato hornworm, Protoparce quinque-maculata; and yellow-striped armyworm, Prodenia ornithogalli.

Growing Season Populations of Economic Pests

The population levels of pepper maggot, Zonosemata electa, was monitored by means of traps during the 1972 growing season and the data were reported in the Rutgers Insect-Disease Newsletter.

Peach Tree Decline - Permanent Survey Plots

Data obtained from our inspection of peach decline in specially selected orchards in Camden and Gloucester counties during the past three years were analyzed by Dr. John Springer of Rutgers. Cytospora cankers were found most abundantly on trees that had been winter injured. Trees showing stem pitting were more susceptible to winter injury. Winter injury, canker infection and stem pitting were followed by rapid decline and death of many trees. Tree vigor was maintained or improved by surgical removal of cankers and fumigation of the soil for nematode control.

The data suggested that most of the factors contributing to decline varied in relation to site and soil.

Insect Taxonomy

Ginter Ekis was employed as an insect taxonomist in the Division of Plant Industry in February 1972. The employment followed intensified cooperative efforts with the Department of Entomology and Economic Zoology of Rutgers University and the Animal and Plant Health Inspection Service of the U. S. Department of Agriculture to improve insect identification in New Jersey. Dr. Ekis, who received his Ph.D. in entomology in May 1972, had extensive training in insect taxonomy and specialized in the taxonomy of the Coleoptera (beetles). He was initially stationed in the Museum of the Rutgers Entomology Department in New

Brunswick. He then established a work and study location at the National Museum of Natural History in the Smithsonian Institution in Washington, D. C. His objective was to develop a completely detailed plan for the establishment of a cooperative insect taxonomy program in New Jersey which would be coordinated with taxonomic efforts in other states, at the national level, and, as feasible, internationally. By year's end, Dr. Ekis was preparing his second manuscript in a series intended to meet the objective.

Pest Management

The U. S. Department of Agriculture has recently been cooperating with State agencies in establishing "pest management" programs. These involve detailed field scouting with study of pest species and their related biological complex to determine exact control needs and pesticide timing, with the aim of reducing pesticide applications and consequent added protection of the environment.

A cooperative regional pest management program between Delaware, Maryland and New Jersey on sweet corn, lettuce, beans and peppers was funded by the U. S. Department of Agriculture. The duration of the pilot program phase of this project is to be three to five years.

The New Jersey portion, a joint effort by this Department and the extension and research sections of the Rutgers Department of Entomology and Economic Zoology which dealt with fresh market sweet corn and lettuce, was funded for \$33,860 for the first year.

Results of the work in 1972 indicated that the hoped-for reductions in spray applications could be accomplished without undue loss in crop quality in the cases of both sweet corn and lettuce. Thus, both spray costs to growers and pesticide pollution costs to the environment may be reducible.

Air Pollution

In the spring of 1972, a survey of greenhouses at 25 locations in central and southern areas detected apparent air pollution damage to plants in five instances. Greenhouse tomatoes, nursery stock and vegetable transplants were found to be injured.

Miscellaneous

(a) Assistance was provided the Bureau of Seed Certification in its annual inspection of certified strawberry fields for the possible presence of red stele disease.

(b) Inspectors and supervisory personnel attended a training session in imported vegetable transplant inspection.

(c) Upon request of the Cumberland County agricultural agent, inspections were made of pepper fields containing varietal mixtures and certificates of inspection were issued to the plant dealer and farmers involved.

Shade Tree Pest SurveyDutch Elm Disease (Calendar Year 1972)

As in previous years, Dutch elm disease (causal fungus: Ceratocystis ulmi), spread primarily by the very small, European elm bark beetle (Scolytus multistriatus), continued to take its toll in dead elm trees in the many New Jersey localities in which control efforts were lacking or inadequate.

There is no known cure for an elm with Dutch elm disease, but annual losses to the disease have been greatly reduced in localities where recommended controls were adequately funded, and applied. Such control requires careful and persistent attention to an exact procedure, which is most effectively done on a communitywide scale. Since 1941, when a statewide Dutch elm disease eradication program was discontinued, the Department has not been required to remove diseased elms. Activities in control of the disease have continued along three lines: (1) requested scouting for Dutch elm disease (and related diagnostic services), (2) requested control advice, and (3) requested instruction for disposal of elm wood encountered by State highway contracts (Department of Transportation regulations). Responsibility for use of control advice rests with local officials or property owners.

TABLE 16. DUTCH ELM DISEASE SCOUTING, 1972

<u>County, Property and Time of Inspection</u>	<u>Scouted</u>	<u>Found Diseased</u>
	--number--	
Camden County Institutions at Lakeland		
June	70	3 2/
July	71 1/	1 2/
August	71	0
Sub-total	212	4 2/
Warren, Hillcrest Section (Phillipsburg)		
June	160	2
July	157	3
August	154	1
Sub-total	471	6
Total	683	10

Based on the results of the scouting, Dutch elm disease control advice tailored to the particular situation, was provided the appropriate official or property owner. Findings indicate that good (less than 4 percent disease) to fairly good (less than 6 percent disease) control resulted from proper application of the treatment advised.

London Plane Canker Stain Disease (Calendar Year 1972)

Easily and primarily spread by man when he inflicts a wound of any kind on the London planetree host, the canker stain disease is caused by the fungus, Ceratocystis fimbriata f. platani. Like Dutch elm disease, the

1/ One new sapling included.

2/ Control by means of severe pruning attempted.

canker stain disease is deadly once it enters the trunk of the tree, and the trouble must be combatted promptly and thoroughly if it is to be satisfactorily controlled. Widespread in the Camden area, the canker stain disease seems well adapted to urban environments. Nevertheless, it is believed that decisive, careful, and persistent action to curb the disease in all areas of infection could practically eliminate the problem. The disease is spread by vehicles, lawn mowers, and other implements which often provide both the wounding and the transportation of the fungus necessary for its transmission.

Upon request from the Borough, 79 London planetrees in Hi-Nella, Camden County, were inspected for the disease. One of the trees was found to be infected. The tree was marked with the Department warning tag, and proper local officials were advised of suitable removal procedures.

Request Inspections (Calendar Year 1972)

Shade tree problems (other than Dutch elm disease and London planetree canker stain disease) found as the result of requested inspection of shade tree disorders during 1972 included the following more common troubles:

<u>Pest or Condition</u>	<u>Type Tree Involved</u>	<u>County</u>	<u>Month</u>
Balsam woolly (or twig) aphid (<u>Mindarus abietinus</u>)	Spruce	Camden	June
Birch leaf miner (<u>Fenusa pusilla</u>)	Gray birch	Camden	June
Cankerworm injury	White oak	Camden	June
Holly leaf miner (<u>Phytomyza ilicicola</u>)	American holly	Camden	June
Lace bug (<u>Corythucha ciliata</u>)	London planetree	Camden	Sept.
Oak anthracnose (<u>Gnomonia quercina</u> fungus)	White oak	Camden	Sept.
Pine false webworm (<u>Acantholyda erythrocephala</u>)	White pine	Camden	June
Pine tip (twig) blight (<u>Diplodia pinea</u> fungus)	Austrian pine	Camden	June

Included in the inspections were more than 150 trees of the N. J. State Hospital in Ancora. Plant pest control and general tree maintenance advice was provided the appropriate official of the institution.

Plant Pathological Diagnostic Services (Calendar Year 1972)

Among the more commonly found plant disorders diagnosed during 1972 were:

<u>Diagnosis</u>	<u>Host</u>	<u>County</u>	<u>Month</u>
Bacterial wilt (<u>Pseudomonas solanacearum</u> bacterium)	Tomato Imported Transplants	-----	May
Dutch elm disease (<u>Ceratocystis ulmi</u> fungus)	Elm	Camden Warren	June July
Leaf blotch (<u>Phyllosticta paviae</u> fungus)	Horse Chestnut	Bergen	August October
Anthracnose (<u>Gnomonia guercina</u> fungus)	Oak	Burlington Hunterdon	July August
Bacterial spot (<u>Xanthomonas vesicatoria</u> bacterium)	Pepper	Gloucester	August

Altogether, 415 such diagnoses of plant troubles were recorded made during 1972.

BUREAU OF SEED CERTIFICATION

Extreme weather conditions which prevailed during the growing season resulted in a reduction in seed certified. The vegetable crops were especially hard hit by delayed planting because of a wet spring and then a substantial yield decrease due to dry weather during August.

The demand for all seed exceeded or equaled supply, except for strawberry plants. This crop is being adversely affected by its high labor demand.

A nationwide shortage of soybean seed, coupled with high prices, resulted in a demand far exceeding the supply.

The certification of lawn seed continued to expand dramatically, resulting in a threefold increase.

Barley

The acreage of barley entered for certification increased 37 percent over the previous year to a total of 755 acres. Rejections because of excessive loose smut disease and mixtures of other crops amounted to 318 acres or 42 percent.

Rains during the winter and spring caused leaching of fertilizer, which reduced yields to an average of 45 bushels per acre, which is 15 bushels less than last year.

Many farmers are switching their acreage from barley to wheat because of higher wheat prices. This change will be reflected in less barley acreage entered for certification in the future.

TABLE 17. WINTER BARLEY PROGRAM, 1972

<u>Variety</u>	<u>Entered</u>	<u>Rejected</u> --- acres ---	<u>Passed</u>	<u>Certified</u> -- bushels --
Barsoy				
Registered	28	23	5	456
Certified	92	92	--	--
Besbar				
Certified	119	119	--	--
Early Wong				
Registered	5	--	5	306
Certified	66	--	66	3,312
Pennrad				
Registered	5	--	5	273
Certified	146	--	146	5,691
Tschermak				
Registered	5	5	--	--
Certified	101	46	55	2,174
Wong				
Foundation	1	--	1	50
Registered	10	--	10	350
Certified	177	33	144	7,061
Total	755	318	437	19,673

Field Corn

A total of 340 acres of seed corn was entered for certification, compared with 587 acres entered the previous year. One large grower attempted to plant the seed using the "no-tell" method and was unsuccessful because of an uneven stand. This uneven stand is not objectionable in regular field corn; however, in seed corn fields which have to be detasseled and cross pollinated, it is essential to get a uniform stand of corn.

Four fields totaling 47 acres had to be rejected because they were hurt by an early freeze in the middle of October. This is only the second time since seed corn production began in New Jersey that a field was killed by frost. Seed plantings were delayed because of an extremely wet spring, causing the later maturity of the corn fields.

Despite the reduced acreage and the rejection, a total of 12,149 bushels of seed was eligible for certification, compared to 10,764 bushels the previous year.

New Jersey corn hybrids performed well in extension test trials in neighboring states, resulting in increased demand from out-of-state customers.

TABLE 18. SEED CORN PROGRAM, 1972

<u>Hybrid</u>	<u>Acres Entered</u>	<u>Acres Rejected</u>	<u>Acres Passed</u>	<u>Bushels Certified</u>
Agway 724	93	--	93	2,815
Agway 800	100	--	100	4,212
Agway 909	15	15	--	--
Mid-States 722	10	10	--	--
Mid-States 818	102	12	90	3,649
Mid-States 837	20	10	10	195
Carry-Over	--	--	--	1,278
Total	340	47	293	12,149

Oats

Because of a reduced demand and a low income per acre, the acreage of oats remains small.

A total of 20 acres of the Orbit variety of spring oats was entered, compared with 18 acres the previous year.

Yields were good, averaging 59 bushels per acre, resulting in a total of 1,180 1/2 bushels certified. This is almost double the previous year's total.

Soybeans

A total of 1,399 acres of soybeans was entered, which is the second largest acreage ever inspected for certification in New Jersey.

During field inspection, most fields were true to variety and very few rejections were necessary. However, continued rainy weather during harvest resulted in 552 acres being rejected for poor quality beans with high moisture content. These rejections totaled 40 percent of the acreage not being eligible for certified. The fields that did pass certification produced excellent quality seed.

Certified soybean seed available amounted to 14,832 bushels, which is more than the previous year, but not enough to supply the demand. Short seed supply throughout the entire country has caused a rapid increase in price, and it is anticipated that the acreage for next year will be greatly increased. (See Table 19 on following page.)

Wheat

Wheat acreage entered for certification totaled 972 acres, an increase of 269 acres, or 38 percent, over the previous year. Rejections because of weed mixtures and low germinations amounted to 141 acres, or 14 percent of the total.

Seed yields averaged 33 bushels per acre; however, the Arthur and Red-coat varieties averaged 43 bushels per acre, while the Blueboy variety averaged only 23 bushels.

Due to government wheat sales abroad, the price of wheat has risen sharply, resulting in a heavy demand for seed. The supply was not adequate to meet this demand, and many farmers were forced to use inferior seed stocks.

There was not enough registered seed available to plant all the certified fields for anticipated needs in 1973. Therefore, a shortage of high quality seed will probably extend into next year. (See Table 20, opposite page.)

TABLE 19. CERTIFIED SOYBEAN PROGRAM, 1972

<u>Variety</u>	<u>Entered</u>	<u>Rejected</u> -- acres --	<u>Passed</u>	<u>Certified</u> -- Bushels --
Adelphia				
Foundation	2	--	2	29
Registered	25	--	25	435
Certified	439	20	419	7,589
Beeson				
Certified	61	61	--	--
Calland				
Certified	135	135	--	--
Clark				
Certified	95	24	71	707
Cutler				
Registered	6	--	6	101
Certified	144	104	40	984
Delmar				
Certified	55	55	--	--
S.R.F. - 400				
Certified	58	--	58	1,153
S.R.F. - 450				
Certified	58	--	58	1,844
Kent				
Registered	15	--	15	452
Certified	303	153	150	1,464
Williams				
Registered	3	--	3	74
Total	1,399	552	847	14,832

TABLE 20. WINTER WHEAT PROGRAM, 1972

<u>Variety</u>	<u>Entered</u>	<u>Rejected</u> -- acres --	<u>Passed</u> --	<u>Certified</u> -- bushels --
Arthur				
Registered	5	--	5	295
Certified	248	73	175	7,930
Blueboy				
Registered	37	12	25	908
Certified	426	32	394	9,257
Pennoll				
Certified	5	5	--	--
Redcoat				
Registered	12	--	12	450
Certified	239	19	220	9,046
Total	972	141	831	27,886

TABLE 21. CERTIFIED SEED GRAIN, SEALED BUSHEL, 1962-1972

<u>Year</u>	<u>Corn</u>	<u>Oats</u>	<u>Wheat</u>	<u>Barley</u>	<u>Soybeans</u>	<u>Total Sealed</u>
1972	12,149	1,180	27,886	19,673	14,832	75,720
1971	10,764	696	27,349	23,212	13,297	75,318
1970	13,349	678	27,756	22,166	18,630	82,579
1969	14,502	348	21,890	28,308	24,450	89,498
1968	15,903	1,299	15,911	33,158	26,503	92,774
1967	18,721	906	34,883	17,760	26,351	98,621
1966	17,880	3,639	34,347	29,767	21,228	106,861
1965	19,974	2,148	33,390	36,783	14,067	106,362
1964	21,278	3,423	38,802	39,751	4,680	107,934
1963	22,118	2,080	21,726	8,924	2,534	57,382
1962	20,374	9,842	15,680	29,942	5,242	81,121

TABLE 22. CEREAL ACREAGE FOR CERTIFICATION, 1962-1972

<u>Year</u>	<u>Barley</u>	<u>Wheat</u>	<u>Oats</u>	<u>Corn</u>	<u>Soybeans</u>	<u>Total Acres Entered</u>
1972	755	972	20	340	1,399	3,486
1971	550	703	18	587	1,340	3,157
1970	602	775	16	344	1,269	3,006
1969	804	733	50	280	1,050	2,917
1968	864	1,026	29	533	1,075	3,527
1967	553	1,306	50	706	1,353	3,968
1966	618	1,012	129	698	1,868	4,325
1965	776	1,060	49	731	976	3,592
1964	715	1,608	104	684	427	3,538
1963	434	939	38	541	258	2,210
1962	524	799	270	375	700	2,668

TABLE 23. POUNDS OF VEGETABLE AND LAWN SEED CERTIFIED, 1967-1972

<u>Year</u>	<u>Tomatoes</u>	<u>Peppers</u>	<u>Asparagus</u>	<u>Crown Vetch</u>	<u>Lawn Seed</u>	<u>Total</u>
1972	5,030	825	381	1,240	783,595	791,071
1971	16,675	2,010	714	937	225,702	246,038
1970	25,050	2,191	1,870	550	191,325	220,986
1969	7,795	1,281	1,445	360	170,000	180,881
1968	23,465	7,040	134	---	---	30,639
1967	21,329	6,357	396	---	---	27,982

Tomato Seed Certification

The Campbell Soup Company was the only producer of certified tomato seed. The Swedesboro Seed Company, depending wholly on the new variety Red Rock, were unable to produce any certified seed due to the poor performance of this variety.

The unusually wet and cold growing season, plus the fact that Red Rock did not come up to expectations, accounted for the low production of certified seed.

Campbell Soup Company produced certified seed from four varieties this year.

TABLE 24. TOMATO CERTIFICATION PROGRAM

<u>Variety</u>	<u>Certified Seed</u> <u>--acres --</u>	<u>Pounds Certified</u>
C #17	15	--
C #28	190	4,100
C #35	39	785
C #36	30	115
Red Rock	30	30
Total	304	5,030

Asparagus

Asparagus seed in New Jersey is being produced by Rutgers at the South Jersey Research Center, Centerton, in cooperation with the New Jersey Asparagus Industry Council.

Production was reduced this year partly because of brush damage from several severe storms, hurricane Agnes being the worst. Also, the harvest was delayed by an unusually wet fall.

A total of 318 pounds of Rutgers Experimental Hybrid 106 was produced in 1972.

There was also 13 pounds of Hybrid 106 and 50 pounds of Hybrid 103 carry-over from 1971, making a total of 381 pounds for 1973.

TABLE 25. PHYTO-SANITARY CERTIFICATES ISSUED
FOREIGN SEED EXPORTED (LBS.)
1972 - 1973

<u>Variety</u>	<u>Argentina</u>	<u>Canada</u>	<u>France</u>	<u>Italy</u>	<u>Mauritius</u>	<u>New Zealand</u>	<u>Portugal</u>	<u>Puerto Rico</u>	<u>South Africa</u>	<u>Totals</u>
Asparagus	--	--	--	--	--	98 $\frac{1}{4}$	--	--	100	198 $\frac{1}{4}$
Eggplant	--	--	--	--	--	--	--	--	45	45
Lawn Seed	--	--	--	2,200	--	--	--	2,000	--	4,200
Pepper	--	--	100	--	8	--	--	762	--	870
Tomato	<u>1</u>	<u>25</u>	<u>--</u>	<u>175</u>	<u>--</u>	<u>--</u>	<u>180</u>	<u>7</u>	<u>375</u>	<u>763</u>
Totals	1	25	100	2,375	8	98 $\frac{1}{4}$	180	2,769	520	6,076 $\frac{1}{4}$

Pepper Seed

Swedesboro Seed Company was the only producer of pepper seed in 1972. They entered a total of 28 1/2 acres for inspection.

The fields are inspected each week for Bacterial Leaf Spot, a seed-borne disease, and all fields were found to be disease-free.

However, due to the extremely wet fall and the depressed price of peppers, seed was not saved from all fields.

A total of 825 pounds was produced this year, an average of 30 pounds per acre. All pepper seed was treated with Chlorox and Arason for disease protection.

TABLE 26. PEPPER SEED PROGRAM, 1972

<u>Variety</u>	<u>Acreage</u>	<u>Seed Saved</u> --pounds--
Large Red Cayenne	6	200
Cubanelle	4	100
Sunnybrook	1.5	25
Hungarian Wax Sweet	7	200
Hungarian Wax Hot	4	200
Slim Red Cayenne	1	100
Anahiem Chili	3	--
Tobasco	1	--
Total	28.5	825

Sod Certification

Sod producers were adversely affected by the wet weather, much the same as producers of other crops. Diseases were the main problem, and while they took some acreage out of certification for a short time, other fields had to be rejected entirely.

Stripe smut and Helminthosporium diseases caused most of the rejections, while heavy rainfall made harvest difficult.

TABLE 27. FINAL REPORT ON SOD CERTIFIED IN 1972

<u>Grower</u>	<u>Entered</u>	<u>Rejected</u>	<u>Eligible</u>	<u>Certified</u>	<u>Eligible As</u> <u>Certified</u>	<u>Sold As</u> <u>Certified</u>
		-- acres --			-- square feet --	
Betts, Walter	24	--	24	10	433,000	--
Leon's Sod Farm	25	7	18	7	303,100	--
Mercer Sod	62	40	22	10	433,000	15,000
Rapp Farms, Inc.	116	12	104	45	1,948,000	92,750
Reed, Stuart	45	20	25	22	952,600	150,200
Richie, J. S.	9	2	7	7	303,100	205,000
Selody, Steve	20	--	20	15	649,500	284,900
Turfgrass, Inc.	40	20	20	20	866,000	800,000
Total	341	101	240	136	5,888,300	1,547,850

A total of 341 acres was entered for certification with 101 acres rejected for disease. A total of 1,547,850 square feet was sold as certified, a decrease of 375,000 square feet from the previous year.

Virus-Free Strawberry Plants

The production of certified strawberry plants is a cooperative arrangement between the New Jersey Department of Agriculture, the New Jersey Small Fruit Council, and Rutgers College of Agriculture.

The program assures the purchasers that they are getting plants that have been inspected and found true to variety and free from insects and diseases.

Due to the higher cost and shortage of labor, less strawberries are being produced, thereby reducing the demand for certified plants.

A total of 936,725 plants was certified this year, compared with 1,122,000 in 1971.

TABLE 28. VIRUS-FREE STRAWBERRY PLANTS CERTIFIED FOR 1972

<u>Variety</u>	<u>Number of Plants</u>
Raritan	608,225
Jerseybelle	163,325
Sunrise	48,250
Vesper	17,500
Redchief	25,625
Guardian	73,800
Total	936,725

Crown Vetch

The certification of crown vetch seed is a cooperative program between the New Jersey Department of Agriculture and the U. S. Department of Agriculture. Three acres of Chemung crown vetch is being maintained at the Cape May Plant Materials Center at Cape May Court House. The seed produced is used for road bank stabilization primarily and is available to any governmental agency upon request.

Production was down this year due to the harvest being delayed by a continual rainfall. Only 308 pounds was produced, compared to 937 pounds the previous year. However, with 932 pounds of carry-over seed from 1971, all requests can be satisfied. Total seed available for 1973 is 1,240 pounds.

Lawn Seed Certification

The interagency certification of lawn seed is a relatively new program which is expanding rapidly because of its favorable acceptance by the consumer and the processor.

This is a cooperative program between the seed-producing states in the northwestern United States and the seed-consuming states in the East. Through regulation and inspection, the grass seed buyer can be assured that he is purchasing certified seed mixtures that are in accordance with the recommendations of Rutgers College of Agriculture and Environmental Science.

These mixtures are used by sod growers, landscape gardeners and homeowners who want to be assured that they are planting high quality seed, which has been inspected in the field, laboratory tested and blended to meet the regulations of the seed certifying agency.

The quantity of lawn seed certified has expanded from 170,000 pounds in 1969 to 783,595 pounds in 1972. This year's total is more than three times the previous year.

American Beachgrass

A new variety of American beachgrass, developed by the U. S. Department of Agriculture's Plant Materials Center at Cape May Court House, was submitted for certification. This variety, called "Cape," marks the first time American beachgrass has been certified in New Jersey.

Beachgrass is used by government bodies and individual homeowners to stabilize drifting sand in coastal areas. This new variety is more vigorous than any variety now being used, and, therefore, should help control beach wind erosion.

Foundation sprigs supplied by the U. S. Department of Agriculture were given to Church's Nursery in Cape May and were planted on approximately three acres. The resulting crop will be certified for sale in 1973.

BUREAU OF SEED CONTROL

The New Jersey Seed Law requires that all agricultural, vegetable, and flower seed sold or exposed for sale must be truthfully labeled and must meet certain minimum standards. It authorizes the inspection, sampling, and testing of this seed and provides that samples be tested for residents of the state, subject to certain regulations. The laboratory also has the responsibility of testing samples for the Bureau of Seed Certification to assure laboratory quality of the seed. During this fiscal year, 3,230 tests were made on 2,212 samples of seed. These tests can be broken down as follows: purity, 468; germination, 2,154; noxious weed seed examination, 452; and various other tests made as required.

The number of official samples drawn increased from 874 to 994 as a result of 713 inspections made. Violations were found in 72 samples, or 7.1 percent. This is less than the 9.4 percent found last year. The most serious violation was found in a lawn mixture where annual ryegrass replaced approximately one-half the amount of fine leaved perennial ryegrass claimed. Other violations included incorrect variety identifications, as well as labeling and germination discrepancies.

Identical results in any series of analyses of seeds are not possible; nevertheless, label percentages must agree with laboratory tests within allowable tolerances. If these tolerances are exceeded, the vendor is required to relabel the seed to conform with the State laboratory findings. Seed may then be offered for sale again provided the quality meets the standards set in the rules. The Seed Law does not require registration or permits for the sale of seed. It does provide authority to seize or place a "stop sale" order on all lots of seed found in violation of the law. A fine can be imposed if the violation is considered sufficiently serious. The number of lots put on "stop sale"

in the field increased from 20 to 74. These represented 10,697 pounds of seed. Added to this were 396 packages removed from sale from many different retail establishments with a warning to have them relabeled. The most frequent cause was expired germination test dates.

The number of samples tested for the certification program decreased from 495 to 441 this year. These samples were given 741 separate tests to determine laboratory quality. Soybean germination was of special concern again this year.

Residents of the state sent in 705 samples with requests for 775 tests. Approximately 60 percent of these were submitted by wholesale and retail dealers to facilitate proper labeling. The remainder were sent by government agencies and individuals seeking to determine planting rate and possible field performance.

The Seed Laboratory is a member of the Association of Official Seed Analysts, an organization to promote uniformity of testing procedures throughout North America. Members of the staff participated in the Referee Testing Program and conducted the flower seed germination portion from our laboratory.

Detailed summaries of the year's work are given in Tables 29 through 36 on pages PI-36 through PI-62.

BUREAU OF PLANT LABORATORY

Bee Disease Examination

During the year, eight suspected bee disease samples were submitted for microscopic examination by apiary inspectors and beekeepers. Of the total number of specimens examined, three were positive for American foulbrood, three positive for European foulbrood, and two negative for disease.

Strawberry Plant Examination for Nematodes

Strawberry plants grown under the virus-free certification program were sampled for plant parasitic nematodes. As required under the certification program, all virus-free strawberry plantings are to be treated with a nematicide to maintain freedom from plant nemas. Upon completion of diagnostic examination, all plantings were found to be adequately treated and no serious nematode problems were encountered.

Request Sampling for Plant Parasitic Nematodes

During the year, four nurserymen and eight private citizens requested sampling of plantings for plant parasitic nematodes. Of all the plantings sampled, three plantings did not have nematodes of pathogenic significance. Growers having nematode problems were advised as to corrective measures.

(Bureau of Plant Laboratory report continues on page PI-63.)

July 1, 1972 - June 30, 1973

[illegible]

TABLE 30 TESTS PERFORMED BY STATE SEED LABORATORY

July 1, 1972 - June 30, 1973

Type of Test	Kind of Seed						Total
	Crop & Turf	Mixture	Vegetable	Flower	Tree	Experimental Material	
Purity	397	51	5	--	--	15	468
Germination	1171	132	643	189	4	15	2154
Fluorescence	52	37	--	--	--	--	89
N.J. noxious weed seed ck.	394	42	1	--	--	15	452
Bulk for O.C.S. (sod growers)	6	2	--	--	--	--	8
Malt germination	41	--	--	--	--	--	41
Identification	2	--	1	1	1	1	6
Planter kits	--	--	1	6	--	--	7
Poa annua check	2	--	--	--	--	--	2
Tetrazolium	3	--	--	--	--	--	3
Total	2068	264	651	196	5	46	3230

TABLE 31 EXPERIMENTAL MATERIAL, FLOWERS, SHRUBS, TREES AND VINES TESTED

July 1, 1972 - June 30, 1973

Kind of Seed	Source				Total	Violations
	Service	Bureau of Seed Certification -- number of tests --	Control			
Experimental material	15	--	--	15	--	--
Flowers	1	--	194	195	13	--
Shrubs, trees and vines	5	--	--	5	--	--
Total	21	--	194	215	13	--

TABLE 32 VEGETABLE SEED TESTED

July 1, 1972 - June 30, 1973

<u>Kind of Seed</u>	<u>Service</u>	<u>Source</u>		<u>Total</u>	<u>Violations</u>
		Bureau of Seed Certification --number of tests--	<u>Control</u>		
Asparagus	12	3	2	17	--
Basil	--	--	1	1	--
Beans, garden	13	--	38	51	4
Beans, lima	17	--	21	38	8
Beets	1	--	20	21	2
Broccoli	1	--	5	6	--
Brussel sprouts	1	--	2	3	--
Cabbage	2	--	18	20	--
Carrot	4	--	25	29	--
Cauliflower	--	--	3	3	--
Celery	--	--	3	3	--
Chicory	2	--	2	4	--
Chives	--	--	1	1	--
Collards	--	--	5	5	1
Cucumber	4	--	27	31	--
Dandelion	--	--	1	1	--
Dill	2	--	3	5	--
Eggplant	2	--	7	9	--
Endive	3	--	6	9	--
Fennel	--	--	1	1	1
Gourd	--	--	1	1	--
Kale	1	--	1	2	--
Kohlrabi	--	--	4	4	--
Leek	--	--	2	2	--
Lettuce	4	--	35	39	1

TABLE 32 VEGETABLE SEED TESTED

July 1, 1972 - June 30, 1973

(continued)

<u>Kind of Seed</u>	<u>Service</u>	<u>Source</u>		<u>Control</u>	<u>Total</u>	<u>Violations</u>
		Bureau of Seed Certification	--number of tests--			
Muskmelon	2	--		9	11	1
Mustard	1	--		11	12	--
Okra	--	--		6	6	--
Onion	7	--		18	25	--
Parsley	2	--		28	30	3
Parsnip	2	--		5	7	--
Peas	3	--		20	23	--
Pepper	14	--		20	34	--
Pumpkin	1	--		2	3	--
Radish	1	--		22	23	--
Rhubarb	--	--		2	2	--
Rutabaga	1	--		2	3	--
Salsify	--	--		1	1	--
Spinach	--	--		5	5	--
Squash	3	--		9	12	--
Sweet corn	11	--		42	53	3
Swiss chard	1	--		6	7	--
Tomato	7	5		45	57	1
Turnip	1	--		12	13	--
Watermelon	4	--		13	17	--
Specialties	1	--		1	2	--
Total	131	8		513	652	25

TABLE 33 FIELD CROP AND TURF SEEDS TESTED

July 1, 1972 - June 30, 1973

<u>Kind of Seed</u>	<u>Service</u>	<u>Source</u>		<u>Total</u>	<u>Violations</u>
		Bureau of Seed <u>Certification</u> --number of tests--	<u>Control</u>		
Alfalfa	5	--	17	22	--
Barley, malting	--	41	--	41	--
Barley, seed	14	66	14	94	--
Bentgrass	19	--	--	19	--
Bluegrass, Kentucky	31	2	50	83	14
Bluegrass, rough	6	--	3	9	2
Bromegrass	1	--	--	1	--
Buckwheat	3	--	1	4	--
Clover, alsike	3	--	2	5	--
Clover, ladino	2	--	--	2	--
Clover, crimson	3	--	--	3	--
Clover, red	5	--	4	9	--
Clover, white	4	--	1	5	--
Corn, field	11	62	4	77	--
Cowpeas	--	--	3	3	--
Crownvetch	12	1	--	13	--
Fescue, red	20	--	22	42	6
Fescue, tall	10	--	11	21	4
Flax	3	--	--	3	--
Johnson Grass	1	--	--	1	--
Lespedeza	3	--	--	3	--
Lovegrass	1	--	--	1	--
Millet	3	--	1	4	--
Mixtures, grass	5	--	96	101	65

TABLE 33 FIELD CROP AND TURF SEEDS TESTED

July 1, 1972 - June 30, 1973

(continued)

<u>Kind of Seed</u>	<u>Service</u>	<u>Source</u>		<u>Total</u>	<u>Violations</u>
		Bureau of Seed Certification	Control		
		--number of tests--			
Oats	3	2	2	7	--
Orchardgrass	5	--	3	8	1
Rape	2	--	3	5	--
Redtop	4	--	--	4	--
Reed canarygrass	2	--	--	2	--
Rye	28	2	13	43	2
Ryegrass, annual	6	--	9	15	4
Ryegrass, perennial	24	1	47	72	5
Ryegrass, mixed	--	--	6	6	--
Sorghum	3	--	--	3	--
Sorghum-sudangrass hybrid	1	--	6	7	--
Soybeans	250	157	6	413	--
Sudangrass	2	--	3	5	--
Sweetclover	1	--	1	2	--
Timothy	8	--	14	22	2
Trefoil	--	--	1	1	--
Vetch	4	--	1	5	--
Wheat	42	99	15	156	3
Identification	3	--	--	3	--
Total	553	433	359	1345	108

TABLE 34 VEGETABLE AND FLOWER SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

SOURCE OF SEED

Name of Seedsman

<u>Lot No. - Kind of Seed</u>	<u>Discrepancy</u>	<u>Germination</u> <u>Labeled Found</u>		<u>Comments</u>
AGWAY INC., BURLINGTON				
Agway Inc., Syracuse, N. Y.				
V336 Parsley, Moss Curled	Below standard	60	48	Destroyed
V282 Sweetcorn, Butter and Sugar	Below that stated	92	83	Returned to shipper
ARCADIAN GARDENS, MENLO PARK				
Feader Nurseries, San Franando, Cal.				
Bird of Paradise	Incompletely labeled	--	--	Warning letter
Mimosa pudica	Incompletely labeled	--	--	Warning letter
Wood Rose Seed	Incompletely labeled	--	--	Warning letter
ASGROW SEED CO., VINELAND				
Asgrow Seed Co., Kalamazoo, Mich.				
67005 Parsley, Hamburg Rooted	Below that stated	89	62	Relabeled
BAMBERGERS, MENLO PARK				
Applewood Seed Co., Denver, Cal.				
Organic Herb Garden	Incompletely labeled	--	--	Warning letter
New Tomorrow Scientific Co., Inglewood, Cal.				
Magic Garden	Incompletely labeled	--	--	Warning letter
Taylor & NG, San Francisco, Cal.				
Daisy Planter	Incompletely labeled	--	--	Warning letter
BETH'S LANDSCAPING, ENGLISHTOWN				
Asgrow Seed Co., Cambridge, N. Y.				
Run 5, Hollyhock, Charter's Db1. Mix	Below standard	65	36	Removed from sale
BUTTERHOF'S FARM & HOME SUPPLY, EGG HARBOR				
Fredonia Seed Co., Fredonia, N. Y.				
STS-2220 Collards, Vates	Below standard	80	69	Relabeled

TABLE 34 VEGETABLE AND FLOWER SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

Lot No. - Kind of SeedDiscrepancyGermination
Labeled FoundComments

CHAMPION HARDWARE, MILLVILLE

W. Atlee Burpee, Phila., Pa.

103 Lima bean, Pole Big Six

Below standard

92

52

Replaced by shipper

S. CROITER FEED & COAL, CAPE MAY COURT HOUSE

W. Atlee Burpee, Phila., Pa.

106 Lima bean, Pole King of the Garden

Below that stated

89

80

Relabeled

FLOWER TIME GARDEN CENTER, ENGLISHTOWN

Seal of Science Products, Glendale, Cal.

Tomato, Super Seed Giant Tree

No date

--

--

Returned to shipper

FREIDA & FRED'S GARDEN CENTER, BERLIN

W. Atlee Burpee, Phila., Pa.

5233 Sweetcorn, Illini

Below that stated

93

84

Relabeled

GARDEN FAIR, CHERRY HILL

W. Atlee Burpee, Phila., Pa.

4189 Poppy, Single Shirley

Unfit for seed

60

2

Removed from sale

GARDEN STATE HATCHERY, WHITE HOUSE STATION

J. B. Rice, Jr., Inc., Shushan, N. Y.

2541 Bean, Imp Golden Wax

Below standard

85

57

All sold

218 Lima bean, Bush Fordhook

Below that stated

85

69

All sold

GAUDIO'S GARDEN CENTER, CAMDEN

Excel Seed Co., Downers Grove, Ill.

Run 1 Parsley, Plain or Italian

Below that stated

65

56

Removed from sale

TABLE 34 VEGETABLE AND FLOWER SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED		Germination		Comments
Name of Seedsman		Labeled	Found	
<u>Lot No.. - Kind of Seed</u>	<u>Discrepancy</u>			
GAUDIO'S GARDEN CENTER, TRENTON				
W. Atlee Burpee, Phila., Pa.				
4007 Ageratum, Blue Ball	Unfit for seed	60	0	Removed from sale
4609 Canterbury Bells, Single, Mixed	Below standard	60	30	Removed from sale
HAINES FARM & GARDEN SUPPLY, PALMYRA				
Northrup-King & Co., Minneapolis, Minn.				
35074-01100 Bean, Garden, Harvester	Below that stated	86	77	Removed from sale
KANES NURSERY & GARDEN CENTER, CHERRY HILL				
W. Atlee Burpee, Phila., Pa.				
4607 Ageratum, Blue Ball	Unfit for seed	60	1	Removed from sale
4609 Canterbury Bells, Single, Mixed	Below standard	60	27	Removed from sale
4189 Poppy, Single Shirley	Unfit for seed	60	2	Removed from sale
OROL LEDDEN, SEWELL				
Orol Ledden, Sewell				
6591 Cantaloupe, Pride of Wisconsin	Below standard	87	63	Relabeled
184 Lima bean, Fordhook Bush 242	Below that stated	90	75	Relabeled
MEGILL HARDWARE, FARMINGDALE				
Asgrow Seed Co., Kalamazoo, Mich.				
37108-1 Lima bean, Fordhook 242	Below that stated	89	62	Relabeled
63417 Lettuce, Parris Island Cos	Below that stated	94	82	Relabeled
MIKES LAWN & GARDEN CENTER, MALAGA				
Asgrow Seed Co., Cambridge, N. Y.				
Run 5 Hollyhock, Charters Double Mix.	Below standard	65	36	Removed from sale

TABLE 34 VEGETABLE AND FLOWER SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

<u>Lot No. - Kind of Seed</u>	<u>Discrepancy</u>	<u>Germination</u> <u>Labeled Found</u>		<u>Comments</u>
FRANK NEWMAN & SON, MANASQUAN				
W. Atlee Burpee, Phila., Pa.				
102P Lima bean, Bush Fordhook 242	Below standard	83	45	Replaced by shipper
49601 Beet, Detroit Dark Red	Below that stated	81	67	Relabeled
TETHER SEED CO., PATERSON				
Tether Seed Co., Paterson, N. J.				
35-47 Beet, Green top	Below that stated	92	80	Relabeled
VILLAGE HARDWARE, ALLENTOWN				
W. Atlee Burpee, Phila., Pa.				
430P Bean, Bountiful	Below that stated	97	84	Relabeled
321 Lima bean, Fordhook 242	Below that stated	96	75	Relabeled
WATKINS HARDWARE, VINELAND				
Ferry Morse Seed Co., Mt. View, Cal.				
90103-13231 Corn, Stylepak	Below that stated	94	82	Relabeled
B. D. WOLCOTT & SON, EATONTOWN				
J. B. Rice, Jr., Inc., Shushan, N. Y.				
2858-7 Fennel, Sweet Florence	Below that stated	75	63	All sold
W. W. WOODWARD HARDWARE, NEWTON				
J. B. Rice, Jr., Inc., Shushan, N. Y.				
2541 Bean, Imp. Golden Wax	Below standard	85	61	Relabeled
218 Lima bean, Fordhook 242	Below that stated	88	73	Relabeled

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

SOURCE OF SEED

Name of Seedsman

Lot No. - Kind of SeedDiscrepancyLabeled Found Comments

AGWAY INC., BORDENTOWN

Agway Inc., Syracuse, N. Y.

P12649 Ky. Bluegrass, Newport

B20260 Rye

Variety mislabeled

-- --

Relabeled

Purity inaccurate

Pure seed

99.20 97.45

Other crop

.25 2.31 Relabeled

AGWAY INC., BRIDGETON

Agway Inc., Syracuse, N. Y.

B1-0153 Wheat, Cover Crop

Germination

below stated

81

66

All sold

AGWAY INC., FLEMINGTON

Agway Inc., Syracuse, N. Y.

16073 Orchardgrass

Purity inaccurate

Other crop

3.68 5.52

Relabeled

M2011 Wheat, Arthur

Restricted

Noxious Weeds

None 3/lb. All sold

AGWAY INC., WASHINGTON

Agway Inc., Syracuse, N. Y.

B20271 Rye

Prohibited

Noxious Weeds

None 4/lb. All sold

AMERICAN SUPPLY CO., FORKED RIVER

Loft Pedigreed Seed Co., Bound Brook, N. J.

FA-2-71 Grass Mixture, First Aid

Test date expired

-- --

Stop Sale

S-15-72 Grass Mixture, All Shady

Test date expired

-- --

Stop Sale

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

<u>Lot No. - Kind of Seed</u>	<u>Discrepancy</u>	<u>Labeled</u>	<u>Found</u>	<u>Comments</u>
AMERICAN SUPPLY CO., FORKED RIVER				
O. M. Scott & Sons, Marysville, Ohio				
114-1301 Ky. Bluegrass, Windsor	Test date expired	--	--	Stop Sale
111-1101 Grass Mixture, Blend 35	Test date expired	--	--	Stop Sale
112-1401 Grass Mixture, Ten/One Brand	Test date expired	--	--	Stop Sale
ATLANTIC & PACIFIC TEA CO., BLAIRSTOWN				
Mock Seed Co., Pittsburgh, Pa.				
GU72 Grass Mixture, Green Up Brand	Purity inaccurate Red fescue	6.40	4.45	Relabeled
BELLE MEAD FARMERS'S CO-OP., BELLE MEAD				
Loft Pedigreed Seed Co., Bound Brook, N.J.				
2267 Ky. Bluegrass, Common	Germination not stated	--	--	Stop Sale
BOONTON SEED & SUPPLY, BOONTON				
Hyde Park Products Corp., New Rochelle, N.Y.				
L10524 Annual Ryegrass	Kind not stated	--	--	Stop Sale
L32-1-4 Annual Ryegrass	Test date expired	--	--	Stop Sale
BRADLEE'S, NORTH BRUNSWICK				
O. M. Scott & Sons, Marysville, Ohio				
210-1502 Grass Mixture, Bare Spot	Test date expired	--	--	Stop Sale
110-1101 Grass Mixture, Blend 35	Test date expired	--	--	Stop Sale
112-1121 Grass Mixture, Blend 35	Test date expired	--	--	Stop Sale
114-1301 Ky. Bluegrass, Windsor	Test date expired	--	--	Stop Sale
211-1302 Ky. Bluegrass, Windsor	Test date expired	--	--	Stop Sale

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED Name of Seedsman		<u>Discrepancy</u>	<u>Labeled Found</u>		<u>Comments</u>
<u>Lot No. - Kind of Seed</u>					
BARCLAY INC., CRANBURY Milan Seed Co., Milan, Ohio 648 Wheat, Certified Arthur		Germination below stated	95	87	Relabeled
FARMERS' COOPERATIVE ASS'N., TRENTON A. Ertag Inc., Jersey City, N. J. L771-10A Annual Ryegrass		Purity inaccurate Other crop	.00	3.41	Returned to shipper
Gillespie Seed Co., Franklin, Ky. 184 Tall fescue, Ky. 31		Germination below stated	85	69	All sold
Stanford Seed Co., Plymouth Meeting, Pa. 00A-5891 Timothy		Germination below stated	86	67	Stop Sale
FERRIS SEED CO., EAST BRUNSWICK Vaughan's Seed Co., Bound Brook, N.J. 6561 Grass Mix., Vaughan's Dense Shade		Germination below stated Poa Trivialis	85	67	Returned to shipper
FORBES GARDEN CENTER, HANOVER Forbes Garden Center, Hanover, N. J. A Grass Mix., Branch Brook Lawn		Red Top Purity Germination	9.2 85	6.35 72	Relabeled
A Grass Mix., Elite Lawn		Purity inaccurate Other crop	None	1.39	Relabeled

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

Lot No. - Kind of SeedDiscrepancyLabeled FoundComments

FORBES GARDEN CENTER, HANOVER

Forbes Garden Center, Hanover, N. J.

A Grass Mix., Forbes Lawn

Purity inaccurate

Red Fescue

Pure seed

39.2

28.55

Relabeled

FREIDA & FRED'S GARDEN CENTER, BERLIN

Seeds Inc., Rockledge, Pa.

BJ 2506 Poa Trivialis

Germination

below stated

85

49

Returned to
shipper

GAUDIO'S GARDEN CENTER, TRENTON

Atlantic Seed Co., Bound Brook, N. J.

SDU-1-72 Lawn Seed Mixture,

Gaudio's Superior Del. Valley

Purity inaccurate

Manhattan Per. Ryegrass

Pure seed

49.00

26.16

Annual Ryegrass

Pure seed

None

21.48

Park Ky. Bluegrass

Pure seed

32.50

28.13

Other crop seed

.35

1.84

Fine imposed

G. F. HILL & CO., GLADSTONE

Stanford Seed Co., Plymouth Meeting, Pa.

16P-5632 Red Fescue, Cert. Pennlawn

Purity inaccurate

Pure seed

99.56

98.45

Inert matter

.34

1.55

Relabeled

00A-5867 Timothy

Purity inaccurate

Pure seed

99.60

98.40

Other crop seed

.10

1.10

Relabeled

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

Lot No..- Kind of SeedDiscrepancyLabeled Found Comments

KERR-MCGEE CHEMICAL CO., DOVER

Stanford Seed Co., Plymouth Meeting, Pa.

2-462 Grass Mix., Landscaper

Purity inaccurate

Ky. Bluegrass

5.60 3.91

Other crop seed

.50 2.96

Restricted

Noxious weeds

None 18/lb. Relabeled

KINGS DEPT. STORE, EDGEWATER PARK

Crawford Garden Supplies, Providence, R.I.

7010 Ky. Bluegrass, Merion

Purity inaccurate

Other crop seed

1.35 6.86

Germination

80 69 Relabeled

KIRBY BROS., MEDFORD

Stanford Seed Co., Plymouth Meeting, Pa.

14H-5827 Perennial Ryegrass, Cert Linn

Purity inaccurate

Other crop seed

.04 10.45 Referred to federal

MAJOR'S, FLEMINGTON

Loft Pedigreed Seed Co., Bound Brook, N.J.

TS 1-72 Grass Mix., Turf Supreme

Test date expired

-- -- Stop Sale

MAN KY-1-72 Grass Mix., Manhattan, Ky.

Test date expired

-- -- Stop Sale

LS 1-72 Grass Mix., Lofts Shady

Test date expired

-- -- Stop Sale

O. M. Scott & Sons, Marysville, Ohio

113-1121 Grass Mix., Blend 35

Test date expired

-- -- Stop Sale

111-1221 Grass Mix., Blend 70

Test date expired

-- -- Stop Sale

214-1122 Grass Mix., Picture

Test date expired

-- -- Stop Sale

MCLAUGHLIN'S INC., MEDFORD

Loft Pedigreed Seed Co., Bound Brook, N.J.

180-1 Red fescue, creeping

Purity inaccurate

Inert matter

.02 1.30 Relabeled

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

<u>Lot No. - Kind of Seed</u>	<u>Discrepancy</u>	<u>Labeled</u>	<u>Found</u>	<u>Comments</u>
MCKEE CITY DISTRIBUTORS INC., MCKEE CITY Pacific Supply, Portland, Ore.				
M8-1-PE27 Red fescue, Pennlawn	Purity inaccurate Weed seed	.13	.77	All sold
MONMOUTH BUILDING CENTER, SHREWSBURY O. M. Scott & Sons, Marysville, Ohio				
115-1221 Grass Mix., Blend 70	Test date expired	--	--	Stop Sale
111-1001 Grass Mix., Family	Test date expired	--	--	Stop Sale
110-1101 Grass Mix., Blend 35	Test date expired	--	--	Stop Sale
113-1421 Grass Mix., Ten/One Brand	Test date expired	--	--	Stop Sale
111-1501 Grass Mix., Bare Spot	Test date expired	--	--	Stop Sale
210-1102 Grass Mix., Picture	Test date expired	--	--	Stop Sale
212-1122 Grass Mix., Picture	Test date expired	--	--	Stop Sale
RAYCROFT DISTRIBUTORS, SHREWSBURY Loft Pedigreed Seed Co., Bound Brook, N.J.				
105 Tall Fescue, Kentucky 31	Germination below stated	85	67	Relabeled
58 Tall Fescue, Kentucky 31	Germination below stated	85	73	Relabeled
200 Perennial Ryegrass, Norlea	Purity inaccurate Pure seed	99.68	95.73	
	Inert matter	.26	4.21	Relabeled
RAY-MUSTANG-73 Mustang Mixture	Germination Timothy	85	74	Relabeled
Raycroft Distributors, Shrewsbury Ray-NJS-72 N.J., Sunny Mixture	Purity inaccurate Per. Ryegrass Annual Ryegrass	19.80 None	None 15.92	Returned to shipper

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

<u>Lot No. - Kind of Seed</u>	<u>Discrepancy</u>	<u>Labeled</u>	<u>Found</u>	<u>Comments</u>
RICKEL'S HOME CENTER, EAST BRUNSWICK				
O. M. Scott & Sons, Marysville, Ohio				
212-1122 Grass Mix., Picture	Test date expired	--	--	Stop Sale
211-1402 Grass Mix., Play	Test date expired	--	--	Stop Sale
261-140B Grass Mix., Play	Test date expired	--	--	Stop Sale
262-142B Grass Mix., Play	Test date expired	--	--	Stop Sale
RICKEL'S HOME CENTER, PLEASANTVILLE				
Elanco Products Co., Indianapolis, Ind.				
282.16-35 Green Green Brand Mix.	Test date expired	--	--	Stop Sale
O. M. Scott & Sons, Marysville, Ohio				
211-1402 Grass Mix., Play	Test date expired	--	--	Stop Sale
261-140B Grass Mix., Play	Test date expired	--	--	Stop Sale
210-1492 Grass Mix., Play	Test date expired	--	--	Stop Sale
212-1122 Grass Mix., Picture	Test date expired	--	--	Stop Sale
210-1302 Ky. Bluegrass, Windsor	Test date expired	--	--	Stop Sale
J. Z. SALES, SHREWSBURY				
O. M. Scott & Sons, Marysville, Ohio				
117-1421 Grass Mix., Ten/One Brand	Test date expired	--	--	Stop Sale
210-1492 Grass Mix., Play	Test date expired	--	--	Stop Sale
212-1122 Grass Mix., Picture	Test date expired	--	--	Stop Sale
262-142B Grass Mix., Play	Test date expired	--	--	Stop Sale
261-1102 Grass Mix., Picture	Test date expired	--	--	Stop Sale
113-1121 Grass Mix., Blend 35	Test date expired	--	--	Stop Sale
112-1401 Grass Mix., Ten/One Brand	Test date expired	--	--	Stop Sale
116-1301 Ky. Bluegrass, Windsor	Test date expired	--	--	Stop Sale

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

Lot No..- Kind of SeedDiscrepancyLabeled Found Comments

SEARS ROEBUCK & CO., MOORESTOWN

Sears Roebuck & Co., Phila., Pa.

2309.30 Grass Mix., Green Carpet

Noxious weeds

Bermuda grass

None 135/lb. Returned to
shipper

SEARS ROEBUCK & CO., WILLINGBORO

Sears Roebuck & Co., Phila., Pa.

2309.30 Grass Mix., Green Carpet

Noxious weeds

Bermuda grass

None 3276/lb. Returned to
shipper

SHOP RITE GARDEN CENTER, HIGHTSTOWN

Loft Pedigreed Seed Co., Bound Brook, N.J.

LLT-1-72 Grass Mix., Marvel Green

Test date expired

-- -- Stop Sale

LLT-1-72 Grass Mix., Quick Grow

Test date expired

-- -- Stop Sale

MAN-1-72 Per. Ryegrass, Cert. Manhattan

Test date expired

-- -- Stop Sale

O. M. Scott & Sons, Marysville, Ohio

172-1301 Ky. Bluegrass, Windsor

Test date expired

-- -- Stop Sale

171-1501 Grass Mix., Bare Spot

Test date expired

-- -- Stop Sale

172-1001 Grass Mix., Family

Test date expired

-- -- Stop Sale

SIMMONS & MOUNT INC., CRANBURY

Simmons & Mount, Cranbury, N. J.

10482 Grass Mix., Monmouth Park Shady

Purity inaccurate

Cr. Red Fescue

57.00 50.09 Relabeled

Stanford Seed Co., Plymouth Meeting, Pa.

16P 5631 Red Fescue, Pennlawn

Germination

below stated

80 77 Returned to
shipper

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

Lot No. - Kind of SeedDiscrepancyLabeled FoundComments

SIMMONS & MOUNT INC., CRANBURY

Stanford Seed Co., Plymouth Meeting, Pa.

14M-5857 Perennial Ryegrass, Manhattan

Purity inaccurate

Pure seed

99.80 95.43

Other crop seed

.01 4.30

Referred to
federal

STANFORD SEED CO., RIVERDALE

Stanford Seed Co., Plymouth Meeting, Pa.

16K-5385 Tall Fescue, Ky. 31

Test date expired

--

--

Stop Sale

3717A Ky. Bluegrass

Test date expired

--

--

Stop Sale

18P-5066 Poa Trivialis

Test date expired

--

--

Stop Sale

M52-0-PL2 Red Fescue, Pennlawn

Test date expired

--

--

Stop Sale

11N-5673 Ky. Bluegrass, Newport

Test date expired

--

--

Stop Sale

13A-5024 Annual Ryegrass

Test date expired

--

--

Stop Sale

14A-4952 Perennial Ryegrass

Test date expired

--

--

Stop Sale

16D-5170 Chewings Fescue

Test date expired

--

--

Stop Sale

11F-5461 Ky. Bluegrass, Fylking

Test date expired

--

--

Stop Sale

STARR LUMBER & SUPPLY CO., PISCATAWAY

O. M. Scott & Sons, Marysville, Ohio

260-130B Ky. Bluegrass, Windsor

Test date expired

--

--

Stop Sale

212-1002 Grass Mix., Family

Test date expired

--

--

Stop Sale

215-1422 Grass Mix., Play

Test date expired

--

--

Stop Sale

214-1402 Grass Mix., Play

Test date expired

--

--

Stop Sale

215-1102 Grass Mix., Picture

Test date expired

--

--

Stop Sale

116-1121 Grass Mix., Blend 35

Test date expired

--

--

Stop Sale

113-1101 Grass Mix., Blend 35

Test date expired

--

--

Stop Sale

114-1301 Ky. Bluegrass, Windsor

Test date expired

--

--

Stop Sale

112-1201 Grass Mix., Blend 70

Test date expired

--

--

Stop Sale

9111-1200 Grass Mix., Blend 70

Test date expired

--

--

Stop Sale

TABLE 35 CROP AND TURF SEED FOUND IN VIOLATION OF NEW JERSEY SEED LAW

July 1, 1972 - June 30, 1973

(continued)

SOURCE OF SEED

Name of Seedsman

<u>Lot No. - Kind of Seed</u>	<u>Discrepancy</u>	<u>Labeled</u>	<u>Found</u>	<u>Comments</u>
STELTON HARDWARE, PISCATAWAY				
O. M. Scott & Sons, Marysville, Ohio				
210-1492 Grass Mix., Play	Test date expired	--	--	Stop Sale
213-1422 Grass Mix., Play	Test date expired	--	--	Stop Sale
110-1401 Grass Mix., Ten/One Brand	Test date expired	--	--	Stop Sale
211-1502 Grass Mix., Bare Spot	Test date expired	--	--	Stop Sale
TURNER BROS. NURSERY INC., LONG BRANCH				
Patco Lawn Products, Bound Brook, N.J.				
7100 Lawn Seed Mix., Local Patco	Germination below stated Red Fescue	90	59	Returned to shipper

TABLE 36 SUMMARY OF OFFICIAL TESTS BY WHOLESALE DISTRIBUTORS

July 1, 1972 - June 30, 1973

<u>Distributor</u>	<u>Crop and Turf</u>		<u>Mixtures</u>		<u>Vegetable & Herb</u>		<u>Flowers</u>		<u>Total</u>
	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	
Abbot & Cobb Philadelphia, Pa.	--	--	--	--	4	--	--	--	4
Agric. Research Inc. DeKalb, Ill.	2	--	--	--	--	--	--	--	2
Agway Inc. Syracuse, N. Y.	81	6	--	--	11	2	13	--	113
Asgrow Seed Co. Cambridge, N. Y.	1	--	--	--	54	3	22	2	82
Atlantic Seed Co. Bound Brook, N. J.	1	--	2	1	--	--	--	--	4
Beachley-Hardy Seed Co. Shiremanstown, Pa.	--	--	1	--	--	--	--	--	1
W. Atlee Burpee Co. Philadelphia, Pa.	--	--	--	--	82	7	20	6	115
Callahan Enterprises Carmel, Ind.	1	--	--	--	--	--	--	--	1
H. P. Cannon & Son Inc. Bridgeville, Del.	--	--	--	--	1	--	--	--	1
A. L. Castle Inc. Morgan Hill, Cal.	--	--	--	--	2	--	--	--	2
Crawford Garden Supplies Providence, R. I.	--	1	2	--	--	--	--	--	3

TABLE 36 SUMMARY OF OFFICIAL TESTS BY WHOLESALE DISTRIBUTORS

July 1, 1972 - June 30, 1973

(continued)

<u>Distributor</u>	<u>Crop and Turf</u>		<u>Mixtures</u>		<u>Vegetable & Herb</u>		<u>Flowers</u>		<u>Total</u>
	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	
Crosman Seed Corp. East Rochester, N. Y.	--	--	--	--	7	--	8	--	15
Dessert Seed Co. Nyssa, Ore.	--	--	--	--	20	--	--	--	20
Elanco Products Co. Indianapolis, Ind.	--	--	--	1	--	--	--	--	1
A. Ertag Inc. Jersey City, N. J.	3	1	2	--	--	--	--	--	6
Excel Seed Co. Downers Grove, Ill.	--	--	--	--	24	1	20	--	45
Farmers' Co-op. of N. J. Trenton, N. J.	4	--	--	--	--	--	--	--	4
Feader Nurseries San Fernando, Cal.	--	--	--	--	--	--	--	3	3
Ferris Seed Co. East Brunswick, N. J.	1	--	--	--	25	--	--	--	26
Ferry-Morse Seed Co. Detroit, Mich.	--	--	--	--	--	1	6	--	7
Ferry-Morse Seed Co. Mountain View, Cal.	--	--	--	--	45	--	--	--	45

TABLE 36 SUMMARY OF OFFICIAL TESTS BY WHOLESALE DISTRIBUTORS

July 1, 1972 - June 30, 1973

(continued)

<u>Distributor</u>	<u>Crop and Turf</u>		<u>Mixtures</u>		<u>Vegetable & Herb</u>		<u>Flowers</u>		<u>Total</u>
	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	
Forbes Garden Center Hanover, N. J.	--	--	1	3	--	--	--	--	4
Fredonia Seed Co. Fredonia, N. Y.	--	--	1	--	52	1	32	--	86
Garden Fair Magnolia, N. J.	1	--	--	--	5	--	--	--	6
Garfield Williamson Jersey City, N. J.	--	--	5	--	--	--	--	--	5
Gibbs Home & Garden Center Jamesburg, N. J.	--	--	1	--	--	--	--	--	1
Gillespie Seed Co. Franklin, Ky.	--	1	--	--	--	--	--	--	1
Great Western Seed Co. Albany, Ore.	3	--	2	--	--	--	--	--	5
Jonathan Green & Sons Inc. Kearny, N. J.	--	--	1	--	--	--	--	--	1
Chas. C. Hart Seed Co. Wethersfield, Conn.	--	--	--	--	2	--	--	--	2
Heart Seed Co. Fairfield, Wash.	1	--	--	--	--	--	--	--	1

TABLE 36 SUMMARY OF OFFICIAL TESTS BY WHOLESALE DISTRIBUTORS

July 1, 1972 - June 30, 1973

(continued)

<u>Distributor</u>	<u>Crop and Turf</u>		<u>Mixtures</u>		<u>Vegetable & Herb</u>		<u>Flowers</u>		<u>Total</u>
	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	
Herbst Bros. Brewster, N. Y.	--	--	--	--	2	--	--	--	2
A. H. Hoffman Seeds Inc. Landisville, Pa.	15	--	--	--	--	--	--	--	15
Hyde Park Products Corp. New Rochelle, N. Y.	3	2	--	--	--	--	--	--	5
Jenks-White Seed Co. Salem, Ore.	1	--	--	--	--	--	--	--	1
Kellog Seed Co. Ventura, Cal.	1	--	--	--	--	--	--	--	1
Landreth Seeds Baltimore, Md.	--	--	--	--	3	--	--	--	3
Orol Ledden & Sons Sewell, N. J.	1	--	--	--	23	2	20	--	46
Loft Pedigreed Seed Co. Bound Brook, N. J.	19	6	3	8	--	--	--	--	36
L. O. Meade & Co. Riverdale, N. J.	1	--	--	--	--	--	--	--	1
McKee City Distributors McKee City, N. J.	--	--	1	--	--	--	--	--	1

TABLE 36 SUMMARY OF OFFICIAL TESTS BY WHOLESALE DISTRIBUTORS

July 1, 1972 - June 30, 1973

(continued)

<u>Distributor</u>	<u>Crop and Turf</u>		<u>Mixtures</u>		<u>Vegetable & Herb</u>		<u>Flowers</u>		<u>Total</u>
	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	
New Tomorrow Scientific Co. Inglewood, Cal.	--	--	--	--	--	--	--	1	1
Northrup, King & Co. Minneapolis, Minn.	1	--	2	--	65	1	29	--	98
Patco Lawn Products Bound Brook, N. J.	--	--	--	1	--	--	--	--	1
Pacific Supply Co-op. Portland, Ore.	4	1	--	--	--	--	--	--	5
Pedigreed Seed Co. Bound Brook, N. J.	1	--	--	--	--	--	--	--	1
Philadelphia Seed Co. Plymouth Meeting, Pa.	--	--	1	--	--	--	--	--	1
Pieters-Wheeler Seed Co. Gilroy, Cal.	--	--	--	--	8	--	--	--	8
Raycroft Distributors Shrewsbury, N. J.	--	--	--	1	--	--	--	--	1
J. B. Rice, Jr., Inc. Shushan, N. Y.	1	--	--	--	10	5	--	--	16
Schlessman Seed Co. Milan, Ohio	--	1	--	--	1	--	--	--	2

TABLE 36 SUMMARY OF OFFICIAL TESTS BY WHOLESALE DISTRIBUTORS

July 1, 1972 - June 30, 1973

(continued)

<u>Distributor</u>	<u>Crop and Turf</u>		<u>Mixture</u>		<u>Vegetable & Herb</u>		<u>Flowers</u>		<u>Total</u>
	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	
Schneider Seed Inc. Jerseyville, Ill.	3	--	--	--	--	--	--	--	3
O. M. Scott & Sons Marysville, Ohio	--	8	--	44	--	--	--	--	52
Seal of Science Products Glendale, Cal.	--	--	--	--	--	1	--	--	1
Sears Roebuck & Co. Philadelphia, Pa.	1	--	2	2	--	--	--	--	5
Seeds Inc. Rockledge, Pa.	--	1	--	--	--	--	--	--	1
Seed Specialists Div. Pittsburgh, Pa.	--	--	--	1	--	--	--	--	1
Simmons & Mount Cranbury, N. J.	2	--	--	1	--	--	--	--	3
Stanford Seed Co. Philadelphia, Pa.	57	15	2	1	--	--	--	--	75
Sweeney Seed Co., Inc. Ardmore, Pa.	1	--	1	--	--	--	--	--	2
Swedesboro Seed Co. Swedesboro, N. J.	--	--	--	--	10	--	--	--	10

TABLE 36 SUMMARY OF OFFICIAL TESTS BY WHOLESALE DISTRIBUTORS

July 1, 1972 - June 30, 1973

(continued)

<u>Distributor</u>	<u>Crop and Turf</u>		<u>Mixture</u>		<u>Vegetable & Herb</u>		<u>Flowers</u>		<u>Total</u>
	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	<u>Correct</u>	<u>Error</u>	
Taylor-Evans Seed Co. Tulia, Texas	2	--	--	--	--	--	--	--	2
Taylor & NG San Francisco, Cal.	--	--	--	--	--	--	--	1	1
Tether Seed Co. Paterson, N. J.	--	--	--	--	18	1	--	--	19
Town & Country Products Jersey City, N. J.	2	--	--	--	--	--	--	--	2
Turf Research Inc. Grant Park, Ill.	2	--	--	--	--	--	--	--	2
Urban Systems Inc. Cambridge, Mass.	--	--	--	--	1	--	1	--	2
Vaughan's Seed Co. Bound Brook, N. J.	2	--	1	1	12	--	9	--	25
Whitney-Dickinson Seeds Inc. Buffalo, N. Y.	<u>2</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>2</u>
Total	221	43	31	65	487	25	180	13	1065

Sod Bioassay

The Bureau cooperated with six sod growers in the state during the year by sampling their fields to determine the adequacy of insecticidal treatments. This service is provided to those growers desiring certification for shipment of sod into the state of New York.

Fields not adequately treated required retreatment before issuance of certification.

TABLE 37. SOD PLANTINGS TESTED

<u>Grower</u>	<u>Acres Tested</u>	<u>Acres Certifiable</u>
1	362.5	266.5
2	124	124
3	169	134
4	376	376
5	71	71
6	98	98

Alfalfa Weevil Parasite Program

This past spring the weevil population remained at a low level except for a build-up in scattered localized fields, primarily in the southern areas of the state. The mild winter could have been an important factor in these population increases. Normally, one-third of over-wintering adult weevils are parasitized and approximately one-third succumb to winter mortality. It is expected that the weevil population in 1974 will remain at a low level.

The parasite pressure over the past five years has saved the New Jersey farmer much money in the cost of pesticide application and reduced the level of chemicals in the environment. In cooperation with the Parasite Introduction Branch, U. S. Department of Agriculture, the Plant Laboratory undertook, beginning in 1959, the rearing and releasing of eight species of parasites. As a result of these efforts, four species of parasites have now become established throughout all the alfalfa growing counties of the state. Established are the larval parasites, Bathyplectes anurus, Bathyplectes curculionis, and Tetrastichus incertus, and the adult weevil parasite, Microctonus aethiops.

Gypsy Moth Parasite Program

For the past ten years, the Plant Laboratory has been involved in the rearing and field evaluation of gypsy moth parasites.

The rearing program is housed in two Trenton laboratories comprising approximately 9,000 square feet of space. Field evaluations are conducted from two mobile field laboratories located in the Jockey Hollow National Historic Park, Morristown, and the Agricultural Research Farm, Adelphia. The function of personnel from the field units is to release parasites, to determine establishment and to secure efficacy data concerning each species of parasite. The personnel from these units also maintain 20 permanent woodland study plots for the purpose of understanding gypsy moth population dynamics as related to biological control

factors and to the forest environment. It is hoped that this effort will lead to the development of pest management techniques of the gypsy moth. In addition, all other major infestations within the State were sampled for parasite efficiency and gypsy moth population prediction.

Gypsy Moth Parasite Rearing and Releasing

In 1963 through the year 1965, the Plant Laboratory, in cooperation with the Plant Protection Division, U. S. Department of Agriculture, initiated the release of the egg parasite, Ooencyrtus kuwanae, and the larval parasites, Sturmia scutellata and Apanteles melanoscelus. At that time, the egg parasite was released at all positive moth catch sites; the larval parasites being released only at confirmed egg mass sites. In 1966, the Department undertook the mass rearing and releasing of the egg parasite through the year 1971, at which time the parasite was found to be well established throughout the state, and thus, dropped from the rearing program. Also, in 1966, and continued through 1971, parasitized gypsy moth larvae and pupae were field collected from the northern areas of the state for the recovery of the larval parasites, Sturmia scutellata and Parasetigena agilis. The puparia of these parasites were overwintered in the forest duff in sand, within wire baskets. The adult flies were recovered in the spring and released in the infested southern perimeter areas of the state.

In 1967, the mass rearing of the pupal parasite, Brachymeria intermedia, and the larval parasite, Apanteles melanoscelus, was undertaken and continues.

During the years 1968 through 1971, five exotic or new species of parasites from India were received through the Plant Protection Division, U. S. Department of Agriculture. In 1970, the New Jersey Department of Agriculture, in cooperation with the New Jersey Agricultural Experiment Station and with the advice of the Parasite Introduction Branch, U. S. Department of Agriculture, sent one man to Yugoslavia for recovery of new parasite species. This adventure yielded several new parasite species. All of these new parasite species were reared by the Department and released on a systematic basis throughout the infested areas of the state. It has been the policy of the Department to discontinue rearing of any parasite species should it fail to become established after three years of systematic release. Although these new species have been recovered in the year of release, there is no evidence, to date, of establishment. Most of these new imported species are polyphagous parasites and probably require an alternate host for overwintering.

In 1971, the New Jersey Department of Agriculture, under Project 4, signed a cooperative agreement with the Animal Plant Health Inspection Service, U. S. Department of Agriculture, for the rearing of parasites for distribution to other states. Under this agreement, 174,780 parasites, representing seven species of parasites, were shipped this past year to seven states for establishment purposes. Additional species are planned to be shipped this coming season.

As a result of the increased research efforts by the U. S. Department of Agriculture, this past year 14 parasite species from southern France and India were received through the Parasite Introduction Branch. These

efforts have been most encouraging and the personnel stationed in Europe are to be recognized for their first year of exploration. The development of mass rearing techniques with these new parasite species is well under way.

It is most urgent, as part of a total research effort, that we continue to seek new parasite species, especially those parasites possessing good searching abilities, therefore making the greatest impact at low gypsy moth population levels. It is particularly important that a search for parasites be conducted in Japan or other Asian countries. In a search of Japanese records, there appear to be at least 24 species of parasites in Japan that have not been introduced into this country.

It is also significant that importation be made of those parasites imported during those early years, but which failed to establish. It is quite possible that some of those parasites may become established under new ecological situations as the gypsy moth invades new areas of the country. It is interesting to note that 21 species of the 50 parasite species introduced during the early years in New England were not released in adequate numbers.

Gypsy Moth Parasites Imported - 1972

<u>Family</u>	<u>Genus and Species</u>	<u>Source</u>
<u>Braconidae</u>	<u>Apanteles liparidis</u>	Southern France
	<u>Apanteles porthetriae</u>	Southern France
	<u>Meteorus pulchricornis</u>	Southern France
<u>Chalcididae</u>	<u>Brachymeria</u> sp.	India
<u>Encyrtidae</u>	<u>Ooencyrtus</u> sp.	Southern France
<u>Eupelmidae</u>	<u>Anastatus</u> spp. (2)	Southern France
<u>Ichneumonidae</u>	<u>Casineria tenuiventris</u>	Southern France
	<u>Casineria</u> sp.	Southern France
	<u>Hyposoter tricoloripes</u>	Southern France
	<u>Pimpla</u> spp. (2)	India
<u>Tachinidae</u>	<u>Carcelia excisa</u>	Southern France
	<u>Palexorista</u> sp.	Southern France
Total - 14 species		

Parasites Maintained - Previously Imported (1968-71)

<u>Family</u>	<u>Genus and Species</u>	<u>Source</u>
<u>Braconidae</u>	<u>Apanteles melanoscelus</u>	Yugoslavia
	<u>Rogas indiscretus</u>	India
<u>Tachinidae</u>	<u>Exorista larvarum</u>	Yugoslavia
	<u>Exorista segregata</u>	Spain
	<u>Exorista rossica</u>	India
	<u>Drino discreta</u>	India
	<u>Palexorista sp.</u>	India

Total - 6 species

(See Table 38 on opposite page - parasites shipped to other states under cooperative agreement with APHIS - 1972.)

Parasite Survey and Evaluation

Continued since 1964 was the sampling of gypsy moth populations for the purpose of determining biological agents associated with the gypsy moth. This effort consists of the placement of ten burlap bands at a sampling site for the collection of gypsy moth larvae and pupae. Collections begin when third instar larvae are observed. A total of 100 larvae was collected each week through pupation. The collected larvae were placed in 16-ounce paper cups, five to ten larvae per cup, depending upon the instar, and maintained on oak leaves. At the present time, collections are conducted from 189 sites scattered throughout the state.

Since 1970, an additional 20 permanent woodland study sites were established throughout the state for the purpose of developing an understanding of gypsy moth population dynamics as related to biological agents and the forest environment. These permanent sites were selected on the basis of being different, as to gypsy moth population levels and forest types. Within each site are recorded the stand composition, tree mortality, site environmental factors, egg mass number, and biological control agents.

Years of survey results indicate the establishment of seven species of parasites and one predaceous beetle. These species are the same imported species as were released and established in the New England states during the years 1905 through 1933. In addition, three native pupal parasites and four predaceous beetles have been found to attack the gypsy moth in varying degrees.

As a result of survey efforts and closely following the gypsy moth invasion through New Jersey, the trends in parasitism as related to the different levels of gypsy moth population have been recorded. In the pre-outbreak stage, the Tachinid larval parasite, Compsilura concinnata, was the first parasite observed. This parasite was established in New Jersey prior to the introduction of the gypsy moth, having been recovered on alfalfa caterpillar, imported cabbage worm, and cabbage looper. In the outbreak or culmination years, the Tachinid larval parasite, Sturmia scutellata, and the pupal parasite, Brachymeria intermedia, attain the highest rate of parasitism. In the post-culmination years, the Tachinid larval parasite, Parasetigena agilis, is the

TABLE 38. PARASITES SHIPPED TO OTHER STATES
UNDER COOPERATIVE AGREEMENT WITH APHIS - 1972

States	<u>Apanteles</u> <u>melanoscelus</u>	<u>Brachymeria</u> <u>intermedia</u>	<u>Drino</u> <u>discreta</u>	<u>Exorista</u> <u>larvarum</u>	<u>Exorista</u> <u>rossica</u>	<u>Exorista</u> <u>segregata</u>	<u>Palexorista</u> <u>sp.</u>	Total
Delaware	0	25,000	0	0	0	0	0	25,000
Maryland	0	31,000	0	0	0	0	0	31,000
New York	400	2,000	0	1,000	1,000	1,000	0	5,400
No. Carolina	0	8,750	0	0	0	0	0	8,750
Pennsylvania	100	40,100	250	6,050	6,100	4,600	1,250	58,450
So. Carolina	0	1,750	0	0	0	0	0	1,750
Virginia	0	34,000	0	0	0	0	0	34,000
Other States for rearing purposes, and to Govern- mental Agencies for toxological studies	0 <hr/> 500	10,430 <hr/> 153,030	0 <hr/> 250	0 <hr/> 7,050	0 <hr/> 7,100	0 <hr/> 5,600	0 <hr/> 1,250	10,430 <hr/> 174,780

most significant parasite contributing to dampening or stabilizing of the gypsy moth population. Other parasites acting importantly in the stabilization process are the Tachinid parasites, Compsilura concinnata and Sturmia scutellata, and the Braconid larval parasite, Apanteles melanoscelus. The Ichneumonid larval parasite, Hyposoter disparis, and the predaceous beetle, Calosoma sycophanta, are not widely established. The egg parasite, Ooencyrtus kuwanae, expresses maximum benefit during the year of gypsy moth collapse and years of stability.

Only continued years of monitoring will provide a more complete answer, but present results indicate, in stable areas, that parasitoids are host density dependent and appear to be factors in maintaining stability following collapse of the gypsy moth population.

It is important that research efforts be conducted in parasite management technique. The parasites that would appear significant to these efforts are Parasetigena agilis and Apanteles melanoscelus. Both parasites are oligophagous, predictable, and occur at lower levels of gypsy moth population.

(See related charts and Table 39 on pages PI-69 through PI-78.)

Permanent Study Plots

Twenty gypsy moth infested permanent woodland study plots have been established throughout the state. These plots will be closely sampled, observed, and evaluated for a period of at least five years in an effort to develop an understanding of gypsy moth population dynamics, as related to biological control factors and the forest environment. The spring of 1973 began the fourth year of evaluation of the 20 permanent plots.

When the plots were first established during the winter of 1969-70, the species composition of the wooded plot was determined from data collected in one 0.1-acre circular subplot. This year it was decided to collect more forest composition data from a greater number of subplots. For this reason cruise lines were established in each of the permanent study plots. The cruise lines contained seven 0.1-acre subplots encompassing a four-acre area. Every stem greater than one inch in diameter was identified by species. The results of the forest composition study are shown in Table 40.

Parasite evaluation was conducted in the study plots by collecting gypsy moth larvae and pupae each week commencing with third instar larvae and terminating with adult emergence from the pupae. The collections were reared on oak foliage in 16-ounce paper cups at the field laboratories for parasite recovery. Gypsy moth larvae and pupae were collected from two locations: random open collections and under burlap band traps. The results of those collections are shown in Tables 41 and 42. Brachymeria intermedia, a pupal parasite, was not recovered in any of the 20 plots. From data collected by this Bureau in past years, B. intermedia appears to be effective only in heavily defoliated areas where a great deal of sunlight penetrates the forest canopy. Only one permanent study plot received heavy defoliation during 1972 (Waretown), but because the plot was located in a South Jersey area where parasite populations are still building, B. intermedia was not recovered.

ESTABLISHED PARASITES IN NEW JERSEY

<u>Imported Parasites</u>	<u>Stage of Host Parasitized</u>	<u>Host Range</u>	<u>Host Density Impact</u>	<u>Occurrence</u>	<u>Percent Parasitism (High)</u>
Braconid					
<u>Apanteles melanoscelus</u>	Early instar larva	Oligophagous	Collapsed-stable	Predictable	39
Carabid					
<u>Calosoma sycophanta</u>	Larva and pupa	Polyphagous	Stressed-collapsed	Unpredictable	50
Chalcidid					
<u>Brachymeria intermedia</u>	Pupa	Polyphagous	Stressed-collapsed	Unpredictable	82
Encyrtid					
<u>Ooencyrtus kuwanae</u>	Egg	Oligophagous	Collapsed-stable	Predictable	90
Ichneumonid					
<u>Hyposoter disparis</u>	Early instar larva	Oligophagous	Stable	Unpredictable	7
Tachinids					
<u>Compsilura concinnata</u>	Early instar	Polyphagous	Stable	Predictable	41
<u>Parasetigena agilis</u>	Late instar larva	Oligophagous	Stable	Predictable	70
<u>Sturmia scutellata</u>	Late instar larva	Oligophagous	Stressed-collapsed-stable	Predictable	92

Native Parasites**Carabids**

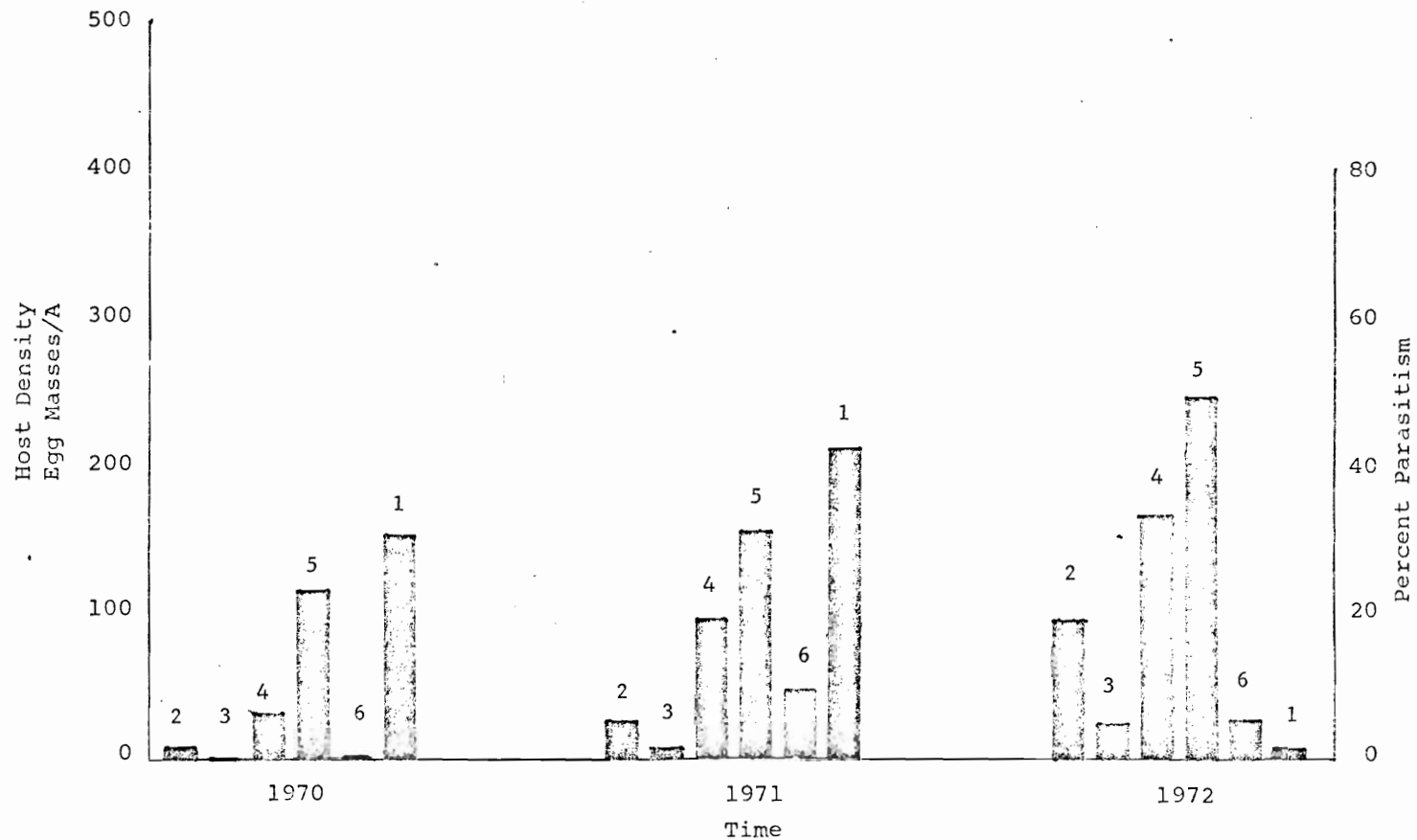
<u>Calosoma calidum</u>	Larva and pupa	Polyphagous	Stressed-collapsed	Unpredictable	?
<u>Calosoma frigidum</u>	Larva and pupa	Polyphagous	Stressed-collapsed	Unpredictable	?
<u>Calosoma scrutator</u>	Larva and pupa	Polyphagous	Stressed-collapsed	Unpredictable	?
<u>Calosoma wilcoxi</u>	Larva and pupa	Polyphagous	Stressed-collapsed	Unpredictable	?

Ichneumonids

<u>Coccygominus pedalis</u>	Pupa	Polyphagous	Stressed-collapsed?	Unpredictable	low?
<u>Itoplectis conquisitor</u>	Pupa	Polyphagous	Stressed-collapsed?	Unpredictable	low?
<u>Theronis atalantae</u>	Pupa	Polyphagous	Stressed-collapsed?	Unpredictable	low?

Beemerville
Collapsed - 1968

1. Porthetria dispar
2. Apanteles melanoscelus
3. Hyposoter disparis
4. Compsilura concinnata
5. Parasetigena agilis
6. Sturmia scutellata



Beemerville - PSPStand Composition (more than 6" dbh)

<u>Species</u>	<u>% Species Composition</u>
Red maple	22.0
Hickory	16.9
Chestnut oak	13.6
Gray birch	10.2
Black oak	11.9
Black birch	6.8
White oak	5.1
Scarlet oak	5.1
Red oak	3.4
Ash	3.4
Sugar maple	1.7
Oaks	39.1
Total hosts	73.0

Porthetria dispar197019711972

150/A

210/A

5/A

Apanteles melanoscelus

1.0%

5.0%

18.2%

Hyposoter disparis

0.0%

1.0%

4.5%

Compsilura concinnata

6.0%

18.8%

32.4%

Parasetigena agilis

22.9%

31.4%

48.6%

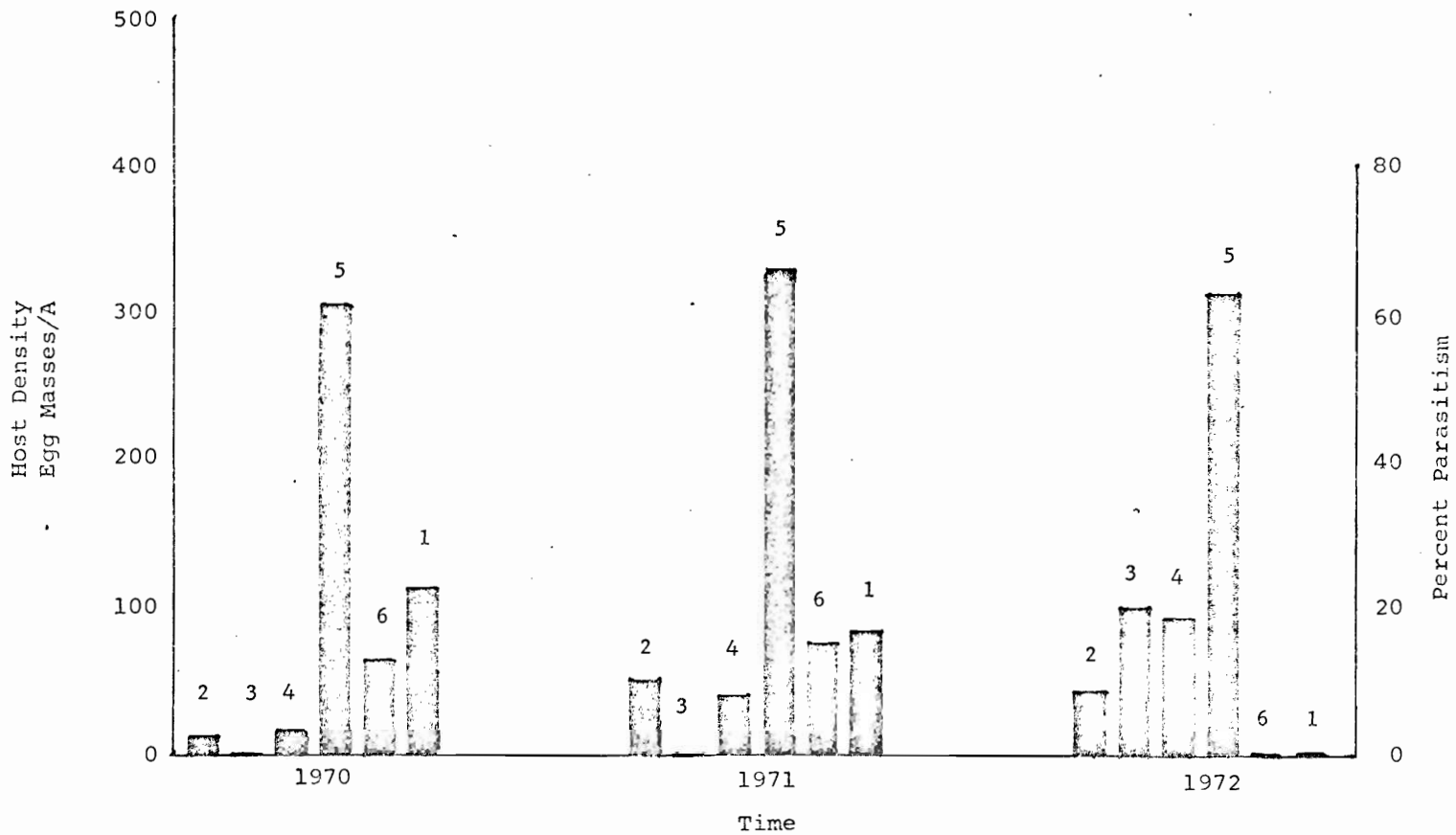
Sturmia scutellata

0.0%

9.4%

5.4%

Jockey Hollow
Collapsed - 1969

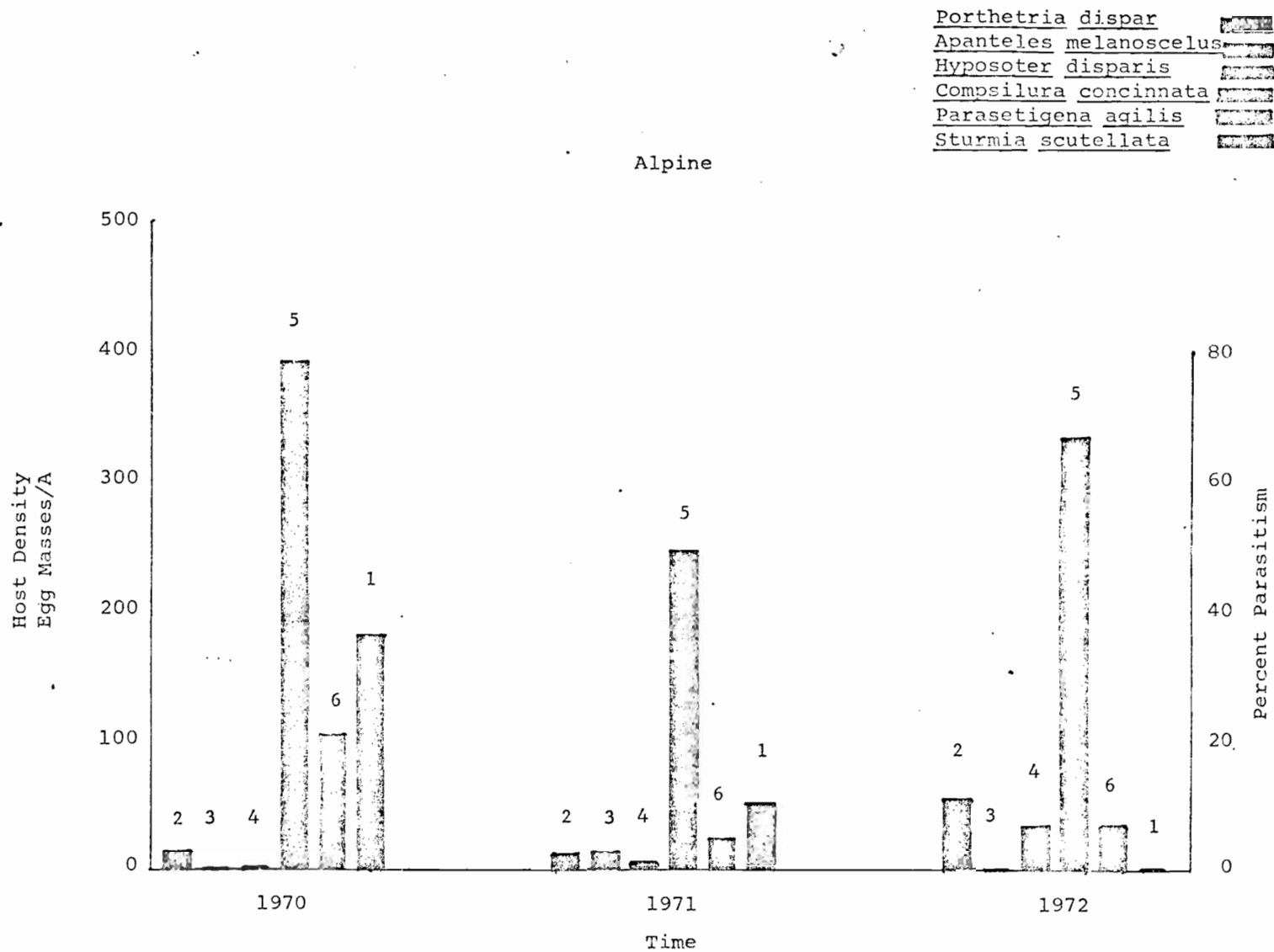


Jockey Hollow - PSPStand Composition (more than 6" dbh)

<u>Species</u>	<u>% Species Composition</u>
Black birch	17.9
Tulip poplar	17.9
Black Oak	12.5
Ash	12.5
White Oak	8.9
Red Oak	7.1
Dogwood	7.1
Chestnut oak	5.4
Hickory	3.6
Sugar Maple	3.6
Cherry	1.8
Red Maple	1.8
Oak	33.9
Total hosts	57.2

	<u>1970</u>	<u>1971</u>	<u>1972</u>
<u>Porthetria dispar</u>	112/A	82/A	0/A
<u>Apanteles melanoscelus</u>	2.1%	10.0%	8.3%
<u>Hyposoter disparis</u>	0%	0%	20.0%
<u>Compsilura concinnata</u>	3.2%	8.0%	18.2%
<u>Parasetigena agilis</u>	61.1%	65.6%	62.5%
<u>Sturmia scutellata</u>	12.5%	15.6%	0%

Alpine

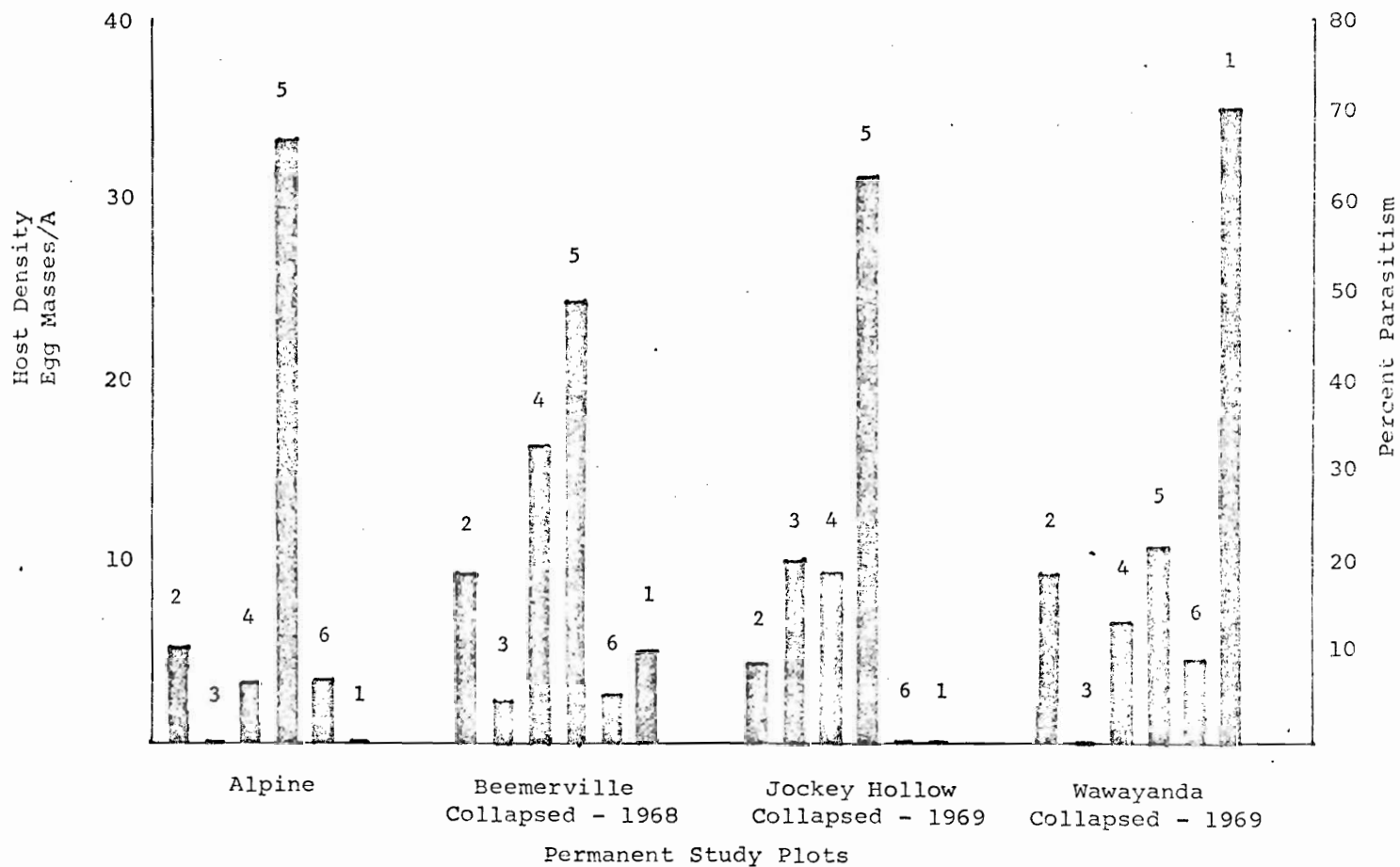


Alpine - PSP

<u>Stand Composition (more than 6" dbh)</u>			<u>1970</u>	<u>1971</u>	<u>1972</u>
<u>Species</u>	<u>% Species Composition</u>	<u>Porthetria dispar</u>	180/A	50/A	0/A
Red Oak	17.5	<u>Apanteles melanoscelus</u>	2.8%	2.6%	11.1%
Red Maple	17.5	<u>Hyposoter disparis</u>	0%	1.8%	0%
White Oak	14.0	<u>Compsilura concinnata</u>	0%	1.1%	6.7%
Tulip Poplar	10.5	<u>Parasetigena agilis</u>	78.3%	49.2%	66.7%
Black Birch	8.8	<u>Sturmia scutellata</u>	21.4%	4.6%	6.7%
Black Oak	7.0				
Sugar Maple	5.3				
Ash	7.0				
Hickory	3.5				
Hemlock	3.5				
Beech	1.8				
Sweet Gum	1.8				
Dogwood	1.8				
<hr/>					
Oak	38.5				
Total hosts	52.6				

Porthetria dispar
Apanteles melanoscelus
Hyposoter disparis
Compsilura concinnata
Parasetigena agilis
Sturmia scutellata

Stable Areas
 1972



Wawayanda - PSPStable Areas - 1972Stand Composition (more than 6" dbh)

<u>Species</u>	<u>% Species Composition</u>
Chestnut oak	32.4
Red maple	26.8
Black oak	16.9
Beech	11.3
Red oak	7.0
White oak	2.8
Pin oak	1.4
Elm	1.4
Oak	60.5
Total hosts	71.8

<u>Alpine</u>	<u>Beemerville</u>	<u>Jockey Hollow</u>	<u>Wawayanda</u>
---------------	--------------------	----------------------	------------------

<u>Porthetria</u>			
<u>dispar</u>			

0/A

5/A

0/A

35/A

<u>Apanteles</u>			
<u>melanoscelus</u>			

11.1%

18.2%

8.3%

18.2%

<u>Hyposoter</u>			
<u>disparis</u>			

0%

4.5%

20.0%

0%

<u>Compsilura</u>			
<u>concinata</u>			

6.7%

32.4%

18.2%

13.0%

<u>Parasetigena</u>			
<u>agilis</u>			

66.7%

48.6%

62.5%

21.7%

<u>Sturmia</u>			
<u>scutellata</u>			

6.7%

5.4%

0%

8.7%

TABLE 39. 1972-1973 PARASITE RELEASES

County	<u>Apanteles</u> <u>liparidis</u>	<u>Apanteles</u> <u>melanoscelus</u>	<u>Apanteles</u> <u>orthetriae</u>	<u>Brachymeria</u> <u>intermedia</u>	<u>Calosoma</u> <u>calidum</u>	<u>Calosoma</u> <u>syncophanta</u>	<u>Coccycymimus</u> <u>sp.</u>	<u>Coccycymimus</u> <u>turionellae</u>	<u>Exorista</u> <u>larvarum</u>	<u>Exorista</u> <u>rossica</u>	<u>Exorista</u> <u>agregata</u>	<u>Meteorus</u> <u>pulchricornis</u>	<u>Palexorista</u> <u>sp.</u>	<u>Rogas</u> <u>indiceratus</u>	<u>Sturmia</u> <u>scutellata</u>	Total
Atlantic	--	--	--	9,000	--	--	--	--	500	--	--	--	--	--	--	9,500
Bergen	--	--	--	--	--	--	--	400	500	--	--	--	250	--	--	1,150
Burlington	--	3,352	260	29,400	--	--	--	--	5,050	750	500	1,190	1,000	--	75	41,577
Camden	--	--	300	--	--	--	--	--	500	--	--	--	--	--	--	800
Cape May	--	5,192	1,796	45,500	--	--	250	550	5,500	1,550	500	2,000	1,500	560	44	64,942
Hunterdon	--	8,575	1,704	17,850	--	86	3,932	7,400	11,250	2,500	1,500	2,030	5,000	--	--	61,827
Mercer	--	1,875	300	13,900	--	--	--	1,750	1,000	750	1,500	--	1,000	--	--	22,075
Middlesex	--	--	--	3,000	--	--	--	1,800	2,000	--	--	--	500	170	--	7,470
Monmouth	--	900	250	16,350	3	45	500	2,358	5,300	1,500	1,250	1,400	879	--	--	30,725
Morris	3,035	4,975	--	9,000	--	--	1,680	3,900	5,120	750	1,300	2,516	6,677	440	--	39,393
Ocean	--	7,283	2,900	77,140	--	--	7,761	7,350	10,750	3,150	1,750	7,795	9,800	338	82	136,099
Somerset	--	600	300	7,000	--	--	1,450	1,200	3,000	1,250	250	--	500	--	--	15,550
Sussex	--	--	--	6,500	--	--	490	--	5,000	2,250	2,000	--	--	--	--	16,240
Warren	--	600	--	7,500	--	--	250	1,100	5,000	1,750	1,750	925	2,545	289	--	21,805
Total	3,035	33,352	7,810	242,140	3	131	16,313	27,808	60,470	16,200	12,300	17,856	29,751	1,797	201	469,167

TABLE 40. SPECIES PERCENTAGE OF FOREST COMPOSITION IN PERMANENT STUDY PLOTS.
ALL LIVE TREES GREATER THAN SIX INCHES DBH
JANUARY 1972

Tree Species	Alpine	Alloway	Beemerville	Birdsall Road	Bowne Road	Brookside	Clinton Reservoir	Chester	Flemington	High- fields	Holmeson	Jockey Hollow	Lindeley Road	Pleasant Valley	Pole Brook	Saw Mill Pond	Schooley's Mtn.	Stockholm	Warrenton	Waywayanda
Species/A >1" dbh	593	701	633	521	539	621	287	581	380	401	503	641	500	347	626	746	519	689	604	416
Total Oak	38.5	83.5	39.1	79.2	36.7	13.1	10.9	42.8	32.2	18.0	79.2	33.9	34.2	54.0	90.5	78.7	25.5	39.7	57.6	60.5
Jack Pine																13.8				
(<i>Populus tremuloides</i>)																				
Spotted Pickering																				
(<i>Carya ovata</i>)	3.5		16.9		1.3	3.3	1.8	31.6	10.3	10.3		3.6	14.6	2.3		2.1	16.7	6.8		
Black Birch																				
(<i>Betula lenta</i>)	8.8		6.8		27.8	28.3	12.7	4.1		11.5		17.9		10.3		3.2	20.0	8.2		
Gray Birch																				
(<i>Betula populifolia</i>)			10.2															1.4		
Yellow Birch																				
(<i>Betula alleghaniensis</i>)						3.3														
American Beech																				
(<i>Fagus grandifolia</i>)	1.8	1.2					1.8			1.3				1.1						11.3
White Oak																				
(<i>Quercus alba</i>)	14.0	41.2	5.1	18.3	2.5	6.5		5.1	8.8	7.7	41.8	8.9	4.9	12.6	21.4	29.8	4.4	21.9	6.1	2.6
Scarlet Oak																				
(<i>Quercus prinus</i>)		1.2	13.6	50.0	19.0		3.6	2.0			26.9	5.4		20.7	64.3	22.3	6.7	4.1	21.2	32.4
Red Oak																				
(<i>Quercus alba</i>)	17.5	17.6	3.4	2.4	12.7	3.3	7.3	6.1	2.9	1.3	6.0	7.1	4.9	11.5		2.1	2.2	5.5	19.7	7.0
Black Oak																				
(<i>Quercus velutina</i>)	7.0	5.9	11.9	2.4	2.5	3.3		29.6	2.9	9.0	4.5	12.5	24.4	9.2	4.8	1.1	12.2	8.2	7.6	16.9
Carpet Oak																				
(<i>Quercus coccinea</i>)		17.6	5.1	6.1												2.1			3.0	
Pin Oak																				
(<i>Quercus palustris</i>)									17.6							21.3				1.4
American Elm																				
(<i>Ulmus americana</i>)						2.2			7.4				4.9							1.4
White Dogwood																				
(<i>Amelanchier canadensis</i>)	10.5	9.4			20.3	16.3	5.5	1.0		33.3		17.9		19.5			7.8			
White Fraxinus																				
(<i>Fraxinus albidum</i>)				2.4	2.5	1.1		1.0	1.5	6.4			12.2	1.1			1.1			
Black Gum																				
(<i>Liquidambar styraciflua</i>)	1.8	5.9									1.5									
American Larch																				
(<i>Larix laricina</i>)									2.9											
White Birch																				
(<i>Betula pumila</i>)																		4.1		

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[illegible]

TABLE 41. PERCENT PARASITISM AT PERMANENT STUDY PLOTS BY LARVAL AND PUPAL PARASITES
BURLAP TRAP COLLECTIONS - 1972

Permanent Study Plot	County	Township	Peak Percentage of Parasitism											
			<u>Apanteles</u>	<u>melanoscelus</u>	<u>Brachymeria</u>	<u>intermedia</u>	<u>Compsilura</u>	<u>concinna</u>	<u>Hyposoter</u>	<u>disparis</u>	<u>Parasetigena</u>	<u>agilis</u>	<u>Sturmia</u>	<u>scutellata</u>
			Percent	Number of Gypsy Moth Collected	Percent	Number of Gypsy Moth Collected	Percent	Number of Gypsy Moth Collected	Percent	Number of Gypsy Moth Collected	Percent	Number of Gypsy Moth Collected	Percent	Number of Gypsy Moth Collected
Alpine	Bergen	Alpine	2.7	74	0		10.0	20	0		40.0	20	5.0	20
Alloway	Salem	Alloway	--		--		--		--		--		--	
Beemerville	Sussex	Wantage	4.0	348	0		33.8	65	1.4	71	28.2	71	7.0	71
Birdsall Road	Monmouth	Howell	50.0	2	0		0		0		0		0	
Bowne Road	Monmouth	Middletown	0		0		54.0	50	0		20.0	50	0	
Brookside	Morris	Mendham	0		0		4.2	24	0		29.2	24	29.2	24
Clinton Reservoir	Passaic	West Milford	11.1	18	0		0		3.1	32	44.0	18	11.1	18
Chester	Morris	Chester	1.8	224	0		22.1	86	2.6	38	54.7	86	8.3	12
Flemington	Hunterdon	Raritan	0		0		22.2	9	0		25.0	4	14.3	7
Highfields	Mercer	Hopewell	0		0		1.7	116	0		38.5	13	8.6	116
Holmeson	Monmouth	Freehold	1.7	59	0		1.9	417	0		0.4	519	9.8	417
Jockey Hollow	Morris	Harding	2.8	142	0		15.6	32	1.1	190	39.6	53	13.2	53
Lindsley Road	Morris	Harding	3.9	232	0		9.1	55	0.4	232	45.9	37	43.0	37
Pleasant Valley	Monmouth	Marlboro	15.3	59	0		3.7	217	0		8.3	84	13.8	217
Pole Brook	Ocean	Jackson	0		0		0		0		0		5.2	58
Saw Mill Pond	Sussex	Montague	13.3	15	0		4.2	167	6.7	15	50.7	277	23.3	335
Schooley's Mountain	Morris	Washington	0		0		6.5	31	0		20.0	5	0	
Stockholm	Sussex	Hardyston	9.6	104	0		22.1	104	1.7	60	50.8	65	21.1	19
Waretown	Ocean	Ocean	6.3	16	0		6.3	16	0		6.3	16	27.1	517
Wawayanda	Passaic	West Milford	4.1	246	0		10.9	302	0.6	167	41.9	74	28.4	74

0 percent parasitism means no parasites were recovered from the collected host material. -- means that no parasites were recovered because host material could not be collected.

TABLE 42. PERCENT PARASITISM AT PERMANENT STUDY PLOTS BY LARVAL AND PUPAL PARASITES
RANDOM COLLECTIONS - 1972

Permanent Study Plot	County	Township	Peak Percentage of Parasitism											
			<u>Apanteles</u> Percent	<u>melanoscelus</u> Number of Gypsy Moth Collected	<u>Brachymeria</u> Percent	<u>intermedia</u> Number of Gypsy Moth Collected	<u>Compsilura</u> Percent	<u>concinata</u> Number of Gypsy Moth Collected	<u>Hyposoter</u> Percent	<u>disparis</u> Number of Gypsy Moth Collected	<u>Parasetigena</u> Percent	<u>agilis</u> Number of Gypsy Moth Collected	<u>Sturmia</u> Percent	<u>scutellata</u> Number of Gypsy Moth Collected
Alpine	Bergen	Alpine	11.1	9	0		6.7	15	0	--	66.7	9	6.7	15
Alloway	Salem	Alloway	--		--		--		--		--		--	
Becmerville	Sussex	Wantage	18.2	22	0		32.4	37	4.5	22	48.6	37	5.4	37
Birdsall Road	Monmouth	Howell	0		0		0		0		0		0	
Bowne Road	Monmouth	Middletown	0		0		66.7	3	0		0		0	
Brookside	Morris	Mendham	12.5	8	0		0		0		25.0	8	25.0	4
Clinton Reservoir	Passaic	West Milford	0		0		0		0		16.7	12	8.3	12
Chester	Morris	Chester	0		0		28.6	28	0		57.1	28	8.3	72
Flemington	Hunterdon	Raritan	10.0	10	0		10.0	10	0		0		0	
Highfields	Mercer	Hopewell	0		0		23.1	13	0		23.1	13	9.5	21
Holmeson	Monmouth	Freehold	0		0		0		0		1.0	102	14.3	175
Jockey Hollow	Morris	Harding	8.3	12	0		18.2	22	20.0	5	62.5	8	0	
Lindsley Road	Morris	Harding	0		0		11.8	17	0		81.3	16	2.5	40
Pleasant Valley	Monmouth	Marlboro	5.6	18	0		5.6	18	0		0		3.8	26
Pole Brook	Ocean	Jackson	0		0		0		0		0		0	
Saw Mill Pond	Sussex	Montague	6.0	100	0		7.1	14	4.0	100	72.0	100	38.0	100
Schooley's Mountain	Morris	Washington	0		0		0		0		0		0	
Stockholm	Sussex	Hardyston	4.3	47	0		24.0	75	0		79.4	44	13.6	44
Waretown	Ocean	Ocean	0		0		0		0		0.5	200	19.0	200
Waywayanda	Passaic	West Milford	18.2	11	0		13.0	23	0		21.7	23	8.7	23

0 percent means no parasites were recovered from the collected host material. -- means that no parasites were recovered because host material could not be collected.

Data collected from the permanent study plots during the first three years of study was statistically analyzed to determine any significant difference in percent parasitism of larvae and pupae collected under burlap traps as compared to random open collections. The results indicate no significant difference. Since it is easier to find gypsy moth larvae and pupae under burlap traps, it was decided to make collections from under burlap traps rather than from open collections. Assistance in analysis of the data for this project was received from personnel at the Bell Laboratories Computer Center, Murray Hill.

During the later summer months of 1972, a pupal study was conducted in each of the permanent study plots to determine the sex ratio, survival rates, and mortality rates of the gypsy moth pupae. The degree of defoliation and winter egg mass counts are listed in Table 43 with the pupal study data.

Gypsy moth egg masses were collected from the plots to evaluate the egg parasite Ooencyrtus kuwanae. The results of those collections are shown in Table 44. The data again show that Ooencyrtus kuwanae is host density dependent as related to egg mass size. The fewer the number of gypsy moth eggs per mass, the greater the percent parasitism by O. kuwanae. Gypsy moth egg masses were also collected this spring from the study plots to determine the percent viability of the egg masses. Due to a lack of time and personnel, the eggs were not set up for hatch, but were examined under the microscope. The eggs were recorded as viable, parasitized, or dehydrated. The average percent viability of the gypsy moth egg masses in the plots is shown in Table 45.

Burlap Trap Collections

During the summer of 1972, burlap bands were placed on host trees within 189 areas infested with gypsy moth. Collections of gypsy moth larvae and pupae were made at least once a week (when possible). The larvae and pupae were then reared in the field laboratories for recovery of gypsy moth parasites. Many of the gypsy moth collections succumbed to virus disease during rearing, and parasites were therefore not recovered. Table 46 shows the results of the summer's burlap trap survey. The percentages shown are the peak percentages of parasitism by each species. The percentage represents only that week during which the parasite was most active. The number of gypsy moths collected during the week is also tabulated. At least 50 gypsy moths were collected each week from each site when possible. The results show that Sturmia scutellata, Parasetigena agilis, and Apanteles melanoscelus are the most important parasites against the gypsy moth in New Jersey. Brachymeria intermedia is also a major parasite, but it is only effective in areas where there is bright sunlight or heavy defoliation.

Ooencyrtus kuwanae Evaluation

Gypsy moth egg masses were collected from 99 sites in Atlantic, Burlington, Camden, Cape May, Mercer, Middlesex, Monmouth, and Ocean counties. The egg masses were analyzed for percent parasitism and are recorded in Table 47.

TABLE 43. PERMANENT STUDY PLOTS - 1972

GYPSY MOTH PUPAL STUDY - HOST POPULATION DENSITY AND SEX RATIO, SURVIVAL RATES AND MORTALITY RATES

Date Fall 1972

Area	County	Township	Infestation	Pupae observed M F TOTAL	% Mortality												% Survived or Emerged M F TOTAL	Winter Count EM/A	Population Situation					
					% Dehydrated			% Disposed			% Parasitized													
											Brachymeria			Tachinid			Other			TOTAL				
					M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M			F	TOTAL	M	F	TOTAL
Saw Mill Pond	Sussex	Montague	1-25	14.2 56.0 116	5.9 1.8 3.4	31.3 52.3 14.0	0	0	0	13.7 24.6 19.8	3.9 6.2 5.2	37.3 10.5 25.0	68.8 31.3 27.6	066	Spray-Stable?									
Pepperville	Sussex	Wanters	1-25	14.3 45.7 35	0	0	0	15.8 0 8.6	0	0	0	0 18.8 8.6	15.8 0 8.6	35.8 19.8 17.1	50.0 50.0 74.1	5	Stable							
Brookside	Morris	Vendham	1-25	71.4 28.6 34	0	0	0	0 0 0	0	0	0	0 0 0	0 25.0 7.1	0 25.0 7.1	76.2 23.1 22.9	20	Stable							
Charter	Somerset	Charter	1-25	14.0 45.1 71	5.1 2.4 7.0	5.1 6.3 5.6	0	0	0	10.3 15.6 12.7	10.3 12.0 9.5	10.3 24.4 21.1	76.0 44.0 66.8	75	Building									
Flamington	Hunterdon	Baritan	1-25	29.4 70.6 34	0	0	0	0 4.2 2.9	0	0	0	0 0 0	0 4.2 2.9	0 4.2 2.9	31.3 68.8 24.1	80	Building							
Stockholm	Sussex	Hardington	1-25	50.0 50.0 76	2.6 2.6 2.6	15.8 5.3 10.5	0	0	0	15.8 25.9 22.4	0	2.6 1.3	15.8 31.6 22.7	12.1 12.9 63.2	95	Spray								
Clinton Pass	Passaic	West Milford	1-25	25.5 61.5 65	12.0 5.0 7.7	15.0 10.0 10.2	0	2.5 1.5	8.0 17.5 11.8	0	0	0	8.0 20.0 15.4	19.1 11.9 11.6	0	Stable								
Waymouth	Lucksie	West Milford	1-25	14.0 52.4 54	5.0 15.0 10.7	5.0 10.2 11.0	0	0	0	10.0 11.4 10.7	5.0 6.8 6.0	15.0 18.2 14.7	78.8 11.2 62.7	35	Stable									
Jockey Hollow	Morris	Harding	1-25	22.4 72.6 34	10.0 0 2.8	20.0 1.2 8.8	0	0	0	10.0 8.3 8.8	10.0 8.3 0.8	20.0 16.7 17.6	20.8 70.2 70.4	0	Stable									
Maplewood Road	Morris	Harding	1-25	12.0 17.0 47	0	0	0	5.1 12.5 6.4	0	0	0	23.1 0 12.1	0	0	0 23.1 0 12.1	10.0 30.0 74.5	0	Stable						
Alpine	Bergen	Alpine	1-25	50.0 50.0 32	0	0	0	0 0 0	0	0	0	0 0 0	0 0 0	0 0 0	0 0 0	20.0 50.0 100.0	0	Stable						
Scholar's Run	Morris	Washington	1-25	22.8 41.2 17	0 14.3 5.9	0 0 0	0	0	0	0 14.3 5.9	0	0	0 14.3 5.9	16.7 31.3 30.2	5	Building								
Albany	Albany	Albany	1-25	0 0 0	0	0	0	0 0 0	0	0	0	0 0 0	0 0 0	0 0 0	0 0 0	0	Building							
Verona	Essex	Verona	75-100	14.0 52.0 100	0 3.4 2.0	1.9 1.7 2.0	0	0	0	4.2 5.1 5.0	0	0	4.5 5.1 5.0	11.1 39.9 20.0	12,100	Building								
Holmeson	Monmouth	Irishhold	25-50	25.0 75.0 100	0 2.2 2.8	0 11.5 11.0	0	0	0	2.6 2.0 0	1.3 1.0 0	2.0 3.0 31.4	29.6 72.1 15,007	Building										
Midway Rd.	Monmouth	Maxwell	25-50	11.3 56.7 6	0	0	0	0 0 0	0	0	0	0 0 0	0 0 0	0 0 0	31.3 25.7 100.0	30	Collapsed?							
Brown Road	Monmouth	Middletown	1-25	0 0 0	0	0	0	0 0 0	0	0	0	0 0 0	0 0 0	0 0 0	0 0 0	0	Stable due to spray-1971							
Flanagan Valley	Monmouth	Marlboro	25-50	18.8 51.2 16	0	0	0	0 30.8 25.0	0	0	0	0 0 0	0 0 0	0 0 0	25.0 25.0 75.0	1,228	Stable							
Fols Creek	Ocean	Jackson	1-25	11.1 48.8 16	0	0	0	0 20.0 0 6.3	0	0	0	0 18.2 12.5	0	0	0 18.2 12.5	40.8 20.2 41.3	0	Building						
Midfield	Monroe	Hopewell	1-25	21.5 78.5 79	11.8 4.8 6.3	0 9.7 7.6	0	0	0	0 3.2 2.5	0 1.6 1.3	11.8 19.4 17.7	23.1 26.0 42.3	604	Building									

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TABLE 44. OOENCYRTUS KUWANAE EVALUATION IN PERMANENT STUDY PLOTS

<u>Plot</u>	<u>Average Percent Parasitism</u>	<u>Average No. of Eggs/Mass (G.M.)</u>
Alloway		<u>1/</u>
Alpine	27.3	651
Beemerville	28.8	414
Birdsall Road	28.3	505
Bowne Road		<u>1/</u>
Brookside	11.5	720
Chester	22.6	519
Clinton Reservoir	22.2	626
Flemington	29.5	516
Highfields	25.0	503
Holmeson	29.9	451
Jockey Hollow	26.9	441
Lindsley Road	21.1	716
Pleasant Valley	26.4	253
Pole Brook	28.5	640
Saw Mill Pond	32.4	599
Schooley's Mountain	19.0	680
Stockholm	9.8	379
Waretown	30.8	244
Wawayanda	25.6	650

TABLE 45. EGG MASS VIABILITY IN PERMANENT STUDY PLOTS

<u>Plot</u>	<u>Percent Viability</u>
Alloway	<u>1/</u>
Alpine	58.5
Beemerville	69.2
Birdsall Road	70.3
Bowne Road	<u>1/</u>
Brookside	77.8
Chester	75.8
Clinton Reservoir	76.5
Flemington	73.8
Highfields	78.5
Holmeson	76.8
Jockey Hollow	77.3
Lindsley Road	65.7
Pleasant Valley	76.3
Pole Brook	<u>1/</u>
Saw Mill Pond	68.4
Schooley's Mountain	63.3
Stockholm	86.1
Waretown	74.2
Wawayanda	80.2

1/ No egg masses could be collected.

TABLE 46. 1972 PARASITE RECOVERIES FROM BURLAP TRAPS

Peak Percentage of Parasitism															
Area	County	Township	Apanteles		Brachymeria		Gnathochorisis		Hynobius		Icarotarsus		Stenomacrus		Remarks
			melanoscelus		intermedia		conspicua		discoloris		arilis		scutellata		
			%	# G. M.	%	# G. M.	%	# G. M.	%	# G. M.	%	# G. M.	%	# G. M.	
Immaculate Cocoon	Bergen	Mahwah	18.2	11	0		0		0		27.3	11	37.5	12	
M. Carroll Forest	Bergen	Mahwah	18.0	50	0		9.1	11	0		30.0	50	36.4	11	
Longwood Farm	Bergen	Mahwah	5.3	19	0		6.0	50	0		36.8	19	9.8	51	
Longwood Farm	Bergen	Oakland	66.7	6	0		0		0		22.2	9	11.1	9	
Longwood Farm	Burlington	Essexham	4.0	50	0		0		0		0		2.8	71	
Longwood Farm	Burlington	Southampton	1.0	100	0		2.5	10	0		0		3.0	100	
Longwood Farm	Burlington	Southampton	0		5.0	40	0		0		0		5.0	40	
Longwood Farm	Burlington	Washington	0		0		1.3	80	0		0		0		
Longwood Farm	Camden	Winslow	0		0		0		0		0.5	200	10.0	200	
Longwood Farm	Camden	Middle	0		0		25.0	4	0		0		0		
Longwood Farm	Camden	Middle	0		0		0		0		0		1.3	152	
Longwood Farm	Camden	Upper	0		0		0		0		0.5	200	13.1	160	
Longwood Farm	Camden	Upper	0		0		0		0		0		0.8	120	
Longwood Farm	Hunterdon	Alexandria	6.0	50	0		1.0	100	0		1.0	100	13.0	100	
Longwood Farm	Hunterdon	Bethlehem	4.8	42	0		11.9	42	0		10.6	85	44.0	100	
Longwood Farm	Hunterdon	Bethlehem	4.0	50	0		4.0	50	0		4.0	50	47.0	100	
Longwood Farm	Hunterdon	Milford	0		0		4.0	50	0		5.3	95	37.9	95	
Longwood Farm	Hunterdon	Raritan	4.0	50	0		10.0	100	0		3.0	100	23.0	100	
Longwood Farm	Hunterdon	Raritan	9.4	50	0		14.8	27	0		3.7	27	11.3	50	
Longwood Farm	Hunterdon	Union	8.0	50	12.0	50	1.5	68	0		1.0	100	22.1	68	
Longwood Farm	Hunterdon	Union	22.0	50	5.7	53	0		0		1.3	100	43.0	100	
Longwood Farm	Hunterdon	Union	18.0	50	0		3.8	78	0		1.0	100	54.0	100	
Longwood Farm	Mercer	Hopewell	0		12.4	121	0.8	121	0		0		6.6	121	
Longwood Farm	Middlesex	Madison	0		0		0		0		0		25.0	4	
Longwood Farm	Middlesex	Monroe	1.0	100	10.0	20	1.0	100	0		0		5.6	18	
Longwood Farm	Middlesex	Monroe	0		15.0	40	0		0		0		2.5	40	
Longwood Farm	Middlesex	Monroe	0		0		0		0		0		8.3	24	
Longwood Farm	Monmouth	Colts Neck	1.0	100	10.0	100	1.3	80	0		0		11.9	50	
Longwood Farm	Monmouth	Colts Neck	16.0	100	0		12.5	200	0		3.0	200	14.0	200	
Longwood Farm	Monmouth	Colts Neck	8.0	100	0		2.2	46	0		4.9	144	14.6	144	
Longwood Farm	Monmouth	Colts Neck	3.0	100	11.0	100	2.0	100	0		1.0	100	14.0	100	

TABLE 46. 1972 PARASITE RECOVERIES FROM BURLAP TRAPS

(continued)

Peak Percentage of Parasitism

Trap	County	Township	<u>Apanteles</u>		<u>Triclistus</u>		<u>Coelinius</u>		<u>Hypocryptus</u>		<u>Parasetigena</u>		<u>Sturmia</u>		Remarks
			<u>melanocellus</u>	<u># G. M.</u>	<u>intermedia</u>	<u># G. M.</u>	<u>concolorata</u>	<u># G. M.</u>	<u>disparis</u>	<u># G. M.</u>	<u>ovilis</u>	<u># G. M.</u>	<u>scutellata</u>	<u># G. M.</u>	
			%	Collected	%	Collected	%	Collected	%	Collected	%	Collected	%	Collected	
Carle XI control (b)	Monmouth	Colts Neck	6.0	100	23.0	100	0.5	200	0		1.0	100	7.0	200	
Five Lts. Rd.	Monmouth	Colts Neck	1.0	100	0		2.0	100	0		0		0		
Free Rd.	Monmouth	Colts Neck	0		0		0		0		1.0	100	2.0	100	
High Road	Monmouth	Colts Neck	0		0		0		0		0		8.0	100	
High Rd.	Monmouth	Colts Neck	0		0		0		0		0		1.0	100	
Highway 1271	Monmouth	Freehold	5.0	100	3.7	108	0		0		0		15.0	120	
Highway 1271	Monmouth	Freehold	0.8	120	2.7	31	0		0		6.5	31	6.5	31	
Highway 1271	Monmouth	Freehold	1.0	100	0		0		0		0		0		
Highway 1271	Monmouth	Freehold	1.0	100	66.3	80	2.5	80	0		0		0		
Highway 1271	Monmouth	Freehold	0		0		14.3	28	0		0		14.3	28	
Highway 1271	Monmouth	Freehold	1.7	60	5.0	40	1.0	100	0		0		12.1	66	
Highway 1271	Monmouth	Freehold	0		0		0		0		0		60.0	100	
Highway 1271	Monmouth	Freehold	1.0	100	2.0	100	0		0		0		2.0	100	
Highway 1271	Monmouth	Freehold	2.0	100	0		2.0	100	0		0		18.0	100	
Highway 1271	Monmouth	Freehold	0		0		0		0		0		0		Disease
Highway 1271	Monmouth	Howell	0		0		0		0		0		1.0	100	
Highway 1271	Monmouth	Howell	0		0		0.8	130	0		0.8	130	0.8	130	
Highway 1271	Monmouth	Howell	0		4.0	100	0		0		0		23.1	13	
Highway 1271	Monmouth	Howell	1.0	100	0		0		0		0		2.0	100	
Highway 1271	Monmouth	Howell	1.0	100	19.0	100	1.0	100	0		0		10.0	100	
Highway 1271	Monmouth	Howell	3.0	100	8.0	100	0		0		0		1.0	100	
Highway 1271	Monmouth	Howell	0		0		5.9	34	0		5.9	34	28.6	7	
Highway 1271	Monmouth	Howell	5.0	100	0		4.2	24	0		1.1	175	16.7	24	
Highway 1271	Monmouth	Howell	0		0		0		0		0		2.0	100	
Highway 1271	Monmouth	Howell	0		2.8	180	0		0		0		2.2	180	
Highway 1271	Monmouth	Howell	5.6	18	0		11.1	9	0		33.3	9	11.1	9	
Highway 1271	Monmouth	Manalapan	2.5	80	0		1.0	100	0		0		12.0	100	
Highway 1271	Monmouth	Manalapan	0		0		0		0		0		0		Disease
Highway 1271	Monmouth	Manalapan	0		0		0		0		0		11.8	17	
Highway 1271	Monmouth	Manalapan	0		0.6	180	0		0		0		6.1	180	

TABLE 46. 1972 PARASITE RECOVERIES FROM BURLAP TRAPS
(continued)

Area	County	Township	Peak Percentage of Parasitism							
			<u>Apanteles</u>	<u>Brachymeria</u>	<u>Comptosia</u>	<u>Eupodoter</u>	<u>Parasetigena</u>	<u>Stenomacrus</u>		
			<u>melanoscopus</u>	<u>intermedia</u>	<u>concolorata</u>	<u>disparis</u>	<u>acilis</u>	<u>scutellata</u>		
			% # G. M. Collected	% # G. M. Collected	% # G. M. Collected	% # G. M. Collected	% # G. M. Collected	% # G. M. Collected	% # G. M. Collected	% # G. M. Collected
Green Hill	Monmouth	Marlboro	0	0	0	0	0	10.8	120	
Old Hill Rd.	Monmouth	Marlboro	0	0	14.3	7	0	14.3	7	
North Hill Rd.	Monmouth	Marlboro	0	0	0	0	0	3.0	100	
East Hill Rd.	Monmouth	Marlboro	0	0	17.5	10	0	5.0	20	
Mountain Valley Rd.	Monmouth	Marlboro	0	0	0	0	0	5.0	100	
North Hill	Monmouth	Marlboro	0	0	0	0	0	1.0	100	
Green Hill	Monmouth	Marlboro	0	10.0	20	0	0	2.2	95	
Green Hill	Monmouth	Middletown	0	0	28.6	14	0	20.0	5	
North Hill	Monmouth	Middletown	0	0	50.6	2	0	0	0	
Green Hill	Monmouth	Middlestone	0	0	0	0	0	18.2	11	
Green Hill	Monmouth	Middlestone	0	10.0	30	1.7	60	0	1.5	65
Green Hill	Monmouth	Middlestone	0	0	0	0	0	5.0	100	
Green Hill	Monmouth	Middlestone	0.8	1.0	100	0	0	10.0	120	
Green Hill	Monmouth	New Shrewsbury	3.0	100	104	0	0	6.7	104	
Green Hill	Monmouth	New Shrewsbury	0	0	1.0	100	0	0	0	
Green Hill	Monmouth	New Shrewsbury	0	0	0	0	0	13.0	100	
Green Hill	Monmouth	New Shrewsbury	2.0	100	0	1.0	0	2.5	200	
Green Hill	Monmouth	New Shrewsbury	1.0	100	7.4	108	0.9	108	0	
Green Hill	Monmouth	New Shrewsbury	0	0	0	0	0	9.3	108	
Green Hill	Monmouth	New Shrewsbury	0	0	0	0	10.0	10	10.0	
Green Hill	Monmouth	New Shrewsbury	0	0	0	0	0	12.5	40	
Green Hill	Monmouth	New Shrewsbury	0	0	0	0	0	0	0	Disease
Green Hill	Monmouth	Upper Freehold	0	30.0	60	0	0	0	0	
Green Hill	Monmouth	Upper Freehold	0	0	0	0	0	0	0	Disease
Green Hill	Monmouth	Upper Freehold	0	0	0	0	0	0	0	
Green Hill	Monmouth	Wall	14.3	14	0	11.1	9	0	11.7	77
Green Hill	Monmouth	Wall	0	2.5	200	0	0	0	6.4	47
Green Hill	Monmouth	Wall	0	0	0	0	0	2.0	200	
Green Hill	Monmouth	Wall	0	0	0	0	0	0	0	Disease
Green Hill	Monmouth	Wall	0	0	66.7	3	0	0	0	
Green Hill	Monmouth	Wall	1.0	100	0	2.0	100	0	3.8	132
Green Hill	Monmouth	Wall	0	0	0	0	0	18.2	33	

TABLE 46. 1972 PARASITE RECOVERIES FROM BURLAP TRAPS
(continued)

(continued)														
Peak Percentage of Parasitism														
Area	County	Township	<u>Apanteles</u>		<u>Brachymeria</u>		<u>Camponotus</u>		<u>Dacnusa</u>		<u>Parasetigena</u>		<u>Stenomacrus</u>	
			<u>melanoscelus</u>		<u>intermedia</u>		<u>concinna</u>		<u>disparis</u>		<u>spilis</u>		<u>scutellata</u>	
			%	# G. E. Collected	%	# G. E. Collected	%	# G. E. Collected	%	# G. E. Collected	%	# G. E. Collected	%	# G. E. Collected
Donnell Rd.	Monmouth	Wall	0		0		0		0		0		2.0	100
Delacell	Monmouth	Wall	0		0		0		0		2.3	43	4.7	43
Dunlop Rd. Rd.	Monmouth	Wall	0		0.5	200	0		0		0		3.5	200
Marlin Rd.	Monmouth	Wall	0		0		0		0		0.7	140	8.6	140
Millwood Rd. II	Monmouth	Wall	14.3	14	0		25.0	100	0		8.0	100	8.0	100
Smith Rd.	Monmouth	Wall	3.8	26	0		0		0		0		3.8	26
Windsor Terrace	Monmouth	Wall	0		0		0		0		1.0	100	0	
Windsor Road	Monmouth	Wall	0.8	120	0		0		0		0		4.2	120
Windsor Rd. Ave.	Monmouth	Wall	0		0		7.1	14	0		0		5.0	100
Windsor Rd. Ave.	Monmouth	Wall	0		0		5.0	20	0		0		0	
Windsor Rd. Ave.	Morris	Barnards	10.0	50	0		4.0	50	0		0		16.7	48
Windsor Rd. Ave.	Morris	Harding	0		0		0		0		2.0	50	6.7	15
Windsor Rd. Ave.	Morris	Jefferson	10.0	50	0		1.9	52	0		46.2	52	26.9	52
Windsor Rd. Ave.	Morris	Jefferson	18.0	50	0		9.1	33	0		27.3	33	24.2	33
Windsor Rd. Ave.	Morris	Jefferson	2.0	50	0		0		0		26.0	50	29.9	87
Windsor Rd. Ave.	Morris	Jefferson	4.0	50	0		1.4	74	0		38.0	50	34.0	50
Windsor Rd. Ave.	Morris	Jefferson	13.2	38	1.4	74	5.3	38	0		18.9	74	20.0	50
Windsor Rd. Ave.	Morris	Jefferson	32.0	50	0		0		0		0		0	
Windsor Rd. Ave.	Morris	Kinnelon	14.0	50	0		1.4	70	0		9.0	100	41.0	100
Windsor Rd. Ave.	Morris	Lincoln Pk.	1.2	81	0		15.0	40	0		40.0	50	33.3	6
Windsor Rd. Ave.	Morris	Mendham	0		0		11.4	35	0		41.7	12	25.0	8
Windsor Rd. Ave.	Morris	Mendham	2.0	49	0		7.7	39	0		40.0	5	21.4	19
Windsor Rd. Ave.	Morris	Morris	2.0	50	0		2.0	50	0		14.3	21	33.3	6
Windsor Rd. Ave.	Morris	Ht. Lakes	6.0	50	0		4.0	50	0		52.0	50	10.0	50
Windsor Rd. Ave.	Morris	Rockaway	8.0	50	0		0		0		46.2	13	22.0	100
Windsor Rd. Ave.	Morris	Washington	2.0	50	0		10.0	50	0		17.8	90	36.7	90
Windsor Rd. Ave.	Morris	Washington	2.0	50	0		10.0	50	0		32.1	81	35.8	81
Windsor Rd. Ave.	Morris	Washington	4.0	50	0		1.1	90	0		25.6	90	36.7	90
Windsor Rd. Ave.	Ocean	Brick	0		1.3	80	0		0		0		3.8	80
Windsor Rd. Ave.	Ocean	Dover	0		12.8	86	0		0		0		1.2	86

TABLE 46. 1972 - PARASITE RECOVERIES FROM BURLAP TRAPS
(continued)

Peak Percentage of Parasitism														Disease	
Area	County	Township	Apanteles		Fraxetaria		Gnathochus		Lycosoter		Parasetigena		Sturmia		
			melanocelus		intermedia		maculata		disparis		apilis		scutellata		
			%	# C. M. Collected	%	# C. M. Collected	%	# C. M. Collected	%	# C. M. Collected	%	# C. M. Collected	%		# C. M. Collected
Deerfield Hills Rd.	Ocean	Jackson	0		8.0	100	1.0	100	0		0		4.0	100	Disease
Deer Rd.	Ocean	Jackson	0		10.0	20	0		0		0		11.0	100	
Deerfieldville	Ocean	Jackson	0		0		0		0		0		0		
Deer Rd.	Ocean	Jackson	1.0	100	10.0	100	0		0		0		1.0	100	
Deer Rd. - Loring	Ocean	Jackson	0		4.0	100	0		0		0		4.0	100	Disease
Deerfieldville	Ocean	Jackson	0		0		0.5	200	0		0		4.2	100	
Deer Rd. - Loring	Ocean	Jackson	0		0		0		0		0		0		
Deer Rd. - Loring	Ocean	Jackson	0		0		0		0		0		0		
Deer Rd. - Loring	Ocean	Jackson	1.7	60	0		10.0	10	0		0		5.1	30	Disease
Deer Rd. - Loring	Ocean	Jackson	1.0	100	17.5	40	3.0	100	0		0		0		
Deer Rd. - Loring	Ocean	Jackson	2.0	100	0		0		0		0		12.0	100	
Deer Rd. - Loring	Ocean	Jackson	0		16.7	60	0		0		0		0		
Deer Rd. - Loring	Ocean	Jackson	5.0	100	5.0	80	1.0	100	0		0		8.8	80	Disease
Deer Rd. - Loring	Ocean	Jackson	0		27.5	40	0		0		0		4.0	100	
Deer Rd. - Loring	Ocean	Jackson	0		0		1.0	100	0		0		0		
Deer Rd. - Loring	Ocean	Jackson	0		0		0		0		0		0		
Deer Rd. - Loring	Ocean	Jackson	0		0		0		0		0		6.3	80	Disease
Deer Rd. - Loring	Ocean	Jackson	0		10.0	80	0		0		0		2.5	80	
Deer Rd. - Loring	Ocean	Jackson	0		0		0		0		0		6.0	100	
Deer Rd. - Loring	Ocean	Jackson	0		0		5.0	40	0		2.5	40	9.0	100	
Deer Rd. - Loring	Ocean	Jackson	0		0		0		0		0		0		Disease
Deer Rd. - Loring	Ocean	Jackson	0		0		0		0		0		0		
Deer Rd. - Loring	Ocean	Jackson	40.0	15	0		1.8	57	0		3.5	57	3.5	57	
Deer Rd. - Loring	Ocean	Jackson	1.0	100	5.0	100	2.3	44	0		0		8.0	100	
Deer Rd. - Loring	Ocean	Jackson	3.0	100	0		8.1	123	0		4.0	123	4.0	166	Disease
Deer Rd. - Loring	Ocean	Lacey	0		0		0		0		0		1.0	100	
Deer Rd. - Loring	Ocean	Lakeview	0		0		1.3	80	0		0		3.8	80	
Deer Rd. - Loring	Ocean	Lakeview	0		0		0		0		0		0		
Deer Rd. - Loring	Ocean	Lakeview	0		0		100.0	1	0		0		0		Disease
Deer Rd. - Loring	Ocean	Lakeview	0		11.1	9	0		0		0		0		
Deer Rd. - Loring	Ocean	Lakeview	0		3.0	100	0		0		0		1.0	100	
Deer Rd. - Loring	Ocean	Lakeview	0		1.0	200	0		0		0		1.0	200	

TABLE 46. 1972 PARASITE RECOVERIES FROM BURLAP TRAPS³
(continued)

Peak Percentage of Parasitism														
Area	County	Township	Apanteles		Brachymeria		Campoplex		Hypoosoter		Parasetigena		Sturmia	
			melanoscelus		intermedia		concolorata		disparis		agilis		scutellata	
			%	# G. M. Collected	%	# G. M. Collected	%	# G. M. Collected	%	# G. M. Collected	%	# G. M. Collected	%	# G. M. Collected
Asburyville	Ocean	Manchester	0		23.3	60	1.0	100	0		0		0	
Brookwood Village	Ocean	Manchester	0		0		0		0		0		1.0	100
Roosevelt City	Ocean	Manchester	0		0		0		0		1.0	100	2.0	100
Asbury	Ocean	Manchester	0		30.0	60	1.0	100	0		0		0.5	200
Life Management Area	Ocean	Manchester	0		5.0	60	0		0		0		11.7	60
St. Clair	Ocean	Ocean	0		0		0		0		0		10.3	60
Windsor Corner	Ocean	Plunksted	0		26.7	60	0		0		0		1.7	60
Windsor Ave.	Ocean	Stafford	0		0		0		0		0		1.6	124
Windsor	Ocean	Stafford	0		0		0		0		0		25.0	20
Windsor Park	Ocean	Toms River	0		0		0		0		0		2.5	60
Windsorville	Ocean	Union	0		0		0		0		0		10.5	10
St. Clair	Ocean	Union	0		0		0		0		0		15.1	100
West Hill Blvd.	Ocean	Union	0		0		0		0		0		15.0	20
West Hill Blvd.	Ocean	Union	1.0	100	2.0	100	0		0		0		5.0	60
Windsorville	Ocean	Union	0		0		0		0		0		5.1	74
Windsor Rd.	Bassae	W. Milford	14.0	50	0		20.0	50	0		17.3	52	5.8	52
Windsor	Bassae	W. Milford	0		0		0		0		28.6	7	0	
Windsorville Bl.	Dorchester	Barnards	0		0		2.2	46	0		4.0	50	26.1	46
Windsor	Dorchester	Warren	6.0	50	0		0		0		21.3	67	11.0	100
Windsor	Dorchester	Hillsborough	1.6	62	0		0		0		1.6	62	3.2	62
Windsor	Sussex	Pyram	9.4	32	0		6.9	58	0		22.4	85	43.1	13
Windsor	Sussex	Pyram	20.0	50	0		4.0	50	0		4.0	50	40.0	25
Windsor	Sussex	Hampton	12.5	8	0		2.0	50	0		14.0	50	54.5	22
Windsor	Sussex	Hampton	2.5	40	0		3.6	55	0		34.5	55	20.0	40
Windsor	Sussex	Hardwick	0		0		0		0		0		0	
Windsor	Sussex	Hopatcong	6.0	50	0		2.0	50	0		14.0	50	38.0	50
Windsor	Sussex	Sandyston	12.0	50	0		25.5	55	0		7.3	55	24.0	50
Windsor	Sussex	Sandyston	1.5	200	0		2.5	200	0		9.5	200	31.7	63
Windsor	Sussex	Sparta	5.6	125	0		5.6	125	0		14.8	125	8.6	70

TABLE 46. 1972 PARASITE RECOVERIES FROM BURLAP TRAPS
(continued)

Peak Percentage of Parasitism

Area	County	Township	<i>Apanteles</i>		<i>Brachymeria</i>		<i>Campoplex</i>		<i>Dacnusa</i>		<i>Phaenocarpa</i>		<i>Stenomacrus</i>	
			<i>melanoscelus</i>	<i># G. M.</i>	<i>intermedia</i>	<i># G. M.</i>	<i>concinna</i>	<i># G. M.</i>	<i>disparis</i>	<i># G. M.</i>	<i>agilis</i>	<i># G. M.</i>	<i>scutellata</i>	<i># G. M.</i>
			%	Collected	%	Collected	%	Collected	%	Collected	%	Collected	%	Collected
Old Bank	Sussex	Sparta	18.0	50	0		5.9	24	2.0	50	15.0	20	29.3	75
Old Bank Rd.	Sussex	Stillwater	17.6	51	0		27.0	27	0		18.0	50	75.3	81
Old Bank Rd.	Sussex	Stillwater	7.5	40	0		6.0	50	0		26.0	50	88.0	50
Old Bank Rd.	Sussex	Vernon	10.0	40	0		20.5	24	2.5	40	50.0	24	2.9	24
Old Bank Rd.	Sussex	Walpack	4.0	100	0		1.1	94	0		1.2	85	20.4	85
Old Bank Rd.	Sussex	Wantage	14.0	100	0		10.0	50	0		36.0	50	5.7	85
Old Bank Rd.	Warren	Proctor	0		0		61.8	11	0		9.1	22	18.2	22
Old Bank Rd.	Warren	Harmony	0		0		2.3	88	0		15.9	88	20.0	100
Old Bank Rd.	Warren	Harmony	7.5	40	0		2.2	95	0		12.0	100	33.0	100

NOTE: In areas where no parasites were recovered, or certain parasite species were not recovered, the number of gypsy moth collected is not indicated; gypsy moth collections were made, however, at each of the areas listed.

TABLE 47. EVALUATION OF OOENCYRTUS KUWANAE

<u>Area</u>	<u>County</u>	<u>Township</u>	<u>Average Percent Parasitism</u>	<u>Average No. of Eggs/Mass (G.M.)</u>
Atlantic County Game Preserve	Atlantic	Estelle Manor	12.3	561
Route 557 near Route 50	Atlantic	Estelle Manor	19.4	726
Lake Pine	Burlington	Evesham	54.6	100
Lake Pine Area	Burlington	Medford	5.9	101
Lake Pine - Foster	Burlington	Medford	27.1	146
Sheet Road - Medford Lakes	Burlington	Medford	11.4	720
Camp Ockanickon-Medford Lakes	Burlington	Medford	14.4	814*
California Villa	Burlington	North Hanover	14.4	807*
Deep Well Trailer Park	Burlington	North Hanover	29.4	664*
Falcon Court	Burlington	North Hanover	13.3	688*
Meany Road-Cookstown	Burlington	North Hanover	29.2	438*
South Trailer Park	Burlington	North Hanover	16.5	718*
West End Trailer Park	Burlington	North Hanover	16.3	842*
Bel Air Park	Burlington	Pemberton	26.5	482*
Claflin Nursery & Blueberries	Burlington	Pemberton	24.8	275*
Magnolia	Burlington	Pemberton	18.0	360*
Atsion	Burlington	Shamong	18.4	551
Indian Mills - Rt. 541	Burlington	Shamong	16.5	535
Rt. 70 near Four Mile Circle	Burlington	Southampton	16.4	551
Medford Sod I	Burlington	Southampton	23.6	108
Medford Sod II	Burlington	Southampton	48.7	128
Medford Sod III	Burlington	Southampton	8.2	329
Medford Nursery	Burlington	Southampton	17.7	486
Red Lion State Police Station	Burlington	Southampton	19.6	533
Richards Trailer Park	Burlington	Southampton	15.7	407*
Ridge Road-Vincentown	Burlington	Southampton	0.3	582
Homestead Nursery	Burlington	Springfield	28.3	278*
Lower Bank	Burlington	Washington	17.5	417
Tilton Court	Burlington	Wrightstown	15.3	295
Sicklerville	Camden	Winslow	6.9	171
Clermont I	Cape May	Dennis	20.6	928
Clermont II	Cape May	Dennis	0.2	629
Clermont III	Cape May	Dennis	25.4	824
Dennisville - Rt. 585	Cape May	Dennis	2.9	648
Whitesboro I	Cape May	Middle	19.0	750
Whitesboro II	Cape May	Middle	0.2	608
Doan's Place - Marmora	Cape May	Upper	16.0	592
Greenfield I	Cape May	Upper	9.8	336
Greenfield II	Cape May	Upper	31.5	323

TABLE 47. EVALUATION OF OOENCYRTUS KUWANAE

(continued)

<u>Area</u>	<u>County</u>	<u>Township</u>	<u>Average Percent Parasitism</u>	<u>Average No. of Eggs/Mass (G.M.)</u>
Rt. 585 - Marmora	Cape May	Upper	1.1	37
Marmora	Cape May	Upper	44.1	98
New Bridge Road	Cape May	Upper	1.0	568
Mount Rose	Mercer	Hopewell	4.4	497
Rt. 206 Princeton	Mercer	Princeton	2.1	636
Bergen Mills	Middlesex	Monroe	30.1	375
Camp Derrick - B.S.A.	Middlesex	Monroe	35.5	157
Indyck Road	Middlesex	Monroe	33.3	455
Earle N.A.D.	Monmouth	Atlantic	18.8	273
Dylox Plot #2	Monmouth	Freehold	39.0	205
Ely Harmony	Monmouth	Freehold	43.1	118
Five Points	Monmouth	Freehold	67.4	97
Georgia Road	Monmouth	Freehold	28.9	261
Hendrickson Road	Monmouth	Freehold	31.0	310
Siloam	Monmouth	Freehold	21.0	45
Smithburg	Monmouth	Freehold	25.2	365
Stone Hill	Monmouth	Freehold	33.5	219
Turkey Swamp I	Monmouth	Freehold	25.1	435
Turkey Swamp II	Monmouth	Freehold	28.3	339
Turkey Swamp III	Monmouth	Freehold	30.8	144.5
Howell Road	Monmouth	Howell	18.3	358.6
Bantown	Monmouth	Howell	2.8	199
Camp Wanda	Monmouth	Millstone	48.3	60
Clarksburg -Green Acres	Monmouth	Millstone	1.1	581
Disbrow Hill	Monmouth	Millstone	0.9	561
Shark River Park	Monmouth	Neptune	67.2	125
Reveytown	Monmouth	New Shrewsbury	29.8	451
Chambers Road	Monmouth	Upper Freehold	1.5	424
Hutchinson Road	Monmouth	Upper Freehold	0	418
Walnford	Monmouth	Upper Freehold	1.2	683
Allenwood- Bt.	Monmouth	Wall	24.0	314
Herbestville Road	Monmouth	Wall	69.1	67
Hospital Road	Monmouth	Wall	23.6	229
Wall Township Park	Monmouth	Wall	19.2	502
West 18th Street	Monmouth	Wall	25.6	338
Woodfield	Monmouth	Wall	48.8	102
Anderson Road	Ocean	Jackson	24.8	528
Bartley Road	Ocean	Jackson	26.3	320

TABLE 47. EVALUATION OF OOENCYRTUS KUWANAE
(continued)

<u>Area</u>	<u>County</u>	<u>Township</u>	<u>Average. Percent Parasitism</u>	<u>Average No. of Eggs/Mass (G.M.)</u>
Bird Village	Ocean	Jackson	5.1	272
Bowman Road	Ocean	Jackson	0.6	327
Burke & Leming	Ocean	Jackson	51.1	264
Cassville - Freehold Road	Ocean	Jackson	35.8	263
Coventry Road East	Ocean	Jackson	57.4	171
Coventry Road West	Ocean	Jackson	21.3	653
Eltone Road	Ocean	Jackson	1.2	171
Leesville Road	Ocean	Jackson	52.5	83
Logler	Ocean	Jackson	11.3	127
Manhattan Street	Ocean	Jackson	13.7	46
Leisure Village	Ocean	Lakewood	9.1	134
New Hampshire Road	Ocean	Lakewood	23.6	366
Beckerville - Rt. 539	Ocean	Manchester	20.4	409
Manchester School	Ocean	Manchester	2.1	143
Ridgway Mobile Homes	Ocean	Manchester	0.4	524
Whiting Rt. 70	Ocean	Manchester	29.4	145
Rt. 534	Ocean	Ocean	20.5	762
Colliers Mill I	Ocean	Plumstead	15.1	733
Colliers Mill II	Ocean	Plumstead	20.4	367
Beachview Avenue	Ocean	Stafford	28.0	555
Warren Grove	Ocean	Stafford	1.4	507
Rower Shore Road	Ocean	Union	66.9	91

* = Results of analysis of egg masses under band flaps set up by U.S.D.A., Moorestown.

Gypsy Moth Pupal Evaluation

During the summer of 1972, two gypsy moth pupal studies were conducted in various areas of the state. For the "Pupal Parasitism Study," Table 48, gypsy moth pupae were collected from 70 sites and held in the field laboratories for parasite emergence. Egg mass counts were made at each of the collection sites during the winter months.

For the pupal study entitled "Host Population Density and Sex Ratio, Survival Rates, and Mortality Rates," Table 49, gypsy moth pupae were examined after adult emergence was completed. The pupae were sexed and recorded as either having survived or succumbed. If an adult moth did not emerge from a pupa, determination was made of the mortality-causing agent.

Gypsy Moth Parasite Alternate Host Survey

Larvae and pupae of native insect pests were field collected in an effort to determine establishment of gypsy moth parasites on alternate hosts. The alternate hosts collected included: Anisota senitoria, Lambdina athasaria pellucidaria, Neodiprion lecontei, Hyphantria cunea, and Orgyia antiqua. Some Tachinid and Ichneumonid parasites have yet to be identified. All of the Braconid parasites recovered from alternate hosts have been identified by Dr. Paul Marsh of the National Museum, Washington, D. C. To date, however, no gypsy moth parasites have been recovered from any of the alternate host collections. The parasites recovered are as follows:

<u>Host</u>	<u>Parasites Recovered</u>
<u>Datana ministra</u>	<u>Meteorus datanae</u>
<u>Hyphantria cunea</u>	<u>Apanteles hyphantriae</u>
	<u>Meteorus hyphantriae</u>
<u>Anisota senitoria</u>	<u>Apanteles anisotae</u>
<u>Archips argyrospilus</u>	<u>Apanteles polychrosides</u>
	<u>Meteorus sp.</u>
<u>Malocosoma americanum</u>	<u>Meteorus hyphantriae</u>

Impact of Dylox on Caged Gypsy Moth Parasites

Caged gypsy moth parasites were placed in two plots sprayed with Dylox 1.5 oil and one check (nontreated) area. Three species of parasites were used in the test: Brachymeria intermedia (Chalcididae), Coccygominus turionellae (Ichneumonidae), and Palaeoxorista sp. (Tachinidae). One cage of each species containing 150 individuals was used in each area. Spray cards were placed in the cages to determine insecticide penetration. The cards within the cages indicated satisfactory penetration. The results are shown in Table 50.

The results of this small test show that Dylox 1.5 oil had no significant effect on Brachymeria intermedia, some impact on Coccygominus turionellae, and a strong impact on Palaeoxorista sp.

TABLE 48. PUPAL PARASITISM STUDY - 1972
North Jersey

Area	County	Township	No. Pupae Collected	Brachymeria intermedia		Parasetigena agilis		Sturmia Scutellata		TOTAL		E.M./A Winter Count
				#	%	#	%	#	%	#	%	
Pittstown Release	Hunterdon	Alexandria	55	8	14.5	0	0	2	3.6	10	18.2	465
Locktown	Hunterdon	Delaware	100	0	0	9	9.0	12	12.0	21	21.0	180
Pittstown	Hunterdon	Franklin	100	5	5.0	0	0	14	14.0	19	19.0	*
Lake Hopatcong	Morris	Byram	22	0	0	0	0	3	13.6	3	13.6	540
Bershire Valley Rd.	Morris	Jefferson	22	0	0	0	0	9	40.9	9	40.9	35
Hurdstown	Morris	Jefferson	19	0	0	0	0	7	36.8	7	36.8	170
Taylor Town	Morris	Montville	63	2	3.1	2	3.1	15	23.8	19	30.2	20
Echo Lake	Passaic	West Milford	39	0	0	1	2.5	9	23.0	10	25.6	60
High Point	Sussex	Montague	100	2	2.0	2	2.0	28	28.0	32	32.0	1,195
Saxton Falls	Sussex	Mt. Olive	150	10	6.6	1	0.6	25	16.6	36	24.0	215
Brooklyn Rd.	Sussex	Stanhope Boro.	64	12	18.7	0	0	9	14.0	21	32.8	1,075

TABLE 48. PUPAE PARASITISM STUDY - 1972

(Continued)

South Jersey

Area	County	Township	No. of Pupae Collected	Brachymeria intermedia		Parasetigena agilis		Sturmia Scutellata		TOTAL		E.M./A
				#	%	#	%	#	%	#	%	
Clermont I	Cape May	Middle	5	0	0	0	0	0	0	0	0	30
Clermont II	Cape May	Middle	97	0	0	0	0	2	2.1	2	2.1	3245
Amwell Road	Mercer	Hopewell	120	15	12.5	0	0	8	6.7	23	19.2	4415
Cheesquak State Park	Middlesex	Madison	0	0	0	0	0	0	0	0	0	5
Marle Road	Monmouth	Colts Neck	157	2	1.3	0	0	10	6.4	12	7.7	1125
Five Points Road	Monmouth	Colts Neck	42	0	0	0	0	0	0	0	0	285
Obre Road	Monmouth	Colts Neck	0	0	0	0	0	0	0	0	0	377
Turkey Swamp	Monmouth	Freehold	108	4	3.7	0	0	8	7.4	12	11.1	4381
Camp Nomoco	Monmouth	Freehold	0	0	0	0	0	0	0	0	0	2
Ely Harmony	Monmouth	Freehold	220	107	48.6	0	0	0	0	107	48.6	0
Five Points Water Tower	Monmouth	Freehold	14	0	0	0	0	2	14.3	2	14.3	84
Dylox Plot Georgia Road	Monmouth	Freehold	103	2	1.9	0	0	10	9.7	12	11.6	2485
Arnold Ave.	Monmouth	Howell	0	0	0	0	0	0	0	0	0	9013
Bennett Road	Monmouth	Howell	30	0	0	0	0	1	3.3	1	3.3	1485
Cranbury Road	Monmouth	Howell	237	4	1.7	0	0	17	7.2	21	8.9	4665
Catherine Street	Monmouth	Howell	0	0	0	0	0	0	0	0	0	3863
Georgia Road	Monmouth	Howell	186	19	10.2	0	0	7	3.8	26	14.0	2485
Howell Road	Monmouth	Howell	19	0	0	0	0	4	21.1	4	21.1	895
Buckalew Road	Monmouth	Howell	142	0	0	0	0	15	10.6	15	10.6	3545
Smithsburg	Monmouth	Manalapan	121	0	0	0	0	9	7.4	9	7.4	5440
Carley's Place	Monmouth	Marlboro	80	1	1.3	0	0	9	11.3	10	12.6	797
Beacon Hill	Monmouth	Marlboro	20	0	0	0	0	2	10.0	2	10.0	31
Old Mill Road	Monmouth	Marlboro	0	0	0	0	0	0	0	0	0	260
Reid's Hill Road	Monmouth	Marlboro	0	0	0	0	0	0	0	0	0	5
Cooper Road	Monmouth	Middletown	0	0	0	0	0	0	0	0	0	0
Berger's Mills	Monmouth	Millstone	82	0	0	0	0	12	14.6	12	14.6	6318
Camp Wanda	Monmouth	Millstone	231	3	1.3	0	0	3	1.3	6	2.6	2300
Essex Rd.	Monmouth	New Shrewsbury	115	1	0.9	0	0	9	7.8	10	8.7	407
Rockhockson Road	Monmouth	New Shrewsbury	0	0	0	0	0	0	0	0	0	1861
Hope Road	Monmouth	New Shrewsbury	89	0	0	0	0	2	2.2	2	2.2	1322
Reevytown	Monmouth	New Shrewsbury	200	0	0	0	0	26	13.0	26	13.0	4840
Freedom	Monmouth	Rumson	0	0	0	0	0	0	0	0	0	*
Arneytown	Monmouth	Upper Freehold	60	18	30.0	0	0	0	0	18	30.0	60

TABLE 48. PUPAE PARASITISM STUDY - 1972

(Continued)

South Jersey

Area	County	Township	No. of Pupae Collected	Brachymeria intermedia		Parasetigena agilis		Sturmia Scutellata		TOTAL		E.M./A
				#	%	#	%	#	%	#	%	
Cream Ridge	Monmouth	Upper Freehold	0	0	0	0	0	0	0	0	0	0
Allenwood	Monmouth	Wall	23	0	0	0	0	4	17.4	4	17.4	1217
Belmar Allenwood Road	Monmouth	Wall	100	0	0	0	0	3	3.0	3	3.0	160
Allenwood Lakewood Road	Monmouth	Wall	0	0	0	0	0	0	0	0	0	430
Wall Township Park	Monmouth	Wall	0	0	0	0	0	0	0	0	0	325
West 18th Street	Monmouth	Wall	150	1	0.7	0	0	24	16.0	25	16.7	1330
Hospital Road	Monmouth	Wall	170	0	0	0	0	13	7.6	13	7.6	1885
McDowell	Monmouth	Wall	0	0	0	0	0	0	0	0	0	84
Hurley Pond Road	Monmouth	Wall	100	1	1.0	0	0	6	6.0	7	7.0	6125
Martin Road	Monmouth	Wall	40	0	0	0	0	9	22.5	9	22.5	3677
Bennetts Mills Rd.	Ocean	Jackson	100	8	8.0	0	0	4	4.0	12	12.0	*
Bowman Road	Ocean	Jackson	80	2	2.5	0	0	0	0	2	2.5	760
Varhicksville	Ocean	Jackson	0	0	0	0	0	0	0	0	0	0
Burke Road	Ocean	Jackson	160	10	6.3	0	0	1	0.6	11	6.9	1605
Burke & Leming	Ocean	Jackson	128	3	2.3	0	0	4	3.1	7	5.4	1848
Bird Village	Ocean	Jackson	300	0	0	0	0	7	2.3	7	2.3	473
Clayton School	Ocean	Jackson	145	0	0	0	0	0	0	0	0	728
Cedar Bridge Rd.	Ocean	Jackson	0	0	0	0	0	0	0	0	0	2241
Colliers Mills I	Ocean	Jackson	24	0	0	0	0	0	0	0	0	18,216
Colliers Mills II	Ocean	Jackson	200	7	3.5	0	0	0	0	3.5		295
Freehold Cassville Road	Ocean	Jackson	300	0	0	0	0	20	6.7	20	6.7	5975
Bamber Lake	Ocean	Lacey	100	0	0	0	0	1	1.0	1	1.0	*
Beckerville	Ocean	Manchester	60	14	23.3	0	0	0	0	14	23.3	2510
Crestwood Village	Ocean	Manchester	80	0	0	0	0	1	1.3	1	1.3	25
Beachview Ave.	Ocean	Stafford	125	0	0	0	0	2	1.6	2	1.6	2107
Brookville	Ocean	Union	39	0	0	0	0	4	10.3	4	10.3	0

* = egg mass count was not conducted

TABLE 49. GYPSY MOTH PUPAL STUDY - HOST POPULATION DENSITY AND SEX RATIO, SURVIVAL RATES AND MORTALITY RATES

Date 1972 (July-August)

PL-103

Area	County	Township	Defoliation	% Mortality																				% Survived or Emerged	Winter Count EM/A			
				Pupae observed			Dehydrated			Diseased			% Parasitized															
													Brachymeria intermedia			Tachinid			Other			TOTAL						
				M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL				
Lake Pine	Burlington	Evesham	80-100	37.9	62.1	116	1.0	1.4	0.9	40.9	47.2	44.8	0	1.4	0.9	6.8	5.6	6.0	0	0	0	6.8	6.9	6.9	41.8	58.2	47.4	8,231
Medford Sod	Burlington	Southampton	80-100	48.6	51.4	111	1.9	1.8	1.8	37.0	33.0	35.1	0	0	0	1.9	1.8	1.8	0	0	0	1.9	1.8	1.8	47.1	59.9	61.3	6,093
Lower Bank	Burlington	Washington	60-79	33.3	66.7	132	0	2.3	1.5	27.3	19.3	22.0	2.3	0	0.8	0	3.4	0.3	2.3	1.1	1.5	4.5	4.5	4.5	31.6	68.4	72.0	3,492
--	Camden	Winslow	80-100	37.6	62.4	117	4.5	12.3	9.4	15.9	12.3	13.7	0	2.7	1.7	6.8	9.6	8.5	0	1.4	0.8	6.8	13.7	11.1	41.6	58.4	65.8	16,137
Clermont	Cape May	Middle	50-100	26.1	73.9	23	0	17.6	13.0	0	5.9	4.3	0	17.6	13.0	0	0	0	0	11.8	8.7	0	29.4	21.7	42.9	57.1	60.7	30
Clermont II	Cape May	Middle	0-19	4.9	95.1	102	0	3.1	2.9	20.0	4.1	4.9	0	0	0	0	0	0	0	0	0	0	0	0	4.3	95.7	92.2	3,245
Swaintown	Cape May	Middle	0-19	24.1	75.9	112	0	4.7	3.6	3.7	9.4	8.0	0	2.4	1.8	7.4	1.2	2.7	0	0	0	7.4	3.5	4.5	25.5	74.5	83.9	530
Whitesboro	Cape May	Middle	0-19	34.5	65.6	110	0	1.4	0.9	5.3	6.9	6.4	0	0	0	0	0	0	0	1.4	0.9	0	1.4	0.9	35.6	64.4	491.8	179
Doctor's Place	Cape May	Upper	0-19	10.3	89.7	116	0	1.9	1.7	0	6.7	6.3	0	0	0	0	2.9	2.6	0	1.9	1.7	0	4.8	4.3	11.8	88.2	87.2	*
Greenfield	Cape May	Upper	80-100	29.2	70.8	113	0	3.8	2.7	21.2	18.8	19.5	3.0	1.3	1.8	0	5.0	3.5	0	2.5	1.8	3.0	8.8	7.1	31.2	68.8	70.8	17,495
New Bridge Rd.	Cape May	Upper	0-19	12.1	87.9	107	23.1	2.1	4.7	0	7.4	6.5	0	0	0	0	0	0	0	0	0	0	0	0	10.5	89.5	88.9	280
Farmers	Cape May	Upper	80-100	67.9	32.1	112	1.3	2.8	1.8	23.7	8.3	15.8	1.3	0	0.9	1.3	0	0.9	0	0	0	2.6	0	1.8	63.2	36.8	77.7	9,805
South Mt. Rd.	Essex	Millburn	0	46.7	53.3	15	14.3	25.0	20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50.0	50.0	80.0	55
Bellwood Pk.Rd.	Hunterdon	Bethlehem	-	28.0	72.0	50	0	0	0	-	-	32.0	14.3	2.8	6.0	21.4	33.3	30.0	0	8.3	6	35.7	44.4	42.0	-	-	26.0	4,235
Rocktown	Hunterdon	East Amwell	40-50	34.0	66.0	50	11.8	6.1	8.0	5.9	2.1	8.0	11.8	12.1	12.0	0	9.1	6.0	0	15.2	10.0	11.8	36.4	28.0	42.9	57.1	56.0	800
Locktown	Hunterdon	Raritan	Light	48.0	52.0	25	8.3	23.1	16.0	0	15.4	8.0	0	15.4	16.0	8.3	15.4	12.0	8.3	15.4	12.0	16.7	46.2	32.0	31.8	18.2	44.0	210
Cherryville	Hunterdon	Raritan	Light	56.7	43.3	30	5.9	0	3.3	5.9	15.4	10.0	0	0	0	0	15.4	6.7	0	7.7	3.3	0	23.1	10.0	65.2	34.8	76.7	25
Croton	Hunterdon	Raritan	Heavy	34.0	66.0	50	0	3.0	2.0	23.5	24.2	24.0	29.4	15.2	20.0	0	9.1	6.0	17.6	18.2	18.0	47.1	42.5	44.0	33.3	66.7	30.0	13,755
Featherbed Lane	Hunterdon	Raritan	-	54.0	46.0	50	-	-	6.0	-	-	14.0	57.1	4.3	10.0	14.3	34.8	18.0	14.3	4.3	4.0	35.7	43.5	32.0	-	-	48.0	935
Rt. 579	Hunterdon	Union	-	24.0	76.0	50	-	-	2.0	-	-	8.0	33.3	21.1	24.0	8.3	31.6	26.0	8.3	2.6	4.0	69.9	55.2	54.0	-	-	36.0	4,930
Jamesburg Chicken Farm	Middlesex	Monroe	20-39	33.6	66.4	119	2.5	8.9	6.7	15.0	15.2	15.1	2.5	1.3	1.7	0	5.1	3.4	0	0	0	2.5	6.3	5.1	36.8	63.2	73.1	817
Jamesburg Camp Perrick	Middlesex	Monroe	90-100	50.8	49.2	125	3.9	10.2	8.0	34.2	53.3	41.6	2.6	0	1.6	0	0	0	1.3	0	0	2.6	0	1.6	71.4	28.6	50.4	470
Pine Grove Camp Ground	Middlesex	Monroe	0-19	31.3	68.8	16	0	9.1	6.3	20.0	18.2	18.8	0	0	0	0	9.1	6.3	20.0	0	6.3	20.0	9.1	12.5	30.0	70.0	63.6	0
Amwell Road Rt. 206	Mercer	Hopewell	0-19	43.9	56.1	114	4.0	12.5	8.8	36.0	23.4	28.9	12.0	9.4	10.5	10.0	14.1	12.3	4.0	15.6	10.5	26.0	39.1	33.3	51.5	48.5	28.9	4,415
Princeton	Mercer	Princeton	0-19	36.4	63.6	110	0	2.9	1.8	12.5	10.0	10.9	0	0	0	0	4.3	2.7	0	0	0	0	4.3	2.7	37.6	62.4	84.5	903
Earle #1	Monmouth	Colts Neck	80-100	65.5	34.5	110	4.2	0	2.7	36.1	34.2	35.5	23.6	5.3	17.3	6.9	13.2	9.1	4.2	5.3	4.5	34.7	23.7	30.9	52.9	47.1	30.9	*
Earle #2	Monmouth	Colts Neck	80-100	24.8	75.2	109	7.4	11.0	10.1	33.3	24.4	26.6	0	3.7	2.8	3.7	9.8	8.3	0	0	0	3.7	13.4	11.0	26.3	73.7	52.3	*
Earle #3	Monmouth	Colts Neck	40-59	32.5	67.5	123	0	1.2	0.8	37.5	55.4	49.6	15.0	0	4.9	0	3.6	2.4	0	1.2	0.8	15.0	4.8	8.1	37.3	62.7	41.5	.

TABLE 49. GYPSY MOTH PUPAL STUDY - HOST POPULATION DENSITY AND SEX RATIO, SURVIVAL RATES AND MORTALITY RATES
(continued)

Date 1972 (July-August)

				(continued)																												
Area	County	Township	% Defoliation	Pupae observed			Dehydrated			Diseased			% Mortality												Survived or Emerged			Winter Count EM/A				
													% Parasitized																			
				Brachymeria			Tachinid			Other			TOTAL																			
				M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL					
Earle #4	Monmouth	Colts Neck	40-59	29.7	70.3	101	3.3	8.5	6.9	13.3	16.9	15.8	16.7	1.4	5.9	6.7	4.2	50.0	0	0	0	23.3	5.6	10.9	26.5	73.5	67.3	*				
Earle #5	Monmouth	Colts Neck	40-59	40.2	59.8	107	7.0	14.1	11.2	25.6	43.8	36.4	23.3	1.6	10.3	0	0	0	0	0	0	23.3	1.6	10.3	42.2	57.8	42.1	*				
Earle #6	Monmouth	Colts Neck	40-59	72.0	28.0	107	6.5	3.3	5.6	40.3	26.7	36.4	13.0	16.7	14.0	2.6	0	1.9	1.3	0	0.9	16.9	16.7	16.8	63.6	36.4	41.1	*				
Earle #7	Monmouth	Colts Neck	20-39	24.8	75.2	113	0	9.4	7.1	25.0	20.0	21.2	3.6	2.4	2.7	0	1.2	0.9	0	1.2	0.9	3.6	4.7	4.4	26.3	73.7	67.3	*				
Earle #8	Monmouth	Colts Neck	20-39	24.3	75.7	111	0	2.4	1.8	7.4	19.0	16.2	0	0	0	0	6.0	4.5	0	1.2	0.9	0	7.1	5.4	29.4	70.6	76.6	*				
Earle #9	Monmouth	Colts Neck	40-59	58.6	41.4	111	0	6.5	2.7	30.8	30.4	30.6	49.2	23.9	38.7	3.1	4.3	3.6	0	2.2	0.9	52.3	30.4	43.2	42.3	57.7	23.4	*				
Earle #10	Monmouth	Colts Neck	40-59	47.5	52.5	120	3.5	6.3	5.0	22.3	39.7	31.7	24.6	4.8	14.2	1.8	3.2	2.5	0	0	0	26.3	7.9	16.7	48.2	51.8	46.7	*				
Earle #11	Monmouth	Colts Neck	20-39	22.2	77.8	117	3.8	3.3	3.4	19.2	29.7	27.4	0	0	0	0	5.5	4.3	0	0	0	0	5.5	4.3	27.2	72.7	65.8	*				
Earle #12	Monmouth	Colts Neck	40-59	20.2	79.8	104	9.5	12.0	11.5	14.3	20.5	19.2	4.8	2.4	2.9	0	6.0	4.8	0	6.0	4.8	4.8	14.5	12.5	25.0	75.0	57.7	*				
Earle #13	Monmouth	Colts Neck	-	47.3	52.7	112	0	1.7	0.9	24.5	15.3	19.6	50.9	33.9	42.0	0	5.1	2.7	0	0	0	50.9	32.0	44.6	33.3	66.7	34.8	*				
Earle #14	Monmouth	Colts Neck	40-59	14.0	86.0	114	0	4.1	3.5	18.8	24.5	23.7	0	0	0	0	2.0	1.8	0	0	0	0	2.0	1.8	16.0	84.0	71.1	*				
Earle #15	Monmouth	Colts Neck	40-59	12.6	87.4	111	0	1.0	0.9	14.3	30.9	28.8	0	1.0	0.9	0	11.3	9.9	0	0	0	0	12.4	10.8	17.6	82.4	61.3	*				
Earle #16	Monmouth	Colts Neck	40-59	17.5	82.5	103	11.1	7.1	7.8	5.6	32.9	28.2	0	0	0	0	1.2	1.0	0	0	0	0	1.2	1.0	22.7	77.3	64.1	*				
Earle #17	Monmouth	Colts Neck	0-19	15.6	84.4	102	0	3.3	2.8	0	14.1	11.9	0	0	0	0	0	0	0	0	0	0	0	0	18.3	81.7	85.3	*				
Earle #18	Monmouth	Colts Neck	40-59	36.9	63.1	103	0	6.2	3.9	13.2	18.5	16.5	0	0	0	5.3	4.6	4.9	2.6	1.5	1.9	7.9	6.2	6.8	40.0	60.0	72.8	*				
Earle #19	Monmouth	Colts Neck	40-59	43.9	56.1	114	2.0	4.7	3.5	42.0	31.6	23.4	2.0	1.6	1.8	10.0	7.8	8.8	0	1.6	0.9	12.0	10.9	11.4	35.5	64.5	56.4	*				
Earle #20	Monmouth	Colts Neck	40-59	11.6	88.4	112	0	1.0	0.9	38.5	24.2	25.9	0	0	0	0	3.0	2.7	0	0	0	0	3.0	2.7	10.1	89.9	70.5	*				
Hendrickson Rd. Monmouth	Freehold	100	33.9	66.1	115	0	5.3	3.5	12.8	30.3	24.3	23.1	10.5	14.8	2.6	1.3	1.7	2.6	2.6	2.6	28.2	14.5	19.1	37.7	62.3	53.0	3,723					
Spray Bk-1941 Ely-Harmony	Freehold	100	82.3	17.7	113	2,250	0	10.6	35.5	10.0	31.0	16.1	0	13.3	1.1	15.0	3.5	0	0	0	17.2	15.0	16.8	89.4	10.6	41.6	0					
East Freehold 1972- Bt.	Monmouth	Freehold	30-59	52.6	47.4	116	0	1.8	0.9	27.9	32.7	30.2	9.8	5.5	7.8	0	0	0	0	0	0	9.8	5.5	7.8	53.5	46.5	61.2	1,832				
Ely-Harmony	Monmouth	Freehold	60-79	45.2	54.8	115	1.9	12.7	7.8	15.4	19.0	17.4	51.9	15.9	32.2	5.8	9.5	7.8	0	3.2	1.7	57.7	28.6	41.7	34.2	65.8	33.0	0				
Turkey Swamp	Monmouth	Freehold	0-19	27.6	72.4	105	0	1.3	1.0	3.4	10.5	8.6	3.4	1.3	1.9	0	1.3	1.0	0	0	0	1.3	2.6	2.9	29.3	70.7	87.6	1				
Silom	Monmouth	Freehold	100	57.2	42.8	159	2,200	1.8	6.3	28.6	29.4	28.9	49.5	10.3	32.7	2.2	11.8	6.3	1.1	0	0.6	52.7	12.1	39.6	37.5	62.5	25.2	550				
Easttown	Monmouth	Howell	40-59	49.6	50.4	129	6.3	3.1	4.7	12.5	0	6.2	1.6	0	0.8	0	7.7	3.9	3.1	4.6	3.9	4.7	12.3	8.5	47.1	52.9	80.6	3,140				
Huckalew Rd.	Monmouth	Howell	40-59	34.7	65.3	101	0	4.5	3.0	14.3	15.2	14.9	0	0	0	0	4.5	3.0	0	4.5	3.0	0	9.1	5.9	39.0	61.0	76.2	3,545				
Smithburg 1972- Bt.	Monmouth	Millstone	60-79	31.2	68.8	109	0	6.7	4.6	29.4	26.7	27.5	5.9	0	1.8	2.9	13.3	10.1	0	0	0	8.8	13.3	11.9	34.4	65.6	56.0	5,440				
Allenwood	Monmouth	Wall	40-59	21.9	78.1	105	4.3	3.7	3.8	8.7	12.2	11.4	0	1.2	1.0	8.7	7.3	7.6	0	0	0	8.7	8.5	8.6	22.5	77.5	76.2	1,217				
Wall Twp. 1971	Monmouth	Wall	0-19	20.0	80.0	10	0	1.1	10.0	0	22.2	20.0	0	0	0	0	11.1	10.0	0	0	0	0	11.1	10.0	16.7	83.3	50.0	325				

TABLE 49. CYPSEY MOTH PUPAL STUDY - HOST POPULATION DENSITY AND SEX RATIO, SURVIVAL RATES AND MORTALITY RATES
(continued)

Date 1972 (July-August)

			% Defoliation	Pupae observed			Dehydrated			Diseased			% Mortality												Survived or Emerged			Winter Count EM/A				
% Parasitized																																
Brachymeria													Tachinid				Other				TOTAL											
Infermedica														Tachinid				Other				TOTAL								TOTAL		
M	F	TOTAL											M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL					M	F	TOTAL	M
Area	County	Township				M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL						
West 18th St Rockaway Valley Road	Monmouth	Wall	0-19	17.9	82.1	112	0	7.6	6.3	15.0	27.2	25.0	0	0	0	5.0	0	0.9	0	0	0	5.0	0	0.9	22.1	77.9	68.8	1,330				
Cedar Knolls	Morris	Boonton	10	76.0	24.0	25	0	0	0	26.2	50.0	32.0	0	0	0	57.9	16.7	48.0	0	0	0	57.9	16.7	48.0	60.0	40.0	20.0	(Collapsed)				
Ironia	Morris	Cedar Knolls	10	78.6	21.4	28	13.6	0	10.7	18.2	0	14.3	4.5	0	3.6	22.7	33.3	25.0	0	0	0	27.3	33.3	28.6	69.2	30.8	46.4	280				
Chester	Morris	Chester	Light-Mod.	60.0	40.0	30	5.6	0	3.3	5.6	8.3	6.7	0	16.7	6.7	16.7	16.7	16.7	16.7	0	10.0	33.3	33.3	33.3	58.3	41.2	56.7	310				
Whippany	Morris	Chester	Light-Mod.	40.0	60.0	30	0	0	0	16.7	16.7	16.7	16.7	22.2	20.0	25.0	33.3	30.0	0	0	0	41.7	55.6	50.0	50.0	50.0	33.3	370				
Callais Rd.	Morris	Hanover	Light	36.4	63.3	33	0	0	0	0	9.5	6.1	25.0	38.1	33.3	16.7	28.6	24.2	0	0	0	41.7	66.7	57.6	58.3	41.7	36.4	(collapsed)				
Buddlake	Morris	Mendham	Light	77.8	22.2	45	-	-	8.9	-	-	4.4	2.9	10.0	4.4	14.3	0	11.1	2.9	0	2.2	20.0	10.0	17.8	-	-	68.9	(collapsed)				
Hibernia Rd.	Morris	Mt. Olive	-	32.0	68.0	50	-	-	4.0	-	-	12.0	0	0	0	0	26.5	18.0	0	0	0	0	26.5	18.0	-	-	66.0	1,590				
Colliers Mill	Morris	Rockaway	10	66.7	33.3	15	10.0	0	6.7	10.0	20.0	13.3	0	0	0	30.0	60.0	40.0	0	0	0	30.0	60.0	40.0	33.3	16.7	40.0	(collapsed)				
Denville	Morris	Rockaway	10	70.0	30.0	20	0	16.7	5.0	21.4	16.7	20.0	7.1	0	5.0	42.9	0	30.0	0	0	0	50.0	0	35.0	50.0	50.0	40.0	(collapsed)				
Anderson Rd.	Morris	Rockaway	Light	28.6	71.4	14	0	0	0	0	0	0	50.0	30.0	35.7	0	50.0	35.7	0	0	0	50.0	30.0	35.7	50.0	50.0	28.6	630				
Country Rd. W.	Ocean	Jackson	40-59	30.5	69.5	118	0	6.1	4.2	0	8.5	5.9	8.3	0	2.5	0	0	0	0	0	0	8.3	0	2.5	32.0	68.0	87.3	235				
Cassville	Ocean	Jackson	0-19	33.5	66.5	102	0	2.9	2.0	14.7	4.4	7.8	0	2.9	2.0	5.9	2.9	3.9	0	4.4	2.9	5.9	10.3	8.8	32.5	67.5	81.4	649				
Leesville	Ocean	Jackson	20-39	36.6	63.4	112	2.4	1.4	1.8	9.8	1.4	4.5	2.4	1.4	1.8	0	4.2	2.7	0	0	0	2.4	5.6	4.5	35.0	65.0	89.3	4,333				
Coventry Rd. E.	Ocean	Jackson	80-100	42.0	58.0	119	0	2.9	1.7	14.0	24.6	20.2	0	0	0	0	0	0	0	0	0	0	0	0	46.2	53.8	78.2	5,375				
Bartley Rd.	Ocean	Jackson	80-100	29.4	70.6	119	2.9	7.1	5.9	20.0	29.8	26.9	0	0	0	2.9	2.4	2.5	0	1.2	0.8	2.9	3.6	3.4	34.2	65.8	63.2	5				
Bowman Rd.	Ocean	Jackson	80-100	39.3	60.7	107	0	3.1	1.9	28.6	32.3	30.8	19.0	6.2	11.2	0	0	0	0	0	0	19.0	6.2	11.2	36.7	63.3	56.1	12,361				
Eltone Rd.	Ocean	Jackson	40-59	51.0	49.0	104	1.0	1.9	2.9	30.2	4.8	20.2	0	1.0	1.0	1.9	0	1.0	1.0	1.0	1.0	1.9	1.9	3.8	44.7	55.2	73.1	5,872				
Lesler	Ocean	Jackson	100	42.6	57.4	122	0	1.4	0.8	25.0	20.0	22.1	21.2	7.1	13.1	7.7	10.0	9.0	0	1.4	0.8	28.8	40.0	23.0	36.4	63.6	54.1	21,191				
Bird Village	Ocean	Jackson	100	51.5	48.5	134	4.3	9.2	6.7	24.6	36.9	20.6	58.0	46.2	52.2	1.4	1.5	1.5	0	0	0	59.4	47.7	53.7	66.7	33.3	9.0	196				
Manhattan St.	Ocean	Jackson	100	48.0	52.0	125	5.0	6.2	5.6	28.3	29.2	28.8	30.0	20.0	24.8	5.0	6.2	5.6	1.7	0	0.8	36.7	26.2	31.2	41.9	58.1	34.4	14,120				
No. Lake Dr. Manchester School	Ocean	Jackson	100	51.6	48.4	109	7.1	13.2	10.1	35.7	34.0	34.9	35.2	18.9	27.5	1.8	5.7	3.7	0	0	0	37.5	24.5	31.2	42.3	57.7	23.9	422				
Leisure Village	Ocean	Jackson	100	79.2	20.8	130	4.9	11.1	6.2	21.4	11.1	19.2	37.9	37.0	37.7	4.9	3.7	4.6	0	0	0	42.7	40.7	42.3	76.2	23.8	32.3	142				
Edgeway	Ocean	Lakewood Boro	20-39	35.4	64.6	127	13.3	23.2	19.7	17.8	3.7	8.7	2.2	2.4	2.4	4.4	4.9	4.7	0	2.4	1.6	6.7	9.8	8.7	35.0	65.0	63.0	4,780				
Whiting	Ocean	Manchester	-	50.0	50.0	116	0	1.7	0.9	15.5	27.6	21.6	5.2	5.2	5.2	0	0	0	1.7	1.7	1.7	6.9	6.9	6.9	54.2	45.8	71.6	11,835				
	Ocean	Manchester	20-39	45.4	54.6	119	3.7	6.2	5.0	13.0	16.9	15.1	3.7	0	1.7	0	1.5	0.8	0	0	0	3.7	1.5	2.5	42.7	57.3	77.2	1,518				
	Ocean	Manchester	40-59	18.4	81.6	98	0	7.5	6.1	11.1	3.8	5.1	0	0	0	0	1.3	1.0	0	0	0	0	1.3	1.0	18.6	81.4	87.8	4,081				
	Ocean	Manchester	80-100	27.7	72.3	112	0	6.2	4.5	8.7	27.2	30.4	3.2	1.2	1.8	3.2	2.5	2.7	3.2	1.0	1.8	9.7	4.9	6.2	34.2	65.8	69.9	1,566				

TABLE 49. GYPSY MOTH PUPAL STUDY - HOST POPULATION DENSITY AND SEX RATIO, SURVIVAL RATES AND MORTALITY RATES
(continued)

Date 1972 (July-August)

(continued)				% Mortality																				Survived or Emerg'd			Winter Count EM/A		
Area	County	Township	% Defoliation	Pupae observed			Dehydrated			Diseased			% Parasitized																
				% M	% F	TOTAL	M	F	TOTAL	M	F	TOTAL	Brachymeria intermedia			Tachinid			Other			TOTAL			M	F	TOTAL		
Beach View Ave.	Ocean	Stafford	40-59	26.6	73.4	109	0	6.3	4.6	10.3	13.8	12.8	0	0	0	0	0	0	0	0	0	0	0	0	0	28.9	71.1	82.6	2,107
Rt. 534	Ocean	Union	20-39	37.4	62.6	107	0	0	0	7.5	17.9	14.0	0	0	0	0	1.5	0.9	0	0	0	0	1.5	0.9	40.7	59.3	85.0	2,228	
Rose Hill Blvd.	Ocean	Union	80	56.1	43.9	107	0	0	0	15.0	4.3	10.3	0	0	0	0	0	0	0	0	0	0	0	0	53.7	46.9	89.7	4,227	
Lower Shore Rd.	Ocean	Union	80-100	57.3	32.7	55	0	0	0	2.7	0	1.8	0	0	0	0	0	0	0	0	0	0	0	0	66.7	33.3	98.2	910	
Bedminster	Somerset	Bedminster	Light- Mod.	48.0	52.0	50	12.5	0	6.0	12.5	30.8	22.0	0	3.8	2.0	4.2	19.2	12.0	0	11.5	6.0	4.2	34.6	20.0	65.4	34.6	52.0	990	
Allen Rd.	Somerset	Bernards	-	68.0	32.0	50	-	-	10.0	-	-	38.0	8.8	25.0	14.0	26.5	43.8	32.0	0	0	0	35.3	68.8	46.0	-	-	6.0	215	
Stonehouse Rd.	Somerset	Bernards	-	45.0	55.0	20	0	0	0	-	-	20.0	22.2	0	10.0	11.1	27.3	20.0	0	0	0	33.3	27.3	30.0	-	-	50.0	(collapsed)	
Mt. Prospect Rd.	Somerset	Bernards	-	56.0	44.0	50	-	-	6.0	-	-	24.0	7.1	0	4.0	17.9	22.7	20.0	3.6	4.5	4.0	28.6	27.3	28.0	-	-	42.0	(collapsed)	
Sourland Mt. Martinsville	Somerset	Hills Borough	50-60	28.0	72.0	50	7.1	11.1	10.0	0	13.9	10.0	7.1	16.7	14.0	0	16.7	12.0	0	11.1	8.0	7.1	44.4	34.0	52.2	47.8	46.0	2,150	
Liberty Corner Rd.	Somerset	Warren	-	76.0	24.0	50	-	-	4.0	-	-	4.0	37.4	50.0	48.0	2.6	8.3	4.0	0	16.7	4.0	50.0	75.0	56.0	-	-	36.0	760	
Harmony Rd.	Somerset	Warren	-	35.0	65.0	40	-	-	5.0	-	-	50.0	0	3.8	2.5	14.3	42.3	32.5	0	3.8	2.5	14.3	50.0	37.5	-	-	52.5	500	
Jefferson LK.	Sussex	Byram	Heavy	37.5	62.5	40	40.0	4.0	17.5	6.7	16.0	12.5	0	0	0	0	24.0	15.0	13.3	28.0	22.5	13.3	52.0	37.5	46.2	53.8	32.5	(collapsed)	
Cranberry LK.	Sussex	Byram	-	42.0	58.0	50	-	-	36.0	-	-	10.0	0	3.4	2.0	9.5	6.9	8.0	0	0	0	9.5	10.3	10.0	-	-	44.0	285	
Springdale	Sussex	Fredon	Light- Mod.	60.7	39.3	28	0	0	0	0	0	0	0	0	0	17.6	36.4	25.0	0	0	0	17.6	36.4	25.0	66.7	33.3	75.0	545	
Swartswood	Sussex	Hampton	10	33.3	66.7	24	0	0	0	0	0	0	75.0	25.0	41.7	0	0	0	0	0	0	75.0	25.0	41.7	14.3	85.7	58.3	440	
Kemah Lake	Sussex	Hampton	Light	30.8	69.2	13	0	0	0	0	0	0	0	0	0	25.0	44.4	38.5	0	0	0	25.0	44.4	38.5	37.5	62.5	61.5	395	
Lake Stockholm	Sussex	Hardyston	Light	56.5	43.5	23	0	0	0	0	0	0	38.5	50.0	43.5	23.1	0	13.0	0	0	0	61.5	50.0	56.3	50.0	50.0	43.5	15	
Port Jervis	Sussex	Montague	-	33.3	66.7	21	-	-	19.0	0	0	0	0	0	0	57.1	14.3	28.6	0	0	0	57.1	14.3	28.6	-	-	52.4	95	
New Mill Rd.	Sussex	Montague	-	7.7	92.3	26	0	0	0	-	-	57.7	0	25.0	23.1	0	0	0	0	0	0	0	25.0	23.1	-	-	19.2	725	
Culvers Gap	Sussex	Sandyton	Light- Mod.	64.0	36.0	25	0	0	0	0	0	0	0	0	0	31.3	100.0	56.0	0	0	0	31.3	100.0	56.0	100.0	0	44.0	220	
Mill Brook I	Sussex	Wall Pack	-	41.9	58.1	43	0	0	0	-	-	14.0	0	16.0	9.3	11.1	28.0	20.9	27.8	8.0	16.3	38.9	52.0	46.5	-	-	39.5	645	
Watchung Res.	Union	Mountainside	30	42.5	57.5	40	-	-	7.5	-	-	27.5	0	4.3	2.5	5.9	39.1	25.0	0	0	0	5.9	43.5	27.5	-	-	37.5	575	
Maxton Falls	Warren	Allamuchy	Light- Mod.	19.0	81.0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19.0	81.0	100.0	215	
Blairtown	Warren	Blairtown	Moderate	38.1	61.9	21	0	0	0	0	0	0	50.0	23.0	33.3	25.0	38.5	33.3	0	0	0	75.0	61.5	66.7	28.6	71.4	33.3	185	
Old Mine Rd.	Warren	Pahaquarry	-	80.0	20.0	30	-	-	30.0	-	-	10.0	8.3	50.0	16.7	12.5	16.7	13.3	0	0	0	20.8	66.7	30.0	-	-	20.0	6,175	
Millbrook II	Warren	Pahaquarry	-	52.2	47.8	23	1.0	5.0	6.0	17.0	9.0	26.0	27.0	16.0	43.0	0	2.0	2.0	4.0	5.0	9.0	31.0	23.0	54.0	8	6	14.0	415	
Alpha	Warren	Pohatcong	Light	40.5	59.5	42	5.9	0	2.4	12.8	8.0	9.5	0	0	0	0	4.0	2.4	0	24.0	14.3	0	28.0	16.7	46.7	53.7	71.4	1,365	

Date 1972 (July-August)

				(continued)																								
Area	County	Township	% Defoliation	Pupae observed			Dehydrated			Diseased			Mortality												Survived or Emerged			Winter Count EM/A
				M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	Parasitized															
													Brachymeria intermedia			Tachinid			Other			TOTAL						
Cooper Rd.	Monmouth	Middletown	0	0	100.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Five Pts.	Monmouth	Colts Neck	40-59	28.0	72.0	100	0	9.7	7.0	14.3	13.9	14.0	0	1.4	1.0	0	2.8	2.0	0	0	0	4.2	3.0	31.6	68.4	75.0	285	
Howell Rd.	Monmouth	Howell	20-39	26.0	74.0	100	0	6.8	5.0	11.8	18.9	17.0	0	0	0	11.5	4.1	6.0	0	0	0	11.5	4.1	6.0	27.8	72.2	72.0	895
Dylow-Plot #2	Monmouth	Freehold	60-79	34.0	66.0	100	8.8	7.6	8.0	5.9	30.3	22.0	0	0	0	0	0	0	0	3.0	2.0	0	3.0	2.0	42.6	57.4	68.0	2,605
Georgia Rd. Shark River Park	Monmouth	Freehold	60-79	35.0	65.0	100	2.9	1.5	2.0	17.2	26.2	23.0	0	0	0	2.9	1.5	2.0	2.9	1.5	2.0	5.7	3.1	4.0	38.4	61.6	73.0	2,485
	Monmouth	Wall	20-39	34.8	65.2	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
Woodfield Rd.	Monmouth	Wall	20-39	35.0	65.0	100	5.7	10.8	9.0	17.1	16.9	17.0	0	0	0	0	3.1	2.0	0	0	0	0	3.1	2.0	37.5	62.5	72.0	10,300
Camp Wanda	Monmouth	Millstone	80-100	45.0	55.0	100	4.4	3.6	4.0	13.3	7.3	10.0	0	0	0	4.4	1.8	3.0	0	0	0	4.4	1.8	3.0	47.9	52.1	73.0	2,300
Berven Mills	Monmouth	Millstone	80-100	34.0	66.0	100	2.9	3.0	3.0	5.8	3.0	4.0	2.9	0	1.0	0	3.0	2.0	0	0	0	2.9	3.0	3.0	33.3	66.7	90.0	5,318
Arpaytown	Monmouth	Freehold	0-19	32.5	67.5	40	0	18.5	12.5	38.5	11.1	20.0	0	0	0	7.7	7.4	7.5	0	0	0	7.7	7.4	7.5	29.2	70.8	60.0	60
Birdsall Rd.	Monmouth	Howell	20-39	30.4	69.6	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70
* - Egg Mass Count was not conducted.																												

TABLE 50. IMPACT OF DYLOX 1.5 OIL ON CAGED GYPSY MOTH PARASITES

AREA	SPECIES	% MORTALITY PRE-TREATMENT	# INSECTS ALIVE IN CAGE		% MORTALITY POST-TREATMENT
			PRE-TREATMENT	POST-TREATMENT	
Dump (Treatment)	<u>B. intermedia</u>	1.3	148	143	3.3
	<u>Palexorista sp.</u>	6.7	140	3	97.9
	<u>C. turionellae</u>	4.0	144	78	45.8
Horse farm (Treatment)	<u>B. intermedia</u>	0.0	150	144	4.0
	<u>Palexorista sp.</u>	2.7	146	8	94.5
	<u>C. Turionellae</u>	8.0	138	43	68.8
Adelphia (Check)	<u>B. intermedia</u>	2.7	146	142	2.7
	<u>Palexorista sp.</u>	7.3	139	118	15.1
	<u>C. turionellae</u>	8.0	138	127	8.0
	SPECIES	AVERAGE % MORTALITY		% DIFFERENCE	
		TREATMENT	CHECK		
	<u>B. intermedia</u>	3.7	2.7	1.0	
	<u>Palexorista sp.</u>	96.2	15.1	81.1	
	<u>C. turionellae</u>	57.3	8.0	49.3	

Aerial Application of Bacillus thuringiensis Against the Gypsy Moth
In New Jersey Using Two Commercial Preparations, Dipel^R and Thuricide^R
1972-1973

Introduction

During the spring of 1972, the Bureau of Plant Laboratory, under a co-operative agreement with the U. S. Forest Service's Northeastern Forest Experiment Station, conducted an aerial application test of two commercial formulations of Bacillus thuringiensis against the gypsy moth, Porthetria dispar. The two formulations tested were Dipel, manufactured by Abbott Laboratories, and Thuricide H.P.C., manufactured by International Minerals and Chemical Corporation. Under the terms of the agreement, the test plots must be monitored for two years (1972-1973).

Procedures and Results

Plots - Twelve plots were established for the experiment: four plots for testing Dipel; four plots for Thuricide; and four check or control plots. Plots II, III, V, and IX were treated with Dipel. Plots IV, VII, VIII, and X were treated with Thuricide. Plots I, VI, XI, and XII were used as control plots. Plot sizes, measured in net acreage, were as follows: I, 207.5 acres; II, 40.5 acres; III, 65.0 acres; IV, 78.6 acres; V, 157.0 acres; VI, 135.5 acres; VII, 102.5 acres; VIII, 96.0 acres; IX, 95.3 acres; X, 127.0 acres; XI, no net acreage because plot consisted of five 0.1-acre subplots scattered over a wide area surrounding plots IX and X; and XII, 65.5 acres.

Within each of the plots were set up five 0.1-acre square subplots from which all the evaluation data was recorded.

White feed bags tied to the tops of trees marked the corners of the treated plots for application purposes. One feed bag was also placed atop a tree in each of the 0.1-acre subplots so that the subplots could be identified in aerial photographs.

Treatments - Two applications of material were made on each of the treated plots. The first application was scheduled to be made on first instar gypsy moth larvae when the oak foliage was at least 50 percent expanded. Some of the plots, however, were predominately of white oak composition and leaf expansion was not at the 50 percent level when the larvae were in the first instar. By the time the foliage was expanded enough in the plots to apply the material, the larvae were mostly late second and third instars. The second application was made about one week after the first.

Dosage Rates - Both materials were tested at equivalent eight billion International Units per acre. Both materials were applied at the rate of two gallons per acre final mix. The per-acre tank mix for Dipel was: one pound of Dipel, two quarts of Cargill Insecticide Base Concentrate, six ounces of Chevron Spray Sticker; to this was added enough water to make a final mix of two gallons. The per-acre tank mix for Thuricide H.P.C. was: two quarts of Thuricide H.P.C., two quarts of Cargill Insecticide Base Concentrate, and six ounces of Chevron Spray Sticker; to this was added enough water to make a final mix of two gallons.

Aircraft - The plane used for application was a Gruman Ag Cat, 450 horsepower, 250 gallon spray tank capacity, equipped with four "Beco" nozzles. One chase plane was also employed to insure proper application of the materials. Both aircraft were supplied by Downstown Aero Corp Service of Vineland.

Weather Conditions - The weather conditions in each of the plots at the time of application are recorded in Table 51. Plot VII was sprayed three times due to one and a half inches of rainfall less than two hours after the first application. The second application on Plot VII was made three days later with the third and final application eight days after the second application. Plots II and VIII were also sprayed the day of rainfall. Plot II was sprayed about four hours before the rain started, and Plot VIII was sprayed about three hours before the rain started. Plots II and VIII were not resprayed in order to test the weatherability of the materials. Plot II, as evidenced by the foliage protection, weathered very well. Although the foliage protection in Plot VIII was poor, leaf presses on agar plates taken three days following the first application produced some spores.

Temperature and humidity readings were taken in the plots by means of a Taylor sling psychrometer; the wind readings were taken by a hand-held Dwyer wind meter.

Egg Mass Counts - Pre-treatment and post-treatment egg mass counts were made in each of the 0.1-acre subplots to determine the density of the gypsy moth population in the plots. A complete search was made in the subplots by turning over rocks and fallen limbs and by using binoculars for examining upper branches of trees.

In cases where there was a possibility of counting old egg masses as new egg masses, an old mass/new mass ratio was determined. This was done by determining the percentage of "X" number of new egg masses within reach on the lower portion of the tree. All of the egg masses within the subplot were then counted and multiplied by the "new percentage" factor to determine more accurately the number of new egg masses per plot.

Three of the Dipel plots exhibited a population reduction after treatment averaging 65.1 percent; the fourth Dipel plot showed a 201.7 percent increase in population density. Three of the Thuricide plots exhibited a population reduction after treatment averaging 46.0 percent; the fourth plot showed a 56.5 percent increase in population density. Three of the control plots exhibited a population reduction due to the natural polyhedral virus disease averaging 90.7 percent; the fourth plot showed a 54.1 percent increase in population density. The data, as presented in Table 52, show the average percent reduction of egg masses in the treatments and the controls.

Egg Mass Viability - During the spring of 1972, before hatch, gypsy moth egg masses were collected from each of the plots to determine the percentage of hatch. Thirty egg masses were collected from each of the plots, three above the snow line and three below the snow line, in each of the five subplots. Each egg mass was individually set up in a five-ounce paper container with a plastic lid. The cups were stored at room temperature and checked every day. Each time the eggs were checked, the emerged larvae were counted and removed from the containers.

After larval emergence was complete, the egg masses were individually machine dehaired and analyzed. The number of parasitized eggs (by *Ooencyrtus kuwanae*) were counted and recorded. The number of unhatched eggs (not parasitized) were counted and recorded (Table 53). The following formulae were used in analysis of the egg mass viability:

1. Number of larvae + number of parasitized eggs + number of unhatched eggs = total number eggs/mass.
2. Percent hatch = $\frac{\text{number larvae}}{\text{total number eggs/mass}}$
3. Percent parasitism = $\frac{\text{number parasitized eggs}}{\text{total number eggs/mass}}$
4. Percent unhatched = $\frac{\text{number unhatched eggs}}{\text{total number eggs/mass}}$
5. Average percent (by plot) of hatch, parasitism, unhatched eggs = $\frac{\text{sum of individual percentages}}{\text{number samples collected}}$
6. Average percent (by treatment) of hatch, parasitism, unhatched eggs = $\frac{\text{sum of average plot percentages}}{4}$
7. Number larvae/acre by plot = (average number larvae emerged) X (egg masses/acre).

The percentage viability was not significantly different between the two treatments and controls, but due to the differences in egg masses per acre, there were more larvae in the Thuricide plots than in the Dipel plots; the control plots had the lowest number of larvae per acre (Table 54).

At the time of this report, the viability for the 1973 eggs was not completed.

Defoliation Estimates - Pre- and post-treatment ground and aerial defoliation estimates were conducted in each of the plots to determine the effectiveness of Bt. as a foliage protectant. The aerial estimates were made by the U. S. Forest Service using infrared photographs of the plots. The ground defoliation estimates were conducted by the N. J. Department of Agriculture.

Every tree (2 inches d.b.h. or greater) in each subplot was labelled and identified according to the tree species and d.b.h. Those trees having more than one stem, but having the same root system, were labelled with the same number, but each stem was given a different letter designation. Defoliation estimates were made on each stem. The day before the first application, ground defoliation estimates were made on each of the labelled trees. Twenty-percent ranges were used for the estimates. Post-treatment or final defoliation estimates were made 15 days after the recognition of the first gypsy moth pupa in each plot.

The technique used for the ground defoliation estimates is very subjective. For this reason, both the pre- and post-treatment estimates were made by the same personnel to avoid estimate variables. The technique was essentially an "eyeball guess" based on close examination of individual leaves and then examination of the entire tree with binoculars.

Table 55 shows the amount of defoliation experienced in each plot during 1972 and 1973.

Between the time of the first application and the end of larval feeding (1972), the Dipel plots experienced 19.4 percent defoliation, the Thuricide plots experienced 39.0 percent defoliation, and the control plots experienced 73.0 percent.

Spray Cards - Kromekote spray cards, supplied by the U. S. Forest Service, were placed in each of the treated plots. A total of ten cards was used in each subplot; five on each of the sides of the subplot which laid perpendicular to the line of flight of the spray plane. The cards were tacked atop wooden stakes which were driven into the ground and extended about 12 inches above the forest floor.

The spray cards were placed in the subplots immediately before application of the material and were removed no sooner than 30 minutes after application. Each card was labelled and sent to the U. S. Forest Service Experiment Station at Corvallis, Oregon, for analysis of spray deposit. Table 56 shows the results of that analysis by the U. S. Forest Service.

Burlap Bands - Ten burlap bands were placed on trees in each plot, but outside of the evaluation subplots. Collections of gypsy moth larvae and pupae were made from under the bands each week, except in plots VI and I where no gypsy moth were found under the burlaps near the end of the 1972 season due to high incidence of virus disease in the plot. The collected gypsy moth were reared on leaves in the field laboratory in paper containers to recover any parasites which may have attacked the gypsy moth. Emerging parasites were identified and recorded. A percentage of parasitism by species was determined for each collection date using the formula:

$$\text{Percent parasitism} = \frac{\text{number parasites recovered (by species)}}{\text{number gypsy moth collected}}$$

Separate percentages were determined on gypsy moth larvae and pupae collected on the same day (Table 57).

In plots I, VI, VII, and XII, no or very few parasites were recovered because the gypsy moth larvae died in the rearing cups from polyhedral virus before any parasites could develop and emerge from the host. It will be noticed in the table that Brachymeria intermedia, a gypsy moth pupal parasite, is only abundant in the control plots. This is not attributive to any effect of the Bt.; B. intermedia seems to be more effective in areas where there is a great deal of sunlight (NJDA parasite evaluation data) as in the case of the control plots where 100 percent defoliation was experienced.

At the time of this report, analysis of the burlap band data for 1973 was not complete.

Gypsy Moth Pupal Counts - Two gypsy moth pupal studies were made in the experimental plots. The first study was conducted as directed by the U. S. Forest Service under the conditions of the experiment; the second study was conducted as part of a continuing program of the N. J. Department of Agriculture.

In the U. S. Forest Service pupal counts a maximum of 500 pupae were examined at each 0.1-acre subplot, or no more than four man hours were spent in each 100-acre plot. Pupae were counted and recorded by sex and emerged or not emerged (Table 56). Average plot percentages were determined by: Average percent = $\frac{\text{sum of subplot percentages}}{5}$.

In the N. J. Department of Agriculture pupal counts, about 100 pupae were examined in each 100-acre plot. The pupae were counted and recorded by sex, dehydration, disease, parasitism (by species where possible), and emerged.

From the data (Table 59) it can be seen that the percentage of female larval survival was greater in the treated plots than in the control plots, that the percentage of pupal dehydration and disease was greater in the control plots, and that the percentage of adult emergence was greater in the treated plots. The effect of pupal parasitism was not significantly different between the treated and untreated plots except in the case of parasitism by Brachymyia intermedia where the effectiveness of this parasite is dependent on the amount of defoliation experienced and not on the treatment. At the time of this report, analysis of the 1973 pupal study data was not complete.

Conclusion and Discussion

If 35 percent is considered as a maximum level of acceptable defoliation, Bacillus thuringiensis, as applied in New Jersey, protected the foliage for one year in six of the eight experimental plots; four Dipel plots, and two Thuricide plots. The degree of population reduction in the treated areas during 1972, however, was not sufficient enough to prevent defoliation in 1973.

(Text resumes on page PI-139, following Tables 51 through 59.)

TABLE 51. 1972 - Bt. FIELD TRIALS - NEW JERSEY
WEATHER CONDITIONS AT TIME OF APPLICATION

Plot	Application Dates	Temperature (°F)	Wind (mph)	Relative Humidity (%)
II	May 19, 1972	58	3-5	88
	May 30, 1972	60	5-7	70
III	May 22, 1972	55	0-3	65
	June 1, 1972	68	3-5	70
IV	May 22, 1972	65	0-2	90
	June 1, 1972	65	3-5	35
V	May 23, 1972	55	0-3	40
	June 1, 1972	70	3-5	35
VII	May 19, 1972	60	3-5	90
	May 22, 1972	60	8	70
	May 30, 1972	65	5	90
VIII	May 19, 1972	60	0-3	70
	June 1, 1972	65	5	90
IX	May 23, 1972	55	0-2	94
	June 1, 1972	70	6-7	40
X	May 23, 1972	50	7-8	20
	June 1, 1972	65	6-7	40

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TABLE 52. 1972 - Et. FIELD TRIALS - NEW JERSEY

EGG MASS COUNTS

Plot	Subplot	Egg Masses/A		%	Increase/Decrease
		Pre-Treatment	Post-Treatment		
I	1	3,300	170	94.9	(-)
	2	3,290	190	94.2	(-)
	3	4,140	80	98.1	(-)
	4	3,410	410	88.0	(-)
	5	2,720	130	95.2	(-)
I	Average	3,372	196	94.2	(-)
II	1	9,990	2,376	76.2	(-)
	2	7,320	920	87.4	(-)
	3	18,940	475	97.5	(-)
	4	14,050	1,244	91.1	(-)
	5	10,380	1,074	89.7	(-)
II	Average	12,136	1,217	90.0	(-)
III	1	290	60	79.3	(-)
	2	840	150	82.1	(-)
	3	5,090	3,255	34.9	(-)
	4	710	361	49.2	(-)
	5	3,590	1,359	62.1	(-)
III	Average	2,086	1,037	50.3	(-)
IV	1	4,520	30	99.3	(-)
	2	9,870	11,384	15.3	(+)
	3	6,690	22,776	240.4	(+)
	4	8,280	6,752	18.5	(-)
	5	10,140	20,864	105.8	(+)
IV	Average	7,900	12,361	56.5	(+)
V	1	1,760	5,472	210.9	(+)
	2	1,380	4,776	246.1	(+)
	3	1,940	4,472	130.5	(+)
	4	1,290	4,158	222.3	(+)
	5	910	3,087	239.2	(+)
V	Average	1,456	4,393	201.7	(+)
VI	1	3,350	80	97.6	(-)
	2	1,370	70	94.9	(-)
	3	4,020	70	98.3	(-)
	4	2,600	400	84.6	(-)
	5	3,560	90	97.5	(-)
VI	Average	2,980	142	95.2	(-)
VII	1	11,850	10,328	12.8	(-)
	2	5,210	5,632	8.1	(+)
	3	4,670	7,280	55.9	(+)
	4	7,490	2,784	62.8	(-)
	5	12,130	3,332	72.5	(-)
VII	Average	8,270	5,672	29.0	(-)

TABLE 52. 1972 - Bt. FIELD TRIALS - NEW JERSEY
(continued)

EGG MASS COUNTS

Plot	Subplot	Egg Masses/A		(+)	(-)
		Pre-Treatment	Post-Treatment	% Increase/Decrease	
VIII	1	3,810	1,338	64.9	(-)
	2	7,110	3,024	57.4	(-)
	3	2,570	4,686	82.3	(+)
	4	3,880	3,576	7.8	(-)
	5	5,050	5,294	18.7	(+)
VIII	Average	4,484	3,723	17.2	(-)
IX	1	4,330	1,548	64.2	(-)
	2	6,400	2,952	53.9	(-)
	3	6,640	2,652	60.1	(-)
	4	1,600	368	77.0	(-)
	5	5,750	3,620	37.0	(-)
IX	Average	4,944	2,228	54.9	(-)
X	1	10,720	85	99.2	(-)
	2	1,450	16	98.9	(-)
	3	6,180	72	98.8	(-)
	4	3,430	58	98.3	(-)
	5	2,390	1,674	30.0	(-)
X	Average	4,834	381	92.1	(-)
XI	1	940	6,136	552.8	(+)
	2	1,650	3,296	99.8	(+)
	3	1,730	2,844	64.4	(+)
	4	1,557	849	45.5	(-)
	5	4,750	3,248	31.6	(-)
XI	Average	2,125	3,274	54.1	(+)
XII	1	1,870	760	59.4	(-)
	2	4,180	1,300	68.9	(-)
	3	3,830	59	98.5	(-)
	4	2,910	116	96.0	(-)
	5	3,030	515	83.0	(-)
XII	Average	3,164	550	82.6	(-)
	Dipel	5,155	1,775	65.6	(-)
	Thuricide	6,372	4,467	29.9	(-)
	Control	2,910	832	71.4	(-)

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Number Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
I	1a - AS	255	66.4	101	26.3	28	7.3	384
	1b - AS	346	63.3	189	34.6	12	2.2	547
	1c - AS	497	63.0	190	24.1	95	12.0	789
	1a - BS	40	24.8	67	41.6	54	33.5	161
	1b - BS	547	70.9	207	26.8	18	2.3	772
	1c - BS	403	70.2	142	24.7	29	5.1	574
	2a - AS	438	67.8	195	30.2	13	2.0	646
	2b - AS	537	80.5	111	16.6	19	2.8	667
	2c - AS	285	63.9	140	31.4	21	4.7	446
	2a - BS	1029	87.0	145	12.3	9	0.8	1183
	2b - BS	401	83.0	70	14.5	12	2.5	483
	2c - BS	338	70.4	101	21.0	41	8.5	480
	3a - AS	410	65.5	203	32.4	13	2.1	626
	3b - AS	427	61.4	243	34.9	26	3.7	696
	3c - AS	283	82.0	54	15.7	8	2.3	345
	3a - BS	174	51.6	129	38.3	34	10.1	337
	3b - BS	283	81.3	52	14.9	13	3.7	348
	3c - BS	529	76.8	87	12.6	73	10.6	689
	4a - AS	508	80.8	109	17.3	12	1.9	629
	4b - AS	361	62.8	198	34.4	16	2.8	575
	4c - AS	372	82.1	60	13.2	21	4.6	453
	4a - BS	226	71.3	66	20.8	25	7.9	317
	4b - BS	225	68.2	101	30.6	4	1.2	330
	4c - BS	199	52.0	132	34.5	52	13.6	383
	5a - AS	655	79.0	129	15.3	47	5.6	841
	5b - AS	202	58.6	143	41.4	0	0	345
	5c - AS	353	69.6	127	25.0	27	5.3	507
	5a - BS	519	76.7	110	16.2	48	7.1	677
	5b - BS	304	72.7	73	17.5	41	9.8	418
	5c - BS	583	74.5	149	19.0	51	6.5	783

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Number Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
II	1a - AS	185	61.9	96	32.1	18	6.0	299
	1b - AS	122	48.8	103	41.2	25	10.0	250
	1c - AS	193	45.1	110	25.7	125	29.2	428
	1a - BS	227	64.9	101	28.9	22	6.3	350
	1b - BS	121	63.0	30	15.6	41	21.4	192
	1c - BS	307	81.2	42	11.1	29	7.7	378
	2a - AS	216	78.3	43	15.6	17	6.2	276
	2b - AS	75	46.9	69	43.1	16	10.0	160
	2c - AS	219	82.0	29	10.9	19	7.1	267
	2a - BS	311	86.6	48	13.4	0	0	359
	2b - BS	255	77.7	67	20.4	6	1.8	328
	2c - BS	57	57.0	30	30.0	13	13.0	100
	3a - AS	169	72.5	57	24.5	7	3.0	233
	3b - AS	147	74.6	50	25.4	0	0	197
	3c - AS	106	60.6	69	39.4	0	0	175
	3a - BS	248	73.2	65	19.2	26	7.7	339
	3b - BS	49	19.6	59	23.6	142	56.8	250
	3c - BS	42	37.8	22	19.8	47	42.3	111
	4a - AS	544	82.4	78	11.8	38	5.8	660
	4b - AS	102	50.0	95	46.6	7	3.4	204
	4c - AS	234	70.7	68	20.5	29	8.8	331
	4a - BS	34	68.0	16	32.0	0	0	50
	4b - BS	134	53.8	59	23.7	56	22.5	249
	4c - BS	80	43.2	69	37.3	36	19.5	185
	5a - AS	161	83.0	33	17.0	0	0	194
	5b - AS	165	59.4	87	31.3	26	9.4	278
	5c - AS	103	53.4	66	34.2	24	12.4	193
	5a - BS	222	59.5	139	37.3	12	3.2	373
	5b - BS	243	61.8	98	24.9	52	13.2	393
	5c - BS	138	50.7	109	40.1	25	9.2	272

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Number Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
III	1a - AS	489	87.6	46	8.2	23	4.1	558
	1b - AS	453	74.1	90	14.7	68	11.1	611
	1c - AS	246	52.8	187	40.1	33	7.1	466
	1a - BS	547	85.1	83	12.9	13	2.0	643
	1b - BS	275	50.1	216	39.3	58	10.6	549
	1c - BS	419	73.5	127	22.3	24	4.2	570
	2a - AS	573	91.7	38	6.1	14	2.2	625
	2b - AS	632	64.9	279	28.6	63	6.5	974
	2c - AS	189	73.3	69	26.7	0	0	258
	2a - BS	482	79.7	76	12.6	47	7.8	605
	2b - BS	215	53.9	169	42.4	15	3.8	399
	2c - BS	395	66.7	164	27.7	33	5.6	592
	3a - AS	323	86.4	33	8.8	18	4.8	374
	3b - AS	297	51.9	213	37.2	62	10.8	572
	3c - AS	276	58.4	99	20.9	98	20.7	473
	3a - BS	190	56.9	103	30.8	41	12.3	334
	3b - BS	202	59.8	103	30.5	33	9.8	338
	3c - BS	303	64.7	150	32.1	15	3.2	468
	4a - AS	293	57.1	84	16.4	136	26.5	513
	4b - AS	241	57.1	155	36.7	26	6.2	422
	4c - AS	325	67.7	119	24.8	36	7.5	480
	4a - BS	350		Sample lost				
	4b - BS	6	5.8	86	83.5	11	10.7	103
	4c - BS	232	83.2	38	13.6	9	3.2	279
	5a - AS	97	44.7	108	49.8	12	5.5	217
	5b - AS	220	58.7	133	35.5	22	5.9	375
	5c - AS	205	65.7	95	30.4	12	3.8	312
	5a - BS	204		Sample lost				
	5b - BS	193	44.8	213	49.4	25	5.8	431
	5c - BS	132	43.6	161	53.1	10	3.3	303

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Number Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
IV	1a - AS	279	68.2	102	24.9	28	6.8	409
	1b - AS	447	77.2	110	19.0	22	3.8	579
	1c - AS	82	20.2	222	54.7	102	25.1	406
	1a - BS	184	54.3	79	23.3	76	22.4	339
	1b - BS	74	25.3	65	22.2	154	52.6	293
	1c - BS	271	76.8	69	19.5	13	3.7	353
	2a - AS	390	68.1	163	28.4	20	3.5	573
	2b - AS	263	74.7	79	22.4	10	2.8	352
	2c - AS	443	86.2	63	12.3	8	1.6	514
	2a - BS	8	2.9	40	14.5	227	82.5	275
	2b - BS	424	75.2	68	12.1	72	12.8	564
	2c - BS	228	63.2	101	27.8	32	8.9	361
	3a - AS	296	78.1	49	12.9	34	9.0	379
	3b - AS	318	72.6	117	26.7	3	0.7	438
	3c - AS	200	78.1	49	19.1	7	2.7	256
	3a - BS	269	56.2	170	35.5	40	8.3	479
	3b - BS	294	70.3	95	22.7	29	6.9	418
	3c - BS	267	69.9	81	21.2	34	8.9	382
	4a - AS	289	73.4	70	17.8	35	8.9	394
	4b - AS	293	68.9	104	24.5	28	6.6	425
	4c - AS	377	67.9	147	26.5	31	5.6	555
	4a - BS	217	70.0	87	28.1	6	1.9	310
	4b - BS	230	55.3	116	27.9	70	16.8	416
	4c - BS	138	47.8	119	41.2	32	11.1	289
	5a - AS	408	76.8	52	9.8	71	13.4	531
	5b - AS	300	64.0	148	31.6	21	4.5	469
	5c - AS	293	81.2	61	16.9	7	1.9	361
	5a - BS	47	24.0	122	62.2	27	13.8	196
	5b - BS	185	54.4	100	29.4	55	16.2	340
	5c - BS	224	66.1	99	29.2	16	4.7	339

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

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Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Number Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
V	1a - AS	203	81.9	33	13.3	12	4.8	248
	1b - AS	337	77.1	88	20.1	12	2.7	437
	1c - AS	125	48.3	130	50.2	4	1.5	259
	1a - BS	33	16.3	126	62.4	43	21.3	202
	1b - BS	425	78.0	98	18.0	22	4.0	545
	1c - BS	426	78.0	112	20.5	8	1.5	546
	2a - AS	585	78.1	133	17.8	31	4.1	749
	2b - AS	524	77.9	97	14.4	52	7.7	673
	2c - AS	388	70.7	142	25.9	19	3.5	549
	2a - BS	368	77.6	99	20.9	7	1.5	474
	2b - BS	352	74.1	109	22.9	14	2.9	475
	2c - BS	202	82.1	44	17.9	0	0	246
	3a - AS	266	63.5	56	13.4	97	23.2	419
	3b - AS	396	80.2	91	18.4	7	1.4	494
	3c - AS	558	72.8	176	23.0	32	4.2	766
	3a - BS	597		Sample lost				
	3b - BS	380	61.2	123	19.8	118	19.0	621
	3c - BS	343	84.3	15	3.7	49	12.0	407
	4a - AS	314	77.1	82	20.1	11	2.7	407
	4b - AS	299	69.4	117	27.1	15	3.5	431
	4c - AS	215	77.3	53	19.1	10	3.6	278
	4a - BS	678	82.3	112	13.6	34	4.1	824
	4b - BS	660	85.7	92	11.9	18	2.3	770
	4c - BD	178	69.8	77	30.2	0	0	255
	5a - AS	259	75.5	77	22.4	7	2.0	343
	5b - AS	284	56.0	135	26.7	88	17.4	507
	5c - AS	50	27.8	121	67.2	9	5.0	180
	5a - BS	353	83.1	59	13.9	13	3.1	425
	5b - BS	378	63.9	203	34.3	11	1.9	592
	5c - BS	266	49.0	226	41.6	51	9.4	543

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Number Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
VI	1a - AS	545	84.8	36	5.6	62	9.6	643
	1b - AS	339	71.7	106	22.4	28	5.9	473
	1c - AS	381	68.8	140	25.3	33	6.0	554
	1a - BS	324	87.8	24	6.5	21	5.7	369
	1b - BS	224	78.6	37	13.0	24	8.4	285
	1c - BS	236	64.7	113	31.0	16	4.4	365
	2a - AS	239	50.2	184	38.7	53	11.1	476
	2b - AS	295	71.6	80	19.4	37	9.0	412
	2c - AS	223	72.6	51	16.6	33	10.7	307
	2a - BS	139	41.7	77	23.1	117	35.1	333
	2b - BS	271	80.9	52	15.5	12	3.6	335
	2c - BS	335	76.7	102	23.3	0	0	437
	3a - AS	121	55.8	96	44.2	0	0	217
	3b - AS	210	52.6	176	44.1	13	3.3	399
	3c - AS	203	61.3	128	38.7	0	0	331
	3a - BS	101	34.1	79	26.7	116	39.2	296
	3b - BS	306	76.5	94	23.5	0	0	400
	3c - BS	175	70.9	72	29.1	0	0	247
	4a - AS	449	69.0	161	24.7	41	6.3	651
	4b - AS	316	68.8	143	31.1	0	0	459
	4c - AS	232	62.5	121	32.6	18	4.9	371
	4a - BS	188	50.4	77	20.6	108	29.0	373
	4b - BS	114	37.9	75	24.9	112	37.2	301
	4c - BS	104	26.8	76	19.6	208	53.6	388
	5a - AS	205	64.5	90	28.3	23	7.2	318
	5b - AS	151	51.2	131	44.4	13	4.4	295
	5c - AS	188	49.2	194	50.8	0	0	382
	5a - BS	253	59.4	136	31.9	37	8.7	426
	5b - BS	193	73.7	69	26.3	0	0	262
	5c - BS	249	78.8	67	21.2	0	0	316

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	Number Eggs/Mass
VII	1a - AS	624	76.3	184	22.5	10	1.2	818
	1b - AS	148	42.8	73	21.1	125	36.1	346
	1c - AS	317	79.4	61	15.3	21	5.3	399
	1a - BS	116	72.5	44	27.5	0	0	160
	1b - BS	123	65.4	65	34.6	0	0	188
	1c - BS	198	79.8	50	20.2	0	0	248
	2a - AS	650	91.7	48	6.8	11	1.6	709
	2b - AS	379	75.3	74	14.7	50	9.9	503
	2c - AS	222	54.7	167	41.1	17	4.2	406
	2a - BS	259	34.4	95	12.6	400	53.1	754
	2b - BS	110	28.4	78	20.1	200	51.5	388
	2c - BS	233	58.5	122	30.7	43	10.8	398
	3a - AS	360	60.1	197	32.9	42	7.0	599
	3b - AS	418	69.0	146	24.1	42	6.9	606
	3c - AS	226	42.3	101	18.9	207	38.8	534
	3a - BS	317	76.6	69	16.7	28	6.8	414
	3b - BS	250	78.6	30	9.4	38	11.9	318
	3c - BS	356	73.9	48	10.0	78	16.2	482
	4a - AS	371	74.9	107	21.6	17	3.4	495
	4b - AS	386	80.1	65	13.5	31	6.4	482
	4c - AS	395	83.5	59	12.5	19	4.0	473
	4a - BS	275	79.7	48	13.9	22	6.4	345
	4b - BS	229	76.6	64	21.4	6	2.0	299
	4c - BS	301	80.7	57	15.3	15	4.0	373
	5a - AS	253	73.5	81	23.5	10	2.9	344
	5b - AS	79	29.9	46	17.4	139	52.7	264
	5c - AS	264	65.3	118	29.2	22	5.4	404
	5a - BS	171	65.0	60	22.8	32	12.2	263
	5b - BS	232	73.4	17	5.4	67	21.2	316
	5c - BS	309	65.3	113	23.9	51	10.8	473

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Number Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
VIII	1a - AS	268	70.5	78	20.5	34	8.9	380
	1b - AS	179	79.9	45	20.1	0	0	224
	1c - AS	173	75.5	56	24.5	0	0	229
	1a - BS	135	63.7	62	29.2	15	7.1	212
	1b - BS	169	58.3	33	11.4	88	30.3	290
	1c - BS	277	96.2	11	3.8	0	0	288
	2a - AS	310	77.1	92	22.9	0	0	402
	2b - AS	281	63.0	152	34.1	13	2.9	446
	2c - AS	208	56.1	128	34.5	35	9.4	371
	2a - BS	246	70.7	75	21.6	27	7.8	348
	2b - BS	138	43.8	96	30.5	81	25.7	315
	2c - BS	222	70.0	95	30.0	0	0	317
	3a - AS	395	63.7	189	30.5	36	5.8	620
	3b - AS	259	66.6	120	30.8	10	2.6	389
	3c - AS	400	62.0	228	35.3	17	2.6	645
	3a - BS	254	71.1	92	25.8	11	3.1	357
	3b - BS	195	57.4	87	25.6	58	17.1	340
	3c - BS	256	78.3	61	18.7	10	3.1	327
	4a - AS	309	77.8	76	19.1	12	3.0	397
	4b - AS	346	79.7	79	18.2	9	2.1	434
	4c - AS	225	67.6	71	21.3	37	11.1	333
	4a - BS	57	20.1	127	44.7	100	35.2	284
	4b - BS	109	47.8	69	30.3	50	21.9	228
	4c - BS	157	47.3	85	25.6	90	27.1	332
	5a - AS	480	84.8	86	15.2	0	0	566
	5b - AS	214	68.4	99	31.6	0	0	313
	5c - AS	295	70.6	95	22.7	28	6.7	418
	5a - BS	160	72.1	62	27.9	0	0	222
	5b - BS	240	73.6	75	23.0	11	3.4	326
	5c - BS	199	83.6	39	16.4	0	0	238

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Number Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
IX	1a - AS	194	61.2	115	36.3	8	2.5	317
	1b - AS	176	72.1	56	23.0	12	4.9	244
	1c - AS	230	65.9	84	24.1	35	10.0	349
	1a - BS	71	66.4	36	33.6	0	0	107
	1b - BS	19	19.4	38	38.8	41	41.8	98
	1c - BS	63	63.0	29	29.0	8	8.0	100
	2a - AS	204	57.5	109	30.7	42	11.8	355
	2b - AS	164	47.0	172	49.3	13	3.7	349
	2c - AS	226	74.3	78	25.7	0	0	304
	2a - BS	200	67.8	51	17.3	44	14.9	295
	2b - BS	180	56.8	94	29.7	43	13.6	317
	2c - BS	335	65.3	88	17.2	90	17.5	513
	3a - AS	89	53.6	57	34.3	20	12.0	166
	3b - AS	164	57.7	66	23.2	54	19.0	284
	3c - AS	194	72.7	65	24.3	8	3.0	267
	3a - BS	197	69.6	86	30.4	0	0	283
	3b - BS	176	59.7	119	40.3	0	0	295
	3c - BS	355	69.1	122	23.7	37	7.2	514
	4a - AS	303	67.9	143	32.1	0	0	446
	4b - AS	321	85.4	44	11.7	11	2.9	376
	4c - AS	328	67.6	157	32.4	0	0	485
	4a - BS	28	8.6	87	26.8	210	64.6	325
	4b - BS	228	79.4	23	8.0	36	12.5	287
	4c - BS	389	81.0	69	14.4	22	4.6	480
	5a - AS	45	52.9	14	16.5	26	30.6	85
	5b - AS	280	55.6	134	26.6	90	17.9	504
	5c - AS	281	73.2	77	20.1	26	6.8	384
	5a - BS	462	86.2	74	13.8	0	0	536
	5b - BS	360	80.9	51	11.5	34	7.6	445
	5c - BS	325	69.0	93	19.7	53	11.3	471

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Number Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
X	1a - AS	241	85.5	33	11.7	8	2.8	282
	1b - AS	201	76.4	43	16.3	19	7.2	263
	1c - AS	193	67.0	95	33.0	0	0	288
	1a - BS	172	51.2	110	32.7	54	16.1	336
	1b - BS	152	53.7	73	25.8	58	20.5	283
	1c - BS	222	77.9	33	11.6	30	10.5	285
	2a - AS	156	79.2	25	12.7	16	8.1	197
	2b - AS	288	72.2	111	27.8	0	0	399
	2c - AS	241	72.2	80	24.0	13	3.9	334
	2a - BS	253	67.3	111	29.5	12	3.2	376
	2b - BS	275	82.3	44	13.2	15	4.5	334
	2c - BS	159	55.4	100	34.8	28	9.8	287
	3a - AS	161	71.6	64	28.4	0	0	225
	3b - AS	174	73.4	63	26.6	0	0	237
	3c - AS	244	86.8	27	9.6	10	3.6	281
	3a - BS	248	78.2	52	16.4	17	5.4	317
	3b - BS	127	58.8	77	35.6	12	5.6	216
	3c - BS	186	65.7	89	31.4	8	2.8	283
	4a - AS	394	79.4	92	18.5	10	2.0	496
	4b - AS	454	83.3	91	16.7	0	0	545
	4c - AS	189	65.9	87	30.3	11	3.8	287
	4a - BS	208	34.7	285	47.6	106	17.7	599
	4b - BS	403	70.3	140	24.4	30	5.2	573
	4c - BS	263	81.4	60	18.6	0	0	323
	5a - AS	564	76.1	159	21.5	18	2.4	741
	5b - AS	451	93.0	31	6.4	3	0.6	485
	5c - AS	198	65.3	98	32.3	7	2.3	303
	5a - BS	127	69.8	55	30.2	0	0	182
	5b - BS	273	72.4	70	18.6	34	9.0	377
	5c - BS	141	56.2	57	22.7	53	21.1	251

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
XI	1a - AS	580	87.6	61	9.2	21	3.2	662
	1b - AS	173	26.1	204	30.7	287	43.2	664
	1c - AS	842	71.5	242	20.5	94	8.0	1,178
	1a - BS	478	68.3	124	17.7	98	14.0	700
	1b - BS	472	88.2	39	7.3	24	4.5	535
	1c - BS	272	64.2	68	16.0	84	19.8	424
	2a - AS	292	84.4	30	8.7	24	6.9	346
	2b - AS	195	61.1	104	32.6	20	6.3	319
	2c - AS	531	78.2	129	19.0	19	2.8	679
	2a - BS	242	43.4	133	23.8	183	32.8	558
	2b - BS	130	76.5	7	4.1	33	19.4	170
	2c - BS	88	23.5	63	16.8	224	59.7	375
	3a - AS	344	77.1	79	17.7	23	5.2	446
	3b - AS	665	79.5	139	16.6	33	3.9	837
	3c - AS	514	63.1	279	34.3	21	2.6	814
	3a - BS	215	51.6	131	31.4	71	17.0	417
	3b - BS	303	83.2	61	16.8	0	0	364
	3c - BS	449	82.2	63	11.5	34	6.2	546
	4a - AS	133	88.1	6	4.0	12	7.9	151
	4b - AS	518	76.0	91	13.3	73	10.7	682
	4c - AS	207	63.3	111	33.9	9	2.8	327
	4a - BS	106	38.3	78	28.2	93	33.6	277
	4b - BS	316	67.1	133	28.2	22	4.7	471
	4c - BS	0	0.0	7	4.8	139	95.2	146
	5a - AS	98	61.3	38	23.8	24	15.0	160
	5b - AS	127	71.8	31	17.5	19	10.7	177
	5c - AS	223	55.8	151	37.8	26	6.5	400
	5a - BS	232	70.7	58	17.7	38	11.6	328
	5b - BS	175	32.1	135	24.7	236	43.2	546
	5c - BS	160	85.6	20	10.7	7	3.7	187

TABLE 53. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY
(continued)

Plot	Egg Mass	Larval Emergence		Egg Parasitism		Unhatched Eggs		Eggs/Mass
		Number Larvae	Percent Viability	Number Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched	
XII	1a - AS	380	84.8	34	7.6	34	7.6	448
	1b - AS	182	56.9	60	18.8	78	24.4	320
	1c - AS	383	74.8	97	18.9	32	6.3	512
	1a - BS	135	93.1	10	6.9	0	0	145
	1b - BS	128	30.4	97	23.0	196	46.6	421
	1c - BS	128	50.6	76	30.0	49	19.4	253
	2a - AS	257	81.1	22	6.9	38	12.0	317
	2b - AS	264	77.6	60	17.6	16	4.7	340
	2c - AS	338	87.3	19	4.9	30	7.8	387
	2a - BS	246	77.6	45	14.2	26	8.2	317
	2b - BS	209	67.2	26	8.4	76	24.4	311
	2c - BS	187	51.8	114	31.6	60	16.6	361
	3a - AS	417	71.4	130	22.3	37	6.3	584
	3b - AS	283	66.7	101	23.8	40	9.4	424
	3c - AS	666	99.0	2	0.3	5	0.7	673
	3a - BS	299	75.9	88	22.3	7	1.8	394
	3b - BS	285	82.1	51	14.7	11	3.2	347
	3c - BS	343	83.7	41	10.0	26	6.3	410
	4a - AS	420	63.3	152	22.9	92	13.9	664
	4b - AS	291	87.7	8	2.4	33	9.9	332
	4c - AS	474	71.9	141	21.4	44	6.7	659
	4a - BS	69	41.8	31	18.8	65	39.4	165
	4b - BS	239	73.1	40	12.2	48	14.7	327
	4c - BS	147	51.2	42	14.6	98	34.1	287
	5a - AS	556	81.3	73	10.7	55	8.0	684
	5b - AS	534	77.8	118	17.2	34	5.0	686
	5c - AS	298	86.1	12	3.5	36	10.4	346
	5a - BS	348	69.5	131	26.1	22	4.4	501
	5b - BS	339	96.3	5	1.4	8	2.3	352
	5c - BS	64	51.2	30	24.0	31	24.8	125

TABLE 54. 1972 Bt. FIELD TEST - EGG MASS VIABILITY - NEW JERSEY

Plot Averages									
Plot	Larval Emergence		Egg Parasitism		Unhatched Eggs		Total Eggs/Mass	Egg Masses/A Pre-Treatment	Larvae/A Pre-Treatment
	Number Larvae Emerged	Percent Hatch	Number Eggs Parasitized	Percent Parasitism	Number Unhatched	Percent Unhatched			
I C	391.3	69.3	127.4	24.5	28.7	6.1	545.3	3,372	1,319,463.6
II D	173.6	62.3	66.9	26.6	28.6	11.2	269.1	12,136	2,106,809.6
III D	301.8	62.9	122.8	29.8	34.2	7.3	458.7	2,086	629,554.8
IV T	257.9	62.2	98.2	25.5	43.7	12.3	396.5	7,900	2,037,410.0
V D	339.5	69.6	104.3	24.5	27.4	5.9	471.2	1,456	494,312.0
VI C	243.6	63.1	99.6	26.8	37.5	10.1	380.7	2,980	725,928.0
VII T	235.7	66.9	82.9	20.0	58.1	13.1	426.7	8,270	2,362,739.0
VIII T	238.5	67.2	88.8	24.9	25.7	7.9	353.0	4,486	1,069,911.0
IX D	219.6	63.6	81.0	25.5	32.1	11.0	332.7	4,944	1,085,702.4
X T	245.3	70.8	81.8	23.6	19.1	5.6	346.2	4,834	1,185,780.2
XI C	302.7	64.0	93.8	19.3	66.4	16.7	477.7	2,125	643,237.5
XII C	296.9	72.1	61.9	15.2	44.2	12.6	403.1	3,164	939,391.6
Dipol	258.6	64.6	93.8	26.6	30.6	8.9	382.9	5,155.5	1,079,094.7
Thuricide	256.9	66.8	87.9	23.5	36.7	9.7	380.6	6,372.5	1,663,960.1
Control	308.6	67.1	95.7	21.5	44.2	11.4	451.7	2,910.3	907,005.2

TABLE 55. N.J.D.A.-U.S.F.S. COOPERATIVE AGREEMENT
BACILLUS THURINGIENSIS FIELD EVALUATION
 1972-1973
 DEFOLIATION ESTIMATES

Plot	Treatment	Average Final Defoliation		Percent Net Defoliation in Subplots										Average		Number of Dead Trees in Subplots (as of July 1973)
		1972	1973	1		2		3		4		5		1972	1973	
I	Control	100.0	39.1	80.0	10.7	81.2	32.7	80.0	41.9	80.4	10.4	77.5	3.5	79.9	19.9	4
II	Dipel	52.5	48.79	37.9	32.0	17.2	31.6	28.3	23.9	17.1	20.65	20.9	30.9	24.3	27.9	8
III	Dipel	36.5	82.7	4.5	59.1	9.2	47.3	15.6	52.7	14.4	60.0	13.9	76.0	11.5	59.0	17
IV	Thuricide	84.3	94.3	19.1	66.9	25.0	57.2	63.5	64.4	67.5	71.7	71.7	72.7	49.4	85.4	2
V	Dipel	49.6	95.9	26.0	66.0	21.1	71.5	16.1	74.2	16.9	66.1	20.8	56.6	20.2	66.9	14
VI	Control	99.2	50.3	53.7	21.5	69.3	21.25	72.0	12.35	59.3	16.7	57.6	15.0	62.4	17.35	7
VII	Thuricide	65.6	82.1	33.0	25.6	29.1	50.9	48.2	61.9	19.5	43.3	26.5	58.75	31.3	48.1	11
VIII	Thuricide	92.3	93.5	59.2	72.5	62.6	65.3	45.6	64.2	72.3	70.0	60.0	63.85	59.9	67.2	16
IX	Dipel	55.5	90.7	25.4	68.5	28.6	62.3	17.2	67.4	14.5	70.9	22.6	67.1	21.7	67.2	3
X	Thuricide	46.2	36.9	7.4	3.2	16.1	0.7	21.5	1.05	14.1	16.5	17.8	65.45	15.4	17.4	6
XI	Control	96.0	86.55	79.5	59.55	80.0	72.7	53.7	63.2	77.6	55.2	60.0	65.8	70.2	63.3	7
XII	Control	100.0	82.7	74.3	68.1	84.4	39.6	80.0	69.7	78.8	71.7	80.4	57.6	79.6	61.3	12
Total		48.5	79.5											19.4	55.25	10.5
Thuricide		72.1	76.7											39.0	54.5	8.75
Control		98.8	64.6											73.0	40.5	7.5

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TABLE 56. SUMMARY OF SPRAY DEPOSIT ASSESSMENT OF Bt.
VS. GYPSY MOTH IN NEW JERSEY, 1972

<u>Plot Number</u>	<u>Formulation</u>	<u>Application Number</u>	<u>Atomization, Mmd, Microns</u>	<u>Number Drops Per Square Centimeter ^{a/}</u>
2	Dipel	1	353	4.5
	Dipel	2	276	9.6
3	Dipel	1	357	12.9
	Dipel	2	303	6.9
5	Dipel	1	309	6.9
	Dipel	2	316	11.8
9	Dipel	1	318	9.7
	Dipel	2	339	7.2
Mean Of All Plots			321	8.5
4	Thuricide	1	387	8.9
	Thuricide	2	297	26.2
7	Thuricide	1	388	16.8
	Thuricide	2	337	10.6
8	Thuricide	1	314	11.1
	Thuricide	2	277	13.1
10	Thuricide	1	442	6.7
	Thuricide	2	418	6.5
Mean Of All Plots			358	12.5

^{a/} Mean number of drops using cards along subplot borders (total of 50 cards - 4 square centimeters per card).

TABLE 57. 1972 Bt. FIELD TRIALS - NEW JERSEY
PARASITE RECOVERIES

Plot	Date	Number of Gypsy Moth Collected	Parasites Recovered		
			Name	Number	Percent Parasitism
I	6-8-72	100 larvae	--	0	0
	6-13-72	100 larvae	--	0	0
	6-20-72	100 larvae	--	0	0
II	6-6-72	31 larvae	--	0	0
	6-23-72	14 larvae	<u>Apanteles melanoscelus</u>	2	14.3
	6-30-72	22 larvae	<u>Sturmia scutellata</u>	1	4.5
	7-6-72	100 larvae	<u>Compsilura concinnata</u>	3	3.0
			<u>Sturmia scutellata</u>	3	3.0
	7-6-72	7 pupae	<u>Sturmia scutellata</u>	1	14.3
	7-12-72	60 larvae	<u>Compsilura concinnata</u>	25	41.7
			<u>Parasetigena agilis</u>	8	13.3
	7-12-72	40 pupae	<u>Sturmia scutellata</u>	8	20.0
	7-19-72	10 larvae	--	0	0
III	7-19-72	60 pupae	--	0	0
	6-5-72	9 larvae	--	0	0
	6-14-72	80 larvae	<u>Apanteles melanoscelus</u>	8	10.0
	6-20-72	1 larvae	<u>Apanteles melanoscelus</u>	1	100.0
	6-28-72	15 larvae	<u>Apanteles melanoscelus</u>	6	40.0
	7-7-72	52 larvae	--	0	0
	7-7-72	7 pupae	<u>Sturmia scutellata</u>	1	14.3
	7-14-72	27 larvae	<u>Parasetigena agilis</u>	1	3.7
			<u>Compsilura concinnata</u>	1	3.7
	7-14-72	55 pupae	<u>Sturmia scutellata</u>	1	1.8

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TABLE 57. 1972 Bt. FIELD TRIALS - NEW JERSEY

PARASITE RECOVERIES

(continued)

Plot	Date	Number of Gypsy Moth Collected	Parasites Recovered		Percent Parasitism
			Name	Number	
III (cont'd)	7-21-72	15 larvae	<u>Parasetigena agilis</u>	2	13.3
			<u>Compsilura concinnata</u>	1	6.7
	7-21-72	42 pupae	<u>Sturmia scutellata</u>	2	4.8
	7-24-72	2 larvae	--	0	0
	7-24-72	10 pupae	--	0	0
IV	6-9-72	100 larvae	<u>Compsilura concinnata</u>	1	1.0
	6-14-72	100 larvae	--	--	0
	6-21-72	100 larvae	<u>Apanteles melanoscelus</u>	1	1.0
			<u>Sturmia scutellata</u>	1	1.0
	6-28-72	100 larvae	<u>Apanteles melanoscelus</u>	1	1.0
			<u>Sturmia scutellata</u>	8	8.0
	7-5-72	100 pupae	<u>Brachymeria intermedia</u>	5	5.0
			<u>Sturmia scutellata</u>	6	6.0
	7-10-72	35 larvae	<u>Compsilura concinnata</u>	4	11.4
			<u>Sturmia scutellata</u>	2	5.7
	7-10-72	160 pupae	<u>Sturmia scutellata</u>	12	7.5
	7-21-72	4 larvae	<u>Compsilura concinnata</u>	1	25.0
	7-21-72	40 pupae	<u>Sturmia scutellata</u>	3	7.5
	7-24-72	3 pupae	--	0	0
V	6-9-72	40 larvae	--	0	0
	6-14-72	100 larvae	<u>Apanteles melanoscelus</u>	1	1.0
	6-21-72	100 larvae	<u>Apanteles melanoscelus</u>	3	3.0
	7-5-72	76 larvae	<u>Parasetigena agilis</u>	2	2.6
			<u>Compsilura concinnata</u>	9	11.8
	7-5-72	90 pupae	<u>Sturmia scutellata</u>	7	7.8

TABLE 57. 1972 Bt. FIELD TRIALS - NEW JERSEY
PARASITE RECOVERIES
(continued)

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Plot	Date	Number of Gypsy Moth Collected	Parasites Recovered		Percent Parasitism
			Name	Number	
V (cont'd)	7-10-72	100 larvae	<u>Parasetigena agilis</u>	6	6.0
			<u>Compsilura concinnata</u>	10	10.0
	7-10-72	23 pupae	<u>Sturmia scutellata</u>	1	4.3
	7-21-72	12 larvae	<u>Compsilura concinnata</u>	2	16.7
			<u>Parasetigena agilis</u>	2	16.7
	7-21-72	120 pupae	<u>Sturmia scutellata</u>	4	3.3
	7-24-72	4 pupae	--	0	0
VI	6-8-72	100 larvae	--	0	0
	6-14-72	100 larvae	--	0	0
	6-21-72	100 larvae	--	0	0
	6-28-72	100 larvae	--	0	0
VII	6-8-72	100 larvae	--	0	0
	6-14-72	100 larvae	--	0	0
	6-21-72	100 larvae	--	0	0
	7-5-72	60 larvae	<u>Compsilura concinnata</u>	1	1.7
			<u>Parasetigena agilis</u>	1	1.7
			<u>Sturmia scutellata</u>	1	1.7
	7-5-72	40 pupae	<u>Sturmia scutellata</u>	3	7.5
	7-10-72	40 larvae	<u>Compsilura concinnata</u>	2	5.0
			<u>Parasetigena agilis</u>	1	2.5
	7-13-72	100 pupae	<u>Sturmia scutellata</u>	9	9.0
VIII	5-31-72	100 larvae	--	0	0
	6-5-72	100 larvae	--	0	0
	6-8-72	100 larvae	--	0	0

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TABLE 57. 1972 Bt. FIELD TRIALS - NEW JERSEY
PARASITE RECOVERIES
(continued)

Plot	Date	Number of Gypsy Moth Collected	Parasites Recovered		Percent Parasitism
			Name	Number	
VIII (cont'd)	6-19-72	100 larvae	<u>Sturmia scutellata</u>	1	1.0
	6-28-72	80 larvae	--	0	0
	6-28-72	20 pupae	--	0	0
	7-6-72	60 larvae	--	0	0
	7-6-72	40 pupae	--	0	0
	7-10-72	20 larvae	<u>Sturmia scutellata</u>	2	10.0
			<u>Apanteles</u> sp. (cocoons only)	1	5.0
	7-10-72	100 pupae	<u>Brachymeria intermedia</u>	1	1.0
			<u>Sturmia scutellata</u>	4	4.0
	7-21-72	31 pupae	<u>Sturmia scutellata</u>	2	6.5
			<u>Parasetigena agilis</u>	2	6.5
			<u>Brachymeria intermedia</u>	3	9.7
IX	6-13-72	100 larvae	<u>Apanteles melanoscelus</u>	1	1.0
	6-20-72	100 larvae	<u>Apanteles melanoscelus</u>	16	16.0
	6-30-72	100 larvae	<u>Apanteles melanoscelus</u>	3	3.0
			<u>Sturmia scutellata</u>	1	1.0
	7-6-72	100 larvae	<u>Sturmia scutellata</u>	13	13.0
			<u>Compsilura concinnata</u>	9	9.0
			<u>Parasetigena agilis</u>	1	1.0
	7-6-72	100 pupae	<u>Sturmia scutellata</u>	15	15.0
	7-11-72	100 larvae	<u>Compsilura concinnata</u>	25	25.0
			<u>Parasetigena agilis</u>	6	6.0
X	7-11-72	100 pupae	<u>Sturmia scutellata</u>	9	9.0
	6-20-72	100 larvae	<u>Apanteles melanoscelus</u>	8	8.0
			<u>Parasetigena agilis</u>	1	1.0
	6-30-72	2 larvae	--	0	0

TABLE 57. 1972 Bt. FIELD TRIALS - NEW JERSEY
PARASITE RECOVERIES
(continued)

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Plot	Date	Number of Gypsy Moth Collected	Parasites Recovered		Percent Parasitism
			Name	Number	
X (cont'd)	7-6-72	40 larvae	<u>Parasetigena agilis</u>	2	5.0
			<u>Compsilura concinnata</u>	1	2.5
	7-6-72	6 pupae	<u>Sturmia scutellata</u>	1	16.7
	7-11-72	44 larvae	<u>Parasetigena agilis</u>	7	15.9
			<u>Apanteles melanoscelus</u>	1	2.3
	7-11-72	100 pupae	<u>Sturmia scutellata</u>	21	21.0
XI	6-8-72	200 larvae	<u>Compsilura concinnata</u>	1	0.5
	6-13-72	300 larvae	<u>Apanteles melanoscelus</u>	2	0.7
	6-20-72	300 larvae	<u>Apanteles melanoscelus</u>	12	4.0
			<u>Parasetigena agilis</u>	1	0.3
			<u>Compsilura concinnata</u>	1	0.3
			<u>Sturmia scutellata</u>	2	0.7
	6-30-72	300 larvae	<u>Compsilura concinnata</u>	3	1.0
			<u>Sturmia scutellata</u>	14	4.7
			<u>Parasetigena agilis</u>	1	0.3
			<u>Apanteles melanoscelus</u>	1	0.3
	6-30-72	160 pupae	<u>Brachymeria intermedia</u>	14	8.8
			<u>Sturmia scutellata</u>	11	6.9
	7-6-72	20 larvae	--	0	0
	7-6-72	280 pupae	<u>Brachymeria intermedia</u>	31	11.1
			<u>Sturmia scutellata</u>	18	6.4
	7-11-72	40 larvae	<u>Sturmia scutellata</u>	1	2.5
	7-11-72	210 pupae	<u>Sturmia scutellata</u>	9	4.3
			<u>Brachymeria intermedia</u>	13	6.2
XII	6-8-72	100 larvae	--	0	0
	6-13-72	100 larvae	--	0	0
	6-22-72	100 larvae	--	0	0
	7-5-72	100 pupae	<u>Brachymeria intermedia</u>	43	43.0
	7-12-72	100 pupae	<u>Brachymeria intermedia</u>	60	60.0

TABLE 58. GYPSY MOTH PUPAL COUNTS - 1972 ET. FIELD TRIALS - NEW JERSEY

Plot	Subplot	Emerg ed males		Emerg ed females		Non-emerg ed males		Non-emerg ed females		Total Males		Total Females		Total Number Observed
		#	%	#	%	#	%	#	%	#	%	#	%	
I	1	14	5.2	12	4.5	160	59.7	82	30.6	174	64.9	94	35.1	268
	2	4	1.1	9	2.6	254	72.6	83	23.7	258	73.7	92	26.3	350
	3	8	2.5	11	3.4	186	57.1	121	37.1	194	59.5	132	40.5	326
	4	13	4.7	34	12.4	144	52.6	83	30.3	157	57.3	117	42.7	274
	5	11	7.6	14	9.7	101	70.1	18	12.5	112	77.8	32	22.2	144
I	Average	10.0	4.2	16.0	6.5	169.0	62.4	77.4	26.8	179.0	66.6	87.0	33.4	272.4
II	1	45	33.3	56	41.5	15	11.1	19	14.1	60	44.4	75	55.6	135
	2	21	17.8	58	49.2	10	8.5	29	24.6	31	26.3	87	73.7	118
	3	12	37.5	12	37.5	2	6.3	6	18.8	14	43.8	18	56.3	32
	4	9	18.0	28	56.0	3	6.0	10	20.0	12	24.0	38	76.0	50
	5	19	31.7	18	30.0	7	11.7	16	26.7	26	43.3	34	56.7	60
II	Average	21.2	27.7	34.4	42.8	7.4	8.7	16.0	20.8	28.6	36.4	50.4	63.7	79.0
III	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
	2	3	50.0	3	50.0	0	0.0	0	0.0	3	50.0	3	50.0	6
	3	17	37.0	17	37.0	6	13.0	6	13.0	23	50.0	23	50.0	46
	4	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0	4	100.0	4
	5	19	40.4	14	29.8	5	10.6	9	19.1	24	51.1	23	48.9	47
III	Average	7.8	37.9	7.6	36.9	2.2	10.7	3.0	14.6	10.0	48.5	10.6	51.5	20.6
IV	1	9	45.0	10	50.0	1	5.0	0	0.0	10	50.0	10	50.0	20
	2	76	14.9	304	59.5	38	7.4	93	18.2	114	22.3	397	77.7	511
	3	53	10.6	245	48.9	59	11.8	143	28.5	112	22.4	388	77.4	501
	4	55	17.7	83	26.8	113	36.5	59	19.0	168	54.2	142	45.8	310
	5	97	21.0	219	47.3	60	13.0	87	18.8	157	33.9	306	66.1	463
IV	Average	58.0	21.8	172.2	46.5	54.2	14.7	76.4	16.9	112.2	36.6	248.6	63.4	361.0
V	1	50	24.0	102	49.0	14	6.7	42	20.2	64	30.8	144	69.2	208
	2	19	19.6	53	54.6	8	8.2	17	17.5	27	27.8	70	72.2	97
	3	32	26.4	66	54.5	7	5.8	16	13.2	39	32.2	82	67.8	121
	4	56	29.6	98	51.9	8	4.2	27	14.3	64	33.9	125	66.1	189
	5	56	35.2	69	43.4	13	8.2	21	13.2	69	43.4	90	56.6	159
V	Average	42.6	27.0	77.6	50.7	8.4	6.6	24.6	15.7	52.6	33.6	102.2	66.4	154.8

TABLE 58. GYPSY MOTH PUPAL COUNTS - 1972 BT. FIELD TRIALS - NEW JERSEY
(continued)

Plot	Subplot	Emerg ed males		Emerg ed females		Non-emerg ed males		Non-emerg ed females		Total Males		Total Females		Total Number Observed
		#	%	#	%	#	%	#	%	#	%	#	%	
VI	1	63	24.3	34	13.1	135	52.1	27	10.4	198	76.4	61	23.6	259
	2	52	24.9	40	19.1	94	45.0	23	11.0	146	69.9	63	30.1	209
	3	48	25.4	56	29.6	60	31.7	25	13.2	108	57.1	81	42.9	189
	4	36	7.8	167	36.1	180	38.9	80	17.3	216	46.7	247	53.3	463
	5	51	19.3	66	25.0	110	41.7	37	14.0	161	61.0	103	39.0	264
VI	Average	50.0	20.3	72.6	24.6	115.8	41.9	38.4	13.2	165.8	62.2	111	37.8	276.8
VII	1	38	19.7	92	47.7	27	14.0	36	18.7	65	33.7	128	66.3	193
	2	17	12.4	80	58.4	13	9.5	27	19.7	30	21.9	107	78.1	137
	3	21	11.2	92	49.2	26	13.9	48	25.7	47	25.1	140	74.9	187
	4	14	22.6	33	53.2	4	6.5	11	17.7	18	29.0	44	71.0	62
	5	11	14.9	48	64.9	1	1.4	14	18.9	12	16.2	62	83.8	74
VII	Average	20.2	16.2	69.0	54.7	14.2	9.1	27.2	20.1	34.4	25.2	96.2	74.8	130.6
VIII	1	8	6.3	12	9.4	85	66.9	22	17.3	93	73.2	34	26.8	127
	2	11	7.8	20	14.2	95	67.4	15	10.6	106	75.2	35	24.8	141
	3	12	8.6	38	27.3	26	18.7	63	45.3	38	27.3	101	72.7	139
	4	17	9.8	22	12.7	76	43.9	58	33.5	93	53.8	80	46.2	173
	5	12	5.8	53	25.7	91	44.2	50	24.3	103	50.0	103	50.0	206
VIII	Average	12.0	7.7	29.0	17.9	74.6	48.2	41.6	26.2	86.6	55.9	70.6	44.1	157.2
IX	1	20	24.7	35	43.2	3	3.7	23	28.4	23	28.4	58	71.6	81
	2	27	16.5	55	33.5	14	8.5	68	41.5	41	25.0	123	75.0	164
	3	17	16.8	36	35.6	15	14.9	33	32.7	32	31.7	69	68.3	101
	4	3	7.7	16	41.0	3	7.7	17	43.6	6	15.4	33	84.6	39
	5	10	17.9	24	42.9	7	12.5	15	26.8	17	30.4	39	69.6	56
IX	Average	15.4	16.7	33.2	39.2	8.4	9.5	31.2	34.6	23.8	26.2	64.4	73.8	88.2
X	1	2	18.2	3	27.3	4	36.4	2	18.2	6	54.5	5	45.5	11
	2	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0	4	100.0	4
	3	0	0.0	8	72.7	2	18.2	1	9.1	2	18.2	9	81.8	11
	4	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0	3	100.0	3
	5	20	17.9	55	49.1	9	8.0	28	25.0	29	25.9	83	74.1	112
X	Average	4.4	7.2	14.6	69.8	3.0	12.5	6.2	10.5	7.4	19.7	20.8	80.3	28.2

TABLE 58. GYPSY MOTH PUPAL COUNTS - 1972 BT. FIELD TRIALS - NEW JERSEY
(continued)

Plot	Subplot	Emerg ed males		Emerg ed females		Non-emerg ed males		Non-emerg ed females		Total Males		Total Females		Total Number Observed
		#	%	#	%	#	%	#	%	#	%	#	%	
XI	1	47	13.4	97	27.6	104	29.6	103	29.3	151	43.0	200	57.0	351
	2	34	14.3	52	21.8	81	34.0	71	29.8	115	48.3	123	51.7	238
	3	16	19.3	34	41.0	13	15.7	20	24.1	29	34.9	54	65.1	83
	4	26	18.1	57	39.6	23	16.0	38	26.4	49	34.0	95	66.0	144
	5	12	12.4	29	29.9	28	28.9	28	28.9	40	41.2	57	58.8	97
XI	Average	27.0	15.5	53.8	32.0	49.8	24.8	52.0	27.7	76.8	40.3	105.8	59.7	182.6
XII	1	6	1.0	22	3.7	345	57.5	227	37.8	351	58.5	249	41.5	600
	2	12	3.9	20	6.5	190	62.1	84	27.5	202	66.0	104	34.0	306
	3	5	1.5	12	3.6	227	68.0	90	26.9	232	69.5	102	30.5	334
	4	4	0.9	2	0.4	345	75.3	107	23.4	349	76.2	109	23.8	458
	5	1	0.2	5	1.1	310	67.4	144	31.3	311	67.6	149	32.4	460
XII	Average	5.6	1.5	12.2	3.1	284.0	66.1	130.4	29.4	289.0	67.6	142.6	32.4	431.6

TABLE 59. GYPSY MOH PUPAL STUDY - HOST POPULATION DENSITY AND SEX RATIO, SURVIVAL RATES AND MORTALITY RATES

Plot	Area	Treatment or Control	Defoliation %	Pupae observed			% Dehydrated			% Diseased			% Mortality												% Survived or Emerged			Winter Count EM/A
													% Parasitized															
													Brachymeria			Ichneumon			Other			TOTAL						
				M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL							
I	Elrene Rd.	Control	100	51.5	48.5	134	4.3	2.2	6.7	24.6	36.9	30.6	58.0	46.2	52.2	1.4	1.5	1.5	0	0	0	59.4	47.7	53.7	65.2	33.3	9.0	
II	Allenwood	Dipel	40-59	21.9	78.1	105	4.3	3.7	3.8	8.7	12.2	11.4	9	1.2	1.0	8.7	7.3	7.6	0	0	0	8.7	8.5	9.6	22.5	72.5	76.2	
III	Anderson Rd.	Dipel	0-19	31.5	66.7	102	0	2.9	2.0	14.7	4.4	7.8	0	2.9	2.0	5.9	2.9	3.9	0	4.4	2.9	5.9	10.3	8.8	32.5	67.5	81.4	
IV	Coventry Rd. S.	Thuricide	80-100	39.3	60.7	107	0	3.1	1.9	28.6	12.3	30.8	19.0	6.2	11.2	0	0	0	0	0	0	19.0	6.2	11.2	36.7	43.3	59.1	
V	Coventry Rd. S.	Dipel	20-39	36.6	63.4	112	2.4	1.4	1.8	9.8	1.4	4.5	7.4	1.4	1.8	0	4.2	2.7	0	0	0	2.4	5.6	4.5	35.8	64.2	89.3	
VI	Manhattan St.	Control	100	79.2	20.8	139	4.9	11.1	6.2	21.4	11.1	19.2	37.9	37.0	37.7	4.9	3.7	4.6	0	0	0	42.7	40.7	42.3	76.2	23.8	32.3	
VII	Bartley Rd.	Thuricide	40-59	51.0	49.0	104	1.0	1.9	2.9	30.2	4.8	20.2	0	3.0	1.0	1.9	0	1.0	1.0	1.0	1.9	1.9	1.9	3.8	44.7	55.3	72.1	
VIII	Hendrickson R.	Thuricide	60-79	55.2	54.8	115	1.9	12.7	7.8	15.4	19.0	17.4	51.9	15.0	32.2	5.8	9.5	7.8	0	3.2	1.7	57.2	28.6	61.7	34.2	65.8	33.0	
IX	Farle A	Dipel	40-59	24.0	76.0	100	0	2.4	2.0	0	0	0	0	0	0	0	2.6	2.0	4.2	1.3	2.0	4.2	3.9	4.0	29.5	70.5	94.0	
X	Farle B	Thuricide	40-59	24.0	76.0	100	16.7	11.8	13.0	0	9.2	7.0	0	0	0	4.2	3.9	4.0	0	1.3	1.0	4.2	5.1	5.0	25.2	74.7	75.0	
XI	Farle C	Control	100	24.3	75.7	300	1.9	10.2	7.3	9.7	17.8	15.0	19.4	3.6	9.0	4.9	5.6	5.3	0	3.0	2.0	24.3	12.2	16.3	35.0	64.1	61.3	
XII	Silvers	Control	100	57.2	42.8	159	2.2	11.8	6.3	28.6	29.4	28.9	49.5	10.3	32.7	2.2	11.8	6.3	1.1	0	0.6	52.7	22.1	39.6	27.5	72.5	25.2	
		Dipel	44.0	59.0	41.0	419	1.7	2.7	2.4	8.3	4.5	5.9	0.6	1.4	1.2	3.7	4.3	4.1	1.1	1.4	1.2	5.3	7.1	6.5	28.6	71.4	65.2	
		Thuricide	74.3	39.9	60.1	426	4.9	7.4	6.4	18.6	16.3	18.9	17.7	5.8	11.1	3.0	3.4	3.2	0.3	1.4	1.2	20.7	10.5	15.4	35.2	64.8	59.3	
		Control	100.0	55.6	44.5	723	3.3	10.6	6.6	21.1	23.8	23.4	41.2	24.3	32.9	3.4	5.7	4.4	0.3	0.8	0.7	54.8	30.7	38.0	54.1	45.9	32.0	

Determination of Impact of Aerially-Applied Bacillus thuringiensis
and Carbaryl on Gypsy Moth Parasites When Applied Against
a Gypsy Moth Population

The use of Bacillus thuringiensis by aerial application for the control of gypsy moth has been promising as an integrated control tool. Bt., a biological insecticide, should not be toxic to the parasite and predators of the gypsy moth, but adequate field data have not been collected to support this theory. If Bt. is to be used as part of a biologically integrated program, impact data must be obtained to determine the effects of Bt. on the parasites and predators.

To obtain impact data, an area in northwestern New Jersey, High Point State Park, was selected. This area was sprayed with Carbaryl in 1970 at a time when the gypsy moth population attained a very high density. In 1972, a 360-acre plot was sprayed with Phosvel; this plot is adjacent to the check area designated in this test. During the spring of 1973, the gypsy moth population survey showed that the areas sprayed with carbaryl during 1970 had again attained a high density of gypsy moths. From a permanent study plot established in the area in 1970, it was determined that a high density of parasites existed during 1972. Because of both a high gypsy moth and parasite population, the High Point area was selected for the 1973 test site.

The project is being financed in part by the Division of State and Private Forestry of the U. S. Forest Service. The Division of Parks and Forestry of the New Jersey Department of Environmental Protection financed the cost of the Sevin-4-oil insecticide and furnished a building for laboratory space. Three adjacent plots were selected on the Kittatiny Ridge for the test. The Carbaryl plot was 457 acres in size, the Bt. plot was 438 acres, and the check plot was 265 acres. Within each of the plots were set up 20 1/40th-acre evaluation subplots. The subplot corners were marked with stakes and flagging. Every tree stem greater than three inches in diameter was tagged, identified by species, and recorded.

The density of the gypsy moth population was determined by making egg mass counts and collecting egg masses for determination of percent viability. Gypsy moth egg masses were counted in each subplot by using binoculars to examine the upper portions of the trees, and by turning over debris on the forest floor. The pre-treatment counts were made in the spring before leaf development and are shown in Table 60. Post-treatment egg mass counts will be made in late fall after leaf fall. Egg mass viability was determined by collecting 50 egg masses from the test area. The egg masses were dehaired and examined under the microscope for percent parasitism and percent viability (Table 61).

The application plane was a Gruman Ag-Cat (450 horsepower). The plane was equipped with six Beecomist nozzles to insure droplets less than 100 microns in diameter while delivering a rate of two gallons per acre of finished spray material. A chase plane was used to insure proper application and to aid in communications between the plots and the airport.

The Bt. formulation, Dipel, was sprayed at the rate of two gallons of finished spray material per acre (8 B.I.U.) including: two pounds of Dipel, one-half gallon of Cargil Insecticide Base Concentrate, six ounces of Maywood, six ounces of Chevron spray sticker, and enough water to make two gallons of final mix. The molasses (C.I.B.) was stabilized and pre-filtered to remove the cane fibers which could clog the Beecomist spray head. Two applications of Dipel were made on the test plot. The first application was made on the evening of May 29 and the morning of May 30. On May 29, the temperature was 70°F., the wind was less than two miles per hour, and the humidity was 22 percent. On May 30, the temperature was 53°F., the wind was less than two miles per hour, and the humidity was 94 percent. The gypsy moth larvae were in the third instar and the oak foliage was expanded 20-25 percent during the first application. The second application was conducted on June 6. The gypsy moth larvae were in the third and fourth instars and the oak foliage was expanded to 100 percent. The temperature on June 6 was 70°F. when the application began, but rose to 85°F. before the plot was finished. The wind was less than two miles per hour when spraying was started, but increased to almost six miles per hour before the plot was finished. The humidity was 90 percent.

The Carbaryl formulation, Sevin-4-oil, was sprayed with one application at the rate of one quart of final mix per acre. At the time of application on May 30, the temperature was 73°F., the wind was less than two miles per hour, and the humidity was 62 percent. The gypsy moth larvae were in the third instar and the oak foliage was expanded 20-25 percent.

Kytoons were used to mark the boundaries in each of the treatment plots. Spray deposit cards were placed in the treatment plots to measure the adequacy of the application. In the Dipel plot, Kromekote cards were used; in the Sevin-4-oil plot, oil-sensitive cards were used. A total of ten spray cards was scattered throughout each treatment plot. Ten pieces of black plastic sheeting about one foot square were also scattered throughout the plots. Ten protein agar culture plates were placed in the Dipel plot to record spore deposits. All cards and plastic showed adequate penetration of the material through the forest canopy into the understory. The cards and plastic were stapled atop wooden stakes which were driven into the ground and extended about 12 inches above the forest floor. The droplet size averaged about 49 microns; the average number of droplets per square centimeter was 145.

Five drop trays were placed in each of the treatment plots to catch dead larvae. Two drop trays were placed in a check subplot close to the Bt. plot. The number of dead larvae caught is shown in Table 62. Results indicate that the Dipel caused little mortality of gypsy moth larvae until about four days after the first treatment; however, the Sevin-4-oil had a more immediate mortality impact on the gypsy moth larvae, declining after four days.

In order to measure the effectiveness of the treatments as foliage protectants, defoliation estimates were made in each of the 60 subplots. Every tagged tree in each subplot was examined with binoculars to determine the degree of defoliation. The defoliation estimates were made within 20 percent ranges. Pre-treatment estimates were made the day of spraying, and post-treatment estimates were made upon the completion of larval feeding (about 15 days after recognition of the first pupa in the area). The defoliation estimates are shown in Table 63.

Since the subplots were selected at random with no concern given to preferred host trees and non-preferred host trees, the amount of defoliation experienced in the check plot as shown in the table appears to be low when compared to the amount of defoliation in the more preferred host tree stands of the checkplot.

Strips of burlap bands were tied around host trees in each of the three plots to trap gypsy moth larvae and pupae for parasite evaluation collections. Each tree possessing a burlap band also had at least one gypsy moth egg mass. Fifty burlap bands were set up in each of the three plots. It was originally planned to randomly collect five larvae or pupae from under each band every week commencing with third instar larvae. However, as a result of the unexpectedly high degree of control in the treatment areas, larvae and pupae could not be found in the treatment plots after application of the insecticides. Larvae and pupae were collected from the check plot twice a week and reared on oak foliage in the laboratory for parasite evaluation. At the time of this report, the parasites which had emerged from the burlap collections had not been identified.

Adult parasite traps were set up in each of the three plots as a secondary technique to measure the impact of the treatments on adult parasites. Due to the high degree of control in the treatment plots, the adult parasite traps became the most important technique for measuring impact of the treatments. A number of different traps were set up in order to trap adult gypsy moth parasites. The following list shows type of adult traps that were used:

<u>Trap</u>	<u>Number/Plot</u>
Malaise	5
Window	3
Black Light	1
McPhail:	
Honey solution	1
Protein hydrolosate	1
Steiner:	
Sugar and yeast	1

The malaise and window traps were monitored by the U. S. Forest Service from Hamden, Conn. The remaining traps were monitored by the Bureau of Plant Laboratory. All the adult traps were collected from on a daily basis for four days prior to application and four days after application; thereafter, they were collected from at least once weekly. The specimens recovered from those traps were preserved and have not yet been identified at the time of this report.

Data accumulated at the time of this report are not sufficient to determine the impact of Bt. or Carbaryl on gypsy moth parasites. However, the data do show that both treatments protected the foliage and appear to have significantly reduced the gypsy moth population.

TABLE 60. PRE-TREATMENT EGG MASS COUNTS

<u>Plot</u>	<u>Average No. of Egg Masses/Plot</u>	<u>Percent New Egg Masses 1/</u>	<u>New Egg Masses/Acre</u>
Check	81	46.7%	1,519
Dipel	104	78.0%	3,251
Sevin-4-Oil	73	44.4%	1,296

1/ To avoid including old egg masses in count, a correction factor was used to determine the actual number of new egg masses per acre. Fifty egg masses within reach were counted and recorded as new or old egg masses.

TABLE 61. EGG MASS VIABILITY IN HIGH POINT PLOTS

<u>Plot</u>	<u>Viable Eggs</u>	<u>Parasitized Eggs</u>	<u>Dehydrated Eggs</u>	<u>Total No. of Eggs</u>	<u>Percent Viability</u>
CHECK	355	121	1	477	74.4
	253	132	4	389	65.0
	536	120	26	682	78.6
	396	106	8	510	77.6
	434	236	42	712	61.0
	415	158	13	586	70.8
	331	77	22	430	77.0
	280	169	15	464	60.3
	255	176	2	433	58.9
	322	117	2	441	73.0
	168	206	4	378	44.4
	320	137	10	467	68.5
	393	182	22	597	65.8
	220	185	7	412	53.4
	215	83	17	315	68.3
	397	117	30	544	73.0
Check Average	331	145	14	490	67.6
BT.	508	96	27	631	80.5
	141	164	27	332	42.5
	318	104	8	430	74.0
	306	70	66	442	69.2
	195	80	3	278	70.1
	247	150	6	403	61.3
	163	95	17	275	59.3
	487	121	18	626	77.8
	427	156	8	591	72.3
	260	68	20	348	74.7
	294	206	5	505	58.2
	105	137	18	260	40.4
	265	87	22	374	70.9
	302	78	16	396	76.3
	450	149	9	608	74.0
	354	94	1	449	78.8
	318	71	5	394	80.7
Bt. Average	302	113	16	431	70.1

TABLE 61. EGG MASS VIABILITY IN HIGH POINT PLOTS

(continued)

Plot	Viable Eggs	Parasitized Eggs	Dehydrated Eggs	Total No. of Eggs	Percent Viability
SEVIN-4-OIL	267	75	13	355	75.2
	337	63	12	412	81.8
	359	213	19	591	60.7
	410	78	19	507	80.9
	345	89	7	441	78.2
	420	181	17	618	68.0
	289	76	9	374	77.3
	321	71	10	402	79.9
	532	212	19	763	69.7
	322	115	11	448	71.9
	204	83	5	292	69.9
	327	4	64	395	82.8
	83	108	3	194	42.8
	196	110	3	309	63.4
	322	100	6	428	75.2
	281	92	1	374	75.1
	253	175	14	441	57.4
Sevin Average	310	108	14	432	71.3

TABLE 62. DROP TRAY ANALYSIS
NUMBER OF DEAD GYPSY MOTR LARVAE COUNTED IN DROP TRAYS

		5/31	6/1	6/2	6/3	6/4	6/5	6/6	6/7	6/8
CHECK	A	2	1	1	0	0	0		1	1
	B	4	2	0	0	0	0		0	0
	TOTAL	6	3	1	0	0	0		1	1
DIPEL	A	8	9	23	27	2	3		4	6
	B	1	8	17	28	7	3		7	4
	C	1	6	15	25	10	2		4	5
	D	3	7	18	17	8	2		4	7
	E	6	6	15	15	2	4		3	3
	TOTAL	19	36	88	112	29	14		22	25
SEVIN-4-OIL	A	29	14	5	7	1	1		0	0
	B	12	10	2	2	0	0		0	0
	C	167	5	2	1	0	1		1	0
	D	43	6	4	1	1	0		1	0
	E	71	6	5	0	0	0		0	0
	TOTAL	322	41	18	11	2	2		2	0

N.J.D.A.-U.S.F.S. COOPERATIVE AGREEMENT
 TABLE 63. BACILLUS THURINGIENSIS AND CARBARYL IMPACT ON GYPSY MOTH PARASITES
 HIGH POINT STUDY
 DEFOLIATION ESTIMATES

	Treatment	Subplots																				Average
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Percent Defoliation	Dipel	15.0	0.	1.7	2.7	1.7	0	0	16.0	14.0	10.0	10.0	5.0	12.3	0	2.5	3.3	3.1	2.2	8.0	5.7	5.4
	Sevin-4-oil	2.5	0	0	16.7	17.8	11.4	11.4	10.0	18.2	10.0	11.1	3.3	16.0	15.0	16.7	14.3	8.9	9.1	2.2	8.0	10.1
	Check	30.0	22.9	25.7	52.3	0	12.0	0	45.0	13.3	60.0	20.0	17.1	0	2.5	0	0	0	0	22.2	37.8	18.0
Percent Final Defoliation	Dipel	34.0	23.0	29.0	24.3	24.0	22.3	19.0	51.0	41.0	36.5	29.0	24.0	31.3	19.0	21.5	22.3	22.1	21.2	27.0	24.7	27.3
	Sevin-4-oil	21.5	19.0	19.0	35.7	39.0	30.4	33.3	32.3	39.0	29.0	28.0	22.3	35.0	36.5	45.7	33.3	27.9	39.0	30.1	31.0	31.4
	Check	73.0	47.9	44.9	74.7	25.7	31.0	19.0	79.6	32.3	79.5	42.7	47.6	24.0	21.5	21.5	19.0	19.0	19.0	45.9	65.7	41.7

1973 Aerial Application of Thuricide-16B, a New Bt. Formulation

A 180-acre site in Princeton Township, Mercer County, was selected as an experimental plot for testing Thuricide-16B, a new Bt. formulation manufactured by International Minerals and Chemical Corporation. Six one-tenth-acre evaluation subplots were established in the treatment area and five in nearby areas as control or check subplots. The check subplots were sprayed with Sevin-4-oil, so an additional six subplots had to be established in a nearby untreated area. It was decided to monitor those subplots which had been treated with Sevin-4-oil.

Every tree greater than three inches in diameter in each subplot was tagged and identified by species. Gypsy moth egg mass counts were conducted in each of the subplots to measure the density of the gypsy moth populations (Table 64). To avoid including old egg masses in the count, a correction factor (90 percent) was used to determine the actual number of new egg masses per acre. Fifty egg masses within reach were counted and recorded as new or old egg masses. The figure in the table represents the adjusted or corrected count of new egg masses per acre. Due to a lack of time before hatch, viability studies were not conducted on the egg masses.

TABLE 64. THURICIDE-16B FIELD TEST
PRE-TREATMENT EGG MASS COUNTS (EM/A)

Plot	Subplot						Average
	1	2	3	4	5	6	
Thuricide-16B	860	1,940	1,550	2,020	900	830	1,350
Sevin-4-Oil	1,650	1,550	3,890	2,650	940	*	2,136
Check	1,320	1,314	801	1,458	873	1,188	1,159

*Only five subplots were monitored in Sevin-4-Oil plot.

Thuricide-16B contains all the necessary adjuvants to insure good deposit and retention on the leaf surfaces; therefore, no other adjuvants were required. The material was applied at the rate of two quarts of Thuricide with two quarts of water per acre (8 B.I.U.). Two applications of Thuricide were made on the plot. A Gruman Ag Cat, equipped with six Beecomist spray nozzles, was used as the application plane. The first application was made on May 10 with a temperature of 70°F., humidity 60 percent, and the wind less than three miles per hour. The gypsy moth larvae were second instar and the leaf expansion on the oak trees was about 25-50 percent. The second application was made on May 22 when the gypsy moth larvae were in the third instar and the leaf expansion almost 100 percent. The weather conditions at the time of the second application were: temperature, 52°F., humidity, 82 percent; and wind, less than two miles per hour with gusts occurring occasionally about three to five miles per hour. The total amount of rainfall between applications was 0.9 inches. Four Kromekote spray cards and some black plastic sheeting were placed in each subplot to measure the droplet size and penetration of the material through the canopy. The droplet size averaged about 80 microns in diameter with about 209 droplets per square centimeter.

Measurement of the impact of parasites on the gypsy moth populations was conducted by collecting gypsy moth larvae and pupae from under burlap bands and rearing the gypsy moths on oak-foliage in the laboratory until parasite emergence occurred. Two burlap bands were placed on host trees immediately surrounding each subplot. One hundred gypsy moth larvae or pupae were collected from each plot once a week. The identification of the recovered parasites was not completed at the time of this report. Four artificial cardboard bark flaps were placed on host trees immediately surrounding each subplot. Pupae trapped under the bark flaps will be used for a pupal evaluation.

Foliage protection afforded by the treatments was measured by defoliation estimates conducted on each tagged host tree in the subplots. Pre-treatment defoliation estimates were made the day of application. The post-treatment estimates were made upon the completion of larval feeding or about 15 days after the recognition of the first pupa in each plot. The results of the defoliation evaluation are shown in Table 65. Much of the defoliation was caused by a cankerworm population in the area.

TABLE 65. BACILLUS THURINGIENSIS FIELD EVALUATION
PRINCETON, N. J. - 1973
THURICIDE-16B - DEFOLIATION ESTIMATES

Plot	Average Final Defoliation	(<u>%) Net Defoliation in Subplots</u>						Average
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	
Thuricide-16B	48.4	2.9	20.0	0.0	40.0	20.0	0.0	13.8 <u>3/</u>
Sevin-4-Oil	51.2	15.7	11.1	0.0	31.1	40.0	<u>1/</u>	19.6 <u>4/</u>
Control	78.9	30.0	40.0	36.7 <u>2/</u>	40.0	33.3	36.4	36.1 <u>5/</u>

The aerial efficacy of Thuricide-16B on gypsy moth appears to be very good. Foliage protection was achieved, and although post-treatment egg mass counts have not yet been made, it appears that there was a significant population reduction. Early observations indicate Thuricide-16B to be a good tool for an integrated control program, since many parasites were noticed in the treatment plot after application. Much of the residual gypsy moth population was highly parasitized.

Intensive Woodland Gypsy Moth Plot System

In accordance with the contractual agreement with the U. S. Forest Service, the Bureau established an Intensive Woodland Plot System in the state to perform a detailed study of gypsy moth population dynamics.

Seven sites, each ten acres in size, were selected. Each site contained five 0.1-acre square plots. Within each plot, all trees greater

1/ Only five subplots were established in the Sevin-4-Oil plot,

2/ Evidence of insecticide on leaves.

3/ Cankerworm population was heavy in subplots 1-6.

4/ Cankerworm population was very light in subplots 1-5.

5/ Cankerworm population was medium in subplots 1-6.

than two inches D.B.H. were numbered. Each numbered tree was classified according to species, crown class, condition, crown radius, and crown length. Only seven sites were used as working plots during 1972.

Twenty egg masses were collected from each site and sent to the U. S. Forest Service Laboratory at Hamden, Conn., for viability studies.

Twenty-five trees of the white and red oak groups from each site were marked for starch sampling. Samples were taken during spring and fall from the buttress roots of these trees, dried, and sent to Hamden for analysis.

During 1972, three drop trays were placed under each pathology tree in six of the sites. During 1973, six traps were placed under each pathology tree in only three of the sites. All dead and moribund larvae collected from the trays were refrigerated and sent to Hamden for analysis.

Two hundred gypsy moths were examined once a week for insect stage data. Larvae were counted and recorded by instar, pre-pupae were counted, pupae were sexed and counted, and egg masses were counted.

Frass collections were also made in 1972 to determine if the amount of frass found in an area could be used as a tool in determining the density of a gypsy moth population. Frass traps were placed under the same trees used for the pathology study. Larval cages were raised into the canopy for 24 hours. The collection of frass gathered from the traps on the boles of the trees during the 24-hour period was compared to the amount of frass excreted by 50 larvae (collected from the site) in the larval cages during the same 24-hour period. Four cages were used in each of the six sites when the gypsy moth population attained a ten percent pupation level. This study was performed only once at each site. All frass collections were sent to Hamden for analysis. Weekly collections of frass (24-hour period) were collected at each site throughout the larval duration and sent to Hamden. The frass collection technique was found not to be a useful tool during 1972, and was therefore discontinued in the 1973 study.

Once a week during 1972, between third instar and pre-pupae, 50 larvae per site were collected, placed in a fixative solution, and sent to Hamden for sex determination. This study was not continued in 1973.

Site markers were set up in each site for aerial photographs taken by the U. S. Forest Service.

Defoliation estimates and refoiliation estimates were made on each numbered tree in all the plots. Overall or general defoliation estimates were also made for each site.

Predation studies of gypsy moth larvae and pupae were conducted in each site during 1972. Four triplicate "paired trees" were established around each subplot, comprising a total of 60 trees per site. Each set of "paired trees" included: one control tree, one tree with a burlap band trap, and one tree with a burlap band trap covered by a chicken wire predator enclosure.

Parasitism of gypsy moth larvae and pupae was studied using three techniques. All techniques involved collection of gypsy moth larvae and pupae beginning with third instar larvae and ceasing with adult

emergence. Technique A consisted of collections from two bark flaps and two burlap flaps placed on alternate sides of a tree. About ten trees in two sites were used for Technique A. Technique B consisted of using burlap band traps around 20 trees in two sites during 1972 and 1973. Each of the 20 trees was located at a grid point within the site. Technique C consisted of using burlap band traps on paired trees within a grid-square of the site. Ten pairs or 20 trees were used in two sites for Technique C. During 1973, Technique A was changed to include three different procedures. Two 1/40-acre plots were set up in six of the sites. Every tree greater than three inches in diameter was numbered. Random collections of larvae were made from the bole of the numbered trees. The second procedure involved collecting larvae from a 12-inch branch terminal cut from a host tree. The larvae and leaves of the branch were sent to Hamden. The third procedure involved collecting gypsy moth larvae and pupae from a randomly selected one-meter square area on the ground within each 1/40-acre plot. All collected larvae and pupae were sent to Hamden.

A live mammal census was collected using a mark and recapture method. The census was conducted in all seven sites during the late summer of 1972, in three sites during the spring of 1973, and in all seven sites during the summer of 1973. A 36-point trapping grid was established in each site. Trapping was conducted during five nights in each site.

Two types of gypsy moth pupal studies were conducted in the sites. In the "Specific Pupal Study" up to 200 pupae per plot were pinned and examined later for vertebrate predation. The Specific Study was conducted on all seven sites during 1972, but only on two sites during 1973. In the "General Pupal Study" up to 200 pupae per plot were collected, and the cause of death was determined where possible.

The Intensive Woodland Plot System will be conducted for a period of five years. The data collected in northern New Jersey will be compiled with data collected from identical plots in Cape Cod, Mass., southern New Jersey, Ludlow, Mass., Tichonderoga, N. Y., and Mohawk River Valley, N. Y. The compiled data will be structured into a model, thereby yielding collective information necessary to the understanding of gypsy moth behavior as related to the various forest environments. This information is most necessary in developing gypsy moth management techniques. The summer of 1973 marks the second year of the study system.

Suburban Plot System

As required under the cooperative agreement with the U. S. Forest Service, the Bureau is conducting a study of the gypsy moth population dynamics in suburban situations. The objectives of this study are: (1) to determine whether the activities of suburban man can provide mechanisms through which gypsy moth outbreaks occur, and (2) to establish a quantitative basis for determining this occurrence.

Sites were set up in suburban areas where the gypsy moth population density was between the innocuous and outbreak levels, or about 200 to 500 egg masses per acre. Seventeen sites were set up in six different areas in New Jersey during 1972; two additional sites were set up in 1973. Each site is composed of one house, adjacent yard, and

adjacent wooded area. Four or five circular 1/20-acre plots are set up at each site beginning at the edge of the yard and the woods and extending about 650 feet into the wooded area.

All trees with at least two inches D.B.H. were numbered and identified to species. The following data were also collected from each numbered tree: D.B.H., crown class, condition, crown radius, crown height ratio, percentage of defoliation, and depth of litter. All man-made objects in each plot were identified and recorded as to their location. Egg mass counts were made in all of the plots. A pupal survey was conducted for the purpose of recording the number of pupae examined, the mortality of the pupae, the sex, resting location, and predation by Calosoma beetle larvae.

Forty-three plots were set up in Hunterdon, Mercer, and Middlesex counties as part of a man-made object study in gypsy moth infestations. The purpose of this study was to determine which types of man-made objects were the most hazardous or conducive to a gypsy moth population in the outbreak phase. The data collected from these plots were used as preliminary data for the artificial trap sites which were established during the summer of 1973.

Four artificial trap sites were established; three in Hunterdon County, and one in Mercer County. All four sites contained less than 500 gypsy moth egg masses per acre. The purpose of the study is to determine man's effect on a gypsy moth population. Each site contained four types or groups of trees: (1) burlap bands placed on a host tree 4.5 feet off the ground; (2) burlap bands skirting the tree at ground level; (3) wooden box placed against the base of a tree; and (4) control tree. A total of 532 trees was used for this study. Each site was visited twice a week. Gypsy moth larvae under the artificial traps were counted and recorded by instar, pupae were sexed and counted, and egg masses were counted. Where possible the mortality-causing agent of gypsy moth larvae and pupae were identified and recorded.

All data will be analyzed by the U. S. Forest Service at Hamden, Conn.

Field Tours

This year the Bureau was actively engaged in cooperating with lay persons, school classes, college groups, organizational groups, and professional personnel from other states for observance and discussion of gypsy moth, its population dynamics, damage, and control.

Laboratory personnel participated with North Jersey conservationists in conducting gypsy moth population clinics during the month of July. In addition, laboratory personnel organized and participated with North Jersey conservationists in the collection of gypsy moth parasites for redistribution to other areas of the state. Approximately 150 persons participated in the parasite collections.

In addition, exhibits displaying the Department's integrated control program of the gypsy moth were set up in various sections of the state at the request of municipal organizations.

D I V I S I O N O F R E G U L A T O R Y S E R V I C E S

Delmar K. Myers, Director

The Division of Regulatory Services enforces laws relating to the registration, labeling, and analysis of animal feed, fertilizers and liming materials, licensing and bonding, potatoes, eggs, and controlled atmosphere storage of apples. In addition, the Division has a responsibility for the management of self-supporting inspection and grading programs for fruits and vegetables, eggs, egg products and poultry. Each program is conducted under a cooperative agreement with the U. S. Department of Agriculture.

During this fiscal year, 43,717 lots of all products covered by the various laws administered by the Division were inspected. Of the total, 1,084, or approximately 2.4 percent, were found to be in violation.

The Division is serving New Jersey farmers, the agribusiness complex, and the consumer through its combined regulatory and service programs.

BUREAU OF LABORATORY SERVICES

An analysis is made on all official feed samples obtained by inspectors. Crude protein, nonprotein nitrogen (urea), fat, fiber, salt and minerals are determined. In addition, antibiotic and drug content are determined on some feeds. The laboratory is capable of assaying for more than 25 different drugs and two antibiotics which are found in medicated feeds.

The laboratory facilities also permit the complete analysis of fertilizer and liming materials. The nitrogen, phosphoric acid and soluble potash levels are determined for compliance with the manufacturer's guarantee for fertilizer. The calcium oxide, magnesium oxide and moisture levels are determined in addition to sieve size on liming materials.

During fiscal 1972-73, 451 agricultural chemical firms registered with the Division.

Fertilizer and Soil Conditioner Law

Inspectors obtained 1,331 samples of fertilizer for laboratory analysis. Approximately 25.9 percent of the total were found to be in violation. See Table 1. During the year, nearly \$11,000 was returned to farmers as a result of enforcement. In addition, approximately \$9,000 was transmitted to the State Treasurer when the ultimate consumer of the violative fertilizer could not be located.

Liming Materials Law

Field personnel obtained 101 samples of liming materials for analysis. Nine lots, or approximately 8.9 percent, were found to be in violation. See Table 2.

TABLE 1. VIOLATIONS OF THE FERTILIZER LAW
July 1, 1972 - June 30, 1973

<u>Violators</u>	<u>Number Violations</u>	<u>Violators</u>	<u>Number Violations</u>
Agway Inc.	32	Lebanon Chemical Corp.	54
Asgrow Mandeville Co.	1	Miller Chemical Co.	4
Agrico Chemical Co.	32	Natural Development Co.	1
Black Leaf Products	2	Plant Food Chemical Co.	1
Black Magic	2	Relko, Inc.	1
Chevron Chemical Co.	2	R. A. Reichard, Inc.	7
Chamberlin & Barclay, Inc.	3	Reed & Perrine, Inc.	6
Espoma Co.	2	Rockland Chemical Co.	2
Ecology, Inc.	1	Royster Co.	20
Farmingdale Garden Labs.	1	Sears Roebuck & Co.	8
Faesy & Besthoff	5	Sewerage Commission of Milwaukee	2
Federal Chemical Co.	11	O. M. Scott & Sons	8
Greenlife Products	1	South Jersey Farmers Exch.	2
W. T. Grant	2	Sudbury Labs.	1
W. R. Grace & Co.	3	Swift Chemicals	39
Heritage House Products	1	Terre Co. of N. J.	1
A. H. Hoffman	2	U.S.S. Agri Chemicals	19
Koos, Inc.	5	Vaughan's Seed Co.	1
Morr McGee Chemical Co.	47	Wegro, Inc.	3
Luzerne Fertilizer	1		

TABLE 2. VIOLATIONS OF THE LIMING MATERIALS LAW
July 1, 1972 - June 30, 1973

<u>Violators</u>	<u>Number Violations</u>
G. & W. H. Corson	4
N. J. Zinc Co.	1
Blackham Materials Corp.	1
Limestone Products of America	3

Animal Feed Law

Inspectors sampled 1,161 lots of animal feed for analysis. Approximately 14.4 percent of the lots were determined to be in violation. See Table 3.

TABLE 3. VIOLATIONS OF THE ANIMAL FEED LAW
July 1, 1972 - June 30, 1973

<u>Violators</u>	<u>Number Violations</u>	<u>Violators</u>	<u>Number Violations</u>
Acme Markets	1	G. A. Buchman & Sons	1
Adamo Feed Co.	3	E. M. Buckley & Sons	1
Agway Inc.	16	Cadillac Pet Foods	7
Allied Foods, Inc.	2	Capland Grain Co.	3
Allied Mills, Inc.	10	Carnation Co.	1
Armour Dial, Inc.	2	Champion Valley Farms	1
By-Products, Inc.	2	Davis-Grande, Inc.	2
Beacon Milling Co.	9	Delaware Valley Farms	1
Brick Milling Co.	5	J. W. Eshelman & Sons	2

TABLE 3. VIOLATIONS OF THE ANIMAL FEED LAW (CONT'D.)
July 1, 1972 - June 30, 1973

<u>Violators</u>	<u>Number Violations</u>	<u>Violators</u>	<u>Number Violations</u>
F.C.A. of Vineland (Norma)	10	Metaframe Corp.	1
F.C.A. of N. J. (Trenton)	2	Mid-America Milling Co.	1
Flory Milling Co.	6	J. Morrell & Co.	1
Foster Canning	1	National Pet Food Corp.	2
Fox Pet Foods	6	Perdue, Inc.	1
Great A & P Tea Co.	2	Pennfield Corp.	2
Gloucester Co. Agri. Coop.	1	Penwell Mills, Inc.	1
Green Acre Farm	1	Pequannock Feed & Coal	1
Grand Union Co.	1	Pantry Pride Prod.	2
Hales & Hunter Co.	2	Puppy Palace	1
Happy Jack, Inc.	1	Quaker City Packing	1
Hillpot Farm Stores	1	Ralston Purina Co.	22
Keynes Bros., Inc.	1	R. A. Reichard, Inc.	2
Laddie Boy Dog Foods	2	Roy Co.	1
Limestone Prod. of America	1	Schalick Mills	3
Lora Labs., Inc.	1	G. V. Seiple & Sons	1
Maxton Oil & Fert. Co.	2	Shop-Rite Super Markets	1
Mearl Corp.	1	Snyder Milling Co.	1

BUREAU OF FRUIT AND VEGETABLE SERVICE

The administration of the Fruit and Vegetable Inspection and Grading Service is conducted under a cooperative agreement between the New Jersey Department of Agriculture and the U. S. Department of Agriculture. The principal role of this Bureau is to provide service, upon request, to processors, growers, shippers and receivers of fresh produce marketed through interstate and intrastate commerce. Warehouse and cold storage lots are also graded. Grading is performed on the basis of established Federal or State standards for grade and/or condition as requested by applicants. The results of each lot graded are recorded on an official certificate. This is a nonprofit, self-sustaining service and fees are assessed to cover the cost of operation.

A total of 49 Federal-State inspectors was required to perform the grading and certification of commodities for fresh market and processing during this fiscal year. Graders are licensed by the U. S. Department of Agriculture and work under the supervision of the New Jersey and U. S. Departments of Agriculture.

In addition to fresh fruit and vegetable grading, this Bureau is also responsible for the administration of the New Jersey Potato Labeling Law and works in conjunction with the Bureau of Licensing and Bonding in the administration and enforcement of the New Jersey Controlled Atmosphere Apple Storage Law.

Shipping Point Grading (Fresh Market)

With the exception of white potatoes, a total of 605,664 containers of various fresh fruits and vegetables was graded in 1972-73. During fiscal 1971-72, 746,940 containers were graded. The decrease of 141,276 containers, representing approximately 19 percent, was due primarily to decreased inspection of peaches destined for Canada. Adverse weather conditions during the late winter and spring months resulted in the smallest New Jersey peach crop since 1934.

White Potatoes

The volume of potatoes inspected in 1972-73 totaled 126,541 hundred-weight equivalents as compared with 220,438 hundredweight inspected in 1971-72. The decreased volume of 93,897 hundredweight, 42 percent, was attributed to the fact that a fair price at harvest time encouraged growers to sell rather than store.

Peaches

A total of 66,402 3/4-bushel containers of peaches was inspected during the 1972 season. This compares with a record year in 1971 when 329,722 3/4-bushel containers were inspected. The reason for the decrease of 263,370 containers, 80 percent, was adverse weather conditions during the winter and spring months which drastically reduced yields.

Canada, however, continued to enjoy New Jersey's peaches with 65,287 containers certified for export to that country. The remaining 1,115 containers were shipped to domestic markets.

Lettuce

For the most part, the quality of the 1972 fall lettuce crop was good to excellent despite freezing weather and heavy frosts in November. The 1973 spring crop, was excellent until the latter part of the season when tipburn developed in some fields from extremely hot and humid weather. Growers realized some of the highest prices in history for the spring crop.

The total volume inspected in 1972-73 was 130,718 two-dozen cartons. Inspections covered 123,532 cartons in 1971-72. The increase of 7,186 cartons represents approximately 6 percent.

Military Purchases

The Defense Personnel Support Center (D.P.S.C.) purchases many New Jersey products. Inspection is mandatory on all military procurements of fresh fruits and vegetables.

Inspections on white potatoes purchased by the D.P.S.C. in 1972-73 covered 15,423 hundredweight equivalents as compared with 102,920 hundredweight inspected in 1971-72, reflecting a decrease of 85 percent.

Miscellaneous products, such as cucumbers, peppers, salad greens and sweet corn, inspected totaled 104,325 containers in 1972-73, an increase of approximately 45 percent over the previous year. Inspections in 1971-72 covered 71,639 containers. See Table 4.

TABLE 4. COMMODITIES INSPECTED AND CERTIFIED TO DEFENSE PERSONNEL
SUPPORT CENTER SPECIFICATIONS (1972-73 AND 1971-72)

<u>Commodity</u>	<u>1972-73</u>	<u>1971-72</u>
Cabbage	34,823 50-pound crates	17,305 50-pound crates
Corn	6,030 crates	7,512 crates
Cucumbers	11,270 bushel baskets	10,069 bushel baskets
Eggplant	350 bushel baskets	---
Lettuce	40,475 2-dozen cartons	25,668 2-dozen cartons
Onions	250 50-pound bags	1,000 50-pound bags
Parsley	120 crates	---
Peppers	8,188 bushel baskets	9,552 bushel baskets
Squash	2,819 1/2-bushel baskets	533 1/2-bushel baskets
Total	104,325 containers	71,639 containers
Potatoes	15,423 hundredweight	102,920 hundredweight

Canadian Export

New Jersey exported many fresh products to Canada in 1972-73, including 15 of the 24 commodities on which inspection is made mandatory by the Canadian Department of Agriculture. The volume of products inspected for export has steadily increased during the past several years. In 1972-73, however, the total volume inspected decreased 21 percent from the 1971-72 volume. This was the result of a drop of 71 percent in peach inspections. Most other products showed increases. See Table 5.

TABLE 5. VOLUME OF PRODUCTS GRADED FOR EXPORT TO CANADA
(1972-73 AND 1971-72)

<u>Product</u>	<u>1972-73</u>	<u>1971-72</u>
Apples	31,828 cartons	47,806 cartons
Asparagus-fresh	9,381 crates	13,464 crates
Asparagus-proc.	39,156 bushel baskets	44,600 bushel baskets
Beets	346 bushel baskets	126 bushel baskets
Cabbage	46,367 50-pound crates	16,520 50-pound crates
Cantaloupes	389 flats	212 flats
Cauliflower	104 crates	---
Corn	3,150 crates	---
Cucumbers	13,346 bushel baskets	12,603 bushel baskets
Lettuce	90,243 2-dozen cartons	93,028 2-dozen cartons
Onions	32,622 50-pound bags	9,650 50-pound bags
Peaches	65,287 3/4-bushel crates	227,791 3/4-bushel crates
Plums	---	100 1/2-bushel cartons
Potatoes	30,393 hundredweight	21,322 100-pound sacks
Prunes	762 1/2-bushel cartons	579 1/2-bushel cartons
Rutabagas	1,063 50-pound sacks	123 50-pound sacks
Tomatoes	33,875 various size containers	26,635 various size containers
Total	398,312 containers	514,634 containers

The total volume of all commodities graded at shipping point with the percentage of increase or decrease for this fiscal year as compared with 1971-72 is indicated in Table 6. (See next page.)

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TABLE 6. VOLUME OF COMMODITIES INSPECTED AT SHIPPING POINT (1972-73 AND 1971-72)

<u>Commodity</u>	<u>1972-73</u>	<u>1971-72</u>	<u>Percent Increase or Decrease</u>
Apples	112,944 cartons	87,805 cartons	+ 29
Cabbage	83,890 50-pound crates	33,825 50-pound crates	+148
Corn	45,980 crates	20,179 crates	+128
Lettuce	130,718 2-dozen cartons	123,532 cartons	+ 6
Onions	44,115 50-pound bags	10,650 50-pound bags	+314
Peaches	66,402 3/4-bushel crates	329,722 3/4-bushel crates	- 80
Tomatoes	33,875 various size containers	26,637 various size containers	+ 27
Miscellaneous	87,740 containers	114,590 containers	- 23
Totals	605,664 containers	746,940 containers	- 19
Potatoes	126,541 hundredweight	220,438 hundredweight	- 42

Products Graded for Processing

Although the volume of asparagus produced in New Jersey is rapidly decreasing, tomatoes and asparagus continue to be the two most important products graded for processing in New Jersey.

Products for processing are graded on the basis of processor-grower contracts which usually incorporate Federal or State standards. Graders analyze a representative sample from each grower's load and record the results on an official certificate. Grading provides: (1) an equitable and impartial basis for payment for both processor and grower, and (2) an inducement for growers to deliver higher quality products, resulting in a higher quality finished product for the consumer.

Tomatoes

1972 was a year for change: (1) new Federal standards; (2) new sampling techniques and equipment; (3) new mechanical grading tables; and (4) new electronic color determination.

Five of the seven New Jersey processors who requested our grading services purchased the color measuring devices, U. S. Department of Agriculture-approved colorimeters, that provide an objective color measurement on a composite raw juice sample. Mechanical sampling equipment and mechanical grading tables were also used in conjunction with the new grading systems at some of the processing plants. The new and sophisticated concept in grading provided more accurate sampling, defect and color determinations which benefited both producers and processors.

In 1972, New Jersey ranked fourth nationally in the production of tomatoes for processing, preceded by California, Ohio and Indiana. The New Jersey acreage was down from 14,400 in 1971 to 12,600 acres in 1972.

The total volume of tomatoes graded for processing decreased from 232,294 tons in 1971 to 162,689 tons in 1972. The decrease of 69,605 tons, representing 30 percent, was due primarily to reduced acreage, cold and wet weather in the spring, two extremely hot and dry weeks in July, and, finally, the toll of Hurricane Agnes.

Reflecting the adverse weather conditions, the average yield per acre in 1972 was 13.7 tons, down from 15.0 tons per acre in 1971.

With the inception of the new tomato standards, involving in most cases the use of the colorimeter, it is impossible to make average grade comparisons with previous years. The season's average for all contracts using the colorimeter was 96.0 percent usable, and the tomato color index (TCI) averaged 70.5. For contracts not using the colorimeter, the percent usable averaged 90.5.

Asparagus

In 1973, New Jersey ranked fourth in acreage of asparagus, preceded by California, Washington and Michigan. The preliminary estimated total acreage for harvest in New Jersey in 1973 was 12,100 compared with the revised estimate of 13,800 acres in 1972. Asparagus acreage in New Jersey has gradually declined for the past five years. Hopefully, improved varieties and mechanical harvesting will reverse this trend. Approximately 75 percent of the total acreage was contracted for processing.

Twelve graders were required to grade the 1973 crop for processing at seven receiving stations for one processor and five brokers. Grades were determined on hand cut, hand snapped, and machine harvested asparagus with a wide range in specifications.

The total volume graded in accordance with New Jersey standards as supplemented by grower-processor contracts was 5,540,304 pounds, compared with 10,651,305 pounds for the 1972 season.

This decrease of 5,111,001 pounds represents approximately 48 percent. Factors contributing to the decrease were: (1) decreased acreage, and (2) continuing disease problems resulting in decreased yields per acre.

Approximately 25 percent of the total volume graded was cut by machine, compared with 17 percent in 1972 and 7 percent in 1971.

Total Products

TABLE 7. VOLUME OF PRODUCTS GRADED FOR PROCESSING (1972-73 AND 1971-72)

<u>Product</u>	<u>1972-73</u> <u>(tons)</u>	<u>1971-72</u> <u>(tons)</u>	<u>Percent</u> <u>Increase</u> <u>or Decrease</u>
Tomatoes	162,689	232,294	- 30
Asparagus	2,770	5,326	- 48
Other vegetables	4,044	4,752	- 15
Total	169,503	242,372	- 30

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Terminal Market Grading

Terminal market grading is important to New Jersey produce dealers receiving fresh fruits and vegetables shipped through interstate commerce; also to New Jersey hospitals and institutions. Inspectors must be certified as collaborators by the U. S. Department of Agriculture to perform this type of inspection work. Five New Jersey State employees are authorized to grade products received in terminal markets.

Potatoes

Potato inspections in 1972-73 covered 7,410 hundredweight equivalents, which is a decrease of 59 percent from the 17,983 hundredweights inspected in 1971-72. Terminal inspections on potatoes cover seed potatoes, principally from Maine, as well as table stock from several states.

Miscellaneous Products

Miscellaneous fruits and vegetables inspected totaled 131,059 containers. The total for 1971-72 was 76,360 containers. Increased banana and citrus inspections are primarily responsible for the 72 percent increase in 1972-73.

Institutions

Weekly deliveries of fresh products were inspected at three New Jersey State institutions. A total of 795,124 pounds covering some 30 commodities was inspected. In 1971-72, inspections covered 742,176 pounds. This shows a slight increase of 7 percent for 1972-73.

Potato Labeling Law

The purpose of this law is to promote the development of the potato industry in New Jersey. It prohibits the misbranding of packages of potatoes produced in New Jersey (or any other state) and subsequently offered for sale in New Jersey. It provides an opportunity for the public to purchase potatoes properly identified as to quality, condition and grade. During this fiscal year, the five enforcement agents of this section made official inspections on 11,157 lots at wholesale and retail potato outlets in all counties in New Jersey with 144 lots found to be in violation of the law (see Table 8). The violations represented 1.3 percent of the lots inspected. Most of the violations resulted from failure of produce managers in retail stores to rotate or turn plastic and mesh window bags, resulting in the potatoes turning green from exposure to light.

TABLE 8. POTATO LABELING LAW
July 1, 1972 - June 30, 1973

<u>No. Lots Inspected</u>	<u>Total No. Violations</u>	<u>Approximate Percentage</u>	
		<u>1972-73</u>	<u>1971-72</u>
11,157	144	1.3	1.0

TABLE 8. POTATO LABELING LAW (CONT'D.)
July 1, 1972 - June 30, 1973

<u>Violator</u>	<u>Number Violations</u>	<u>Violator</u>	<u>Number Violations</u>
Acme Markets	13	Joe's Farm Market	1
A & P Tea Co.	23	Johnny's Cash Market	1
Bedway J. Azee (repacker)	1	Kings Super Market	1
Barben Superior Super Mkt.	1	Path Mark	5
Buy Rite Market	2	Penn Fruit	2
Clover Market	2	Quick Chek	3
E & B Market	1	Shop-Rite	24
First National	2	Shop "N" Bag	8
Foodtown Markets	18	Southland Corp.	1
Food Fair	11	Stop & Shop	5
Garden Patch	1	Thriftway	3
Good Deal	2	Two Guys	2
Grand Union	8	Village Market	1
Great Scott Market	2	Wawa Market	1

Controlled Atmosphere (CA) Storage For Apples

Rules and regulations governing controlled atmosphere storage for apples in New Jersey specify that apples to be sold as "CA" apples must be stored for a minimum period of 90 days at 32 degrees F. in an atmosphere with a maximum oxygen content of 5 percent. Each storage facility is licensed and issued an official CA number.

Within the State for the 1972 crop season, there were 10 CA storage facilities comprising a total of 23 individual storage rooms, principally located in the central and southern counties. There were 308,897 bushels of apples stored for this past fiscal year. A total of 61 visits was made to the establishments during the 90-day storage period.

TABLE 9. APPLES STORED IN CONTROLLED ATMOSPHERE
(BUSHEL EQUIVALENTS) - 1972-73

<u>Variety</u>	<u>Bushel Equivalents</u>
Red Rome	112,513
Red Delicious	107,804
Red Stayman	32,105
Stayman	18,500
Jersey Red	12,665
Rome Beauty	8,192
Golden Delicious	7,706
Applegate Rome	3,740
Turley	1,960
Jonathan	1,800
Winesap	940
McIntosh	500
Melrose	272
York	200
Total	308,897

Meetings With Commodity Groups

Our seventh consecutive annual meeting with commodity groups that usually contract for our services on a weekly basis was held on December 13, 1972. These meetings are held to discuss mutual inspection and grading policy and inspection charges. Meetings of this type have greatly improved the relationship between the industry and the New Jersey and U. S. Departments of Agriculture.

Regional Supervisors Meeting

New Jersey was the host state for the annual Northeast Apple and Potato Supervisors Conference held in Atlantic City, September 27 to 29, 1972. The chief of this Bureau, Walter M. Springer, was chairman for the three-day session. Phillip Alampi, Secretary of Agriculture, presented the welcoming address. Presentations were made by Delmar K. Myers, director, Division of Regulatory Services, and Francis A. Raymaley, director, Division of Rural Resources.

Growers Meeting

In cooperation with the U. S. Department of Agriculture, an exhibit was displayed at the annual New Jersey Vegetable Growers Association meeting in Vineland on January 16 and 17, 1973. The exhibit illustrated inspection techniques for various commodities. The capabilities of the U. S. Department of Agriculture approved tomato colorimeters and juice extractors used in the newest system of grading tomatoes for processing were demonstrated. All major processors and farmers have accepted this procedure in their contract specifications.

Inspection Personnel Training

A great deal of effort is put into recruiting and training inspectors for asparagus and tomatoes for processing. Each year since 1965, we have held a one-week training school for asparagus inspectors and two one-week schools for tomato inspectors. In addition to assisting our overall inspection program, the Federal supervisor for the State of New Jersey, Peter N. Manos, is responsible for conducting the schools. Also, the U. S. Department of Agriculture always sends a representative from Washington, D. C., to assist in the training.

BUREAU OF POULTRY SERVICE

The Bureau of Poultry Service's primary function is to help the poultry industry market its products in an orderly manner. Eggs are inspected at all steps of marketing from farm to consumer in order to enforce the provisions of the New Jersey Egg Marketing Law. Firms that are licensed to use the Department's official emblem, the New Jersey State Seal of Quality, are supervised through unannounced visits by egg inspectors. Grading services are available in order to assure that products conform to official grades and contract specifications. Producers, packers, distributors, wholesalers and retailers are advised of practices and procedures that enable them to comply with the law and effectively promote their products.

A cooperative agreement between the U. S. and New Jersey Departments of Agriculture has been implemented to assist the Federal Department's plans for decentralization of many of its functions. All egg inspectors in the Bureau of Poultry Service are licensed and authorized by the U. S. Department of Agriculture to perform regulatory work under two Federal laws: the Agricultural Marketing Act and the Egg Products Inspection Act. One hundred and ninety-two egg handlers in New Jersey have been registered by the U. S. Department of Agriculture through the efforts of employees of this Bureau. All handlers have been visited four times during the year in order to keep their activities under surveillance. The most important objectives of these inspections are to make certain that proper disposition is made of restricted eggs and that no unauthorized egg breaking operations are being performed. Alleged violations are investigated by State employees. Two new employees are working as resident graders in shell egg packing plants licensed by the Federal agency. Two New Jersey egg inspectors and their supervisor are licensed to test weigh poultry. Four agricultural products agents have been assigned during this fiscal year to poultry and egg products plants. The licenses held by these employees authorize them to issue U. S. Department of Agriculture certificates on their findings. This broader variety of duties not only makes the job more interesting, but materially assists the Federal agency in its efforts at decentralization. Federal funds are provided to perform these tasks.

Egg Law Enforcement

The New Jersey Egg Marketing Law has been in effect since January 1, 1966. On May 25, 1972, Governor William T. Cahill signed a law that amends the original one. The amendments went into effect June 24, 1972. The amount of penalties assessed against violators of the law has been increased; they now range from \$50 to \$500 rather than from \$25 to \$100. Municipal courts as well as county district courts now have jurisdiction over this law. Another change provides for administrative settlement of violations. Changes in the rules and regulations have been promulgated by the State Board of Agriculture in accordance with the Administrative Procedures Act. The Board made one change in June 1972; it adopted the Federal Standards, Grades and Weight Classes for Shell Eggs as the official standards for New Jersey. Truth in packaging is recognized as a basic need in order to gain consumer confidence in any product. All containers of eggs must designate the grade, the size, and the name of the party responsible for the contents. Incorrect, fraudulent or misleading representation must not appear on labels, containers, displays or advertisements for eggs. Since satisfied consumers are the most valuable asset egg producers can have, the enforcement procedures of this Bureau serve consumers and farmers alike.

Unannounced visits to retail stores, roadside stands, delivery routes, egg packers and producers required approximately 85 percent of each inspector's time for the purpose of law enforcement. Although most eggs are placed in retail cartons by firms that specialize in this function, the retailer is not relieved of his responsibility to the consumer. He must correct the situation that creates a violation or remove the product from sale. In the event the product is not voluntarily removed from sale by the possessor, inspectors have, since April 1, 1973, been placing such product under a stop sale order until correction is made or product is returned to the packer or distributor

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for correction or proper disposal. An inspector or some other disinterested third party certifies the disposition of eggs that fail to meet the grade indicated or fail to meet the size-weight class indicated.

Each inspector is supplied with a candling light and a scale to aid in determining the grade and size of eggs. Interior and exterior factors are examined. A sling psychrometer is used to determine temperature and humidity in holding rooms. A report is issued for each size, grade, and brand found to be in violation. All omissions and commissions are recorded as violations and are referred to the Division director for a warning letter or penalty action.

Compliance with the law is of prime concern to this Bureau. Telephone calls, letters, personal visits and official warning notices usually are sufficient means to this end. Penalties are sought against all those whose products fail to conform to the grade or weight as indicated by carton markings or advertisement.

Each year since the Egg Marketing Law went into effect, the field staff has distributed considerable printed material to the trade in order to make these people aware of its provisions and their obligations. It is the opinion of the staff of the Bureau of Poultry Services that no one in the egg business can any longer claim he is ignorant of the law.

Educational efforts will be continued, because a well-informed industry helps reduce the incidences of violations and thereby tends to increase consumer confidence.

During fiscal 1972-73, 29,967 lots of eggs were inspected at retail stores, at dealers' warehouses, and at the producer level. Violations of the egg law were found in 417 lots. Penalty action was taken against those responsible for 282 violations and warnings were issued on 135. Table 10 lists the firms and individuals who violated the law more than once during the year.

TABLE 10. VIOLATIONS OF NEW JERSEY EGG MARKETING LAW
JULY 1, 1972 - JUNE 30, 1973

<u>No. Lots Inspected</u>	<u>Total No. Violations</u>	<u>Approximate Percentage</u>	
		<u>1972-73</u>	<u>1971-72</u>
29,967	417	1.3	1.0

<u>Violator</u>	<u>Number Violations</u>	<u>Violator</u>	<u>Number Violations</u>
Acme Markets, Inc.	3	K & B Poultry Farms, Inc.	10
David Adler	3	Lakeview Farms	8
Agway Inc.	6	Land O'Lakes, Inc.	2
Allendale Farms, Inc.	19	I. Laufer	2
A & P Tea Co.	5	Long Branch Poultry Farm	2
Beck & Sons, Inc.	2	Martin Malberg	3
Robert S. Conard	2	Merkin Poultry Farm, Inc.	3
Colonial Poultry Farm	15	Miller Paper Supply	2
D & H Egg Co., Inc.	10	L. Osborn	2
Dutchlaan Farms	5	E. Puglisi	3
Dutchland Farms (Pa.)	6	Juan Ramos	2

TABLE 10. VIOLATIONS OF NEW JERSEY EGG MARKETING LAW (CONT'D.)
July 1, 1972 - June 30, 1973

<u>Violator</u>	<u>Number Violations</u>	<u>Violator</u>	<u>Number Violations</u>
First National Stores	3	Thomas Ray	2
Flemington Agri Market	5	Otto C. Rode, Inc.	6
Food Fair Stores	4	R & R Provision	2
Frenchtown Poultry Farm	3	Schuster's Poultry Farm	3
G & G Egg Receivers, Inc.	2	Seven-Eleven Stores	2
Garden State Farms	4	Shop-Rite Super Markets	3
Gaysho Farms, Inc. (Fla.)	3	Robert Shubak	2
Z. Gendzel	2	Sommer Maid Creamery (Pa.)	7
Good Deal Super Markets	4	Stop N Shop, Inc.	2
Hills Super Markets	3	Taback & Sons	2
Hoffman Poultry Farm	2	To-Mi-Co (Ga.)	2
Intercounty Farmers Coop. (N.Y.)	4	Vineland Egg Auction	4
Jersey Coast Egg Prod., Inc.	10	Wawa Farm Markets	4
Jersey June Egg Co.	12	Wells & Nulter (Pa.)	2
J. T. Egg Producers	7	White Wing Egg Ranch (Pa.)	3
J. S. Kalb Egg Producers, Inc.	2		

In addition, 186 farms had one violation each.

All segments of the egg industry are encouraged to seek assistance from this Bureau. Effective lines of two-way communication have been established with producers, packers, distributors and retailers. The Bureau of Poultry Service wishes to remain informed in order to be able to offer proposals for solutions to industry problems and in order to receive aid in solving Bureau problems.

During fiscal 1972-73, three egg inspectors were certified for potato protection and have also been inspecting potatoes in retail stores to determine compliance with the New Jersey Potato Labeling Law. These three men elected to perform this function in addition to their egg duties and find satisfaction in being able to inspect two commodities at each outlet. They inspected 3,502 lots at 1,031 locations and found 33 potato violations. The violations were reported to the Bureau of Fruit and Vegetable Services for appropriate action.

Grading and Inspection Service

This is a threefold program: First, to encourage the production and identification of eggs having a specified high standard of quality; second, to package such eggs in retail containers bearing New Jersey identification and the New Jersey Seal of Quality; and third, through the Poultry Products Promotion Council, to bring the product to the attention of the consumer. It is a self-help effort on the part of the producer coupled with Department supervision as a means of furthering the development of the poultry industry in New Jersey to serve New Jersey and nearby consumers.

Department regulations provide for the licensing of firms to market eggs under the Seal of Quality conforming to the two highest consumer grades. The Seal of Quality may also be used by producers in identifying eggs

conforming to the highest wholesale grade and marketed to licensed firms. An annual license fee is charged firms which market eggs under the Seal of Quality program in conformity with consumer grades.

At the close of the fiscal year, 14 firms were licensed to market eggs under the Seal, three fewer than the previous year. There were 4,721,420 dozens of New Jersey eggs marketed in containers bearing the Seal of Quality. This is 4,968,815 dozens less than the volume marketed last year. The drop in volume is the partial result of Key Foods, Inc., a large chain headquartered in New York City, ceasing to sell Seal of Quality eggs. Key Foods used 40 percent of the Seal of Quality eggs packed each month and were supplied by four packers.

Egg inspectors examined 2,198 lots of Seal of Quality eggs at retail stores. No Seal of Quality eggs were delivered to New Jersey State institutions, because the contract specifications for this business no longer requires eggs to be of New Jersey origin.

Table 11 shows the monthly activity of this program during the year.

TABLE 11. REPORT ON VOLUME OF NEW JERSEY SEAL OF QUALITY EGGS
July 1, 1972 - June 30, 1973

<u>Month</u>	<u>Dozens of New Jersey Eggs Purchased and/or Produced by Licensed SOQ Packers</u>	<u>Dozens of Seal of Quality Eggs Packed</u>
July	1,276,440	416,683
August	1,519,170	479,652
September	1,386,420	413,247
October	1,320,840	421,896
November	1,253,582	448,141
December	1,182,565	405,868
January	1,300,920	403,291
February	1,191,450	352,600
March	1,311,075	366,683
April	1,221,165	356,449
May	1,243,710	349,197
June	1,109,010	307,713
Total	15,316,347	4,721,420

BUREAU OF LICENSING, BONDING AND REGISTRATION

The absence of controls in agriculture permits pirating of trade, destruction of competition in the market place, spread of disease in animals, loss of standards, financial loss to growers and producers of agricultural commodities, and violation of guarantees in feeds and fertilizer materials, to name but a few of the hazards.

This Bureau performs those duties related to the enforcement of licensing, bonding, and registration provisions of several statutes assigned to it under Title 4, to include: milk dealers; commission merchants, dealers, and brokers; cattle, sheep, and swine dealers; Commercial Feed Law; Fertilizer and Soil Conditioner Law; and the Agricultural Liming Materials Law.

In addition, the license function is also performed in accordance with those statutes concerning garbage feeding hog farm operators; controlled atmosphere storage of apples; use of the State outline on farm product packages; and State Seal of Quality use.

Accordingly, the total licenses issued in each category were: milk dealers - 31; commission merchants, dealers, and brokers - 356; cattle, sheep, and swine dealers - 83; commercial feed law registrants - 341; fertilizer and soil conditioner registrants - 115; agricultural liming material registrants - 18; garbage feeding hog farm operators - 134; controlled atmosphere storage operators - 12; State outline users - 1; and State Seal of Quality users - 16.

Total license, registration, and tonnage inspection fees obtained in connection with this effort were \$162,171.06. Penalty assessments related to late filing of tonnage reports totaled \$206.93.

Claim Action Upon Surety Bonds

Two categories of licenses also require the deposit of surety bonds in support of the license issued. The size of the bonds is determined by information provided within the application for license each year, and may reach maximums of \$25,000 for commission merchants, dealers, and brokers, and \$100,000 for milk dealers, plus an amount, at the discretion of the Secretary of Agriculture, not to exceed an additional \$100,000.

During the license period, 18 growers filed statements of claim with the Secretary for payment of \$32,789.51 from the proceeds of three surety bonds deposited by an equal number of involved license holders. Payment of this sum through the Secretary was effected in September and December of 1972, following surety's validating the claims from our records.

Additionally, toward the close of the 1972-73 license period, statements of claim were filed by six New Jersey growers against the bonds of two licensees who did not file for license renewal in April due to financial conditions which dictated their filing petitions for bankruptcy in Federal Courts. Such claims total \$8,956.65, which will be acted upon in accordance with statutory provisions during the 1973-74 fiscal period and reported upon subsequently.

The long-standing sugar beet claims due for trial hearing in December of 1972 were remanded by the Superior Court to action on the part of the Department of Agriculture by administrative hearing. This matter was pursued by the hearing officer of the Department, and of the four claims; two were dismissed by virtue of acceptance of promissory notes by the growers, one was dismissed for lack of sufficient documentation, and one payment to a grower was ordered.

Informal complaints were filed by eight New Jersey growers concerning disputes in payments totaling \$4,546.15. These were resolved by the Bureau's staff through investigation and satisfactory payment followed.

Discontinued Efforts

On November 1, 1972, all efforts concerning categories of milk licenses, permits to purchase on butterfat percent basis, and milk tester licenses with weigher and sampler of milk certificates, were turned over to the Division of Dairy Industry in accordance with State Board approval.

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SPECIAL FUNCTIONS OF THE DIVISION

The Division continues its program of cross training and cross utilization of personnel in order to achieve a more efficient enforcement program. Inspectors are becoming skilled in several areas of work, thus elevating the individual's status and improving the overall efficiency of the Department.

Agricultural Products Agent I, II, and III titles have been created to accommodate personnel who have become trained and certified to handle several products required in accordance with laws, regulations, contracts, or agreements in effect. The Division currently has five agricultural products agents in its employ.

The Division is engaged in supplying inspectors for egg grading and egg breaking plants in addition to food processing plants. The inspectors are assigned on a contract basis. The effort is supported by a cooperative agreement with the U. S. Department of Agriculture and is a direct result of the Federal government's decentralization program.

This year the Division conducted a total of 291 determinations on 76 samples submitted primarily for informational purposes by citizens, county agents, and as check samples to verify efficiency of the laboratory.

Effective May 1, 1973, a contract was formalized with the Food and Drug Administration whereby the State will be reimbursed for each of the medicated feed mills inspected by the agricultural chemistry inspectors.

D I V I S I O N O F R U R A L R E S O U R C E S

Francis A. Raymaley, Director

FOREWORD

This annual report of the Division of Rural Resources is finalized in the shadow of the sorrow brought to the staff by the untimely death of the director, Francis A. Raymaley, on July 31, 1973. Ray had anticipated retirement in late summer and was planning the completion of this report on the Division's active and productive fifth year. It is impossible to write it as effectively and succinctly as he would have recorded it. His dedication to the Division, the detail to which he alone knew its total function and the personal charisma which he effectively portrayed, left an indelible mark on the program that he had conceived and nurtured in the interest of New Jersey's rural resources.

Until the very end, Ray was dedicated to his lifetime cause of improving agriculture and making rural New Jersey a better place in which to live. We shall all miss him and shall endeavor to carry forward those ideas and goals for which he stood so valiantly. It is entirely fitting that his major efforts over the past year were directed toward the final report, published in May 1973, of the recommendations of the Blueprint Commission on the Future of New Jersey Agriculture on which he so ably served as executive director under the chairmanship of Secretary of Agriculture Phillip Alampi.

The Division continued and expanded its activities during the year in areas of soil and natural resource conservation, land use, and in the emerging area of the economics of the use of our human resources in rural New Jersey. In the program of Resource Conservation, a major program of the Division, the State Soil Conservation Committee helped local soil conservation districts to assist thousands of individual and government units in resource management, flood control measures, control of soil erosion and sedimentation, and review of land use projects.

These essential services are made available to and provide benefit for the entire public. A small, but dedicated, full-time staff, ably assisted by part-time people throughout the State, brought the services of the Division to ever-increasing numbers of our citizens, both on and off the farm.

ADMINISTRATION

The staff of the Division was at full strength during the first half of the year and was totally involved in the activities relating to rural development service and resource conservation service. During the second half of the year, the position of agricultural economist was vacant following a series of promotions of staff members. Even with this reduction in staff, the Division was able to accomplish many of its goals and to assume added responsibilities delegated to it as a result of the activities of the Blueprint Commission.

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During the latter part of the fiscal year, Richard D. Chumney, executive assistant to the Secretary of Agriculture was charged by Secretary Alampi with the responsibility of preparing the Division's budget for fiscal '75 in preparation toward assuming the directorship upon Francis A. Raymaley's pending retirement. In addition, possible future expansion of program thrusts in the Division were given careful consideration. The planning process for such expansions was begun and these concepts were woven into the preliminary budget proposals for fiscal year 1975. The envisioned expansion relates to the natural resource conservation program, a new environmental service program to deal with agricultural waste disposal, pollution problems and similar issues, and a Federal-State cooperative program with Farmers Home Administration. The accelerated completion of the soil survey and other action to implement the recommendations of the Blueprint Commission, including the revitalization of the Rural Advisory Council, are part of the increased workload which will fall to the Division and for which plans had to be initiated at this early date.

RURAL DEVELOPMENT SERVICES

The pressures for growth in rural New Jersey in all of the sectors of our economy are fantastic. We see the need for housing being met as bulldozers tear at the very fabric of our agricultural heritage. Huge shopping centers and industrial parks cover over acres of our best production farmland. People seek to escape from the jungles of the urban areas and move to suburbia which itself is now changing the stature of our rural communities.

Townships are being swallowed up by national recreation areas. Others are facing the changes brought on by huge planned unit developments. Wherever we look, rural communities are changing --- some from an agricultural emphasis to an industrial or residential focus. Others are adapting to a changing agriculture or a restructuring agribusiness. It is in this situation that the Division has sought to provide help and guidance to the nonfarm people and businesses affected as well as to the operators and farm workers who must adapt to these changes.

During the year 1972-73, the Division has provided service to the people of the State in many activities and spheres of interest. The first listed activity, that of providing staff support for the Blueprint Commission on the Future of New Jersey Agriculture, required the major use of our time and talents. Importantly, however, because of the dedication and enthusiasm of the staff far beyond the requirements of the job, the other essential functions of the Division have been carried out fully as planned. A summarization of the areas of interest serviced by our staff follows:

Blueprint Commission on the Future of New Jersey Agriculture

In his message to the Legislature in January 1971, Governor William T. Cahill announced his firm belief in the need for a Blueprint Commission on the Future of New Jersey Agriculture. This followed the desires of the agricultural community as expressed in resolutions of the State Agricultural Convention, which in turn has been generated earlier by the concern of leading farm organizations.

Later in the year, Governor Cahill directed Secretary of Agriculture Phillip Alampi to create the Commission, assume its leadership, and to appoint the members of the Commission. The initial meeting of the Commission was held in mid-September, at which time the outline of work prepared at staff level was approved by the Commission. The first phase of the work was started immediately by establishing eight task forces. These groups covered business climate, research and education, production, marketing, management and commercial services, land and water resources, agribusiness, and organizations.

The second phase of the program was implemented shortly after the task forces began their work. This effort centered on the real issue of establishing a permanent land base for a continuing agriculture here in the Garden State. After numerous meetings, including public hearings and extensive staff support, the Commission held its final session in mid-April, at which time this report was approved for submission to Governor Cahill and to the Legislature.

Highlights of the Report

Agriculture in New Jersey operates in the most densely populated area in the nation, hence has both problems and opportunities. Farmland declined rapidly from 1954 to 1968 and has substantially slowed down since then, due in part to the Farmland Assessment Act.

There are presently about 1.1 million acres in farms in the State, which is over 600,000 acres less than in 1950.

Due largely to forces external to itself, agriculture in New Jersey is operating under the influence of an "impermanence syndrome" which leads to short-term decision making, less investment in agricultural enterprises, and slower technological adoption. This can be corrected by creating a "permanent land preserve" for agricultural production and by making it feasible for farmers to farm this land and make a profit.

The key issues formed in the report constitute one of the important aspects of the Division's program in rural development. Thus, in fiscal '73, the Division has either worked directly or given assistance in further development of the following topics:

1. A Land Policy for Permanent Agriculture: After extensive deliberations, the Commission concluded that the most critical need of agriculture in meeting its mission is the assurance of a "permanent land base" of sufficient size to promote production and marketing efficiency. The Commission recommends that the agricultural open space plan be administered cooperatively by the State and the local municipality. Under the plan, each municipality would be required to designate a permanent Agricultural Open Space Preserve (AOSP) within its boundaries composed of at least 70 percent of the prime farmland located therein.

Land designated to an AOSP is restricted to agriculture and related open space uses. Landowners whose properties are included in the AOSP would be able to sell the development easement for their land to the State administering agency at the inception of the program

or they could delay the sale until a future time at their option. The funds for financing the program would be derived from a 4 mil tax on all real estate transfer value.

2. Education: Educational programs must be in tune with the social and economic needs and demands related to agriculture, renewable natural resources, and environmental protection.

The Commission recommends development of an overall plan for career orientation and exploration in primary and junior high school grades; widespread agricultural and natural resource education in the high schools; and technical education for natural resources and agricultural occupations in New Jersey at the junior college grades or technical level. It recommends a comprehensive technical institute; continuing education for commercial farmers, others employed in agribusiness, and seasonal workers; and periodic reevaluation and strengthening of curricula offered for professional education in agriculturally related fields at Rutgers University.

3. Farm Labor: A major effort has been made over the past 15 years to improve conditions for farm workers in spite of difficult, competitive problems facing agriculture. The Commission recommends State and Federal legislation to bring agriculture under a labor-management relations act designed for agriculture; support for the Child Labor Law Study Commission in its preliminary report proposing legislation to increase employment of youth in agriculture and other occupations; establishment of a farm and rural safety and health committee, which may also serve in an informal advisory capacity to the Federal Occupational Safety and Health Act; training and retraining of farm workers; a pilot program for a multi-state skilled farm workers corporation; and establishment of a council on farm labor within the Department of Labor and Industry.

4. Farmland Assessment: The Farmland Assessment Act has served agriculture well and in the way it was intended. Unquestionably, it makes it possible for production farming to continue in our urbanizing State.

The Commission recommends strong support be given to the current farmland assessment program, that the Division of Taxation further clarify the term "actively devoted" in the Act to insure proper application, and enactment of S-620 to increase program eligibility requirements.

5. Federal Estate and State Inheritance Taxes: The market value of farm property may have little relationship to the agricultural income which must provide for the Federal estate and State inheritance taxes.

The Commission recommends Federal legislation to increase the taxable estate exemption and to tax qualified land for estate purposes on the basis of its agricultural value, State legislation to increase the taxable estate exemption, and that qualified farmland should be taxed on its agricultural value for inheritance taxes, but, as a condition for such treatment, farmland must remain in agricultural use for 10 years or be subject to a penalty payment.

6. Management: The business of farming grows ever more risky, costly, complicated and regulated, and the farmer must serve in many roles in his operation.

The Commission recommends that farmers must continue to be committed to upgrading their management capabilities and learn to effectively use the tools, skills and equipment of farm business management and that a farm management advisory committee should be established under the aegis of the Cooperative Extension Service to strengthen all facets of farm management application.

7. Marketing: Effective marketing of New Jersey farm products requires a special effort if the producer is to obtain a profitable return.

The Commission recommends further development of direct farmer-to-consumer marketing channels; establishment of a New Jersey agricultural export committee to stimulate overseas trade; a feasibility study for a central agricultural distribution center; more adequate State labeling laws for commodities; and the appointment of an advisory committee for the creation of an organization to coordinate the existing production and marketing programs and to further develop a total systematic approach to producing and selling our agricultural products.

8. Natural Resources: The Commission recommends prompt completion of the Cooperative Soil Survey so that the lack of basic data does not delay the agricultural land preservation program; further direct State funding for the State Soil Conservation Committee and its district units; and a three-year pilot program for cost sharing with private landowners for priority conservation practices.

9. Organizations: New Jersey agriculture is represented by many organizations, all of which were developed for particular purposes. The effectiveness and future role of all existing organizations should be evaluated.

The Commission recommends that each agricultural organization should establish a special evaluation committee to review its goals, functions and effectiveness, and that a unified policy and voice for the farm community of the State be developed wherever possible through the cooperation and/or consolidation of the numerous farm organizations in New Jersey.

10. Recycling Waste: It is imperative that the vast quantities of biodegradable agricultural and municipal wastes being generated in New Jersey be utilized and recycled whenever possible.

The Commission recommends that an Agricultural Waste Council be formally established by law in the Department of Agriculture. It would promote research and develop feasibility studies and desirable legislation in regard to recycling wastes.

11. Research: The Commission recommends that the Agricultural Experiment Station should continue its present research program, strengthen it with adequate financial support, periodically update its research priorities, coordinate its research with industrial concerns to assure full coverage of problem areas, and avoid unnecessary duplication.

12. Rural Advisory Council: An emerging comprehensive rural development program and a population expanding into rural agricultural areas

call for a broadened public program to deal with these complex unsettling changes.

13. Taxation: The Commission recommends that legislation be enacted to require local municipalities or special purpose utility authorities to make all charges against the property for the construction or installation of public facilities on the basis of current assessments rather than a front-footage charge. It also endorses the sales tax exemptions applying to qualified farmers.

The aforementioned highlights of this report sum up the essential needs of a permanent agriculture. These are pertinent to a multi-land use concept which agriculture so completely typifies.

The following is a chronological order of the workload in fiscal '73 on which Division staff spent a substantial amount of their time, effort and expertise in the development of the Blueprint Report:

1. Task force reports were reviewed and certain recommendations were refined and supplemented for later consideration.
2. Financial support was initiated to assist the Department of Agricultural Economics and Marketing, Rutgers University, in its special work for the Commission on the land preservation issue. Factual information on the status of New Jersey agriculture was developed.
3. Specific requests were mailed to key leaders in New Jersey, on special phases of the Blueprint, seeking input for the final report that would be useful in making the recommendations creditable when completed.
4. Substantial Blueprint Commission attention was given to study the possibility of the development rights concept in New Jersey as a means of preserving farmland.
5. Activities for the Blueprint centered on land use preservation alternatives, marketing and farm labor. In addition, statistics on the relationship of New Jersey agriculture production to New Jersey consumption were prepared for the Commission.
6. The staff met with officials of State government and others to review key issues of the Blueprint with regard to the practical, legal and taxation implications of proposed recommendations.
7. Several meetings were held with the Division of Taxation to discuss the land retention program. Many internal staff meetings and continued revisions and refinements of the 12 issue papers took place.
8. The pertinent details of the Blueprint's recommendations were summarized and with the assistance of our consultant at Rutgers University, the staff prepared adequate visual material for the chairman of the Commission and selected membership to brief the Governor.
9. The Blueprint Commission Report was completed during the month of April. A review was held with an eminent attorney on the proposed land retainment issue and numerous staff meetings were held. A review was held with responsible agricultural leaders prior to the release date. Plans for the formal presentation of the report to the Governor were

drawn up. The public briefing and the press conference were equally carefully prepared.

10. The staff arranged for and attended an organizational meeting of the Subcommittee on Implementation which was authorized by the Blueprint Commission. This group will investigate possible approaches to the implementation of the recommendations and report back to the Commission.

In summary, the report can and does speak for itself as a means to preserve basic land for agriculture and to give recommendations to enable agriculture to continue and to thrive in a new climate of assured permanence. The staff can hardly be blamed for having pride in its completion, because the culmination of this report has occupied our time in varied degrees for nearly two years. However, the other essential programs of the Division did proceed in an orderly manner toward their objectives during all of this period.

Natural Disaster

Considerable follow up work was accomplished to provide essential information in support of a requested Federal natural disaster designation. Such a designation was desirable and needed to provide relief to our agriculture from "Agnes" and prior natural disasters.

Close working relationships were maintained with all relevant Federal and State agencies in Washington, D.C., New Jersey and neighboring states in order to secure good cooperation and liaison on this important endeavor. Efforts were rewarded when this designation was officially made. Then, with the passage of new Federal legislation, the benefits that could be derived were increased substantially in terms of new loan and write off provisions for eligible farmers.

Efforts were made, through many channels, to alert farmers who have suffered from several natural disasters to the benefits which are now flowing to New Jersey. Basically, a farmer with a 20 percent loss in one crop or a 10 percent total crop loss may be eligible for disaster loans, at low interest, with a write off of up to \$5,000 as a grant. This program is expected to be widely used in light of needs created by Hurricane Doria, Tropical Storm Agnes and a South Jersey hail storm.

Later in the year, this emergency disaster program with an unexpected cessation on December 27, 1972, resulted in several hundred applications, in partial progress, being terminated --- a most distressing action. Full staff and liaison detail were prepared for the Secretary of Agriculture on this issue and specific recommendations were proposed.

With an extension granted by the Federal government, the majority of these applications were processed. The number of emergency loans granted in fiscal '73 totaled 1,719 with a loan value of \$11,719,000. These figures compare with 533 loans, valued at \$3,633,133, granted in fiscal year '72. This increase from 1972 to 1973 is over 300 percent for both the number of loans made and the total value of these loans.

Economic Development Activities

1. The Agribusiness Advisory Committee prepared a draft idea for the Development Council, which advises the Development Division of the Department of Labor and Industry, on the potential of agriculture being a buffer strip and environmental offset in the possible development of an oil terminal or a deepwater port in the Delaware Bay area.
2. The director and the Secretary of Agriculture met with the chairman of the South Jersey Port Authority in order to discuss ways that the Department could assist in the expansion of rural business via the continued growth of marine and overseas business in southern New Jersey.
3. The director spent time with an entrepreneur who seeks to install in New Jersey both an egg breaking complex and an automated egg production complex. Many factors enter into this subject, the most significant being the handling of environmental problems arising out of manure disposal of approximately one million birds.
4. The annual meeting of the Southern New Jersey Development Council was attended. Numerous projects under the aegis of this group and county development commissions were worked on to increase rural jobs to decrease the widening pattern of statewide unemployment and to stimulate activity in the agricultural rural areas.
5. The Subcommittee on Labor of the Food Processing Development Committee met several times during the year and reviewed the farm and processor labor situation. This Subcommittee serves as a forum and clearinghouse for information on the supply and demand for seasonal labor. Representatives of processors, farmers, Extension Service, various migrant labor agencies, and Rural Manpower Service participate in the program which is coordinated by this Division.

Through this Subcommittee plans are now underway for a mobile information and service unit to aid and direct seasonal workers and other employable workers to available jobs and to needed services. This unit will be moved from place to place to have the greatest impact on the labor situation at various seasons.

Farmland Assessment and Farm Taxation

Staff work was initiated, in conjunction with the Local Property Tax Bureau and the Rutgers Department of Agricultural Economics and Marketing, to prepare basic data for consideration by the State Farmland Evaluation Advisory Committee. This Committee annually prepares and publishes a report of guide values for use by local assessors in assessing qualified land under the Farmland Assessment Act.

The guide values adopted were constant or slightly lower in the major agricultural counties because of a subsidence in farm income. More specifically, 11 counties showed no change, seven counties decreased and three counties increased in values when compared to last year's figures.

Generally, farmland assessment interest from landowners, newspaper writers and the Legislature ran high during the fall. Several amendments to the program have been offered, a number of reporters and

landowners have requested detailed information on the program and its effects, and several tax appeals are adding to the interpretation of the program.

A report from the Center for Analysis of Public Issues, Princeton, for release on December 28, 1972, purported to show that the farmland assessment program was an expensive failure in that it did not permanently "preserve" agricultural land; it was heavily subjected to speculation; and it resulted in heavy transfers of tax costs from agricultural landowners to homeowners in rural and rural-suburban areas. Due to its negative conclusions and sweeping assertions, a thorough evaluation of the report was undertaken. This preliminary analysis and evaluation of the report showed some major areas of omission, disputed methodology and serious differences in interpretations related to the program as shown below:

1. The report failed to factually analyze the tremendous reduction in the rate and quantity of loss of farms and farmland which has occurred since the initiation of the farmland assessment program.
2. The report failed to consider and show the municipal tax benefit effect of the three-year rollback which comes into being when land use is changed.
3. The report overlooked the tax policy benefits to agriculture which were a part of the overall objectives of the program.
4. The report did acknowledge that the program should not be terminated and that a permanent agricultural land preservation program was desirable.
5. Numerous errors in calculations were found as the staff continued its study of the entire program.

Farmers Home Administration

In addition to the assistance the Division received from the Farmers Home Administration of the U.S. Department of Agriculture in the area of natural disasters mentioned earlier in this report, the Division staff met with their staff as well as with county freeholders and county planning directors in working on a pilot operation for rural sewage installations in two key areas of rural New Jersey. Staff support and follow up were provided later in the year to the Farmers Home Administration in several local sewer installation proposals, notably in eastern Salem County and in Tewksbury.

Substantial effort is being placed by the Division into pilot projects as mentioned above with the Farmers Home Administration, as well as related areas which promise to have a high potential for quality growth and better living standards in rural New Jersey.

The following table on Farmers Home Administration loans in New Jersey for fiscal '73 pertains to the important areas of funding for rural projects:

TABLE I NEW JERSEY INFORMATION ON
FARMERS HOME ADMINISTRATION LOANS
July 1, 1972 - June 30, 1973

	<u>No. Loans</u>	<u>Grants</u>	<u>Loans</u>
Sewer and Water			
(a) Closed projects	1	\$42,000	\$ 42,000
(b) Projects obligated	8		5,238,800
Recreation Loans			
(a) Loans granted	1		70,000
Conservation Loans			
(a) Loans granted	-		-
Rural Housing			
(a) Units financed	920		14,837,470
(b) Rural rental units	-		-
(c) R.H. site loans	1		54,500
Farm Ownership			
(a) Farms financed	14		357,600
Soil and Water			
(a) Loans granted	1		1,400
Farm Operations Loans			
(a) Loans granted	166		1,788,650
Emergency Loans			
(a) Loans granted	1,719		11,719,000
Farm Labor Housing			
(a) Loans granted	-		-

In quoting the above significant data, it must be stressed that all these loans were made by Farmers Home Administration. However, the Division of Rural Resources has materially assisted in this program by advising on policy and location and by assisting with priority decisions. It is a singular example of the practical way in which this Division can and does work with Federal and State action agencies.

Rural Advisory Council

With a rapidly changing and developing agriculture and related agribusiness complex, a population expanding into rural agricultural areas,

and an emerging comprehensive rural development program at the Federal level, there is a need for an updated and broadened public program related to these conditions. These opportunities are in the realm of the Rural Advisory Council, whose purpose is to study and make recommendations on agricultural and rural economic and social problems.

The Rural Advisory Council is comprised of 12 members, 10 of whom are appointed by the Governor for three-year terms. Members of the Council serve without compensation but are reimbursed for actual expenses in attending meetings and performing Council duties.

During the past year, the following persons served as members of the Rural Advisory Council:

Phillip Alampi	Mark D. Ewing
Dr. Charles E. Hess	Walter Hurff
H. Myron Bacon	Arthur Jarman
B. Budd Chavooshian	John A. McAdams
Mrs. Robert B. Crane	William A. Schlechtweg, Sr.
Lawrence R. DeMaio	Arthur H. West

The Department provides the necessary staff and operations support for the Council. During fiscal year 1973, no new appointments were made to the Council.

The Division actively promoted the position that the Rural Advisory Council should be broadened and recharged to serve in an advisory capacity to an expanded agricultural and rural development program in the Department of Agriculture. Such a program should include the development of policies and programs to improve the economic and social conditions of agriculture and rural areas; coordination and participation in programs to minimize the impact of urbanization on agriculture and rural issues; and consultation with other State governmental agencies on issues peculiar to agricultural and rural areas. The Council should have the ability to receive funds from the U.S. Department of Agriculture and other sources for purposes related to the Council's area of interest.

Additional Activities, Assistance and Programs

The staff participated in and contributed to a number of continuing or special assistance activities during the year. The contributions of the staff were made for the welfare and development of agriculture, land use, and rural community development.

The Division took an active part in:

1. The projection of an area Housing and Urban Development joint conference with the Department of Community Affairs, covering the essential elements in nonmetropolitan growth.
2. The monthly meeting of the State Manpower Planning Council, the Salem County Board of Agriculture annual meeting, the State Farm Bureau convention and in speaking to several service club meetings in various part of the State.

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3. A meeting with the New Jersey State Grange at its annual meeting where assistance in several sectors was rendered.
4. Correspondence and contacts with the public on a variety of matters including, Occupational Safety and Health Act, State sales tax, Subcommittee on Labor of the Food Processors Development Committee, and the trustees of the Southern New Jersey Development Council.
5. The planning and review of an update of the 1967 report "The Impact of Agriculture Upon the New Jersey Economy" by Charles E. Lambert.
6. Many meetings during Farmers Week, including those of the New Jersey Lawn, Industrial and Farm Equipment Dealers Association, the Farmers and Bankers annual dinner and the General Session with the Division director co-chairing the meeting. The Rural Resources Development Conference on the Rural Development Act of 1972 also was arranged by the Division.
7. The compilation, review and distribution of agricultural statistics in conjunction with representatives of the Crop Reporting Service and Office of Business Economics.
8. The guiding of a farm tour for a group of German farmers, speaking on the status of the horse industry in New Jersey to the Ocean County Horse Council, and meeting with an attorney for Farm Bureau in the review of a pending farmland assessment case.
9. Arranging for the program on farmers' exemption to the New Jersey sales tax for a statewide meeting of the New Jersey Lawn, Industrial and Farm Equipment Dealer's Association.
10. A meeting of an ad hoc committee to promote an agricultural museum for New Jersey.
11. A meeting on Occupational Safety and Health Act pesticide regulations at which Federal and State enforcement officials outlined requirements to county agents and other interested agricultural leaders.
12. A meeting in New Brunswick with Dr. Olaf Larson, Rural Development Institute, Ithaca, N.Y., to determine where his program and ours could be of mutual help.
13. Providing staff assistance and coordination of the State Farmland Evaluation Advisory Committee in consultation with Dr. George W. Luke, research professor of Agricultural Economics and Marketing, Cook College, Rutgers University and L. Warren Mann, Division of Taxation, relative to the publication of the Tenth Annual Report of the Committee.

Numerous meetings, not mentioned above, were conducted or attended throughout the year. Many of these were on a monthly basis and too extensive to be listed separately. However, the important results of these meetings and contacts have been covered in the different sections of this report. Only through teamwork in this Division was the diversity of activities possible.

STATE SOIL CONSERVATION COMMITTEE

Resource conservation services of the Department of Agriculture are provided under the guidance of the State Soil Conservation Committee which is a special purpose agency established by an Act of Legislature in 1937. It has responsibilities to provide for the conservation of soil and soil resources, the control and prevention of soil erosion; the prevention of damage by floodwater or sediment, and the conservation of water for agricultural purposes. Its broad purposes are to conserve and maintain the quality of New Jersey soil, water and related renewable natural resources, for continuous landowner and public use and benefit, agricultural productivity, environmental quality and protection, and economic growth.

Objectives

The objectives of the State Soil Conservation Committee are to:

1. Control and prevent soil erosion, sedimentation and the pollution of water and air from silt, dust, chemical residues and plant and animal waste.
2. Achieve efficient land use based upon the capability of the soil to support such use.
3. Provide for watershed protection, management and flood prevention to alleviate floodwater and sediment damage, conserve water, provide public recreation, improve woodlands and wildlife habitats and contribute to a quality environment.

Short-term goals of the Committee are to:

1. Formulate and maintain a comprehensive plan for the management, development and utilization of the State's soil resources for the benefit of all citizens.
2. Maintain and strengthen soil conservation districts to capably administer programs to conserve and develop soil, water and related natural resources in a manner to meet existing and future needs.
3. Establish public awareness of environmental needs and expand utilization of conservation programs to all land users, rural and urban, public and private.
4. Initiate and develop cooperative efforts among all public agencies involved in natural resources for the effective and efficient management and use of these natural resources.

Operating Pattern

The program operation is cooperative in nature and requires interagency coordination for its success. Basically, four groups participate in the program. Each contributes to its success and can be described as follows:

1. The State Soil Conservation Committee administers the program at

the State level; creates soil conservation districts; appoints and sets the terms of office of a board of five resident landowners to serve as the governing body of each district; assists each district in carrying out its programs; coordinates and assists with the procurement of technical services, materials and money from local, State and Federal agencies; allocates State-appropriated funds to the districts; coordinates the activities of the districts; and represents the State's interest and responsibility in soil resource conservation and development, agricultural water management, flood prevention and control and other appropriate natural resource functions in the programs of other State, Federal and local agencies and organizations.

2. The Soil Conservation Districts are legal subdivisions of State government with responsibilities for developing and implementing comprehensive plans for the conservation of natural resources at the local level in cooperation with State, Federal and local resources agencies and with organizations and individuals. Through governing body action, district supervisors coordinate with programs of various cooperating governmental conservation agencies, and promote, publicize and otherwise assist in the development of programs to deal with local environmental and ecological problems and opportunities. Particular areas of concern are soil and water conservation and management, watershed protection and flood prevention, forest management, wildlife habitat management and improvement, rural recreational development, community beautification, environmental education, rural resource development and other related natural resource functions. Soil conservation districts are coordination and service centers for governmental services and assistance which are offered to private landowners, municipal and other public agencies, engineers, planners, developers and other individuals and organizations whose activities affect natural resource use. Programs are conducted with funds, materials and technical assistance provided by the State Soil Conservation Committee and other cooperating agencies, organizations and individuals. Operations are carried out through memorandums of understanding with cooperating technical resource agencies and by district clerical and professional employees.

3. The Cooperating Agencies and Organizations supply districts with technical assistance and materials and, in certain instances, funds needed to accomplish their programs. Cooperating agencies include the U.S. Soil Conservation Service, the Cooperative Extension Service of Rutgers University, the State Bureau of Forestry, the State Division of Fish, Game and Shellfisheries, the U.S. Agricultural Stabilization and Conservation Service, the Farmers Home Administration, county and municipal governmental agencies and commissions, and other agencies.

4. The Landowners and land users may be Federal, State, county or municipal agencies or private individuals who voluntarily agree to cooperate with the district by applying needed conservation practices to the land which they use or control. Without question, the greatest input toward natural resource management in this New Jersey natural resources conservation program is made by the landowner. Through his time and efforts and land use guidance, the public is afforded major improvement in quality of environment. Planners, engineers, professional consultants and others also use the information and services provided through the district. This usually results in application of conservation practices on public and private lands through direct and indirect means.

Accomplishments, 1972-73

Meaningful progress in conservation of natural resources must be measured by the on-the-ground accomplishments which provide benefits to the citizens of New Jersey. However, there are supporting programs of information, education, research and planning and other efforts which are essential to achieve the objectives of the natural resources conservation program.

These on-the-ground accomplishments of the State Soil Conservation Committee are in large part measured at the district level, since the State body serves a supportive role to the districts in this regard. Other types of accomplishments will be noted later in this report.

The rapidly growing population of New Jersey is creating ever increasing and often conflicting demands for the use of our limited soil and water resources. Urban expansion into the watersheds of New Jersey is consuming 30,000 to 35,000 acres of agricultural land each year. Population projections indicate still higher rates of expansion. Attendant to the urban expansion are the problems of flooding, soil erosion, sedimentation and sediment pollution, surface water management, waste disposal, management recreation needs and other resource problems.

Erosion and sediment control measures in urban developments are essential. Conservation districts are assisting urban residents of our State as well as rural. Growing public awareness of the need to properly use and protect our two most basic natural resources, soil and water, is welcomed and sets the stage for greatly increased future program accomplishments.

During the fiscal year 1972-73, technical conservation assistance helped more than 8,500 homeowners, farmers, school boards, conservation Commissions, municipalities, park commissions and others solve natural resource conservation problems on lands they owned or controlled. Some of the most common problems were septic disposal systems and housing failures due to flooding or high water tables, erosion of land and sedimentation in subdivisions and shopping centers and erosion and gullying of cropland due to improper surface water management, development of water supplies for irrigation or recreation, and the control of the State's major water pollutant, sediment, and many other damages arising from sedimentation. Many areas of land were treated through the application of suitable conservation practices. Examples of land treatment during the year are listed below:

Diversions for water interception	35,000 feet
Ponds	80
Grade stabilization structures	10
Grass waterways	60 acres
Drainage mains and laterals	80,000 feet
Tile drains	135,000 feet
Strip cropping	325 acres
Wildlife habitat improvement	2,200 acres

An average of two contacts per landowner or operator was required to help plan and apply these and many other needed conservation practices

for a total of approximately 10,000 contacts or assists. Over 1,875 technical assists were provided for 404 units of government to help them develop and implement natural resources plans and provide for technically sound use and treatment of our soil and water resources.

Inventories, evaluations and interpretations were the principal types of assistance provided to county and municipal governments. Most of these were inventories that identified the hazards and limitations of soil for various urban uses and helped result in 38 new land use regulations. Five units of government also developed resource plans with district assistance.

During the year, soil conservation districts prepared 125 inventory evaluations for units of government, participated in site investigations for 21 public facilities, provided technical assistance to 16 organizational groups, and prepared 680 inventory evaluations for individuals. Four hundred and ninety-two site plans and subdivision plats were reviewed for erosion and sedimentation and other resource management problems. Over 2,000 analyses were provided to farm landowners to determine tax groupings.

Major problem emphasis has been placed upon preventive planning to avoid problems rather than solve them after they become a reality.

To provide the technical and scientific basis for such planning and all land use planning, detailed soil surveys were completed during the year on 245,000 acres of land, bringing the total soil survey completed to slightly more than 3.9 million acres or 82 percent of the total land area of New Jersey.

Forestry Assistance

To assist owners of woodlands to manage and harvest these forest resources, the following forest management practices were provided through soil conservation districts in New Jersey through the technical services of the Bureau of Forestry of the Department of Environmental Protection:

<u>Practice</u>	<u>Number</u>	<u>Acres</u>
Total Forestry Requests	2,452	
Woodlands and planting sites examined	801	64,931
Timber marked for cutting	60 sites	
Sawtimber		887
Plywood		294
TSI	104	655.5
Management plans	202	48,658
Reforestation plans	128	1,253
Sites planted	451	785.5
Products harvested under improved management practices (sawtimber and pulpwood)	38	1,079
Prescribed burning	39	15,663
Timber stand improvement work	98	879

Land Use Planning Assistance

District technicians provide consultive assistance to engineers, architects, planning boards, landowners and others who, in turn, are responsible for the implementation and supervision of necessary conservation practices. The district technician, therefore, is removed from direct supervision of establishment of these practices and often is not able to record actual accomplishment. These services have far reaching effects upon the proper management of our soil, water and related natural resources.

In like manner, soil conservation district supervisors and technical staff are often asked to serve on various resource committees, planning boards, environmental commissions and other local organizations. This day-by-day transfer of knowledge and concepts to such decision-making bodies results in achievement of objectives in the best possible manner; however, it is not feasible to record these important accomplishments.

Watershed Protection and Flood Prevention Program

Under the Federal Watershed Protection and Flood Prevention Act, local citizens through group action can obtain assistance on problems of water management which cannot be handled by individuals. Such watershed projects may include features such as floodwater, sediment and erosion control; development of municipal and industrial water supplies; improvements for fish and wildlife habitat; development of recreation facilities; and management of water for agricultural purposes. Conservation planning through this watershed approach combines upland conservation land treatment with downstream structural controls.

Thirteen watershed projects are currently in the operational or maintenance stage in New Jersey under this program. Nine of these are completed while construction work remains on the other four. The total estimated cost input of these projects is \$28,296,700 of which \$16,978,000 is provided by the Federal government. State and local funds provide for the remaining \$11,518,700 which represents land acquisition costs, contracting services, and the local share of the construction costs of the works of improvement.

Flood Control Projects

<u>Project - Location</u>	<u>Total Costs</u>	<u>Average Annual Benefits</u>	<u>Type of Benefit 1/</u>
Silver Lake, Salem Co.	\$ 365,500	\$ 10,500	F,D,W
Town Bank, Salem Co.	294,000	13,500	F,D
Paulins Kill, Sussex & Warren Counties	685,000	7,000	F
Middle Neck, Salem Co.	260,000	16,000	F,D
Parkers Creek, Burlington Co.	628,000	17,000	F,D
Repaupo Creek, Gloucester Co.	945,500	25,400	F,D
Maurice River Cove, Cumberland Co.	380,000	11,400	F,D,W
Pine Mt.-Mill Creek, Cumberland Co.	268,500	16,800	F,D

<u>Project - Location</u>	<u>Total Costs</u>	<u>Average Annual Benefits</u>	<u>Type of Benefit</u> <u>1/</u>
Stony Brook, Mercer & Hunterdon Counties	1,727,000	49,800	S,I,R
Assunpink, Mercer & Monmouth Counties	20,123,200	1,407,200	F,D,W,R
Pequest, Warren County	1,207,500	242,000	F,D
Riggins Ditch, Cumberland Co.	304,000	17,000	F,I,W
Furnace Brook, Warren County	1,108,500	58,400	F,R
Total	\$28,296,700	\$18,920,000	

The above projects are planned for a minimum of a 50-year life, but with proper operation and maintenance, they are effective for a much longer period.

Surveys and construction underway this year include:

1. Detailed surveys and engineering evaluations on three structures with a total value of \$1,776,000.
2. Final design surveys on two structures with a value of \$2,600,000.
3. Complete construction of one structure with construction and installation costs totaling \$137,000.

Construction began and ground breaking ceremonies were held at Assunpink sites 4 and 5. Three State employees were assigned to the watershed survey crew to accelerate project development.

Flood hazard studies were undertaken in cooperation with the Soil Conservation Service on tributaries of the Assunpink Creek where no structural means of flood damage prevention will be undertaken.

Feasibility surveys were completed on three watersheds and studies were finished on three watersheds to revise structural measures to provide increased ecological benefits.

Thirteen projects now in the operations stage produce current and potential flood damage elimination and public recreation benefits estimated at \$1,892,000 annually.

Soil Survey

In cooperation with the Soil Conservation Service, the detailed survey of 245,000 acres of New Jersey soil was completed. The survey was made

1/ D - Drainage
F - Flood Control
I - Irrigation

R - Recreation
S - Sediment Control
W - Wildlife

to determine physical characteristics, productive capabilities and inherent limitations for all significant uses ranging from agriculture to urban development. Total State acreage completed to date is 3,912,000 or 85 percent of the total land area to be mapped. The dissemination and interpretation of these survey data are essential for proper land utilization and result in elimination of waste and unnecessary expense required to correct improper land use. Survey data are also used as the basis for assessment of lands under the Farmland Assessment Act of 1964. Survey data are also essential for the delineation of prime agricultural lands.

Water Studies

Water quality studies were continued in cooperation with the U.S. Geological Survey to determine the extent of sediment pollution in watercourses of the State, identify major sources of such sediments, and evaluate sediment control measures utilized in the conservation program. Two thousand dollars were provided as one-fourth of the project cost. Similar funding was provided by the Division of Water Resources of the Department of Environmental Protection. Two studies, "Effect of Land Use Retention Practices on Sediment Yields in the Stony Brook Basin, N.J." and "Sediment Transport by Streams Draining into the Delaware Estuary" were released this year. In cooperation with the U.S. Geological Survey, a survey of groundwater levels was conducted during early spring when groundwater levels were thought to be the highest ever recorded. Data will be correlated with water level information from the Cooperative Soil Survey.

Erosion and Sediment Control

Sediment Control Committee efforts continued and resulted in the publication and distribution of Standards for Erosion and Sediment Control in New Jersey. This effort was carried out in cooperation with all agencies having technical expertise relating to erosion controls or their implementation. Model ordinances for implementation and enforcement of these Standards at the municipal government level were included. The objective of this project is to control increasing erosion and sedimentation problems which accompany urban development in New Jersey. In further pursuit of this objective, language was drafted for a statewide erosion control bill. Language will be used to modify S-1083 to be more comprehensive in nature.

Educational Activities

Annual reports describing district conservation programs and annual progress in attractive form were prepared in each district. The State Soil Conservation Committee published and distributed nine district reports to district landowners, planners, legislators and other leadership individuals and agencies concerned with natural resources. Over 40 issues of newsletters were published and distributed for districts through the State Committee office. Miscellaneous leaflets and brochures were also printed and distributed.

Districtwide tours were conducted for leadership individuals and agency representatives. News releases and spot radio announcements were prepared and in-person television interviews were conducted. Awards were given for outstanding conservation achievement in each district and at

the State level. Special attention was given to promoting the establishment of municipal environmental commissions and keeping them informed of services available through soil conservation districts.

A successful Natural Resource Interests program was conducted during Farmers Week. Assistance was provided for the continuation of a nine-week in-service training program at Rutgers University. Training sessions for district staff were conducted. Arrangements were made for supervisors and staff to attend regional and national training meetings.

Staff assistance was provided to the Land and Water Resources Task Force of the Blueprint Commission on the Future of New Jersey Agriculture. Recommendations regarding land and water resource management needs were included in the report. The State Soil Conservation Committee and all districts, in cooperation with the Soil Conservation Service delineated prime and unique agricultural lands in accordance with the Task Force recommendations.

Over 30,000 conservation education booklets were distributed to schools and youth groups under a supervised program. Over 83,000 items of natural resource stewardship information were distributed through districts to church groups and related organizations in accordance with official State proclamation and national recognition of Soil Stewardship Week.

Nine official State Soil Conservation Committee meetings were held during the year. An average of 10 official meetings were held in each district during the year. Official membership of the Committee was as follows:

Phillip Alampi	Secretary, New Jersey Department of Agriculture
Richard J. Sullivan	Commissioner, Department of Environmental Protection
Dr. Charles E. Hess	Dean, Rutgers College of Agriculture and Environmental Science
Dr. John L. Gerwig	Director, Cooperative Extension Service, Rutgers University
James A. Shissias	Manager, Area Development, Public Service Electric and Gas Company
Wilson J. Parker	State Conservationist, U.S. Soil Conservation Service
Frank Bartolf	Supervisor, Ocean County Soil Conservation District
Newton S. Layton	Supervisor, Salem Soil Conservation District
John R. Traino	Supervisor, Burlington County Soil Conservation District
Fred H. Totten	Supervisor, Hunterdon County Soil Conservation District
Ivey Allen, Jr.	Supervisor, Somerset-Union Soil Conservation District
Kenneth J. Roehrich	Supervisor, Morris County Soil Conservation District

In addition, the following agencies were represented on the Committee:

New Jersey Department of Health	Dr. Mathew J. Bonese
New Jersey Department of Community Affairs	John Parke
New Jersey Department of Transportation	Edwin Jones
Agricultural Stabilization and Conservation Service	Valentine Rosiak

Upon recommendations from district nominating committees and a special supervisor evaluation subcommittee, three new appointments and 19 re-appointments of resident landowners to district supervisor positions were made. The total district supervisor force is now 75 for the State, a major portion of which represent other than agricultural landowners in keeping with the need to involve all resource users in the soil conservation program.

Soil Stewardship Week was officially proclaimed by Governor Cahill at the request of the State Soil Conservation Committee and extensive distribution of promotional materials was accomplished by districts. The objectives of the Soil Stewardship Week were to foster citizen responsibility for natural resource conservation and increase public awareness of conservation programs administered by soil conservation districts. Participation exceeded last year's program.

A second annual Environmental Essay Contest was held in cooperation with the Educational Committee of the New Jersey Association of Rural Resource Districts. Participation increased with an estimated 2,000 elementary school students from over 200 schools entering the contest.

Planning continued toward the establishment of district resource specialist positions. Districts will provide funds to match State funding subject to State budget approval.

An annual plan of work and budget based upon program budgeting procedures was developed. The Committee on Long-Range Outlook proposed modifications in enabling legislation to adapt programs to current needs.

Extensive guidance and assistance were provided for the New Jersey Association of Natural Resource Districts, a nonprofit educational organization of conservation district supervisors with goals to promote natural resource conservation and development. Program objectives for this organization were developed and published. An annual meeting and training session was conducted during January 1973.

Tree seedling sales were conducted in 13 districts. This conservation service to district residents has also provided a needed source of funding, allowing several districts to increase annual budgets over tenfold in a single year. Over 350,000 seedlings were distributed.

The Morris District, in cooperation with the State Committee, developed and published a conservation plan for the Schiff Scout Reservation. The plan serves as a tool for conservation management of the natural resources on the reservation and as an educational instrument to train scout leaders in resource conservation.

The Morris District also engaged in a project to correlate the relationship between alluvial soils as delineated on soil surveys with engineering delineation of flood-prone areas.

A photo contest and a conservation education mini-grant program for schools was established in the Morris and Northeast Jersey districts.

The Camden District developed a proposed district ordinance to require district review of land development in an effort to control soil erosion, sedimentation and floodwater problems.

The Hunterdon District, with funding by the State Committee, developed a natural resource inventory for all municipalities in Hunterdon County. Six resource factors including prime agricultural lands and suitability for urban development were evaluated and areas delineated for use by municipal planners and environmental commissions.

A resource conservation and development project was established in the Warren and Sussex districts. Necessary organizational steps were taken and an executive council appointed.

All arrangements were made for a visit and tour for conservationists from Louisiana to be held during September 1973.

Coordination was established with the State League of Municipalities to secure close cooperation with districts. An article on district conservation services was prepared and published in "New Jersey Municipalities." An informational booth and consultant session was held at the annual league convention.

A report on soil conservation districts as a source of natural resource planning assistance was prepared for the State Federation of Planning Officials and published as a Quarterly Planning Information Report.

An information booth was prepared for the New Jersey Education Association Convention at Atlantic City. Educational publications were packaged and distributed.

Coordination was established with the State Association of County Boards of Freeholders. Staff presentations were made at two official meetings to promote cost-sharing expansion of district natural resource conservation programs.

District clerical staffs were provided by the Committee. The clerical force ranged from 17 to 19 clerk typists and clerk stenographers at 15 field locations.

The State Soil Conservation Committee continued to work closely with the 15 soil conservation districts in the State providing advisory, coordination, liaison and management assistance. The Committee maintained close liaison with other State and Federal agencies having direct or delegated conservation responsibilities. The Committee, through its members and staff, enjoyed membership on numerous conservation boards, committees and interdepartmental groups.

Extensive routine administrative tasks not herein mentioned necessary to support conservation district organizations were carried out.

In summary, it is conservatively estimated that the budgeted funding of approximately \$154,000 for the State soil conservation program resulted in \$6,000,000 to \$10,000,000 of project installation inputs by landowners and cooperating agencies during fiscal year 1971-72.

An official listing of soil conservation districts with addresses, telephone numbers and a map showing their location is attached to this annual report.

NEW JERSEY STATE LIBRARY

CONSERVATION DISTRICTS IN NEW JERSEY

Name	Address	Telephone No.
Burlington SCD	Cramer Building Rt. 38, Mt. Holly 08060	609-267-0811
Camden SCD	152 Ohio Avenue Clementon 08021	609-767-3977 or 784-1001
Cape-Atlantic SCD	Atlantic Co. Office Bldg. 1200 W. Harding Highway Mays Landing 08330	609-625-2203 or 625-9400
Cumberland SCD	P.O. Box 148, Rt. 77 Seabrook 08302	609-451-2144
Freehold SCD (Mon. & Midsex. Co.)	20 Court St. Freehold 07728	201-462-1079
Gloucester SCD	Gloucester Co. Office Bldg. Clayton 08312	609-881-0240
Hunterdon SCD	Route 6, Box 49 Flemington 08822	201-782-3915
Mercer SCD	930 Spruce St. Trenton 08638	609-695-5415 or 609-396-4593
Morris SCD	Court House Morristown 07960	201-538-1552
Northeast SCD (Bergen, Essex, Hudson & Passaic Counties)	County Service Building 355 Main St. Hackensack 07601	201-646-2979 201-538-1552
Ocean SCD	Ocean County Agric. Center Whitesville Road Toms River 08753	201-349-1245
Salem SCD	1000 East, Rt. 40, Box 37 Woodstown 08098	609-769-1125
Somerset-Union SCD	308 Milltown Rd. 4-H Center Somerville 08876	201-725-3848
Sussex SCD	R. D. 1, Box 13 Newton 07860	201-383-3800 or 852-5450
Warren SCD	Stiger St. Hackettstown 07840	201-852-5450

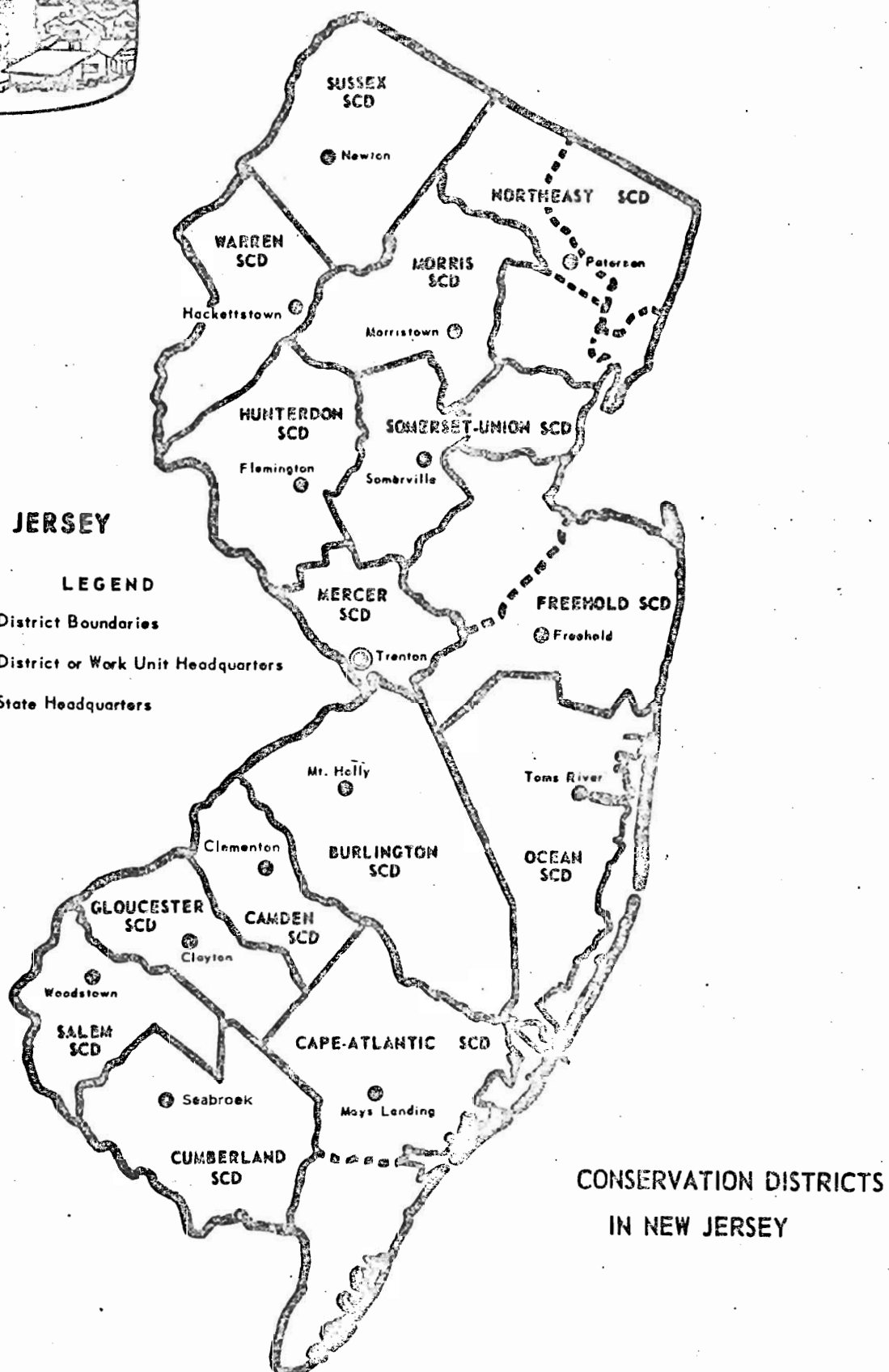
STATE SOIL CONSERVATION COMMITTEE
P. O. Box 1888, Trenton, New Jersey
Tel: 609-292-5540



NEW JERSEY

LEGEND

- District Boundaries
- District or Work Unit Headquarters
- State Headquarters



CONSERVATION DISTRICTS
IN NEW JERSEY

0 25
SCALE IN MILES

FEBRUARY 1973

OFFICIAL PROCEEDINGS OF THE 58TH
ANNUAL STATE AGRICULTURAL CONVENTION

The 58th annual State Agricultural Convention was held in the Assembly Chamber of the State Capitol in Trenton, on Thursday, January 25, 1973. The meeting was called to order at 9:00 a.m. by William H. Plenge, president of the State Board of Agriculture. The invocation was offered by the Reverend Edwin S. Tomlinson, Rector, St. Peter's Episcopal Church, Washington, N. J.

The roll of delegates was called by Secretary of Agriculture Phillip Alampi. Those in attendance were:

DELEGATES TO THE STATE AGRICULTURAL CONVENTION

From County Boards of Agriculture

<u>Name</u>	<u>Address</u>	<u>County</u>
Arthur Galletta	Hammonton	Atlantic
Eric Hansel, Jr.	Milmay	Atlantic
John M. Caldwell	Closter	Bergen
Herman A. Rohsler	Allendale	Bergen
William S. Haines	Chatsworth	Burlington
William H. Pettit	Juliestown	Burlington
Robert K. Dobbs	Somerdale	Camden
John Rigolizzo	Berlin	Camden
Leslie C. Rea	West Cape May	Cape May
Edward F. Wuerker	Cape May	Cape May
Horace C. Beal	Bridgeton	Cumberland
Louis Pizzo, Jr.	Bridgeton	Cumberland
Roy R. Blair	Nutley	Essex
William H. Rude	Newark	Essex
E. Owen Pool	Mickleton	Gloucester
William G. Stoyko	Sewell	Gloucester
Enzo DeLuca	Jersey City	Hudson
Harry Napoleon	Jersey City	Hudson
Arthur L. Danberry	Ringoes	Hunterdon
Mrs. Melda C. Snyder	Pittstown	Hunterdon
LeRoy Grover, Jr.	Trenton	Mercer
Earl H. Tindall	Trenton	Mercer
Dr. John W. Flemer	Princeton	Middlesex
Chester A. Steen	Plainsboro	Middlesex
Wallace E. Johnson	Holmdel	Monmouth
Charles E. Wikoff, Jr.	Englishtown	Monmouth
William Beauvais	Long Valley	Morris
Peter Sandrian	Morristown	Morris
Mrs. Fred H. Kossatz, Jr.	Cream Ridge	Ocean
Jeffrey A. Lipman	New Egypt	Ocean
Fred Parrott	Hasbrouck Heights	Passaic
Edward Scanlan	Wayne	Passaic
Harry D. DuBois	Elmer	Salem
Alvin L. Yeagle	Elmer	Salem
Vincent Flannery	Belle Mead	Somerset
Steven Selody	Manville	Somerset
Fred R. Hough	Augusta	Sussex
Douglas Ricker	Sussex	Sussex

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<u>Name</u>	<u>Address</u>	<u>County</u>
Donald Amberg	Scotch Plains	Union
Theodore J. Schaffernoth	Scotch Plains	Union
Norman J. Schnetzer	Asbury	Warren
Robert E. Volk	Stewartsville	Warren

From State and Pomona Granges

William A. Schlechtweg, Sr.	Freehold	State Grange
Martin Decker	Hammonton	Atlantic
Michael Monte	Moorestown	Burlington
Reuben H. Dobbs	Marlton	Camden
Allan McClain	Green Creek	Cape May
Karl Wentorf	Califon	Central District
Leon Spencer	Millville	Cumberland
Kenneth T. Stretch	Mullica Hill	Gloucester
Herman C. Schick	Milford	Hunterdon
John W. Tindall	Cranbury	Mercer
Walter G. Wyckoff	Belle Mead	Middlesex-
		Somerset
G. Donald Conrow	Farmingdale	Monmouth
Arthur Y. Jarman	Monroeville	Salem
Harry Vance, Jr.	Glenwood	Sussex
W. Ellsworth Oberly	Stewartsville	Warren

From Breed and Commodity Organizations

American Cranberry Growers' Association, Edward V. Lipman, Bordentown

Board of Managers, College of Agriculture and Environmental Science, Rutgers University, C. William Haines, Sr., Moorestown

College of Agriculture and Environmental Science, Rutgers University
Dr. Charles E. Hess, New Brunswick

The Cooperative Marketing Associations in New Jersey, Inc., Joseph B. Locke, Hightstown

Cultivated Sod Association of New Jersey, Inc., H. Roberts Rapp, Farmingdale

Garden State Dairy Goat Association, Mrs. John M. Richardson, Asbury

New Jersey Agricultural Society, Irving K. Christensen, Wood-Ridge

New Jersey Association of Agricultural Fairs, Rodney L. Uhland, Bridgeton

New Jersey Association of Nurserymen, William L. Bennett, Sewell

New Jersey Beekeepers' Association, Charles G. Yerkes, Pemberton

New Jersey Crop Improvement Cooperative Association, Inc., Frank App, Jr., Bridgeton

New Jersey Dairywomen's Council, Stanley L. Douglass, Pittstown

New Jersey Farm Bureau, Walter Ellis, Jr., Trenton

New Jersey Fur Breeders' Association, E. Anthony Delgado, Vineland

New Jersey Holstein-Friesian Association, Inc., John Paulmier,
Rosemont

New Jersey Livestock Cooperative Association, Inc., Charles J.
Miserendino, Westville

New Jersey Plant and Flower Growers' Association, Inc., Fred Vlamynck,
East Paterson

New Jersey Pony Breeders' and Owners, Inc., Mrs. Lawrence Yetter,
Newton

New Jersey State Florists' Association, Inc., Charles Walkiewicz,
Bound Brook

New Jersey State Horticultural Society, Takashi Moriuchi, Moorestown

New Jersey State Potato Association, Alan J. Dey, Cranbury

New Jersey State Rabbit and Cavy Breeders' Association, S. Cable
Spence, Jr., Iselin

New Jersey State Sweet Potato Industry Association, Inc., Arthur R.
Brown, Jr., Mays Landing

New Jersey Turkey Association, John E. Enders, Cranbury

North Jersey Metropolitan Association of Nurserymen, Joseph J. Cerbo,
Parsippany

Thoroughbred Breeders' Association of New Jersey, William A. Purdey,
Holmdel

Vegetable Growers' Association of New Jersey, Inc., John Voltaggio,
Vineland

E. B. Voorhees Agricultural Society, William M. Nulton, Jr., Somerset

Delegates Not Present

Bergen-Passaic Pomona Grange, John Clauss, Fair Lawn

Garden State Service Cooperative Association, Michael R. Palmieri,
Hammonton

New Jersey Aberdeen Angus Association, Dr. George W. Irmisch, Titusville

New Jersey Guernsey Breeders' Association, Inc., George G. Aaronson, Sr.,
Columbus

New Jersey Hereford Association, Ernest F. Tark, Sr., Salem

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New Jersey Sheep and Wool Cooperative Association, Joseph Conover, Mount Holly

New Jersey State Poultry Association, Samuel Jarmus, Englishtown

Standardbred Breeders' and Owners' Association of New Jersey, Inc., Anthony T. Abbatiello, Colts Neck

Tru-Blu Cooperative Association, Stephen Lee, Chatsworth

MEMBERSHIP OF COMMITTEES

Names of the members of the following committees, appointed by him earlier, were read by President Plenge.

Nominating Committee for Members of the
State Board of Agriculture

Michael R. Palmieri, Chairman	Garden State Service Cooperative Associations
Fred Parrott, Vice Chairman <u>1/</u>	Passaic County Board of Agriculture
Joseph B. Locke	The Cooperative Marketing Associations in New Jersey, Inc.
Stanley L. Douglass	New Jersey Dairymen's Council
John Paulmier <u>2/</u>	New Jersey Holstein-Friesian Association, Inc.
Mrs. Lawrence Yetter	New Jersey Pony Breeders' Association
Alan J. Dey	New Jersey State Potato Association
Stephen Lee	Tru-Blu Cooperative Association
William M. Nulton, Jr.	E. B. Voorhees Agricultural Society
John Clauss	Bergen-Passaic Pomona Grange
John W. Tindall	Mercer County Pomona Grange
Walter G. Wyckoff	Middlesex-Somerset Pomona Grange
Arthur Y. Jarman	Salem Pomona Grange
Fred R. Hough	Sussex County Board of Agriculture
Wallace E. Johnson	Monmouth County Board of Agriculture

1/ chaired the meeting for Mr. Palmieri
2/ for Charles H. Kirby

Arthur Galletta	Atlantic County Board of Agriculture
Alvin L. Yeagle	Salem County Board of Agriculture
Norman J. Schnetzer	Warren County Board of Agriculture
William H. Pettit	Burlington County Board of Agriculture
Earl H. Tindall	Mercer County Board of Agriculture
Mrs. Fred H. Kossatz, Jr.	Ocean County Board of Agriculture

Committee on Resolutions

Irving K. Christensen Chairman	New Jersey Agricultural Society
Chester A. Steen Vice Chairman	Middlesex County Board of Agriculture
William A. Schlechtweg, Sr.	New Jersey State Grange
Robert K. Dobbs <u>1/</u>	Camden County Board of Agriculture
Arthur L. Danberry	Hunterdon County Board of Agriculture
Eric Hansel, Jr.	Atlantic County Board of Agriculture
William L. Bennett	New Jersey Association of Nurserymen
Walter Ellis, Jr. <u>2/</u>	New Jersey Farm Bureau

Committee on Credentials

William S. Haines Chairman	Burlington County Board of Agriculture
W. Ellsworth Oberly Vice Chairman	Warren County Pomona Grange
Rodney L. Uhland	New Jersey Association of Agricultural Fairs

Committee to Escort the Governor

William A. Purdey Chairman	Thoroughbred Breeders' Association of New Jersey
Reuben H. Dobbs Vice Chairman	Camden County Pomona Grange
Dr. Charles E. Hess	College of Agriculture and Environmental Science, Rutgers University
Leslie C. Rea	Cape May County Board of Agriculture
Roy Blair	Essex County Board of Agriculture

1/ for Dennis M. Donio

2/ for Arthur H. H.

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Nominating Committee for Election of One Member
to the Fish and Game Council
(Central Jersey)

Michael Monte, Chairman	Burlington County Pomona Grange
Mrs. Melda C. Snyder Vice Chairman	Hunterdon County Board of Agriculture
Edward Scanlan	Passaic County Board of Agriculture
Harry Napoleon	Hudson County Board of Agriculture
Frank App, Jr.	New Jersey Crop Improvement Cooperative Association, Inc.
Charles Walkiewicz	New Jersey State Florists' Association, Inc.
Anthony T. Abbatiello	Standardbred Breeders' & Owners' Associa- tion

REPORT OF COMMITTEE ON CREDENTIALS

The credentials committee examined the certificates of the delegates and reported them to be in order.

ELECTION OF MEMBERS OF THE STATE BOARD OF AGRICULTURE

The chairman of the nominating committee placed the names of Walter Ellis, Jr., of Mercer County, a vegetable producer, and Charles J. Miserendino of Gloucester County, a swine farmer, in nomination for membership on the State Board of Agriculture. There being no further nominations, the Secretary cast a ballot to make this election unanimous.

ELECTION OF A MEMBER OF
THE FISH AND GAME COUNCIL (CENTRAL JERSEY)

The chairman of the nominating committee placed the name of Raymond Baker, of Middlesex County, in nomination for reelection to the Fish and Game Council. There being no further nominations, the Secretary cast a ballot to make this election unanimous.

CITATIONS

Citations for distinguished service to agriculture were awarded to the following: David W. Amerman of Neshanic, Edwin A. Gauntt of Jamesburg, Robert N. Simpkins of Yardville, and Gerald E. Zich of Lawrenceville.

The citations, read by Secretary of Agriculture Phillip Alampi, were as follows:

Citation of David W. Amerman

Although you have retired as a dairy farmer, you continue to be actively engaged in raising beef cattle with your son Bruce. You also manage a fruit orchard.

You have brought great credit to yourself, your family and to New Jersey agriculture through your many years of loyal and conscientious service to your fellow farmers. As an active member of the New Jersey Cooperative Breeders Association, particularly as one of the original directors, you gave leadership to the dairy industry in New Jersey. During your thirty-one years as secretary-treasurer of the Somerset County Board of Agriculture, you wielded great influence in many important agricultural programs of great benefit to your community, your county and your state. Acknowledging your outstanding record, the Board made you an honorary member of its executive committee in 1970.

You were also secretary-treasurer of the Somerset County Holstein Breeders Association and of the Somerset County Cooperative Milk Producers Association. Both the Federal Land Bank Association of Freehold and the Flemington Agricultural Marketing Cooperative Association benefited from your services as a director. You are currently an active member of the New Jersey State Horticultural Society and the Tri-County Cooperative Auction Market Association at Hightstown.

Your concern for the welfare of your community is evidenced by your election as a committeeman for Hillsborough Township for two terms. In 1971, you retired as treasurer of the Clover Hill Reformed Church, after having served faithfully in that capacity for eighteen years.

Other organizations which have honored you are the Federal Land Bank Association and the Garden State Milk Council.

In grateful recognition of your many contributions to the advancement of farming interests, particularly the dairy industry, the State Board of Agriculture awards this citation for DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE to David W. Amerman.

Citation of Edwin A. Gauntt

Eleven generations of Gauntts in America -- in New Jersey since 1685 -- have contributed eminent men to agriculture, and many leaders to public service. Seemingly, the examples of your forebears have instilled into you a motivation for lifelong involvement in causes to help your fellow men in your native Garden State, regionally, nationally, and internationally for fifty years. In retirement, you continue to share your exceptional talents with a new generation of farmers and agribusinessmen without reward except for personal satisfaction derived from good works.

Leaving your parental farm in Burlington County to join the United States Navy, you patriotically served during World War I on ships in the submarine-infested Atlantic. Thereafter, you prepared for a career in agricultural education at Cornell University, majoring in animal husbandry and economics. Upon graduation in 1923, you became a pioneer agent in 4-H Club programs in Middlesex and Morris counties, demonstrating such competence that Rutgers University named you assistant state dairy specialist. Your achievements commended you for the newly created post of Hunterdon county agent of the Agricultural Extension Service in which capacity you introduced new teachings of scientific farming and encouraged the founders of cooperative marketing of farm products, resulting in increased prosperity and forging friendships for you that still endure nearly forty years after your departure.

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Meeting each new challenge with courage and enthusiasm, you successively became Rutgers University professor of agriculture, state county agent leader, state director of the Agricultural Adjustment Administration, district manager of the Grange-League Federation, and agricultural consultant in India to whose farmers you taught American methods of food production in the Ford Foundation's humanitarian program to overcome that nation's hunger. Extracurricular, unpaid services you rendered have included seventeen years as secretary of New Jersey State Grange, president of New York Farm Club, secretary of New Jersey Dairymen's Council, Agricultural Committee member of the State Chamber of Commerce, treasurer of the Save Open Space Committee, finance chairman of New Jersey Farm Bureau, trustee of New Jersey Agricultural Society, and high offices in other organizations.

In grateful recognition of what Edwin A. Gauntt has done for New Jersey and for the world, the State Board of Agriculture awards the CITATION FOR DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE.

Citation of Robert N. Simpkins

Your long and outstanding career of service to farm youth has won wide recognition. You have been honored repeatedly for your dedication to county, state and national 4-H programs. For example, you are one of only three from New Jersey and one hundred and sixty nationally who have received the national 4-H Alumni Gold Key Award among the millions of former 4-H'ers throughout the country. You have been honored by the Civitan Club of Hamilton Township for work with youth, by both the New Jersey Farm Bureau and the Mercer County Board of Agriculture for distinguished service to New Jersey agriculture, and by the Mercer County Farm Bureau Women for your efforts in their behalf and for the benefit of agriculture.

You have cheerfully and generously given much time to the service of your community, your state and the nation, always responding to a call for help. You have led and inspired hundreds of young 4-H Club members in their projects, serving also as a counselor for the Boy Scout merit badge awards in agriculture.

You have been honored frequently with high office, serving as president of the Central New Jersey Federal Land Bank, president of the Mercer County Board of Agriculture, and president of the Mercer County 4-H Advisory Council. You have been a director of the New Jersey Farm Bureau, a member of the Board of Managers of the College of Agriculture and Environmental Science, Rutgers University, a member of the Governor's Child Labor Study Commission, president of the Artificial Breeding Association of Burlington County and an active member of the State Grange.

Locally, you have been a church elder and a delegate to the national Assembly of the Presbyterian Church, master of Hamilton Grange and president of the Hamilton Township Historical Society. Nationally, you were chosen to serve on President Eisenhower's White House Committee on Youth and Child Labor.

Grateful for your inspiring leadership in behalf of the young people of our state, and for your many contributions to the betterment of rural life, the State Board of Agriculture is pleased to present this citation for DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE to Robert N. Simpkins.

Citation of Gerald E. Zich

Your devotion to agriculture in the Garden State long predates your employment by the New Jersey Department of Agriculture in 1941. A farm boy yourself, you have always retained your love of the soil and of growing things. During your early career as a reporter and editor on country weeklies, you were generous in your coverage of agriculture, bringing its importance to the attention of your Hunterdon County readers.

Your early posts as a professional agricultural worker included assistant extension editor at Rutgers College of Agriculture, where you did much to publicize the work of the United State Soil Conservation Service during its early years, and director of information and advertising for the American Jersey Cattle Club. In this latter capacity, you originated and coordinated the transcontinental test tube calf project to prove that a dairy sire in California and a dam in New York could be mated and produce an offspring. This project helped popularize artificial insemination in dairy cattle, now a universal practice.

Your first position with the Department of Agriculture was supervisor of poultry products marketing. During your more than three decades of service, you rose through the ranks to become executive assistant to the Secretary of Agriculture.

Your resourcefulness, initiative and innovative abilities have contributed greatly to each of the positions you have held, and the Department has benefited and will continue to benefit from your services.

You initiated the first mandatory tax program to support the Department's farm products promotion councils and prepared the enabling legislation. You collaborated with the Governor's office in the investigation and report that resulted in retention of the regulatory system of milk price control in New Jersey. You are the author of a history of the Department, "Fertile Furrow," published on the occasion of its fiftieth anniversary in 1966, which has been a highly successful publication. You started the Golden Egg Award of the New Jersey State Poultry Association in 1945 and, in 1970, were yourself its recipient.

On the lighter side, you are widely known as the founder of the Fanny Farmers of America, a unique organization of sedentary agriculturists.

In recognition of your many contributions, the State Board of Agriculture awards this citation for DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE to Gerald E. Zich.

REPORT OF THE COMMITTEE ON RESOLUTIONS

The following resolutions, presented by Irving K. Christensen, and reported favorably by the committee, were adopted by the State Agricultural Convention.

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Governor Cahill

WHEREAS, the Honorable William T. Cahill, Governor of the State of New Jersey, has continued to express a deep concern for those matters affecting the future of agriculture in the Garden State; and

WHEREAS, his leadership in bringing about the Blueprint Commission on the Future of New Jersey Agriculture will be of an immeasurable benefit to this industry in the future; and

WHEREAS, his efforts have resulted in the enactment of legislation updating many of our agricultural laws; therefore ,

BE IT RESOLVED, that we, the delegates attending this 58th State Agricultural Convention, assembled in Trenton, N. J., on January 25, 1973, commend Governor Cahill for his support and continued interest in those matters vital to the future development of a strong and progressive industry of agriculture in the Garden State and request that the Honorable Phillip Alampi, Secretary of Agriculture, State of New Jersey, forward a copy of this resolution to Governor Cahill.

Experiment Station Budget Support

WHEREAS, the accomplishments of the research and extension activities of the Experiment Station are of both direct and indirect value to all the citizens of New Jersey; and

WHEREAS, Experiment Station programs and projects have shifted dramatically during recent years to meet the changing needs of agriculture and the State; and

WHEREAS, decreased financial support makes it increasingly difficult to meet the goals and objectives as required by law and by design; therefore

BE IT RESOLVED, that we, the delegates attending this 58th State Agricultural Convention, assembled in Trenton, N. J., on January 25, 1973, urgently support the Experiment Station budget submitted by Rutgers University and in addition, recommend an extraordinary appropriation of \$270,000 to be used for capital improvements and the operating expenses at the Blueberry-Cranberry Station at Oswego, the South Jersey Research and Development Center in Centerton, and the Fruit Research Center in Cream Ridge; and.

BE IT FURTHER RESOLVED, that copies of this resolution be forwarded to the Governor, the President of Rutgers University, the Chancellor of Higher Education, the State Budget Director and members of the Legislature.

Recycling of Agricultural Waste

WHEREAS, agricultural waste in New Jersey from the farm to the market place represents an important part of the total solid waste management problem; and

WHEREAS, recent research indicates that agricultural biodegradable waste, under certain conditions, can be converted microbiologically into animal and poultry feeds; and

WHEREAS, there is an urgent need to demonstrate these new techniques of recycling so that this technology can be applied to New Jersey's livestock and poultry industry in such a way as to reduce feed costs; and

WHEREAS, the County and Municipal Government Study Commission in its seventh report dated September 19, 1972, "SOLID WASTE: A Coordinated Approach," recommends that a demonstration program sponsored by the Department of Environmental Protection is needed to test the economic and technical feasibility of new methods and techniques for utilization of solid waste; therefore

BE IT RESOLVED, that we, the delegates attending this 58th State Agricultural Convention, assembled in Trenton, N. J., on January 25, 1973, urge the State Department of Agriculture and all other segments of the industry of agriculture with solid waste problems to give their support to the County and Municipal Government Study Commission's efforts and those of the Department of Environmental Protection in obtaining the necessary resources to establish the needed waste recycling demonstrations at strategic points throughout the Garden State; and

BE IT FURTHER RESOLVED, that copies of this resolution be sent to the Governor, the Secretary of Agriculture, the Commissioner of Environmental Protection, the chairman of the County and Municipal Government Study Commission and the members of the Legislature.

State Department of Agriculture Budget

WHEREAS, the agricultural industry ranks among the six largest contributors to the economy of the Garden State; and

WHEREAS, New Jersey farms and forests are invaluable aesthetic assets benefitting all citizens of the State while producing high quality fresh products for consumers; and

WHEREAS, agriculture continues to be the largest single tax-paying trustee of the State's residual open space; and

WHEREAS, urban development on our land mass and the many factors associated with that development impose environmental and economic conditions which directly affect New Jersey agricultural producers; and

WHEREAS, the citizens of New Jersey have repeatedly demonstrated their desire to maintain agriculture and open space for future generations; therefore

BE IT RESOLVED, that we, the delegates attending this 58th State Agricultural Convention, assembled in Trenton, N. J., on January 25, 1973, strongly support the State Department of Agriculture in its efforts to maintain a viable agriculture and to retain our natural resources through appropriate programs for livestock and poultry, honeybees and plant disease and pest control; the orderly and efficient marketing of quality farm products; the enforcement of consumer protection laws; and the conservation of our soil and water resources; and

BE IT FURTHER RESOLVED, that we fully support the State Department of Agriculture's 1973-74 budget proposal as approved by the State Board of Agriculture and call upon the Governor and the Legislature to

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direct favorable consideration to the Department's request which is in the best interest of all citizens of our State; and

BE IT FURTHER RESOLVED, that copies of this resolution be sent to the Governor, members of the Legislature, the Office of the Legislative Budget and Finance Director and the State Budget Director.

Railroad Freight Rates

WHEREAS, present rail rates for moving midwestern feed grain to New Jersey and other northeastern points are approximately 175 percent of the rates for moving such grain over similar mileages to southeastern points; and

WHEREAS, this difference in transport cost imposes a severe and unduly prejudicial and disadvantageous cost of production handicap upon New Jersey producers of livestock, dairy, poultry and egg products, even in their home markets in which they would under normal circumstances have a natural advantage; and

WHEREAS, these inequities can be most effectively remedied and the provisions and objectives of the Interstate Commerce Act, including the national transportation policy, most effectively fulfilled by requiring the railroads to offer, for the movement of grain to the northeast, railroad services of such types and at such rates as are comparable to the southeast; and

WHEREAS, the Interstate Commerce Commission should act to eliminate these rail rate inequities in the northeast; therefore

BE IT RESOLVED, that we, the delegates attending this 58th State Agricultural Convention, assembled in Trenton, N. J., on January 25, 1973, join with the Northeast Association of State Departments of Agriculture, the New England Grain and Feed Council and other interests in a petition to the Interstate Commerce Commission to institute an investigation of these matters and issue such orders as are necessary to eliminate unfair rate and service practices and to order such rates and services as will maintain fair competitive opportunity for New Jersey agriculture and other related industries; and

BE IT FURTHER RESOLVED, that the New Jersey Secretary of Agriculture send copies of this resolution to the Governor, members of Congress, members of the Legislature, members of the Interstate Commerce Commission, the United States Secretary of Agriculture, Northeast Association of State Departments of Agriculture, the New England Grain and Feed Council and other appropriate Federal and State agencies.

Cook College

WHEREAS, the benefits enjoyed by the people of the State of New Jersey from agriculture include conservation of land and water, air purification and immeasurable aesthetic values as well as economic benefits; and

WHEREAS, the degree of sophistication and education required to meet the challenges ever confronting those engaged in agriculture and its related industries; and

WHEREAS, we have endorsed the broadening of the objectives of the College of Agriculture and Environmental Science to create Cook College; and

WHEREAS, the agricultural industry of this State, in order to remain strong, must have the resources of a school dedicated to teaching, research and extension in this rapidly changing field; therefore

BE IT RESOLVED, that we, the delegates attending this 58th State Agricultural Convention, assembled in Trenton, N. J., on January 25, 1973, call upon Rutgers University and the administrators of Cook College to continue to emphasize their efforts on behalf of agriculture and to maintain their historic dedication to our agricultural industry which has kept this -- the most urban state -- THE GARDEN STATE; and

BE IT FURTHER RESOLVED, that copies of this resolution be forwarded to the Governor, the Chancellor of Higher Education, the President of Rutgers University and the Dean of Cook College.

Equine Statistics

WHEREAS, the New Jersey State Board of Agriculture more than one year ago authorized an in-depth survey of the equine industry in New Jersey by Opinion Research of Princeton; and

WHEREAS, the results of that survey made it clear that the horse industry is one of the most rapidly growing branches of New Jersey agriculture; and

WHEREAS, the survey indicated that the activities of horsemen throughout New Jersey are helping to maintain in operation many farms which otherwise would go out of existence; and

WHEREAS, the survey also indicated that the activities of horsemen in both the pleasure and commercial production areas are making valuable contributions to the preservation of open spaces in New Jersey; and

WHEREAS, the survey also indicated that the number of horses has constantly increased in New Jersey and is now in excess of 35,000; and

WHEREAS, the Agricultural Convention itself in 1971 and for the first time in history elected a representative of the equine industry to serve as a member of the State Board of Agriculture in recognition of the growing impact of the horse industry in New Jersey; therefore

BE IT RESOLVED, that we, the delegates attending this 58th State Agricultural Convention, assembled in Trenton, N. J., on January 25, 1973, hereby request that all future statistical reports, including the preliminary estimates of gross value of production of New Jersey agricultural products as listed in printed highlights of the Convention, contain current information relating to the gross value of production of the horse industry in New Jersey; and

BE IT FURTHER RESOLVED, that copies of this resolution be sent to the Governor, members of the New Jersey Legislature, members of the State Board of Agriculture, the United States Secretary of Agriculture, the Administrator of the Statistical Reporting Service, United States Department of Agriculture; and the New Jersey Secretary of Agriculture.

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Agricultural Information

WHEREAS, New Jersey agriculture has lost a formidable and essential voice with the death of Alfred McCann of WOR radio; and

WHEREAS, New Jersey agriculture has benefitted for over 30 years from daily exposure on WOR radio's "McCanns at Home" programs with its millions of listeners; and

WHEREAS, there is now inadequate daily radio exposure for New Jersey agriculture, its products, its problems and its benefits to the New York-New Jersey metropolitan area; and

WHEREAS, because the future and well-being of agriculture in the State of New Jersey depends on the dissemination of accurate information that such a daily program would accomplish; therefore

BE IT RESOLVED, that we, the delegates attending this 58th State Agricultural Convention, assembled in Trenton, N. J., on January 25, 1973, authorize Secretary of Agriculture Phillip Alampi to make a formal presentation of a plaque or suitable display in appreciation of the "McCanns" and WOR radio's past efforts and encourage WOR radio and the McCanns to maintain their leadership in presenting the story of New Jersey agriculture; and

BE IT FURTHER RESOLVED, that copies of this resolution be sent to Dora and Patsy McCann; Robert E. Smith, Vice President and General Manager, WOR Radio; the Federal Communications Commission and the New Jersey Secretary of Agriculture.

Memorial

WHEREAS, since the State Agricultural Convention last met in January 1972, the Great Creator has called some of our active farm leaders and co-workers from our midst to their final resting place, among whom are:

JOHN E. BROCKETT, agricultural agent in Atlantic County for 43 years, vigorous and articulate supporter of New Jersey agriculture, effective advocate of modernization of production and marketing techniques, and an outstanding leader of both adult farmers and 4-H Club youth;

MARGARET C. CHAMBERLAIN, member of New Jersey Department of Agriculture staff for 37 years, whose entire career was spent in what is now the Division of Dairy Industry, where she served as secretarial assistant to five directors;

EARLE DILATUSH, pioneer in the development and culture of holly trees, operator of a widely known holly nursery for many years, and a charter member of the Holly Society of America;

TUNISE DENISE, prominent fruit grower and long-time agricultural leader, who, among many offices held, had served as president of the New Jersey Agricultural Society, vice president of the State Board of Agriculture, president of the New Jersey State Horticultural Society, and member of the Board of Managers of the New Jersey Agricultural Experiment Station, as well as being one of the founders of the Jersey Fruit Cooperative Association;

JACOB DVOOR, founder, in 1919, of the well known Dvoor Brothers Farms and Cattle Dealers business, seven years after coming to this country from his native Latvia at the age of 14, and an active participant in the community affairs of Flemington where he resided;

ELIZABETH GRADDY, retired State leader in home economics of the Co-operative Extension Service of Rutgers University, a post she filled with distinction for 14 years, and among whose accomplishments was the development of a statewide organization of Extension advisory councils;

GLENN T. HOFFMAN, prominent businessman and egg producer, immediate past president of the Middle Atlantic Ice Cream Manufacturers Association, vice president of the New Jersey Poultry Products Promotion Council at the time of his death, and a leader in civic activities in his local community;

WALTER HUNT, a general farmer and salesman of farm equipment, who worked on Farm Machinery Board during World War II, an active member of his local and the State Grange and his county board of agriculture, and an enthusiastic worker in the effort to establish the Farmland Assessment Act;

DR. LINWOOD L. LEE, distinguished soil scientist and long-time member of the New Jersey staff of the Soil Conservation Service, in which capacity he established its first demonstration projects and worked actively in the creation of New Jersey's soil conservation districts, and author of many technical articles and papers on soils;

ARNOLD LEHMAN, well known New Jersey egg producer, former treasurer of the New Jersey State Poultry Association and an active member of many committees to serve the egg industry who, at the time of his death, was serving as president of the Ocean County Board of Agriculture;

EMMETT M. LOGSDON, a farmer and agricultural leader in his native State of Kentucky, who made many friends in New Jersey while carrying out his duties as director of field services for the New Jersey Farm Bureau;

RUSSELL M. MARLATT, a leading fruit grower and pioneer in the packaging and marketing of quality fruit, who built the first apple storage in Warren County in 1926 and the first cold storage in 1932, a member of the Warren County Board of Agriculture for more than 30 years, and a past president of the New Jersey Horticultural Society;

SAMUEL K. MARTIN, outstanding New Jersey horseman, who at the time of his death was serving as president of the New Jersey Horse Council, member of the New Jersey Equine Advisory Board, and co-chairman of the Essex Fox Hounds Racing Association;

CLIFFORD C. McALLISTER, prominent asparagus grower and producer of other crops for canning, as well as a dairyman, and outstanding agricultural leader in the pre- and post- World War II, who contributed much to the creation of sound agricultural policies, and an active participant in local civic affairs;

ALFRED W. McCANN, JR., noted food publicist who, for many years, conducted the popular "McCanns at Home" food information program over radio station WOR, New York City, on which news of New Jersey farm

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products was aired frequently, and a loyal and faithful friend of the Department of Agriculture;

HERBERT.H. MILLS, a former breeder of Guernsey and Aberdeen Angus cattle, a dedicated conservationist who was instrumental in the preservation of New Jersey's coastal wetlands, a former chairman of the board of the National Audubon Society, and a former executive vice president of the World Wildlife Fund;

J. HOWARD SLOAN, potato grower and cooperator with Rutgers University in conducting annual seed potato test trials on his farm, one who had a special interest in the Agricultural Stabilization and Conservation program and who later became an exceptionally capable field man for the service when he gave up farming;

CHESTER J. TYSON, JR., former State director of the Farmers Home Administration, a post he had held for nearly 20 years, the longest in the agency's history, who during his career had caused to be loaned more than \$100,000,000 to countless worthy rural people; longtime friend of New Jersey agriculture; and, at the time of his death, an agricultural credit consultant for the Nigerian government;

DR. HARRY B. WEISS, noted entomologist and historian, director of the New Jersey Department of Agriculture's Division of Plant Industry for 36 years until his retirement in 1956, and the author of more than 800 books and papers;

CHARLES J. WOHKITTEL, charter member and first president of the Vegetable Growers Association of New Jersey, efficient producer of vegetables, bedding plants and ornamentals, past president of the Essex County Board of Agriculture, and Essex County director of the New Jersey Farm Bureau; and

WHEREAS, the passing of these associates and others of our friends is a grievous loss; therefore

BE IT RESOLVED, that we, the delegates attending this 58th State Agricultural Convention, assembled in Trenton, N. J., on January 25, 1973, pause in our deliberations for a moment of silent prayer in respect to the memory of our departed associates; and

BE IT FURTHER RESOLVED, that this action should be made a matter of record of these proceedings and that copies should be sent to the respective families.