

PUBLIC HEARING

before

SENATE ENERGY AND ENVIRONMENT COMMITTEE

on

SENATE BILL 1342

(Extends the Department of Environmental Protection's responsibility and authority by expanding the "Pesticide Control Act of 1971" to promote the safe use of chemical pesticides)

SUPPLEMENTAL APPENDIX

PART II

Held:
September 24, 1984
Room 114
State House Annex
Trenton, New Jersey

MEMBERS OF COMMITTEE PRESENT:

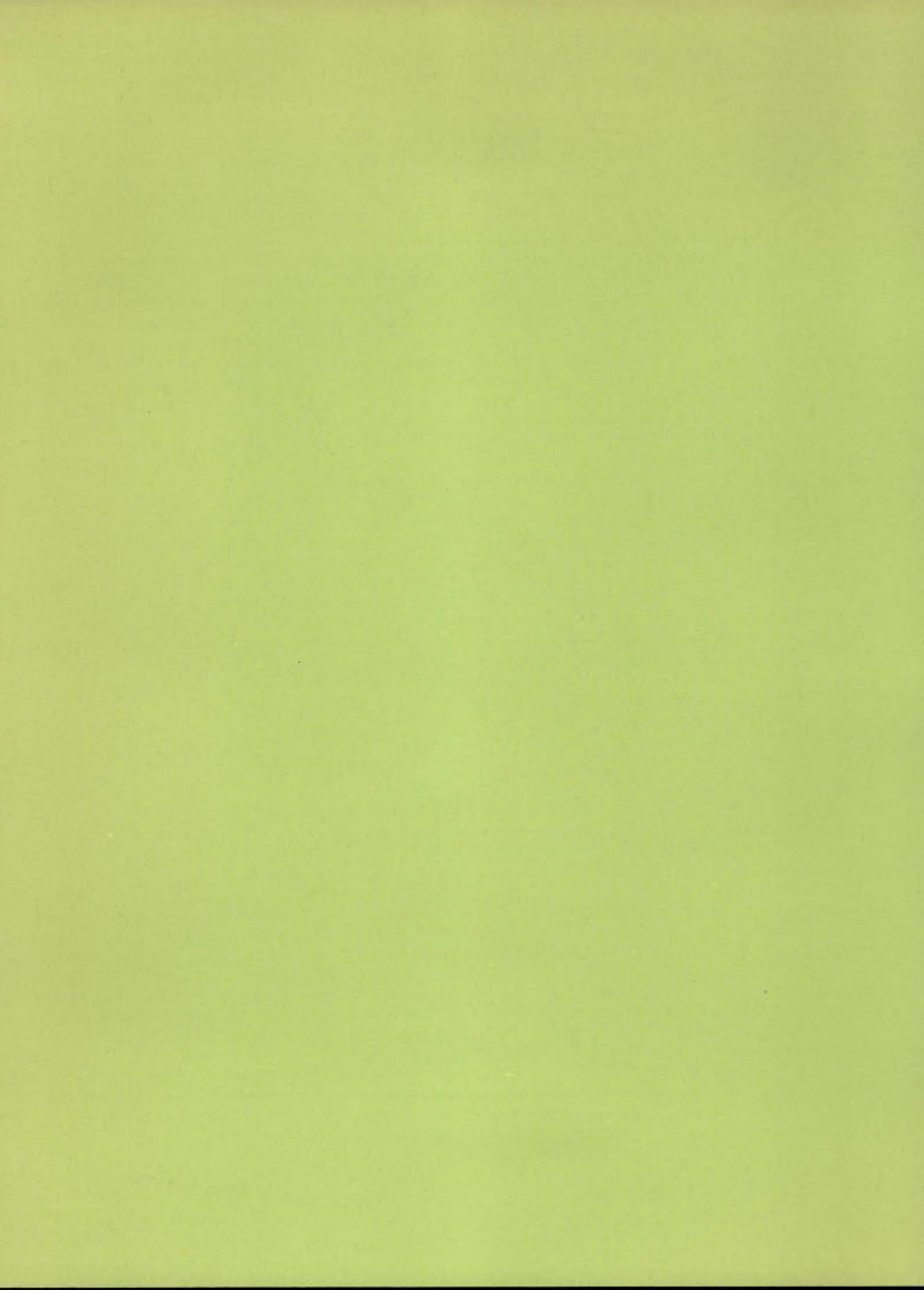
Senator Daniel J. Dalton, Chairman
Catherine A. Costa, Vice Chairwoman
Paul Contillo

ALSO PRESENT:

Mark T. Connelly, Research Associate
Office of Legislative Services
Aide, Senate Energy and Environment Committee

* * * * *

New Jersey State Library



**SUPPLEMENTAL APPENDIX
PART II**

	<u>Page</u>
Statement submitted by Susan Shaw on behalf of New Jersey Coalition for Alternatives to Pesticides	1x
Statement submitted by Jane Nogaki on behalf of New Jersey Campaign against Toxic Hazards	10x
Statement submitted by The Department of the Public Advocate of the State of New Jersey	15x
Statement submitted by Leland G. Merrill, Jr. Retired staff member Rutgers University	34x
Statement submitted by Charles Horwitz on behalf of Migrant Legal Action Program	37x
Statement submitted by Dr. David Hall Conservation Chairman Bergen County Audubon Society	41x
Statement submitted by Jacqueline M. Warren on behalf of Natural Resources Defense Council, Inc.	43x
Statement submitted by Paul Twerdowsky Project Chairman Highlands Watershed Association	61x
Statement submitted by Louise Willis Environmental Educator	68x
Letter submitted by Constance Stroh President Upper Rockaway River Watershed Association	72x

SUPPLEMENTAL APPENDIX, PART II (continued)

	<u>Page</u>
Statement submitted by Wynne Falkowski Evesham Township Environmental Commission	73x
Letter submitted by Georgina Klein Chairwoman Essex County Task Force for Integrated Pest Management	76x
Statement submitted by New Jersey Committee for Occupational Safety and Health	78x
Letter submitted by G. Ann Johnson President Ecology Watch Montclair	80x
Statement submitted by Nancy B. Coleman Chairperson New Jersey Coalition for Alternatives to Pesticides	82x
Article extrapolated from October 1984 issue of Organic Gardening, entitled "The Trouble with Carbaryl"	85x
Statement submitted by Sandra Weiss Concerned resident of Burlington County	88x
Letter submitted by June A. Fletcher Concerned citizen	89x
Letter submitted by Donald Patterson Enforcement Coordinator Bureau of Pesticide Control New Jersey Department of Environmental Protection	90x
Statement submitted by Dr. Judith S. Weis Professor of Zoology Rutgers University	93x
Letter submitted by Muriel F. Berson Concerned citizen	96x

SUPPLEMENTAL APPENDIX, PART II (continued)

	<u>Page</u>
Letter and attachment submitted by Mrs. Robert F. Shaw Concerned resident	97x
Letter submitted by Rio Howard Concerned citizen	100x
Statement submitted by Emma M. Santone Concerned resident	102x
Letter submitted by William J. Cromartie Chairman Township of Galloway Environmental Commission	103x
Statement submitted by Claire Poole President Communication Workers of America, Local 1084	104x
Letters submitted by Ping Sun Chun and Marvel Chun Concerned citizens	105x
Letter submitted by Anne Kraten California Agrarian Action Project	107x
Letter submitted by Bruce Molholt, Ph.D. Hatfield, Pennsylvania	109x
Statement submitted by Mari T. Hanley Concerned resident	111x
Letter submitted by J.C. DeBoer Secretary The New Jersey Cornucopia Network	116x
Letter submitted by Stephen J. Risch Assistant Professor University of California	118x
Letter submitted by Jeffrey Morris, M.D. Director Burlington County Poison Control Hot Line	119x

SUPPLEMENTAL APPENDIX, PART II (continued)

	<u>Page</u>
Letter submitted by David Petersen Secretary Warren Township Environmental Commission	120x
Letter submitted by Clara Tom Concerned citizen	121x
Letter submitted by Andrew Marsala Concerned citizen	122x
Letter submitted by Karen Hoxworth on behalf of Garden State Environmentalists	123x
Statement submitted by Wildlife Preserves, Inc.	124x
Letter submitted by David Pimentel Professor New York State College of Agriculture and Life Sciences	125x
Letters submitted by Jane Nogaki Chairman Pesticide Right-to-Know Coalition and NJ Campaign Against Toxic Hazards	126x
Letter submitted by Reverend Dudley E. Sarfaty Director of Migrant Ministry	132x
Statement submitted by Dr. David H. Hall Conservation Chair Bergen County Audubon Society	133x
Letter submitted by Denise Delibero Concerned resident	135x
Letter submitted by Laurie A. Knies Concerned resident	137x

SUPPLEMENTAL APPENDIX, PART II (continued)

	<u>Page</u>
Letter submitted by Laura J. Allison Concerned resident	138x
Letter and medical statements submitted by Mr. & Mrs. Robert R. Brown Concerned residents	139x
Letter submitted by Joan Eustace Concerned resident	145x
Letter submitted by Michele Chiosso Concerned resident	147x
Letter submitted by Judy Albert Concerned citizen	148x
Letter submitted by Mr. & Mrs. Raymond D. Harding Concerned residents	149x
Statement submitted by Charlotte Cohen Concerned resident	151x
Letter submitted by Lucile P. Burk Concerned resident	153x
Letter submitted by Mrs. Shirley Himeback Concerned citizen	154x
Letter submitted by Marlene Jaffe Chairperson On behalf of Cherry Hill Environmental Action Committee	155x
Letter and newspaper article submitted by Kathleen T. Windstein Concerned citizen	158x
Statement and attachments submitted by Paul Inglesby	160
Statement submitted by Claire Poole President Communication Workers of America, Local 1084	171x

SUPPLEMENTAL APPENDIX, PART II (continued)

	<u>Page</u>
Affidavits submitted by concerned residents of the Counties of Atlantic, Gloucester, Cumberland, and Salem	172x
Statement submitted by Peggy Backal, Esq. Camden Regional Legal Services	215x
Statement submitted by Neville Davis Executive Director Sa-Lantic Health Services, Inc.	218x
Statement submitted by John Ripton On behalf of the Coalition for the Rights of NJ Farmworkers	224x
Statement submitted by Joseph H. Taylor Concerned citizen	229x
Statement and attachments submitted by Sharon L. Ahern Chairperson East Windsor Environmental Commission	233x
Statement submitted by Charles Horwitz Migrant Legal Action Program, Inc.	298x

* * * * *

NEW JERSEY COALITION FOR ALTERNATIVES TO PESTICIDES

P.O. BOX 627
BOONTON, NEW JERSEY 07005
(201) 334-7975

September 24, 1984

STATEMENT OF NJCAP ON PROPOSED COMMITTEE SUBSTITUTE FOR S-1342 PRESENTED BEFORE SENATE ENERGY AND ENVIRONMENT COMMITTEE - Sept. 24, 1984

Vast quantities of pesticide compounds are sprayed or injected into soils in New Jersey. A 1978¹ report prepared by the NJ Department of Health¹ indicated that more than 4 million lbs. of pesticides were applied on agricultural lands in NJ during 1977. For mosquito control, about 85,000 lbs. of pesticides were applied in 1977. This report did not estimate urban pesticide use, but a recent EPA report suggests that urban pesticide use equals that of agriculture.

The public and the environment are being exposed to numerous hazardous pesticides. It has been estimated that as many as 60% of the pesticides in use have not been tested or not fully tested to assess their potential for causing cancer or birth defects; about 90% have not been tested for genetic mutations. Just recently, the National Academy of Sciences stated that "complete health hazard assessments appear to require further testing of 90% of pesticides and inert ingredients of pesticide formulations".²

There are problems, however, even with those pesticides that have been tested as evidenced by the recent falsification of safety data by a laboratory responsible for testing over 200 pesticides. When you consider that DDT, 2,4,5-T and EDB and other

¹Department of Health (New Jersey Epidemiologic Studies Program), Report on Pesticide Usage Study, 1978.

²National Research Council (of National Academy of Science), Toxicity Testing - Strategies to Determine Needs and Priorities, National Academy Press, p. 126, 1984.

substances were used for years without public knowledge of their effects, it should cause concern that perhaps many of these untested or inadequately tested pesticides in use today may cause cancer or other problems in the future.

Even the US Environmental Protection Agency (EPA) whose main task under FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) is to register pesticides for use in the US does not state that registration guarantees safety of the pesticide. "It is not the policy of EPA to ban all pesticides which produce cancer or mutations."³ Rather, EPA seeks to balance health and environmental concerns against economic factors.³ *misleading statement*

There are many deficiencies in FIFRA. Thus, this Federal law is not adequate to protect public and the environment. An attorney from the Natural Resources Defense Council will expand on these deficiencies in FIFRA.

It is ignorance of the problem and poor monitoring programs not the absence of pesticide problems that has led many people to conclude that pesticides are not a serious hazard. Government data gathering efforts on pesticides have been neither systematic nor comprehensive. Data compiled on problems with pesticides involving the public and the environment presented so far can only be regard as an incomplete view, possibly the "tip of the iceberg". However, the many complaints, problems, violations and misuse pertaining to pesticides suggest the need to examine more closely pesticide use at all levels from registration to individual applications.

³ Federal Register 40 CFR No. 129, p. 28282.

Senator Lesniak's bill is a response to these concerns and a major step to protect the public from these hazardous pesticides.

The argument has been raised that this bill is unnecessary because our present state legislation grants DEP broad regulatory, investigatory and enforcement powers. The law does grant broad powers to DEP, but DEP has failed to carry out the mandate of the law.

DEP revised their pesticide regulations after 8 years of not carrying out any revisions. We can only believe that DEP's plans to revise the final regulations that took effect several months ago are the result of the public's concerns about the hazards of pesticides. We feel that when an agency is not doing their job, it is the responsibility of the legislature to step in. Thus this bill is a logical and necessary extension of the inadequate Federal and NJ state pesticide laws and regulations.

DEP draft regulations which will appear as proposed regulations in October of this year are still inadequate and duplicate this bill only in minor ways. (A) I have compared the final reg
draft reg & the bill x D

Those opposed to the bill feel that the bill will have negative impacts on pest control, but this is untrue because the use of pesticides is still allowed to continue. The bill only seeks to lessen the possibility of health and environmental problems. The bill fills in the serious gaps that exist in the present regulations. have pointed out where the bill is duplicative. It really duplicates it in only minor ways. I will submit the

The bill would ensure that only the least harmful pesticide to people and the environment was registered for use in NJ. California, the most agriculturally successful state, has a "least harmful" pesticide requirement. In addition, the state of Michigan has an Environmental Policy Act which calls for the use of alternatives to chemical pesticides when they are found to be "prudent or feasible".

It has been expressed by some that the bill's ban on aerial application of chemical pesticides on non-agricultural land would have significant negative ramifications on protection of the public health and natural resources as well as have economic impacts. This is not true as non-chemical alternatives could be utilized aerially. This ban would reduce the impact of pesticides on people, wildlife, beneficial insects and other organisms and would ensure that safer alternatives to chemical pesticides were used. Connecticut has had this same ban since 1972 as a state law, but they have gone one step further than this bill by requiring written permission from all people who would be exposed by direct application and by drift when non-chemical pesticides were applied by air.

The reasons for Connecticut's ban and this ban in the bill is that aerial application has the potential for loss of pesticide and offsite impacts due to airborne transport or drift. ("Drift" can be defined as that portion of the released material that is airborne and leaves the field or other target area being treated.

Research conducted for EPA shows that when pesticides are applied by airplane between 10 and 60% of the pesticide travels more than 1,000 feet from the intended target area in 3 to 5 mile per hour winds.⁴ Based on California Department of Food and Agriculture figures on aerial applications of pesticides in the state during 1977, with 20% not reaching the target area, nearly 17 million pounds of pesticides reach areas that were not intended to be sprayed following aerial treatments.⁵ Others have confirmed this such as Ware et al. who reported that on average only 53% of the pesticide applied actually lands in the area intended for spraying.⁶ A University of Wisconsin study found some pesticide residue as far away as 2¹/₂ miles from the nearest agricultural field.⁷

Ground equipment, while not without its drift problems, "may be judged safer to use in terms of limiting drift because the pesticide is applied close to its target, the amount of material

⁴von Rumker, Kelso, Horay, Lawrence, A Study of the Efficiency of the Use of Pesticides in Agriculture, Final Report July 1975 for EPA, 540/9-75-025.

⁵California Department of Food and Agriculture, Report on Environmental Assessment of Pesticide Regulatory Programs, 1978.

⁶Ware et al. (1970) in Pimentel and Edwards, Pesticides and Ecosystems, Bio Science, Vol. 32, No. 7, July/Aug. 1982.

⁷Pesticide drift shown in UW-SP Research, Stevens Point Journal, July 20, 1982.

Page 6

released per hour is lower so that less pesticide enters the air within a given time interval and ground application except for mist blowers does not include the air shear which causes droplets to break up in aerial application.⁸

We believe these studies point to the need for the ban as written in the bill.

There is no mandatory pesticide reporting system in New Jersey and physicians, in many cases, do not recognize the symptoms of pesticide exposure. As a result, many pesticide poisonings go unrecognized and unreported. This bill would require a program whereby physicians would be alerted to the symptoms, diagnosis, treatment and reporting of pesticide illnesses. California, since 1977, has required physicians who suspect illness or injury from pesticides to report it within 24 hours (to the county health officer and subsequently to county agricultural commissioner, Department of Food and Agriculture and Department of Health Services).

As awareness of and concern with toxic substances has increased, the public has asked for information concerning which pesticides are regarded as potentially hazardous and how well they are protected from exposure. The notification provisions of the bill are very important and reasonable and have been arrived at only after numerous meetings with pesticide applicators, mosquito commissions, officials from Departments of Agriculture and Environmental Protection and others.

⁸ California Department of Food and Agriculture, op. cit.

Page 7

The notification requirements in the DEP's regulations are seriously deficient. Newspaper notification sometime within 60 to 7 days in advance of pesticide spraying on aggregate areas of three acres or more does not constitute proper notification in that it would require that all persons desiring notification of pesticide applications to read the local newspaper, including the legal notices, daily throughout the spray season. In addition, DEP exempted agriculture from this notification requirement and it is agriculture that uses very toxic pesticides. If spraying is to take place on less than 3 acres, no notice to the public is required. Rather, DEP provides a model ordinance that could be adopted by municipalities, but the model ordinance suffers serious deficiencies also.

The notification procedures as outlined in the bill are reasonable. Many states already have some type of notification to the public. For example, the bill would require that a general notice indicating agricultural spraying will take place must be provided to those within 500 feet of an area to be sprayed, but the bill waives notification if the agricultural land owner maintains a 500 foot buffer in which no aerial or airblast application is made. Connecticut also waives the notification requirement for farmers if the farmer maintains a Buffer on his or her own property.

The notification provision concerning ornamental spraying should be strengthened in order to minimize the public's exposure. We, therefore, support the changes recommended by the NJ Pesticide Coalition. Other states have very strong pesticide laws such as

Page 8

Arizona which states that no highly toxic pesticide can be applied in dust form within 300 feet or in liquid form within 100 feet of any human dwelling except with written permission of owner.

In addition, we urge you to adopt the strengthening amendments for schools that the NJ Pesticide Coalition has recommended. We would like to point out that Arizona prohibits highly toxic pesticides from being used, except by soil injection, within one quarter of a mile of any school ground or campus when there are authorized activities at school or on the school or campus grounds. At a minimum, we request that no pesticide applications be allowed to take place around schools when students are on the grounds.

We would also request that you incorporate buffers in which no pesticide spraying can take place. Please consider adopting Connecticut's requirement that no pesticide dust be allowed to be sprayed within 100 feet of a public highway and no agricultural spraying within 200 feet of a water course, pond or lake.

We would also like you to seriously consider prohibiting the use of airblast sprayers in residential areas due to the tremendous amount of drift as well as application of chemicals by Ultra low volume ~~ground machines for~~ adult mosquitoes. A medical entomologist who has submitted written testimony and who runs the largest mosquito abatement district in the state of Illinois and one of the largest in the midwest does not utilize this method of control in residential areas. He states

Page 9

that he would not allow these truck-mounted U.L.V. units to go up and down the streets in residential areas. A possible hazard of these trucks going up and down the streets in the evening hours is children playing on the streets during the summer season. The chemical may be inhaled by these children and young adults. In short, fogging or misting by U.L.V. means of spraying is very ineffective as a mosquito control measure. The chemical is mainly (99%) blown up in the air without reaching the adult mosquitoes that are basically resting under the leaves and shrubs in people's back yards. An aerosol or mist dispersed on the streets in the summer when street temperatures will reach over 130 degrees F. will move upwards into the atmosphere and dissipate within minutes. Wind velocity and the direction it is blowing can be another handicap because buildings/homes serve as barricades for the insecticide to travel to the foliage of shrubs in people's back yards.

We appreciate this opportunity to comment on this important bill. This bill will reduce human exposure to pesticides, helps to prevent contamination of ground and surface water supplies as well as fish and wildlife habitat and seeks to find out more about the potential ill-effects of pesticides. Senator Lesniak's bill is an excellent response to our concerns, and we hope that it has a speedy passage through the Legislature.

Susan Shaw



New Jersey Campaign against Toxic Hazards

46 Paterson Street New Brunswick, New Jersey 08901 2018464224

Testimony on S-1342
Amendments to Pesticide Control Act
Jane Nogaki 9/24/84

Good Morning, Senator Dalton, Senator Contillo, Senator Costa, Senator Garibaldi, and Senator Laskin:

My name is Jane Nogaki and I live in Evesham Township, Burlington County. I'm a member of the Coalition Against Toxics and Chairman of the pesticide coalition steering committee of the N.J. Campaign Against Toxic Hazards. The Campaign is composed of groups from labor, church, environmental and citizens organizations who have a commitment to reducing human exposure to toxic substances. We work for this goal by activating citizens to work for a strong Clean Water Act and Superfund reauthorization on the federal level and for the implementation of the Right-to Know Act and the Passage of the Amendments to the Pesticide Control Act as written in S1342 at the state level. The groups who support the bill are listed in the letter I have just given to you.

Today you will hear from people who support the bill and from people who oppose the bill.

Some people will say we don't need this bill because we already have comprehensive regulations for pesticides that do the job. They will say the bill is duplicative, onerous, expensive, and that it negatively impact farming, recreation, and property values. Some people will say that the supporters of the bill are chemagogues, purveyors of prejudice about pesticides, and that we are creating hysteria and paranoia.

Then they will tell you that this bill will be detrimental to public health and that it will destroy valuable tools of pest control in New Jersey. They will tell you that this bill will result in more chemicals in the environment, not less, because farmers will be forced to spray on a schedule in order to give notice to residents, rather than spraying on an as needed basis.

10x

New Jersey Campaign against Toxic Hazards

46 Paterson Street New Brunswick, New Jersey 08901 2018464224

-2-

What they won't tell you is that Senator Lesniak has altered notification procedures to allow for exemptions of notification deadlines in emergency situations for mosquito control and for farmers using certified I.P.M programs. What they won't tell you is that the cure for fear and hysteria is adequate notification and information about pesticides. What they won't tell you is that under existing DEP pesticide regulations, bees get more notice of pesticide applications than people do.

What they won't tell you is that two years ago over one hundred citizens testified at DEP hearing on proposed regulations begging for notification before ground and aerial applications of pesticides, and what we got was a pro-forma notice for area wide applications that is buried in the legal section of newspapers and virtually ineffective in reaching the people who need to be notified. The failure of the regulatory process to provide the protection we asked for - notification - and the resistance of various agencies to our needs indicates to us that legislative action is in order.

You will hear that pesticide poisoning are undocumented in N.J., that the safety record of pesticide use is very high.

What they won't tell you is that formal ongoing record keeping of pesticide poisoning incidents by the Department of Health does not exist, and that the recognition and treatment of pesticide poisoning symptoms among emergency room personnel and family physicians are virtually unknown. Perhaps the largest body of undocumented exposures exists among farmworkers, who don't have transportation and access to telephones in order to seek medical attention or report violations when they occur, and who often speak a language other than English.

You will hear that the N.J. environment is not suffering from the approximately 4 million pounds of pesticides applied annually. (1978 NJ DCA figures - $\frac{1}{2}$ applied to fruits and vegetables)

//x

New Jersey Campaign against Toxic Hazards

46 Paterson Street New Brunswick, New Jersey 08901 2018464224

-3-

What they won't tell you is that wells have been contaminated by temek, carbaryl, and chlordane in N.J., and that chlordane levels higher than permitted by the US Food and Drug Administration have been found in 29% of fish tested in waters of the Hudson River and coastal waters off New Jersey's shores. Warnings against eating fish from the Cooper River, the Pennsauken Creek, Strawbridge Lake, Woodbury Lake and Stewart Lake have been posted because of chlordane contamination of the fish.

At least 8 Superfund sites in N.J. have pesticides listed as a major threat to groundwater: Lone Pine in Freehold; Diamond Alkali in Newark (dioxin); Myers Property, Franklin Twp., Vineland Chemical and Vineland State School; Pepe Field in Boonton (Lindane), Brick Township Landfill; Chemical Control in Elizabeth (est. 30 million dollar clean-up)

They won't tell you that of 670 wells tested for contamination in 1981, 31 showed low levels of pesticides. (DEP TOXICS IN GROUNDWATER STUDY). Since that study was done in 1981, no large scale monitoring of groundwater has been done. S-1325 provides for this very much needed monitoring.

They will tell you that extensive testing on chemicals is done before the EPA approves pesticides for use, and that the very small amounts that are used in typical applications are measured in parts per million or even billion - implying safety?

What they won't tell you is that the National Academy of Science reports that adequate safety and health data exists for only 10% of the pesticides currently registered by EPA. Many of the pesticides registered for use are known or suspected of

causing cancer, birth defects, or mutations, yet no way of communicating this information to the public has ever been attempted by industry or state agencies except when pressured to do so by public interest groups.

We want this information so that we can participate in decisions

12x

New Jersey Campaign against Toxic Hazards

46 Paterson Street New Brunswick, New Jersey 08901 2018464224

-4-

made about what pesticides we will be exposed to. According to Dr. Robert Tucker, DEP Office of Science and Research, there is no safe low dose of a carcinogen. Further, Dr. TUCKER states that "Although the scientific community, the regulatory agencies, industry and others knowledgeable may be expected to provide, as best they can, the information and judgements about risks and benefits from chemicals, their is not the role to finally decide acceptable risk. That role is a societal responsibility." (P. 47 *Toxics in Groundwater)

We residents and workers have a need and a right to know what and ~~when~~ pesticides are to be applied and what safety measures we can use to prevent exposure. We believe that increased awareness about pesticides will benefit everyone. The fact that farmers and farmworkers are twice as much at risk for liver cancer than other occupations in N.J. is cause for alarm. (NJ DOH study, 1983)

You will hear today talk of ~~enormous~~ costs to farming and pest control industries brought on by the passage of this bill. What they want tell you is that the cost of prevention is minimal compared to the cost of the clean up of a contaminated site (the average cost of a home chlordane de-contamination is \$10,000) , or the de-contamination of a wellor aquifer, or the cost of medical bills for exposure victims, or the days lost from work because of illness. Yes, the bill will cost some money. We think the protection of the people and resources of N.J. is worth it and that prevention is the means to reduce costs incurred by misapplications.

Today you will hear from victims of mosquito spraying, ornamental spraying, aerial spraying, indoor spraying, and agricultural spraying. You will hear from people whose unnecessary exposure to pesticides could have been prevented by notification and hazard communication.

You will hear from township officials who are grappling with pesticide use issues in their communities, and you will hear from health and technical professionals who will support the need for information about pesticides. You will hear from representatives of a few of the many groups who support S1342. In the interest of saving the committee your valuable time, I'm presenting ten witnesses' testimony in writing now.

New Jersey Campaign against Toxic Hazards

46 Paterson Street New Brunswick, New Jersey 08901 2018464224

-5-

Written Testimony submitted for the following persons:

W J Council of Churches
Peggy Backal, Esq., Farm Worker Div., Camden Regional Legal Services
Judy Albert, Paramus resident, failed to get a town ordinance to regulate spraying

Laurie Knies, Paramus resident, opposed to broad-spectrum aerial spraying over residences

Michelle Chiosso, Maple Shade victim of farm spraying

Joan Eustace, Maple Shade victim of farm spraying

Charlotte Cohen, West Berlin victim of ground and aerial spraying

Lucille Burk, Hainesport victim of aerial spraying

Shirley Himeback, Sicklerville victim of aerial spraying from a neighboring farm - 8 neighbors suffered miscarriages or stillbirths.

Ed + Maurine Brown - Gibbstown, NJ
Laura Allison, Evesham victim of ground and aerial spraying

Marlene Jaffe, Cherry Hill Environmental Action Committee victim of ground and aerial spraying

I am also giving you some written sources for my data - the DEP

Toxics in Groundwater Study and some related news articles.

The parathion poisoning of the toddler in Franklinville last June is a perfect example of a serious complication that could have been prevented through proper notification of the toddler's family of the pesticide application.

The controversy and resistance this bill has aroused is astonishing. Considering our needs are so simple - to know when pesticides are being applied so we can take appropriate precautions. S-1342 is a comprehensive piece of legislation which is critical to the sane use of pesticides in our state. Senator Lesniak has gone to great lengths to receive input from all people concerned in order to make a workable bill. We applaud and support his efforts and encourage your favorable consideration. The heart of the exposure issue will be decided by your committee. We trust you will handle it with care.

Jane Nagaki
223 Park Ave.
Attn, N.J. 08004
609-767-1110

TESTIMONY OF
THE DEPARTMENT OF THE
PUBLIC ADVOCATE OF THE
STATE OF NEW JERSEY

ON

SENATE COMMITTEE SUBSTITUTE FOR S-1342,
A BILL TO AMEND THE PESTICIDE CONTROL ACT

BEFORE THE

NEW JERSEY SENATE ENERGY AND
ENVIRONMENT COMMITTEE

SEPTEMBER 24, 1984

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

THANK YOU FOR PROVIDING THE DEPARTMENT OF THE PUBLIC ADVOCATE WITH THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY TO SHARE OUR STRONG CONCERN ABOUT THE RIGHTS OF AGRICULTURAL WORKERS AND OTHER MEMBERS OF THE PUBLIC TO BE PROTECTED FROM EXPOSURE TO PESTICIDES. ON BEHALF OF THE PUBLIC ADVOCATE, I CONGRATULATE SENATOR LESNIAK FOR INTRODUCING AN IMPORTANT PIECE OF HEALTH AND SAFETY LEGISLATION IN RESPONSE TO SERIOUS AND COMPELLING PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS VOICED BY THE CITIZENS OF NEW JERSEY.

LET ME START OFF BY STATING THAT OUR DEPARTMENT IS IN SUPPORT OF THE SENATE COMMITTEE SUBSTITUTE FOR S-1342 (HEREINAFTER SCS-1342) WITH SOME RESERVATIONS. OUR RESERVATIONS, WHICH I WILL ADDRESS IN MORE DETAIL IN A FEW MINUTES, PRINCIPALLY RELATE TO THE NOTIFICATION AND RIGHT TO SUE PROVISIONS OF THE BILL.

THE PUBLIC ADVOCATE HAS A LONG HISTORY OF ACTIVE INVOLVEMENT AND ADVOCACY IN SUPPORT OF THE PUBLIC INTEREST IN THE HEALTH, WORKER SAFETY OF WORKERS AND THE PROTECTION OF THE ENVIRONMENT. THROUGH THE DIVISION OF PUBLIC INTEREST ADVOCACY, WE HAVE PARTICIPATED IN AND INITIATED ACTIONS BEFORE ADMINISTRATIVE AGENCIES AND COURTS TO PROTECT NEW JERSEY'S CITIZENS AND THE ENVIRONMENT FROM THE ADVERSE EFFECTS OF TOXIC CHEMICALS, HAZARDOUS WASTES AND AIR POLLUTANTS.

IN PARTICULAR, WE HAVE SOUGHT TO ESTABLISH STRONG PROTECTIONS TO PREVENT PUBLIC EXPOSURE TO TOXICS AND ESTABLISH A MECHANISM THAT WOULD PROVIDE ALL NEW JERSEY CITIZENS WITH INFORMATION ABOUT THOSE SUBSTANCES. TO FURTHER THESE GOALS,

WE VIGOROUSLY SUPPORTED THE NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT AND ITS ADMINISTRATIVE IMPLEMENTATION.

ADDITIONALLY, THROUGH THE OFFICE OF CITIZEN COMPLAINTS AND THE DIVISION OF PUBLIC INTEREST ADVOCACY, THE DEPARTMENT INVESTIGATED THE SERIOUS PROBLEM OF IMPROPER ASBESTOS REMOVAL IN SCHOOLS AND RELEASED A REPORT DETAILING OUR FINDINGS AND RECOMMENDATIONS. IN THIS FASHION, WE SOUGHT TO ASSURE THAT CHILDREN ARE NOT PLACED AT RISK OF HEALTH DAMAGE AND TO IMPROVE THE ASBESTOS REMOVAL PROGRAM IN NEW JERSEY'S SCHOOLS. FINALLY, THE DEPARTMENT HAS LONG BEEN CONCERNED THAT THE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S PESTICIDE APPLICATION REGULATIONS FAIL TO PROVIDE ADEQUATE PROTECTIONS TO PREVENT EXPOSURE TO PESTICIDES.

FROM OUR REVIEW OF THESE REGULATIONS, IT IS CLEAR THAT THE CURRENT REGULATORY SCHEME ON BOTH A FEDERAL AND STATE-WIDE LEVEL FAILS TO SUFFICIENTLY PROTECT PERSONS FROM EXPOSURE TO PESTICIDE OR TO SUBSTANTIALLY LIMIT INAPPROPRIATE PESTICIDE USE. IN CONTRAST, SCS-1342, A WELCOME STEP IN THE RIGHT DIRECTION, IS PREVENTIVE AND PROTECTIVE. THIS LEGISLATION ADDRESSES MANY OF THE PROBLEMS AND REGULATORY INADEQUACIES THAT WE HAVE REPEATEDLY RAISED TO THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

FOR A MOMENT, LET ME REVIEW SOME OF THE PROBLEMS AND CONCERNS OF OUR DEPARTMENT.

THE FIRST PROBLEM THAT NEEDS TO BE ADDRESSED IS THE SERIOUS RISK OF HEALTH DAMAGE FROM PESTICIDE EXPOSURE. THERE IS NO QUESTION THAT PESTICIDES ARE TOXIC. EXPOSURE TO EVEN SMALL AMOUNTS OF MANY PESTICIDES CAN MAKE A PERSON EXTREMELY ILL.

IN FACT, MANY WITNESSES TESTIFIED AT DEP'S 1983 PESTICIDE REGULATION HEARINGS THAT A NUMBER OF CHILDREN, AND ALLERGIC AND ELDERLY INDIVIDUALS BECAME SERIOUSLY ILL AFTER BEING EXPOSED TO PESTICIDES. THIS TESTIMONY, AND OUR EXPERIENCE OVER THE PAST FEW YEARS, HIGHLIGHTS THE PARTICULAR NEED FOR STRONG REGULATORY CONTROLS ON PESTICIDE USE TO INSURE THAT CHILDREN AND THE ELDERLY, WHO ARE ESPECIALLY SUSCEPTIBLE TO THE TOXIC EFFECTS OF PESTICIDES, ARE ADEQUATELY PROTECTED. SPECIFICALLY, EXPOSURE OF YOUNG CHILDREN CAN RESULT IN LONG TERM HEALTH DAMAGE OR POSSIBLY DEATH. FOR EXAMPLE, LAST YEAR DURING SPRAYING SEASON, A NINE-MONTH OLD BOY WAS EXPOSED TO PARATHION,* AN EXTREMELY DANGEROUS AND HIGHLY TOXIC PESTICIDE, WHILE IN HIS BACKYARD. AS A RESULT, HE ALMOST DIED.

ADDITIONALLY, MANY PESTICIDES CAUSE CANCER AND REPRODUCTIVE PROBLEMS, INCLUDING SERIOUS BIRTH DEFECTS AND EVEN DEATH.** CANCER IS THE SECOND LEADING CAUSE OF DEATH IN NEW JERSEY.*** TREATMENT OF CANCER PATIENTS AND OF CHILDREN WITH BIRTH DEFECTS IS EXTREMELY EXPENSIVE. PRESENTLY, ONE OUT OF EVERY TEN DOLLARS IN THE UNITED STATES IS SPENT ON HEALTH CARE. ONE WAY OF REDUCING THIS COST, THE ATTENDANT PAIN AND SUFFERING, AND FREQUENT LOSS OF POTENTIAL LIFE IS TO REDUCE EXPOSURE TO PESTICIDES AND THE DISEASES THAT OFTEN RESULTS FROM THIS EXPOSURE.

* 34,065 pounds of this pesticide as compared to 10,646 pounds of Sevin, a less toxic pesticide, was used on New Jersey's peach crop in 1978. N.J. Epidemiological Studies Program Report on Pesticide Usage, Annual Report (April 1979 - March 31, 1980) p.84. Current figures are unavailable because this program no longer is in existence.

** Marion Moses, "Pesticides" in Environmental & Occupational Medicine, W.N. Rom (ed.) (1983) p.564.

*** In 1980, New Jersey's death rate from malignant cancer was 210.5 per 100,000.

ANOTHER PROBLEM WITH THE CURRENT REGULATORY SYSTEM GOVERNING PESTICIDE USE IN NEW JERSEY AND THE UNITED STATES IS THAT INDIVIDUALS WHO ARE EXPOSED AND BECOME ILL HAVE ALMOST NO WAY OF OBTAINING INFORMATION ABOUT THE PESTICIDE THEY WERE EXPOSED TO. IT TAKES TIME AND FINANCIAL RESOURCES TO TRACK DOWN AN APPLICATOR AND THEN TO UNCOVER THE PARTICULAR PESTICIDE SPRAYED. THIS DELAY SERIOUSLY INTERFERES WITH THE ABILITY OF PEOPLE TO PROTECT THEMSELVES. ADDITIONALLY, IF THEY SEEK MEDICAL HELP, THEIR PHYSICIANS USUALLY HAVE SUBSTANTIAL DIFFICULTY IN OBTAINING THE INFORMATION THEY REQUIRE TO PROPERLY TREAT INDIVIDUALS WITH PESTICIDE-RELATED ILLNESS.

ANOTHER VERY IMPORTANT CONCERN WITH CURRENT PESTICIDE LAWS IS THE UNNECESSARY EXPOSURE OF AGRICULTURAL WORKERS TO PESTICIDES. FOR YEARS, WE HAVE BEEN HEARING ABOUT THE PROBLEMS OF THESE WORKERS AND THEIR FAMILIES. UNFORTUNATELY, THE WORKING AND LIVING CONDITIONS FOR THESE INDIVIDUALS HAVE NOT SIGNIFICANTLY IMPROVED SINCE EDWARD R. MURROW BROADCAST "HARVEST OF SHAME" OVER TWENTY YEARS AGO, WHICH REVEALED THE DEPLORABLE CONDITIONS FOR AGRICULTURAL WORKERS IN THIS COUNTRY. AGRICULTURAL WORKERS CONTINUE TO SUFFER FROM A SERIES OF PROBLEMS, WHICH ARE EXACERBATED WHEN THEY ARE UNNECESSARILY EXPOSED TO PESTICIDE.*

MOREOVER, AGRICULTURAL PESTICIDES ARE GENERALLY OF GREATER TOXICITY AND ARE APPLIED IN GREATER VOLUME THAN PESTICIDES USED IN RESIDENTIAL AREAS. THUS, FARMWORKERS ARE

* Ronald Goldfarb, Migrant Farmworkers: A Caste of Despair (1981)
Molly Joel Coye, M.D., Agricultural Health & Safety.

AT AN EVEN GREATER RISK THAN OTHER POPULATION GROUPS IN NEW JERSEY. A STUDY LAST YEAR BY THE SA-LANTIC HEALTH CLINIC REVEALED THAT AGRICULTURAL WORKERS HAD BEEN SPRAYED WITH PESTICIDE WHILE WORKING IN THE FIELD, AND THAT WORKERS REENTERED FIELDS TO PICK CROPS DIRECTLY AFTER PESTICIDE APPLICATION. THE SA-LANTIC STUDY ALSO DISCLOSED THAT AGRICULTURAL WORKERS WERE PROVIDED WITH NEITHER INFORMATION ABOUT THE PESTICIDES TO WHICH THEY WERE EXPOSED NOR APPROPRIATE PROTECTIVE EQUIPMENT TO MINIMIZE OR PREVENT EXPOSURE. SEVENTY PERCENT OF THE WORKERS SURVEYED REPORTED VARIOUS SYMPTOMS OF ILLNESS THAT ARE DIRECTLY RELATED TO PESTICIDE EXPOSURE, INCLUDING SKIN RASH, HEADACHES, SHORTNESS OF BREATH AND WEAKNESS.

RECENT TESTIMONY THIS SUMMER BY AGRICULTURAL WORKERS AT A PUBLIC FORUM IN GLASSBORO, NEW JERSEY, SUPPORTED THE CONCLUSIONS OF THE SA-LANTIC STUDY AND INDICATED THAT INCIDENTS OF IMPROPER PESTICIDE EXPOSURE CONTINUE TO OCCUR IN NEW JERSEY.

FINALLY, THE APPLICATION OF PESTICIDE HAS SERIOUS ENVIRONMENTAL IMPACTS. PESTICIDE APPLICATION HAS CONTAMINATED RESIDENTIAL AREAS. FOR EXAMPLE, PESTICIDES CONTAINING DIOXIN WERE SPRAYED AROUND A SWIMMING POOL IN THE IRONBOUND SECTION OF NEWARK. THIS CONTAMINATION REQUIRED MUNICIPAL OFFICIALS TO CUT OFF ACCESS TO THE FACILITY. IT WAS WEEKS BEFORE THE AREA WAS CLEANED UP.

ADDITIONALLY, PESTICIDES HAVE ALSO LEACHED INTO GROUND AND DRINKING WATER. THIS CONTAMINATION IS EXTREMELY EXPENSIVE TO CLEAN UP AND ALMOST IMPOSSIBLE TO REMEDY. IN FACT, OUR DEPARTMENT HAS RECENTLY RECEIVED REPORTS FROM PERSONS

LIVING IN AGRICULTURAL AREAS WHOSE WELLS HAVE BEEN CONTAMINATED FROM PESTICIDES SPRAYED ON NEIGHBORING FARMS. THIS CONTAMINATION HAS FORCED THOSE INDIVIDUALS TO OBTAIN OTHER SOURCES OF POTABLE WATER. DAMAGE FROM PESTICIDE USE THEREFORE POSES A SERIOUS THREAT TO INDISPENSABLE NATURAL RESOURCES. OBVIOUSLY, THERE IS A CRITICAL NEED TO ASSURE THAT THESE RESOURCES ARE PROTECTED AND THAT PREVENTATIVE MEASURES ARE TAKEN NOW!

SCS-1342 INCLUDES SOME STRONG PREVENTATIVE AND PROTECTIVE PROVISIONS THAT ADDRESS MANY OF THE PROBLEMS I HAVE JUST DETAILED. THESE PROVISIONS INCLUDE A RISK ASSESSMENT PROCESS, AGRICULTURAL WORKER PROTECTIONS, A BAN ON AERIAL SPRAYING OF BROAD SPECTRUM PESTICIDES, THE ESTABLISHMENT OF BUFFER ZONES, TRAINING REQUIREMENTS AND CERTIFICATION FOR APPLICATORS, AND NOTICE OF INDOOR AND AGRICULTURAL PESTICIDE APPLICATION.

SECTION 3 OF THIS BILL MANDATES THE COMMISSIONER OF THE DEP TO ESTABLISH A RISK ASSESSMENT PROGRAM. SUCH A PROGRAM WILL ENSURE THE EVALUATION OF PESTICIDES THAT ARE USED IN NEW JERSEY AND APPEAR, THROUGH SCIENTIFIC AND MEDICAL STUDIES, TO CAUSE SERIOUS ADVERSE EFFECTS TO MAN AND THE ENVIRONMENT. THIS PROGRAM WILL NOT DUPLICATE THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY'S EFFORTS, BUT WILL SUPPLEMENT AND COMPLEMENT THOSE ACTIVITIES. THROUGH SUCH A PROGRAM, WE SHOULD BE IN A MUCH BETTER POSITION TO ASSURE THAT PROBLEMS SUCH AS EDB CONTAMINATION ARE AVOIDED IN NEW JERSEY.

SUCH A PROGRAM ALREADY EXISTS IN THE STATE OF MAINE. MAINE, BECAUSE OF ITS EXTENSIVE LUMBER AND FARMING INDUSTRY, IS A MAJOR USER OF PESTICIDES. THE MAINE PROGRAM ASSESSES

THE HEALTH AND ENVIRONMENTAL RISKS INVOLVED IN USING CERTAIN PESTICIDES AND PROVIDES DIRECTION TO THE STATE'S PESTICIDE CONTROL PROGRAM FOR RESTRICTING CERTAIN PESTICIDE USES AND FOR PROVIDING FOR LESS TOXIC ALTERNATIVES TO PESTICIDES. REPRESENTATIVES OF MAINE'S PESTICIDE PROGRAM HAVE INFORMED OUR DEPARTMENT THAT THIS PROCESS HAS BEEN EXTREMELY EFFECTIVE AND HAS LOWERED THE RISK OF HEALTH AND ENVIRONMENTAL DAMAGE IN THAT STATE.

LIKEWISE, THE PROTECTIONS OFFERED TO AGRICULTURAL WORKERS IN THIS BILL ARE IMPERATIVE, AND OUR DEPARTMENT STRONGLY SUPPORTS THEM. SECTION 14 REQUIRES DEP AND THE DEPARTMENT OF HEALTH TO ESTABLISH REGULATIONS AND PROVISIONS CONCERNING:

- WORKER FIELD REENTRY STANDARDS;
- PROVISIONS FOR PROTECTIVE CLOTHING AND SAFETY EQUIPMENT;
- ORAL AND WRITTEN WARNINGS AND INFORMATION ON PESTICIDES INCLUDING HEALTH INFORMATION IN ENGLISH AND SPANISH;
- A SYSTEM OF COMMUNICATION WITH LOCAL ORGANIZATIONS THAT WORK WITH AGRICULTURAL WORKERS;
- PESTICIDE STORAGE PROHIBITIONS;
- EDUCATION AND TRAINING ABOUT PROPER PESTICIDE APPLICATION AND HEALTH RISKS; AND
- HEALTH CARE SERVICE COORDINATION.

THIS SECTION ALSO GIVES AGRICULTURAL WORKERS THE RIGHT TO REFUSE TO WORK IN A FIELD UNTIL THE PROPER REENTRY TIME HAS ELAPSED OR WHEN THEY HAVE NOT BEEN PROVIDED WITH APPROPRIATE INFORMATION FROM THE FARMER, AS MANDATED BY THE ACT.

I HAVE TAKEN THE TIME TO REVIEW THIS SECTION IN DETAIL BECAUSE THESE WORKERS AND THEIR FAMILIES HAVE GONE UNPROTECTED FOR SO LONG. THIS BILL WILL PLACE AGRICULTURAL WORKERS -- A TRULY "VOICELESS" MINORITY IN OUR SOCIETY -- ON A MORE EQUAL FOOTING WITH OTHER WORKERS IN THIS STATE WHO ARE ALREADY PROVIDED WITH MANY OF THESE SAME PROTECTIONS UNDER THE WORKER AND COMMUNITY RIGHT TO KNOW ACT.

ANOTHER COMMENDABLE FEATURE OF THIS BILL IS THE CERTIFICATION REQUIREMENT FOR PESTICIDE APPLICATORS. PAST TESTIMONY BY MUNICIPAL PESTICIDE OPERATORS AND OTHERS HAS REVEALED THAT MANY APPLICATORS WERE HIGH SCHOOL OR COLLEGE STUDENTS WHO HAD LITTLE, IF ANY, TRAINING AND IMPROPERLY EXPOSED THEMSELVES, AS WELL AS OTHER INDIVIDUALS AND PROPERTY, TO PESTICIDE. AS DEMONSTRATED BY OUR RECENT REPORT ON ASBESTOS REMOVAL, CERTIFICATION AND TRAINING MUST BE DONE THOROUGHLY WHEN WORKING WITH TOXIC MATERIALS TO AVOID PLACING INDIVIDUALS AT RISK OF SERIOUS HEALTH DAMAGE.

ADDITIONALLY, THE BANNING OF AERIAL SPRAYING OF BROAD SPECTRUM PESTICIDES IN RESIDENTIAL AREAS AND THE CREATION OF BUFFER ZONES IS A WELCOME PREVENTIVE MEASURE ESTABLISHED IN THIS BILL. FOR MANY YEARS, BROAD SPECTRUM TOXIC PESTICIDES HAVE BEEN ROUTINELY APPLIED IN RESIDENTIAL AREAS. NOW SAFER, LESS TOXIC ALTERNATIVES THAT SELECTIVELY ELIMINATE INSECTS WILL BE SUBSTITUTED IN RESIDENTIAL AREAS. BUFFER ZONES HAVE BEEN HIGHLY RECOMMENDED AS ANOTHER EFFECTIVE METHOD OF LIMITING PESTICIDE EXPOSURE. THIS BILL ENCOURAGES THE ESTABLISHMENT OF BUFFER ZONES FOR HIGHLY TOXIC, AGRICULTURAL AND UTILITY RIGHT OF WAY PESTICIDE APPLICATION.

SCS-1342 ALSO RECOGNIZES THE NEED TO ESTABLISH NOTIFICATION PROVISIONS FOR AGRICULTURAL AND INDOOR PESTICIDE APPLICATION, AND INCLUDES THESE CATEGORIES WITHIN THE NOTIFICATION SECTION OF THE BILL. THESE AREAS WERE TOTALLY EXCLUDED FROM DEP'S NOTIFICATION REGULATIONS.

WHILE MY REMARKS HAVE HIGHLIGHTED SOME EXCELLENT PROVISIONS IN SCS-1342, THE DEPARTMENT OF THE PUBLIC ADVOCATE IS STILL CONCERNED THAT THE BILL DOES NOT ADEQUATELY ADDRESS SOME IMPORTANT HEALTH AND SAFETY NEEDS OF THE CITIZENS OF NEW JERSEY. IN OUR VIEW THERE ARE SEVERAL ASPECTS OF THE BILL THAT MERIT REVISIONS

- THE FAILURE TO PROVIDE FOR TIMELY, ADEQUATE AND WORKABLE NOTIFICATION PROCEDURES;
- THE INAPPROPRIATE EXEMPTION FROM NOTIFICATION FOR INTEGRATED PEST MANAGEMENT FARMERS;
- THE LACK OF NOTIFICATION PROCEDURES FOR NON-COMMERCIAL ORNAMENTAL APPLICATORS;
- PESTICIDE APPLICATION AT SCHOOLS WHEN CHILDREN ARE ON THE PREMISES; AND
- UNWARRANTED RESTRICTIONS ON CITIZEN LAWSUITS TO ENFORCE THIS ACT.

LET ME REVIEW THESE PROBLEMS WITH YOU AND OFFER OUR DEPARTMENT'S RECOMMENDATIONS. REVISING THE BILL IN THIS MANNER WE SUGGEST WILL ASSURE THAT THE LEGISLATION PROVIDES THE MAXIMUM HEALTH AND ENVIRONMENTAL PROTECTION.

SECTION 7 OF THE BILL PROVIDES NOTIFICATION TO PERSONS LIVING AND WORKING IN AREAS WHERE DIFFERENT TYPES OF PESTICIDE APPLICATION TAKES PLACE. UNFORTUNATELY, THIS SECTION PERPETUATES DEP'S DEFICIENT PESTICIDE REGULATIONS. IRONICALLY, THESE DEFICIENCIES WERE A MAJOR IMPETUS BEHIND THE EFFORTS OF

OUR DEPARTMENT AND COMMUNITY ORGANIZATIONS TO OBTAIN STRONGER LEGISLATIVE PROTECTION FROM PESTICIDE EXPOSURE. DEP'S PRESENT REGULATIONS ESTABLISH A CONVOLUTED AND UNWORKABLE METHOD FOR INDIVIDUALS TO OBTAIN SPECIFIC INFORMATION, SUCH AS THE TIME AND DATE, ABOUT PESTICIDE APPLICATION. BY FAILING IN ITS REGULATIONS TO MAKE BASIC INFORMATION AVAILABLE TO INDIVIDUALS LIVING AND WORKING NEAR SITES TARGETED FOR PESTICIDE APPLICATION, DEP PLACED THOSE PERSONS AT SERIOUS RISK OF HEALTH AND PROPERTY DAMAGE. THE SECTION 7 NOTIFICATION REQUIREMENTS RETAIN THESE DEFECTS AND, IN MANY RESPECTS, ARE EVEN MORE BURDENSOME FOR THE PUBLIC.

AS I STATED EARLIER, NOTIFICATION REQUIREMENTS IN SECTION 7 ARE DIVIDED INTO DIFFERENT CATAGORIES. ALMOST EVERY CATEGORY HAS DIFFERENT REQUIREMENTS FOR PROVIDING NOTICE. SOME CATEGORIES USE THE MAIL, ANOTHER USES NEWSPAPER NOTIFICATION AND STILL ANOTHER REQUIRES INDIVIDUALS TO KNOW THAT THEY MUST SIGN A REGISTRY AT THE MUNICIPAL CLERK'S OFFICE. NEEDLESS TO SAY, THIS SYSTEM OF PROVIDING NOTICE WILL BE VERY CONFUSING TO THE PUBLIC. THE LIKELY RESULT OF THIS CONFUSION WILL BE A FAILURE OR INABILITY OF OUR CITIZENS TO VINDICATE THEIR RIGHTS UNDER THE ACT.

MOREOVER, THE NOTICE PROVIDED IN ALMOST ALL THE CATEGORIES IS GENERAL. IT ONLY INFORMS THE INDIVIDUAL THAT PERSONS WILL BE APPLYING PESTICIDE SOMETIME DURING A SPECIFIED PERIOD, AND THAT SPECIFIC INFORMATION, SUCH AS THE TIME, DATE, AND SPECIFIC NAME OF THE PESTICIDE TO BE APPLIED, AS WELL AS HEALTH AND SAFETY INFORMATION, CAN ONLY BE OBTAINED BY SENDING A CERTIFIED LETTER TO THE PERSON GIVING THE GENERAL

NOTICE. OBVIOUSLY, THE BURDEN OF OBTAINING NECESSARY INFORMATION TO SAFEGUARD THE PUBLIC'S HEALTH AND PROPERTY IS SUBSTANTIALLY SHIFTED FROM THOSE APPLYING THESE TOXIC SUBSTANCES TO THOSE WHO MAY BE EXPOSED AND MAY BE LEAST CAPABLE OF ASSERTING THEIR RIGHTS, THIS SHIFT IS PATENTLY UNFAIR AND SHOULD BE REVERSED.

HOWEVER, LET ME CONTINUE OUR JOURNEY THROUGH THE TORTUOUS NOTIFICATION PROVISIONS.

ASSUMING THAT A CERTIFIED LETTER IS SENT, ONE MIGHT EXPECT THAT THE SPECIFIC INFORMATION WOULD BE PROVIDED TO THE PUBLIC AS SOON AS POSSIBLE. UNFORTUNATELY, THIS BILL PERMITS THE APPLICATOR TO PROVIDE THE INFORMATION JUST 24 HOURS PRIOR TO APPLICATION. THIS TIME PERIOD WAS OVERWHELMINGLY CONDEMNED BY WITNESSES AT DEP'S 1983 PESTICIDE REGULATION HEARINGS AS INADEQUATE TO PROVIDE ANY REASONABLE PROTECTION FROM PESTICIDE EXPOSURE. THEY TESTIFIED THAT A LONGER PERIOD OF TIME WAS NECESSARY TO REARRANGE SCHEDULES AND TAKE PROPER ACTION TO AVOID EXPOSURE TO THEMSELVES AND THEIR FAMILIES. CLEARLY, THE NOTIFICATION PROCEDURES ESTABLISHED IN SECTION 7 WILL DETER THE VERY INDIVIDUALS SCS-1342 IS DESIGNED TO PROTECT FROM OBTAINING ESSENTIAL INFORMATION TO PROTECT THEMSELVES.

OBVIOUSLY, LEGISLATING A SYSTEM THAT IN ESSENCE RETAINS DEP'S BURDENSOME AND UNWORKABLE NOTIFICATION SYSTEM FAILS TO IMPROVE THE PRESENT SITUATION. HOWEVER, A WORKABLE PESTICIDE NOTIFICATION SYSTEM ALREADY EXISTS IN NEW JERSEY. THE NEW JERSEY DEPARTMENT OF AGRICULTURAL (DOA) GYPSY MOTH SPRAYING PROGRAM SENDS OUT NOTIFICATION WITH SPECIFIC INFORMATION BY FIRST CLASS MAIL TEN DAYS IN ADVANCE OF APPLICATION

TO PERSONS WITHIN TARGET AREAS. PESTICIDE APPLICATORS HAVE NOT MET THEIR BURDEN OF DEMONSTRATING WHY A SYSTEM SIMILAR TO DOA'S PROCEDURE SHOULD NOT BE ESTABLISHED FOR THE DIFFERENT CATEGORIES OF PESTICIDE APPLICATION IN THIS BILL. SUCH A SYSTEM WOULD GREATLY SIMPLIFY SECTION 7 AND GUARANTEE THAT CRITICAL INFORMATION IS MADE AVAILABLE TO PERSONS SUBJECT TO PESTICIDE APPLICATION AND DRIFT, THEREBY PROVIDING THEM WITH THE TIME AND OPPORTUNITY TO TAKE APPROPRIATE MEASURES TO PROTECT THEMSELVES.

I RECOGNIZE THAT SOME EXCEPTIONS TO THIS SUGGESTION MAY BE NECESSARY IN SPECIFIC CIRCUMSTANCES. FOR EXAMPLE, FARMERS PARTICIPATING IN RUTGERS UNIVERSITY'S INTEGRATED PEST MANAGEMENT (IPM) PROGRAM MAY REQUIRE SOME MODIFICATIONS OF THESE PROCEDURES. INTEGRATED PEST MANAGEMENT REQUIRES FARMERS TO WAIT UNTIL THE INSECT POPULATION REACHES A CERTAIN LEVEL BEFORE APPLYING PESTICIDE. THIS METHOD REDUCES THE AMOUNT OF PESTICIDE APPLIED TO CROPS. HOWEVER, IT DOES NOT MEAN THE PESTICIDES BEING APPLIED ARE ANY LESS TOXIC. SECTION §7(a)(2) EXEMPTS IPM FARMERS CONDUCTING AERIAL OR AIR BLAST SPRAYING FROM EVEN THE INADEQUATE TWENTY-FOUR HOUR NOTICE REQUIREMENT. WHILE SOME ADJUSTMENTS MAY BE NECESSARY FOR THE IPM PROGRAM OUR DEPARTMENT DOES NOT CONSIDER THAT THIS EXEMPTION IS JUSTIFIED. NOTIFICATION COULD EASILY BE PROVIDED AT LEAST TWENTY-FOUR TO FORTY-EIGHT HOURS IN ADVANCE OF APPLICATION. WE, THEREFORE, RECOMMEND THAT EVEN IF THIS COMMITTEE PROVIDES AN EXCEPTION FOR THE IPM PROGRAM, THE NOTIFICATION PROCEDURES SHOULD STILL ADEQUATELY PROTECT THE PUBLIC. THE

PRESENT NOTIFICATION EXEMPTION DOES NOT SATISFY THIS GOAL AND SHOULD BE ELIMINATED.

ADDITIONALLY, NOTIFICATION REQUIREMENTS IN THIS BILL FOCUS ONLY ON PERSONS APPLYING PESTICIDE BY AIRPLANE OR HIGH POWERED PESTICIDE SPRAY AND MISTING EQUIPMENT. THE BILL FAILS TO ADDRESS INDIVIDUALS WHO DO ORNAMENTAL SPRAYING WITH LESS INTRUSIVE EQUIPMENT IN RESIDENTIAL COMMUNITIES. HOWEVER, APPLICATION OF PESTICIDES WITH THIS EQUIPMENT WILL OFTEN EXPOSE A NEIGHBOR AND HIS PROPERTY TO PESTICIDE. IN FACT, OUR DEPARTMENT HAS RECEIVED NUMEROUS COMPLAINTS FROM CITIZENS THROUGHOUT NEW JERSEY ABOUT THIS PARTICULAR PROBLEM. IN VIEW OF THE HEALTH AND SAFETY HAZARDS FROM THIS TYPE OF SPRAYING, PERSONS WHO DO ORNAMENTAL SPRAYING SHOULD BE REQUIRED TO NOTIFY THEIR NEIGHBORS WHO LIVE WITHIN A SPECIFIED DISTANCE OF THE TARGET SITE ABOUT THE INTENDED APPLICATION. BY MANDATING THIS SIMPLE PROTECTION, EXPOSURE TO PESTICIDE WOULD BE FURTHER REDUCED.

OUR DEPARTMENT IS ALSO TROUBLED BY THE EXEMPTION OF PERSONS WHO HAVE NOT BEEN CERTIFIED AS APPLICATORS BY DEP, BUT ARE PERMITTED TO APPLY PESTICIDES FOR 30 DAYS IF A CERTIFIED APPLICATOR IS PRESENT AT THE TARGET SITE. ON-THE-JOB TRAINING WHICH IS THE STATED REASON FOR THIS EXEMPTION IS NOT, IN OUR OPINION, A SUFFICIENT JUSTIFICATION FOR SUCH A BROAD AND POTENTIALLY DANGEROUS EXEMPTION. PERSONS WHO ARE GOING TO BE APPLYING PESTICIDES SHOULD BE FULLY INFORMED AND TRAINED REGARDING THE TOXIC NATURE AND ADVERSE EFFECTS OF PESTICIDES AND THE PRECAUTIONS NECESSARY TO MINIMIZE HUMAN EXPOSURE PRIOR TO APPLYING PESTICIDE. THE PRESENT EXEMPTION

UNDERMINES THIS PROTECTION, AND WE RECOMMEND THAT IT BE DELETED.

WE ALSO STRONGLY RECOMMEND THAT THE BILL EXPRESSLY PROHIBIT THE APPLICATION OF PESTICIDE IN SCHOOLS WHEN CHILDREN ARE ON THE PREMISES. THE BILL PRESENTLY ALLOWS PESTICIDE APPLICATION DURING SCHOOL HOURS IF APPROPRIATE BARRIERS ARE ERECTED. AS WE HAVE BECOME PAINFULLY AWARE FROM OUR INVESTIGATION OF ASBESTOS REMOVAL PROJECTS, BARRIERS ARE ONLY AS GOOD AS THE INDIVIDUALS WHO ERECT THEM AND, AT BEST, OFFER LIMITED PROTECTION FOR OUR CHILDREN. ADDITIONALLY, CHILDREN MAY, OUT OF CURIOSITY, WANDER INTO EXPOSED AREAS. SINCE CHILDREN ARE MORE SUSCEPTIBLE TO PESTICIDES AND ARE AT GREATER RISK OF HEALTH DAMAGE THAN ADULTS, THIS BILL SHOULD MANDATE THE MAXIMUM PROTECTION FOR THEM. AMENDING SECTION 7g(3) TO CONFORM TO THIS RECOMMENDATION WILL GUARANTEE THAT CHILDREN WILL NOT BE EXPOSED TO PESTICIDE WHILE AT SCHOOL.

FINALLY, SECTION 18 OF THE BILL ONLY ALLOWS PERSONS WHOSE PROPERTY OR PERSON HAS BEEN EXPOSED TO A PESTICIDE IN VIOLATION OF THIS ACT TO FILE A LAWSUIT. BY SEVERELY LIMITING AN INDIVIDUAL'S STANDING TO SUE, THIS SECTION UNDERMINES THE PUBLIC'S RIGHT AND OPPORTUNITY TO ENFORCE THE HEALTH, SAFETY AND ENVIRONMENTAL PROTECTIONS OF THIS LEGISLATION. THUS, THIS BILL COULD VERY EASILY BECOME A PAPER TIGER, RATHER THAN A READILY ENFORCEABLE PIECE OF PREVENTIVE LEGISLATION OBVIOUSLY, THERE ARE VERY SERIOUS PROBLEMS WITH THIS LIMITATION.

FIRST, PROVING ACTUAL EXPOSURE IS EXTREMELY DIFFICULT TO ESTABLISH SO STANDING WOULD BE EQUALLY BURDENSOME TO DEMONSTRATE. SECOND, TRADITIONAL LEGAL DOCTRINES CONCERNING STANDING ONLY REQUIRE AN INTEREST OR INJURY IN ORDER TO BRING

AN ACTION,* AND THE NEW JERSEY SUPREME COURT HAS ADOPTED A LIBERAL STANDING RULE TO ASSURE THAT INDIVIDUALS HAVE THEIR DAY IN COURT. THE LIMITED "RIGHT TO SUE" PROVISION IN SCS-1342 IS CONTRARY TO BOTH THE LETTER AND SPIRIT OF THOSE COURT DECISIONS. THIRD, THIS LIMITATION ON THE PUBLIC'S ACCESS TO THE COURTS IS COMPLETELY INCONSISTENT WITH FEDERAL AND STATE ENVIRONMENTAL LAWS** WHICH ACKNOWLEDGE AND ENCOURAGE CITIZEN SUITS AS AN ESSENTIAL ENFORCEMENT MECHANISM. UNDER THESE CIRCUMSTANCES, THERE IS NO JUSTIFICATION FOR REQUIRING A MORE RESTRICTIVE STANDING PROVISION TO ENFORCE THE PUBLIC'S EQUALLY IMPORTANT RIGHTS UNDER THIS BILL.

FINALLY, REQUIRING PERSONS TO PROVE ACTUAL INJURY WILL SEVERELY LIMIT ACTIONS TO ENFORCE THE IMPORTANT PROVISIONS OF THE ACT. FOR EXAMPLE, IF DEP FAILS TO PROVIDE EDUCATION AND TRAINING OR FACT SHEETS, AN AGRICULTURAL WORKER COULD NOT BRING A LAWSUIT TO COMPEL COMPLIANCE UNLESS HE COULD DEMONSTRATE EXPOSURE. OBVIOUSLY, SECTION 18 WOULD DIVEST THE PUBLIC OF ANY MEANS OF ENSURING THAT CRITICAL REQUIREMENTS OF THE ACT ARE SATISFIED. RECENT EXPERIENCE HAS DEMONSTRATED THAT, WITHOUT SUCH BROAD CITIZEN OVERSIGHT, THERE IS NO ASSURANCE THAT THE MANDATE OF THIS LEGISLATURE WILL BE CARRIED OUT.

FOR THESE REASONS, OUR DEPARTMENT STRONGLY URGES THE ELIMINATION OF THE EXPOSURE PRECONDITION FOR STANDING AND

* Crescent Park Tenants Assoc. v. Realty Eq. Corp. of N.Y., 58 N.J. 98, 109 (1971).

** Federal Clean Air Act of 1971 42 U.S.C.A. §7604; Federal Water Control act 33 U.S.C.A. §1365; New Jersey Environmental Rights Act, N.J.S.A. 2A:35A-4.

RECOMMENDS THAT THE BILL BE REVISED TO ALLOW ANY PERSON TO BRING A CIVIL ACTION IN LAW OR EQUITY TO ENFORCE THIS ACT.

FROM OUR EXPERIENCE WITH OTHER CITIZEN SUIT PROVISIONS, WE ARE CONFIDENT THAT THE COURTS WILL CAREFULLY SCRUTINIZE A PERSON'S RIGHT TO BRING SUCH A SUIT TO AVOID ABUSES OF THE RIGHT TO SUE.

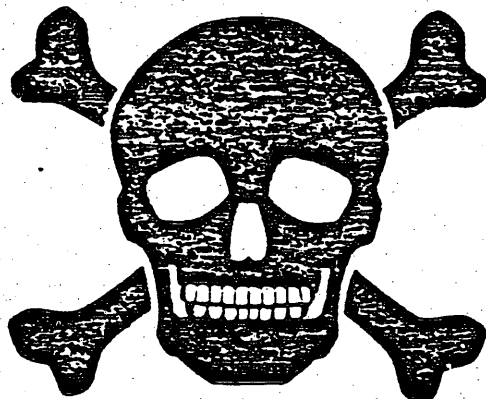
CONCLUSION

IN CONCLUSION, SCS-1342 PROVIDES ESSENTIAL AND LONG OVER-DUE PROTECTIONS FOR THE CITIZENS OF NEW JERSEY. IN PARTICULAR, IT PROVIDES COMPREHENSIVE PROTECTIONS FOR AGRICULTURAL WORKERS, WHO ARE CONSTANTLY EXPOSED TO PESTICIDES AND ARE AT SERIOUS RISK OF HEALTH DAMAGE. IT ELIMINATES THE GAPS AND OMISSIONS IN DEP'S WHOLLY INADEQUATE PESTICIDE REGULATIONS. IT ALSO ENCOURAGES AND PROVIDES FOR THE USE OF LESS TOXIC ALTERNATIVES AND THE ELIMINATION OF PESTICIDES THAT ARE ESPECIALLY DANGEROUS TO HUMAN HEALTH AND THE ENVIRONMENT. WHILE THIS BILL REPRESENTS A SIGNIFICANT STEP IN THE RIGHT DIRECTION, THE AMENDMENTS PROPOSED BY OUR DEPARTMENT ARE ESSENTIAL TO REDUCE THE RISKS OF PESTICIDE EXPOSURE.

THE DEPARTMENT OF THE PUBLIC ADVOCATE SUPPORTS THIS BILL AND IS EAGER TO WORK WITH THIS COMMITTEE AND THE SPONSORS OF SCS-1342 IN THE SENATE AND ASSEMBLY TO INCORPORATE OUR RECOMMENDATIONS AND ANY OTHER AMENDMENTS THAT WILL FULFILL THE CRITICAL GOAL OF PROTECTING THE HEALTH AND ENVIRONMENT OF NEW JERSEY CITIZENS.

POISC

See side panels
for antidote
and precautions



CAN KILL YOU

DANGER

Keep out of reach
of children

PARATHION Technical

ETHYL PARATHION Technical

NOT FOR HOME USE

FOR FORMULATING INSECTICIDES AND MITICIDES
ACCORDING TO REGISTERED LABELING.

ACTIVE INGREDIENTS:

*Parathion	94.0%
Related compounds	4.5%
INERT INGREDIENT:	1.5%

0,0-diethyl O-p-nitrophenyl phosphorothioate



NET 550 LB.

POISON—PRECAUTIONS



CAN KILL YOU IF SWALLOWED

This product can kill you if swallowed even in small amounts. Spray mist or dust may be fatal if swallowed.

CAN KILL YOU BY SKIN CONTACT

This product can kill you if touched by hands or soiled or splashed on skin, in eyes or on clothing (liquid goes through clothes).

CAN KILL YOU IF BREATHED

This product can kill you if vapors, spray mist or dust are breathed.

POISONOUS TO FISH AND WILDLIFE

This product is toxic to fish and wildlife. Birds and other wildlife in treated areas may be killed. Keep out of any body of water. Do not apply when weather conditions favor drift from treated areas. Do not apply where runoff is likely to occur.

USE ONLY WHEN WEARING THE FOLLOWING PROTECTIVE EQUIPMENT AND CLOTHING

(1) Wear water-proof pants, coat, hat, rubber boots or rubber overshoes. (2) Wear safety goggles. (3) Wear mask or respirator approved by the U.S. Bureau of Mines for parathion protection. (4) Wear heavy duty, natural rubber gloves.

WORK SAFETY RULES

REPEATED EXPOSURES TO CHOLINESTERASE INHIBITORS SUCH AS ARE CONTAINED IN THIS PRODUCT MAY, WITHOUT WARNING, CAUSE PROLONGED SUSCEPTIBILITY TO VERY SMALL DOSES OF ANY CHOLINESTERASE INHIBITOR.

Persons working with this product should have fre-

quent blood tests of their cholinesterase levels. If the cholinesterase level falls below a critical point, no further exposure should be allowed until it has been determined by means of blood tests that the cholinesterase level has returned to normal. Before using this product, consult the State Agricultural Extension Service or Experimental Station for specific recommendations regarding such blood tests.

Do not rub eyes or mouth with hands. If you feel sick in any way, STOP work and get help right away. Call a doctor (physician), clinic or hospital—immediately. Explain that the victim has been exposed to parathion and describe his condition. After first aid is given (see First Aid Treatment Section) and if a doctor cannot come, take victim to clinic or hospital.

If handled indoors, provide mechanical exhaust ventilation.

IMPORTANT! Before removing gloves, wash them with soap and water. Always wash hands, face and arms with soap and water before smoking, eating or drinking.

Remove all work clothes and shoes. Wash soap and water. Wear only clean protective clothing and protective mask and water after each use. Reseal and filter replaced according to instructions included with respirator.

WARNING SIGNS (Symptoms)

Very dangerous poison. It rapidly enters contact with all skin surfaces and contact with this material must be carefully avoided. Exposed persons must receive immediate treatment or they may die.

Signs and symptoms of poisoning are: nausea, vomiting, cramps, weakness, pinpoint pupils, tightness in chest, dizziness, nervousness, sweating, watering of eyes, drooling of mouth and nose, and coma.

FIRST AID TREATMENT

Call physician (or nearest clinic or hospital immediately) if the victim has been exposed to this material. Describe his condition.

If breathing has stopped, start artificial respiration immediately and maintain until doctor sees victim. If swallowed and victim is awake (conscious) make him vomit quickly. Have victim drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger or blunt object. Do not induce vomiting or give anything by mouth to an unconscious person. Have victim lie down and keep quiet. Get medical attention.

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. See doctor immediately.

NOTE TO PHYSICIAN

Antidote—administer atropine sulfate in large doses, TWO to FOUR mg. intravenously or intramuscularly as soon as cyanosis is overcome. Repeat at 5 to 10 minute intervals until signs of atropinization appear. 2-PAM chloride is a pharmacologic antidote and may be administered as an adjunct to, but not a substitute for, atropine which is a symptomatic and often life-saving antidote. DO NOT GIVE MORPHINE OR TRANQUILIZERS. Parathion is a strong cholinesterase inhibitor affecting the central and peripheral nervous systems and producing cardiac and respira-

tory depression. At first sign of pulmonary edema, the patient should be given supplemental oxygen and treated symptomatically. Continued absorption of the poison may occur and fatal relapses have been reported after initial improvement; VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS.

NOTE: DO NOT HEAT ABOVE 200°F.

CONTAINER DISPOSAL

See instructions printed on drum.

IN CASE OF SPILL OR LEAK, keep all unprotected persons away. Cover with absorbent such as soda ash, lime, clay or saw dust. Sweep up and bury. Wash area thoroughly with strong lye solution.

EPA Est. 524-AL-1

896.04-000.30/53 AN

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI, 63166 U.S.A.



PARATHION, LIQUID

In case of any evidence of damaged or leaking containers telephone collect, (205) 236-6381 Monsanto, Anniston, Alabama

Testimony to the Senate Committee on Energy and Environment

Hearing on Senate Bill No. 1342, 24 September 1984

Thank you for the privilege of presenting my ideas on this bill. I am Leland G. Merrill, Jr., a retired staff member from Rutgers University. I hold Bachelors, Masters, and Ph.D. degrees in entomology and have been active in pest control in one capacity or other since 1939, except for 1942 to 1946 when I served as a commissioned artillery officer in the Army of the United States. From 1946 to 1961, I did field work on insect control with pesticides at Michigan State University and at Rutgers University. From 1961 to 1971, I served as Dean of Agriculture and senior administrator for the New Jersey Agricultural Experiment Station. From 1971 to 1982 I was involved in administration and research in the area of use of our natural resources. From 1972 to 1982 I taught a course on "Insects and Environmental Decisions." I was an ex-officio member of the Pesticide Council of New Jersey from 1968 to 1971.

I support Senate Bill 1342 and the concept that we need better ways to use pesticides in New Jersey. In particular, I speak to the following sections of the proposed legislation.

Page 4, draft bill, line 1, section 4 (new section.) No person shall be authorized to apply pesticide commercially without certification from the department (DEP.) My personal experience over the last 45 years is that there has always been a problem here, particularly in out-of-doors applications of pesticides. There is often a large gap between the boss and the guy with the spray gun in hand that day in the field. Here, I refer, for examples only, to spraying into streams, permitting spray to drift into non-target areas, and to permitting "run off" from trees in excess of what is needed for optimal coverage of foliage. This section is a good addition to our pesticide regulations.

Page 5, draft bill, section 6 (new section at top of page.) This section, regulating aerial application of insecticides, will improve the accuracy of application and the effectiveness of the pesticide used, and will at the same time protect the natural and human environment. Assuming that agriculture, silviculture and out-of-doors recreation will be integrated into any increasingly populated area (New Jersey), this section will help these activities to coexist in harmony and will minimize conflicts and hazards.

Page 5, draft bill, section 7 (new section.) The notification of resident persons of the future spray activities will create a better feeling between applicators and private citizens. Assuming the pesticide applications are economically and environmentally sound, the applicators will end up in a more favorable position relative to public opinion, and the continuing welfare of their efforts. Fewer cars, dogs, children and personal belongings will be unnecessarily sprayed.

Page 5, draft bill, under Pesticide Control Council, i and j. Having served on the Pesticide Council, I believe that periodical public hearings need be called to get comments of scientists, practitioners of pest control and of the public. This process will avoid the criticism that the council hears only incumbent officials, industry and the practitioners of pest control from the agricultural, public health, and commercial arenas.

In the same section under j., it is unthinkable to me that in the foreseeable future, agriculture, silviculture, gardening and public health activities can be effectively carried on over time without the use of pesticides. The goal we should strive for is to minimize the use of pesticides, maximize efficiency of their applications and to seek alternative methods to reduce damage and protect health from pests. The Pesticide Control Council as proposed will play a lead role here in New Jersey. The Annual Report of the Council can play a catalytic role in moving toward better Pest Management in New Jersey.

I am convinced that people with a basic role in the pesticide use area, will profit in the long haul by running a tighter ship in the application of pesticides, as outlined in Senate Bill 1342. This proposed legislation is one step in the right direction.

Progress will not go faster than the availability of new knowledge in the area. Therefore, research and field experience must continue hand in hand with regulation. Informed decision-making will be dependent on increased information about the use of pesticides.

Thank you for the privilege of being heard by your committee.

Leland G. Merrill, Jr.
Leland G. Merrill, Jr.

**STATEMENT OF CHARLES HORWITZ
MIGRANT LEGAL ACTION PROGRAM
TO
SENATE COMMITTEE ON ENERGY AND THE ENVIRONMENT
STATE OF NEW JERSEY**

SEPTEMBER 24, 1984

I want to thank Senator Raymond J. Lesniak and members of the Committee for inviting me to share my views with you today concerning S. 1342. I commend your efforts to protect farmworkers from toxic pesticides. New Jersey, along with many states, rightfully has recognized the need to strengthen their worker protection laws since the U.S. Environmental Protection Agency and other federal agencies have largely disregarded this duty contrary to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

The EPA admitted in 1981 that "While pesticides producers, users, and consumers benefit from the use of pesticides ... costs are distributed disproportionately throughout the population (in terms of acute and chronic toxic effects such as cancer)."

It is farmworkers who bear the main costs and they are the poorest working members of our society. There is abundant medical evidence that farmworkers have a lower life expectancy, a higher prevalence of most major diseases, and the highest incidence of toxic chemical injuries of any working group in America (higher even than industrial workers, according to the U.S. Department of Labor).

Therefore, your proposed bill, limited as it may be, must be passed, to help solve this problem and thereby bring justice to the fields and fairness to those workers who perform one of the most important jobs in our society -- enabling us to eat our daily bread so we can survive.

Let me cite you some figures about pesticides and their dangers to farmworkers: There are approximately 5,000,000 farmworkers and 3,000,000 farmers in this country and 2,000,000 pesticide applicators. With the exception of organic farmers (whose numbers thankfully have been increasing), the vast majority are exposed to pesticides in their workplace: \$4.1 billion dollars of pesticides totalling 2.3 billion pounds are sold to growers in this country each year. Although there has been some decrease in pesticide poundage used recently because of the Administration's Payment in Kind Program and the use of more toxic active ingredients (which are more concentrated than pesticides used in the past), the number of farmworker poisonings

has increased. For example, in California the increase in medically diagnosed poisonings has risen 13.9% for the past several years. Although enforcement of California laws is better than in most states (in terms of inspections, civil and criminal actions and license suspensions and revocations of applicators who misuse pesticides), California farmworkers' pesticide poisoning rates increase by roughly the same percentage as the amount of pesticide used.

The National Agricultural Chemical Association (NACA) proudly boasts about the chemicalization of agriculture while fighting in Congress to limit states, such as New Jersey, from passing tougher environmental protection acts. The chemical industry, believe it or not, has become an enemy of states' rights since the states and local governments are responding to citizens' complaints about the need for increased protections from human and environmental health contaminants.

Among various sectors of the public, farmworkers face the greatest health hazards from pesticide misuse. They are exposed to pesticides six to seven times a year on the average, according to a 1983 survey by Indiana University researchers. Surveys in New Jersey, Florida, North Carolina, California and Texas found that between 33-1/3% to 71% of farmworkers are exposed to and/or are injured by pesticides at their work sites. Before or after working hours, spray drift enters farmworkers' labor camps. They remain exposed by wearing clothing contaminated with pesticide residues after they leave the fields. They are exposed even before birth when poisoned farmworker mothers pass toxics to the fetus through the placenta.

Several epidemiological tests documented that even when farmworkers are not severely poisoned, the day to day exposure to pesticides causes significantly higher poisoning rates as measured by red blood cell cholinesterase depression.

Your proposed bill takes some important steps towards relieving the problem, but in my opinion, it will reduce poisonings in your state to the extent it effectively reduces the ^{amount of} pesticides ~~growers apply~~ ^{overuse}.

Let me explain. California farmworkers' pesticide injury rates have increased every year as pesticide usage increased, even though that state passed (beginning in 1971) the most stringent protective laws and regulations in the country (including lengthy reentry times, posting, warning, training, medical surveillance, treatment and reporting requirements, as well as notification requirements).

To reduce overuse of pesticides EPA economists have argued that the prices charged for pesticides should be increased to compensate victims.

Given that the negative externalities [i.e. the costs to victims] of pesticide use are not fully taken into consideration ... the prices paid for many pesticide products will be too low.

S. 1342 is essential in taking preliminary steps to curtail pesticide exposure to workers by restricting pesticide usage, by encouraging increased integrated pest management, by increasing fees for registrants, and by demanding tougher worker protection regulations.

Here are other suggestions I would offer:

1) Increase the role of your state health department in developing pesticide programs such as reentry times. For example, it makes no sense to politically negotiate a reentry time down from 48 hours to 24 hours if medical and scientific data show that workers would be endangered by entering a field prior to 48 hours. Such matters simply should not be entrusted to state bodies whose primary mission is not occupational health. Your proposed Pesticide Control Council gives your health department representatives too small a role in advising the Department of Environmental Protection.

2) Registration procedures in S. 1342 Section 2 should be strengthened by demanding that pesticide companies supply necessary health and safety data (which they have failed to supply to EPA in violation of FIFRA) within reasonable, though fixed, deadlines. California recently passed such a provision in a "Birth Defect Prevention Act." Farmworkers and the general public should not be subjected to dangerous chemicals which have not been properly tested.

3) In addition to S. 1342's registration restrictions, a permit system similar to California's should be established for all agricultural pesticide applications. Environmentalist and labor advocates for years have urged that state and federal pesticide laws adopt a prescription system for pesticides like the system which governs pharmaceutical products. Like medicines and drugs, pesticides are a part of modern life, but they are also dangerous and must be subject to public health policies. Pest management experts should be hired by the state to describe appropriate controls on pesticide use and recommend alternative methods to manage pest control. Since the prescription system requires additional staff and expense, the fees proposed under S. 1342 should be sufficient to provide for this program. The prescription system should also reduce the number of so-called "emergency" and "special local ~~concern~~^{need}" authorizations to growers.

4) S. 1342 enforcement sections should be strengthened by establishing ^{more effective} civil penalties for violations of the statute and accompanying regulations. Hit and run drivers are subject to jail terms and physicians who prescribe drugs illegally are subject to heavy penalties, censure and loss of their license. Pesticide applicators and agricultural employers however, lack any real deterrence when they misuse pesticides, not only in New Jersey, but across the country. States and the EPA without exception, have failed to effectively enforce pesticide misuse laws according to the Government Accounting Office, Congressional hearings and EPA reports. In every region of the country governmental pesticide enforcement

actions are insignificant compared to other environmental actions enforcing the Clean Air and Clean Water Act.

Things have gotten worse during the Reagan Administration. Since 1980 both federal and state pesticide misuse enforcement has declined drastically in virtually every category -- inspections, civil and criminal actions, suspensions and revocations of licenses, warnings, hearings and fines collected.

Finally, although S. 1342 helps victims of involuntary pesticide misuse gain access to state courts for violations of the law, most people, especially farmworkers, cannot afford to retain attorneys when they are poisoned by pesticide misuse. The state presently must refer civil penalty actions to the courts because it lacks authority to adjudicate such matters. Therefore, S. 1342 should be strengthened by enabling the state to bring complaints before a state administrative agency. EPA, under FIFRA, New York and Georgia already have this system in place.

Thanks again for your consideration. I will be glad to answer your questions.

Testimony of Dr. David Hall, Conservation Chairman, Bergen County Audubon Society

Sept. 24, 1984

RE: PESTICIDE CONTROL ACT (S-1342)

Senate Energy and Environment Committee, State of New Jersey

We oppose the current levels of use of broad spectrum pesticides because of their inability to distinguish between beneficial insects and harmful insects, the disruption of the chain of life which results, the direct toxic effects of pesticides on other species, and the significant safety questions which remain concerning human health. We are also disturbed that current usage patterns so often affect private property without permission or consent of the owners.

You may remember that the canary was once carried down into coal mines to indicate whether the environment was fit to work in. Likewise, our wild bird populations have served as an indicator of the health of our overall environment. When the first broad spectrum pesticides such as DDT were in use, it was changes in bird populations which signalled that these pesticides were not so safe as the chemical industry would have us believe. These pesticides do not discriminate between good and bad insects, they kill everything. Beekeepers get notification already, but homeowners & gardeners do not. The enormous losses to all insect populations leads to imbalances in the chain of life, starves bird populations that depend on insects for food, and is exterminating insects that our members view positively: butterflies, moths, & ladybirds for example. We have members who are trying to restore the wild populations of moths and butterflies, so that our children won't have to depend upon museums to see one. However, all of their efforts can be wiped out when pesticides are sprayed over their communities without warning. If the local park's shade trees are sprayed without warning, or a neighbor hires an aerial spraying service, the pesticide can easily drift onto neighboring properties, killing irreplaceable collections of living butterflies, for instance. This is one reason why we are concerned about proper notification, adequate buffer zones around agricultural spraying, and limitations on the indiscriminate use of broad spectrum pesticides. We believe that the individual citizen has a right to avoid having his property sprayed unnecessarily, and that the environment will be better served by more use of directed pest control measures such as integrated pest management (IPM) and less use of broad spectrum pesticides.

These are not the whims of a few oddballs, I might add. We have 1600 families who belong to Bergen County Audubon Society, and over 12,000 families statewide who belong to National Audubon. There are many more people than that who share our respect for the chain of life in the natural world.

Our second major concern is the safety of these pesticides. Again let me use bird life as an example. Besides the imbalances which develop from wiping out insect populations, we now know that pesticides such as DDT have direct physiological effects on vertebrates as well. We lost every peregrine falcon on the eastern half of the North American continent due to DDT. We almost wiped out the brown pelican, the bald eagle, and many other long-lived species. The DDT which they ingested built up systemically and

rendered them sterile. The few remaining bald eagles here in New Jersey are still functionally sterile due to DDT residues in their bodies from ten to twenty years ago. At the time, of course the chemical industry insisted that DDT was completely safe.

Now we are using a new generation of broad spectrum pesticides, and we hear a lot about how safe they are from industry spokesmen. When the EPA registered these compounds as safe for use, it is well known that exposure levels were often established by former Secretary Ann Gorsuch-Burford during cosy luncheon meetings with the industry representatives. Even the EPA's reports on pesticides have often consisted of cut and paste jobs where a company's own data sheets are inserted to look as if the EPA has done an independent study. Toxicity studies have often been farmed out to fly by night testing companies that actually fake the data out of whole cloth. To give one example, when the EPA looked at the pesticide studies of Industrial Bio-Test Inc. (IBT) in Illinois, they found that out of 1205 studies, 991 studies were fraudulent. Although the company officials were taken to court and three were convicted, seven years later the EPA had still failed to retest 737 IBT studies involving over 200 pesticides. How can the public feel secure about the safety of these 200 pesticides when the toxicity tests are known to be faked? None of these products was taken off the market until honest tests could be done; in many cases the tests still haven't been done, and other tests by other companies are often suspected to be faked as well. We know from the history of DDT that the residues of some pesticides are entering our bodies daily, accumulating each year in higher levels. We are the ultimate guinea pigs; we deserve to have our exposure to these compounds strictly limited to only the most urgent uses.

Too often these pesticides are viewed by general public as some sort of miracle cure against those pesky bugs; this sort of attitude leads to sloppy handling by the people who are in charge of spraying. As a result, the workers in the fields are overdosed, the fields are overdosed even when more precisely targeted methods such as IPM are available, and the surrounding environment is overdosed for no good reason. The chemical and agricultural industries complain about learning to cope with a new set of regulations; but that is just the point of this legislation - to force the users of pesticides to rethink their methods, reduce doses, switch to IPM methods where they are available, and better protect workers, the public and the environment. The users of pesticides must be forced to confront the scientific facts at hand: we can now detect pesticide residues at far lower levels and sometimes find significant health and environmental risks at even very low levels of exposure. The old blunderbuss methods of bug-killing must give way to more sophisticated, more responsible approaches.

Dr. David H. Hall
Conservation Chair
Bergen County Audubon Society
149 Runnymede Road
West Caldwell, NJ 07006
(201)226-7825

Natural Resources Defense Council, Inc.

122 EAST 42ND STREET
NEW YORK, N.Y. 10168
212 949-0049

Washington Office
1725 I STREET, N.W.
SUITE 600
WASHINGTON, D.C. 20006
202 223-8210

Western Office
25 KEARNY STREET
SAN FRANCISCO, CALIF. 94108
415 421-6561

Testimony of
Natural Resources Defense Council, Inc.

Before the
Committee on Energy and Environment
Senate of the State of New Jersey

on
Proposed Committee Substitute for S-1342
to Amend the
Pesticide Control Acts
N.J.S.A. 13:1F-1, et seq.

September 24, 1984

Jacqueline M. Warren

New England Office: 16 PRESCOTT STREET • WELLESLEY HILLS, MA. 02181 • 617 237-0472

Public Lands Institute: 1720 RACE STREET • DENVER, CO. 80206 • 303 377-9740

I. Introduction

The Natural Resources Defense Council, Inc. is a national non-profit environmental organization with 40,000 members and contributors who are dedicated to preserving and protecting our nation's human and environmental resources. In furtherance of this objective, NRDC staff attorneys and scientists in three offices are currently engaged in legislative, administrative and litigation efforts across the country to improve federal and state pesticide control programs. In recognition of NRDC's involvement and expertise in pesticide regulatory matters, an NRDC staff scientist is a member of the U.S. Environmental Protection Agency's Pesticide Advisory Committee. Another staff member sits on the New York State Department of Environmental Conservation's Pesticide Advisory Committee.

NRDC's basic philosophy with respect to the registration and use of pesticides is as follows: since pesticides are inherently dangerous substances designed to poison and kill, they should be comprehensively tested prior to use for adverse non-target effects; involuntary human and environmental exposures should be minimized to the extent possible; and development of safe substitute materials and pest control methods should be actively encouraged by government at all levels. We welcome this opportunity to comment on pending legislation to strengthen the Pesticide Control Act in New Jersey.

II. Strong State-level Efforts to Control the Adverse Effects of Pesticide Use Are Urgently Needed

The need for strong pesticide control programs at the state level has never been greater. The federal program at EPA is in disarray because of internal data review irregularities, budget and personnel reductions, and the disclosure of data falsification by a major private testing laboratory, among other problems. Investigative reports by the General Accounting Office and the House Agriculture Committee have raised serious questions about the adequacy and integrity of USEPA's evaluations of health and safety data underlying the registrations of many pesticides, about lax enforcement and too-close agency ties to the regulated industry,* and about extensive data gaps for existing pesticides in wide use for many years.**

While the federal agency attempts to put its house in order, major amendments to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) have been proposed to expedite the review of existing registrations, end abuses of the special local need and emergency exemptions from full FIFRA §3 registration require-

* In acknowledgment of this problem, and in response to a suit by NRDC and the AFL-CIO, EPA has just agreed to open the decision-making process to much greater public involvement, and to revisit a long list of pesticide decisions made behind closed doors but in close collaboration with the manufacturers. See Att. I.

** See, e.g., EPA Pesticide Regulatory Program Study, Subcommittee on Department Operations, Research, and Foreign Agriculture of the Committee on Agriculture, House of Representatives, 97th Cong., 2d Sess. (1982) (hereinafter "House Subcommittee Staff Report"); Stronger Enforcement Needed Against Misuse of Pesticides, General Accounting Office, CED-82-5 (1981).

ments, and elevate human health concerns in the risk-benefit balancing that forms the basis of federal pesticide registration decisions. Passage of these amendments is unlikely before the end of the next Congress, however.

Regardless of the outcome of the effort to strengthen FIFRA, there are problems warranting state-level solutions that should be addressed now. In recent years, pesticides registered by the federal EPA such as Temik, EDB, and DBCP have been found in groundwater in many states. Residues of dangerous pesticides such as heptachlor have been detected in milk in Hawaii; homes have been abandoned and even leveled because of cyclodiene contamination resulting from termiticide applications, and tens of thousands of pesticide injury reports have been received by EPA's Pesticide Incident Monitoring System. Such problems occur at the state level and should be detected, controlled, and prevented at that level in the first instance.

To date, California, the major user of pesticides in the United States, has the best pesticide control program of any state. New York, which has suffered serious groundwater contamination problems due to pesticides, is presently reviewing its program and has also recently initiated a process to ban the use of cyclodiene pesticides for termite control because of continuing and irreparable home contamination problems. Florida and Wisconsin, among other states, have also acted to protect their groundwaters from further pesticide contamination.

The recent EDB food contamination problem provides a telling illustration of the difficulties faced by individual states where

the federal government has failed to act, but it also underscores the urgency of the present need for state authority to act effectively in such situations. Thus, the pending proposals to strengthen New Jersey's pesticide control laws are timely as well as urgently needed to provide essential human health and environmental protection against injury resulting from exposure to harmful pesticides.

The marketplace cannot effectively protect people against harm from involuntary exposures to pesticides in food, water, air and the immediate environment. In the end, the public must rely upon government to apprise them of and protect them from risks of serious harm, and they must be well enough informed in advance of involuntary exposures to avoid or prevent their occurrence. Even if USEPA's pesticide regulatory program were functioning as intended, which it emphatically is not, the federal program alone could not provide the degree of protection citizens need against immediate dangers that are recognizable and preventable only by action at the state and local level.

III. Comments on the Proposed Committee Substitute for S. 1342

In NRDC's experience, an effective state pesticide control program requires the following elements:

1. independent capability to evaluate pesticide registration data and to monitor for environmental contamination;
2. Sufficient authority and resources to enforce compliance with the state law and implementing regulations;

3. Provision of timely and adequate information to citizens who may be exposed so they can take appropriate steps to avoid or prevent potentially dangerous involuntary exposures; and
4. Assurance of an arm's-length relationship between the regulatory agency administering the program and the regulated industry, backed by continuing legislative oversight, and citizen enforcement where the agency fails to act to compel compliance or to prevent harm to health or the environment.

Measuring the proposed legislation against these standards, NRDC has the following comments.

We strongly support the proposed enactment of requirements to establish a state program to monitor and evaluate pesticide exposures; to restrict aerial spray of pesticides; to provide advance notification to residents in proposed spray areas, including creation of a Pesticide Hotline; to certify individual applicators; to authorize revocation of registrations where data have been falsified, safer substitutes exist or hazards or inefficacy have been demonstrated; to protect farmworkers from dangerous exposures; to mandate research on the effects of pesticides, and medical education and reporting programs regarding pesticide-related illness and injury; to control disposal of pesticides and pesticide containers; and comparable health and environmental protection provisions. At the same time, we are concerned that certain aspects of these requirements will greatly undercut, if not entirely defeat, the stated objectives of the

provisions in question. These concerns bear particularly on the proposed notification provisions, and on the data review criteria set forth in the bill. Our specific comments on these and other provisions of the bill follow.

1. Public Notification

In NRDC's view, timely and informative public notification of scheduled pesticide spray applications is essential for potentially exposed persons to take appropriate protective steps. Notice that one's person or property is about to be exposed to a poison is a citizen's right which should be protected and respected by government. The proposed legislation, however, places the burden upon the individual to ascertain that he or she may shortly be placed in deadly danger rather than providing this information in advance of the day and with sufficient specificity to allow protective steps to be taken. Our society does not impose such a burden upon citizens with respect to other immediate dangers. A "thin ice" sign is posted without first being requested; a fire alarm notifies all in the vicinity of the danger; and a golfer shouts "Fore" whether or not anyone asks. Direct exposure to a poison can be an equally life-threatening event and should be so treated.

We find particularly inappropriate and inequitable the proposal to require persons seeking notification of ornamental sprays to register on an annual basis, only to receive notice -- if at all -- within one day of the application. According to the bill, notice need only be mailed 24 hours before an applica-

tion. This is simply too short for the notice to be effective in achieving its purpose. Moreover, the cut-off date for annual registration of April 1 leaves new residents or merely forgetful citizens completely unprotected.

NRDC also questions the utility of the "general notice" proposal for other categories of aerial spray. In addition to improperly shifting the initial burden of action to the potentially exposed citizen, the general notice provides none of the information a concerned citizen would need to protect him- or herself. Presumably, most residents of communities where spraying occurs are aware that it periodically takes place. The general notice, therefore, merely states the obvious. NRDC believes that the notice should provide specific information on scheduled spray applications to the affected residents in time for appropriate protective action to be taken without the unnecessary first step of a general and uninformative notice and without the onerous and unfair requirement that residents ask to be informed of imminent exposures or be presumed not to care about them.

We have difficulty identifying a single public policy goal that is achieved by the proposed notification scheme for ornamentals and other aerial spray categories. Why should the convenience of the applicator outweigh the public health protection interest of the involuntarily exposed resident? Why should the state assume that a person desiring notice this year will not want notice every year? Why is the drift distance for notification cut off at 500 feet when the Department of Environmental

Protection's records show that drift often covers a radius of 1000 feet? Unless these and similar questions are resolved in a manner that provides meaningful advance notice to all residents who are likely to be exposed to a spray application, the proposed notification provision will not achieve its stated and extremely important goal. NRDC strongly urges this Committee to reconsider the specifics of the various notification provisions in the bill and to revise them in a manner that will effectively protect the intended beneficiaries of the legislation.

2. Pesticide Data Evaluation Criteria

As stated above, NRDC supports the enactment of mandatory requirements for pesticide evaluation and monitoring. Given the recent history of severe pesticide contamination incidents discovered in every instance by the relevant state rather than by the federal government, it is imperative that the New Jersey Department of Environmental Protection and Department of Health be directed to identify and act to control pesticide problems rather than waiting for delayed federal action or serious contamination incidents to prompt remedial measures.

While we support development of a State program for the continuous evaluation of the effectiveness and safety of registered pesticides, the meaning of the "substantive preliminary data" trigger for initiation of a thorough evaluation of a pesticide is unclear. A similar question arises about the requirement that claims about the effects of a pesticide be "substantially unsupported by experience" before a thorough

evaluation may be commenced. More than a decade of experience with pesticide reviews at the federal level has led us to conclude that the statutory standard for an in-depth review of the adequacy of pesticide health and safety data must be as clear and unambiguous as possible.

If the regulatory agency charged with administering the pesticide law concludes that a review is necessary, the agency should be directed and empowered to engage expeditiously in such a review without legal challenges to its determination that the review is necessary. The hearing procedures that accompany regulatory proposals, and subsequent judicial review, provide ample opportunity for registrants to make the case against regulation. The enactment of a "substantive preliminary data" requirement as a prerequisite to agency review could involve the Department of Environmental Protection in lengthy litigation over the validity of its determination that preliminary data are sufficiently "substantive," thereby potentially delaying regulation to reduce exposures to compounds found after such a review to be unduly hazardous. NRDC therefore urges the Committee to delete this requirement.

NRDC also seriously questions the inclusion of a "substantially unsupported by experience" test for initiating a data review. As the Committee is no doubt well aware, pesticide manufacturers, applicators and users generally contend that pesticides are not harmful or have not been shown by experience to have caused adverse effects on humans or the environment. In

fact, a recent study by the National Academy of Sciences* found that most pesticides have not been adequately tested, especially for chronic effects such as cancer, birth defects or gene mutations. According to the NAS, "complete health hazard assessments appear to require further testing of ... 90% of the pesticides and inert ingredients of pesticide formulations...."***

The following statistics illustrate the need for individual state-level assessment of pesticide safety. EPA registration regulations require two cancer bioassays for each basic active pesticide ingredient. Since there are approximately 600 basic active pesticide ingredients in substantial use today, there should be 1,200 cancer tests in EPA's files. EPA, however, has a total of only 456 tests on file.*** Since two cancer studies are required to support the registration of each pesticide, according to the House Subcommittee Staff Report, no more than 228 presently registered pesticides could meet current cancer test requirements. That means that at least 62% of all pesticides in use in the United States have not been adequately examined for their capacity to cause cancer -- the second leading cause of death in the United States, resulting in 400,000 deaths a year, and striking more than one in four Americans.

In reality, the situation is even worse because there are more than two cancer tests on file for a number of pesticides.

* Toxicity Testing, National Academy of Sciences, National Research Council, Washington, 1984.

** Toxicity Testing, NAS/NRC, Washington, 1984, p. 126.

*** House Subcommittee Staff Report at 180.

the requirement of 2 tests per pesticide to determine the number of pesticides that meet current standards. The House Subcommittee Staff Report made adjustments for such multiple submissions and concluded that the probable number of basic active ingredients that meet today's cancer test requirements is actually between 96 and 127. In other words, an estimated 79% to 84% of all pesticides sold today in the United States have not been sufficiently examined for their capacity to cause cancer.

The statistics with respect to the tests required to assure that pesticides do not cause genetic mutations are even worse. There, the number of pesticides that do not meet today's test requirements lies somewhere between 90% and 93%.

As far as birth-defect causing properties are concerned, the matter is only a little better. There, only 60% to 70% of the registered pesticides lack test data.

In light of the dearth of information currently available on the chronic toxicity of most pesticides in use today, we urge that the second proposed criterion for initiation of a thorough review by the Department of Environmental Protection be amended as follows:

"... or that claims made by the registrant to the United States Environmental Protection Agency in the registration application relative to the sale, distribution, use or effects of the pesticide are unsupported by substantial data or experience"

3. Exclusion of Pesticide Drift From Section 5 Prohibition on Intentional Application of Pesticides Against Property Owner's Wishes

NRDC objects to the exclusion of pesticide drift from the proposed prohibition against intentional application of any pesticide to property which the owner does not wish to have treated. It is an established fact that pesticides applied aerially or by airblast sprayer can drift as much as 1000 feet from the target site. Where a property owner adjacent to or within the drift radius of a target site opposes application to his or her property, and an aerial or spray application will necessarily drift onto that property, application of the pesticide is as intentional as if it had been directly applied. In such cases, the rights of the objecting landowner should be respected and an alternative form of pesticide application be utilized at the target site. In NRDC's view, exclusion of such situations from the prohibition on intentional application defeats the purpose of the prohibition and leaves the objecting landowner completely unprotected. Since the issue is not one of mere inconvenience, but of involuntary exposure to poison, it should be resolved in favor of protecting the citizen whose person and property may otherwise be injured.

4. Protection of School Children Against Involuntary Exposure

NRDC believes that the present limitation of the prohibition on pesticide application during school hours merely to termite control is insufficiently protective. If the intention of this

provision is to protect children against involuntary exposures to toxic substances, it will not succeed as currently drafted.

Termite control applications are infrequent and generally limited to subsurface treatment, while other pesticide treatments, e.g., for roaches and similar indoor pests, are likely to be repeated and to involve spray-on applications of acutely toxic compounds to room surfaces. For maximum protection, no pesticide applications should be made in schools while children are present. Limiting this protection to termite control applications makes little sense because the scope of protection is simply too narrow. .

5. Exemption of IPM Participants from Notification Deadlines

NRDC objects to the exemption of Rutgers-certified integrated pest management program participants from the 24-hour detailed notification deadline of section 7(a)(2). IPM programs represent a major advance over prophylactic application of broad-spectrum pesticides, but they nevertheless often involve application of very hazardous compounds. For this reason, the rationale for advance notification of potentially affected persons is as applicable to IPM as it is to more conventional pesticide use situations. We recommend that this exemption be deleted from the bill.

6. Use of Pesticide Brand Names

In certain situations, such as pesticide use in commercial buildings or in lakes, notice of a recent application is to be

provided by signs. The bill before the Committee presently specifies that such signs need include only the brand name of the pesticide and an additional contact telephone number for further information. Since the applicator can readily ascertain the EPA product registration number from the label on the container, this information should be required to be included on the sign to facilitate the expeditious obtaining of additional information where desired by persons in the area.

With respect to the treatment of lakes for weed control, the bill refers to "a sign" and "the sign". NRDC urges that this provision be changed to mandate the posting of as many signs as are reasonably necessary to apprise the maximum possible number of users of the lake that a pesticide application has recently been made.

7. Creation of a Private Right of Action

NRDC strongly supports creation of a private right of action to permit citizens to sue over violations of the pesticide law. As noted above, both the federal government and state regulatory agencies have been very lax in enforcing pesticide control laws. Resources for enforcement of such laws are also quite limited. Creation of a private right of action allows injured persons to bring suit directly against violators. In an era of declining government regulatory enforcement, it is only fair to give the private citizen the right of self-protection.

The available evidence indicates that the rate of pesticide injuries has been increasing as the rate of pesticide usage

increases. The EPA Pesticide Incident Monitoring System has received over 55,000 pesticide injury incident reports over the past several years. These reports show an increase in incidents over the years. Meanwhile, pesticide production in this country has increased from 200,000 pounds in 1950 to over 1.7 billion pounds in 1980. As long as this trend continues there is little doubt that more and more Americans will suffer pesticide-related injuries. Some means must be found to stop involuntary pesticide poisoning. Providing citizens a private right to sue is a small step in the right direction.

While we strongly support inclusion of such a provision, we are concerned that the limitation of section 18 to persons whose "property or person is exposed" may inadvertently preclude injunctive relief to prevent a violation of the law. To permit such preventive lawsuits, NRDC recommends that section 18 be amended as follows:

"Any person whose property or person is or is likely to be exposed to a pesticide resulting from a violation of this act may bring a civil action law or equity...."

IV. Conclusion

Our entire population is currently being exposed through food, water, household air and the immediate environment to pesticide chemicals that are designed to poison and kill and which have not been shown to be safe as currently used. At the same time, serious deficiencies in the federal pesticide regulatory system have been identified. It is therefore essential that state authorities step in to protect their citizens against

involuntary exposures to hazardous pesticides, and to scrutinize the pesticides used within their jurisdictions to make sure that they can and will be safely used.

The Committee substitute goes a long way toward achieving these objectives, and with certain modifications that we have outlined above, could serve as a model for similar legislation in other states. We commend the Committee for its effort and look forward to enactment of this important health and environmental protection measure in the near future.

E.P.A. Will Re-investigate 13 Disputed Pesticides

By PHILIP SHABECOFF

Special to The New York Times

WASHINGTON, Sept. 20 — The Environmental Protection Agency settled a lawsuit by agreeing today to re-investigate possible threats to health from 13 pesticides it had earlier licensed after closed meetings with the chemicals' makers.

The agency also pledged to make no more regulatory decisions on the basis of closed meetings with industry. In return, the Natural Resources Defense Council and the American Federation of Labor and Congress of Industrial Organizations would drop pending legal action in Federal District Court here.

Under the terms of the settlement, the agency would establish rules requiring that its decision-making process be open and that a public docket be kept of all meetings with interested parties.

The suit charged that the agency had licensed pesticides, some of them known to cause cancer, genetic defects and other illness in test animals, after consulting only with industry in secret "decision conferences." It said evidence showed that in some cases the affected industry actually drafted the rules that were finally adopted.

These meetings and regulatory ac-

tions took place, according to the complaint, when Anne McGill Burford was Administrator of the E.P.A. in the first two years of the Reagan Administration. Mrs. Burford and most of the other political appointees at the agency were forced to resign early in 1983 amid Congressional investigations of charges that toxic waste programs were being mismanaged.

The suit charged that the environmental agency's pesticide regulations, often made on the recommendation of the affected industry, represented a potential health threat to consumers and workers.

A lawyer for the environmental agency, who asked not to be identified by name, said that the agency had denied the allegations in the suit and that it "does not regard the settlement as an admission of guilt." He said the agency agreed to settle "in the best interests of the public."

Lawyers for the Natural Resources Defense Council, an environmental group, said six related pesticides that the agency will now be required to reassess, called ethylene bisdithiocarbamates, or EBDC's, are more ubiquitously used on agricultural products than ethylene dibromide, the pesticide

barred from most food uses by the agency earlier this year.

The EBDC's, used on potatoes, tomatoes, mushrooms, cucumbers, bananas and a wide variety of other fruits and vegetables, leave a residue that has caused animals used in several laboratory tests to develop cancer and other diseases, according to the lawyers.

The lawyers said that the EBDC's, like ethylene dibromide, were allowed to continue on the market without safety limits, despite staff recommendations that maximum safe tolerance levels be set, after agency decision makers met with industry.

Other pesticides, herbicides and fungicides to be reassessed under the settlement to determine if they should be barred or restricted are benomyl, lindane, paraquat, pentachloronitrobenzene, or PCNB; terbutryn, dichlorovinyl dimethyl phosphate, or DDVP and ethyl O-P-nitrophenolthionbenzene phosphonate, or EPN.

Albert Meyerhoff, lawyer for the environmental group, said that "the recent scandals" over ethylene dibromide "were the tip of the iceberg at E.P.A.," adding:

"This is the rest. The evidence in this case demonstrates wholesale complicity by high level officials at E.P.A. with representatives of the pesticide industry resulting in sweetheart regulatory decisions on potentially some of the most dangerous chemicals used in American agriculture."

Earlier this year the environmental agency, responding to public and Congressional pressure, established safe levels of ethylene dibromide in food products and ordered that the use of the pesticide be phased out.

Paul R. Lapsley, chief of the special review branch in the agency's pesticides division, said the agency had agreed to commit itself to rules requiring an open decision process because that was the process that the current Administrator, William D. Ruckelshaus, had demanded that the agency follow when he took office in 1983.

Settlement Imposes Deadline

As for reviewing the regulations on the chemicals, the agency is doing so for all previously registered pesticides anyway, Mr. Lapsley said. He conceded, however, that the settlement imposes a deadline in completing the reassessment of the chemicals in question.

Mr. Lapsley said he did not know of any staff recommendations that EBDC's be restricted on foods. And if there had been such recommendations, he said, the fact that they were not adopted could reflect a variety of factors other than alleged influence by industry.

Mr. Meyerhoff said that his group's research indicated that as many as 25 chemicals needed to be reinvestigated. But he added that it would have taken months or years to complete the case needed to win in court and that therefore his group had accepted a settlement on the 13 chemicals.

60x

Highlands Watershed Association

P.O. BOX 451

~~NEWFOUNDLAND~~, NEW JERSEY ~~07435~~
WEST MILFORD 07480

COMMENTS ON

PROPOSED SENATE COMMITTEE SUBSTITUTE FOR S-1342

PAUL TWERDOWSKY
Project Chairman

CONTENTS

Hazards of Pesticides
Federal and State Regulations
Statement on S-1342
Comments on Specific Sections of S-1342

HAZARDS OF PESTICIDES

Pesticides present a clear and present danger to human health and the environment. While the National Academy of Sciences has documented what we don't know about pesticides in their 1984 report ("only 10% of pesticides now in use have sufficient health and safety data for a complete assessment") there is ample documentation that pesticides now in use can cause harm. Heptachlor, chlordane, captan, EDB, and toxaphene, to name a few of the more widely used pesticides, have all been shown to be carcinogenic in tests. As Dr. Singer testified at the committee hearing, most pesticides are neuro-toxins (nerve gas) and as such not only affect the nervous systems of target insects, but also humans. A widely used pesticide like parathion is 60 times more toxic to human beings than the banned DDT. Because of a variety of chronic human health effects (carcinogenic, mutagenic, teratogenic) the blue-ribbon panel appointed by the Secretary of Health, Education, and Welfare in 1969 (U.S. Secretary's Commission on Pesticides and Their Relationship to Environmental Health--the Mark Commission) recommended that human exposure to the following pesticides be minimized or eliminated: aldrin; amitrol; avadex; bis(2-chloroethyl) ether; chlorbenzilate; o,p'-DDT; dieldren; heptachlor (epoxide); mirex; n-(2 hydroxyethyl)-hydrazine; strobane; captan; carbaryl (Sevin); the butyl, isopropyl, and isooctyl esters of 2,4,-D; folpet; mercurials; PCNB; and 2,4,5,-T. While some of these pesticides have had their registrations cancelled (mostly as a result of legal action brought by environmental organizations) others are still used extensively. One glaring example is carbaryl (Sevin).

In a signed affidavit, Dr. Samuel Epstein, chairman of the Mark Commission Panel on Teratogenic Effect of Pesticides (currently Professor of Occupational and Environmental Medicine at the School of Public Health, University of Illinois Medical Center), stated that carbaryl (Sevin) has been shown to be teratogenic in a number of mammals and poses a serious potential human health hazard. "Under no circumstances should carbaryl be sprayed over populated areas. Even in unpopulated areas the aerial spraying of carbaryl poses serious hazards because of the likelihood of aerial drift and the contamination of water sources." In 1984 the U.S. Department of Agriculture and the U.S. Fish and Wildlife Service stated that "...the use of carbaryl [should] be limited in watershed areas..." And yet this pesticide is widely used in New Jersey, even being applied aerially to populated areas and watersheds by the New Jersey Department of Agriculture.

Pesticides have contaminated ground water in more than a dozen states according to the Environmental Protection Agency. Every state that has tested ground water for EDB (California, Georgia, Hawaii, and Florida) has found it in concentrations of up to 100 parts per billion (PPB). EDB is carcinogenic at 1ppb.

Excessive levels of pesticides have been found in fish. Toxic precipitation, the airborne transportation and deposition of toxic chemicals, has become a major problem. One of the components of toxic precipitation is agricultural chemicals. The contamination of fish (at levels way above FDA tolerance limits) in Lake Michigan by toxaphene has been attributed to its closest use, 1000 miles away on cotton crops in Mississippi. According to the EPA this pesticide is likely to remain in the lake for at least 100 years.

As the testimony of the farm workers and members of the public reveal, New Jersey residents have suffered ill health effects following exposure to pesticides. Because our medical community is not trained in diagnosis and treatment of pesticide poisoning and we have no reporting system we don't know the extent of acute health problems. However, as I have talked to community organizations around the state I have been surprised by the number of people stating that they are allergic or highly sensitive to pesticides.

FEDERAL REGULATION

It has been suggested that some of the provisions of this bill are a federal responsibility. This argument ignores the clear shift in regulatory responsibilities from the federal level to the states. The current administration in Washington has made clear its stance on this issue. There is no reason to believe this policy will be reversed in the foreseeable future.

Even in the 1970's when the federal government was more active in pesticide regulation the results were inadequate. The Congressional Subcommittee on Administrative Practice and Procedure found that "...pesticide regulation in the United States is fundamentally deficient. Pesticide regulation has failed to include many obvious and prudent steps to better protect public health and the environment. Moreover, the severe inadequacies of pesticide regulation are not attributable in any significant way to deficient legislation. Rather, the principal cause lies with EPA's poor administration of the program, including its failure to recognize and correct serious program deficiencies as they arose." The Government Accounting Office stated that "...the American public had not been adequately protected from the potential hazards of pesticide use because of inadequate efforts to implement existing federal laws."

If the State of New Jersey refuses to establish adequate pesticide regulation the citizens of this state will be denied protection of their health and environment.

STATE REGULATION

Some have questioned the need to write in statute sections of the proposed bill that already exist in DEP regulation. Whether sections of the bill already exist or may be added to the DEP's regulations is irrelevant to the question of putting them into statute. All of the provisions of this proposal are basic to the regulation of pesticides. It is from the proposed statute that Department regulation should be promulgated.

The question must also be asked why the DEP has not acted within its present regulatory authority to adequately regulate pesticides. While there have been some modest recent improvements in DEP's programs these or other advances could easily be reversed by a different administration.

The major questions about administrative regulation versus statute have been raised in relation to notification. It should be noted that there is long-standing precedent for putting notification into statute. Chapter 7, Title 4 specifies detailed notification requirements for the Department of Agriculture gypsy moth spray program.

STATEMENT ON PROPOSED COMMITTEE SUBSTITUTE FOR S-1342

Considering the demonstrated and potential hazards of pesticides this proposed bill is a very moderate response. Indeed, particularly in New Jersey with its extreme toxic chemical contamination and resultant human health problems, the bill could be considered incomplete. Such areas as protection of water supplies, buffers around sensitive areas, and banning of proven carcinogens are not addressed. While some provisions of the proposed bill could be addressed by regulatory agencies there is no reason to believe New Jersey's regulatory agencies will act any more responsibly now than they have in the past. The DEP, with broad authority to regulate pesticides since passage of the 1971 Pesticide Control Act has failed to implement adequate regulations.

The bill does present an important step forward in efforts to protect the public and environment from unnecessary exposure to pesticides. Many of the provisions are now in effect in other states. I will comment on specific sections of the bill separately, but wish to present three major revisions which I think will prove to be more workable and necessary to accomplish the goals of this bill.

Section 7b(1),(2) Outdoor Ornamental Notification

The purpose of this section (that is notification of surrounding property owners that may receive drift) can be met in a less complicated way that will not require municipalities to keep extensive registries of those requesting

notification.

Recommendation:

Require written notification 48 hours before application to all properties within 200 feet for ground application utilizing hydraulic spray equipment operating at a rate greater than 300 psi and 10 gpm, and to all properties within 500 feet for aerial or air blast application.

Justifications:

1. 48 hours is a reasonable amount of time to allow people to plan (not schedule outdoor party, get children and pets inside, bring in lawn furniture). This is also the amount of time recommended by the DEP in its Model Ordinance.

2. The registry system unnecessarily involves municipal time and expense. The door is also opened for abuses in this system. West Milford has adopted the DEP Model Ordinance (the basis for the S-1342 proposal) with a \$5.00 annual fee for those registering--backdoor "revenue enhancement"!

3. The registry system would have to be publicized, so that people would know about it, at additional expense and would not be optimally effective as those not signing up before April 1 would not be eligible to receive notification for that year.

4. The proposed revision could easily be accomplished. Preprinted flyers provided by the applicator could be hand delivered to neighbors 2 days prior to application.

Section 7f(3) Schools

Much concern has been expressed for protection of school children. While this section will provide more protection than is now afforded, by adding, 'applications must take place after regularly scheduled classes', we could maximize protection of children and teachers.

Section 18 Violations

Regulatory agencies have not always carried out their legislative mandates. While the legislature can provide some oversight, it is not possible for the legislature to watch every agency and every law to see that laws are implemented. Therefore, it is important to add language giving citizens the right to bring legal action if an agency fails to enforce the provisions of this act.

COMMENTS ON SPECIFIC SECTIONS

Section 3a

"The Department shall conduct a thorough evaluation of any pesticide for which substantive preliminary data indicate that the pesticide, as presently used, will cause, or may tend to cause, adverse effects on man or the environment..."

This language is taken from law already in effect in Florida. Unfortunately, the federal government has not acted adequately or in a timely manner to protect the public from the hazards of pesticides. Even DDT was first withdrawn from use by Michigan and Wisconsin before the EPA acted under court order. We need to authorize DEP investigations when substantial evidence of a pesticides' adverse effects are revealed.

Section 4 Certification

Many professions require state certification and/or license. Clearly a profession that requires exposure of oneself, others and the environment to hazardous materials should have state standards for training and certification for all personnel.

Section 6a(5) Aerial Application

"...in no case shall the aerial application of broad-spectrum pesticides on non-agricultural lands be permitted;"

Connecticut has successfully implemented this provision of law for more than 10 years. The only possible exception to this law should be in the event of a mosquito health emergency, which is provided for in subsection (6)c. Modern mosquito control should concentrate on removing breeding areas (like discarded tires) and larviciding in areas where mosquitoes cause a problem. Where aerial applications for larviciding are needed BTI (a narrow-spectrum insecticide) can be use as is done in Connecticut and other states. "Adulticiding", to quote Khian Liem, director of the South Cook County Mosquito Abatement District, "has never been proven a real effective method. People want to see the trucks coming up and down the streets, because people think that if they see chemicals in the air, it is effective. In fact, mosquitoes are almost totally impossible to kill once they are on the wing and flying."

Section 7 Notification

A very minimal approach to a major problem (human exposure to pesticides) is notification. If pesticides were applied in such a way as to avoid human exposure this wouldn't be necessary. Put, all outdoor application using commercial equipment and indoor applications to areas people may enter expose those in the target and surrounding areas. Notification is a community self-defense measure.

It allows those most susceptible to the acute health effects of pesticides (allergic, chemical sensitive, elderly, young, sick) and those concerned about the possible chronic health effects (cancer, kidney and liver damage, birth defects, sterilization) to avoid exposure. Considering that the inconvenience is to those upon whom the chemical trespass is being inflicted it is not asking much to warn them ahead of time so that they may vacate the area or take whatever other precautions are needed to avoid exposure.

Section 7g Posting of lawns

This is particularly important in public areas like parks where unaware people, particularly children, are likely to come into contact with a recently treated lawn area. Picnickers should be forewarned so they don't eat food that may come into contact with ground where toxic herbicides have been applied.

Senator Dalton and your committee, it is imperative for our health, welfare and for future generations that the Pesticide Control Act S-1342 and A-1536 be passed.

My name is Louise Willis, I'm an environmental educator, a lady farmer and a licensed pesticide applicator. My husband and I operate a farm in Salem County and grow predominately grain such as wheat, barley and soy beans.

Please grant the workers and to us in the community, our children and our animals the right and the courtesy to know what and when we are being sprayed so that when we become ill we may be adequately treated. This right has been granted to people in industry, why not us? That pregnant women be especially notified so that their not yet born children be given the option to be born normally. That BT (bacillus thuringensis) which is species specific and does not harm natural predators) be used for the control of gypsy moths instead of Sevin, a cholinesterase inhibitor and destroys natural predators. It has sub-lethal effect on wild life such as retarded growth, behavior modification and impaired reproduction.

Yes, farmers must have a pesticide certification to use pesticides on their farm which enables them to good general information on the care and use of pesticides. After this relatively easy exam is taken there is no follow up, policing the use or amount of these chemicals. The farmer does exactly what he pleases - many still practice the old adage, I use a little and if I double it, it will do twice as much good. The old adage is only contaminating our environment and polluting our water.

Let me give you a first hand account of the contamination of the pesticide Temik (aldicarb), a cholinesterase inhibitor which is seeping into our wells, our drinking water. We are group of concerned citizens calling ourselves Citizens for Clean Water, and do not want a repeat performance in our community of what has happened in Suffolk County, Long Island.

GAX

Temik is responsible for contaminating 1700 wells and water must be piped to these homes. There are reports of temik contamination all along the eastern seaboard. Temik has already been banned in 13 states and still being used in New Jersey. It is used by potato farmers for the Colorado Potato Beetle (recent reports indicate that the beetle is developing resistance to temik). It should not be used in sandy soils and we have sandy soil in Salem County. Which is more important a crop of potatoes and contaminating the water supply in an entire community for several generations (1960). Where do we go when our water is polluted? Apparently the Europeans have more foresight than we do in America. I visited Europe this summer and farmers are only permitted to spray twice a year, if a tree is badly defoliated, the tree comes down. They are very concerned with the quality of their water.

We hear that sufficient regulations already exist, why, then, are there so many misuses of pesticides? - I could write a book. Here are a few examples, my neighbor was sprayed, she became ill and had to go to the doctor, she called the farmer to identify the spray and the farmer would not tell her the truth. This summer our house was sprayed along with aerial spraying of crops, our neighbor's alfalfa field was also sprayed by mistake. There is never any caution taken when fifties are sprayed, and herds of milking cows are often times in direct line of the drift, you and I are probably drinking that milk. Being a lady farmer I attend most of the extension meetings - there was one meeting in particular for potato farmers that included discussion about the contamination problem in Suffolk County, Long Island and a farmer approached me and said, "There ain't nothin' wrong with Temik, I put my hands in it all the time." Another incident where a few hundred bails of alfalfa were sprayed by mistake and the pilots arrogant reply was that he killed all the bugs for nothing. Does he sound like a rational person who has knowledge of pesticides? What about the good bugs or natural predators that he killed along with contaminating the alfalfa.

Just this past week-end a farmer called me and told me about an orchard being sprayed, the spray drifted into a stream, his cows drank the water and he lost several cows - a tremendous loss for careless spraying.

Even the Department of Agriculture is feeding us political pabulum. A recent article stated that pesticides are not released if they are not safe - what could be more fallacious or untrue. We were told that DDT was safe and we sprayed the "hell" out of everything. The eagles produced an egg but that egg had to be transported to an incubator - it would not have survived in the wild - the shells too thin to survive nest conditions. A legacy left us by DDT.

The League of the Women Voters hit the nail on the head with their summation of the chemical companies attack on the bill. "Don't the chemical companies ever give up?" A letter was sent to all farmers from the Alliance for Environmental Concerns, signed, your friend, Phil Alampi. This letter imposed your negative and distorted versions of the Bill. Your so called "aerial insect control technology" (quote from your letter) permits school children to be sprayed while playing in the school yard.

You know in California, there is a mandatory pesticide reporting system. Why, when children and so many farmers have become ill from pesticides and must be rushed to the hospital - why do you want to prevent them the right to know what they have been sprayed with? This knowledge might save their lives. An example of this was a child in a neighboring town was exposed to malathion, was rushed to the hospital and almost died.

I have discussed this bill with farmers from Salem, Cumberland and Gloucester Counties. and they tell me they are very weary of spending \$10-20 to 30,000/ year for pesticides which are not too effective. Where is the biological control that you promise us.

There are a few IPM (integrated pest management) practices but we need more, more and more of them. One farmer told me about the exploitation of a chemical company. The salesman approached him in the winter giving him a good price for the chemical that he would use in the spring - he purchased \$3,000 worth and come spring the label was changed - isn't that against the law? Why do some chemicals come only in five gallon containers? When I go to the store and want to buy a gallon of milk and I would be forced to buy only five gallons. One farmer said he wished that the chemical companies would have a short slide presentation for new chemicals - there is not enough information about the chemicals that farmers are using.

To those of you who are so complacent and sure that pesticides are perfectly safe - have you heard about the need for special education teachers - heard this from Glassboro College last week. Especially children from parents who were exposed to agent orange - they have communication problems.

There is so much unknown - we are just beginning to scratch the surface. I'd like to leave you with the famous pidgeon study at Cornell University. It is appropriate to introduce biomagnification. DDT increases in the body fat cells. We all have 10 ppm of DDT in our bodies. They used a monkey to represent the primate and a pidgeon with 10 ppm of DDT - a controlled study. After the 5th generation of the monkey and after the 7th generation of the pidgeon, their off-spring produced the same kinds of malformation as the thalilamide babies - no limbs.

Is this the legacy we are leaving our grandchildren and our great grandchildren?

Louise willis

71



UPPER ROCKAWAY RIVER WATERSHED ASSOCIATION

October 3, 1984

Office of Legislative Services
Attention: Mark Connolly
Division of Information and Research
CN 042
State House Annex
Trenton, NJ 08625

Ladies and Gentlemen:

Re: Committee Substitute for S-1342

The Association supports the proposed Committee Substitute for S-1342 related to pesticides. The Upper Rockaway River Watershed Association has as its primary goal protecting the rivers and streams and ground waters of the Upper Rockaway River watershed, and we believe that the proposed committee substitute for S-1342 will benefit water quality not only in our area but throughout the state.

We are in strong support of the provision for monitoring and surveillance of ground water for pesticides, since there now is no comprehensive testing of these waters for pesticides in our state. The additional funding to Rutgers for research concerning integrated pesticide management is a constructive step toward reducing use of harmful chemicals in our society. In addition, we believe the notification requirements will help to minimize the public's exposure to pesticides.

We also support the ban on spraying broad spectrum pesticides in non-agricultural areas. We note that this provision would not affect the aerial applications of safe biological pesticides like B.T.

Because we want our legislators to know of the Association's position in this matter of the safe use of pesticides, we are sending copies of this letter to members of the State Senate and Assembly who represent residents of the watershed area.

Sincerely,

Constance Stroh

Constance Stroh
President
Board of Trustees

cc: Senator John H. Dorsey
Assemblyman Arthur R. Albohn
Assemblyman Rodney P. Frelinghuysen

One St. Mary's Place, Denville, New Jersey 07834

72x

Township of Evesham

(609) 983-2900

125 East Main Street
Marlton, New Jersey 08053

October 3, 1984

Mr. Mark Connolly
Legislative Aide
Senate Committee on Energy & Environment
State House Annex
CN042
Trenton, New Jersey 08625

Dear Senator Dalton and Committee Members:

I would like to take this opportunity to thank you for allowing me to testify in favor of Senate Bill #1342. My reasons for supporting passage of this bill are many and varied. I am speaking to you today with a variety of frames of reference: as a member of the medical profession, as a public official, as an environmentalist, and most importantly, as a mother.

I am here as a victim of multiple pesticide exposures. In only the past several years, the following events have taken place:

(1) My home was included in a privately contracted aerial spary program, using Carbaryl, against my wishes; both the customer and the applicator were notified several times by phone, in person, and in writing of my objection, which was blatantly ignored.

(2) I was exposed directly to a high pressure ground spraying application to a next door neighbor's property while I was pregnant; a simple notification, prior to spraying, would have prevented that exposure.

(3) While at Island Beach State Park, my family, who were quite visible, was sprayed by an aircraft while watching helplessly, unable to outrun the plane; posting of the park would have insured that we would not have been in the direct path of the aircraft.

(4) My children and I visited an ice cream store that had just been treated by an exterminator; attempts to elicit any information about the choking fumes from the manager of the store proved futile.

(5) While driving along a road, the mist from a farmer's ground spraying directly entered my car; the result was two days of an asthma-like reaction; posting would have allowed me to detour.

These types of episodes are happening routinely and I am also speaking for the many others who have shared their similar experiences with us. It was these experiences which led me here today. I have no interest, financial or otherwise, other than the health and welfare of my children. Contrary to the comments of those who are opposed to this legislation, purely for reasons of profit, we are not fanatic, hysterical extremists, who are anti-pesticides. We are not on a crusade to drive the farmer from New Jersey. The members of our group are consumers and farm workers. To be anti-farming would not serve our best interests and I challenge the farmers to come up with reasons why we would want to see the demise of an industry that we are all proud of.

The incidents, which I have mentioned previously, led me to an investigation of literature on pesticides. This, in turn, caused me to want to avoid exposure, when possible, to pesticides. While some of the medical studies are inconclusive, I feel the broad range of possible and proven effects is worthy of concern. Cancer, birth defects, genetic damage, viral enhancement, hampering of the effects of antibiotics, allergic reactions and convulsions are effects too numerous and varied to ignore or overlook. In 1983, after convincing our Township Council, once again, not to spray Carbaryl (Sevin) for Gypsy Moth control, we proceeded to speak to ten neighboring townships. After presenting our evidence, everyone decided not to spray with Carbaryl.

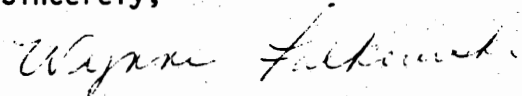
The opponents of the bill state that there is little documentation of pesticide related problems. The reason for this is that there is no mechanism for correlation of data. Another is the lack of knowledge on the part of the medical profession. This bill will play a major role in improving both these situations.

The ideas in this bill are not all new and innovative. Farmworker Right to Know will be an extension of an idea which you have already endorsed, thanks to Senator Dalton. The ban on aerial spraying of broad spectrum pesticides over residential areas has been in effect in the state of Connecticut since 1972. Closer to home, Evesham Township, in Southern New Jersey, has an ordinance of this type, approved by our own DEP, which has been in effect for two spraying seasons, without any detrimental effects. This ordinance has allowed our Township to only be sprayed with a safer cost effective alternative and we have had virtually no resident complaints. Not one citizen testified against this law at any of the public hearings, and compliance by both residents and applicators has been excellent. The states of Pennsylvania, New York, Connecticut, Maryland, Delaware and West Virginia do not offer Carbaryl as a choice for their aerial spray programs. Our own state of New Jersey is using B.T., a biological, in our state forests.

Community notification is essential in that it will definitely decrease both the quantity and quality of exposure by humans to pesticides. The opponents of this bill state that this requirement will bankrupt the farmers and applicators. This is utter nonsense. I have not heard any figures to back up this claim. Community notification is not a new idea. When the Department of Agriculture conducts its annual State/Township Gypsy Moth control program, first class mail notification is given in conjunction with newspaper notification. I have personally organized an aerial spray program (with B.T.) for several hundred households and we voluntarily and successfully notified all those who might have been exposed, directly or from drift. The cost was less than \$.50 per participant, a small price to pay for the promotion of human health!

In summary, I'd like to urge you to support this bill. The amended version offers an excellent compromise. It will allow the farmers and applicators to continue to provide their vital services without undue hardship, while allowing us to receive the information that we have been deprived of. Our attempts to get that right through regulation have failed and we now appeal to YOU to provide us with the knowledge that we want, need and deserve.

Sincerely,



Wynne Falkowski
Evesham Township
Environmental Commission

EF/pd

THE ESSEX COUNTY TASK FORCE FOR INTEGRATED PEST MANAGEMENT

c/o Georgina Klein, Chairwoman
24 Hillside Avenue, Apt. B-3
Montclair, NJ 07042
201-746-6839

October 2, 1984

Mr. Mark Connolly
Office of Legislative Services
Div. of Information and Research
CN 042
State House Annex
Trenton, New Jersey 08625

Subject: Proposed Committee Substitute for S-1342

Dear Mr. Connolly:

Would you kindly submit this to the New Jersey Senate Energy and Environment Committee.

The Essex County Task Force for Integrated Pest Management was established in May, 1983, by County Executive Peter Shapiro. It was instructed to make overall pest management recommendations for the County's Public Works and Parks, Recreation and Cultural Affairs Departments--with the aim of reducing chemical pesticide usage.

Peter Shapiro and Freeholder Arthur Clay, who aided in forming the task force, stated in press releases that "saturation of chemicals into the environment should be a thing of the past, not the future."

Representative members of the Essex County Task Force for Integrated Pest Management attended the September 24 hearing of the Senate Committee and were disappointed at not being able to present their views. However, all members wish to go on record as wholly supportive of Proposed Committee Substitute for S-1342.

Members of the Essex County Task Force for Integrated Pest Management are:

Martin Gill, Montclair, attorney; President, Bloomfield Area Environmental Action Group; Montclair Township Environment Advisory Committee.

Dr. Ann Cali, Montclair, parasitologist; Professor of Zoology, Rutgers University, Newark. Recently represented United States as invited speaker at the International Council for Exploration of the Sea, Gottenburg, Sweden.

Dr. Joan Ehrenfeld, Highland Park, research ecologist; Professor, Rutgers University, New Brunswick. Presently engaged in research for U.S. Department of the Interior and New Jersey Department of Environmental Protection. Member, Governor's Science Advisory Panel.

Georgia Johnson, Montclair; President, Ecology Watch Montclair.

Al Kent, West Orange; Chairman, North Jersey Group, Sierra Club; Chairman, Bottle Bill Committee.

Frederick Rolf, Montclair, stage and TV director; Vice President, Communications, Ecology Watch Montclair.

Susan Shaw, Montville, graduate ecologist; Director of New Jersey Coalition for Alternatives to Pesticides.

Jack Sheehan, Newark, historic preservationist; graduate in Public Administration and Urban Systems Studies; founding member and trustee of Bloomfield Area Environmental Action Group; Public Delegate, Essex County Solid Waste Advisory Council.

Evonn Reiersen, Montclair; member, North Jersey Group, Sierra Club.

Erwin Streisinger, Maplewood, bio-medical engineer; Chairman, North Jersey Group, Sierra Club; member, New York Academy of Sciences, American Association for the Advancement of Science.

Paul Twerdowsky, West Milford; Professor, William Paterson College, Wayne; Past Executive Director, Weis Ecology Center, Ringwood; Board member, Highland Watershed Association; Fifth Congressional District Coordinator for National Clean Air Coalition; Director, NJCAP.

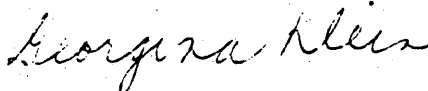
Dr. Judith Weis, Maplewood; Professor of Zoology, Rutgers University, Newark; Congressional Science Fellow, 1983-84, Washington, D.C.

The role of chemical pesticides in virus enhancement, carcinogenicity, mutagenicity, alteration of the immune response and sperm cell damage is receiving mounting attention among scientists at research centers throughout this nation and Canada.

We believe that, as citizens of the State of New Jersey, each of us has the right to live and work in an environment where no government nor commercial agent nor private person may be destructive of our constitutional guarantees to Life and Safety.

The broadcasting of chemical toxins into the environment and onto an unwilling public, of this most populous state, is fast becoming a civil rights issue. It is an issue that will not go away.

Sincerely,



Georgina Klein, Chairwoman
Essex County Task Force for Integrated Pest
Management; Member, Environmental Advisory
Committee, Township of Montclair

Metro Newark Project

New Jersey Committee for Occupational Safety and Health
RUTGERS UNIVERSITY
103 Washington Street
Newark, New Jersey 07102
(201) 623-4751 • (201) 623-5938 • (201) 623-0948

Testimony Senate Energy and Environment Committee
September 24, 1984
Public Hearings on S.1342

The New Jersey Committee For Occupational Safety and Health thanks the Committee for holding these public hearings and would like to testify in support of this legislation. We support CATA in its efforts to pass this bill. When this law is passed it will become one of the most significant pieces of legislation to date, because it will help protect the health of farmworkers, and the health of the general public. It will provide farmworkers and residents of New Jersey the RIGHT TO KNOW about pesticides and the health effects associated with their use.

Farmworkers are exposed to dangerous pesticides daily. We know that poisonings are widespread and underreported. The statistics are frightening. 80% of the workers in fields suffer from skin rashes, 40% from chronic headaches, 50% from dizziness and 23% from blurred vision. These are all symptoms of pesticide poisoning and are preventable. We know, from studies conducted around the country that pesticides affect the lungs, the liver and the kidneys. We know that the use of pesticides and exposure

to those pesticides can cause cancers and genetic damage.

This August the New Jersey Worker and Community Right To Know law came into effect. This is an important law, and yet it has a serious flaw. Farmworkers are excluded from its protections. You, on the Senate Energy and Environment Committee have a chance to correct that mistake and give Farmworkers equal protection under the law. This Pesticide Bill is the Farmworker Right To Know, with it, farmworkers and the general public can have access to information about hazardous pesticides and their health effects. This law should set re-entry procedures to the fields and should notify workers when a field is sprayed. This would minimize exposure, and prevent both acute poisoning and chronic illnesses.

When the Occupational Safety and Health Act was passed in 1970 its intent was to "assure every man and women in the Nation safe and healthful working conditions." This Bill, S. 1342, would help assure that mandate. We urge you to pass this bill out of committee and urge you to make it a strong law. Please see that it is passed and implemented before the next growing season.



Ecology Watch Montclair
P.O. Box 751
Montclair, NJ 07042

October 2, 1984

Mr. Mark Connolly
Office of Legislative Services
Div. of Information and Research
CN 042
State House Annex
Trenton, NJ 08625

Subject: Proposed Committee Substitute for S-1342

Dear Mr. Connolly:

Would you kindly submit this to the New Jersey Senate Energy and Environment Committee.

* Around mid-day on June 7, 1984, New Jersey Transit ran equipment along its railroad tracks, which cut through the heart of the municipality of Montclair. This equipment sprayed a mixture of Diquat, Tanzene and 2,4-D along the roadbed and on foliage bordering either side of the tracks.

Homes, apartments, school playgrounds, public parks, swimming pools, vegetable gardens, commercial centers and a hospital line these tracks.

No notice whatsoever was given to the citizens of Montclair. They were alerted to the situation by an overpowering odor of chemicals that hung in the air for days afterward. The Township Council has protested to the railroad management.

* On May 29, 1983, Essex County sprayed the turf of Anderson Park in Upper Montclair with herbicide. No notice was given and no one was asked to leave the park at time of application. The park is heavily utilized for organized sports and general recreation. (See accompanying photos: park is frequented by barefoot adolescents, sunbathers, pregnant mothers with toddlers, pet dogs and young children playing ball. Note effects of herbicide on turf.) The odor of this particular application spread for blocks around.

* For over thirty years the public works department of the Township of Montclair has sprayed its shade trees and parks, "preventively," over a period of nine months, annually, in the non-daylight hours, for a constellation of insects and so-called "disease conditions." It routinely sprays its turf and playing fields and, monthly, fogs its school cafeterias and lavatories.

Chemicals in the township's pesticide arsenal include: Sevin, Methoxychlor, Orthene, Isotox, Kelthane, Captan, Lindane, Cygone E-2 (sic), Diazanon, NS 610, Spectracide, Selectrol, dormant oils; and antibiotics, streptomycin and achromycin.

Trucks with hydraulic spray equipment roll, during the night, along the streets of this urban fringe community of dense housing patterns where many of the dwellings are but twenty feet from the curbside or less. Spray reaches into residents' bedroom windows and soaks porches, patios, lawn furniture and vegetable gardens.

Notification has been non-existent. A township government slate, recently toppled, refused to heed the electorate and its concerns regarding spraying. For the duration of the Township Council's four year term, the electorate was helpless due to lack of effective and protective state pesticide laws. This non-responsive council has since been replaced by a seven-member, environmentally-conscious slate whose victory was assisted by their pledge to deal with the township's pesticide spraying controversy.

* Private contracted-for commercial sprayers and lawn companies roam the town at will in daylight hours beginning in early spring. Their toxins are sprayed and drift off target onto neighbors' properties, contaminating playing children, pets, vegetable gardens, automobiles, etc. Dwellings are close together and the majority of lots are small. NO WARNING GIVEN. School children, pedestrians and mailmen walk through spraying operations. NO NOTICE GIVEN. Residences next to nursery and play schools are sprayed. NO NOTICE GIVEN.

Ecology Watch Montclair, an ever-growing environmental organization, stresses its strong support of Proposed Committee Substitute for S-1342 and urges its passage. It is long overdue and it is imperative that the taxpaying citizens are given the minimum of protection it offers.

Sincerely yours,

G. Ann Johnson

G. Ann Johnson
President
Ecology Watch Montclair

All statements can be verified. Call 201-746-0982.

PHOTOS ARRIVING UNDER SEPARATE ENVELOPE -

NEW JERSEY COALITION FOR ALTERNATIVES TO PESTICIDES

P.O. BOX 627
BOONTON, NEW JERSEY 07005
(201) 334-7975

STATEMENT OF NANCY B. COLEMAN TO THE SENATE COMMITTEE ON ENERGY AND ENVIRONMENT HEARING ON PROPOSED SENATE COMMITTEE SUBSTITUTE FOR SENATE BILL NUMBER 1342

September 24, 1984

Headaches; nausea; tightness in chest; extreme fatigue; difficulty in breathing; blurred vision; severe respiratory problems; sore throats; eye infections; numbness; diarrhea; itchy skin; and skin rashes... These are samples of the complaints of health effects we have received over the past almost four years since our group, New Jersey Coalition for Alternatives to Pesticides was formed.

NJCAP was formed in 1981 in response to the public's growing concern over the misuse as well as health and environmental effects of pesticides.

We are a state-wide coalition of state organizations and supporting national organizations, such as Friends of the Earth and the New Jersey Chapter of the Sierra Club. Our membership includes watershed associations, municipalities, such as the Boro of Bernardsville and the Boro of Chatham, environmental commissions, local environmental groups and private citizens, some of whom represent small local groups of as many as 30 people. We mail to almost 600 of these national, state, and local groups and individuals.

Our members and others who have contacted us over the past 4 years complain of spraying occurring while school children stand at bus stops and while they eat in a lunchroom; while citizens walk on sidewalks, while people are barbequing, while walking out to their cars on their own property and while driving; complaints of children on adjacent properties being sprayed by neighbors' contractors, children being sprayed on their own decks, while they walk to school, while they get off school buses and have school picnics at parks. We have received testimonies of faulty plane valves dripping pesticides over non-target residences, and spray dripping from hoses on rugs in homes. These are but a few complaints!

The piece of legislation for (or against) which we are all here to testify would do much to eliminate or minimize the type of public exposure to toxic pesticides which were responsible for these complaints.

I, personally, have seen contractors spray without determining where property lines are and spray on windy days where the heavy mist could be seen travelling at least 2 properties away. I have been in a vegetable store with my two youngest children while a pesticide applicator began to spray along the floor while vegetables remained on shelves two feet above and customers walked around him (the owner told me, "...it's all right, it won't hurt you...") I have seen municipal employees spraying herbicides on a corner without leaving so much as a note as to what they had done for unsuspecting children who cut across on their way home from school. I have been at a children's sporting event where herbicides had been applied under a bleacher where young children were playing.

Notification and posting of signs prior to, during and after spraying is the very *LEAST* that should be done to minimize exposure. *UNINFORMED EXPOSURE* is the most *BLATANT INSULT* of the current status quo of pesticide use (or mis-use). The DEP's model ordinance which they recommend for use by municipalities interested in regulating pesticide use more than is currently allowed by state regulation, forces a lack of state-wide consistency. This consistency is what DEP used in their reasons for many of the weak regulations which it promulgated.

It is regretful that notification will have an economic impact upon the pesticide industry. This cost will, of course, be passed along to the consumer, most of whom, if asked, would probably also wish to be notified prior to spraying.

Every provision in this bill is *IMPORTANT AND NECESSARY* The bill has already been weakened as a compromise to the pesticide industry and those industries which utilize pesticides. It does not deserve to be weakened further.

The banning of aerial spraying of broad spectrum pesticides on non-agricultural lands [p. 6, Section 6.a.(5)] is absolutely necessary to prevent the horrendous accidents of the past. It could not possibly result in more pesticide spraying or more exposure--aerial spraying deposits pesticides on driveways, streets, rooftops of houses, garages and sheds, in swimming pools, on schools, swing sets, cars and many other areas not infested with the target pest. Studies have shown that in forested areas (of heavy foliage) 1% of the pesticide reaches the forest floor. In areas of scattered trees on lawns, 100% reaches the ground!

The farmworker and pesticide worker safety provisions are needed and deserved. The Worker and Community Right-to-Know Legislation has given us the right to know, why not the people who have the heaviest exposure to pesticides?

The provisions in this bill authorizing the Pesticide Control Council to study alternatives as well as health and environmental effects of chemical pesticides is very important to farmers as well as the general public. The language should be strengthened from "empowered" to "shall study" [p. 18, Sect. 7 a-k, p. 20 item 13, (sect. 9. a.& b.)]

The \$75,000 that this bill would appropriate for Integrated Pest Management would be very quickly be paid back in savings to farmers and therefore the consumer in terms of *LESS PESTICIDES APPLIED* and *LESS CONTAMINATION OF SOIL AND WATER AND PEOPLE*. The knowledge and skills are out there, they just need to be researched and implemented. I quote from "Rutgers University's Integrated Pest Management (IPM) Program, Statewide Effects of Eliminating or Constraining Program Operations": "Although at present only 20,000 acres of the 1,000,000 under cultivation in New Jersey are in the IPM program, the volume of pesticide used has been reduced by over 500,000 lbs. per year... The question isn't whether the state can afford to keep it (the program) but whether it can afford to do without it." (Also refer to copies attached of *The New Farm Magazine* which represents the possibilities for farmers for the limiting of chemical pesticides and fertilizers.)

We realize that industry as well as governmental authorities claim that this bill is duplicative of existing federal and state regulations. Yet these same people admit to holding the EPA as the "highest" authority on pesticides (Report of the Public Hearings for State of New Jersey DEP Pesticide Regulations). They feel that anything that EPA approves is absolutely safe to use -- as long as used according to label directions. Yet, the EPA uses data on safety supplied to them by the manufacturers of any particular chemical, leaving the financial burden and research of any counter claims up to the public. Also, recent reports of testing laboratories used by these companies leave many questions regarding the accuracy of the safety data unanswered. In addition, as exists in most governmental decisions, even EPA decisions are sometimes based on politics, not evidence of possible detrimental effects. For example, the decision not to require a warning to pregnant women on the label of carbaryl (Sevin) was made by a four to three vote of an EPA panel of scientists!

Certainly, the evidence exists to warrant *MORE* caution with the use of pesticides than exist presently in the State of New Jersey. There is also no question that further investigation and research should be done by the state into the adverse effects of pesticides. [p. 2, 2. & 3.a.] ; [p. 3, 3.e-f.(1)-(4)] and [p.19, Sect 11, 7.a-k.]

It is absolutely necessary that *ALL* persons doing the actual application of pesticides be certified or under the direct physical supervision of someone who has this certification! This can only serve to minimize the public's (as well as the applicator's) exposure. [p. 5, New Section 4.]

The avoidance of exposure of children is absolutely necessary and not something which has been done willingly by the industry in the past. [p.5, new section 5.]

The adoption of rules and regulations for type of aircraft, hours, wind and weather conditions, minimum area and kind & amount of pesticides is an important section and necessary for the protection of the public from unconsented exposure to pesticides. [p.6, 6. (new section)]

p.6, 5 (c) should be changed to shall not apply *ANY* pesticide (not just for termite control) within a school building during time in which children are present. (see attached copy of *ORGANIC GARDENING* p. 62, para. 2). *CERTAINLY* areas recently treated with pesticides should be restricted to school children! [p. 15, 7 (f)]

Exemption for Dept. of Health mosquito control activities should not apply to aerial spraying for adulticiding since this is like using a teaspoon to ladle out the Atlantic Ocean. Instead, the emergency exemption should be applicable only to larvaciding! The pesticides which are resorted to for adulticiding (mainly Malathion) are extremely toxic organo-phosphates (nerve toxins) and should *never* be applied when people would be exposed. Dr. Liem of the Illinois So. Cook County Mosquito Abatement District says that 98% of his program is larvaciding!

Notification for agricultural lands such as that which is contained in p.6, Section 7. is necessary and important. Our organization has had numerous complaints from people adjacent to farms. They, their families, animals and organic gardens have been exposed to farmer's spraying because they were not informed prior to the application of pesticides.

500 feet is bare minimum for notification and buffer areas. According to drift studies done (see attached EPA study "A Study of the Efficiency of the Use of Pesticides in Agriculture") as much as 3 to 90% of pesticides drifts more than 1000 feet off target site! If these types of spraying (aerial and mist blower) are to be allowed to continue, with their massive amount of spray drift off target, at the very least that should be done to minimize exposure is *NOTIFICATION* prior to spraying. also [p. 24, 16 (b)]

If notification is costly to the farmer, the apartment bldg., business, hospital, etc. owner he will have to pass on the cost to the consumer. The lack of health costs associated with pesticide exposure will even out the costs.

Farmers would also be able to save costs if regenerative farming and IPM were used more frequently (see attached pages of *The New Farm* magazine). It is paramount that research into these methods of farming increase such as is done in p. 26, Sect. 21.

Every effort to insure that children and household pets who are most susceptible to effects of pesticides should be made. Some lawn contractors use notices which they leave with the contracting party that read, "even though the chemicals used are not highly toxic, it is recommended that you keep children and pets off treated areas until dry". Even this warning is not given to neighborhood children who by chance venture onto treated areas! [p.15, 7 (g)]

Much must be done to document pesticide exposure and how it relates to symptoms and adverse effects. The industry now claims there is no documented evidence of effects or harm. This is because, presently, the burden of proof lies with the private sector and its limited financial resources. If an effort was made by New Jersey to aid in documenting the incidences and educating doctors and hospitals, the picture would be much different! [p.16, 8.a., 8.b., 9.a.-c.]

The penalties for gross violations of current pesticide laws and regulations are ridiculous! p.25, 18.(new section), 19 (New Section) and 20 (New Section) will help to eliminate the shoddy attitude of the majority of the commercial and farm pesticide users of the State of New Jersey.

Thank you for this opportunity to comment upon this much needed bill.

Nancy B. Coleman
Nancy B. Coleman
Chairperson, Membership

The Trouble With Carbaryl

Six dangers the pesticide label won't warn you about.

WARREN SCHULTZ JR.

Carbaryl may be America's most popular pesticide. Commonly sold under the trade name Sevin, 25 million pounds of it are used annually. If you hunt through basements and garages across the country, you'll find carbaryl in over 5 million households. It's in over 1,500 products and used on over 100 crops to control more than 500 insect pests. It's been sprayed over hundreds of thousands of acres to battle gypsy moth, dusted on cats and dogs to control fleas, and used in gardens to kill Colorado potato beetles and flea beetles. Because it's a broad-spectrum insecticide, Sevin is also extremely toxic to honeybees and many beneficial insects.

Carbaryl is a contact nerve toxin. It works by inhibiting cholinesterase, an enzyme found in insects and mammals. The result is a disruption of nerve-impulse transmissions. If the dosage is high enough, it shuts down bodily function.

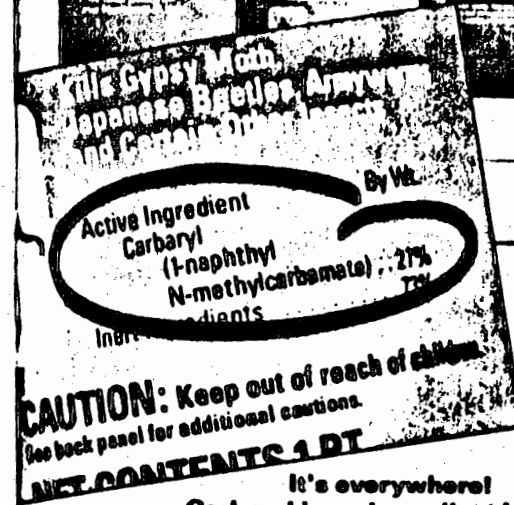
The pesticide was first introduced to the U.S. by Union Carbide in 1956, and that company is still the exclusive manufacturer here. In its literature the company proudly states that "almost every person in the U.S.A. has come into contact with either the chemical itself or with the products of its degradation." That's a major reason—widespread

America's most dangerous pesticides.

You wouldn't know it from reading the label. The recommendations and precautionary statements make Sevin sound about as safe as baby powder. Inspect a canister or bottle of Sevin at the local hardware store, and you won't find the word "Poison" or even "Danger" anywhere on the package.

But *Clinical Toxicology of Commercial Products* gives carbaryl a rating of 4 on a scale of 1 to 6 with the highest number being the most toxic. Recent studies, though, suggest that the long-term effects of carbaryl exposure may be more hazardous than the acute toxicity. In fact, as long ago as 1969, a U.S. Department of Health, Education and Welfare report recommended that the use of carbaryl "should be immediately restricted to prevent risk of human exposure." The reason? Studies showing carbaryl could cause birth defects in mammals. So far, the HEW warning has been ignored.

In the mid-1970s the Environmental Protection Agency, which registers pesticides, decided to rethink its position on carbaryl. The pesticide was made a candidate for the Rebuttable Presumption Against Registration procedure. Under the RPAR process, when questions arise about the risks of a certain



It's everywhere!
Carbaryl is an ingredient in over 1,500 products from flea powder to tomato dust, in formulations ranging from 5% to 85%. Nearly everyone in America has been exposed to it in one form or another, and there's evidence that exposure may cause serious long-term health problems.

pesticide, the public is permitted to submit evidence to make a case against its registration. The pesticide manufacturers then have an opportunity to rebut the evidence. If they can, the pesticide is returned to registration. If they can't, the pesticide is either restricted, taken off the market, or changes are made in allowed uses and labeling.

Carbaryl was on the road to RPAR when it was abruptly withdrawn from the process in 1980. Never before had a pesticide candidate gone that far into the process without being taken all the way through the RPAR proceedings. Despite the fact that working groups from the EPA's Office of Pesticide Protection twice recommended that carbaryl be taken through RPAR, and despite several scientific studies that raised serious health questions, the director of the EPA's Office of Pesticide Programs decided that there was not enough evidence. Instead, the EPA elected to conduct a review outside of the RPAR process.

Now, 4 years later, the EPA has requested two scientific studies and made a few minor label changes for carbaryl.

That still leaves the home gardener in the dark about the possible dangers of carbaryl. Of course, organic gardeners don't use Sevin—they know it's not necessary and it may not be safe. But for those who may still be wondering if it's OK to use a little, here's an ORGANIC GARDENING version of a carbaryl label.

You won't find the following precautions on any carbaryl containers. The EPA doesn't require these warnings. But we think they belong there.

DANGER

May Be Fatal If Swallowed. In its literature, Union Carbide maintains that there have been no documented accidental fatalities due to carbaryl exposure. That's true as far as it goes. But that's not to say that carbaryl has never killed anybody. There have been at least four recorded suicides caused by ingestion of carbaryl. In addition, according to the EPA's most recent information, the Pesticide Incident Monitoring System shows a dramatic increase in the number of nonfatal poisonings in recent years. From 1966 through 1971 there were fewer than 10 recorded incidents each year. In 1972 and 1974 there were less than 50. But in 1973 and 1975 there were between 50 and 100 incidents, and in 1976 and 1978 there were more than 100 poisonings each year.

Symptoms may include violent stomach pain, excessive sweating, vomiting, blurred vision, severe weakness and light-headedness. Symptoms have been observed with the ingestion of as little as ¼ gram of pure carbaryl.

May Cause Birth Defects. "Women of Childbearing Age Should Not Be Involved in the Mixing, Loading or Application of Carbaryl. Exposure to Carbaryl During Pregnancy Should be Avoided"—was the label change recommended to the EPA by a Special Subcommittee of the Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel. The committee based its recommendation on what it called "clearly defined teratogenic effects shown by carbaryl at relatively low doses when fed to beagle dogs. . . ." In two experiments, one of them conducted by Union Carbide, pregnant dogs were administered carbaryl at doses ranging from 3 to 50 milligrams per kilogram of body weight per day throughout the gestation period. In the

in 11.6% of the pups compared to zero in the control group. The second experiment also resulted in stillbirths and defects. However, the EPA determined that the studies were flawed. In 1984 they ordered a repeat of the experiments and a new precautionary statement. Sevin products used for flea control on animals must now bear the warning: "Do not use this product on pregnant dogs."

May Cause Sterility In Men. Erik Jansson from Friends of the Earth reports that the sharp increase in sterility in American males appears to be caused primarily by exposure to hazardous substances. Jansson believes that Sevin is one of the culprits. He cites a 1980 study of carbaryl plant employees in which 14.9% of the workers had depressed sperm counts and were functionally sterile, compared to only 5.5% in a control group. A second study showed "a significant elevation of sperm abnormalities," as compared to a control.

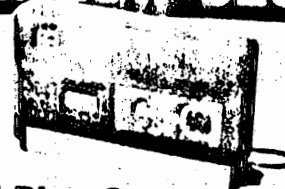
Jansson points out that most birth defects are now male related, caused by sperm abnormalities. Extremely low sperm counts such as found in carbaryl workers not only cause sterility, but they're also related to higher birth-defect rates.

May Form Carcinogens. Carbaryl itself is not carcinogenic. Nitroso carbaryl is. Dr. William Lijinsky, director of the Chemical Carcinogenesis Program for the National Cancer Institute in Maryland says that nitroso carbaryl is among the most potent carcinogens known. In an affidavit, Dr. Lijinsky states that "Nitroso carbaryl, in my opinion, is readily formed in the human stomach when carbaryl residues combine chemically with nitrites." He points out that nitrites are found in cured meats and fish, frankfurters, bacon, ham and bologna. But even if you never eat any of those foods, nitrites are naturally present in human saliva.

Dr. Lijinsky says he is especially concerned about aerial spraying of carbaryl and the exposure of children to the res-

MUST LIQUIDATE AT LOW CLOSEOUT PRICES!

Kodak
Model
8000



KODAK Disc Camera

BELOW dealer cost! First Quality!

KODAK's most advanced Disc Camera! Just aim and shoot! Automatic focus ensures sharp, crisp photos. . . 15 shots per disc! The electric "eye" analyses available light and instantly determines whether it's enough for a regular shot, or if built-in flash must be used. Get photos as close as TWO INCHES away! Self-timer lets you get in your own snapshots. Built-in LCD CLOCK! Long life power source. Camera is just 4 1/4" long. Five year limited warranty from Kodak.

Mfrs. List \$150.00

\$58

Liquidation Price

Order No. 62715 Shipping, handling \$4.00



FOOD PROCESSOR

Factory new! First quality! Now at BELOW dealer cost!

Liquidation of last year's models! It grates, shreds, chops, purees, whips, slices, dices . . . and more! Made of stain-resistant, durable plastic. Attachments include citrus juicer, juice extractor, coffee grinder, ice crusher, blades, cutting wheels. One year limited factory warranty.

Mfrs. List \$130.00

\$68

Liquidation Price

Order No. 62662 Shipping, handling \$6.00



Credit card members can order by phone, 24 hours a day, 7 days a week.

Toll-Free: 1-800-328-0609

In Minnesota, call:

Toll-Free: 1-800-742-5685

C.O.M.B. CO.

Authorized Liquidator

14615 28th Avenue N., Minneapolis, MN 55441-3367

MURAPHONE



Desktop Phone and Cordless Handset

At BELOW manufacturing cost! 1984 models! First quality! With amazing electronic voice!

You get TWO phones in one! A desktop unit and a remote cordless handset! Just push a button to use on TouchTone® or Rotary system! 1000 foot range on cordless handset. Programmable memory for speed-dialing of 32 different phone numbers (even long foreign ones)! Realistic electronic voice guides you in the programming! At your command, the voice tells you any or all the numbers you have stored in the "cells"! Automatic redial of last number called. Intercom between base unit and cordless unit. Mute button. 4000 security codes for maximum privacy. Detachable 115V charging adapter for cordless unit.

Access MCI, Sprint, etc. with this Muraphone, even if you have a Rotary system that cannot presently do it! Use this phone on 4-wire commercial office systems or standard 2-wire residential systems. A great gift idea for family, friends, business associates.

NOTE: This is a liquidation item. All sales are final. One year limited factory warranty and service from Mura.

Thousands Sold At \$249.95

\$68

Liquidation Price Now

Order No. 62462-03 Shipping, handling \$7 total, regardless of quantity ordered

C.O.M.B. CO. Item X-158
14615 28th Ave. N., Minneapolis, MN 55441-3367

Send items below (Indicate quantity. Minnesota residents add 6% sales tax. Allow 3-4 weeks for delivery. Add 2-3 weeks extra if paid by check! Sorry, no C.O.D. orders.)

___ No. 62462-03 Muraphone(s) at \$68 each. Shipping, handling charge of ONLY \$7 total, regardless of quantity ordered.

___ No. 62715 Kodak Disc Camera(s) at \$58 each. Shipping, handling charge of \$4 each

___ No. 62662 Food Processor(s) at \$68 each. Shipping, handling charge of \$6 each.

☐ My check or money order is enclosed.

Charge ☐ MasterCard ☐ VISA ☐ Am. Exp. ☐ Diners Club

Acct No. _____ Exp. _____

PLEASE PRINT CLEARLY

Name _____

Address _____

City _____

State _____ Zip _____

Phone _____

OCTOBER 1984

**STAY IN BLOOM ALL
YEAR WITH A TURNER
GREENHOUSE**

Write for
FREE CATALOG
**TURNER
GREENHOUSES**
U.S. 13
Goldsboro, NC
27530

TURNER GREENHOUSES

910 E. Main St.
Marlton, N.J. 08053

Sept. 27, 1983

Senator Dalton & Members of the Committee:

I am submitting written testimony concerning Bill S 1342.

I was present at the Sept. 24 hearing but was unable to testify at that time due to the shortness of the time allotted.

I reside in Burlington County next to a farm and I can attest to the need to be notified when spraying is applied.

I have experienced many instances when spray could be detected drifting on my property when pressurized spraying was used on the adjoining farm.

In one particular incident the wind blew the spray into the interior of my car as I was parking in my driveway. The fumes were so potent I could not breathe, forcing me from my car.

I realize the farmers must spray their crops, but I feel strongly that any resident directly affected by the spray; certainly, should have the right to know when it is taking place, barring any emergencies, of course.

Please, let it be my right, to protect myself, my family, and my pets from these pesticides.

I am sure, that people in my situation would be glad to meet the farmer halfway, and cooperate concerning notification.

As someone who has experienced pesticide drift, I can't urge you enough, to support the Agricultural Notification Section of this Bill.

Very truly yours,


Sandra Weiss

21 B Elm-Towne Blvd
Elm
Hammonden
08037

Dear Sir
I wish to go on
record as being for BILL 51342
being passed into law.

The enclosed
letter will explain our
situation. But I also feel
I was given the run around
by D.E.P. Aug 16/83. Mr Donald
Patterson told me Sky Works
was responsible for what
had happen, and that was
all that was done, We need
a stronger Bill to make
sure our health is not
affected

Gratefully
89x June A Helcher



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
BUREAU OF PESTICIDE CONTROL
380 Scotch Road, West Trenton, N.J. 08628

January 27, 1984

Mr. Richard Owens
Board of Directors
Elm Towne Village Association
16-D Elm Towne Blvd.
Hammonton, NJ 08037

Dear Mr. Owens:

This letter is in reference to a complaint filed with the Bureau of Pesticide Control by Mrs. June Fletcher, a residence of Elm Towne Village. Mrs. Fletcher alleged in her complaint that she was not notified concerning an aerial gypsy moth application by Sky Work Inc. on May 27, 1983. Mrs. Fletcher said she had requested this information and had expected to be notified by phone by either Sky Work Inc. or the Elm Towne Association.

The New Jersey Pesticide Control Code stipulates in N.J.A.C. 7:30-10.9(a) that persons residing in the vicinity of a proposed target site, shall upon request be provided with information concerning the application at least 12 hours prior to such application. There is also a provision that if an attempt to contact the person is unsuccessful, another attempt shall be made by telephone immediately prior to the application (see enclosed copy of Subchapter 10 regulations).

We are therefore suggesting that prior to any future aerial application that you insure the applicator contact concerned residents with updated information in order that they may take whatever steps desired to avoid pesticide contact/exposure.

Sincerely,

Donald Patterson
Enforcement Coordinator
Bureau of Pesticide Control

cc: Mrs. June Fletcher
Mrs. Sarah Maull
Mr. Edward Tettelman

90x

Don Patterson
380 Scotch Road
West Trenton, New Jersey 08628

Dear Mr. Patterson:

The following is a chronological report of the events surrounding the spraying of Elm Towne Village, a community of people over age 45, with Sevin on Friday, May 27, 1983.

1. Wednesday, May 25, 1983 - Called Mrs. Maull, President of Elm Towne Village Trustees, who informed me of the name of the sprayer. Asked her not to have Elm Towne Village sprayed with Sevin. Called the sprayer, Tony Cervino of Sky Works, Ltd. at (609)692-9348, and was answered by an answering machine. Left a message for Mr. Cervino to call the Fletcher residence.

2. Thursday, May 26, 1983 - Called Mrs. Maull twice asking when the spraying would be performed and she stated that she did not have that information. Asked her to use B.T. in place of Sevin.

Called Children's Hospital regarding the possible adverse effects of Sevin and precautionary measures which should be taken especially regarding my granddaughter, Melanie, who suffers from cancer and stays with me during the day. They informed me that she should not be present in an area treated with Sevin for two to three days after spraying occurs.

Called Mrs. Maull informing her of this and asking that I be given notice of the date spraying was to be performed. She assured me that I would be notified, but stated she did not yet have that date.

Called the State Office of Pesticide Control and spoke with Mr. Dave Muma who tried to check out Tony Cervino's certification. He discovered that Mr. Cervino was not certified. He informed me that seven (7) days notice must be given before spraying and instructed me to call Don Patterson, State Enforcement Office Inspector.

9/x

Don Patterson
May 31, 1983
Page 2

Don Patterson informed me that if spraying occurs without notification I should inform him of that fact which I later did on Friday, May 27, 1983.

Received a call from a man who merely asked if he had the Fletcher residence and then hung up when I answered yes.

3. Friday, May 27, 1983 - Called Mrs. Maul at 11:30 A.M. again requesting the date of spraying. She stated she still did not know the date and was attempting to reach Tony Cervino, the sprayer to obtain a date.

Between 1:25 and 1:30 P.M. that date we were sprayed by a low flying helicopter. Wind velocity was 10 to 15 knots. My granddaughter, Melanie, and I were outside at the time of spraying.

Called Mrs. Maul at 1:35 P.M. and she still insisted she did not know it was being done.

Called Mr. Patterson back and informed him that spraying occurred without the required seven (7) days' notice. He informed me of necessary precautionary and clean-up measures.

4. Monday, May 30, 1983 - Rode over to Elm Towne East which is approximately one-eighth mile away. The Association there voted against spray. Due to the presence of 10 to 15 knot winds on the day of spraying, Elm Towne East was also covered with Sevin spray.

If there are any questions regarding these events or any further information of which Elm Towne Village residents should be made aware, I can be contacted at 213 Elm Towne Boulevard, Hammonton, New Jersey, or (609)569-0432.

Sincerely yours,

92x *G. A. Fletcher*

1. I am a Professor of Zoology at Rutgers University, and have done research on effects of pesticides on non-target aquatic animals. I have found that low levels of carbaryl, malathion, parathion, and DDT can cause embryonic malformations (birth defects), reduction of growth, and abnormal behavior in various species of fishes and crabs. These effects have been published in about ten scientific articles. I have also found that pesticides can wash into the water through run-off after rain and can cause reproductive failure in fish living there.

2. Some general points about pesticides:

Pesticides are, by their very nature, toxic and are designed to kill living organisms. It is virtually impossible to have a chemical pesticide which is toxic only to the target species.

Organochlorine insecticides, such as DDT are persistent, and break down only very slowly in the environment. Problems still exist in the ocean off Los Angeles which receives the municipal outfall which was contaminated by DDT many years ago and continues to release DDT into the water. These chemicals are accumulated and stored by organisms, and are passed up the food chain to predators which receive the highest doses (for example, predatory birds were the most endangered by DDT). These chemicals have a world wide distribution and multiple effects on organisms.

Organophosphates and carbamates are nerve poisons and can alter nervous system functions, including behavior. Although they are less persistent than the chlorinated compounds and break down more readily, they are often more toxic. Some break down in the environment into more toxic substances. For example, carbaryl in water becomes 1-naphthol, which is often more toxic than the original carbaryl itself. Some may be converted in the stomach or liver to other toxic materials.

Biological controls, such as insect hormones, natural parasites or diseases of the pest, or predators of the pest can be much more specific in their effects and not impact non-target species.

3. Comments on the bill:

- a. Much pesticide use for non-agricultural uses could be reduced without severe economic consequences. These uses which have caused bird mortalities and effects on aquatic organisms after run-off could be reduced if aerial spraying were banned.
- b. Notification is really a common courtesy, and is advisable, especially since people vary greatly in their susceptibility to toxic chemicals.
- c. It is common sense that farm workers should have the right to know about the chemicals they are using and how to minimize risk while using them.
- d. It is obvious that aerial spraying should only take place when weather conditions will minimize drift.
- e. Informing physicians about pesticide poisoning is also common sense.
- f. Users should be trained and certified so they can use the products in the safest ways. This also is common sense.
- g. Registration: A recent report from the National Academy of Sciences has shown that for about 80% of the pesticides in use, there is inadequate toxicity data, especially regarding the possible long term effects such as cancer, genetic mutations, and birth defects. Given the inadequacy of toxicity information, it certainly seems sensible to use safer alternatives when possible.
- h. Monitoring program: N.J. D.E.P. can measure levels accumulated in animals and humans, but a massive study of the long term effects is probably beyond the state's resources. A federal effort is clearly needed.

4. Comments on the federal pesticide law:

I spent the last year in Washington, working as a Congressional Science Fellow with the Senate Environment and Public Works Committee, and was involved in some pesticide-related issues. FIFRA is not working well. "Old" pesticides which were in use before the 1972 amendments are still lacking in important data on toxicity,

especially long-term chronic effects. Furthermore, many chemicals were tested by a laboratory which was shown to be producing fraudulent data, and these tests are invalid and must be repeated.

EDB is an example of an old pesticide and a case of how FIFRA is not working. This pesticide was exempted from tolerance requirements (maximum allowable levels on food) because in the 1950's it was believed that EDB all evaporated. In recent years EDB has been found in groundwater used for drinking, and in grain and citrus products which were fumigated with it. Although it was shown to be a very potent carcinogen 10 years ago, EPA did not restrict its use until this year, when a public clamor and some states which took matters into their own hands forced EPA to take action.

Our state has the dubious distinction of having the most Superfund sites in the country, having poor air quality, and polluted rivers and estuaries. We should not rely on an inadequate federal effort but should take steps to protect the environment and human health from assault from these toxic chemicals.

243 Intervale Road
Mountain Lakes, NJ 07046
September 22, 1984

Office of Legislative Services
Div. of Information and Research
Attn: Mark Connolly
CN 042, State House Annex
Trenton, New Jersey 08625

RE: BILL S-1342 - Pesticide Regulation

Sirs:

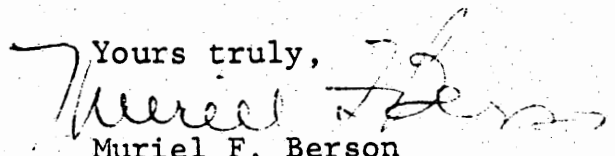
Knowing that the Pesticide industry is hounding you regarding pesticide use and THAT IT IS SAFE...I say BALONEY!

Several years ago when the gypsy moth invasion was very severe my husband was SPRAYED by the garbage a helicopter was spraying over a selected section in our area. Our property was marked to NOT SPRAY and the idiot sprayed us anyway. My husband was going to work by getting his car out of our carport which was located a couple of hundred feet from our house. He was sprayed from head to foot and ran into the house to get out of his clothes and shower himself again that morning because his skin was burning!! Fortunately for my husband there seemingly was no untoward further reaction, but who knows what the future may have in store for him from that spraying.

We know also that children have been made violently sick from being out on their family's lawn shortly after their lawns have been sprayed by chemicals to "make the lawn greener."

I say it is worth going on the side of caution when it comes to using materials that we have no definitive knowledge of the long-term consequence of chemicals. If you are interested in the health and welfare of your constituents in the State of New Jersey, please use your muscle to protect us from the source of overuse of chemicals in any form and especially from pesticide spraying. I believe without a doubt that the bottom line of this push by the chemical companies for unabated use of chemical spraying is MONEY. They don't care about people. You should and I expect you to protect all of us. I will be interested to see how closely you pay attention to that mandate.

Yours truly,



Muriel F. Berson
(Mrs. Stanley Berson)

cc Sen. L. Brown, Ass. Gallo 9/26

Mrs. Robert F. Shaw
947 Washington Avenue
Ho-Ho-Kus, New Jersey 07423

September 24, 1988

Office of Legislative Service

Attn: Frank Connolly

Division of Information & Research

CN 042

State House Annex

Trenton, New Jersey 08625

Dear Mr. Connolly:

When Ho-Ho-Kus curbside sprays
our property and the State aerial-
sprayed our area, I was forced to
flee for my life into N.J. State
due to a lung operation. *

I feel the widespread, random
use of pesticides is insane, un-
necessary and threatens the lives
of people and animals alike.

97x

Had the Pesticide Bill S-1342 been passed into law, this life-threatening situation would not have occurred, and I and many other people would not have suffered peril, travel expense, complete disruption of our family and home life.

This bill must be passed.
Your efforts on behalf of this bill will be deeply appreciated by all who have respiratory problems.

Sincerely,

Barbara W. Simon

* Enclosure

Harvey T. Adelson, M. D.

23 Stuyvesant Road

Montvale, New Jersey 07645

Telephone: (201) 391-6789

re: Mrs. Barbara N. Shaw
947 Washington Avenue
Ho-Ho-Kus, New Jersey 07423

June 25, 1982

TO WHOM IT MAY CONCERN

Mrs. Shaw has undergone removal of a lung at an earlier date. Her remaining lung reacts with potentially life threatening bronchospasm and respiratory insufficiency to exposure to a variety of toxic atmospheric pollutants. She recently was forced to flee for her life from her home when her area was sprayed by airplane and tank truck with the Gypsy Moth killing agent Carbaryl suspended in kerosene.

She has also been urged by me to remain away from her home as long as residues of these substances remain in the environment of her home in sufficient quantity to cause shortness of breath, cough, sputum production and weakness.

It is requested that all agencies and individuals with which Mrs. Shaw must deal will take proper heed of the circumstances described above.

Harvey T. Adelson, M.D.

Respiratory Care Unit
Veterans Administration Hospital
Montrose, New York 10548
Attending Physician
Chest Service
Bellevue Hospital Center, N.Y.C.
Instructor in Medicine
New York University School of Medicine

156 Mountain Avenue
Summit, New Jersey, 07901
September 24, 1984

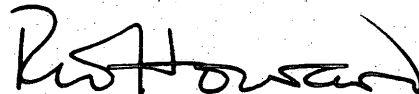
Office of Legislative Services
Attn: Mark Connolly
Division of Information and Research
CN042
State House Annex
Trenton, New Jersey, 08625

Dear Mr. Connolly,

I want to urge the support of the Senate Committee for the "Proposed Committee Substitute for S-1342", Senator Lesniak's bill to tighten New Jersey's current pesticide control law. I believe that the provisions of the proposed committee substitute are important to us all and necessary to provide us with greater control over the distribution of pesticides in the State.

I urge the Committee to vote out the bill so that the Senate may enact it into law.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Rio Howard", with a stylized flourish at the end.

Rio Howard

cc. Senator Donald P. DiFrancesco
Assemblyman Bob Franks
Assemblywoman Maureen Ogden

228 Franklin Ave
W.Berlin N.J. 08091
Sept. 26, 1984

To Senator Dalton and Commitee Members,

On Friday, July 21, 1983 my fourteen year old daughter was hospitalized for a severe attack of asthma. We had planned to start a week at the shore the next day. The doctor felt that on Monday she was well enough to be released, feeling the shore air could be beneficial and seeing that she had enough medecine to ward off any further attacks. For the first three days she did very well, I even called the doctor to tell her that she was fine.

Behind our apartment was a large playground, and in the evening we would have a ballgame, with eighteen members of my family being present and anyone else who cared to join. In fact there was always twenty or thirty children on the playgournd playing with the various equipment.

On Thursday evening we were having our usual good time when over in the marsh area I noticed the mosquito truck, but I felt that it was far enough away not to affect us. I forgot about it until about ten minutes when it turned the corner and came down the street along the playground area, spraying and enveloping everyone with a mist of malathion. I had the opportunity to question the driver later, thats how I know it was malathion. As soon as I realized what was happening I rushed my daughter and and all the other members of my family off the playground, but it wasn't fast enough. Our apartment looked out over the area and our windows were opened, so the oil based smell was overpowering in the apartment. Needless to say my daughter suffered another attack.

If there had been some kind of notification. Something to let us know when the area was sprayed, we would have closed our windowas an left the area until later.

Playgrounds are for children and there are no studies, tests or anything else to tell us what the effects of these pestidces have on them. At the very least there should be notification as to times of spray and what is being used.

The time has come when we can no longer spray pesticides so indiscrimanetly. The Lesniak Bill banning aerial spraying of toxic chemicals over residential areas is long overdue. To choose toxic chemicals when there are safe alternatives is foolhardy. No longer can the use of pesticides be used as they have in the past, with no accountability on anyones part. Lawn services, exterminators and government favor spraying, so be it, but they do not have the right to spray people who do not want it. Many people have had their

spring and summer turn into nightmares because of indiscriminate spraying. Where are their rights ? Everyone has the right to be notified, so they can protect themselves and their families from undue exposure.

It is easy to sit and blame the rest of the world for the things that are happening, and we abhor it when we hear of other nations using chemical warfare, but our homes have become battlegrounds with chemicals being used on people who do not want them. How can we expect nations to respect each other if we can't in our own backyards.

Notification; Webster defines it as to make know, why does this word strike such a discordant note too so many ? Do we or do we not still live in a free country where we have the right to be notified and make a free choice to be exposed or not ?

A former head of the Dept. of Agriculture was quoted in the newspaper as saying. "No compromise, it has to be killed". Granted the issue is very complex, but their effects on human life is subtle and insidious.

It is for this reason this bill cannot be killed in committee. Because of its effect on every life in this State, it must go before the Senate, so the people we elect to represent and protect every citizen will have a chance to vote on it. I also think MR. Alampis litany of pesticides that are used in our daily lives show the real need all the more for this bill.

Sincerely,

Emma M Santone

Township of Galloway
Environmental Commission
Cologne, NJ 08213

25 September 1984

Office of Legislative Services
Attn: Mark Connolly
Div. of Information and Research
CN 042
State House Annex
Trenton, NJ 08625

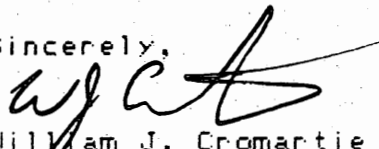
Dear Mr. Connolly:

The Galloway Township Environmental Commission, at its meeting on September 25, 1984, approved a motion in support of the proposed committee substitute for S-1342, Senator Lesniak's bill to amend the New Jersey pesticide control law.

The Commission believes that it is important to reduce exposure of the public and farmworkers to pesticides, especially to those for which complete health and safety data, as required by the Federal Insecticide, Fungicide, and Rodenticide act are unavailable. We believe that this can be accomplished by better notification requirements and by a ban on non-agricultural aerial application of broad-spectrum pesticides.

The Commission recognizes the concerns of farmers that they be able to apply pesticides in a timely manner. We would support amendments to the proposed bill consistent with these needs as well as the needs of rural residents to be informed when spraying will occur near their homes.

Sincerely,



William J. Cromartie
Chairman

COMMUNICATION WORKERS OF AMERICA
CAMDEN COUNTY BOARD OF SOCIAL SERVICES LOCAL-1084
600 MARKET STREET
CAMDEN, NEW JERSEY 08101

Re: Indoor Spraying Insecticide

Bill #S1342
Camden County Administration Bldg.

Our building had a roach infestation and we requested that the problem be addressed. However, the county had the exterminator come in and spray during working hours. No notification to the works was sent nor were we told what was being sprayed. Quite a few of our employees went home ill and the union was deeply concerned about our pregnant employees.

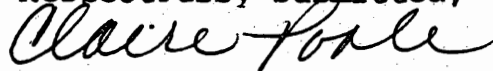
To date we do not know what we were sprayed with nor what long term effects can be expected. The spraying didn't affect the roaches but it certainly did affect the workers.

Also, due to a severe ventilation problem, we had a bacteria problem in the building. Suddenly workers started to experience rashes of unknown origin, respiratory problems i.e. sore throat, difficulty breathing; and cases of industrial conjunctivitis. We had over 150 cases of rashes and over 200 cases of conjunctivitis workman's compensation cases.

The State Health Department came in and did a study and reported back to us that the county had used a germicide "Klear" to wash down all the areas and this, they felt was the cause of our rashes. The conjunctivitis was caused by the poor ventilation system. Workers were not notified prior to the use of this germicide so that we could have taken precautions to protect our health.

As you can see, we the members of Communication Workers of America Local-1084 are extremely supportive of the passage of #S1342.

Respectfully submitted,



Claire Poole
President
Local 1084

49 Junard Drive
Morristown, N.J. 07960
September 27, 1984

Mr. Mark Connolly
Office of Legislative Services
Div. of Information and Research
CN042
State House Annex
Trenton, New Jersey 08625

Dear Mr. Connolly:

We would like to add one additional comment to our September 25th letter to you regarding Proposed Committee Substitute for pesticide bill S-1342:

Since the perceived high cost of notification to pesticide applicators appears to be a major roadblock to opponents of S-1342, an incentive to virtually eliminate these costs would be to require only a single telephone call from the applicator to a responsible agent of a local self-notification network in those cases where a specific, non-broad-spectrum pesticide, registered by the EPA for general use on populated areas, is to be applied. In such cases, a sharp reduction in the required notification information to include only the date, time, target area and material to be used (common name) would further reduce notification costs.

Sincerely,

Ping Sun Chun

Ping Sun Chun

Marvel Chun

Marvel Chun

49 Junard Drive
Morristown, N.J. 07960
September 25, 1984

Mr. Mark Connolly
Office of Legislative Services
Div. of Information & Research
CN042
State House Annex
Trenton, New Jersey 08625

Dear Mr. Connolly:

Governor Tom Kean, in his January, 1982 inaugural address, expressed his concern that "our children and grandchildren deserve the right to live in New Jersey free from fear of poisons in our air, ground and water."

As parents and longtime residents of the state with the highest population density, we share Governor Kean's concern, and feel that Senator Raymond Lesniak's Proposed Committee Substitute for pesticide bill S-1342 is a necessary step in the achievement of these goals. To reduce the cost burden to those responsible for Notification, a suggested change to the bill would be the addition of a third method for notifying those persons desiring notification.

In addition to first class mail and hand delivery, which are suggested in the bill, local "self-notification" networks could be employed in a manner similar to that described in NJDEP Pesticide Control Code N.J.A.C. 7:30 - 10.11 (b), where a local designated agent, having been notified, would assume the responsibility for providing notification to others within the local area or community.

Sincerely,

Ping Sun Chun
Ping Sun Chun

Marvel Chun
Marvel Chun

California Agrarian Action Project

Phone: (916) 756-8518
433 Russell Blvd., Davis, CA. 95616



October 4, 1984

Mark Connelly
New Jersey Senate Committee on Energy and Environment
State House Annex, Room 308
Trenton, New Jersey, 08625

Dear Senator Connelly:

I am writing to express the California Agrarian Action Project's position of support for the proposal currently under consideration in New Jersey, to provide notification to the public before pesticide applications commence.

The California Agrarian Action Project is a statewide, grassroots organization addressing pesticide safety concerns of farmers, farm workers, and all rural residents, both through conducting public education campaigns, and encouraging our members to participate in the legislative process. We have been in existence for over 5 years. The Project is based in Davis, in California's Sacramento Valley, and has affiliates in the Salinas Valley, and Fresno and Bakersfield areas. I am a volunteer with the Project. I also have background in agricultural science, and have worked as a technician in plant pathology and seed research.

In California, where 25% of the nation's pesticides are sprayed each year, we experience tremendous problems with pesticide drift, contamination of drinking water, and rapid development of pest resistance to pesticides. The Project feels strongly that advance notification of pesticide applications can reduce all of these problems, so that pesticides can be used to greater advantage, with fewer side-effects.

In California, all highly toxic (Class I) pesticides, and other pesticides which have been associated with drift problems, worker hazard, or bee kills, require a 24 hour Notice of Intent to Spray before they can be applied. The intent of this regulation is to prevent unsafe or unnecessary pesticide use. In some cases this has worked, because county officials have been able to postpone a spraying till a less windy day, or suggest a less toxic pesticide for use.

However, the California regulation has no mechanism by which local citizens can be notified of upcoming spraying, so they could cover their gardens, bring children and pets inside, or leave the area if they chose. This is mainly because a 24 hour period is too short a time to effect public notice.

We contend that the proposal before the New Jersey Senate, to provide a 72 hour notice period before sprayings would allow for a realistic time frame in which residents could be notified of upcoming sprays. This would give all residents of spray areas an opportunity to minimize their exposure to pesticide drift and reduce potential short-term poisonings and long-term health effects from exposure. In addition, a longer notification time would give local officials and independent scientists a longer time in which to catch potential unnecessary or excessive pesticide use plans which build insect resistance

and waste money, and time to catch potential hazards of water contamination.

It is frequently argued that farmers can not estimate the need to spray more than one day in advance. For some insect pests, with very low economic thresholds (a small pest population will cause significant damage) this may be true. Thus for insect pests, we would support a policy which asked for a three day notification period, but gave farmers and pest control applicators the ability to appeal to local pesticide regulatory officials for a one day notice period.

For plant diseases, it should usually be possible to predict the need to spray three days in advance, since plant disease agents are not as mobile as insects. This could occasionally need appeal to a one day notice period if weather conditions such as prolonged rain or humidity favor development of disease markedly.

For control of weeds, however, we feel that there would be little or no need to ever reduce a notification period to less than 3 days. Weed problems are usually predictable ahead of time, and they do not develop over night.

One exception to the above guidelines should be noted: When a pesticide application is proposed adjacent to a school or office complex it may be most prudent to time applications so they fall on the weekend. This policy has been put into action in our own county of Yolo with favorable results. Timing an application to fall on a weekend may mean shortening a notice period in some instances, or lengthening it in others.

In summary, CAAP strongly supports advance notification of pesticide applications in person or by mail, if a week or more can be allowed. We are of the opinion that a 3 day notification period is the minimum adequate to notify residents, and that it is workable in a majority of cases.

Sincerely,



Anne Katten
California Agrarian Action Project

400 Cowpath Road
Hatfield, PA 19440
5 October 1984

Office of Legislative Services
Attn: Mark Connolly
Div. of Information and Research
CN 042
State House Annex
Trenton, N.J. 08625

Re: Proposed Committee Substitute for S-1342

Dear Mr. Connolly,

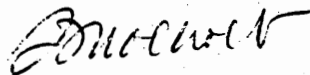
I write in support of bringing the above-captioned Committee substitute for Senator Lesniak's pesticide bill S-1342 to vote on the Senate floor.

I am a Genetic Toxicologist and for many years have been following the genetic toxicology of chemical pesticides with interest and increasing apprehension. These compounds represent about half of the synthetic chemicals with which humans come into contact each year and the majority of them have been inadequately tested for mutagenicity, carcinogenicity and teratogenicity. Hence, they potentially represent the greatest extant genotoxic threat to man.

I have read the draft of the proposed Committee substitute for Senator Lesniak's Pesticide Bill S-1342 and believe that it will considerably enhance the safety of farm workers and citizens from unwarranted pesticide exposure. There is no doubt that in New Jersey pesticide exposure has contributed heavily to the cancer and birth defect burden of workers and citizens. The bringing of this bill before the Senate for floor vote and subsequent passage will comprise a very significant public health benefit for all in New Jersey.

If you or another other Committee members have any questions, please feel free to contact me at (215) 597-6682.

Yours sincerely,



Bruce Molholt, Ph.D.

TESTIMONY OF MARI T. HANLEY

INTENDED FOR THE
ENERGY AND ENVIRONMENT COMMITTEE
PUBLIC HEARING HELD AT
THE STATE HOUSE ANNEX
SEPTEMBER 24, 1984
CONCERNING
SENATE BILL #1342

My name is Mari T. Hanley, and I am a homemaker and mother of three young children in Marlton, Burlington county. My interest in Sen. bill #1342 stems from the fact that I am a concerned parent, having a background in biology up to the graduate degree level, but finally because of a dissatisfaction I feel about pesticide application in New Jersey, some of which I have personally experienced.

First of all, I would like to commend and thank you for your keen sensitivity, attentiveness and hard work on this bill. I have read the bill from its infancy stage and over again up to its present form today.

If I can draw your attention to the bill (page 5) new section #4. This certification requirement is exactly what is needed here in N.J.. Drawing from personal experience, I had contracted an exterminator for indoor home pest control. When this young fellow came to my home to do the job, I asked him what chemical he was going to spray. His response was "I don't know, I just spray whatever my boss gives me." I then asked him if he was a certified pesticide applicator and he said "What do ya mean?". I replied "Did you have to undergo any training or testing in pesticide application?". He said "no" and went about spraying the house without the supervision of a certified applicator.

This brings me to the next section (pg.5) new section #5a "no person shall apply any pesticide without taking all necessary precautions...to eliminate human exposure. How could this same young fellow take any precautions without knowing what he was spraying? How could I know the best way to

limit exposure for my family, without receiving first and in advance notification of what was being sprayed? I sent my 3 children outside in the backyard while this young fellow sprayed, but I had to stay and follow him around to assure myself that he 'appeared' to be applying the pesticide properly. And in this instance, I still don't know if he did and perhaps he doesn't even know if he did.

Referring to new section 5b (pg.5), "no person shall intentionally apply any pesticide to property, knowing or having reason to know, that the property owner does not wish that property to be exposed to that pesticide". Well a property owner must know what pesticide is being used in order to make a choice, and I feel we have a right to that choice. Again, this same young fellow, upon finishing spraying the inside of my home, left, or so I thought. Not so. He went outside and spread a very strong smelling crystalline product around the perimeter of the house, in the gardens, and on the sidewalks where my children play and fall down getting their little hands dirty.

I called the owner of the exterminating business to inquire about this crystalline pesticide, and was told it was Diazinon! Had I known in advance, I never would have permitted its application! All I could do was to sweep it off the driveway and sidewalks, and caution the children not to play outside until the smell dissipated, but it took several days. How can a person feel safe about what pesticides are being used when we are not given advance notification, and lastly, a choice concerning the use of a particular pesticide., so as to eliminate human exposure!

New sections #4,5,&7 are excellent additions to this bill and are desperately needed. I hope they remain in the bill and are not diluted in any way.

In new section #5d (top of pg.6), it states "no person shall apply any pesticide for the control of termites within a school building during which time children occupy the premises". My question is "Why just termites ?" What about insects, rodents, nematodes, predatory animals, etc.? What about the toxic pesticides used to control these pests? By not including them, this bill contradicts itself in new section 5a referring to "taking all necessary precautions...to eliminate human exposure". I don't want my children in a school where a pesticide application is taking place and I'd venture to guess, no one else would either. This section should include all pesticides, not just for the control of termites.

In new section #7f3 (pg. 15), the plan to install temporary barriers for areas being sprayed in a school during normal school hours with children present is ridiculous !! First of all, young children are particularly sensitive to toxic substances. Secondly, even when pesticides are applied to baseboards, it has been shown in studies that air drift of the pesticide away from the target site occurs. Thirdly, What if an exterminator uses a restricted use pesticide, for example, Diazinon, which is proven to be an animal terotogen,? This poses an unnecessary hazard to children. Lastly, there have been cases where this is exactly what has happened. Dursban was applied in a vacant work area adjoining several occupied work areas in the Western Union office in Moorestown, N.J.. Seventeen persons became ill, even though very low levels

were found in their offices by the D.E.P., and even though the D.E.P. found nothing improper about the application of the pesticide. One can only conclude that air drift carries small molecules off the target site. We must never permit an accident like this to occur with our children in schools. It is an avoidable and unnecessary risk.

Turning your attention to new section #6a5 (pg.6), I want to applaud the banning of aerial application of broad spectrum pesticides on non-agricultural land. This is something I have personally worked hard for over the last 4 years.

I also wish to voice support for all of the notification requirements listed in this bill.

Although with regard to lawn spraying, in new section #7g (pg.15), there are no advance notification requirements given to the contractor or his neighbors. I feel there should be at least 24 hour notice given by the pesticide applicator to the contractor and his adjacent neighbors within 100 feet of the target site. They should receive notification as to the type and name of pesticide, label precautions, and health effects.

This past summer, I was outside with six neighborhood children who were having a little tea party in our yard. A lawn spray applicator truck drove up and proceeded to treat the adjacent neighbor's lawn. I rushed the children into the house, and hurriedly tried to clean up their juice glasses and cookies as the applicator came within 4 feet of their table set. I asked him nicely if he could wait a second until I cleared away the food. Do you know what his response was? He said "What for?" He wouldn't even go over to the far side of the neighbor's property to spray while I cleared away the children's things. Yet, if I had advance warning that he was coming,

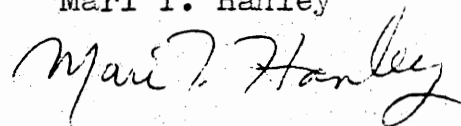
I could have taken the necessary precautions to avoid all exposure, especially from drift from his spray hose. Instead, we are forced to deal with rude, insensitive, and thoughtless lawn applicators that could care less whom they spray.

In conclusion, people need to know what, when, and where pesticides are being sprayed in their immediate area, in order to make intelligent choices to safeguard their families against exposure, and against chemical trespass.

Thankyou for taking time to read this.

Respectfully,

Mari T. Hanley

A handwritten signature in cursive script that reads "Mari T. Hanley". The signature is written in dark ink and is positioned to the left of the typed address.

13 Old Mill Ct.

Marlton, N.J. 08053



Senate Energy & Environment
Committee
State House Annex, Trenton

10/4/84
308 Grove St.
Montclair, NJ 07042

Dear Senators,

NJCN is a statewide organization of gardeners, farmers and concerned citizens with the goal of maintaining and enhancing food production within the state. There are many pressures working against NJ farms. High among them is the continual creep of housing into agricultural areas. This expansion of suburbia will continue, making more and more farms into islands of green surrounded by developments. Frictions may then develop between the homeowners and the farmer. Trespass, vandalism, and restrictive local ordinances can hassle the farmer, giving him a sense of isolation from the community. At the same time, Sunday morning tractors, the fragrance of manure, and fears of pesticides in the air or water, can lead the homeowner to view the farm as a public nuisance rather than an important community asset.

We believe the amended bill 1342 can offset some of these problems and help assure that NJ will remain the garden state. It can do this in several ways.

The notification of neighbors when spraying is scheduled is beneficial in three ways. It should almost eliminate horror stories of children, pets or pools being covered with pesticides. Via the notifications by mail or in person the farmer will maintain his image as a friendly and concerned businessman. Thirdly, we suspect that the required signs on public roads (CAUTION: RESTRICTED USE PESTICIDES IN USE) will be more effective than No Trespass postings in protecting the farm from vandalism. In short, we feel that the farmers investment in notification will be amply repaid through improved community relations and a simultaneous lessening of vandalism.

A vocal minority have pictured large acreage farmers as Simon Legree type exploiters of migrant labor. The sections of the bill relevant to farm worker notifications should further reduce the few abuses that

do occur and help to silence negative publicity. In our densely populated state public relations is an important aspect of any business including agriculture.

We feel the proposed DEP registration procedures will, over the years, aid the farmer by encouraging manufacturers to develop increasingly specific and safe pesticides. This protects the farmers health and minimizes the hazards from drift, runoff and leaching.

The financial aid to IPM is clearly a benefit to the farm since carefully times chemical applications are cheaper and more effective than spraying by the calendar.

The section on law suits has frightened many farm groups. On careful reading however, we feel it actually improves the farmers legal protection. First, only the person whose property or person was exposed can sue and then only if the notification procedures were not followed. This eliminates class action suits that might be brought by environmental groups. At the same time the farmer is protected from liability in individual suits by simply following the notification procedures. Therefore, by pre-addressing a stack of stamped envelopes with the form letters and remembering to mail them, the farmer gains virtual immunity. We view this as a very positive protection. We do feel that the DEP should take responsibility for printing and distributing the necessary forms. This is not mentioned in the bill and we feel it should be.

In summary we feel that 1342 will:

Improve farm relations with neighbors and community.

Minimize vandalism to farms.

Reduce adverse publicity relating to migrant workers.

Aid in development of safer and more specific pesticides.

Reduce chemical costs to farms through the IPM grant.

Eliminate possible class action suits from environmental groups.

Protect the farmer from suit by neighbors by using notifications.

For these reasons, we urge you to support the Amended Senate Bill #1342.

Respectfully,



J. C. DeBoer, secy.

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

COLLEGE OF NATURAL RESOURCES
AGRICULTURAL EXPERIMENT STATION
DIVISION OF BIOLOGICAL CONTROL
(415) 642-7191

1050 SAN PABLO AVENUE
ALBANY, CALIFORNIA 94706

October 4, 1984

Mr. Mark Connelly, Staff Aide
New Jersey Senate Committee on
Energy and Environment
State House Annex, Room 305
Trenton, New Jersey 08625

Dear Mr. Connelly:

I have been working as a professional in the area of IPM now for over five years and I have considerable experience in both upstate New York and California.

When considering the rights and responsibilities of farmers involved in IPM programs, one must attempt to balance the need to protect crops with the need to protect people and other "non target" organisms in the environment. Sometimes these needs are in conflict (or seem to be), and sometimes this is in part due to misinformation about IPM practices. An important source of misinformation concerns how far in advance farmers know that they will have to spray a particular field with pesticides. This is an extremely important issue since if farmers can give notice 48-72 hrs. prior to the application of pesticides, individuals in neighboring areas that won't be sprayed can make adequate preparation to protect themselves and their animals.

It has been my experience that agricultural applicators have sufficient time, with exceptions that can be specifically detailed, to provide notice to individuals living in the area. For routine application, there should be no problem with providing written notice well in advance of application, 3-5 days. I recognize that there are emergency situations in which immediate application is required, but this is a relatively unusual situation. In general, IPM farmers tend to monitor their pest populations somewhat carefully and this provides the needed information which allows advance notice of when spraying will be needed. For the unusual situations in which emergency applications are necessary, notice could be attempted as soon as possible by phone.

Sincerely,

A handwritten signature in cursive script, appearing to read "Stephen J. Risch".

Stephen J. Risch
Assistant Professor

SJR:jf

118x

2/IVANTOE CT

MARKTON NJ 08053

10/9/84

Mr. Mark Connolly
Legislative Aide
Senate Committee on Energy + Environment
State House Annex CN042
Trenton, NJ 08625

Dear Mr. Connolly,

As both a professional and resident of New Jersey, I support Senate Bill #1342. Through my work as an emergency room physician and my position as Director of Burlington County Poison Control Hotline, I feel it is extremely important for information on pesticides to be readily available to workers, citizens and medical professionals. I urge its passage.

Sincerely,

Jeffrey Morris MD

WARREN TOWNSHIP ENVIRONMENTAL COMMISSION

46 Mountain Boulevard
Warren, New Jersey 07060

10/4/84

Committee on Energy & Environment
State House Annex Rm. 114
Trenton N.J.

Dear Senators,

We support Bill 1342. It fills many gaps in the existing DEP regulations. We feel it will do much to protect the environment and our citizens. Certain sections are particularly important to us.

The elimination of aerial spraying of broad spectrum pesticides on non-agricultural land is very pleasing. Through a recent educational campaign we were able to convince local authorities to use a biological pesticide against gypsy moth infestations. The results were excellent and imposed no hazards on our citizens. A law that would lock in the progress we made would be welcome.

The notification requirements in pesticide applications are desirable and in some cases essential to the well being of neighbors. We feel they work no hardship or significant expense on the user.

The DEP registration and evaluation procedures place a positive pressure on manufacturers to produce less hazardous but equally effective pesticides. The benefits of this evolution will accrue and multiply through the years ahead.

We urge you to look favorably on this bill.

Respectfully submitted,



David Petersen, secy.

Office of Leg. Ser.
Trenton

2602 Village Dr.
Avenel 07001
Sept. 19, 1984

Dear Sir or Madam,

We need tougher pesticide
control laws.

I am in support of
S-1342 and any bills
making NJ a cleaner
state.

Sincerely,
Clara Tom

Andrew MAUSALA
240 Paramus Rd
Ridgewood, N.J. 07450

Office of Legislative Services
ATTN: Mark Connolly
Div. of Info & Research
CN 042
State House Annex
Trenton NJ 08625

Dear Sir:

I urge that the Senate Energy & Environmental Committee Support Senator Lesninski's pesticide bill S-1342.

I believe that it is imperative that the people of this state be allowed to have the protection that this bill would provide to safeguard them against the general hazards of pesticides at a time when our environment is inundated with them.

Yours truly,
Andrew Mausala

122x

September 20, 1984

Mark Connolly
Office of Legislative Services
Division of Information and Research
CN 042
State House Annex
Trenton, N.J. 08625

Dear Mr. Mark Connolly:

We are in favor of the passage of Senator Lesniak's bill S-1342 (final draft referred to as "Proposed Committee Substitute for S-1342"). We feel it is important to have a ban on aerial application of broad-spectrum pesticides for non-agricultural use if exposure to chemical pesticides is to be minimized.

Our group is also interested in seeing the section of Senator Lesniak's bill on ornamental spraying notification stay intact. No one should want a child playing in the yard while ornamental spraying (ground and/or aerial) is taking place in an adjacent yard without knowledge of the situation. Furthermore, no chemical pesticide should be allowed on another's property even if notification has been given.

Sincerely,

Karen Hoxworth

Karen Hoxworth
Garden State Environmentalists
1250 Venezia Ave.
Vineland, N.J. 08360

STATEMENT OF NEW JERSEY SENATE
BILL #1342 DESIGNED TO CONTROL
PESTICIDES

For Wildlife Preserves, Inc.
c/o Meyner & Landis
Gateway One - Suite 2500
Newark, New Jersey 07102

This is to express support for the enactment of Senate Bill #1342 which is designed to strengthen the control of the use of pesticides in New Jersey.

This bill provides an opportunity for a significant advance in the protection of the public health and of wildlife and such natural habitat as remains in the State.

Better regulation of pesticides is long overdue. However well meaning those agencies currently using pesticides may be, there seem to be continuous instances of a variety of mistakes connected with their use. Even on the lands held by Wildlife Preserves, Inc. for public conservation use, there have been a number of occasions where large areas have been adversely effected by the careless or ill-considered use of pesticides. These certainly discourage efforts to protect such areas.

NEW YORK STATE COLLEGE OF AGRICULTURE AND LIFE SCIENCES

A STATUTORY COLLEGE OF THE STATE UNIVERSITY

CORNELL UNIVERSITY

ITHACA, NEW YORK 14853



DEPARTMENT OF ENTOMOLOGY
AND
SECTION OF ECOLOGY AND SYSTEMATICS

Reply Address:
Cornell University
Comstock Hall
Ithaca, N. Y. 14853

17 October 1984

Mr. Mark Connelly, Staff Aide
New Jersey Senate Committee on Energy
and Environment
State House Annex, Room 308
Trenton, New Jersey 08625

Dear Mr. Connelly:

I support your proposal to have farmers, government, industry, and homeowners give 24-hours notice before spraying their property with pesticides when the spraying is within 500 feet or less of adjacent residences. Although notifications will be a nuisance to people spraying pesticides, when there is no buffer zone public health and property of those adjacent to the treated areas must be protected. This need outweighs the inconvenience of taking time to notify people whose residences adjoin the treated areas.

There should be some provision for emergency spraying when the 24-hour notice can not be observed. Most often pest problems are known 24-hours in advance of treating but on a rare occasion a serious threat to vegetation could occur if 24-hours had to elapse before spraying. For example, apple scab is the most serious plant pathogen of apple production. Once it starts raining or misting the grower must act immediately to protect his/her trees.

Pesticides are an important technology that offers numerous benefits to society. At the same time serious risks are associated with the pesticide use. Efforts have be be made to keep pesticide risks to a minimum.

Sincerely,

A large, stylized handwritten signature in dark ink, which appears to read 'David Pimentel'.

David Pimentel
Professor

ns

New Jersey Campaign against Toxic Hazards

46 Paterson Street New Brunswick, New Jersey 08901 2018464224

September 29, 1984

Senate Committee on Energy and Environment
Senator Daniel Dalton, Chairman
c/o Mark Connolly, Office of Legislative Services
CN042
State House Annex
Trenton, NJ 08625

Dear Senator Dalton and Committee Members,
I would like this letter added into the record for the proceedings of the public hearing, Sept. 24, 1984, on S1342, Amendments to the Pesticide Control Act.

Many people from our group didn't get to give their testimony orally at the hearing and were understandably annoyed at having arranged days off from work, all-day babysitters, and travel arrangements to be at the hearing. Had we known that our numbers of oral testimony were to be limited to 6 "slots", we would have ordered our testimony differently and made sure that more community people were heard. We recognize that your time is valuable too, and that long hours of hearings don't necessarily benefit enlightenment.

For the record, these people were present at the hearing and had planned to give oral testimony. They will submit written testimony instead:

Community Victims

Emma Santone, Berlin Twp., whose asthmatic daughter was "fogged" by a mosquito spraying truck in an Ocean City public park.

June Fletcher, Hammonton, whose granddaughter while undergoing chemotherapy for cancer was aerially sprayed with sevin in a senior citizen complex during a visit with her grandmother.

Lauren Regan reading for Kathleen Harding, whose child was born with multiple birth defects in Monroeville Twp. after Kathleen was sprayed aerially with sevin. Tara is 11 months old and has accrued over 1 million dollars of medical expenses.

Mari Hanley, Marlton mother whose child's school had a pesticide application done in the library during school hours for termites.

Sandy Weiss, neighbor of a farm who has received drift from aerial or ground pesticide applications many times at her Marlton home.

Mary Ann Reinhart, neighbor of a farm in Shamong township - drift problems.

Kathleen Winstein, suffered organophosphate poisoning at work when her office was sprayed with Dursban. DEP found no use violation, but 17 people were sick and Kathleen has missed days of work because of continuing symptoms.

Dr. Steven Falkowski, Cherry Hill physician, the doctor who treated Mrs. Winstein, who wanted to urge the necessity of medical education and incident reporting in pesticide poisoning cases.

Farmers

Louise Willis, Monroeville farmer who supports the bill and who has personally been exposed to spraying by neighboring farmers. Her well is contaminated with Temek and she has to drink bottled water.

Joe Taylor, Riverside farmer who supports the IPM concepts promoted in the bill. He uses very few pesticides on his 35 acre, 100 year old farm.

New Jersey Campaign against Toxic Hazards

46 Paterson Street New Brunswick, New Jersey 08901 2018464224

-2-

Township Officials

Mayer Raymond Brosel, Evesham Township, presenting a resolution passed by town council in support of S-1342.

Wynne Falkowski, Evesham Environmental Commission Chairman, speaking in support of the ban on aerial spraying of broad-spectrum pesticides over residential areas. Her town has such an ordinance approved by DEP.

Sharon Ahern, E. Windsor Environmental Commissioner, whose town wrote an ordinance regarding aerial and ornamental notification, which was not approved by DEP. Drift studies and EPA recommended buffer zones offered as supporting evidence.

Technical Experts;

Neville Davis, Director, Salantic Health Services, of Folsom, N.J. a migrant health clinic which sees many instances of pesticide related illness among farmworkers.

Charles Herwitz, a Washington D.C. attorney who works for farmworker rights with the Farmworker Justice Fund. An expert on farmworker regulations from other states.

Organizations:

Paul Twerdowski, New Jersey Coalition For Alternatives to Pesticides, who was prepared to rebut the arguments against the bill as our final speaker.

Jeff Scott, Communication Workers of America, a labor union which represents most state workers, who support the bill.

David Copeland, Chairman of the Coalition Against Toxics, a community organization that works to reduce exposure to toxic pesticides when possible.

Dave Hull, Bergen County Audubon Society, who wished to offer testimony on the effects of pesticides on wildlife.

Ruth Fisher, CAPE, a Cape May citizens group who has worked on various environmental issues in addition to pesticides.

In addition, three members of NJCAP, Susan Shaw, Nancy Coleman and Lorraine Caruso didn't get heard, nor did the members of Ecology Watch of Montclair get a chance to testify.

We trust that the written testimony will be carefully reviewed by committee members, because all our supporting evidence for the need for S1342 lies therein.

Thank you for your attention to our needs.

Sincerely,

Jane Nogaki
Jane Nogaki, Chairman
Pesticide Right-to-Know Coalition
NJ Campaign Against Toxic Hazards

New Jersey Campaign against Toxic Hazards

46 Paterson Street New Brunswick, New Jersey 08901 2018464224

October 3, 1984

New Jersey Senate Energy & Environment Committee
Senator Daniel Dalton, Chairperson
c/o Mark Connolly, Staff
CN 042
State House Annex
Trenton, New Jersey 08625

Dear Members of the Senate Energy & Environment Committee,

Enclosed please find written testimony to be submitted into the record regarding Senator Lesniak's Amendments to the Pesticide Control Act, S1342.

For the record, these people were present at the public hearing on September 24, 1984 but were unable to testify due to a lack of time available for the public to testify.

The testimony presented here is from members of our Pesticide Coalition; although additional coalition members have submitted their testimony apart from this packet, and we would appreciate that you consider our supporting remarks as one coalition.

Enclosed you will find testimony from:

1. Jane Nogaki, Pesticide Coalition Chairperson
2. Dudley Sarfarty, NJ Council of Churches
3. Dr. David Hall, Bergen County Audubon Society
4. Denise DeLibero, Interior Pesticide Applicator
5. Laurie Knives, Community spokesperson
6. Laura Allison, Community Spokesperson
7. Mr. and Mrs. Brown, parents of a child sprayed with pesticides
8. Joan Eustace, Community spokesperson
9. Judy Albert, Community spokesperson
10. Mr. and Mrs. Harding, victims of pesticides spraying
11. Charlotte Cohen, victim of pesticide spraying
12. Lucille Burk, Community spokesperson
13. Shirley Himeback, victim of pesticide spraying
14. Marlene Jaffe, Chairperson of the Cherry Hill Environmental Action Committee
15. Kathleen Windstein, victim of pesticide spraying
16. 23 farmworker accounts of pesticide spraying incidents on New Jersey farms
17. Peggy Backal, Staff Attorney, Camden Regional Legal Services

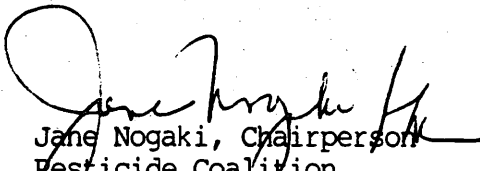
18. Neville Davis, Director for Sa-Lantic Health Services, Hammonton, NJ
19. John Ripton, Coalition for the Rights of NJ Farmworkers
20. Joseph Taylor, Burlington County Farmer
21. Leland Merrill, ex-officio member of the NJ Pesticide Council
Former Staff member of Rutgers University
22. Sharon Ahern, Chairperson of the East Windsor Environmental Commission

The leadership of the Pesticide Coalition are available to meet with you at any time to discuss the importance of this key piece of legislation.

We are confident that a strong bill will be passed from this Committee, which will provide notification for pesticide use on farms and in our neighborhoods.

We look forward to your speedy actions on this important issue.

Sincerely,



Jane Nogaki, Chairperson
Pesticide Coalition
New Jersey Campaign against Toxic Hazards

JN/lhr

September 29, 1984

Senate Committee on Energy and Environment
Senator Daniel Dalton, Chairman
c/o Mark Connolly, Office of Legislative Services
CN042
State House Annex
Trenton, NJ 08625

Dear Senator Dalton and Committee Members,
I would like this letter added into the record for the proceedings of the public hearing, Sept. 24, 1984, on S1342, Amendments to the Pesticide Control Act.

Many people from our group didn't get to give their testimony orally at the hearing and were understandably annoyed at having arranged days off from work, all-day babysitters, and travel arrangements to be at the hearing. Had we known that our numbers of oral testimony were to be limited to 6 "slots", we would have ordered our testimony differently and made sure that more community people were heard. We recognize that your time is - valuable too, and that long hours of hearings don't necessarily benefit enlightenment.

For the record, these people were present at the hearing and had planned to give oral testimony. They will submit written testimony instead:

Community Victims

Emma Santone, Berlin Twp., whose asthmatic daughter was "fogged" by a mesquite spraying truck in an Ocean City public park.

June Fletcher, Hammonton, whose granddaughter while undergoing chemotherapy for cancer was aerially sprayed with sevin in a senior citizen complex during a visit with her grandmother.

Lauren Regan reading for Kathleen Harding, whose child was born with multiple birth defects in Monroee Twp. after Kathleen was sprayed aerially with sevin. Tara is 11 months old and has accrued over 1 million dollars of medical expenses.

Mari Hanley, Marlton mother whose child's school had a pesticide application done in the library during school hours for termites.

Sandy Weiss, neighbor of a farm who has received drift from aerial or ground pesticide applications many times at her Marlton home.

Mary Ann Reinhart, neighbor of a farm in Shamong township - drift problems.

Kathleen Winstein, suffered organophosphate poisoning at work when her office was sprayed with Dursban. DEP found no use violation, but 17 people were sick and Kathleen has missed days of work because of continuing symptoms.

Dr. Steven Falkowski, Cherry Hill physician, the doctor who treated Mrs. Winstein, who wanted to urge the necessity of medical education and incident reporting in pesticide poisoning cases.

Farmers

Louise Willis, Monroeville farmer who supports the bill and who has personally been exposed to spraying by neighboring farmers. Her well is contaminated with Temek and she has to drink bottled water.

Joe Taylor, Riverside Farmer who supports the IPM concepts promoted in the bill. He uses very few pesticides on his 35 acre, 100 year old farm.

130x

-2-

Township Officials

Mayor Raymond Brosel, Evesham Township, presenting a resolution passed by town council in support of S-1342.
Wynne Falkowski, Evesham Environmental Commission Chairman, speaking in support of the ban on aerial spraying of broad-spectrum pesticides over residential areas. Her town has such an ordinance approved by DEP.
Sharon Ahern, E. Windsor Environmental Commissioner, whose town wrote an ordinance regarding aerial and ornamental notification, which was not approved by DEP. Drift studies and EPA recommended buffer zones offered as supporting evidence.

Technical Experts:

Neville Davis, Director, Salantic Health Services, of Folsom, N.J. a migrant health clinic which sees many instances of pesticide related illness among farmworkers.
Charles Horwitz, a Washington D.C. attorney who works for farmworker rights with the Farmworker Justice Fund. An expert on farmworker regulations from other states.

Organizations:

Paul Twerdowski, New Jersey Coalition For Alternatives to Pesticides, who was prepared to rebut the arguments against the bill as our final speaker.
Jeff Scott, Communication Workers of America, a labor union which represents most state workers, who support the bill.
David Copeland, Chairman of the Coalition Against Toxics, a community organization that works to reduce exposure to toxic pesticides when possible.
Dave Hull, Bergen County Audubon Society, who wished to offer testimony on the effects of pesticides on wildlife.
Ruth Fisher, CAPE, a Cape May citizens group who has worked on various environmental issues in addition to pesticides.

In addition, three members of NJCAP, Susan Shaw, Nancy Coleman and Lorraine Caruso didn't get heard, nor did the members of Ecology Watch of Montclair get a chance to testify.

We trust that the written testimony will be carefully reviewed by committee members, because all our supporting evidence for the need for S1342 lies therein.

Thank you for your attention to our needs.

Sincerely,

Jane Negaki, Chairman
Pesticide Right-to-Know Coalition
NJ Campaign Against Toxic Hazards

131x

The New Jersey Council of Churches

116 North Oraton Parkway • East Orange, New Jersey 07017 • (201) 675-8600

176 West State Street • Trenton, New Jersey 08608 • (609) 396-9546

*Supporting evidence
for J. Nagel
Statement.*

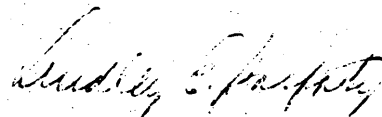
September 24, 1984

Dear Member of the Senate Energy and Environment Committee,

The New Jersey Council of Churches has a strong and continuing concern for the health, safety and general well-being of all the persons who labor on our New Jersey Farms.

At this time we urgently seek your support for S1342.

Yours sincerely,



Rev. Dudley E. Sarfaty
Director of Migrant Ministry

African Methodist Episcopal Church, New Jersey Conference • African Methodist Episcopal Zion Church, New Jersey Conference • American Baptist Churches of New Jersey • Christian Church, Northeastern Area Association • Christian Methodist Episcopal Church, Seventh Episcopal District • Episcopal Church, Diocese of Newark, Diocese of New Jersey • General Baptist Convention of New Jersey • New Jersey Synod - Lutheran Church in America • Presbyterian Church, U.S.A., Synod of the Northeast • Reformed Church in America, Synod of the Mid-Atlantics • Religious Society of Friends, New York Yearly Meeting • The Salvation Army • Union American Methodist Episcopal Church • United Church of Christ, Central Atlantic Conference • United Methodist Church, New Jersey Area

132x

Testimony of Dr. David Hall, Conservation Chairman, Bergen County Audubon Society

Sept. 24, 1984

RE: PESTICIDE CONTROL ACT (S-1342)

Senate Energy and Environment Committee, State of New Jersey

We oppose the current levels of use of broad spectrum pesticides because of their inability to distinguish between beneficial insects and harmful insects, the disruption of the chain of life which results, the direct toxic effects of pesticides on other species, and the significant safety questions which remain concerning human health. We are also disturbed that current usage patterns so often affect private property without permission or consent of the owners.

You may remember that the canary was once carried down into coal mines to indicate whether the environment was fit to work in. Likewise, our wild bird populations have served as an indicator of the health of our overall environment. When the first broad spectrum pesticides such as DDT were in use, it was changes in bird populations which signalled that these pesticides were not so safe as the chemical industry would have us believe. These pesticides do not discriminate between good and bad insects, they kill everything. Beekeepers get notification already, but homeowners & gardeners do not. The enormous losses to all insect populations leads to imbalances in the chain of life, starves bird populations that depend on insects for food, and is exterminating insects that our members view positively: butterflies, moths, & ladybirds for example. We have members who are trying to restore the wild populations of moths and butterflies, so that our children won't have to depend upon museums to see one. However, all of their efforts can be wiped out when pesticides are sprayed over their communities without warning. If the local park's shade trees are sprayed without warning, or a neighbor hires an aerial spraying service, the pesticide can easily drift onto neighboring properties, killing irreplaceable collections of living butterflies, for instance. This is one reason why we are concerned about proper notification, adequate buffer zones around agricultural spraying, and limitations on the indiscriminate use of broad spectrum pesticides. We believe that the individual citizen has a right to avoid having his property sprayed unnecessarily, and that the environment will be better served by more use of directed pest control measures such as integrated pest management (IPM) and less use of broad spectrum pesticides.

These are not the whims of a few oddballs, I might add. We have 1600 families who belong to Bergen County Audubon Society, and over 12,000 families statewide who belong to National Audubon. There are many more people than that who share our respect for the chain of life in the natural world.

Our second major concern is the safety of these pesticides. Again let me use bird life as an example. Besides the imbalances which develop from wiping out insect populations, we now know that pesticides such as DDT have direct physiological effects on vertebrates as well. We lost every peregrine falcon on the eastern half of the North American continent due to DDT. We almost wiped out the brown pelican, the bald eagle, and many other long-lived species. The DDT which they ingested built up systemically and

rendered them sterile. The few remaining bald eagles here in New Jersey are still functionally sterile due to DDT residues in their bodies from ten to twenty years ago. At the time, of course the chemical industry insisted that DDT was completely safe.

Now we are using a new generation of broad spectrum pesticides, and we hear a lot about how safe they are from industry spokesmen. When the EPA registered these compounds as safe for use, it is well known that exposure levels were often established by former Secretary Ann Gorsuch-Burford during cosy luncheon meetings with the industry representatives. Even the EPA's reports on pesticides have often consisted of cut and paste jobs where a company's own data sheets are inserted to look as if the EPA has done an independent study. Toxicity studies have often been farmed out to fly by night testing companies that actually fake the data out of whole cloth. To give one example, when the EPA looked at the pesticide studies of Industrial Bio-Test Inc. (IBT) in Illinois, they found that out of 1200 studies, 991 studies were fraudulent. Although the company officials were taken to court and three were convicted, seven years later the EPA had still failed to retest 737 IBT studies involving over 200 pesticides. How can the public feel secure about the safety of these 200 pesticides when the toxicity tests are known to be faked? None of these products was taken off the market until honest tests could be done; in many cases the tests still haven't been done, and other tests by other companies are often suspected to be faked as well. We know from the history of DDT that the residues of some pesticides are entering our bodies daily, accumulating each year in higher levels. We are the ultimate guinea pigs; we deserve to have our exposure to these compounds strictly limited to only the most urgent uses.

Too often these pesticides are viewed by general public as some sort of miracle cure against those pesky bugs; this sort of attitude leads to sloppy handling by the people who are in charge of spraying. As a result, the workers in the fields are overdosed, the fields are overdosed even when more precisely targeted methods such as IPM are available, and the surrounding environment is overdosed for no good reason. The chemical and agricultural industries complain about learning to cope with a new set of regulations; but that is just the point of this legislation - to force the users of pesticides to rethink their methods, reduce doses, switch to IPM methods where they are available, and better protect workers, the public and the environment. The users of pesticides must be forced to confront the scientific facts at hand: we can now detect pesticide residues at far lower levels and sometimes find significant health and environmental risks at even very low levels of exposure. The old blunderbuss methods of bug-killing must give way to more sophisticated, more responsible approaches.

Dr. David H. Hall
Conservation Chair
Bergen County Audubon Society
149 Runnymede Road
West Caldwell, NJ 07006
(201) 226-7825

DEAR SENATOR DAN DALTON
AND MEMBERS OF SENATE ENVIRONMENT
COMMITTEE,

I, DENISE DELIBERO FROM PT. PLEASANT, N.J.
HAVE BEEN EMPLOYED AS AN INTERIOR LANDSCAPER FOR
THE PAST 7 YEARS. I WISH TO ADDRESS THIS LETTER
TO SENATOR LESNIAK'S LEGISLATION RESTRICTING THE
USE OF PESTICIDES.

DURING THE YEARS OF 1977-1982 I WAS
EMPLOYED BY FOLIAGE PLANT SYSTEM INC. OF PINE BROOK,
N.J. I WAS EXPOSED TO PESTICIDES MANY TIMES
WITHOUT ANY INFORMATION ABOUT THE TOXIC CHEMICALS.
I WAS APPLYING. THE EMPLOYER INSISTED WE USE
PESTICIDES AND MADE IT MANDATORY. THE EMPLOYER
INTIMIDATED EMPLOYEES FOR NOT APPLYING CHEMICALS,
EVEN THOUGH NO EMPLOYEES WERE TRAINED OR
CERTIFIED AS A LICENSED APPLICATOR.

ONCE MY MANAGER TOLD ME TO SPRAY PLANTS
IN AN OFFICE BUILDING AND USE A RESPIRATOR
WHILE APPLYING THE CHEMICAL WHICH DID NOT WORK.
I WAS SICK FOR APPROXIMATELY 24 HRS. MY
SYMPTOMS WERE NAUSEA AND VOMITING. I THINK
I WAS SICK BECAUSE OF THE OVER EXPOSURE
TO PESTICIDES. I WAS NEVER TOLD THAT I MIGHT
GET SICK. EVEN ONCE. I WAS DIRECTLY EXPOSED
TO AN APPLICATION OF TENIK. NOW I KNOW
THAT THAT IS A DANGEROUSLY SERIOUS CHEMICAL.

I URGE YOU TO PASS SENATOR LESNIAK'S
BILL S1342 TO RESTRICT THE USE OF PESTICIDES
IN PUBLIC PLACES.

I'M CURRENTLY EMPLOYED BY A ENVIRONMENTALLY
CONSCIENCE EMPLOYER. MY EXPOSURE TO CHEMICALS
HAVE BEEN VERY LIMITED. WE ARE DECOURED FROM

USING TOXIC CHEMICALS AND ARE ALSO ENCOURAGED TO
BECOME CERTIFIED.

I GREATLY SUPPORT THE BILL AND HAVING
HAVING APPLICATORS CERTIFIED AND MOST IMPORTANTLY
THAT THE PUBLIC SHOULD KNOW WHEN THEY ARE BEING
EXPOSED TO PESTICIDES.

SIGNED,

Genesi Defina

September 13, 1984
362 South Terhune Ave
Paramus, New York 07652

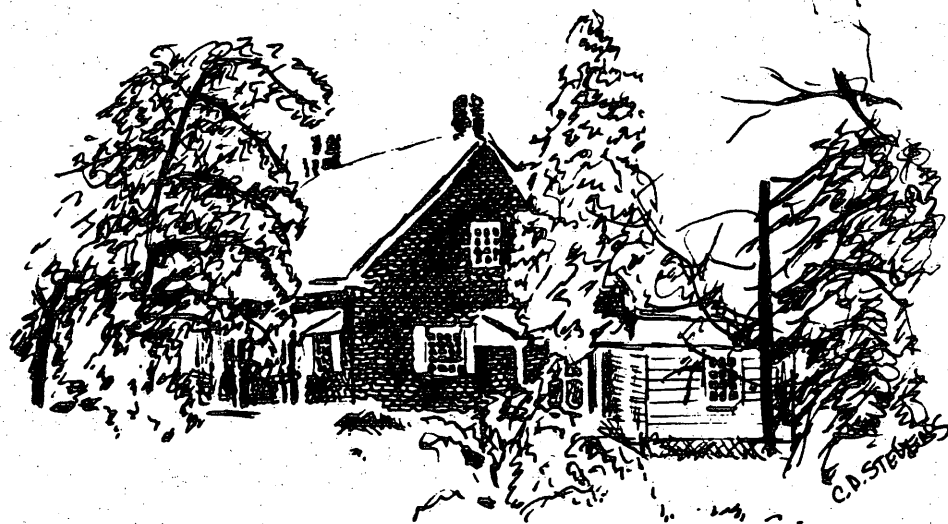
Senator Dalton
Energy and Environment Committee

Dear Sir,

This letter concerns Bill
Number S. 1342. I would hope
you and your committee would
be in favor of this bill, since
our environment has been
assaulted enough with the
spraying of aerial pesticides.

I have three young children,
and I am very concerned
for them.

Thank you,
Mrs Laurie A. Knies



Laura J. Allison
R.D.#2, 201 Ash Road
Atco, N.J. 08004
September 19, 1984

Dear

I strongly support the passage of the Pesticide Control Act (S-1342 Senator Lesniak, A-1536, Assemblyman Steve Adubato Jr.)

I live in Evesham Township, Burlington County. In past years, I have been unwillingly exposed to Sevin from aerial spraying as well as from ground spraying due to lack of proper notification. Advance notification is necessary, not only when aerial spraying is to occur but, also when ground spraying is to be done.

In the case of my own personal experience with ground spraying, I had been given no warning at all. Since spraying was being done on a windy day, the spray drifted over my backyard coating all my clean clothes on the line, my garden tools, my dog and myself. Therefore, I cannot emphasize enough, the importance of sufficient notification to surrounding neighbors when ground spraying is to be performed.

Sincerely

138x Laura Allison

*Roseanne Brown
Gibbsboro N.J.*

September 23, 1984.

To Whom It May Concern:

On May 9, 1982, Roseanne Brown was playing in the yard of a neighbor. While playing, she asked the neighbor at the next house what he was doing on his rooftop. He explained that he was spraying for gypsy moths. Later, Roseanne travelled into that same yard to play. That night her legs were covered with a rash resembling hives. By A.M. the rash had covered her abdomen. Telephone contact with the pediatrician indicated that it was a contact dermatitis and that Roseanne could attend school.

The rash continued to spread and Mrs. M. Pearce, the school nurse at Gibbsboro School sent her home and would not permit her to return to school until seen by a doctor.

Upon careful examination, Dr. M. Jacobson, D.O. indicated that the rash was the same as of other children that he had seen just after exposure to 'Sevin'. He ordered blood tests which showed traces of Alpha Naphal, a metabolite or breakdown product of the chemical 'Sevin'.

On May 11, 1982, Roseanne Brown, age 7, collapsed in the bathroom of her home at 6 Driftwood Way, Gibbsboro, N.J. She went into convulsions and remained in that major motor seizure for about 90 seconds. She then revived and was helped to her feet by her mother.

She went to her family pediatrician in Stratford, N.J. that same day. She was diagnosed as having had a major seizure with no apparent cause. Upon being thoroughly examined by her doctor, he ordered several tests to rule out the following possible causes of the seizure:

1. Brain tumor or tumors
2. Diabetes
3. Epillepsy
4. Encephalitis
5. Internal Bleeding

She was given the following tests to determine the cause:

1. Cat Scan - \$241.00
2. Electroencephlogram - \$127.00
3. Glucose Tolerance Test - \$19.00
4. Fasting Blood Sugar Test - \$46.00

Since that day, Roseanne has suffered no other attacks. Her Mother and I have taken great pains to shield her from any exposures to chemicals. A law requiring advance warning of spraying to residents would be very beneficial to allow parents like ourselves to contain their children indoors on the day in question. Also, limitation of private use of these pesticides would cut down on the threat to human safety and the environment.

The agony and inconvenience suffered by our family over this incident was monumental. I hope it will never be repeated again.

Sincerely,

Robert R. Brown (Father of Roseanne Brown)

Maureen V. Brown (Mother of Roseanne Brown)

WEST JERSEY HOSPITAL

P.O. BOX 677 - PENNSAUKEN, N.J. 08110

STATEMENT DATE

6/20/82

CALL 172-3805 BETWEEN

10:00 & 3:00 P.M. THROUGH P.M.

PAYMENT DUE UPON RECEIPT OF BILL

DATE	DESCRIPTION	AMOUNT	DATE	DESCRIPTION	AMOUNT
6/20/82	DEPT. HMO 504N	112.50			
	6.00 NJ PL. CROSS PAYM.				
	6.00 NJ PL. DISCOUNT				

11/1

IF PAID BY 6/20/82, PAY THIS AMOUNT 112.50
CONVULSIONS

CONFIRMATION 11/6.00

THIS ACCOUNT HAS BEEN CHARGED TO YOUR CREDIT CARD. IF YOU HAVE NOT RECEIVED PAYMENT AND MUST REQUEST REBATE FROM YOUR CREDIT CARD. IF YOU HAVE REQUESTED REBATE THEN PLEASE CONTACT YOUR CREDIT CARD.

DATE	AGREEMENT AMOUNT	DUE FROM PATIENT
PATIENT'S NAME	ACCT. NUMBER	DATE OF SERVICE
FUSLANNE	3346362	06/20/82

For proper credit to your account please detach at perforation and return this portion with payment. For billing information see reverse side.

RESPONSIBLE PARTY
11/21/82
11/21/82

STATEMENT OF ACCOUNT

PAYMENTS AND CHARGES RECEIVED AFTER THE DATE OF THIS STATEMENT WILL BE REFLECTED ON THE NEXT STATEMENT

YOUR INS CARRIER HAS NOT PAID YOUR CLAIM AS OF THE DATE OF THIS STATEMENT. PLEASE REMIT BALANCE IN FULL. THANK YOU.

PATIENT	BROWN, ROSEANNE	LAST STMT	05/29/82	PREVIOUS BALANCE	.00
05/19/82	CALCIUM BLD	8641		16.00	
05/19/82	CARBONDIOXIDE	8643		8.00	
05/19/82	ELECTROLYTES	8836		22.00	
05/19/82	GLUCOSE	8726		6.00	
05/19/82	CBC	8628		13.00	

.00
.00

EST
INS
DUE

.00
.00

FOR INFORMATION
TELEPHONE 609-784-1101

DISCHARGE DATE

PREVIOUS BALANCE

.00

STMT
DATE

06/24/82

ADM
DATE

05/19/82

CURR ACCT
BALANCE

65.00

ADDED CHARGES

65.00

PATIENT PAYMENT & ADJ

.00

INSURANCE PAYMENT & ADJ

.00

ESTIMATED INSURANCE DUE

.00

MAUREEN BROWN
6 DRIFTWOOD WAY
GIBBSBORO, NJ 08026

R 73174260

65.00

PATIENT NUMBER-REFER TO THIS NUMBER ON ALL INQUIRIES

JFK MEM HOSPITAL, STRAT. DIV. CDD

P.O. BOX 108

STRATFORD, N.J.

06084 102

143x

STATEMENT OF ACCOUNT

PAYMENTS AND CHARGES RECEIVED AFTER THE DATE OF THIS STATEMENT WILL BE REFLECTED ON THE NEXT STATEMENT

YOUR INS CARRIER HAS NOT PAID YOUR CLAIM AS OF THE DATE OF THIS STATEMENT. PLEASE REMIT BALANCE IN FULL. THANK YOU.

PATIENT **BROWN, ROSEANNE** LAST STMT **05/28/82** PREVIOUS BALANCE **127.00**
05/18/82 ELECTROENCEPH **5823**

:00		:00	
:00		:00	

FOR INFORMATION TELEPHONE	▶ 609-784-1101	STMT DATE	06/17/82	ADM DATE	05/18/82	CURR ACCT BALANCE	127.00
DISCHARGE DATE		PREVIOUS BALANCE	.00	ADDED CHARGES	127.00	PATIENT PAYMENT & ADJ	.00
						INSURANCE PAYMENT & ADJ	.00
						ESTIMATED INSURANCE DUE	.00

MAUREEN BROWN
6 DRIFTWOOD WAY
GIBBSBORO, NJ 08026

R	73173783	127.00
PATIENT NUMBER-REFER TO THIS NUMBER ON ALL INQUIRIES		
JFK MEM HOSPITAL, STRAT. DIV. CDO		
P.O. BOX 106		
STRATFORD, N.J.		
		08084

DATE		ACCT. NO.		DR. #		SERVICES		CHARGES		PAYMENT		ADJ.		CURRENT BALANCE		PREVIOUS BALANCE		PATIENT NAME					
DIAGNOSIS:						<i>Major Motor Seizure</i>						ICDA #7802		ICDA #		ADDRESS CHANGE ☐ (SEE BACK)							
OFFICE - 01; IN-PATIENT - 02; OUT-PATIENT - 03						MODIFIER						SUBMIT INSURANCE ☐											
CODE		OUT-PATIENT VISITS		FEE		CODE		IN-PATIENT CARE		FEE													
90754	Comprehensive Initial Visit (Under 1 Yr.)					90285	Hospital Newborn Care																
90753	Comprehensive Initial Visit (Age 1-4)					90283	Attendance at Delivery																
90752	Comprehensive Initial Visit (Age 5-11)					90284	Attendance at Cesarean Section																
90751	Comprehensive Initial Visit (Age 12-17)					90280	Initial Day Neonatal Intensive Care																
90082	HMA (Under 4 Yrs. Old)					90281	Subsequent Day Neo. Intensive Care																
90083	HMA (Over 4 Yrs. Old)					90282	Neonatal Transitional Care																
90754	Extensive Office Visit					90288	Continuous Nursery Care																
90763	Intermediate Office Visit					90220	Initial Day Pediatric Care																
90762	Brief Office Visit					90260	Subsequent Day Pediatric Care																
90026	Extended Office Consultation					90286	Initial Day Pediatric Intensive Care																
90021	In-Office Consultation					90287	Subsequent Day Pediatric Intensive Care																
90517	Out-Pt. Emergency Visit					90610	Comprehensive Hospital Consultation																
95010	Allergy Evaluation					90446	Referring Phys:																
	PROCEDURES					90229	Prolonged Hospital Attendance (_____ Hrs.)																
97261	OMT					90444	Admission Date: _____																
95011	Allergy Testing					90445	Discharge Date: _____																
	Office Surgery						OFFICE LAB PROCEDURES																
36400	Venipuncture					85014	Hematocrit																
10060	Incision and Drainage					87081	Urine Culture																
54150	Circumcision					81001	Dipstick Urinalysis																
51000	Bladder Aspiration					87184	Throat Culture																
90089	Complete Vision Testing					81002	Urine Test for Reducing Substances																
90520	Pelvic Examination					89451	Stool PH																
36425	I.V. Cutdown						ADDITIONAL INFORMATION																
96000	CPR																						
31500	Endotracheal Intubation																						
36510	Umbilical Venous Catheterization																						
36620	Umbilical Arterial Catheterization																						
36601	Arterial Puncture																						
62270	Lumbar Puncture																						
99820	Phototherapy																						
93930	Artificial Ventilation																						
93931	CPAP																						
36450	Exchange Transfusion																						
32000	Thoracentesis																						
32015	Thoracostomy with Tube Drainage																						

573 N. Coles Ave
Maple Shade, N.J.
Sept. 8, 1984

Dear Senator Dalton and Committee Members,

I am writing in regard to the 51342 Lesniak Bill.

For health reasons, I will not be able to attend the September 24 meeting, but would like my name known as to why I am in favor of this bill.

I live in Maple Shade and the property directly behind my home is used as a farm for crops which must be sprayed. I realize this spraying is a necessary precaution the farmer must take and I am not against that. However, I would prefer a warning in advance when he is going to spray the crops so I may take some preventive measures such as the following:

- 1.) If I know in advance about the spraying, I will not hang out my laundry that day.
- 2.) It will enable me to put children's toys inside.
- 3.) I can keep my windows and doors of my house closed.
4. Also, the children can play indoors to be protected from any dangers from the spray.

These measures would give me peace of mind to know that by advance warning of the spraying my children's and my health (I have a lung disease) would be better protected by staying indoors at the time of the spraying.

Also, this should not inconvenience the farmer. He can still spray his crops — just let us know in ad-

vance when he plans to do so.

Thank you very much.

Joan Custace

52 LANC: ROAD
MAPLE SHADE, N.J 08052
Sept. 10, 1984

Dear Senator Dalton and Committee Members,

I am writing in regard to the S1342 LESNIAK Bill. I cannot be present on September 24 because I have small children at home, but I do want my opinions known as to why I am in favor of this bill.

I live in Maple Shade and the area directly behind my home is used as farm land. I realize that the farmer has to spray his crops. I am not asking that he stop, but I am asking for a warning of when he is going to spray the crops, so that I can take some prevention. Some of the measures I would take are as follows:

1. take my clothes off the line - I am afraid to hang out my clothes because I never know when they will come down and spray their crops and I don't want my clothes sprayed.
2. put my children's toys away
3. close my windows and door in the house
4. keep my children inside.

I don't feel that this is too much to ask and this bill will give me peace of mind and I don't think that it will hurt the farmer.

147x

Thank-you very much,
Michelle Chiasso

552 Burlington St
Paramus, NJ, 07652
Sept 6, 1984

Dear Senator Dalton,

Senator Lesniak has sponsored a bill, S. 1342, which I strongly support and request the senate to pass. Also I request your support for this environmentally important bill.

In my community many concerned citizens have tried in vain for an ordinance at the local level. We need this bill to insure our protection even when local officials are reluctant to monitor pesticide usage.

We need this bill to insure aerial spraying in residential areas will be discontinued.

We need this bill to insure notification before pesticides are sprayed to allow people to protect themselves from unnecessary pesticide exposure.

Please try in your capacity as a decision maker to weigh carefully the risks of pesticides and make decisions we can all live with, in health, now and in the future.

Thank-you for your consideration of my protection.

148x

Sincerely,
Judy Albert

September 17, 1984

TO WHOM IT MAY CONCERN:

1983
In January or February I became pregnant. We questioned the doctor at length about things I was to stay away from, such as; no smoking, no caffeine, no drugs, no new activities, etc. We even checked to see if it was okay to have our dog, Rusty and our bird, Bobby.

Every thing was going beautifully until we became aware that the township wanted to spray "Davin" for the control of gypsy moths. My husband and I went back to the doctors and asked if this was okay and we were told that any aerial spray would be fine except "Sevin!". We tried fighting the spraying every way we knew; writing the White House, attending the township meetings and begging the board not to be sprayed and even leaving town for two weeks waiting for the spraying to take place. All to no avail! I had to return home because my other two daughters were missing to much school. On the Friday after I returned from Michigan, I received a phone call telling me that we would be sprayed in fifteen minutes. 15 MINUTES! I then asked the gentleman what I could do in fifteen minutes notice and he said there was nothing I could do but stay indoors. Which I did! We didn't think anymore about it because there was nothing we could do at that time.

On October 4, 1983, Tara Renee Harding came into the world at 6:53 P.M. Weighing in at 6 lb, 6 oz. - 18 inches long and the most beautiful red-head we had ever seen. As the nurses were cleaning our child, she made one small sound, the first and the last we would hear for more than 7 months, as Tara Renee was transferred to Childrens Hospital of Philadelphia on October 5th, with some of the most hideous internal birth defects I have ever seen. Interrupted Aortic Arch, Ventricular Septal Defect, HiGeorge syndrome, Tracheal-Bronchial Malacia, Tara has had eight major operations leaving her with sixteen ugly scars. The list of drugs given to Tara in her first five months of life is longer than a normal person would have in a life time. Tara had IVs surgically implanted - 9 at one time - because every vein in her body has been infiltrated. She has had bleeding ulcers, Grand Mall Seizures that have left her blind, deaf and possibly brain damaged. She had a surgical procedure to have her stomach wrapped around her esophagus, she also has a gastrostomy tube as she cannot be fed any other way. The things we have had to learn to do to keep Tara alive should have earned us a medical degree by now! I cannot begin to tell you how much suffering, deprivation, and hurt we have endured. The medical expenses right now are at \$1.2 million. We have the expense of three shifts of nursing seven days a week for as long as insurance will pay. When they stop, Tara will have to be institutionalized because we just are not equipped to handle the situation alone.

We can't do alot of the things we would like to do with our daughter because of her inability to fight infection. I can't take her for a walk around the block because I don't know what my neighbors might have sprayed on there lawn's. Every time a plane goes over head spraying something we run the risk of losing Tara because we don't know what is being sprayed. We can't depend on any notification in advance because that just doesn't happen. Tara's whole trouble could have been prevented with a little advance warning. It should be a crime that during the course of trying to destroy a "bug", we are destroying our most precious and prized resource, ---our children---! With out our children, where is our future???

If this was an isolated incident, I wouldn't be writing you, but we have over twenty other families going through the same agony we are. Most of the other families children didn't survive the spraying, Tara is very much alive right now but at what expense? She doesn't sit-up, roll over, pick anything up with her hands, or even hold up her head, to this day, Tara has never smiled! You tell me what her quality of life will be? The parents whose children didn't survive are very lucky, they don't have to go through the living hell we are going through!

I am sorry if this is to long, but I thank you for your time in allowing this to be read. We could not attend this meeting for obvious reasons.

Sincerely,

Paymon & Kathy Harding
Paymon & Kathy Harding
Williamstown, New Jersey

Charlotte Cohen
327 Harrison St
W. Berlin, Md
08071

September 15, 1984

THE FOLLOWING IS A STATEMENT OF SOME OF MY PERSONAL
EXPERIENCES INVOLVING BROAD-SPECTRUM SPRAYING THAT WAS DONE
WITHOUT NOTIFICATION:

My first experience with broad-spectrum spraying took place in the Late Spring/Early Summer of 1981, at which time I was five to six months pregnant with my third child. In my routine discussions with my obstetrician, I was cautioned to be careful as far as exposure to chemicals of any kind. It was at this time that I found out about the pesticide, Sevin and how largely it was being used for the gypsy moths. My doctor was greatly concerned about the possibility of my being exposed to Sevin. Needless to say, I expressed my concern to my family, friends and neighbors. Some of my neighbors either chose to ignore my concern or they took my concern lightly, for during this period I discovered immediately after the fact that I had been exposed to Sevin at least six (6) times that I know of. I would like to mention that at least three (3) of these sprayings were aerial. Even though it was "after the fact", my doctor still advised me to leave the area for quite awhile after each of the sprayings; he felt as though this would be the ideal thing to do for the welfare of my unborn child as it takes approximately seven (7) days for each application of Sevin to break down. I tried to leave town the first time; in fact, I did. But the frustration I felt taking my two school age sons out of school and leaving the area, only to return to be immediately sprayed again, I knew then that the spraying was out of my control but it was affecting my life in many negative ways. It is frightening to become educated about the chemical Sevin while you are pregnant. Sevin has been linked to stillborn babies, miscarriages and other birth defects; these are just some of the possible side effects. This pregnancy meant alot to me. It started out to be a joyous time of life for me and my family but thanks to broad-spectrum spraying without notification, the final three months of the pregnancy were torturesome. I waited with dread to see what, if any, toll the numerous exposures to Sevin had taken on my baby.

I deeply resented the fact that just anyone can hire a plane and spray what they will over any area they choose without any regard whatsoever for human life!

I CONTINUED TO BE CONCERNED ABOUT BROAD-SPECTRUM SPRAY-
ING WITHOUT NOTIFICATION OVER THE SUCCEEDING YEARS. IT SEEMS TO
WORSEN WITH EACH NEW GYPSY MOTH SEASON. HOWEVER, THE NEXT EXPERIENCE

PAGE 2:

I WOULD LIKE TO RECOUNT TO YOU INVOLVING BROAD-SPECTRUM SPRAYING WITHOUT NOTIFICATION TOOK PLACE JUST THIS YEAR. I WASN'T PREGNANT THIS YEAR, SO PERHAPS IT WASN'T QUITE AS EMOTIONAL; PERHAPS THERE WASN'T AS MUCH AT STAKE -- OR WAS THERE? IT DEPENDS ON YOUR OWN PERSONAL POINT OF VIEW. EVERYONE HAS A RIGHT TO DECIDE FOR THEMSELVES. BROAD-SPECTRUM SPRAYING WITHOUT NOTIFICATION TAKES AWAY THAT RIGHT:

One day in May, 1984, I finished hanging my clean laundry outside and called my baby away from her toys which were laying in the yard and we went shopping. Upon my return, another neighbor who was concerned about my feelings advised me that in my absence, my next-door neighbor had had his property sprayed by professionals, using high-pressure hoses. I approached my next-door neighbor about it asking what chemical had been sprayed and why he hadn't notified me in advance. His reply was that I hadn't been at home when they arrived to spray. This was not acceptable to me. I feel as though I was entitled to due notice in advance. I was adversely affected by the spraying of his property. My laundry, my children's toys were all covered with Sevin. In fact, an eye witness later told me that the men had to stand in my yard on my property to adequately spray my next door neighbor's property!

IN CONCLUSION, AS THE GYPSY MOTH PROBLEM CONTINUES TO GROW IN THE SOUTH JERSEY AREA, THE PROBLEM OF BROAD-SPECTRUM SPRAYING WITHOUT NOTIFICATION ALSO CONTINUES TO GROW. THIS YEAR, EVERY TIME I WENT OUT, IT WAS NOT UNUSUAL TO SEE NEIGHBORS EMPLOYING PROFESSIONALS WITH HIGH-PRESSURE HOSES -- MOST DID THIS WITH NO NOTIFICATION TO THEIR NEIGHBORS. I ALWAYS LOOKED FORWARD TO SPRING; NOW IT IS A TIME OF WORRY OVER THIS ISSUE. MY RIGHTS AND MY FEELINGS ARE TRAMPLED OVER EACH TIME SOMEONE IN MY AREA HIRES A PROFESSIONAL TO SPRAY WITH HIGH-PRESSURE HOSES AND GIVES ME AND MY FAMILY NO WARNING WHATSOEVER. TO SAY IT IS FRUSTRATING IS TO PUT IT MUCH TOO MILDLY.....

152x

*Very truly,
Charlotte Cohen*

To Whom It May Concern:

I am a resident of Hainesport Township and have been exposed to aerial pesticide spraying in 1981, 1982 and 1983. I was very much against such spraying, but my neighbors wanted the spraying.

Although notices were put in my mailbox of impending spraying, several times the time had to be changed and a person never really knew when the spraying would occur. If I had known I could have left town, but why should I have to!

In 1982, the plane went over early in the morning and just to be sure I called the township office and asked if the pilot was finished with our section. I was told, "yes". At 11 a.m., to my horror, my pets and I were outside when a low flying plane came swooping down with spray. He went over a few more times and left.

I believe that the new amendments will really protect the innocent resident against this dangerous material. I should have just as much right to refuse spraying of my property as my neighbor has to hire someone to poison theirs.

Even though the pilot of the plane told me that he could miss my property, that is impossible when my neighbor is 50 yards away and taking into account the drift.

In all fairness the Pesticide Control Act Amendments should be accepted.

Thank you.

Sincerely,

Lucile P. Burk

Lucile F. Burk

79 Arbor Meadow Dr.
Sicklerville, N.J. 08081
Sept. 17, 1984

Dear Senator Dalton and Members of His Committee,

Thank you so much for the opportunity to share with you my experience concerning the aerial spraying of broad spectrum pesticides. I must first say that I feel that there is a lack of knowledge about the danger of aerial spraying of pesticides throughout the general public. This lack of knowledge cost myself and some of my neighbors our unborn children.

Seven years ago my two year old daughter and I and many of our friends stood on the steps of our homes. We watched the aerial spraying of the farm bordering our development. Many of us moved to this development of two hundred and fifty homes in lower Camden County, from the city. We were in awe of how low the plane flew while spraying the fields. I remember telling my daughter to look up and see the plane as it flew over our house, still releasing the spray. This was a very young community and many couples were just starting their families. We were expecting our second at the time. I never thought that there was anything dangerous falling from the plane. The government would never allow a possible deadly chemical to be sprayed over a community of uninformed people. So we all stood and got sprayed.

Two months past and I had forgotten that day. That was when I learned a very hard lesson. You see, myself and seven neighbors miscarried or delivered stillborn babies. It was some time before we put two and two together and remembered that we all had stood and watched that plane spraying the farm around our homes. My best friend and I whose baby was born dead remembered reading about the possible danger in the pesticide Sevin. We decided to ask the farmer what had been sprayed on us that day. He refused to tell us. He said that he was within his legal rights. That he could spray whatever he wanted, whenever he cared to on his farm. We to this day do not know what was sprayed on us. But, I can't believe that all eight of us lost our babies all within a month just by chance.

This is why I support the Bill that is in front of your committee. If we had been notified that day I know for a fact that we would have left the area. At least we would have had a choice and some control over our lives and the lives of our unborn children. I wonder how many other lives could be saved by the simple notification when this type of spraying is going to take place. I also wish that the public could be informed of all known dangers connected with these pesticides.

Please support this Bill. I know that there will be changes made in it. But I hope that in the end that those of us who must rely on this type of legislation will not be disappointed.

Respectfully,

Mrs Shirley Himeback

Mrs Shirley Himeback



Cherry Hill Environmental Action Committee

September 20, 1984

Senate Energy & Environment Committee
The Honorable Senator Daniel Dalton, Chairman
Trenton, N.J.

Dear Senator Dalton and Committee Members:

I am writing to you on behalf of myself and the Cherry Hill Environmental Action Committee, and as a result of our experiences with pesticide spraying incidents, we are pleading with you to approve bill S-1342 (Proposed Committee Substitute for S-1342), and get this bill out of committee and onto the full Senate floor for a vote. It is a much needed and long over-due bill to help minimize the health hazards to people exposed to pesticide applications.

We support a ban on aerial spraying of broad-spectrum pesticides for non-agricultural use.

We support all notification requirements to the public and other special groups of people who are vulnerable to pesticide poisonings (e.g. farm workers, children). For minimal costs to farmers and pesticide applicators, notification will go a long way in allowing informed people to protect themselves from pesticide contamination which

September 20, 1984
page 2

often results from aerial and ground spraying with high-powered equipment.

Passage of this bill will prevent in the future the kinds of horror stories listed below which occurred locally during the past three years:

① In 1981, an aerial applicator was discovered dumping pesticide residues & empty containers from his airplane at the edge of a farmer's field, in a small stream, adjacent to a small housing development in Pemberton. For several years, children living in the houses closest to the site had been complaining of headaches, nausea, rashes, and allergies. The parents did not know in advance when the sprayings would take place, nor could they obtain the name of the chemical used, and did not keep the children inside or away from the stream. DEP was called in to investigate, but did nothing to follow-up, and lost the well water test results.

② In 1982, Cherry Hill Township voted to spray ~~for~~ for gypsy moths, with Sevin. People who did not want to be sprayed put up balloons. Following the spraying of the Township this non-profit, volunteer group received two dozen phone calls referred by the Township to us, of complaints about how the aerial applicator ignored their balloons and sprayed them, anyway also, some reported that their small children had been outside when sprayed, because some parts of the Township were not sprayed on the scheduled day. These people complained that

their children suffered adverse reactions that day (nausea, flushing, breathing difficulties, etc.)

③ In 1983, Cherry Hill Township did not spray, but a group of neighbors a few streets away from me got together and hired an aerial sprayer to apply Sevin, for ornamental spraying of their trees, against gypsy moths. The airplane pilot, an experienced applicator, told the block representative that no one need be notified. On a sunny, and slightly breezy Saturday morning, the airplane made more than a half dozen passes, low over my house, as he repeated applications and flew over the adjoining elementary school. He was there as late as 8:00 A.M. in the morning, and shortly after 9:00 A.M., parents took their children for little league & other ball practice in the school's ball field, less than 500 ft. from the pin-pointed spray area. Nobody, except me (I recognized that particular airplane) and the few neighbors who contracted for the spraying knew that it had taken place. There were already joggers, lawn cutters, and pets outside by 8:00 A.M.

Sincerely yours,

Marlene Jaffe

MARLENE JAFFE

CHAIRPERSON

September 19, 1984

To Whom It May Concern:

On August 14, 1984 an organophosphate insecticide known as Dursban LO was sprayed throughout my place of employment while I was working. I was unaware that the insecticide was being sprayed. Approximately two hours after the spraying began I fell ill along with 17 other people. I was transported to the hospital on oxygen with various symptoms of organophosphate poisoning and treated in the emergency room. I am still experiencing various symptoms due to the exposure and still remain under a Doctors care.

I was out of work for five weeks as a result of this incident. Two police officers and several emergency squad members who entered the building to come to our aid were also treated at the hospital.

Who is the judge here? A persons life is too valuable to take such a risk as was taken by the insecticide company and my employer. One of my co-workers was admitted to the intensive care unit and remained in the hospital 5 days.

Had proper notification been given by the insecticide company to my employer, also if my employer was made aware of the danger of spraying an insecticide while people were working in the building--maybe my employer would have given us the option to leave the job, then again I don't think they would have allowed spraying if that were the case--maybe this serious accident could have been avoided.

Sincerely

Kathleen T. Windstein

Kathleen T. Windstein
15 Minisink Trail Rt 2
Vincentown, N.J. 08039

18 at firm overcome by fumes

(Continued from Page 1)

clude it ever happening again."

Dursban L.O., explained the DEP official, is a broad-spectrum chemical compound manufactured by the Dow Chemical Co., and used to treat a variety of insects such as ants, termites and roaches. The "L.O." designation, he said, means "low odor."

"Dursban affects the central nervous system," he said, "and if humans absorb it through the skin or mouth, it can cause tiredness, dizziness, diarrhea and headaches. In higher amounts, it can cause seizures like convulsions."

"In fact," he said, "Dursban kills insects by causing muscle spasms leading to convulsions."

As reported by Moorestown police, officers received a call at 8:44 p.m. from a Western Union worker, requesting emergency squad aid for another worker who had passed out.

At 9:07 p.m., police said, a second call sought help for three more workers who had also fainted.

Police said two patrolmen dispatched to Western Union, Robert Summers and William Swan, complained of headaches and numbness in their fingertips.

The 18 victims of exposure to toxic fumes were treated at Memorial Hospital of Burlington County in Mount Holly and Zurbrugg Memorial Hospital's Rancocas Valley Division in Willingboro.

Admitted to Rancocas Valley's intensive care unit for treatment of a seizure was Western Union employee Audrey Rice Elliott, 30, of Edgewater Park. She is listed in stable condition today.

Also treated at Zurbrugg, then released, were employees Sharon McPherson, 24, of Pennsauken, and Darlene Wilson, 28, of Woodbury.

Taken to Memorial Hospital were employees Kathleen Windstein, 30, of Southampton, Joan Litzinger, 40, of Evesham, Rose Powell, 27, of Mount Holly, Karen Ronanchik, 23, of Merchantville, and Eileen Decker, 35, of Cherry Hill. All were treated and released.

Also treated at Memorial Hospital, then released, were patrolmen Summers and Swan, and emergency squad members David Gorenberg, 23, Anthony Green, 25, Ritchie Bowman, 24, Roderic Vitty, 21, Jacob Freedman, 23, and a 16-year-old squad volunteer whose name the hospital withheld due to his age.

18 at firm overcome by fumes

By Lysbeth Bledsoe

Times staff writer

MOORESTOWN — State Department of Environmental Protection (DEP) investigators are inspecting the Western Union building on Route 38 today to learn why eight company employees required hospital treatment Tuesday night within hours after offices in the building were sprayed with a commonly used pesticide.

Also requiring hospital care were eight members of the Moorestown and Lenoix emergency squads and two township police officers, who entered the Western Union plant to assist the stricken workers.

"We'll see if the pesticide (Dursban L.O.) was misused, that is, not applied in accord with package directions," a spokesman for the DEP's Bureau of Pesticide Control Operations said yesterday.

"We're taking samples of carpeting, swabs from painted wall surfaces, and possibly even residual air samples, for testing in our environmental laboratory in West Trenton over the next several days," the spokesman said.

If misuse is indicated, he continued, DEP will get "additional information from the pest control company, to see what their records show."

"We will also see if the spraying caused any injuries and, depending upon their extent, issue a notice of prosecution," he said. "If prosecution is successful, penalties could run as high as \$3,000 per violation."

Stephen Teglas, a Western Union spokesman, said Universal Sentinel Pest Control Co. in Philadelphia had sprayed the pesticide on carpets in rooms "where people weren't working," between 6:30 and 6:45 p.m.

"We've had this done before and never had this reaction," Teglas said. "We are going to re-examine the situation to prevent it from happening again."

(Continued on Page 6, Col. 1)

Paul Inglesby
2101 Ferry Ave Room 403
CAMDEN, N.J. 08101
(609) 757-5181

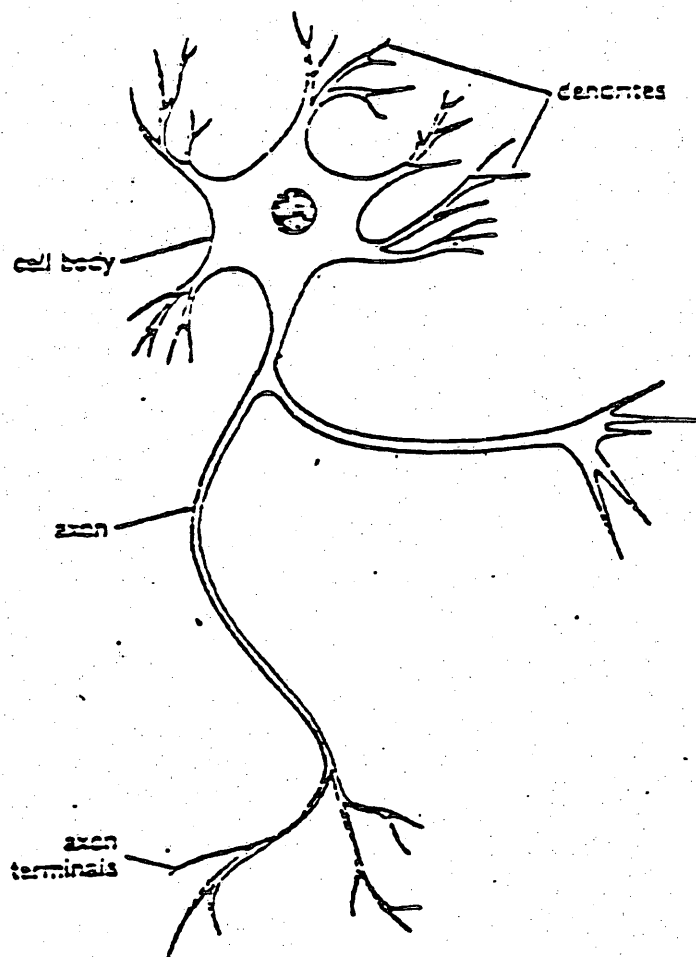
(1). ORGANOPHOSPHATES - (ORGANOPHOSPHORUS). The organo-phosphate pesticides exert their effect by inhibiting cholinesterase. In order to understand their mode of action we must first understand some basic biological pathways, i.e., the pathways of the nerve cell.

A cell is the smallest fundamental unit of a living organism. There are many different types of cells, but basically they are all structurally the same, for all are composed of a nucleus and cytoplasm. A neuron is a nerve cell. Many neurons make up a nerve fiber. A neuron is a highly specialized cell characteristically distinct in shape (Fig. II). Its function is to transmit impulses. This is accomplished in two ways: electrically and chemically.

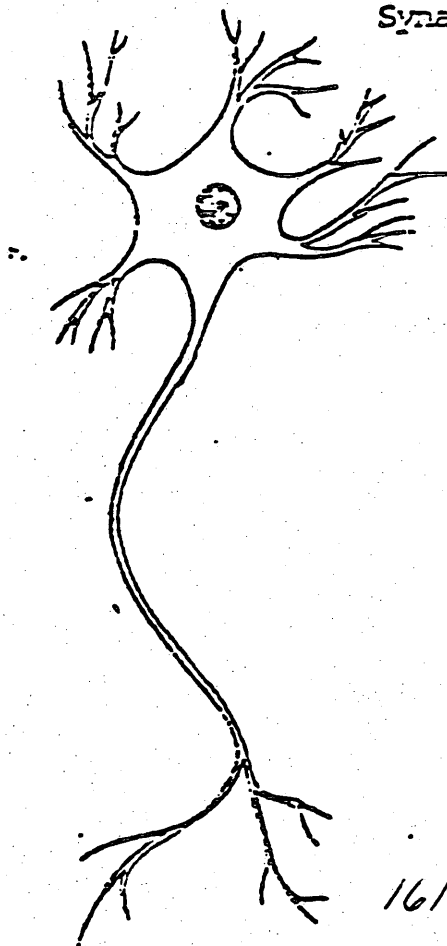
The sequence of events leading to a response to a stimulus is as follows: the neuron is stimulated; and the impulse is transmitted electrically through the neuron, to its terminal or nerve ending. At the terminal, the signal is transmitted chemically to the receptor (this could be another neuron, muscle fiber, ganglia, etc.) by way of a neurotransmitter -- norepinephrine and acetylcholine. The gap between the nerve ending and the receptor is termed the synapse.

Acetylcholine is released at the axon terminal and transmission takes place. An enzyme, acetylcholinesterase

Figure II - Diagram of Neuron and Synapse



Synapse (*)



161x

(AChE) will act on acetylcholine to break it down and free the receptor (Fig. III).

a. Effects. Organophosphates are powerful inhibitors of cholinesterase. Cholinesterase includes acetylcholinesterase, which is present in red blood cells, nerves and skeletal muscle. OP also inhibit pseudo cholinesterase present in human plasma (serum) and in the liver.

Where the function of acetylcholine and acetylcholinesterase is understood, there is some controversy in the literature as to the actual function of the pseudo cholinesterase. Some consider it to excite smooth and cardiac muscles locally.¹ Others indicate that serum cholinesterase fulfills no known function.² However, its activity is a sensitive indicator of liver function as serum cholinesterase is synthesized by the liver.

As a result of AChE inhibition, acetylcholine molecules accumulate at the synapse, initially causing excessive excitation and later leading to the blockage of the synaptic transmission. The blockage of synaptic transmission results in paralysis (Fig. III).^{3,4,5,6}

Organophosphates are rapidly absorbed into the body by inhalation, ingestion and through the skin, including the eyes. The manifestation of OP poisoning depends on the dose, route of exposure and the specific pesticide being handled. The onset of symptoms could be immediate or delayed for several hours after exposure. Most organophosphates undergo biotransformation reactions. A biotransformation

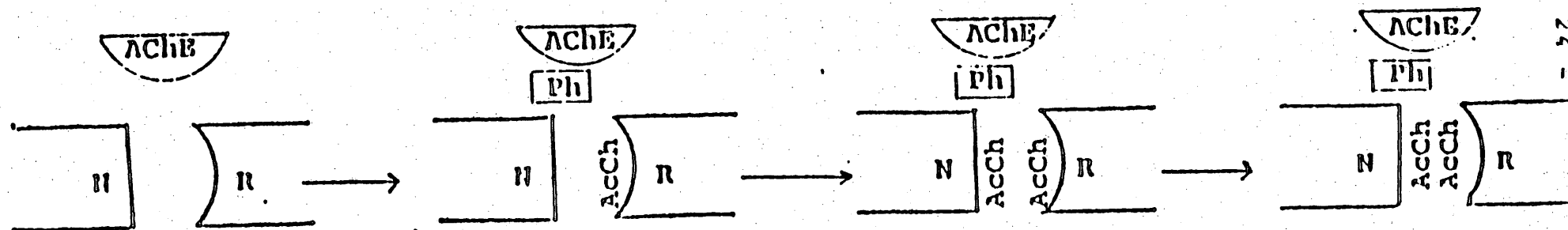
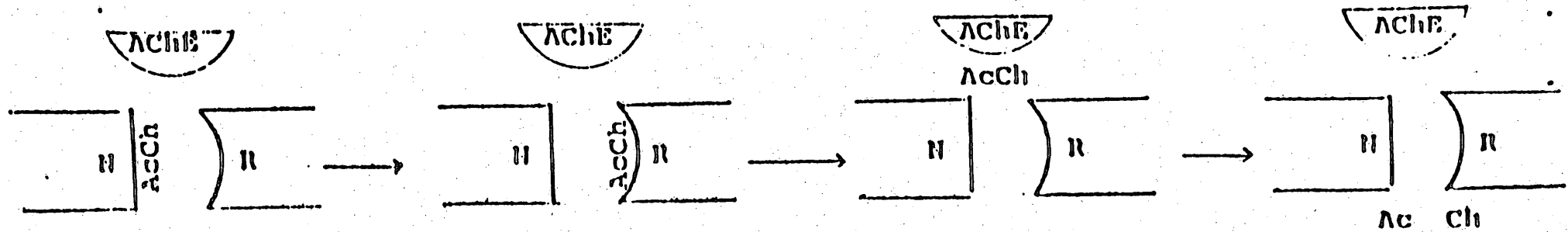


FIGURE III - Acetylcholine Transmission, Normal and OP poisoning

Ac = acetic acid

AcCh = acetylcholine

AChE = acetylcholinesterase

Ch = choline

N = nerve ending

Ph = phosphate group of organophosphorus compound

R = receptor (nerve cell, muscle cell, ganglia, etc)

reaction is a result of the body trying to deal with the poison. In metabolizing the organophosphate, it is often activated or converted to a more potent toxicant, i.e. malathion-malaoxon, parathion-paraoxon.⁶ The conversion can also take place outside the body by what is termed photochemical oxidation.⁷ The sun rays will convert the organophosphates into a different chemical structure, also resulting in -oxon formation. This happens in very sunny hot-dry days. It does not happen as much in sunny hot-humid days. The amount of moisture or humidity in the environment as well as the amount of sunshine affect the activity of the OP's in the environment.

b. Symptoms. Acute intoxication by organophosphates results in cholinergic effects, where cholinergic refers to any synapse where acetylcholine is released. The symptoms are described as muscarinic, or effects associated with smooth and cardiac muscles, and nicotinic, effects associated with skeletal muscle. Table VII is a brief description of these symptoms. The central nervous system (CNS) is also affected by the accumulation of acetylcholine. The CNS symptoms are also described in Table VII.

When the poisoning is mild, the symptoms are: headaches, fatigue, dizziness, blurred vision, excessive sweating, nausea, vomiting and cramps. These symptoms are similar to many other diseases not related to pesticide exposure such as influenza and heat stroke, and as a result,

TABLE VII

SYMPTOMS OF ORGANOPHOSPHATE POISONING

Muscarinic

tightness in chest
wheezing suggestive of broncho-
constriction
increased bronchial secretion
cough
cyanosis
nausea
vomiting
abdominal tightness and cramps
diarrhea
fecal incontinence
increased sweating
increased salivation
increased lacrimation
bradycardia (low heart beat)
fall in blood pressure
miosis or pinpoint pupils
(occasionally unequal)
blurring of vision
frequent urination and
incontinence

Nicotinic

muscular twitching
muscular fasciculation
cramps
muscular weakness
including muscles of
respiration results in
respiratory depression

CSN

giddiness
tension
anxiety
restlessness
emotional instability
neurosis
impairment of memory
excessive dreaming
insomnia
nightmare
headache
tremor
apathy
withdrawal and depression
drowsiness
difficulty in concentrating
confusion
slurred speech
ataxia (inability to coor-
dinate voluntary muscular
movement)
generalized weakness
coma with absence of reflex-
convulsion
depression of respiratory
and circulatory centers
cyanosis (deficient oxygenation
of the blood, results in
bluish color)

mild OP poisoning is often unreported and/or misdiagnosed.

Severe poisoning includes all the symptoms of mild poisoning in addition to: inability to walk, tightness in chest, muscle twitching and miosis (pinpoint pupils). Symptoms may be mistaken for pneumonia, heart attacks, but the miosis would be indicative of OP poisoning.

Under extremely severe poisoning, the individual will have generalized seizures which can result in unconsciousness and death. It should be noted that when OP poisoning is very advanced, the pupils will no longer be constricted, extreme dilation is then observed.

After a lethal dose, death occurs within 24 hours if not treated immediately. Death is associated with respiratory failure. Often failure to provide adequate oxygenation during treatment results in permanent brain damage. After sub-lethal doses--doses that are potentially fatal if not treated promptly--reversal occurs, and when the cholinesterase activity is back to normal the individual is not more susceptible to OPs than individuals who have been exposed.

c. Confirmation. Depression of plasma and/or red blood cell cholinesterase activity is the best method of confirming OP poisoning. Depression of plasma cholinesterase

often persists from one to three weeks; depression of red blood cell cholinesterase persists up to 12 weeks.

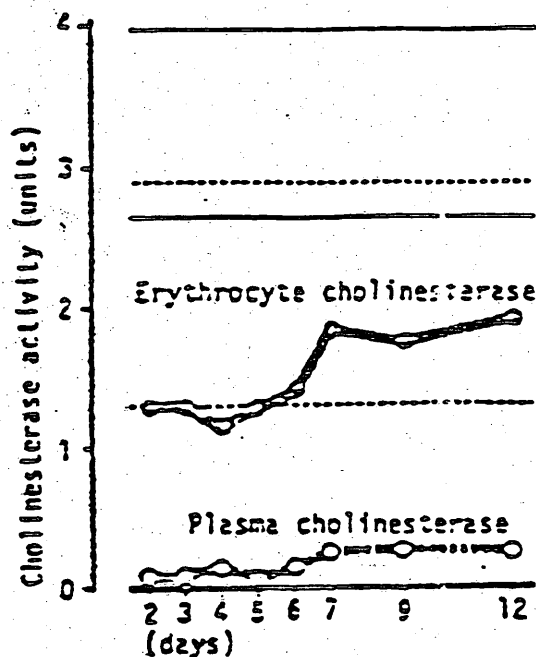
One of the methods used in the field to evaluate cholinesterase activity is the Acholest. This test consists of dipping a filter paper impregnated with a pH-sensitive color reagent into a blood sample to determine whether or not the plasma cholinesterase level is depressed. The test can detect inhibition as low as 20% of serum cholinesterase. However, it is only an indicator of depression. The test does not actually measure the quantity of cholinesterase inhibition. Acholest only detects plasma cholinesterase.

Other laboratory tests are available which measure both plasma and red blood cell cholinesterase. Some of these tests are: Michel's ΔpH Test, ChE-tel (Pfizer), Merckotest. In general these tests should be administered immediately after exposure. However, some organophosphates are delayed cholinesterase inhibitors and the cholinesterase levels may not appear depressed for a few hours.

"Normal" cholinesterase activity varies from individual to individual. Fig. IV shows the broad range of normal levels obtained from 100 subjects for plasma and red blood cell cholinesterase activity. Also shown is the depression observed in one acute poisoning case and the slow recovery rate. The plasma cholinesterase remains inhibited longer than the red blood cell cholinesterase.

FIGURE IV

Plasma and Red Blood Cell Cholinesterase Activity



One unit activity is 1.0 M of acetylcholine in thirty minutes at 37°C, pH 7.5, by 0.05 ml of plasma or by erythrocytes in 0.025 ml of blood. Broken horizontal lines indicate the normal limits of plasma cholinesterase, 3.300 = 0.661 units; obtained from 100 normal subjects. Measured by the hydroxamic acid method.

There are other conditions which can cause low plasma cholinesterase such as liver disease, malnutrition, myocardial infarction (destruction of the heart muscle due to inadequate blood supply). Low red blood cell cholinesterase may be due to multiple sclerosis.

Urine metabolite tests are also available and are helpful in identifying which organophosphate has caused the poisoning. p-Nitrophenol and total alkyl phosphates are both indicators of organophosphate exposure. Although urine tests are perhaps the most sensitive indicators, detection of metabolites are commonly detected in the urine of the victim 12 to 48 hrs. after absorption of significant quantities. To confirm exposure a number of samples should be taken when you suspect poisoning.

d. Treatment. It is important to act quickly when organophosphate poisoning is suspected. The worker should be removed promptly from the exposure.

If contamination was dermal, as it is often with organophosphates, the patient should be given a bath or shower, hair shampooed, fingernails cleaned.

If the pesticide was ingested, vomiting should be induced. However, this should not be done in semiconscious or unconscious patients or in the case where the pesticide was formulated in a petroleum base (it could result in petroleum pneumonitis). Persons attending the victim must

avoid contamination with vomitus. Oxygen should be administered in the case of severe poisoning.

If the pesticide was inhaled, wash face area thoroughly and administer oxygen.

The most effective method of treatment is to administer atropine and 2-PAM. Fig. V shows how each of these drugs act to relieve the OP poisoning. Atropine is the specific antidote for cholinergic poisoning, it acts by blocking the effects of acetylcholine. Atropine, however, has no effects on the neuromuscular nerve ending. 2-PAM, or pralidoxime is used to relieve the neuromuscular effects. 2-PAM should not be administered in the absence of atropine.⁸ It should be noted that the cholinesterase determination should be made before administration of atropine and 2-PAM. Atropine refractoriness will ensue after administration of atropine (See Glossary).

(2.) CARBAMATES.

a. Effects. The mode of action of these compounds is very similar to the organophosphate compounds in that they inhibit cholinesterase. But unlike OP compounds, cholinesterase reactivation after exposure to carbamates is rapid.⁹ Carbamates are therefore referred to as "rapidly reversing inhibitors" of cholinesterase. This means that the enzyme cholinesterase which is inhibited (or tied-up) with the carbamate, frees itself. The reversal

COMMUNICATION WORKERS OF AMERICA
CAMDEN COUNTY BOARD OF SOCIAL SERVICES LOCAL-1084
600 MARKET STREET
CAMDEN, NEW JERSEY 08101

Re: Indoor Spraying Insecticide

Bill #S1342
Camden County Administration Bldg.

Our building had a roach infestation and we requested that the problem be addressed. However, the county had the exterminator come in and spray during working hours. No notification to the works was sent nor were we told what was being sprayed. Quite a few of our employees went home ill and the union was deeply concerned about our pregnant employees.

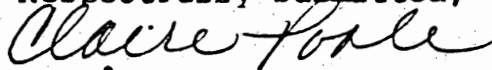
To date we do not know what we were sprayed with nor what long term effects can be expected. The spraying didn't affect the roaches but it certainly did affect the workers.

Also, due to a severe ventilation problem, we had a bacteria problem in the building. Suddenly workers started to experience rashes of unknown origin, respiratory problems i.e. sore throat, difficulty breathing; and cases of industrial conjunctivitis. We had over 150 cases of rashes and over 200 cases of conjunctivitis workman's compensation cases.

The State Health Department came in and did a study and reported back to us that the county had used a germicide "Klear" to wash down all the areas and this, they felt was the cause of our rashes. The conjunctivitis was caused by the poor ventilation system. Workers were not notified prior to the use of this germicide so that we could have taken precautions to protect our health.

As you can see, we the members of Communication Workers of America Local-1084 are extremely supportive of the passage of #S1342.

Respectfully submitted,



Claire Poole
President
Local 1084

STATE OF NEW JERSEY :

: SS.

AFFIDAVIT

COUNTY OF ATLANTIC :

I, _____, being duly sworn, according to law,
upon my oath, depose and say:

1. I reside at Tomasello Farm located at
in Hammonton, New Jersey.

2. On or about June of 1983 until on or about November
of 1983, I was employed as a farmworker at Tak-Merivchi Farm
located on Borton Landing Road in Moorestown, New Jersey 08057.

3. On or about the summer of 1983 while employed as a
farmworker at Tak-Merivchi Farm, my face and head began to
swell up while I was working in a peach field.

4. I saw the farmer spraying this peach field with
pesticides a day or so prior to this incident.

5. Because my face hurt me so much I went to a clinic
in Moorestown several times.

6. The doctor, Dr. Winston, gave me a shot and on
another visit he gave me pills.

7. Dr. Winston said the swelling happened because of
a reaction to the pesticides.

8. Several other workers at the Merivchi Farm had rashes all on their arms.

9. I am concerned that my frequent exposure to pesticides will have an adverse effect on my future health.

DATED:

Sworn to and Subscribed before me
this day of August, 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :

: S.S.

AFFIDAVIT

COUNTY OF ATLANTIC :

I, , being duly sworn, depose and say:

1. I reside at DiMeo Farm located at 366 Middle Road, Hammonton, New Jersey.

2. Since May of 1984 I have been employed as a farmworker at DiMeo Farm.

3. While working at DiMeo Farm, my supervisor has been Tony DiMeo.

4. From the time I began my employment at DiMeo Farm I have been sprayed with pesticides from a tractor about once a week.

5. The tractor passes near the field that I am working in, usually about (40) forty feet from me.

6. However, sometimes that tractor spraying pesticides comes to close to me that I have to move out the way in order not to get hit.

7. I am usually covered with the pesticide by the time the tractor leaves the area. The pesticide is a white powdery substance with a strong, bad smell.

8. I frequently get very severe headaches now. I

also have rashes throughout my body, which itch a great deal.

9. My eyes are swollen, red and watery most of the time.

10. No one has ever told me when an area was going to get sprayed with pesticides.

11. No one has ever given me any kind of protective clothing to wear.

12. On or about July 19, 1984, I went to Sa-Lantic Health Clinic located in Hammonton, New Jersey. At the clinic, they examined my eyes.

13. I am afraid that because I have been sprayed and continue to be sprayed repeatedly with pesticides that I will continue to have health problems.

DATED: _____

Sworn to and Subscribed before me
this day of August, 1984.

NOTARY PUBLIC OF NEW JERSEY

AFFIDAVIT

8. A number of us stopped working after we were sprayed because we felt sick.

9. The farmer wanted us to continue working and told us that we couldn't go to the hospital.

10. Later on, I went to Sa-Lantic Health Clinic in Pennsgrove, New Jersey.

11. I wasn't told that the field I was working in was going to be sprayed.

12. I am afraid that I may have future health problems because I was sprayed.

DATED:

Sworn to and Subscribed before me

this day of , 1984.

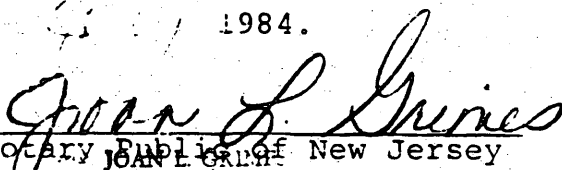
NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :
:
: SS
:
COUNTY OF GLOUCESTER:

I, , being duly sworn depose and say:

1. I reside at 432 Landis Avenue Vineland, N.J..
2. On or about June 15, 1983 I was employed as a farmworker at Blue Eagle Farm in Rosenhayn, New Jersey.
3. While working at Blue Eagle Farm, I was working under the supervision of Mr. Santiago Torres.
4. On or about June 15, 1983 while driving a tractor as part of my work, I was sprayed with pesticides from an airplane.
5. At the time of the spraying, I was working in a bean field.
6. The airplane which sprayed me passed near me two times and was about thirty to fifty above me when it flew by.
7. After the spraying, I began to feel an itching sensation on my skin and I stopped working in order to take a shower.
8. After washing myself, the itching sensation disappeared.
9. On the afternoon of the same day as the spraying incident, I was told by Mr. Augustino Ingranaldi, the owner of Blue Eagle Farms, that for leaving my work station, I would be suspended for one week.
10. During the week following the spraying, I was allowed to work only a few hours each day.

Sworn to and subscribed
before me this day
of 1984.


Notary Public of New Jersey
A Notary Public of New Jersey

STATE OF NEW JERSEY :
 : S.S.
COUNTY OF GLOUCESTER:

AFFIDAVIT

I, being duly sworn, depose and say:

1. I reside at John Norte Farm located in Mickleton, New Jersey.
2. On or about April 27, 1984, I began my employment as a farmworker at John Norte Farm.
3. On or about July of 1984, I began to develop severe rashes throughout my body; most acutely on my back, thighs, arms and hands.
4. The rashes ached and itched me a great deal.
5. I showed John Norte my rashes soon after they developed and asked him for help.
6. John Norte, however, did nothing.
7. On or about July 27, 1984, I went to the emergency room of Underwood Memorial Hospital located on North Broad Street and Red Bank Avenue in Woodbury, New Jersey 08096.
8. At the hospital I was given an injection, pills and cream for my rashes.
9. I believe the rashes which I still have throughout my body are the result of pesticide poisoning.

10. John Norte sprays the fields with pesticides almost everyday.

11. I believe that because the fields are sprayed heavily and continuously with pesticides that a permanent residue remains on the crops that I pick.

12. I pick crops without wearing gloves or any kind of protective clothing.

13. Although I asked John Norte to provide me with gloves he did not.

14. I brought one pair of gloves sometime ago, which has subsequently worn out and I cannot afford to buy another pair.

15. I am afraid that the rashes on my body will never go away and that I may develop future health problem because of my repeated exposure to pesticides.

DATED: _____

Sworn to and Subscribed before me
this day of August, 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :
: SS.
COUNTY OF ATLANTIC :

AFFIDAVIT

I, , being duly sworn, depose and say:

1. I reside at John Melora Farm located on 15th Street in Hammonton, New Jersey 08037.

2. On or about May 15, 1984, I began my employment as a farmworker at John Melora Farm this season.

3. On or about the first week in August of 1984 I was weeding potatoes and picking cucumbers when the farmer's son came by driving a tractor and spraying pesticides.

4. I left the field while it was being sprayed but was told by the farmer's nephew, Jerry, to go back to work immediately after the tractor left the field.

5. My pant legs got wet from the pesticide on the plants while I continued to work that day.

6. My arms itched me all day, until I was able to wash them when I finished work.

7. There were several other workers in the field that day.

8. Sometimes when the farmer's son sprays the pesticides he comes as close as twenty (20) feet away from me and the spray hits me.

9. This has happened to me about three (3) or four (4) times this season.

10. The pesticide smells very strong and looks white.

11. I am afraid that because I have been repeatedly exposed to pesticides I will have future health problems.

DATED: _____

Sworn to and Subscribed before me
this day of August, 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :
COUNTY OF CUMBERLAND :

AFFIDAVIT

I, being duly sworn depose and say:

1. I reside at Sikking Brothers Farm located on Maple Avenue in Vineland, New Jersey.
2. I have been employed at Sikking Brothers Farm for the past two (2) years.
3. I worked at Sikking Brothers Farm last year from, on or about June of 1983, until on or about November of 1983.
4. This year I began my employment at Sikking Brothers Farms on or about June of 1984.
5. My supervisor at Sikking Brothers Farm is Anthony Gonzalez.
6. On or about June 5, 1984 I went to Sa-Lantic Health Clinic in Hammonton, New Jersey because of a rash that had developed on both of my arms.
7. My arms developed red sores all over them and itched me constantly.
8. At Sa-Lantic Health Clinic, they gave me a blood test, pills and cream for my arms.
9. I believe that this rash may be an allergic reaction to pesticides on the flowers I worked with on the farm.

10. No one has ever warned me which fields on the farm have recently been sprayed with pesticides.

11. When I work I wear a regular cotton, long sleeve shirt.

12. No one has ever told me that this shirt may not be sufficient protection against pesticides.

13. My arms are still covered with red blotches, although it is almost two (2) months since I began treating my arms.

14. I am afraid that the rash on my arms will never go away.

Sworn and subscribed
before me this ____ day
of _____, 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :
: SS.
COUNTY OF SALEM :

AFFIDAVIT

I, , being duly sworn depose and say:

1. I reside at Sam Sorbello Farm located on Kings-Highway, in Swedesboro, New Jersey 08085.

2. On or about July of 1984 I was employed as a farm-worker at Frank Fichera Farm located on Sunset Drive, Slapes Corner, Woodstown, New Jersey.

3. While working on Frank Fichera Farm, I was working under the supervision of Frank Fichera.

4. On or about July of 1984 while working in a pepper field on Frank Fichera Farm, I was sprayed with pesticides from a tractor.

5. The farmer, Frank Fichera, was driving the tractor and spraying pesticides only about five (5) feet from where I was working.

6. He drove the tractor back and forth about three (3) or four (4) times spraying pesticides.

7. The pesticide spray covered my hands.

8. After the spraying, I began to feel an itching sensation on my hands.

9. I was unable to wash until I finished work several hours later.

10. Later that day, I developed rashes on both of my hands.

11. I told Frank Fichera about the rashes but he ignored my problem.

12. I was not wearing gloves, or any kind of protective clothing when I was sprayed.

13. No one warned me that the field I was working in was going to be sprayed with pesticides.

14. I am afraid that because I was sprayed with pesticides I will have future health problems.

DATED: _____

Sworn to and Subscribed before me
this day of , 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY

COUNTY OF ATLANTIC

I, Trinidad Lopez, being duly sworn depose
and say:

1. I reside at 219 Orchard Street, Hammonton,
New Jersey 08037.

2. On or about June 21, 1984 until on or about July
31, 1984 I was employed as a farmworker at Carrusso farm
located on Cemetary Avenue in Hammonton, New Jersey.

3. On or about July 1, 1984 until on or about July
31, 1984, I was employed as a farmworker at Lorraine Wolf
farm located on Pleasant Mills road in Hammonton, New
Jersey.

4. I alternated employment, during this time period,
at the aforementioned farms, according to which Farm had
work available for me each day.

5. While working at Carrusso Farm I was working
under the supervision of

6. While working at Lorraine Wolf Farm I was wor-
king under the supervision of

7. During the course of my employment at Carrusso
Farm while picking blueberries I was sprayed with pesti-
cides, by a tractor spraying crops near by.

8. The tractor passed by and sprayed me repeatedly during the course of my employment at Carrusso Farm.

9. The tractor that passed, daily, spraying pesticides was usually about forty (40) feet from me.

10. No one ever told me that the field I was working in was about to be sprayed.

11. No one ever told me to stay out of the area or to wear protective clothing.

12. On the contrary, we were expected to enter the field and begin work.

13. During the course of my employment at Lorraine Wolf Farm, while picking blueberries I repeatedly worked in fields that had just been sprayed with pesticides.

14. The pesticides gave off a strong odor and covered the crops with a white powdery substance.

15. No one ever told me to wear protective clothing or to stay out of the field because it had just been sprayed.

16. My health problems began on or about July 15, 1983.

17. At that time my ears, eyes and throat began to ache and swell. I experienced a great deal of itching nausea, vomiting and diarrhea.

18. On or about July 21, 1983 I went to the

emergency room at Kessler Hospital located in Hammonton, New Jersey.

19. On or about July 28, 1983, I also went for medical treatment to Sa-Lantic Health Clinic located in Hammonton, New Jersey.

20. For a long time after I received medical care I vomited and had diarrhea on a daily basis.

21. I am afraid that because I was repeatedly exposed and sprayed with pesticides I will have future health problems.

DATED: JULY 16, 1984

TRINIDAD LOPEZ

Sworn to and Subscribed
before me this day
of July, 1983.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :

: SS.

AFFIDAVIT

COUNTY OF CUMBERLAND:

I, , being duly sworn, depose and say:

1. I reside at Fred Vendrasco Farm on Amos Road in Vineland, New Jersey 08360.

2. On or about June 5, 1984, I began my employment as a farmworker at Fred Vendrasco Farm.

3. While working at Fred Vendrasco Farm, Fred Vendrasco has been my supervisor.

4. During the course of my employment at Vendrasco Farm I have been sprayed with pesticides by a tractor spraying crops nearby.

5. On or about July of 1984 while I was planting onions from the back of a tractor, Victor Rios, another farmworker, was driving I was sprayed.

6. Fred Vendrasco came by in another tractor spraying pesticides.

7. Fred Vendrasco never told us that he was going to spray the field that we were working in.

8. There were several other men in the back of the tractor who also got sprayed.

9. My back, shoulders and arms were covered with pesticides by the time Fred Vendrasco finished.

10. I am afraid that because I was sprayed with pesticides I will have future health problems.

DATED:

Sworn to and Subscribed before me

this day of , 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :

: SS

AFFIDAVIT

COUNTY OF CUMBERLAND:

I, , being duly sworn, depose and say:

1. I reside at 425 Grape Street, Vineland, New Jersey 08360.

2. On or about June 15, 1984, I began my employment as a farmworker at Fred Vendrasco Farm on Amos Road in Vineland, New Jersey.

3. While working at Fred Vendrasco Farms, Fred Vendrasco has been my supervisor.

4. During the course of my employment at Vendrasco Farms I have been sprayed with pesticides by a tractor spraying crops nearby.

5. The first incident happened on or about the beginning of July of 1984 while I was working in a broccoli field on Vendrasco Farm.

6. There were about six or seven of us working in the field when Fred Vendrasco came by in a tractor spraying pesticides. He passed back and forth at least six times spraying pesticides only about 40 feet from where we were working.

7. I remember the first names of three of the other workers who were with me in the field at the time: Luis, Jose and Carlos.

8. Fred Vendasco did not tell us he was going to spray pesticides.

9. We were all just wearing regular clothes when we were sprayed.

10. The second incident happened on or about July 26, 1984, when I was driving a tractor in a field and four or five other men were in the back of the tractor planting onions.

11. Fred Vendasco came by again in a tractor spraying pesticides.

12. He was about 1 foot away from us when we noticed he was spraying a pesticide that looked white and powdery.

13. He continued to spray the entire field, which was about one-hundred (100) square feet, while we continued to plant onions in the field.

14. It took him about twenty minutes (20) to spray the field.

15. Fred Vendasco never told us that he was going to spray the field that we were working in.

16. We all were just wearing our regular clothes when we were sprayed.

17. I remember the first names of four of the men who were sprayed with me that day: Julian, Luis, Nelson and Jose.

18. After each spraying incident, I felt very nauseous.
19. I have rashes on my arms which itch me a great deal.
20. Lately, I have begun to feel pains in my chest and short of breath .
21. I am afraid that because I was sprayed with pesticides I will continue to have health problems.

DATED: _____

Sworn to and Subscribed before me
this day of August, 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :
 : SS.
COUNTY OF ATLANTIC :

AFFIDAVIT

I, _____, being duly sworn, depose and say:

1. I reside at Tomasello Farm located on _____
in Hammonton, New Jersey.

2. I have been employed as a farmworker at Tomasello
Farm since on or about July 25, 1984.

3. On or about the first week in August of 1984, my
supervisor at Tomasello Farm, _____ arranged
for my employment at John Melora Farm located on 15th Street
in Hammonton, New Jersey 08037.

4. On that day, I was weeding in a potato field when
the farmer's son came by driving a tractor and spraying
pesticides.

5. I left the field while it was being sprayed but was
told by the farmer's nephew, Jerry, to go back to work
immediately after the tractor left the field.

6. The pesticide smelled very bad and strong like a
poison.

7. My pant legs and arms became wet with the pesticide
as I continued to work in the field that day.

8. My arms itched me until I was able to wash when I finished work that day.

9. There were other workers in the field that day, about 5 from Tomasello Farm and about 7 from Molera Farm.

10. We all were told to go back to work immediately after the tractor left the field by the farmer's nephew Jerry.

11. We were not warned to wear protective clothing.

12. I am worried about the effect on my health of working in a field wet with pesticides.

DATED: _____

Sworn to and Subscribed before me
this day of August, 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :

: SS.

AFFIDAVIT

COUNTY OF CUMBERLAND:

I, , being duly sworn according to law, upon his oath, deposes and says:

1. I reside at Angelo Spadoni Farm located at 5607 Trento Avenue, Vineland, New Jersey 08360.

2. On or about September of 1983, I was employed as a farmworker at Angelo Spadoni Farm.

3. While employed by Angelo Spadoni Farm I worked under the supervision of Angelo Spadoni.

4. On or about September of 1983, while fixing a water pipe, during the course of my employment, I was sprayed with pesticides from an airplane overhead.

5. The airplane which sprayed me passed over me at least two (2) or three (3) times and was approximately forty (40) feet above me when it flew by.

6. Immediately after the spraying, my eyes began to itch, burn, and swell up considerably.

7. I was unable to wash until I finished work, approximately four (4) hours later.

8. Immediately after the spraying incident, I reported it to both Angelo Spadoni and his son, Larry Spadoni, who assured me they would take me to their family doctor; however, they never did.

9. Soon after the incident, I began to feel the effect of the pesticides, my eyes began to swell and itch.

10. On or about October 1, 1983, I went to SaLantic Health Clinic in Hammonton, New Jersey; because my eyes continued to bother me.

11. Up until and including the present time, my eyes continue to itch and burn me on a daily basis.

DATED:

Sworn to and Subscribed
before me this day
of July, 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :

: SS.

AFFIDAVIT

COUNTY OF SALEM :

I, FERNADO GUZMAN, being duly sworn, depose and say:

1. I reside at Sam Sorbello Farm located on Kings Highway in Swedesboro, New Jersey 08085.

2. On or about June of 1983 up until on or about August of 1983, I was employed as a farmworker at Frederici Farm located on in Glassboro, New Jersey.

3. On or about July of 1983 while working on Frederici Farm I was sprayed with pesticides.

4. While working in a peach field, another farmworker was spraying pesticides from a tractor about eight (8) feet away from me.

5. The pesticide was white and it burned when it covered my whole body.

6. I was just wearing a shirt-sleeve shirt and pants when I was sprayed.

7. I kept on working after I was sprayed because I was afraid that I would be fired if I stopped to wash.

8. I started to feel sick the night of the spraying.

9. I vomited that night and the next day.

10. In general, I felt sick for about one week after I was sprayed. I had a fever and sweated heavily. I also was short of breath and itched throughout my body.

11. I never went to a health clinic or hospital though.

12. No one warned me that the field was about to be sprayed.

13. I am afraid that because I was sprayed with pesticides heavily I will have future health problems.

DATED:

FERNANDO GUZMAN

Sworn to and Subscribed before me

this day of , 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :

: SS.

AFFIDAVIT

COUNTY OF CUMBERLAND:

I, . being duly sworn, depose and say:

1. I reside at 708 Park Avenue in Vineland, New Jersey 08360.

2. On or about August 4, 1984, I began my employment as a farmworker on Buffalo Farm located on in Hammonton, New Jersey.

3. My supervisors during the course of my employment at Buffalo Farm were a crewleader called "Alfredo", as well as the farmer's son.

4. I only worked on Buffalo Farm for about one week because I developed rashes on my face, hands and legs that hurt me so badly that I couldn't continue working.

5. They hurt and itched so much that I couldn't sleep for several nights. Sometimes, I felt I was going crazy from the itching.

6. I never had rashes at all before I began working at Buffalo Farm.

7. Many of the other workers had similiar problems.

8. I believe the rashes I got were the result of pesticide poisoning.

9. I use to see the white powdery pesticide on the blue-berries and their leaves as I picked the plants.

10. I never had gloves to wear and the pesticide powder would get on my face, hands and legs.

11. It is a hardship not to be able to continue working on me and my family.

12. I am afraid of the effect working with pesticides would have on my health.

DATED:

Sworn to and Subscribed by me

this day of 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :
: SS.
COUNTY OF CUMBERLAND:

AFFDAIVIT

I, , being duly sworn, depose and say:

1. I reside at Glassboro Service Association located in Glassboro, New Jersey 08028.

2. On or about the years of 1976-1981, I was employed as a farmworker at Claude Duffield Farm, located at Willow Grove Road in Franklinville, New Jersey.

3. While working at Duffield Farm, I was working under the supervision of

4. On or about the years of 1981-1982, I was employed as a farmworker at Eugenio Farm located on Chestnut Street in Millville, New Jersey.

5. While working at Eugenio Farm, I was working under the supervision of

6. During the course of my employment at both of the aforementioned farms, I applied pesticides repeatedly.

7. I was never given or told to wear protective clothing when applying pesticides.

8. I mixed the chemicals without wearing gloves, goggles or any special clothing.

9. I applied the chemicals to the fields in a tractor.
10. When I would turn the tractor, in order to see where I was going, I would have to stick my head out of the tractor.
11. Frequently; the pesticides would blow back into my face when I made these turns.
12. During this time, I developed rashes on my legs and left shoulder.
13. I experienced a great deal of itching and began to get headaches frequently.
14. On or about June of 1984, I went to Sa-Lantic Health Clinic located in Hammonton, New Jersey for help.
15. Since my health problems persisted, I went back to Sa-Lantic Health Clinic on or about July 1, 1984.
16. At the clinic, they tested my blood and gave me medication for my rashes.
17. At the present time, I still have white blotches throughout my body and continue to have headaches very often.
18. I am afraid that because I was repeatedly exposed to pesticides, my health problems will continue for the rest of my life.

DATED: _____

Sworn to and Subscribed before
me this day of July, 1984.

NOTARY PUBLIC OF NEW JERSEY

AFFIDAVIT

7. Fred Vendrasco never told us that he was going to spray the field that we were working in.

8. There were several other men in the back of the tractor who also got sprayed.

9. My back, shoulders and arms were covered with pesticides by the time Fred Vendrasco finished.

10. I am afraid that because I was sprayed with pesticides I will have future health problems.

DATED:

Sworn to and Subscribed before me
this day of , 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :
 : S.S.
COUNTY OF CUMBERLAND:

AFFIDAVIT

I, _____, being duly sworn, depose and say:

1. I reside at 51 West Chestnut Street in Vineland, New Jersey 08360.

2. On or about July of 1984 until on or about August 7, 1984, I was employed as a farmworker at Buffalo Farm in Hammonton, New Jersey.

3. On or about July of 1984 until on or about August 5, 1984, I was employed as a farmworker at Atlantic Blueberry Farm in Hammonton, New Jersey.

4. I alternated employment during this time period at the aforementioned farms according to which farm had work available for me each day.

5. While working at Buffalo Farm, I was working under the supervision of a crewleader called "Willie."

6. While working at Atlantic Blueberry Farm, I was working under the supervision of a crewleader called "Ramon Ruiz."

7. During the course of my employment at both of the aforementioned farms, while picking blueberries I repeatedly worked in fields that were still wet with pesticides.

8. The blueberries I picked were covered with a white powdery substance.

9. No one ever told me to wear protective clothing or to stay out of the field because it had just been sprayed.

10. I began to develop red rashes all over my face, neck and arms, about one week after I started working at the aforementioned farms.

11. The rashes itch me all of the time.

12. I use alcohol and cream on them so that I can sleep.

13. The rashes continue to itch and hurt me now.

14. I am afraid that the rashes will continue to bother me for a very long time.

DATED:

Sworn to and Subscribed before me
this day of August, 1984.

NOTARY PUBLIC OF NEW JERSEY

STATE OF NEW JERSEY :
COUNTY OF ATLANTIC :

S.S.

AFFIDAVIT

I, , being duly sworn, depose and say:

1. I reside at DiMeo Farm located at 366 Middle Road, Hammonton, New Jersey.

2. Since May of 1984 I have been employed as a farmworker at DiMeo Farm.

3. While working at DiMeo Farm, my supervisor has been Tony DiMeo.

4. From the time I began my employment at DiMeo Farm, I have been sprayed with pesticides from a tractor about once a week.

5. The tractor passes near the field that I am working in, usually about (40) forty feet from me.

6. However, sometimes the tractor spraying pesticides comes so close to me that I have to move out the way in order not to get hit.

7. I am usually covered with the pesticide by the time the tractor leaves the area. The pesticide is a white powdery substance with a strong, bad smell.

8. Right after I am sprayed I begin to feel nauseous and my eyes hurt and sting.

9. No one has ever told me when an area was going to get sprayed with pesticides.

10. No one has ever given me any kind of protective clothing to wear.

11. On or about July 19, 1984, I went to Sa-Lantic Health Clinic located in Hammonton, New Jersey. At the clinic, they examined my eyes.

12. I am afraid that because I have been sprayed and continue to be sprayed repeatedly with pesticides that I will continue to have health problems.

DATED: _____

Sworn to and Subscribed before me
this day of August, 1984.

NOTARY PUBLIC OF NEW JERSEY

AFFIDAVIT

1. I reside at Vasta Farm located at Courses Landing in Woodstown, New Jersey.

2. On or about 1980, I was employed as a farmworker at Anthony Packer Farm, located at 730 12th Avenue in Bethlehem, Pennsylvania.

3. While working at Anthony Packer Farm, I was working under the supervision of Mr. Anthony Packer

4. I worked at the Packer Farm in Bethlehem, Pennsylvania for approximately four (4) years.

5. During the course of my employment at Anthony Packer Farm, I applied pesticides repeatedly to the grass on the farm.

6. Often I would make these applications twice a week.

7. Sometimes, because there was a shortage of the machines used to apply the pesticides, I would have to apply the pesticides with my hands.

8. Frequently, the pesticides I would apply on the grass with my hands would blow back in my face.

9. During this time, I developed a rash on my face, forehead and ears. My right ear began to itch and swell up.

10. I went to St. Luke's Hospital in Bethel, Pennsylvania to get treatment for my ears and face.

11. I also went for help to Dr. Cubek, who had an office in Bethel, Pennsylvania.

12. Dr. Cubek told me that my rash and ear problems were related to pesticide poisoning.

13. Dr. Cubek gave me a cream to use on my ears and a special soap for my skin.

14. My right ear has remained swollen and red all of these years. It continues to hurt me when I am out in the sun.

15. I was never given any information about how to apply pesticides.

16. I am afraid that because I applied pesticides all those years, without any safety measures, I will have future health problems.

DATED: 7/11/84

Sworn to and Subscribed before
me this 11th day of July, 1984.

Joan L. Grimes
NOTARY PUBLIC OF NEW JERSEY

JOAN L. GRIMES
A Notary Public of New Jersey
My Commission Expires May 1, 1989

STATE OF NEW JERSEY:

COUNTY OF SALEM : SS.
:

AFFIDAVIT

I, , being duly sworn, depose and says:

1. I reside at Vasta Farm located at Courses Landing Road in Woodstown, New Jersey.

2. On or about June 22, 1984, I was living as a farmworker at Vasta Farm in Woodstown, New Jersey.

3. While living at Vasta Farm my supervisor, Mr. Calderon arranged for my employment at Leonard Farm located at U.S. Highway 322 RD 1 Swedesboro, New Jersey 08085

4. While working on Leonard Farm I was working under the supervision of Mr. Calderon

5. While working at Leonard Farm I was sprayed with pesticides from an airplane on three different days.

6. On or about June 25, 1984; on or about June 27, 1984; and on or about July 2, 1984; while working in a tomato field at Leonard Farm I was sprayed with pesticides.

7. On both June 25, 1984, and June 27, 1984, the airplane that sprayed me passed near me about eight (8) times and was about thirty (30) feet above me when it flew by.

8. My clothes and skin were drenched with pesticides by the time the airplane left the field on both days.

9. I was unable to wash until I finished work several hours later.

10. I was not wearing a respirator, goggles, or any kind of protective clothing when I was sprayed.

11. No one told me that the field I was working in was going to be sprayed with pesticides.

12. I am afraid that because I was sprayed repeatedly and heavily with pesticides I will have future health problems.

DATED: 7/11/84

Sworn to and Subscribed before
me this 11th day of July 1984.

Joan L. Grimes
NOTARY PUBLIC OF NEW JERSEY

JOAN L. GRIMES
A Notary Public of New Jersey
My Commission Expires May 1, 1989

TESTIMONY FOR HEARING ON SENATE BILL 1342

My name is Peggy Backal. I am a staff attorney for Camden Regional Legal Services. I work with the Farmworker Divisional Office located in Vineland, New Jersey. Our office represents farmworkers throughout the state of New Jersey. I was hired this past June to work on a special Farmworker Health Project. The project is designed to address one of the most serious health issues affecting New Jersey farmworkers --- pesticide poisoning. The project has been conducting an investigation throughout the state in order to ascertain and develop data on the amount, extent, and effects of the exposure of farmworkers to pesticides. The results of the investigation thus far have been dramatic. In less than three (3) months over twenty-five (25) complaints have been registered with the project and the Department of Environmental Protection, the state agency responsible for the protection of farmworkers from unsafe exposure to pesticides.

Many farmworkers are reluctant to pursue their pesticide complaints because of fear of reprisals on the part of the farmer. The fact that such a large number of farmworkers have come forward with complaints in such a short period of time suggests that the problem is widespread. The majority of complaints involve farmworkers who were sprayed repeatedly with pesticides either from an airplane or a tractor while working in the field. Only two of these workers were wearing any kind of protective clothing or equipment when

sprayed and none were given any form of notification. Approximately one-third involve farmworkers who became ill after re-entering a field that had recently been sprayed. Only one of these workers wearing any kind of protective clothing or equipment. Once again, none of the workers were given any form of notification.

Only about one-half of the farmworkers who became ill after either a direct spraying or re-entering a field sought any kind of medical treatment. Two of the complaints involve farmworkers who actually applied pesticides for several years during the course of their employment at various farms. Neither was ever given any kind of training or protective clothing - not even gloves. Both, although they were employed on different farms, mixed chemicals with their bare hands - sometimes as frequently as twice a week. One man actually applied the pesticides by hand, once again, without gloves, because the farmer complained of a shortage of the necessary machinery. Both men, as you can imagine continue to have some ongoing symptoms of pesticide poisoning - severe rashes and frequent headaches.

The nature of these complaints demonstrates the acute need for Section 14 of Senate Bill 1342. The section would provide for the appropriate protective clothing and equipment to be provided to farmworkers, re-entry standards for fields treated with pesticides, notification of farmworkers and a medical procedure to be followed in the event of exposure.

It has become increasingly apparent during the course of the projects investigation that farmworkers need greater protection from retaliation on the part of their employers. Of all the complaints registered with the project to date, only two farmworkers stopped working after being exposed to pesticides unsafely; although the vast majority became sick with pesticide poisoning symptoms; vomiting, nausea, headaches, fever, rashes and itching.

Of these two, one farmworker stopped only temporarily to wash the pesticide off his body and was suspended by the farmer for one week for leaving his work station.

The other farmworker stopped working after vomiting and was explicitly directed by the farmer to continue working and threatened with discharge if he failed to comply. Section 19 of the Bill would prevent this kind of behavior on the part of farmers. Section 19 prohibits the discharge of any form of discrimination against any farmworker who exercises his or her right to be protected from unsafe pesticide exposure.

Farmworkers in our country, poor and isolated are greatly in need of legislative protections embodied in Senate Bill 1342.

I have the complaints registered with the health project to date, and would like to submit them to Senator Lesniak as further evidence of the tremendous need for Senate Bill 1342.

TESTIMONY

Good morning. My name is Neville Davis. I am executive director of Sa-Lantic Health Services, Inc. Sa-Lantic is a federally funded community health center with two service sites -- one in Folsom, Atlantic County and one in Penns Grove, Salem County. We receive funds from the federal office of Migrant Health to provide outpatient health care services for migrant farmworkers throughout a large part of southern New Jersey. Based upon numbers of farmworkers served, we are a primary source for outpatient health care for migrants in the state. In calendar year 1983, Sa-Lantic provided health care services to 700 migrants and 224 seasonal farmworkers.

The majority of our migrant farmworker patients are Puerto Rican males who come to New Jersey for the harvest and return to Puerto Rico in September or October. In past seasons we have also served men from Jamaica, a group of Haitian farmworkers, Black American males and some Mexican-Americans who travel with their families upstream from Florida and pick in Cumberland County.

Sa-Lantic initiated and conducted a small scale study during the harvest season of 1983 because of a nagging concern we had regarding the extent and severity of pesticide exposure and the concomitant health effects experienced by migrant farmworkers in the fields of southern New Jersey. Sa-Lantic physicians were seeing farmworkers with presenting symptoms and histories that looked suspiciously like those identified in the literature as pesticide poisoning. Yet, basic, informational inquiries made to governmental officials, growers and farmworkers produced statements indicating a relative or complete lack of knowledge about farmworker pesticide exposure problems or facile pronouncements that there was no problem and that we should not worry.

The results of Sa-Lantic's 1983 survey of pesticide exposure among farmworkers

suggested that, in fact, there exists a serious exposure problem among field-workers in southern New Jersey. That survey identified eighteen (18) farms in four (4) counties where at least one identified worker complained of pesticide exposure. One-third of the 54 respondents reported having been sprayed while working in the fields. Thirty percent of respondents said they had worked in fields that had just been sprayed or were still wet from pesticides. Only two of the eight workers who admitted becoming ill after exposure had sought medical attention. These results are particularly meaningful for New Jerseyans because 80% of the farmworkers interviewed worked only in New Jersey and 90% were only involved in picking, having no contact with or responsibility for mixing or applying pesticides.

This year, we are continuing the survey. As of September 15, we have compiled almost sixty questionnaires and cases. The bulk of these have been questionnaires completed by Sa-Lsantic patients. Twelve were generated through documented cases of pesticide exposure seen at Sa-Lantic clinics. An additional eleven are questionnaires completed by farmworkers identified by other organizations as having complaints related to pesticide use at their work places. The remainder were randomly generated in the course of providing health services to migrants. As was done last year, we will continue to gather data through early November.

More than thirty farms in five counties are represented by the 1984 preliminary data. Approximately fifty percent (50%) of surveyed workers were working in Gloucester County and twenty-five percent were from Atlantic County, with the remaining from Salem, Burlington and Cumberland Counties.

There is a little encouraging news from our current survey. Our preliminary data suggest that, at least among Sa-Lantic patients, there is a significant

improvement in the percentage of farmworkers receiving information on pesticide dangers and using protective clothing of some kind. This may be due to increased awareness and education brought on by Sa-Lantic's survey work last year and by the accompanying efforts by the workers themselves to try and protect their health. However, nearly half of those who answered affirmatively wore gloves as their only form of protection (45%). Overall, approximately half (49%) of farmworkers did not wear any protective clothing when working and more than half (58%) had never received information about the dangers and possible health problems associated with pesticide use. These figures remain unacceptably high in my estimation.

On all other counts the results continue to be dismal. We continue to collect evidence of pesticide spraying of workers and of problems related to inappropriate and mistimed re-entry. In some cases, there has been repeated spraying of workers on the same farm. Our data, based on a sample of similar size, confirmed last year's finding concerning the prevalence of pesticide exposure among farmworkers. Twenty-two (or 39%) of the workers questioned reported having been sprayed in the fields. Twenty farmworkers (or 35%) stated that they had entered fields still wet with applied pesticides. In addition, not one worker in either survey for either year could accurately name the pesticide to which they were exposed nor what pesticide had been applied to the plants with which they were working. Such lack of information puts migrants and physicians attempting to treat pesticide related illness appropriately at a severe disadvantage.

Besides, problems with direct spraying and re-entry, housing, and eating facilities located near the fields provide ample opportunity for pesticide

drift to leave residues on food, clothing and bedding. Lack of laundering facilities and the unavailability of handwashing and showering facilities in the field increased the exposure time of the exposed worker.

The effects of pesticides on health can be substantial. Symptoms such as chronic headaches, nausea, vision problems, sleeplessness, loss of appetite and the occurrence of skin rashes and boils can all be caused by exposure to pesticides. Acute exposures can and have been fatal. Thirty-one percent (31%) of questioned farmworkers reported having three or more of the aforementioned symptoms associated with mild to moderate pesticide poisoning. Dermatitis, frequently associated with pesticide exposure, was the second most frequent reason for migrant farmworker visits to the clinic in 1983, just after hypertension. Recent surveys in the literature continue to express concern over the health problems that long term, chronic occupational exposure to multiple chemical products might produce in the exposed farmworker population. Several of the pesticides recommended by the New Jersey Cooperative Extension Service for use on crops farmworkers help to harvest in New Jersey are known or suspected animal teratogens and carcinogens (e.g., Sevin and Parathion).

We are continuing in our effort to develop a more extensive pesticide educational program for the farmworkers. In addition, the pesticide education program is committed to:

- training local medical personnel on the recognition and treatment of pesticide related illness
- continued expansion of the pesticide resource center at Sallent's Folsom site
- continued data collection and follow through in pesticide related illness among farmworkers

Many of these objectives are expanded and supported by Committee Substitute Bill No. 1342. The bill's call for additional involvement by the Department of Health in developing and implementing medical education for area physicians is welcome. More attention to the chronic health effects of pesticides are particularly needed. We encourage the inclusion of the University of Medicine and Dentistry of New Jersey to address the health issues inherent in our current uses of pesticides addressed in Section 13.

We support the establishment of a more assessible mechanism for the reporting of pesticide accidents and incidents and the involvement of the Department of Health in investigation of pesticide exposure incidents.

We support the monitoring program as established in section 9a, the annual report required by section 12 and the need for public hearing before the adoption of new rules and regulations governing the disposal of any pesticide or pesticide container as important measures and major steps in assuring the safeguarding of the public's health.

We also support section 11j which mandates the study of alternatives to chemical pesticides as a way of lessening the current dependence on chemical pesticides on New Jersey farms and making New Jersey farmland safer places to live and work.

Finally we strongly endorse the recognition in section 14 and 15 given to the special needs of farmworkers in regard to pesticide use. We desperately need these provisions to ensure that farmworkers are well aware of the dangers of pesticide exposure and have ample opportunity to protect themselves and their families. Posting signs in languages familiar to the worker population along sprayed fields is an important first step. The availability of pesticide fact.

Testimony
9/84

-6-

sheets will help ensure that the information needed to diagnose and treat medical emergencies and chronic problems caused by pesticide exposure is available.

We sincerely thank Senator Lesniak, Senator Dalton and Assemblyman Adubato for their concern and their willingness to become involved in this issue. And we urge passage of this landmark legislation. Thank you for the opportunity to address you today.

Statement submitted by John Ripton
to the Senate Energy and Environment Committee
in its hearing on Senate Bill No 1342
September 24, 1984

My name is John Ripton. I have reported on the living and working conditions of New Jersey's farm workers since 1978. Presently I am researching the pesticide issue in preparation of an article on the health effects and the politics of pesticide use in New Jersey. I come before this Committee to relate several points concerning pesticides, points which bear directly on the arguments raised against S 1342 and other legislation aimed at greater regulation of pesticide use in this state.

First, the argument raised by opponents of the bill that this is over-regulation, that DEP and EPA standards and enforcement practices already offer adequate protection of the public and farm workers, is blatantly erroneous. Less than 15% of all pesticides registered by the EPA have been tested to meet standards set by Congress in 1972. Ruth Shearer, a genetic toxicologist who has researched and written widely on the human health effects of pesticides, estimates that it will take 37 years for the EPA under current budgetary and administrative restraints "to evaluate data for the approximately 600 currently-used pesticide active ingredients considered most important." Several federal court rulings in the last two years, moreover, have struck down the argument that reliance on EPA labels and standards is sufficient protection against pesticide poisoning. The EPA itself stated in April 1980, "The implication that adherence to label restrictions eliminates all threat to human health is not warranted" and "We would like to reemphasize that EPA registration of a chemical does not mean that there is zero risk from its use, or that EPA endorses chemical use as the best alternative in specific situations. In fact, EPA encourages the use of chemical treatment only as a last resort when other practicable alternatives are not available."

As for the DEP, it has no effective reporting system for pesticide poisoning. The agency has no records of farm workers poisoned by pesticides. Ironically, the law essentially requires that farmers follow directions on labels for mixing pesticides, applying them and observing reentry periods. Inspectors are sent to the fields, according to DEP, only when a complaint arises.

So, it appears that the farmers are being regulated by virtually no one and, at best, are following dubious safety instructions prepared by chemical manufacturers and approved by the EPA.

A second general argument by opponents of the bill is that it could drastically affect the economic viability of New Jersey's agricultural industry. The Alliance for Environmental Concerns, a chemical industry lobbying group, suggests this possibility in its analysis of S 1342: "Because of the potential inability to spray crops effectively, much agricultural land, particularly small~~l~~ truck farms, might go out of production." No economic studies or statistical information was offered to support this statement. Moreover, this is the same baseless speculation the agricultural and agribusiness lobbies have used to oppose every piece of legislation aimed at protecting the rights of farm workers and residents of agricultural communities. In fact, the success of the state's Integrated Pest Management program suggests that less dependency of chemical pesticides can generate economic as well as environmental benefits. According to an editorial in the August 7 1984 edition of the Camden Courier Post, "Despite the [IPM program] small~~l~~ scale, involving only 20,000 of the state's one million acres in farmland, the program has cut pesticide use by one million pounds and saved participating farmers \$3 million..." Daniel Weir and Mark Schapiro report in their book, CIRCLE OF POISON, that "U.S. farmers could cut insecticide use by 35 to 50 percent with no effect on crop production, simply by treating only when necessary rather than by schedule." Certainly this bill will not significantly affect the farmers' business costs and it is pure manipulation or utter ignorance to suggest that it would drive farmers out of business.

A third general position of the bill's opponents which I wish to address today is that pesticides, as they are presently used, are safe and present no significant threat to human health. New Jersey currently licenses approximately 6000 pesticides for use in the state. The EPA publicly admits that its labels are no guarantee of safety. The National Academy of Sciences agrees; it reports that two thirds of pesticides used in this state have not been adequately tested for dangerous side effects (THE RECORD, editorial, Aug. 8 1984). In addition, the chemicals are usually tested for acute toxicity rather than genetic toxicity, the latter testing requiring more time and expense to trace the long-term consequences

of repeated exposure to even small doses of pesticides. And chronic exposure to low levels of pesticides is precisely the condition when pesticides are applied in a schedule of ground and air spraying on farms and in municipal, county and state spraying programs. Moreover, the cost to the public in damage to the environment and public health may be enormous. Samuel S. Epstein, a professor of occupational and environmental medicine at the University of Illinois and the author of "The Politics of Cancer," puts the cost at \$8 billion annually.

I have seen farm workers who have been sprayed by pesticides. According to the workers, pesticide contamination is a regular occurrence. CATA (Comite de Apoyo por los Trabajadores Agricolas), the farm worker organizing committee in south Jersey, has made pesticides a major organizing issue. Sa-Lantic Health Services reported in a 1983 survey of farm worker patients that 33% had been sprayed in the fields. In California where the state maintains a pesticide poisoning reporting system there were 1,355 known cases of pesticide poisoning in 1980. The California Dept. of Health, which participated in the reporting system, points out that no more than 25% of the cases, ever get reported. Perhaps as few as 1% of all cases are reported in California, ^{again according to} the Dept. of Health. Last year in New Jersey in one incident alone, approximately 100 workers were contaminated as they were forced to pick fruit from trees which had been sprayed while they were working. With stricter enforcement and monitoring such tragic developments will be less likely.

We must have stricter and clearer regulation of pesticide use in New Jersey. S 1342 is a step in the right direction. You must not permit well-heeled opposition to the bill, with its corporate interests in pesticide profits, even down on the relatively small New Jersey farm, counter this piece of legislation, which could undoubtedly mean a great deal to the public health of our citizenry, the environment and the welfare of agricultural workers, without producing overwhelming evidence to support its arguments against S 1342. To this point that evidence is sorely lacking and evidence of the real and potential hazards of pesticide use is compelling.

Respectfully submitted,

John Ripton

John Ripton
Coalition for the Rights of
NJ Farmworkers

Just over a year ago the Worker and Community Right-to-Know act became law in New Jersey. That law requires ~~employees~~ disclosure and labeling of hazardous chemicals in the workplaces of industrial and commercial workers. But farm workplaces and farm workers are left out in the cold by this year-old law. Or, more to the point, farm workers are left out in the hot, sticky fields and orchards where, too often, they are without proper protection from toxic farm chemicals.

I believe that most New Jersey farm owners already take reasonable care of their more regular or full-time employees who work around barns and packing houses and farm machinery. These workers who handle ~~apray~~ materials and operate spray rigs are relatively few. They are mostly quite well known by the farm owners. They generally know what they are working with. They have adequate protective clothing and places to clean up and wash up.

However, I believe that too often conditions are different and less than adequate for other farm workers - those who are field workers and pick fruit and vegetables by hand. There are a lot more of these workers, most of them very part-time, most of them not as well known by the farm owners. Many field workers are Black or Hispanic. Often they have little formal education. They have limited opportunity to find out about the dangerous chemicals they have to work around. These workers have it tough enough already.

To summarize this part of my remarks,
~~A summary~~, I believe that all farm workers - including those who spray the crops, but especially those who harvest the crops - all farm workers deserve protection by this bill from toxic chemicals. They deserve at least as much protection as industrial and commercial workers who work in factories or warehouses or stores.

In a related area,
A I am disappointed that, in the language of this bill, there is so little mention of alternatives to hazardous chemicals. I have found two brief references to integrated pest management and one to biological controls. I think more should be done to promote and encourage biological pest controls which are so much safer than toxic chemical sprays.

Too few people in New Jersey know about the valuable work already being done in this area by the N. J. Dept. of Agriculture, under its Division of Plant Industry, in its Beneficial Insect Rearing Laboratory. This laboratory is located now right here in Trenton - just down the hill and across the parking lot toward the Delaware River.

On our small family farm in Cinnaminson, Burlington County, for eight years now, my wife and I have been using parasites on the bean beetles that attack our snap beans and our pole lima beans. These parasites, provided as part of the research of William Metterhouse and his staff in that laboratory, have done the job for us. This year we have had almost no Mexican Bean Beetles and no damage to these crops on our farm. (We have not used any chemical sprays on any of our vegetables for the past 17 years.)

■ This bill should be passed in a form that will make real improvements over the Right-to-Know Law that was passed and signed last year by Governor Kean - but without any protection for farm workers. Also, I hope the bill will be passed in a form that will do more to point the way to reduced use of toxic chemicals - through biological controls.

Passing this legislation, I know, will require some political courage for some legislators. It will require statesmanship and stateswomanship, ... in the face of opposition by some farmers and some farm groups and by the chemical industry.

But, I believe the bill is socially right. I believe it is morally right. And, along with economic values and political values, social values and ~~XXXXXXXXXXXX~~ moral values are important to our American way of life.

September 24, 1984

Joseph H. Taylor
Taylors Lane
Cinnaminson, N. J. 08077

Sharon L. Ahern
Chairperson
East Windsor Environmental Commission
September 24, 1984

TESTIMONY FOR SENATOR LESNIAK'S
PROPOSED COMMITTEE SUBSTITUTE S-1342

I have been a member of the East Windsor Environmental Commission for three years; two of those years I have been the Chairperson. For my whole term the Commission has tried to educate the public about the potentially harmful effects of pesticides. The culmination of that work was a Pesticide Notification Ordinance that was written by the Commission and passed by the East Windsor Town Council in March of this year. However, the ordinance was rejected by the D.E.P. two months ago.

Our local ordinance is very similar to Senator Lesniak's bill. For aerial spraying it requires notice to residents of houses and apartments residing in a 500 ft. radius of the target site, and only allows this spraying to take place between the hours of 9 p.m. and 8 a.m.. For ground spraying, however, we require notice to residents within 200 ft. In this respect our ordinance is more stringent than Senator Lesniak's bill. At the request of our Council we also required the Shade Tree Commission to provide the same notification as the public in regard to ground spraying.

There were many reasons and several incidents that led us to write our own ordinance. The primary reason being we do not believe the D.E.P. regulations protect the public health. Because of a lack of time, I will only state some of the evidence that led us to this conclusion and attach additional information.

1. The Association of New Jersey Environmental Commission provided us with the following information about Sevin, the most commonly used pesticide for aerial spraying of Gypsy Moth:

"The labeling instructions for Sevin clearly states 'Harmful if inhaled or swallowed'. Human contamination from Sevin can occur in three ways: by inhalation, ingestion or through skin absorption. Experimental results from many studies on Sevin indicate its ability to cause birth defects in dogs, guinea pigs, mice and chickens; optic nerve degeneration and blindness in rats; still births in rabbits and cotton rats; reduced reproduction in bobwhites and pheasants; and mutations in bacteria, insects, animals, and plants."

"Reye's syndrome is a disease striking children that have recently had a virus, such as influenza. It is thought to be caused by certain chemicals that impact the body's immune system and enhance viral infection. The chemicals used to dissolve a pesticide, and even the pesticides themselves, are suspected of interacting with a virus to cause Reye's Syndrome, which can be fatal."

"EPA's Sevin expert said he wouldn't want women of child-bearing age to be excessively exposed to carbaryl and that it would

be prudent to take cover when spray planes were overhead."

"To avoid contamination, at the very least, stay indoors with windows shut during aerial application of Sevin. If it is possible for you to leave the treatment area, do so the day of the spraying or even for an entire week following the spraying.

2. The New Jersey Department of Health released precaution in the spring of 1983 which stated;

"to avoid exposure to pesticides remain indoors with windows shut and air conditioners shut off"

"wash off all outdoor toys and furniture after spraying takes place"

3. We were receiving complaints that people were being exposed to aerial and ground applications of pesticides.
4. I personally witnessed an aerial spraying of Sevin over a residential community at 11:30 a.m. on a windy day. I was in a park about two miles from the target site with my children and my daughter asked me what the funny smell was. It was then I noticed the helicopter. I went immediately home and called our Health Dept. and the Health Officer advised it was much too windy to be spraying. My daughter and I had been exposed to that pesticide by inhalation. And what about the children who were out playing in their yards right under the spraying taking place? Since the only notice those people had was a local notice in the paper and very few people read local notices how could those people protect themselves from the potentially harmful effects of that pesticide?

It was after much information and several incidents like these that the Environmental Commission decided that the current DEP regulations did not go far enough to protect the public health. How could citizens hide by the precautions of the New Jersey Department of Health if they were unaware that the spraying was going to take place? Is a local notice in the paper a sufficient warning when so few people read local notices? With what we know about the potentially harmful effects of pesticides isn't it our responsibility, as public servants, to give people sufficient warning so they can protect their health and their children's health?

We did much research in developing this ordinance. We read a 1975 EPA study on pesticide drift from aerially spraying that said in the best weather conditions pesticides will drift 1000 ft. from the target site. We reviewed 5 other municipal ordinances to see how other municipalities were handling this problem. We spoke several times to the Public Advocate's office to determine if we were keeping our ordinance consistent with the DEP's model ordinance. We worked closely with our Council who were very supportive of this ordinance.

page 3
Sharon L. Ahern
testimony for S-1342

This bill proposed by Senator Lesniak is desperately needed in order to give people the opportunity to protect themselves from the potentially harmful effects of pesticides if they so choose. We tried to do this on the municipal level, but were prevented from doing so by the DEP. Just one month after our ordinance was rejected we received another complaint from a woman whose home was sprayed accidentally. She had all her windows open and her and her children were exposed. If our ordinance had been passed by the DEP she would have received a notice in the mail and could have protected herself from exposure. Regulation that do not accomplish their goal are worthless. A legal notice in the paper is not protecting people; therefore it is not accomplishing its goal. We need more stringent notification requirements.

*Sharon L. Ahern
Chairperson
East Windsor Environmental
Commission*

Attachments:

1. Correspondence surrounding development of ordinance and a copy of the East Windsor Pesticide Notification Ordinance
2. Information on the health effects of pesticides
3. 1975 EPA study on pesticide drift

SHARON L. AHERN
TESTIMONY FOR
LESNIAK - 5-13-12

ATTACHMENTS

SECTION 1

Correspondence

East Windsor Pesticide Notification Ordinance

7 Hope Valley Drive
Cranbury, N.J. 08512
June 4, 1983

Honorable Mayor of East Windsor
15 Pennington Road
East Windsor, N.J. 08520

Dear Mayor Charney,

Thank you for your time on the phone last evening; I would like to elaborate on our conversation.

As I explained to you on the phone I witnessed the aerial spraying of Carbaryl(Sevin) yesterday at 11:30 over Hickory Acres. I was upset that this spraying was taking place on a day that was windy(therefore guaranteeing drift), but also at a time when many toddlers are out playing in their yards. Even though this commercial applicator was within his legal rights, I believe because of the recent controversy concerning the safety of using the pesticide Sevin that it is dangerously wrong to aerial spray at a time when children and other residents have a much greater likelihood of being exposed.

Last month the Public Advocate sued the Department of Environmental Protection because of their inadequate pesticide notification rules. The Public Advocate contends that the present regulations do not protect children and pregnant women. Yesterday's incident confirmed that in my mind. Twenty five residents hired Mr. Duffy to spray their property for cypessy moths. The only had to put a legal notice in the paper 7 days prior to spraying; yet, how many people read legal notices? It is very likely that many mothers were out playing with their children at 11:30(like I was when I witness the incident) totally unaware of the spraying.

Three states; Connecticut, Pennsylvania, and Massachusetts are moving toward ways to prevent the aerial spraying of Sevin. I believe the only reason New Jersey hasn't is because of the strong lobbying done by the large chemical industry in this state. Therefore I am asking for Council's support in getting a local ordinance passed that

would strengthen the pesticide notification rules to:

- a. Twenty one and seven days prior to spraying a press release(not just a legal notice)be placed in two local newspapers, stating the time of spraying, the name of the chemical, the possible health effects, and the necessary precautions.
- b. Ten days written notice before spraying to all residents in effected area.
- c. Renotification if the spraying is not done because of bad weether.
- d. Prohibit spraying between the hours of 7:30 A.M. and 8:30 P.M. in order to limit the possibility of exposure to children.

I am attaching recent press releases on the subject and also statements from Health Departments, including New Jersey's, on their concerns of exposure to Sevin.

I hope to hear from you on this subject soon.

Sincerely,

Sharon L. Ahern
Chairwoman
Environmental Commission

enclosures



State of New Jersey

DEPARTMENT OF THE PUBLIC ADVOCATE
DIVISION OF PUBLIC INTEREST ADVOCACY

JOSEPH H. RODRIGUEZ
PUBLIC ADVOCATE

CN 850
TRENTON, NEW JERSEY 08625

RICHARD E. SHAPIRO
DIRECTOR
TEL: 609-292-1693

September 29, 1983

Ms. Sharon L. Ahern
Environmental Commission
16 Lanning Boulevard
East Windsor, NJ 08520

Dear Ms. Ahern:

I apologize for the delay in responding to your request that I review the East Windsor Township proposed notification ordinance. As you know, I have been busy with the pesticide regulations lawsuit and new pesticide legislation which is expected to be introduced soon.

The proposed ordinance looks well written and comprehensive. It is certainly "more stringent" than the proposed DEP model ordinance and therefore it is in accordance with the provision of the Pesticide Control Act, N.J.S.A. §13:1F-13, preserving a municipality's right to legislate on this issue. As you know from our previous conversations, DEP and the Attorney General's office have interpreted this provision to also require "consistency" with the overall pesticide regulatory scheme. The department has stated in its model ordinance that it will use the model ordinance to evaluate such "consistency". I do not know any better than you what this standard is. It seems to me that your ordinance is indeed consistent with the overall intent of the Pesticide Control Act and the content of DEP's regulation governing pesticide use and application. How DEP will evaluate your ordinance is not something I can predict. However, I think you should feel confident that should this ordinance be challenged by DEP as inconsistent, you would have a good legal case to make that the agency's interpretation is incorrect.

239x

Ms. Sharon L. Ahern
Page - 2 -
September 29, 1983

As I mentioned to you, as part of our legal appeal of the pesticide regulations we are attempting to establish the irrationality of the model ordinance approach to ornamental spraying and notification. We are doing this through legal arguments and also hope to demonstrate how poorly the scheme is working in practice. I wondered if you could write me a letter detailing the confusion that has resulted on the municipal level with respect to how the model ordinance works. You could discuss your own experiences, the number of people you had to talk to, and the research you did, in trying to comply. Any information that would help establish that this method of regulation is unworkable and confusing (and therefore unlikely to result in protective ordinances) would be very helpful. Then I can have the information typed in affidavit form which you could then sign and have notarized. Please call me if you have any questions about this procedure or the information I seek.

I hope I have been helpful to your efforts to pass the ordinance. Thank you for assisting us on this lawsuit.

Very truly yours,



SHARON A. TREAT
Assistant Deputy Public Advocate

SAT/cat

October 16, 1983

Sharon A. Treat
Assistant Deputy Public Advocate
Department of the Public Advocate
CN 850
Trenton, N.J. 08625

Dear Ms. Treat,

Our Environmental Commission is in the process of writing a pesticide notification ordinance, because we believe the present state notification requirements, as outlined in the D.E.P. model ordinance, are inadequate. However, there is considerable doubt that the D.E.P. will accept our ordinance because it is more "stringent" than the model ordinance.

I will outline the experience that made our commission decide we needed better notification rules, and the doubt and difficulty we have had in completing this seemingly simple task.

I was in a park on a windy day, and I saw a helicopter aerially spraying for mosquitos over a wooded development not more than 16 feet from where I was standing. Considering the controversy that exists over the safety of being exposed to certain pesticides I was astonished that he was spraying not only on a windy day, but that it was 11:30 A.M., a time when so many toddlers are out playing in their yards.

With some research I found out that 25 families out of several hundred in that development wanted that spraying done. Yet the only notification the commercial applicator is required by law to make is a legal notice in the paper. Since few people read legal notices I wondered how many children were exposed to that pesticide that day? When I called the D.E.P. to place a complaint they informed me it was difficult, if not impossible, to place a complaint on wind velocity; even though our local health officer had concurred with me that it was too windy to be spraying.

According to a 1975 E.P.A. study, under the best ambient conditions (wind speed 3 to 5 MPH, neutral atmospheric stability, air temperature above 60 degrees F, and a relative humidity of less than 50%) up to 150 feet would be affected by the drift from aerial spraying. And to compound the problem, according to the same study, the later in the day the

Ms. Sharon A. Treat
Page 2
October 16, 1983

spraying takes place the more drift occurs. The ideal time being 6 A.M. with only a 24.6% drift.

So based on our calculations using a 1000 foot buffer zone 150 unaware families were exposed, and if wind velocity and time of day are taken into consideration many more families were exposed including myself and by children standing 1600 feet away.

Since that day the commission has spent many hours researching and speaking to many people trying to find out what we on the municipal level can do to give our citizens better protection. At every turn we are told that D.E.P. will not pass our ordinance even though we believe it is "consistent", although more "stringent", with their model ordinance. We have the support from our Township Council but there is so much confusion about what D.E.P. will accept they hesitate to pass an ordinance only to have D.E.P. reject it. My question is, why should the D.E.P. prevent the municipalities from developing more stringent notification rules if they believe it will better protect their citizens?

I hope our experience will help you with your lawsuit. Thank you.

Very truly yours,

SHARON L. AHERN
Chairperson
East Windsor Environmental Commission

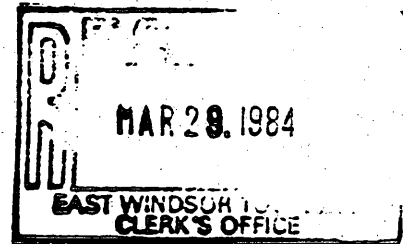
242x



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
BUREAU OF PESTICIDE CONTROL
380 Scotch Road, West Trenton, N.J. 08628

March 27, 1984

Ms. Elizabeth G. Nolan
Municipal Clerk
16 Lanning Boulevard
East Windsor, NJ 08520



Dear Ms. Nolan:

My office is in receipt of East Windsor Township's proposed pesticide ordinance (1984-7).

The proposed ordinance deviates extensively from the Model Ordinance developed by the department. The intent of the Model Ordinance is to provide guidance to the municipality in developing an acceptable local pesticide ordinance. Adoption of any section or the total model ordinance would ensure prompt departmental approval.

Please find enclosed a copy of the Model Ordinance for your review and consideration.

If you have any questions, please contact me at (609)984-4158.

Sincerely,

Raymond A. Ferrarin
Raymond A. Ferrarin
Acting Bureau Chief

RAF:mfs
Enclosure

243x

JANICE S. MIRONOV

Attorney at Law

April 5, 1984

536 U.S. Route 130
East Windsor, New Jersey 08520

(609) 443-2991

Raymond A. Ferrarin
Acting Bureau Chief
Department of Environmental Protection
Division of Environmental Quality
Bureau of Pesticide Control
380 Scotch Road
West Trenton, New Jersey 08628

Re: East Windsor Township Ordinance 1984-7:
Application of Pesticides

Dear Mr. Ferrarin:

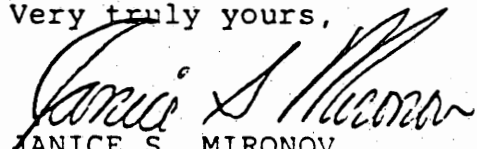
The East Windsor Township Council is in receipt of your letter dated March 27, 1984, regarding the Township's pesticide ordinance.

We appreciate your bringing to our attention the Model Ordinance developed by the Department of Environmental Protection. However, prior to the Township Council's adoption of Ordinance 1984-7, the Model Ordinance was reviewed and discussed.

As such, we would ask that the Department kindly review the Ordinance adopted by East Windsor Township as expeditiously as possible, pursuant to the Department's apparent authority under N.J.S.A. 13:1F-13. That statutory section, of course, expressly states that, "Nothing in this act [pesticide control act] or in any rules or regulations promulgated pursuant thereto shall preclude the right of any governing body of a municipality . . . subject to the approval of the department, to adopt ordinances or regulations more stringent than this act or any rules or regulations promulgated pursuant thereto."

Thank you for your cooperation in this matter. We look forward to hearing from you as quickly as possible.

Very truly yours,


JANICE S. MIRONOV
East Windsor Township Attorney

JSM/rm

cc: Mayor and Council Members

244x

ORDINANCE 1984-7
TOWNSHIP OF EAST WINDSOR
COUNTY OF MERCER

AN ORDINANCE ESTABLISHING NOTIFICATION
REQUIREMENTS AND TIME RESTRICTIONS
FOR APPLICATIONS OF PESTICIDES
BY AERIAL AND GROUND SPRAYING

WHEREAS, residents of East Windsor Township have applied or engaged private contractors to apply pesticides to their property; and

WHEREAS, the public safety and welfare require some regulation of pesticide spraying.

NOW, THEREFORE, BE IT ORDAINED by the Township of East Windsor, County of Mercer, State of New Jersey, as follows:

I. The following new section, entitled "0-0 Application of Pesticides," is hereby inserted in Chapter

- to read as follows:

0-0.1 Definitions. As used in this section:

a. "Aerial spraying" shall mean the application of a pesticide from either a fixed or rotary wing aircraft.

b. "Beekeepers" shall mean persons who keep bees on their premises for commercial or agricultural purposes and who have registered with the Township.

c. "Ground spraying" shall mean the application of a pesticide from a mechanical device sprayed to or from 15 feet high.

d. "Pesticide" shall mean any substance or mixture of substances designed for use in preventing or controlling any insect, rodent, nematodes, predatory animals, fungi, weeds or any other form of plant or animal life.

e. "Pesticide applicator" shall mean any person who applies or supervises the application of any pesticide.

f. "Target site" shall mean a specific location, including, but not limited to any crop, object, delineated field or property to which pesticides are to be applied.

0-0.2 Aerial Spraying Notification Requirements. Prior to any aerial spraying, a pesticide applicator must provide notice of intent to apply a pesticide as follows:

3/13/84

245x

a. Public notice shall be given by publication in the official newspaper of the Township not more than ten days nor less than three days prior to the anticipated date of the pesticide application.

b. Notice shall be given by regular first class mail or by hand-delivery to all occupants within 500 feet of the target site. The notice shall be mailed not less than five days or hand-delivered not less than three days prior to the anticipated date of the application. The tax assessor shall within seven days after receipt of a request for a list of property owners and upon receipt of payment of a fee of twenty (\$20.00) dollars or twenty-five (\$.25) cents per name, whichever is greater, make and certify a list from the current tax duplicate of names and addresses of owners.

c. Notice shall be given by first class mail, mailed not less than five days prior to the anticipated date of the application, to all beekeepers within one mile of the target site.

d. The notice shall contain the following information:

1. The name, address, telephone number and registration number, if any, of the pesticide applicator.
2. The date and time of the proposed application and three alternate dates in the event the spraying is postponed due to weather conditions. The notice should state the weather conditions which would prevent spraying.
3. The chemical and trade name of all pesticides to be applied.
4. The location, with lot and block numbers, of the target site.
5. Any health hazards or precautionary statements contained on the pesticide's registered label.

e. If the application does not occur on any of the four specified dates, the pesticide applicator must renotify of any new dates in accordance with the provisions of this section.

f. The pesticide applicator shall file an affidavit of proof of service and publication, with a copy of the notice, with the Township Clerk at least one day prior to the application.

3/13/84

246x

0-0.3 Ground Spraying Notification Requirements.

a. Prior to any ground spraying, the pesticide applicator must provide notice of intent to apply a pesticide to all occupants within 200 feet of the target site. Notice shall be provided in accordance with the provisions of subsection 0-0.2(b), (c) and (d), except that the fee for a list of property owners shall be ten (\$10.00) dollars or twenty-five (\$.25) cents per name, whichever is greater.

b. No notice is required where the actual target site is greater than 200 feet from any adjoining property.

0-0.4 Time Restrictions. Aerial spraying by a pesticide applicator shall occur only between the hours of 9 P.M. and 8 A.M., Monday through Friday.

0-0.5 Exceptions. Nothing in this section shall apply to the pesticide applications to commercial farms as provided in N.J.S.A. 4:1C-1, et seq., the "Right to Farm Act."

0-0.6 Penalties. Any person who violates any provision of this section shall be subject to a fine of not more than \$500.00 and imprisonment for not more than 30 days.

0-0.7 Severability. If any provision of this section is held to be invalid by any court of competent jurisdiction, the remaining provisions of this ordinance shall not be invalidated.

0-0.8 Effective Date. This ordinance shall become effective twenty (20) days after final passage and publication according to law, and upon approval of the Commissioner of the New Jersey Department of Environmental Protection.

ATTEST:


ELIZABETH G. NOLAN
Township Clerk


LEONARD J. MELNER
Mayor

ADOPTED: *March 13, 1984*

3/13/84

247x

SHARON L. AMERN
TESTIMONY FOR
LESNIAK - S-1342

ATTACHMENTS

SECTION Q - HEALTH HAZARDS OF SEVIN

Occupational Health Guideline for Carbaryl (Sevin (R))*

INTRODUCTION

This guideline is intended as a source of information for employees, employers, physicians, industrial hygienists, and other occupational health professionals who may have a need for such information. It does not attempt to present all data; rather, it presents pertinent information and data in summary form.

SUBSTANCE IDENTIFICATION

- Formula: $C_{12}H_{11}NO_2$
- Synonyms: 1-Naphthyl N-methylcarbamate; alpha-naphthyl N-methylcarbamate
- Appearance: Colorless solid.

PERMISSIBLE EXPOSURE LIMIT (PEL)

The current OSHA standard for carbaryl is 5 milligrams of carbaryl per cubic meter of air (mg/m^3) averaged over an eight-hour work shift. NIOSH has recommended a permissible exposure limit of 5 mg/m^3 averaged over a work shift of up to 10 hours per day, 40 hours per week. The NIOSH Criteria Document for Carbaryl should be consulted for more detailed information.

HEALTH HAZARD INFORMATION

- Routes of exposure
Carbaryl can affect the body if it is inhaled, if it comes in contact with the eyes or skin, or if it is swallowed. It may enter the body through the skin.
- Effects of overexposure
Exposure to carbaryl may cause small pupils, watering of the eyes, excessive discharge from the nose, mouth watering, sweating, abdominal cramps, nausea, vomiting, diarrhea, shaking, a blue color of the skin, and convulsions. Concentrated solutions on the skin may cause irritation and systemic intoxication. Carbaryl, when given to several species of pregnant animals, has caused defects in their offspring.

- Reporting signs and symptoms

A physician should be contacted if anyone develops signs or symptoms and suspects that they are caused by exposure to carbaryl.

- Recommended medical surveillance

The following medical procedures should be made available to each employee who is exposed to carbaryl at potentially hazardous levels:

1. Initial Medical Examination:

—A complete history and physical examination: The purpose is to detect pre-existing conditions that might place the exposed employee at increased risk, and establish a baseline for future health monitoring. Examination of the respiratory system, cardiovascular system, and central nervous system should be stressed. The skin should be examined for evidence of chronic disorders.

—Urinalysis: Carbaryl may cause kidney damage. Urinalysis should be performed to include, at a minimum, specific gravity, albumin, glucose, and a microscopic on centrifuged sediment.

—Medical warning: Employees should be informed of animal studies showing reproductive effects resulting from exposure to carbaryl. Exposure should be minimized during pregnancy.

2. Periodic Medical Examination: The aforementioned medical examinations should be repeated on an annual basis.

- Summary of toxicology

Carbaryl (Sevin) dust is a short-acting anticholinesterase agent, with the important characteristic of rapid reversibility of enzyme inhibition. It inactivates cholinesterase, resulting in the accumulation of acetylcholine at synapses in the nervous system, at neuromuscular junctions of the skeletal and smooth muscles, and at secretory glands. Signs and symptoms of overexposure may include miosis, blurred vision, lacrimation, excessive nasal discharge or salivation, sweating, abdominal cramps, nausea, vomiting, diarrhea, tremor, cyanosis, and convulsions. The rapid reversibility of cholinesterase inhibition by carbamates such as carbaryl is of significance in monitoring exposure: measurements

These recommendations reflect good industrial hygiene and medical surveillance practices and their implementation will assist in achieving an effective occupational health program. However, they may not be sufficient to achieve compliance with all requirements of OSHA regulations.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service Center for Disease Control
National Institute for Occupational Safety and Health

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

values in the normal range of activity and will not reflect the true magnitude of exposure; carbaryl is also rapidly metabolized, which further diminishes the severity of its effect. A single dose of 250 mg (approximately 2.8 mg/kg) ingested by an adult man resulted in moderate poisoning; after 20 minutes, there was sudden onset of abdominal pain followed by profuse sweating, lassitude, and vomiting; one hour after ingestion, and following a total of 3 mg atropine sulfate, the subject felt better and completely recovered after another hour. In a study of 59 workers exposed to concentrations ranging from 0.23 to 31 mg/m³ during a 19-month period, there were no signs or symptoms of anticholinesterase activity; in the most heavily exposed workers, relatively large amounts of 1-naphthol (a metabolite of carbaryl) were excreted in the urine, and the blood cholinesterase activity was slightly depressed. It was concluded that an excretion level of total (free plus conjugated) 1-naphthol significantly above 400 ug/100 ml of urine indicates absorption and metabolism of carbaryl. On the skin, concentrated solutions may cause irritation and systemic intoxication. Carbaryl administered orally during organogenesis was teratogenic in guinea pigs at a dose of 300 mg/kg and in beagle dogs at a dose of 25 mg/kg. The dog has been shown to metabolize carbaryl differently from other animal species, which may explain the anomalous teratogenicity. Of 60 male mongrel rats given 30 mg/kg orally twice weekly, 12 were alive after 22 months of treatment; 2 of the 12 had fibrosarcomata, 1 had a polymorphonuclear sarcoma, and 1 had an osteosarcoma with numerous metastases; of 48 rats receiving 20 mg in a paraffin pill implanted subcutaneously, 10 were alive after 22 months, and 2 of the 10 had fibrosarcomata; 46 of 48 control animals were alive in the eleventh month when a fibrosarcoma was discovered in 1 rat; although not stated, there were apparently no further deaths or tumors in control rats during the 22 months of the study.

CHEMICAL AND PHYSICAL PROPERTIES

- Physical data
 1. Molecular weight: 201.2
 2. Boiling point (760 mm Hg): Decomposes
 3. Specific gravity (water = 1): 1.23
 4. Vapor density (air = 1 at boiling point of carbaryl): Not applicable
 5. Melting point: 142 C (288 F)
 6. Vapor pressure at 20 C (68 F): 0.005 mm Hg
 7. Solubility in water, g/100 g water at 20 C (68 F): 0.004
 8. Evaporation rate (butyl acetate = 1): Not applicable
- Reactivity
 1. Conditions contributing to instability: None
 2. Incompatibilities: Contact with strong oxidizers may cause fires and explosions.

and vapors (such as oxides of nitrogen, methylamine, and carbon monoxide) may be released in a fire involving carbaryl.

- 4. Special precautions: None
- Flammability
 1. Flash point: Data not available
 2. Minimum ignition temperature: Data not available
 3. Minimum explosive concentration: Data not available
 4. Extinguishant: Water
- Warning properties
 1. Odor Threshold: The American National Standards Institute states that carbaryl is "essentially odorless."
 2. Eye Irritation Level: Grant states that "splash contact of an insecticide liquid containing both carbaryl and dimethoate in one patient on two different occasions caused transient injury of the corneal epithelium and much swelling of the lids, but recovery was rapid and complete. This suggests that carbaryl is not particularly dangerous to the eye."
 3. Evaluation of Warning Properties: No quantitative data are available relating warning properties to air concentrations of carbaryl. The concentration in saturated air at 20 C could present a significant exposure relative to the permissible exposure.

MONITORING AND MEASUREMENT PROCEDURES

- General

Measurements to determine employee exposure are best taken so that the average eight-hour exposure is based on a single eight-hour sample or on two four-hour samples. Several short-time interval samples (up to 30 minutes) may also be used to determine the average exposure level. Air samples should be taken in the employee's breathing zone (air that would most nearly represent that inhaled by the employee).
- Method

Sampling and analyses may be performed by collection of carbaryl on a filter, followed by colorimetric analysis. An analytical method for carbaryl is in the *NIOSH Manual of Analytical Methods*, 2nd Ed., Vol. 3, 1977, available from the Government Printing Office, Washington, D.C. 20402 (GPO No. 017-033-00261-4).

RESPIRATORS

- Good industrial hygiene practices recommend that engineering controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when they fail and need to

be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations. If the use of respirators is necessary, the only respirators permitted are those that have been approved by the Mine Safety and Health Administration (formerly Mining Enforcement and Safety Administration) or by the National Institute for Occupational Safety and Health.

- In addition to respirator selection, a complete respiratory protection program should be instituted which includes regular training, maintenance, inspection, cleaning, and evaluation.

PERSONAL PROTECTIVE EQUIPMENT

- Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent repeated or prolonged skin contact with carbaryl or liquids containing carbaryl.

- If employees' clothing may have become contaminated with carbaryl, employees should change into uncontaminated clothing before leaving the work premises.

- Non-impervious clothing which becomes contaminated with carbaryl should be removed promptly and not reworn until the carbaryl is removed from the clothing.

- Clothing contaminated with carbaryl should be placed in closed containers for storage until it can be discarded or until provision is made for the removal of carbaryl from the clothing. If the clothing is to be laundered or otherwise cleaned to remove the carbaryl, the person performing the operation should be informed of carbaryl's hazardous properties.

- Employees should be provided with and required to use dust- and splash-proof safety goggles where carbaryl or liquids containing carbaryl may contact the eyes.

SANITATION

- Skin that becomes contaminated with carbaryl should be promptly washed or showered with soap or mild detergent and water to remove any carbaryl.

- Eating and smoking should not be permitted in areas where solid carbaryl is handled, processed, or stored.

- Employees, including those in agricultural operations, who handle carbaryl or liquids containing carbaryl should wash their hands thoroughly with soap or mild detergent and water before eating, smoking, or using toilet facilities.

COMMON OPERATIONS AND CONTROLS

The following list includes some common operations in which exposure to carbaryl may occur and control methods which may be effective in each case:

Operation

Use as a pesticide and acaricide for field crops, fruit, vegetables, ornamentals, livestock, poultry, pets, domestic dwellings, medical facilities, schools, commercial and industrial areas, urban and rural outdoor areas, and sewage treatment plants

Formulation and manufacture of carbaryl

Controls

Personal protective equipment

Process enclosure; local exhaust ventilation; personal protective equipment

EMERGENCY FIRST AID PROCEDURES

In the event of an emergency, institute first aid procedures and send for first aid or medical assistance.

• Eye Exposure

If carbaryl or liquids containing carbaryl get into the eyes, wash eyes immediately with large amounts of water, lifting the lower and upper lids occasionally. If irritation is present after washing, get medical attention immediately. Contact lenses should not be worn when working with this chemical.

• Skin Exposure

If carbaryl or liquids containing carbaryl get on the skin, promptly wash the contaminated skin using soap or mild detergent and water. If carbaryl or liquids containing carbaryl penetrate through the clothing, remove the clothing promptly and wash the skin using soap or mild detergent and water. Get medical attention immediately.

• Breathing

If a person breathes in large amounts of carbaryl, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

• Swallowing

When carbaryl or liquids containing carbaryl have been swallowed and the person is conscious, give the person large quantities of water immediately. After the water has been swallowed, try to get the person to vomit by having him touch the back of his throat with his finger. Do not make an unconscious person vomit. Get medical attention immediately.

• Rescue

Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and

know the locations of rescue equipment before the need arises.

SPILL AND DISPOSAL PROCEDURES

- Persons not wearing protective equipment and clothing should be restricted from areas of spills until cleanup has been completed.

- If carbaryl is spilled, the following steps should be taken:

1. Ventilate area of spill.

2. For small quantities, sweep onto paper or other suitable material, place in an appropriate container and burn in a safe place (such as a fume hood). Large quantities may be reclaimed; however, if this is not practical, dissolve in a flammable solvent (such as alcohol) and atomize in a suitable combustion chamber equipped with an appropriate effluent gas cleaning device.

- Waste disposal methods:

Carbaryl may be disposed of:

1. By making packages of carbaryl in paper or other flammable material and burning in a suitable combustion chamber equipped with an appropriate effluent gas cleaning device.

2. By dissolving carbaryl in a flammable solvent (such as alcohol) and atomizing in a suitable combustion chamber equipped with an appropriate effluent gas cleaning device.

REFERENCES

- American Conference of Governmental Industrial Hygienists: "Carbaryl (Sevin)," *Documentation of the Threshold Limit Values for Substances in Workroom Air* (3rd ed., 2nd printing), Cincinnati, 1974.
- *American National Standard Acceptable Concentrations - Carbaryl (Sevin)*: ANSI-Z62.38-1962, American National Standards Institute, Inc., New York, 1962.
- Andrianova, M. M., and Alekseev, I. V.: "On the Problem of Carcinogenous Properties of the Pesticides Sevin, Maneb, Ciram and Cineb, *Voprosy Pitaniia*, 29:71-74, 1970.
- Best, E. M., Jr., and Murray, B. L.: "Observations on Workers Exposed to Sevin Insecticide: A Preliminary Report," *Journal of Occupational Medicine*, 10:507-517, 1962.

- Christensen, H. E., and Luginbuhl, I. L. (eds.): *NIOSH Toxic Substances List*, 1974 Edition, HEW Publication No. 74-134, 1974.

- Deichmann, W. B., and Gerarde, H. W.: *Toxicology of Drugs and Chemicals*, Academic Press, New York, 1969.

- Gleason, M. N., Gosselin, R. E., Hodge, H. C., and Smith, R. P.: *Clinical Toxicology of Commercial Products* (3rd ed.), Williams and Wilkins, Baltimore, 1969.

- Goodman, L. S., and Gilman, A.: *The Pharmacological Basis of Therapeutics* (5th ed.), Macmillan, New York, 1975.

- Grant, W. M.: *Toxicology of the Eye* (2nd ed.), C. C. Thomas, Springfield, Illinois, 1974.

- Hayes, W. J., Jr.: *Clinical Handbook on Economic Poisons, Emergency Information for Treating Poisoning*, U.S. Public Health Service Publication No. 476, U.S. Government Printing Office, Washington, D.C., 1963.

- International Labour Office: *Encyclopedia of Occupational Health and Safety*, McGraw-Hill, New York, 1971.

- National Institute for Occupational Safety and Health, U.S. Department of Health, Education, and Welfare: *Criteria for a Recommended Standard . . . Occupational Exposure to Carbaryl*, HEW Publication No. (NIOSH) 77-107, GPO No. 017-033-00196-1, U.S. Government Printing Office, Washington, D.C., 1976.

- Robens, J. F.: "Teratologic Studies of Carbaryl, Diazinon, Norel, Disulfiram, and Thiram in Small Laboratory Animals," *Toxicology and Applied Pharmacology*, 15:152-163, 1969.

- Sax, N. I.: *Dangerous Properties of Industrial Materials* (3rd ed.), Van Nostrand Reinhold, New York, 1968.

- Smalley, H. E., et al.: "Teratogenic Action of Carbaryl in Beagle Dogs," *Toxicology and Applied Pharmacology*, 13:392-403, 1968.

- Spencer, E. Y.: *Guide to the Chemicals Used in Crop Protection* (6th ed.), Publication 1093, Research Branch Agriculture, Canada, 1973.

* SPECIAL NOTE

The International Agency for Research on Cancer (IARC) has evaluated the data on this chemical and has concluded that it causes cancer. See *IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man*, Volume 12, 1976.

Science Watch

Long-Lived Pesticides

Many soil scientists have long held the theory that when most pesticides fall to earth they degrade relatively quickly in the soil into their harmless basic components. But research by scientists at Pennsylvania State University indicates that some widely used pesticides act quite differently and do not readily disintegrate in the soil.

They found that such pesticides as DDT, Sevin and 2,4-D tend to polymerize, or combine with other molecules, in the soil, producing new toxic chemical components that can have even longer lives than the original ones. Such transformed components also tend to become bound to the soil or

humus, resulting in unknown effects on the environment.

The scientists reported that below the surface of the soil, enzymes or other catalysts that cannot distinguish between man-made pesticide phenols and naturally occurring phenolic chemicals in the soil, bind the two together to form the new complexes. These findings, the researchers said, indicate that such occurrences may be widespread in nature and, if so, may have profound implications for human health and environmental protection.

The scientists' research, made public at the recent annual meeting of the American Chemical Society in New York, was presented by the Jean-Marc Bollag, professor of soil microbiology at Pennsylvania State University. Further research into the length of life

of the polymerized compounds and their environmental effects is being financed by the Federal Environmental Protection Agency.

Toxic Shock: Transmitted

California physicians who simultaneously treated a woman and her husband for toxic shock syndrome say cases suggest this sometimes-lethal disease can be spread from one person to another, perhaps through kissing or sexual contact.

Although women seem much more susceptible to toxic shock than men are, it is conceivable that both partners could independently contract the disease, which is thought to be caused by a toxin-producing bacterium, *Staphylococcus aureus*, from the s

Athletes Are Put In Right Frame of Mind

Continued From Page C1

imagery rehearsal can significantly improve athletic performance in just a few weeks, other techniques are also proving helpful. A program developed at Pennsylvania State University, for example, uses biofeedback to boost athletic prowess.

Daniel M. Landers, a psychologist now at Arizona State University, used biofeedback with sport rifle shooters and basketball players at Penn State. In yet-unpublished studies, he reports that shooters are most accurate when they pull the trigger between heartbeats. By viewing the electrical impulses of their heartbeats on a screen before them, many of the shooters — already of championship caliber — were able to train themselves always to fire between heartbeats, which measurably increased their accuracy.

In another experiment, basketball players wore caps fitted with electrodes that measured their brainwaves as they shot foul shots. Dr. Landers found that as the players concentrated on their shooting, the left hemisphere of the brain produced more relaxing alpha waves while the right side produced more beta waves, indicating that was the primary hemisphere for concentration. The psy-

chologist plans to use visual biofeedback of brainwaves to improve the concentration of basketball players.

Improved concentration, along with reduced anxiety, is also the aim of Dr. Suinn of Colorado State University. Dr. Suinn has developed a technique that combines physical relaxation with "imagery rehearsal," which he says "is more than sheer imagination." He says it is "a well-controlled copy of experience, a sort of body-thinking similar to the powerful illusion of certain dreams at night."

What makes it different from a dream is that imagery rehearsal can be controlled by the individual, Dr. Suinn says. And what makes it different from simply thinking about something is its effect upon a variety of senses, in addition to the visual. "Imagery is also tactile, auditory, emotional and muscular," he says. "Without fail, athletes feel their muscles in action as they rehearse their sport."

Dr. Suinn, Dr. Tutko and others first employ a relaxation technique developed in 1920 by Edmund Jacobson, a Chicago physiologist. The process involves tensing and flexing muscles from head to foot, then releasing the tension and "making" the muscle relax. Eventually, the flexing and tensing can be eliminated and "the athlete can become physically and



One researcher found that shoot-

mentally relaxed within seconds, according to Dr. Suinn.

In this deep state of relaxation a person can slip easily into imagery where he or she "lives" an athletic event complete with specific weather conditions, noise and conditions. The technique works well to improve performance, Suinn says, because it adheres to well-known psychological principles that says the closer one can come to simulating an actual situation, the greater his chances are of developing the skill to perform in that situation.

And as Dr. Suinn reports in the "Imagery, Current Theory and Application," a number of studies appear to attest to the success of imagery rehearsal, or what he calls visual behavioral rehearsal. He cites research indicating that imagery rehearsal significantly improves shooting of basketball teams, the abilities of tennis players, the techniques of divers and the scores of golfers.

Statement of Dr. Joan Ehrenfeld to the Zoning and
Environment Subcommittee and the Environmental
and Shade Tree Commission of Bernardsville

I am Assistant Research Professor in the Center for Coastal and Environmental Studies, Rutgers University, Piscataway, New Jersey, and Director of Research of the New Jersey Audubon Society. My professional training is in the ecology of insect-plant interactions, and my work in New Jersey has been in the area of forest ecology. Last year, I was employed by the National Park Service as the senior investigator in a project with Rutgers University to make an ecological study of and management recommendation to the Morristown National Historical Park. A part of this study was an assessment of the long-term effects of the major gypsy moth defoliation of 1967-69, in which approximately 10,000 oak trees were killed. I have recently reported the findings of this work at the meeting of the American Association for the Advancement of Science at Washington, D.C.

The results of the experience in the Park are relevant to the situation in Bernardsville. During the 1967-69 gypsy moth infestation, the National Park Service refused to spray with pesticides, and instead, the New Jersey Department of Agriculture began a program of biological control of the moth by introducing their natural enemies. By 1970, the moth population had crashed, and has remained at low levels since that time.

The results of my detailed survey of the 1500-acre Park showed that the gaps in the forest that were left by gypsy moth-killed trees were closed rapidly by young trees and shrubs that were growing in the forest before the moth infestation. Thus the nature of the forest today is remarkably similar to what it was prior to the arrival of the gypsy moth. I also noted that the majority of the trees that died were those growing on poor sites with shallow, water-logged soils; the oaks on the better drained, deeper upland soils rarely succumbed.

You will have been given reasons for spraying in your community. I believe that you should also know the reasons for not spraying, including the serious side-effects that have often been associated with such programs.

First, because the spraying is likely to affect the introduced enemies of the gypsy moth, outbreak conditions may be prolonged, thus necessitating repeated applications of spray in future years. Even if this does not occur, your trees will be especially vulnerable to future insect attacks, because of the absence of natural enemies of these pests. This has been a common experience with a variety of pesticide spraying programs, in many parts of northeastern America. Naturally, you must assume that spraying will cost the New Jersey taxpayers more in the future than it does now.

Second, sprays, even when used according to instruction, have been shown to have many harmful effects on wildlife. For example, in the case of the insecticide Sevin and its chemical relatives, populations of

wild bees and honeybees, some of our major pollinating insects, are seriously reduced.

Third, every pesticide that has been removed from the market because of danger to human health was originally declared to be safe and non-toxic. The insecticide Sevin and its chemical relatives have recently come under suspicion of causing both cancer and birth defects; it has already been shown to produce birth defects in chickens, dogs and cattle. The U.S. Environmental Protection Agency has stated that carbaryl (Sevin) is one of forty-four substances under investigation because they "may be too hazardous to man or the environment to allow continued use". Indeed, 350 known cases of carbaryl poisoning have been reported in the medical literature. In addition, the emulsifier for Sevin--"Sevin-4-oil"--is suspected, like other pesticide emulsifiers, of being associated with Reye's syndrome (a frequently fatal disease of children).

Fourth, there are alternative methods of protecting valued individual trees on lawns and in gardens, other than large-scale spraying. These include spraying with Bt (Bacillus thuringiensis, a bacterium that infects gypsy moths but not mammals), and in the case of lesser infestations, banding the trees to prevent the movement of caterpillars.

Much of the land in northern Bernardsville is natural area open space--sanctuaries, parks, and private property with naturally forested lands. The results of my studies in the Morristown National Historical Park are directly applicable to these lands: no significant long-term disruption of the forest ecosystem will result from tree death following a gypsy moth infestation.

In summary, I believe that our general experience with pesticides, in addition to the specific experience with the gypsy moth in this area, does not support a program of pesticide spraying in Bernardsville.

This statement was presented in 1977 and 1978. It has been reprinted by ANJEC, courtesy of Dr. Joan Ehrenfeld and the New Jersey Audubon Society.

CANCELLED AND SUSPENDED PESTICIDES

The following is a list of pesticides which have been cancelled, suspended, or otherwise restricted by the EPA. A more detailed list, stating exceptions and conditions, is available by requesting the pamphlet "Suspended and Cancelled Pesticides" (OPA 159/9) from:

Environmental Protection Agency
Office of Public Awareness (A-107)
401 M St. SW
Washington D.C. 20460

-Aldrin/Dieldrin	-Heptachlor	-Safrin*
-Arsenic Trioxide	-Kepone*	-Seed Treatments
-Basic Copper	-Lindane	-Silvex
Arsenate*	-Mercury	-Sodium Arsenite
-BHC	-Metaldehyde	-Sodium Cyanide
-Bithionol	-Mirex*	-Sodium Fluoride
-Chloranil*	-OMPA*	-Sodium
-Chlordane	-10,10'-Oxybis-	Fluoroacetate
-Chlorobenzilate	phenoxarsine	-Sodium
-DBCP	-Parathion	Hypochlorite
-DDD (TDE)*	-PCB's*	-Storban*
-DDT	-Phenazine	-Strychnine
-2,4-D	Chloride*	-2,4,5-T
-Endrin	-Polychlorinated	-Thallium Sulfate*
-Fluoroacetamide	Terphenyls*	-Toxaphene
-Predicides	-Quaternary	-Vinyl Chloride*
	Ammonium Compounds	

* = cancelled all products.

Sperm Found Especially Vulnerable to Toxins

Continued From Page C1

smoke, large amounts of alcohol and radiation. There is also evidence that the pesticide carbaryl (Sevin), the hormone diethylstilbestrol (DES) and tobacco smoke may interfere with the normal development of human sperm. The result may be reduced numbers of sperm, improperly shaped sperm, abnormal sperm movement and genetic abnormalities in the sperm cells.

Though the field of study is just in its infancy, there is growing evidence that the father's exposure to toxic substances may affect the mother's risk of having a miscarriage, which commonly results from abnormal fetal development. An increased rate of miscarriages or stillbirths has been observed among the wives of dentists who use the anesthetic nitrous oxide, workers in a lead-acid smelter, applicators and formulators of DBCP, heavy cigarette smokers and radiation workers.

Damage May Be Inherited

Dr. Andrew Wyrobek, biophysicist at Lawrence Livermore Laboratory, noted that in marriages where miscarriages have occurred, the semen of the fathers is "worse" in terms of count and morphology than that of fathers in normal pregnancies. This is especially true in cases of multiple miscarriages, he said. In mouse studies, Dr. Wyrobek added, animals treated with chemicals that cause sperm defects tend to father offspring that have chromosomal abnormalities or that produce abnormal sperm too, suggesting that sperm damage can be inherited.

There are also some indications that the father's influence on the outcome of pregnancy may extend beyond conception. According to Maureen Hatch, a graduate student in reproductive epidemiology at Columbia University, "There is beginning to be work to show that substances carried in the seminal fluid can affect the developing embryo or fetus." Possibly harmful agents that could be transmitted through the male's ejaculate to a pregnant woman include the hepatitis virus and potent contaminants like DBCP, which causes cancer in laboratory animals.

Toxic substances found in human seminal fluid have been cited as one possible cause of a purported overall decline in the sperm count of American

men. Last month in the journal *Science*, Dr. Ralph C. Dougherty and co-workers at Florida State University in Tallahassee reported finding the flame retardant chemical, tris, in 34 out of 123 samples of seminal fluid collected from college students. Tris, a close chemical relative of DBCP, has been shown to be mutagenic, meaning it can damage the genetic material of cells.

In previous reports, Dr. Dougherty linked the presence of PCBs in the seminal fluid to reduced sperm counts in college students. Other potentially harmful chemicals Dr. Dougherty found in seminal fluid include metabolites of DDT, polychlorophenols and hexachlorobenzene.

Environmental Toxins Claimed

On the basis of his own and other published reports of sperm counts among various groups of men, Dr. Dougherty believes the average sperm count in American men has dropped in the last 30 years from 100 million to about 60 million sperm per milliliter of ejaculate. He attributes this to damage by environmental toxins. Dr. Dougherty, a chemist, bases his semen comparisons on an analysis of "normal" semen characteristics published in 1951 by Dr. MacLeod.

However, Dr. MacLeod, who has been doing semen analysis in the same way for three decades, and other researchers say they have seen no such decline. Dr. Wyrobek said that college students "are the worst group to look at because their sperm counts are uniformly low," possibly because of stress, smoking, drug use and frequency of ejaculation.

In other studies which found low sperm counts among men who were seeking vasectomies, the period of abstinence before obtaining the semen specimen was not strictly controlled, Dr. Meyer noted.

Numbers Are Not Fertility

"I'm quite prepared to admit the possibility of decreased fertility in groups of men exposed to toxic contaminants," Dr. MacLeod said. "But I'm convinced that in the last 25 years the male population at large in the United States has not undergone any serious change in potential fertility as evidenced by semen quality."

Dr. MacLeod also noted that the sperm count is the least sensitive measure of fertility. His studies showed that men with counts of 10 to 20

million sperm per milliliter, or less, could still become fathers. But if the shape of the sperm (morphology) or the ability of sperm to swim normally (motility) is damaged, fertility may be greatly reduced.

Even more worrisome, though, are subtle genetic changes in sperm that otherwise appear normal and remain capable of fertilizing an egg. Under grants from the Environmental Protection Agency, Dr. Wyrobek is now studying fusion of human sperm with hamster eggs, a technique that would uncover hidden chromosomal damage in the sperm.

Dr. Wylie Hembry, infertility specialist and endocrinologist at Columbia University, has found that heavy marijuana smoking — an average of 16 joints a day for four weeks — can significantly decrease sperm count, reduce sperm motility and increase the percentage of abnormally shaped sperm. But he is more worried about hidden genetic damage.

"Marijuana," Dr. Hembry said, "may be one of many environmental agents that affects sperm development, not enough to make you sterile but enough to have subtle harmful effects on subsequent generations, so subtle that we don't yet know how to monitor them. This is more worrisome than if marijuana made men sterile."

3. Oncogenic Effects. Based on the weight of existing evidence, the Agency has concluded that the current data base does not indicate that carbaryl poses an oncogenic hazard to humans. A rebuttable presumption on the basis of carbaryl-related oncogenic effects is therefore not warranted at this time.

3. Neurotoxicity. Based on available evidence, the Agency has concluded that carbaryl does not pose a human health hazard in terms of neurotoxic effects. A rebuttable presumption on the basis of neurotoxicity is therefore not warranted at this time.

5. Viral Enhancement. The Agency's determination at this juncture is that research into viral enhancement as a possible adverse effect of exposure to carbaryl is preliminary in nature and that current information does not constitute a basis on which to conclude that carbaryl poses a human hazard in this area. A rebuttable presumption on the basis of viral enhancement is therefore not warranted at this time.

6. Overview—Determining Considerations. Recognizing that the data base on any chemical is necessarily a continuum, the Agency's determination not to proceed with an RPAR action against carbaryl at this time takes into account a number of considerations in connection with the present toxicological picture of the pesticide. As has been pointed out, the current data base under review is extensive, more extensive than has ordinarily been the case for pesticides which have come under Agency review. This is particularly true for teratogenicity/fetotoxicity and mutagenicity, which are the toxicological areas of primary concern, and it is unlikely that resource-intensive RPAR procedures would surface data not already in the Agency's possession via other channels.

Although the current data base is extensive, risk data are not unequivocal, and study results, again in the areas of teratogenicity/fetotoxicity and mutagenicity, have been inconsistent. The current toxicological picture of carbaryl thus reflects a degree of uncertainty. It is in the face

Abnormal Circulatory Development in Medaka Caused by the Insecticides Carbaryl, Malathion and Parathion

HOWARD M. SOLOMON¹ AND JUDITH S. WEIS
Rutgers University, 195 University Avenue, Newark, New Jersey 07102

ABSTRACT Three insecticides, carbaryl, malathion and parathion were tested for teratogenic effects in developing medaka eggs. The concentrations of insecticides ranged from 0.5 to 40.0 parts per million (ppm). The insecticides, dissolved in acetone, were added to dishes containing 10 newly fertilized eggs and 10 ml of embryo rearing solution. Circulatory anomalies which resulted included defects in heart morphology, pericardial edema, irregular heart beat, blood clots and oscillating blood in the heart. The ED₅₀ (effective dose) for carbaryl was 2.5 ppm; malathion, 10.0 ppm and parathion, 2.0 ppm.

Limited exposure experiments were undertaken to determine possible sensitivity periods during development. These experiments, using 10 ppm carbaryl were initiated on days 0-7. Exposure lasted 24 to 96 hours. No periods of sensitivity were observed in these experiments. In a slightly varied experiment, eggs developed normally for 0-5 days, but were not removed from the insecticide once exposed. These results showed that carbaryl could cause circulatory abnormalities in 92% of the embryos which had completed cardiac morphogenesis before exposure.

Combinations of malathion and carbaryl were administered to determine possible interactions. Twenty-five different combinations ranging from 0.0 to 25.0 ppm were employed. At low concentrations, combinations had slightly greater than additive effects. At higher concentrations additive and antagonistic effects were observed.

The above experiments show that (a) these insecticides are teratogenic; (b) carbaryl at 10 ppm does not disrupt developmental events but rather affects cell physiology and (c) combinations of some insecticides have an additive effect.

In recent years organophosphates and carbamate insecticides have been replacing organochlorides. The advantages of these insecticides are (a) they degrade in a matter of days and (b) they are not lipophilic. However, like their predecessors, these insecticides find their way into the aquatic ecosystem through aerial spraying and runoff. Thus it is important to determine the toxic and teratogenic effects of these insecticides on non-target aquatic organisms.

Tomita and Matsuda ('61) exposed medaka eggs to concentrations of parathion between 5 and 100 parts per million (ppm). They found that at the higher concentrations optic and circulatory abnormalities as well as stunting were produced. Parathion at concentrations of

1 and 10 ppm and carbaryl at a concentration of 10 ppm were also found to be effective teratogens during *Fundulus* development (Weis and Weis, '74). Eggs exposed to carbaryl early in development had a lower percentage of normal axis formation. In a series of pulse-dose experiments circulatory anomalies including tube-heart syndrome were caused by carbaryl and parathion. *Menidia* eggs exposed to malathion and carbaryl also developed abnormally (Weis and Weis, '76). In these experiments concentrations of 1-25 parts per billion were sufficient to cause optic and tail malformations.

Received Feb. 15, '78 Accepted Aug. 24, '78

¹Submitted in partial fulfillment of the requirement for the degree of Doctor of Philosophy, Rutgers University Newark, New Jersey.

The purpose of this investigation was to determine the teratogenic effects of the insecticides carbaryl, malathion and parathion on medaka development. Experiments were designed to study (a) the general effects of the insecticides, (b) the existence of specific sensitivity periods during development and (c) possible inhibitory, additive or synergistic effects caused by using combinations of carbaryl and malathion.

MATERIALS AND METHODS

Adult medaka (*Oryzias latipes*) were bought commercially (Carolina Biological supply Co., North Carolina) and were maintained at room temperature in aquaria containing seasoned tap water. A 14 hour light and 10 hour dark cycle was controlled by an automatic timer. Courtship behavior commenced at dawn (Yamamoto, '67). The eggs from 6-12 females were gently teased off, pooled and were placed in plastic petri dishes containing a synthetic embryo rearing solution (Rugh, '62). Individual eggs were separated from their cluster, and unfertilized eggs were discarded.

Response to increasing insecticide concentrations

Groups of ten embryos ranging from four cell to early high blastula, stage 5-10 (Kirchen and West, '69), were placed into glass Syracuse type watch dishes containing 10 ml embryo rearing solution (ERS) and the insecticide to be tested. A total of 658 eggs were used in this experiment. The insecticides malathion and parathion (the former as 95% analytic reagent, the latter as 91% analytic reagent, Supelco nc. Bellefonte, Pennsylvania), and carbaryl (99.2% analytic reagent, Union Carbide Corp., New York, New York) were dissolved in acetone to increase their solubility in water. The concentrations of these test solutions ranged from 0.5-40.0 ppm. Control dishes received an equal volume of acetone (1.40 μ l). Embryo development was observed daily with reference to descriptions by Kirchen and West ('69) and Rugh ('62) for medaka and Armstrong and Child ('65) and Oppenheimer ('37) for *Fundulus*, which develops similarly.

Limited exposure experiments

In order to determine possible sensitive stages in medaka development, approximately 1,700 eggs were exposed to 10 ppm carbaryl at different developmental periods for varying

lengths of time. Embryos were exposed for 24, 48, 72 or 96 hours after 0-7 days of normal development. After the embryos were exposed for a specific period of time, they were removed from the dish, washed in fresh ERS and placed into a new dish containing only ERS.

In a variation of the above experiment embryos were allowed to develop normally for 0-5 days before being exposed to 10 ppm carbaryl. However these eggs remained in the insecticide until hatching or death. The purpose of this experiment was to determine if an increased period of exposure late in embryonic development could have adverse effects.

Combinations of insecticides

Carbaryl and malathion were also used simultaneously to determine if combinations would have antagonistic, additive or synergistic effects on embryonic development. Approximately 1,000 eggs were continuously exposed to mixtures of 0, 1.0, 2.5, 4.0 or 5.0 ppm carbaryl and 0, 2.5, 5.0, 10.0 or 20.0 ppm malathion. The eggs were observed until death or hatching.

Histology

Embryos exposed to 10 and 20 μ l of acetone, 5 and 10 ppm carbaryl and 20 ppm malathion were fixed at different stages of development in Bouin's fixative for 30 minutes. They were then dehydrated in alcohol, cleared in xylene or benzene and embedded in either 52.5°C or 55.8°C paraffin (Tissuemat, Fischer Scientific Co.). The blocks were sectioned at 8 μ -10 μ and stained with hematoxylin and eosin. Representative embryonic sections were then photographed using an Olympus OM-1 35 mm camera mounted on a Bausch and Lomb microscope.

RESULTS

Response to increasing insecticide concentrations

The primary site of action of these teratogens on the developing medaka embryo was the circulatory system. These anomalies were similar to the classic cardiac anomalies noted when *Fundulus* eggs were exposed to Metrazol (Oppenheimer, '50). The types and percentages of circulatory abnormalities produced by these insecticides are found in table 1.

In the acetone control group only four of the 196 eggs observed showed any type of heart anomaly.

In the experimental group the type and per-

INSECTICIDE CAUSED CIRCULATORY ABNORMALITIES

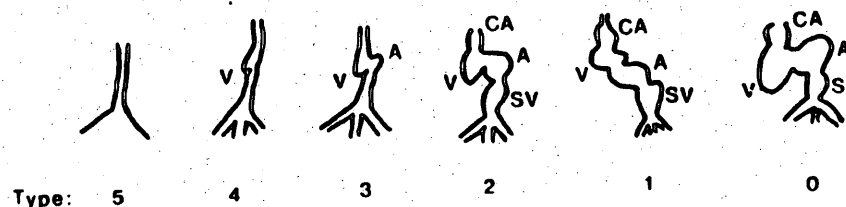


Fig. 1 Heart morphologies observed during development. The extent to which abnormal hearts developed, before hatching or death of the embryo, was classified by "types" (#0-#5).

TABLE 1

Teratogen	Conc	# (Obs)	Heart abn	Circ abn	Edema	Clot	Developmental arrest
Acetone control	2.5 μ l	36	0%	—	—	—	—
	5.0	9	0%	—	—	—	—
	10.0	70	1%	—	—	—	—
	20.0	21	9%	—	—	—	—
	30.0	20	0%	—	—	—	—
	40.0	30	3%	—	—	3%	—
Carbaryl	0.5 ppm	12	8%	—	—	—	—
	1.0	42	12%	—	2%	—	—
	2.5	30	3%	—	3%	—	—
	5.0	71	96%	30%	44%	68%	—
	10.0	38	97%	4%	76%	91%	—
	20.0	22	100%	10%	89%	89%	—
Parathion	30.0	10	100%	50%	20%	80%	100%
	1.0	49	6%	—	2%	—	—
	3.0	60	86%	16%	92%	20%	—
	9.0	20	100%	25%	70%	70%	80%
Malathion	18.0	9	100%	89%	—	100%	100%
	5.0	10	—	—	—	—	—
	10.0	48	33%	2%	15%	13%	—
	20.0	40	85%	33%	63%	65%	—
	40.0	20	100%	100%	95%	95%	100%

centage of heart abnormality varied with each insecticide and the amounts used. The most severe condition noted was cardiac tissue contracting in an area located ventrally and anteriorly to the head. These embryos which were exposed to the highest concentrations of insecticides died after two or three days.

A straight, thin, faintly beating tube heart was an anomaly less severe than the previous one (fig. 1, type 5). Usually development ceased before the extraembryonic circulation was produced. The highest doses of carbaryl at concentrations of 20 and 30 ppm, parathion at 9 and 18 ppm and malathion at 40 ppm caused these anomalies 100% of the time.

The most common types of heart development attained by experimental embryos were

types #3 and #4 (fig. 1). In these cases the ventricular chamber started to develop, producing a bend in the cardiac tube. However, the areas of the tube, both anterior and posterior to it, differentiated little. These types of hearts were primarily brought about by exposure to carbaryl at concentrations of 5 and 10 ppm, malathion at 10 and 20 ppm and parathion at 3 ppm.

The least severe abnormal heart types were #1 and #2. Both of these heart types developed all four chambers. However the #2 type was somewhat smaller than controls, while the #1 type did not bend properly. These anomalies were produced by the lowest concentrations of insecticides.

The analysis of variance (ANOVA) and the

least significant difference (LSD) statistical tests indicated the concentrations of the three insecticides which were effective at producing these anomalies. Carbaryl at concentrations of 5 ppm and above, malathion at 20 ppm and above and parathion at 3 ppm and above were all effective ($P < 0.05$). Heart anomalies produced by these concentrations of insecticides can clearly be seen when compared with normal embryos at the same developmental stage (figs. 2, 3 and 4).

Along with abnormal heart morphology, several other circulatory defects were observed. One or more of these defects were always found in conjunction with abnormalities in heart development. In some embryos, few if any red blood cells were produced. In others blood was seen oscillating in the heart. When the ventricle contracted blood would flow to both the conus arteriosus and to the atrium. Irregularities in the heart beat, i.e. incomplete heart block, were also noted. The remaining two anomalies observed in the developing circulatory system were edema of the pericardial activity and blood clots in both the intra- and extraembryonic vessels.

Limited exposure experiments

An attempt was made to determine if a specific period of development was more sensitive to the insecticide than were other periods.

In the first series of experiments designed to determine sensitivity periods eggs were exposed to 10 ppm carbaryl immediately after fertilization or after one, two or three days of normal development. The eggs remained exposed to the teratogen for periods of 24, 48, 72 or 96 hours. The results of these experiments are found in figure 5.

In the control groups which totaled 175 eggs, one embryo in each of three groups (0-24, 0-48 hours and 48-96 hours) developed defects in the circulatory system. The experimental groups showed little increase in the percent abnormalities over the controls. In fact, the ANOVA test showed no significant difference between the control and experimental groups.

In the second series of similar experiments, eggs were allowed to develop normally for four, five, six or seven days before being exposed to 10 ppm carbaryl. The eggs again remained in the insecticide for periods of 24, 48, 72 or 96 hours. The results of these experiments are found in figure 6.

One embryo in group 120-144 hours de-

veloped circulatory problems. This was the only abnormality observed among the 160 control embryos.

Carbaryl had little or no effects on most of the experimental groups. There was however, an increase in the percentage of circulatory anomalies in the groups exposed for 96 hours. Defects were found in 17.5% of the embryos in groups 120-216 hours and 144-240 hours while 27% of the eggs in group 168-264 hours developed abnormalities. However, the ANOVA test again revealed no significant difference between the control and experimental groups.

Returning to the first series of experiments, a similarly high percentage of abnormalities, 17.5%, was also found in a group which had been exposed to carbaryl for 96 hours.

A variation of the above experiments was undertaken to determine the effects on the developing circulatory system of an extended exposure to insecticide, which was initiated after the attainment of specific developmental stages of the heart. The number and types of abnormalities, are found in table 2 and figures 7 and 8.

In the acetone control group one of 19 embryos exposed after 24 hours of normal development and two of 20 embryos exposed after 72 hours of normal development suffered from circulatory defects.

The results from the experimental group showed that even when the heart was allowed to develop all four chambers (0-120 hours) before insecticide exposure it was still susceptible to the teratogenic effects. However, as can be seen in table 2 and figures 7 and 8, the overall percentage of circulatory abnormalities as well as their severity declined as the embryos are allowed to develop normally for longer periods of time.

Combinations of carbaryl and malathion

The results of some of the previous experiments showed that either carbaryl or malathion could produce circulatory defects. The question then was asked, what would be the effects if both were administered simultaneously? Would their effects be antagonistic, additive or synergistic? The results of these experiments are found in table 3 and figure 9.

To determine the presence of antagonistic, additive or synergistic effects, statistical analysis using regression contours were employed (fig. 9). Approximations of the nature of the effects on combinations of malathion and carbaryl on the developing circulatory

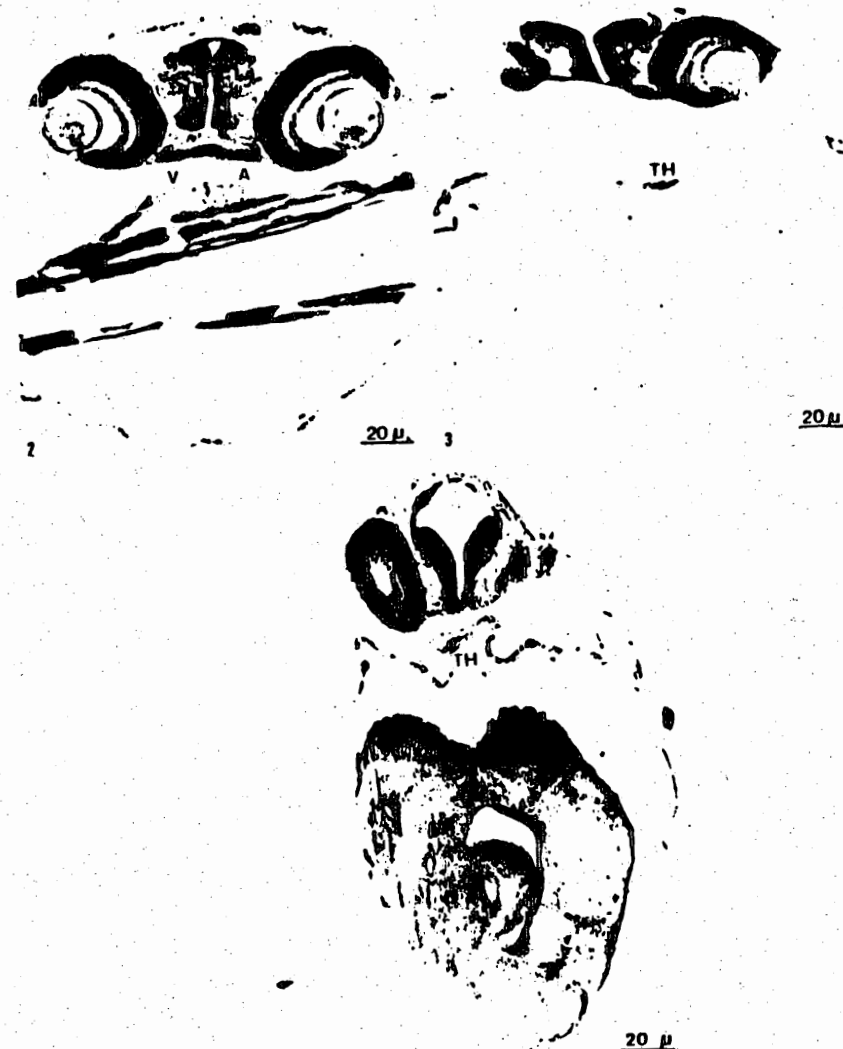


Fig. 2, 3 and 4 Transverse sections through the atrium and ventricle at their widest points (stage 32; Kirchen and West, '69). The 10 μ acetone control embryo (fig. 2) has a well developed atrium and ventricle. The embryo exposed to 10 ppm carbaryl (fig. 3) developed a tube heart, while the embryo exposed to 20 ppm malathion (fig. 4) had a slight bend in its heart. A, atrium; TH, tube heart; V, ventricle.

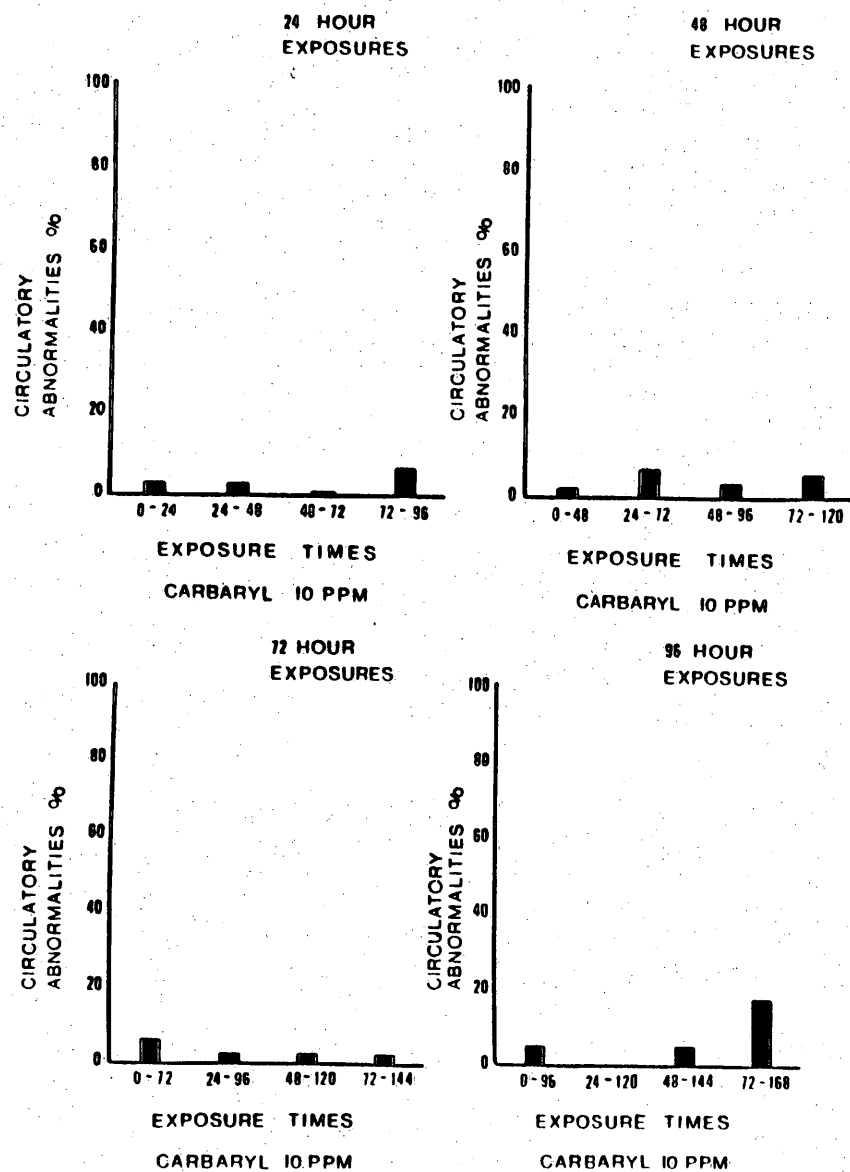


FIG. 5 LIMITED EXPOSURE: INITIATED 0 - 72 HRS.

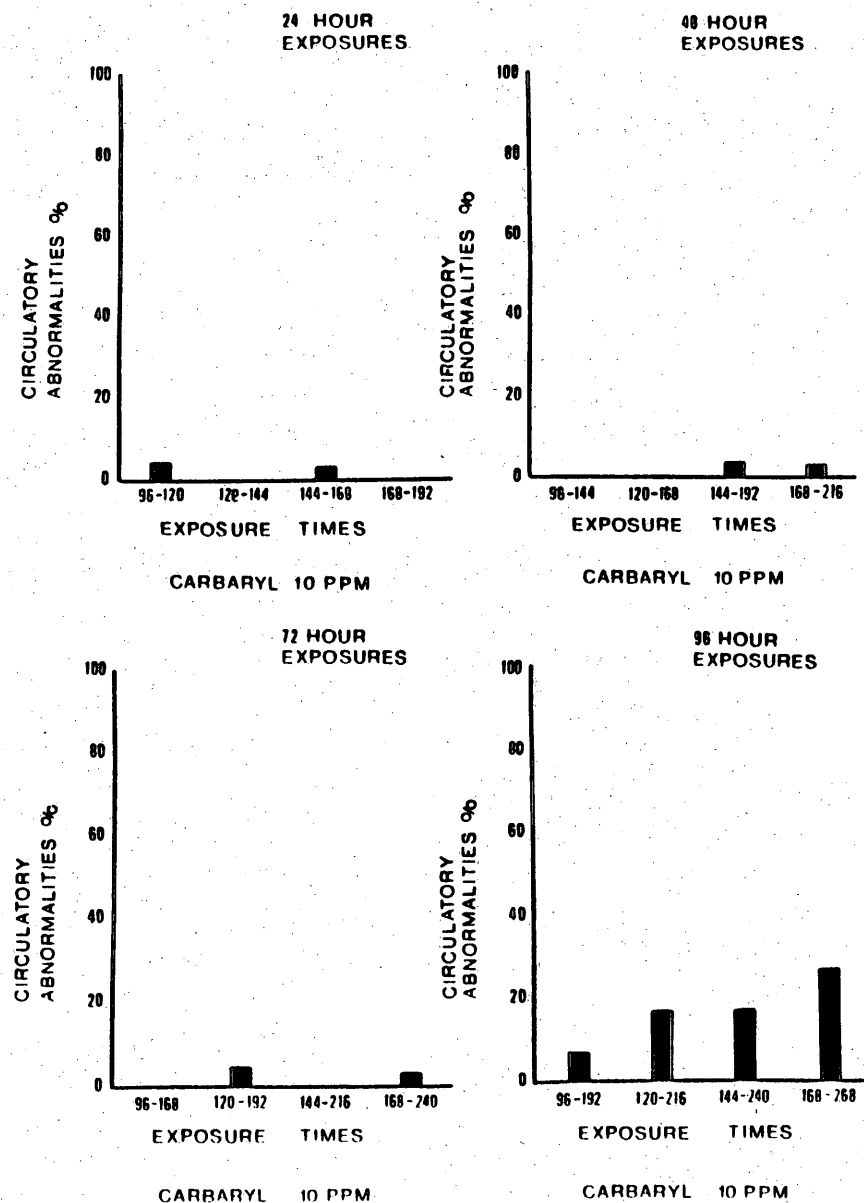
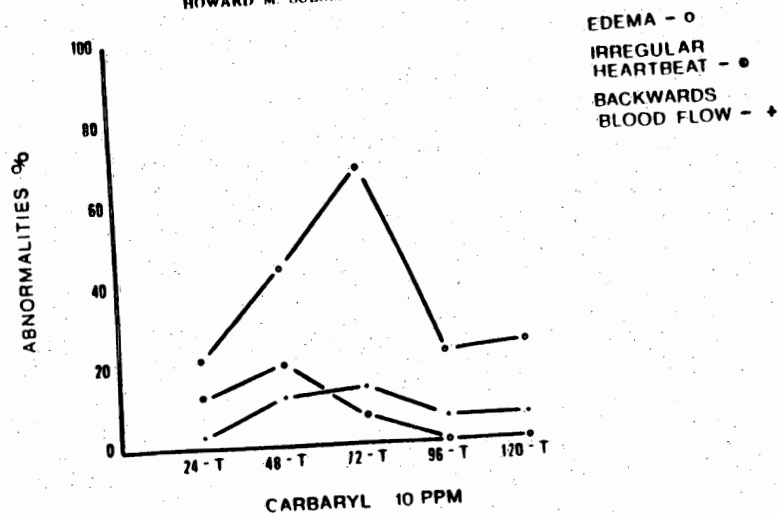


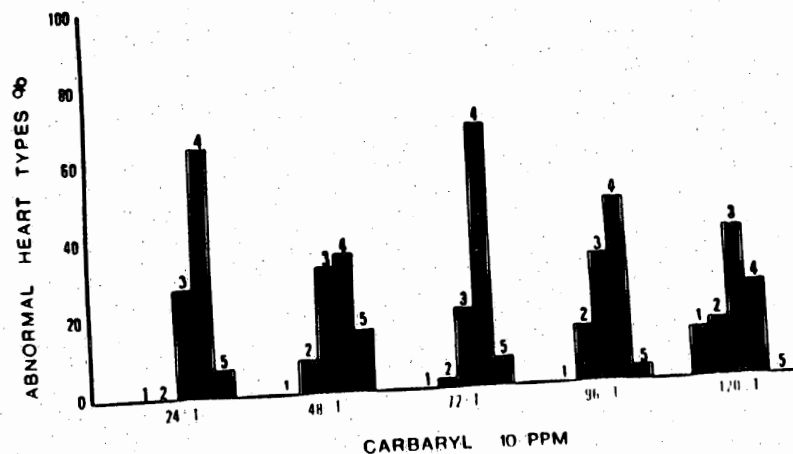
FIG. 5 LIMITED EXPOSURE: INITIATED 96 - 168 HRS.

HOWARD M. SOLOMON AND JUDITH S. WEIS



HOUR EXPOSURE STARTED - TERMINATION

NUMBERS REPRESENT HEART TYPES. SEE FIG. 1



HOUR EXPOSURE STARTED - TERMINATION

FIG. 7 HEART AND FIG. 8 ABOVE. OTHER CIRCULATORY DEFECTS

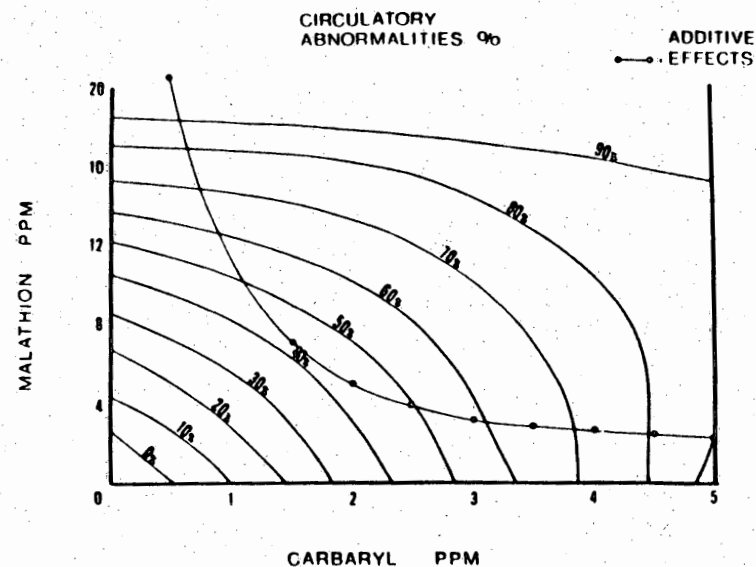


FIG. 9 COMBINED INSECTICIDE EFFECTS. SEE TEXT

TABLE 2

Exposure of eggs to insecticide after an initial period of normal development ranging from 24 to 120 hours

Period	Acetone (10 µl)		Carbaryl (10 ppm)	
	Number used	Percent circulatory abnormalities	Number used	Percent circulatory abnormalities
24 hrs. end	19	5.3	69	100.0
48 hrs. end	8	0.0	30	100.0
72 hrs. end	20	10.0	60	98.0
96 hrs. end	10	0.0	40	97.5
120 hrs. end	10	0.0	40	92.5

system were determined by using a second order regression model of the form $y = a + b_1x_1 + b_2x_2 + b_{11}x_1^2 + b_{22}x_2^2 + b_{12}x_1x_2$; where x_1 = carbaryl, x_2 = malathion and y = percent abnormalities. A graphic representation of the combination effects could be made using response contours (fig. 9). Each line was derived from the predicted percent abnormal based on the regression model. By selecting insecticide concentration points on the X and Y

axis, the effects of each insecticide singly and in combination can be determined.

For example, 2.5 ppm carbaryl alone caused 44% circulatory abnormalities, while 2.5 ppm malathion cause 0.0% abnormalities. However, when these two concentrations are combined 48% of the embryos develop circulatory defects. Therefore this combination is slightly greater than additive. The solid line with black dots found on the graph represents com-

TABLE 3

Embryo exposure to combinations of carbaryl and malathion. Numbers represent percent circulatory abnormalities.

Carbaryl (ppm)	Malathion (ppm)				
	0.0	2.5	5.0	10.0	20.0
0.0	0.0	5.4	2.6	51.4	100.0
1.0	5.1	5.0	10.3	40.0	100.0
2.5	51.3	50.0	62.2	82.5	100.0
4.0	78.3	78.9	97.4	43.6	100.0
5.0	92.5	89.7	78.0	95.0	100.0

binations which are strictly additive. For example, it can be determined from the graph that 10 ppm malathion causes 38% circulatory abnormalities and 1.1 ppm carbaryl causes 12% circulatory abnormalities. When these two insecticide combinations are combined they intersect on the line representing 50% circulatory abnormalities and the line indicating additive effects. Combinations of concentrations which lie below this line are synergistic, while points found above this line are antagonistic. The presence of antagonistic combinations will be discussed later.

DISCUSSION

Analysis of the dose-response experiments using varied concentrations of carbaryl, malathion or parathion indicate that all were effective in producing abnormalities in the developing circulatory system. The ED_{50} for carbaryl was approximately 2.5 ppm, for malathion, 10.0 ppm and for parathion, 2.0 ppm. The LD_{50} for these insecticides corresponded exactly to the ED_{50} since affected embryos rarely hatched.

Tomita and Matsuda ('61), in a preliminary study on the effects of parathion exposed medaka eggs to concentrations between 5-100 ppm. Only at the higher concentrations were eye and circulatory defects observed. Yet in this investigation 3 ppm parathion was sufficient to produce abnormalities in 86% of the eggs exposed. This great difference lies in the fact that the former workers used distilled water as the solvent, while in these experiments acetone was used. Parathion is insoluble in distilled water but soluble in acetone. Thus the eggs exposed to parathion in acetone were receiving a higher concentration of the insecticide.

Other teratogens such as X-rays (Solberg, '38a), 2,4-dinitrophenol (Waterman, '39)

lathrogenic agents (Tomita and Matsuda, '61), tolbutimide (Smithberg, '62), mercuric chloride (Heisinger and Green, '76) and 2,4,5-trichlorophenoxyacetic acid (Schreiweis and Murray, '76) all have produced defects in the developing circulatory system in medaka. It seems that in this species, circulatory abnormalities are a characteristic response to any insult.

Several investigators have shown that specific periods in fish development are extremely sensitive to teratogenic insults (Stockard, '21; Hinrichs, '25; Solberg, '38a; Tomita and Matsuda, '61; Wilde and Crawford, '66). However, in the present series of limited exposure experiments no sensitivity periods were discovered. In actuality, the earliest developmental periods were least affected. The only increase in the percent abnormal was noticed in groups of eggs which were exposed for 96 hours. Thus carbaryl does not affect primary developmental events. The only important parameter is length of exposure time. It is interesting to note that even when the four chambered heart has developed, the insecticide can still cause reduction in heart size and bending, edema, incomplete heart blockage and oscillation of blood flow. Thus it seems that the insecticide affects cell viability rather than the developmental process.

The results of the combination experiments indicate that malathion and carbaryl together produce only slightly greater than additive effects. At the highest concentrations of the two insecticides antagonistic effects were noted. This was possibly due to the fact that each insecticide alone was able to cause a high percentage of abnormalities. The addition of the second insecticide did little to enhance the effect. A second possible reason was that a certain percentage of eggs in the population are more resistant to the teratogenic effects of the insecticide. Thus the ineffectiveness of higher insecticide concentrations used in this experiment are indicated by the antagonistic region on the graph (fig. 9).

To this date there have been few studies concerned with the teratogenic effects of combinations of insecticides on fish eggs. Koenig ('77) investigated the toxic effects of DDT and mirex which had been incorporated into the eggs of the cyprinodont *Adina xenica*. He found that small amounts of mirex (concentrations of 1%-3% of the LD_{50}) added to DDT, increased the effectiveness of the DDT 1.5 times. He also noted that when higher concen-

trations of mirex were added to DDT no synergistic effect occurred. This observation supports the finding of antagonistic combinations between malathion and carbaryl reported in this study. The effects of combinations of zinc and the pesticide Cygon on *Fundulus* egg development were also shown to be antagonistic (Roales and Perlmutter, '74).

Synergistic effects of pollutants have also been found in studies using adult aquatic organisms. Fabacher et al. ('76) found that combinations of the defoliant DEF (5,5,5-tributyl phosphorothioate) and methyl parathion were synergistic in mosquitofish. Concentrations of 0.5 ppm DEF caused no mortality, while 0.5 ppm methyl parathion caused 8% mortality. When the two chemicals were combined at these concentrations mortality increased to 89%. In toxicity studies using rainbow trout (Marking and Dawson, '75) synergistic effects were observed using combinations of the organophosphates malathion and Delvan. Nimmo and Bahner ('76) tested the toxic effects of combinations of cadmium, aroclor (a polychlorinated biphenyl) and methoxychlor (a pesticide) on penaeid shrimp. They found that when the three substances were administered simultaneously the effects were additive.

The severity to which these insecticides adversely affect the development of non-target organisms is difficult to determine. Insecticide toxicity among fish has been recorded by the Environmental Protection Agency in their Annual Report of Fish Kills ('73). In 1973 the EPA conservatively estimated that 2,040,271 fish were killed by insecticides.

Organophosphates and carbamates are not lipophilic and are not very stable. Therefore they do not remain in either the organism or the environment for as long as organochlorides (Eichelberger and Lichtenberg, '71; Kanazawa, '75). However, it has been reported that when an organophosphate binds with acetylcholinesterase the complex is quite stable. Thus small nontoxic exposures can produce symptoms of poisoning (H.E.W., '69). In another finding, mosquitofish which were collected from waters around farm areas which had been sprayed with parathion, had levels up to 27 ppm of the insecticide in their body tissue (Mulla et al., '66).

Another possible problem arising from the use of insecticides is the effect of their different metabolites (Menzie, '74). A primary metabolite of carbaryl is 1-naphthol, while

parathion and malathion become paroxon and maloxon. The latter two metabolites have been shown to decrease cell numbers, DNA synthesis and protein synthesis in cell cultures of chick pectoral muscle (Wilson et al., '73). Thus the metabolite may be more detrimental than the parent compound.

Lastly, we know very little about the effects of combinations of an insecticide with other environmental pollutants. The present experiments show that the combination of malathion and carbaryl have additive effects. Thus the effectiveness of an environmental teratogen may be increased or decreased when combined with other physical and/or chemical factors.

ACKNOWLEDGMENTS

The authors express their appreciation to Ms. M. Heber and Mr. R. Bowman for their technical assistance, to Dr. R. Trout for help with the statistical analysis, to Dr. P. Weis for his suggestions throughout the project and to Dr. R. L. Brent for critical reading of the manuscript. This work was supported by NIH Grant RR7059 and a grant from the Rutgers Research Council 072197.

LITERATURE CITED

- Armstrong, P. B., and J. S. Child 1965 Stages in the normal development of *Fundulus heteroclitus*. *Biol. Bull.*, 128: 143-168.
- Eichelberger, J. W., and J. J. Lichtenberg 1971 Persistence of pesticides in river water. *Environ. Sci. Tech.*, 5: 541-544.
- Environmental Protection Agency 1973 Fish Kills Caused by Pollution in 1973. Fourteenth Annual Report. Office of Water Planning and Standards.
- Fabacher, D. L., J. D. Davis and D. A. Fabacher 1976 Apparent potentiation of the cotton defoliant DEF by methyl parathion in mosquitofish. *Bull. Environ. Cont. Toxicol.*, 16: 716-717.
- Heisinger, J. F., and W. Green 1976 Mercuric chloride uptake by eggs of the ricefish and resulting teratogenic effects. *Bull. Environ. Cont. Toxicol.*, 14: 665-673.
- Hinrichs, M. A. 1925 Modification of development on the basis of differential susceptibility to radiation. I. *Fundulus heteroclitus* and ultraviolet radiation. *J. Morph.*, 41: 239-265.
- Kanazawa, J. 1975 Uptake and excretion of organophosphates and carbamate insecticides by freshwater fish, *Mutauga, Pseudorasbora parva*. *Bull. Environ. Cont. Toxicol.*, 14: 346-352.
- Kirchen, R. V., and W. R. West 1969 The Japanese Medaka, Its Care and Development. Carolina Biological Supply Company, North Carolina.
- Koenig, C. C. 1977 The effects of DDT and mirex alone and in combination on the reproduction of a salt marsh cyprinodont fish, *Adina xenica*. In *Physiological Responses of Marine Biota to Pollutants*, F. J. Vernberg, A. Calabrese, F. P. Thierberg and W. H. Vernberg, eds. Academic Press, New York, pp. 357-376.
- Marking, L. L., and U. K. Dawson 1975 Investigations in

263x

- fish control 67. Methods for assessment of toxicity or efficacy of mixtures of chemicals. U.S. Department of Interior, Fish and Wildlife Service.
- Menzie, C. M. 1974. Metabolism of pesticides—an update. U.S. Department of Interior, Fish and Wildlife Service Special Scientific Report No. 184.
- Mulla, M. S., J. D. Keith and F. A. Gunther. 1966. In Holden, A. V. Effects of pesticides on fish. Chapter 6. In: Environmental Pollution by Pesticides. C. A. Edwards, ed. Plenum Press, New York.
- Nimmo, D. W. R. and L. H. Bahner. 1976. Metals, pesticides and PCB's: Toxicities to shrimp singly and in combinations. In: Estuarine Processes, Uses, Stresses, and Adaptations to the Estuary. M. Wiley, ed. Academic Press, New York, Vol. I, pp. 523-532.
- Oppenheimer, J. M. 1937. The normal stages of *Fundulus heteroclitus*. *Anat. Rec.* 68: 1-15.
- . 1950a. The development of *Fundulus heteroclitus* embryos in solutions of metrazol. *Biol. Bull.* 113: 65-86.
- Roales, R. R., and A. Perlmutter. 1974. Toxicity of zinc and Cygon, applied singly and jointly, to rebrfish embryos. *Bull. Environ. Cont. Toxicol.* 12: 475-480.
- Rugh, R. 1962. Experimental Embryology. Techniques and Procedures. Second edition. Burgess Publishing Co., Minnesota, pp. 360-368.
- Schreweis, D. D., and G. J. Murray. 1976. Cardiovascular malformation in *Oryzias latipes* treated with 2,4,5-trichlorophenoxyacetic acid (2,4,5-T). *Teratology*, 14: 287-290.
- Smithberg, M. 1962. Teratogenic effects of tolbutamide on the early development of the fish *Oryzias latipes*. *Am. J. Anat.* 111: 205-213.
- Solberg, A. N. 1936a. The susceptibility of the germ cells of *Oryzias latipes* to X irradiation and recovery after treatment. *J. Exp. Zool.* 78: 417-440.
- Stockard, C. R. 1921. Developmental rates and structural expression. An experimental study of twins, "double monsters" and single deformities and the interaction among embryonic organs during their origin and development. *Am. J. Anat.* 28: 115-277.
- Tomita, H., and N. Mataka. 1961. Deformity of vertebrae induced by lathrogenic agents and phenylthiourea in the Medaka (*Oryzias latipes*). *Embryologia*, 5: 413-422.
- U. S. Department of Health, Education and Welfare. 1969. Report of the Secretary's Commission on Pesticides and Their Relation to Environmental Health. Parts I and II.
- Waterman, A. J. 1939. Effects of 2,4-dinitrophenol on the early development of the teleost *Oryzias latipes*. *Biol. Bull.* 76: 162-170.
- Weis, P., and J. S. Weis. 1974. Cardiac malformations and other effects due to insecticides in embryos of the killifish (*Fundulus heteroclitus*). *Teratology*, 10: 263-268.
- . 1976. Optical malformations induced by insecticides in embryos of the Atlantic silversides, *Menidia menidia*. *Fish. Bull.* 74: 208-211.
- Wilde, C. E., Jr., and R. B. Crawford. 1966. Cellular differentiation in the anamniota. III. Effects of actinomycin D and cyanide on the morphogenesis of *Fundulus*. *Exp. Cell Res.* 44: 471-488.
- Wilson, R. W., H. O. Sinnott, D. M. Fry and P. S. Nieberg. 1973. Growth and metabolism of chick embryo muscle cultures. Inhibition with malathion and other organophosphorus compounds. *Arch. Environ. Health*, 26: 93-99.
- Yamamoto, T. 1967. Medaka. In: Methods in Developmental Biology. F. H. Wilt and N. K. Wessells, eds., Crowell and Co., New York, pp. 101-111.

Are children more susceptible to environmental pollutants?

NEW YORK (UPI) — Children are especially vulnerable to environmental pollutants, says Paula DiPerna, author of a public affairs pamphlet on the subject.

Their young bodies have a much higher rate of absorption than adults, she says, and they also lack the level of immunological protection that adults have.

Their intake of pollutants is higher than that of adults because, for their body weight,

children consume relatively more air, food and water.

The author's suggestions for lessening the risks include:

- ✓ Before buying or renting a new home or apartment, check the number of days a year that air quality in the area reaches unhealthy levels. Ask about the source of the water supply and how near it is to a toxic waste

dump or a heavily industrialized area.

- ✓ Find out if teachers and school officials are aware of potential hazards such as asbestos and chemicals in art supplies and school laboratories and if they know how to monitor and control such hazards.

- ✓ Let public officials and candidates for public office know you are concerned about children's special vulnerability to environmental hazards.

- ✓ If your child is ill for no apparent cause, try to inventory environmental agents with which the child might have been in contact. If a child shows a consistent pattern of illness, point out the possible environmental factors to the child's physician.

The DiPerna booklet, "Environmental Hazards to Children," is 50 cents from the non-profit Public Affairs Committee, 381 Park Avenue South, New York, N.Y. 10016.

Hazard Analysis

Toxicity: Details unknown. Limited animal experiments suggest fairly low toxicity. Acute oral LD₅₀ (rat) = 2000 mg/kg.

SESQUIL See sodium sesquicarbonate.

"SEVIN." See carbaryl.

SHALE OIL**Hazard Analysis****CARBARYL *****General Information**

Synonym: 1-naphthyl-N-methyl carbamate; sevin.

White crystals.

Formula: C₁₁H₉OOCNHCH₃.

Mol wt: 201, mp: 142°C, d: 1.232 at 20°/20°C.

Hazard Analysis**Toxic Hazard Rating:**

Acute Local: Irritant 2.

Acute Systemic: Ingestion 2; Inhalation 2; Skin Absorption 2.

A recognized carcinogen, Section 8. See carbamates.

A reversible cholinesterase inhibitor. Symptoms similar to those due to parathion, but much less severe from equal doses. Acute oral LD₅₀ (rat) = 500 mg/kg.

Shipping Regulations: Section 11.

Regulated by IATA.

CARBASONE

RASPRAY. See parathion.

PARATHION ***General Information**

Synonyms: O,O-diethyl O-p-nitrophenyl thiophosphate; "Alkron"; compound 3422; DNTP; DDP; parathion; genithion; niran; paradust; parathion; parathion; parawet; penphos; phos-kil; thiophos; vapophos and many others.

owish liquid.

nula: C₁₀H₁₁NO₃PS.

wt. 291.3, mp: 375°C, d: 1.26 at 25°/4°C.

Hazard Analysis**Toxic Hazard Rating:**

Acute Local: U.

Acute Systemic: Ingestion 3; Inhalation 3; Skin Absorption 3.

Chronic Local: U.

Chronic Systemic: Ingestion 3; Inhalation 3; Skin Absorption 3.

ology: Parathion, like the other organic phosphorus poisons, acts as an irreversible inhibitor of the molecules of the enzyme cholinesterase, and thus allow the accumulation of large amounts of acetylcholine. When a critical level of cholinesterase depletion is reached, grave symptoms appear. Whether death is actually caused by cholinesterase depletion or by the distention of a number of enzymes is not yet known. Parathion is apparently complete if a poisoned animal is given time to reform his critical quota of cholinesterase.

However, if a second small dose is administered before recovery from the first is complete, the effect is partially additive. Acute oral LD₅₀ (male rat) = 13 mg/kg. Acute oral LD₅₀ (female rat) = 3.6 mg/kg. Acute dermal LD₅₀ (female rat) = 3.6 mg/kg.

erous Chronic Dose in Man: Exposure to parathion

For an in-depth discussion of storage and handling of control of fires see Section 7.

tive (Section 10).

CARBAMATES

Compounds based on Carbamic Acid, H₂NCOOH, only of use in the form of its numerous derivatives and salts. These materials are suspected carcinogens of lung and hematopoietic organs, Section 8.

CARBAMIC ACID BUTYLETHYL ESTER. See butylurethane.

CARBAMIDE

thion reduces the cholinesterase level and the organism exposed remains susceptible to relatively low dosages of parathion until the cholinesterase level has regenerated. Small doses at frequent intervals are, therefore, more or less additive. There is, however, at the present time no indication that, when recovery from a given exposure is entirely complete, the exposed organism is prejudiced in any way.

Laboratory Findings: Laboratory findings are essentially normal except that by special techniques the cholinesterase level of the blood or serum may be shown to be greatly reduced. At autopsy, the same may be demonstrated for the cholinesterase level of the brain or other tissues provided fresh, unfixed tissue is employed.

The mean cholinesterase values of normal persons living without exposure to organic phosphorus insecticides have been found by various workers, using the Michel method, to range as follows:

Red blood cell 0.67-0.86 pH units/hr.

Plasma 0.70-0.97 pH units/hr.

It is believed that cholinesterase values of 0.5 or less for either cells or plasma represent abnormal depressions for most individuals. Nevertheless, people may experience far greater depressions (to 0.2 or less) without the onset of clinical signs or symptoms; this is especially true of workers who are exposed daily over a period of weeks but whose exposure at any one time is kept at a minimum.

Treatment for poisoning: Keep the patient fully atropinized. Give 2 to 4 milligrams and repeat until signs of atropinization appear. The intravenous route is most rapid. The dosage of atropine is greater than that conventionally employed for other purposes but is within safe limits. Atropine relieves many of the distressing symptoms, reduces heart block, and dries secretions of the respiratory tract. Never give morphine, theophylline, or theophylline-ethylene-diamine (*Aminophylline*). 2-PAM, alone or with atropine, is also an effective antidote.

If the patient has not yet shown symptoms or they have been allayed by the first dose of atropine, he must be completely and quickly decontaminated. Wearing rubber gloves, remove the patient's clothing and, with due regard for his condition at the moment, bathe him thoroughly with soap and water. If washing soda is available use it, for parathion is hydrolyzed more rapidly in the presence of alkali. Any relatively mild alkali may be used.

If there is any suspicion that parathion has been ingested, induce vomiting, give some neutral material such as milk or water and induce vomiting again. Nausea may, of course, be anticipated on the basis of the systemic action of parathion but if vomiting is not profuse, gastric lavage may be used. If the pulmonary secretions have accumulated before atropine has become effective, the patient must be turned upside down or in some other positions of postural drainage in order to drain out mucus. Use suction and a catheter if necessary. If the stomach is distended, empty it with a Levine tube. Atropine does not protect against muscular weakness. The mechanism of death appears

to be respiratory failure. The use of an oxygen tent or even the use of oxygen under slight positive pressure is advisable and should be started early. Watch the patient constantly, for the need for artificial respiration may appear suddenly. Equipment for artificial respiration should be placed at the patient's bed in readiness as soon as he is hospitalized. Cyanosis (anoxia) should be prevented by the most suitable means, since it aggravates other signs of poisoning. Complete recovery may occur even after many hours of artificial respiration have been necessary. The acute emergency lasts 24 to 48 hours, and the patient must be watched continuously during that time. Favorable response to one or more doses of atropine does not guarantee against sudden and fatal relapse. Medication must be continued during the entire emergency. Following exposure heavy enough to produce symptoms, further organic phosphorus insecticide exposure of any sort should be avoided. The patient remains susceptible to relatively small exposures of parathion until regeneration of cholinesterase is complete or nearly so. Persons exposed to other organic phosphorus insecticides before complete recovery from a previous exposure are made more susceptible and vice-versa.

Disaster Hazard: Highly dangerous; shock can shatter the container, releasing the contents. When heated to decomposition, it emits highly toxic fumes of NO_x, PO_x, SO_x.

Countermeasures

Ventilation Control: Section 2.

Personnel Protection: Section 2.

Storage and Handling: Section 7.

Shipping Regulations: Section 11.

Regulated by CG, DOT, IATA.

PARATHION AND COMPOUND MIXTURES.

Shipping Regulations: Section 11.

Regulated by CG, DOT, IATA.

TOXIC HAZARD RATING CODE (For detailed discussion, see Section 9.)

NONE: (a) No harm under any conditions; (b) Harmful only under unusual conditions or overwhelming dosage.

SLIGHT: Causes readily reversible changes which disappear after end of exposure.

MODERATE: May involve both irreversible and reversible changes not severe enough to cause death or permanent injury.

able changes not severe enough to cause death or permanent injury.

3 HIGH: May cause death or permanent injury after very short exposure to small quantities.

UNKNOWN: No information on humans considered valid by authors.

266x

Dangerous Properties of Industrial Materials

Fourth Edition

N. IRVING SAX

ASSISTED BY:

ROBERT D. BRUCE/WILLIAM F. DURHAM/BENJAMIN FEINER/SANFORD A. FIDELL/
JOSEPH J. FITZGERALD/JOHN H. HARLEY/ROBERT HERRICK/RICHARD J. LEWIS/
JAMES R. MAHONEY/BERNARD L. OSER/JOHN R. SHADLEY/
ELIZABETH K. WEISBURGER/DAVID GORDON WILSON



VAN NOSTRAND REINHOLD COMPANY
NEW YORK CINCINNATI TORONTO LONDON MELBOURNE



association of new jersey
environmental commissions

FREQUENTLY ASKED QUESTIONS ABOUT THE GYPSY MOTH AND NEW JERSEY CONTROL PROGRAMS

1. What can residents do if they don't want to be sprayed through the State Cooperative Gypsy Moth Suppression Spray Program?

Attend town council meetings to voice your concerns. Question the need to spray the areas designated by the N.J. Department of Agriculture. Has defoliation occurred over successive years? Is the egg mass survey accurate? If defoliation has occurred over successive years and the town intends to spray, urge the use of pesticides with the most limited impact. Bt.-based formulations kill only lepidoptere, while most others affect a wider range of insect and animal life. Find out who is the town's appointed representative for the state's spray program and be sure that individual is informed about the impact of chemical and non-chemical pesticides on environmental and human health.

2. What if a town has already decided to join the spray program?

Residents can petition the town government. If enough signatures of residents opposing the use of chemical sprays are obtained, they may convince the town to (1) withdraw from the state program, or (2) use Bt.

or

Several residents in a treatment area may petition the town to exclude their properties from treatment. Several contiguous properties have a better chance of being avoided. In practical terms, an aircraft cannot avoid one residence in a treatment area.

3. What if the town refuses to exclude your property?

A municipal ordinance that declares the gypsy moth as a public nuisance is the town's legal authority to spray public and private lands where gypsy moth infestation is deemed a nuisance to the public. The State spray program requires a town to pass such a nuisance ordinance in order to participate in the program.

The Cooperative Gypsy Moth Suppression Program coordinated by the US Department of Agriculture has a Programmatic Environmental Impact Statement prepared each year. The 1981 Programmatic EIS indicates individuals can be excluded from treatment. In the EIS Comment Letter 20, Comments A and B and the response to those comments it states, "Residents can object to the program and prevent treatment of their property", and citizens can request their properties be excluded, first, at the time a local suppression project has been requested and, later when individuals in a treatment area are notified of actual insecticide application dates. Your town governing body should be aware of the US Department of Agriculture's position on resident participation in a spray program.

It is important to get a substantial number of residents to oppose the spraying in order to influence your town government. The spray program is a local government option and towns may withdraw.

4. Does a resident have to be notified prior to spraying?

The NJDA spray program requires municipalities to provide public notices and to mail notices to residents of treatment areas at least 10 days prior to the spray date. The municipality must also certify to the state that these notices have been made. Often only newspaper notices will appear. If you live adjacent to property that is privately contracted for spraying, no legal notice is required. However, it is reasonable to request a buffer strip of untreated land between your property and treated property so that spray overdrift on your property is reduced. EPA recommends buffer areas of 150 feet from all standing and running water and 500 feet from roads, churches, houses and schools. These buffers are particularly recommended when the public is not involved in the decision to use Sevin or if adequate public notice is not made.

5. What can you do if spraying is in progress?

Stay indoors with windows closed.

6. Where do you complain about improper application of pesticides?

Call NJDEP Pesticides Office (609-984-4158)

Commercial applicators are registered and licensed in New Jersey. Try to note the hour, weather conditions (wind, humidity, rain) as well as the date when you observe a violation. Get the firm or applicator's name. A restricted use pesticide (list available from Pesticides Office) is just that. Its concentration, quantity and application are very specifically regulated and applicators must be registered for purchase and application of restricted use pesticides. A registered pesticide is for general use but does have labeling instructions which legally should be followed.

In New Jersey's spray program, commercial applicators are required to follow guidelines for aerial application in order to reduce drift and ensure the insecticide's effectiveness. However, errors in spraying other than scheduled treatment areas can occur. Lodge your complaint with the town and also the state's spray program coordinator. If you were in a scheduled treatment area, but did not receive first class mail notice, be sure the state's coordinator knows you were omitted from the required notification procedures. (See No. 4. Does a resident have to be notified prior to spraying?)

7. Is Sevin safe? Why did EPA remove carbaryl (Sevin) from their Rebuttable Presumption Against Registration (RPAR) list?

Sevin is a broad-spectrum insecticide used for varied purposes. It is toxic to many insects including beneficial ones such as bees, spiders, lady bugs and others. As aquatic insects and certain fish species are quite susceptible to Sevin's toxicity, Sevin labeling instructions prohibit its application to all standing and running water.

Emergency treatment literature for pesticide poisoning victims indicates Sevin is moderately toxic to humans. Antidotes and medical attention are necessary to reduce its effects on the central nervous system.

In December, 1980, EPA removed carbaryl as a candidate for RPAR after 4 years of study. No new research was reviewed. The old data originally submitted for registration purposes was restudied. It included some studies of positive mutagenic and teratogenic effects. However, these studies were deemed inconsistent and not reproducible. The possibility of carbaryl combining with other chemicals to form a carcinogen, and studies suggesting mutagenic and teratogenic effects were ignored.

The release document said that carbaryl should receive more study and the label directions for use should be renegotiated with the manufacturer in order to minimize exposure. This recommendation for more study does not suggest indisputable safety of the chemical. In addition, EPA had stated in 1978 that, "in light of possible teratogenic potential of carbaryl, the use of this material in an aerial spraying program in residential areas should be subject to the closest scrutiny." Some contend that when Sevin is sprayed aerially, greater amounts are absorbed in the skin than would be ingested when eating treated vegetables.

8. Should pregnant women and small children avoid spray treatment areas? For how long?

The labeling instructions for Sevin (carbaryl pesticide) clearly states "Harmful if inhaled or swallowed." Human contamination from carbaryl can occur in three ways: by inhalation, ingestion or through skin absorption. Experimental results from many studies on carbaryl indicate its ability to cause birth defects in dogs, guinea pigs, mice and chickens; optic nerve degeneration and blindness in rats; still births in rabbits and cotton rats; reduced reproduction in bobwhites and pheasants; and mutations in bacteria, insects, animals and plants.

Reye's syndrome is a disease striking children that have recently had a virus, such as influenza, rubella or German Measles. It is thought to be caused by certain chemicals that impact the body's immune system and enhance viral infection. The chemicals used to dissolve a pesticide, and even the pesticides themselves, are suspected of interacting with a virus to cause Reye's Syndrome, which can be fatal.

EPA's carbaryl expert said he wouldn't want women of child-bearing age to be excessively exposed to carbaryl and that it would be prudent to take cover when spray planes were overhead. However, in the December, 1980 Decision Document on carbaryl, EPA felt that all current studies on carbaryl effects did not warrant its review for cancellation. Contrary opinions continue to be issued regarding carbaryl's safety. More study is needed.

To avoid contamination, at the very least, stay indoors with windows shut during aerial application of Sevin. After 3-5 hours (depending upon conditions) the pesticide will dry and adhere well to surfaces. It takes 3-7 days for half the Sevin residual to biodegrade on foliage. In soil, it takes 7-15 days for half the Sevin residual to biodegrade. Try to avoid skin contact with the residue by wearing gloves if working outdoors. If it is possible for you to leave the treatment area, do so the day of the spraying or even for an entire week following the spraying.

9. Is xylene contained in the Bt. spray? Is it safe?

Xylene is found in certain commercial Bt. products. Sandoz's Thuricide 16B is one. Not all Bt. products contain xylene. Other chemicals may be used to enhance the dispersant properties of the Bt. spray.

Xylene is listed as a hazardous substance by EPA. However, at the low concentration used for the Bt. spray, xylene is considered only mildly toxic. It also volatilizes (becomes a vapor) very quickly in the atmosphere.

10. Are two applications of Bt. necessary? What is the appropriate time to spray? Is that different from the Sevin Spray Schedule?

Gypsy moth caterpillars must ingest Bt. or Sevin in order for it to be effective. As the gypsy moth caterpillar seldom feeds when newly hatched, some time should pass before spray is applied. This is calibrated by leaf expansion on trees which coincides with caterpillar hatch and development. Leaf expansion should be a minimum of 40% to 50% to ensure adequate coverage.

The second or third instar state of the caterpillar is recommended by the manufacturers of Bt. as the appropriate state for treatment. A second spraying 14 days later is recommended if hatching of the caterpillars occurs over an extended period. Young larvae (second instar) are more sensitive to biological insecticides than later instar stages. Experimentation is being done with stronger formulations of Bt. so as to reduce the number of sprayings from two to one. Careful measurement of flow rate during Bt. spraying is important as well as other factors which are outlined on labeling instructions. Because it is always possible to encounter problems, an experienced applicator is desirable.

Sevin is also sprayed when caterpillars reach the second or third instar stage. Again, the amount of leaf expansion should be 50% to ensure adequate coverage with the Sevin spray.

11. What are the costs for Bt. and Sevin aerial spraying?

The New Jersey Department of Agriculture 1981 figures were:

Sevin pesticide:
Bt.

\$7.19 per acre
\$10.98 per acre

Two applications of Bt. are required bringing total cost per acre to \$21.78.

12. Is it possible for local government to control the private use of pesticides and herbicides?

Yes, local municipalities may adopt ordinances but they must be approved by the Office of Pesticide Control of the NJDEP before they can become effective.

*new studies
on effectiveness*

13. Can pesticide applicators mix two or more pesticides in their spray tanks?
Can chemical pesticides be mixed with Bt.?

Yes, and they frequently are for the purposes of obtaining a quicker or more complete "kill", or to increase the profit margin. An example of the possibilities is given in the following list which is from promotional literature on Thuricide:

**Materials Compatible with THURICIDE in
Spray Tank — Alternate names included
for convenient reference.**

Aramite	Malathion
Bidrin	Maleic hydrazide
Bordeaux mixture	Maneb
Captan	Meta-Systox R
Cygon	Methyl parathion
Cyprex	Methyl Trithion
Daconil*	MH-30
DDD	Naled
DDT	Neutro Cop "53"
Diazinon	Parathion
Dibrom	Phaltan
Dichlone	Phenyl mercuric acetate
Dieldrin	Phosdrin
Difolatan	Phosphamidon
Dimethoate	Phygon
Dithane M-22	Pyrethrum
Dithane M-45	Rotenone
Dithane Z-78	Ryania
Dodine	Sevin
Dylox	Sorba Spray
Dyrene	Strobane
Endosulfan	Sulfur
Endrin	TDE
Folpet	Tedion
Guthion	TEPP
Karathane	Thiodan
Kelthane	Toxaphene
Magnetic 6	Trithion
Flowable Sulfur	Zineb

14. If the applicator won't tell you what substances are in his spray tank, how can you find out?

Call the Office of Pesticide Control (609-984-4158) and ask them to find out. Give date, time and location of spraying, as well as name of applicator's company.

Received from Associated of NY Environmental Commission

GYPSY MOTH CONTROL

The following is a series of comments on gypsy moth control issued by various agencies which have long dealt with the problem:

(1) U.S. Department of Agriculture: "The most biologically expedient action for dealing with gypsy moths would be to permit the insect to become established, sit out the explosion, and then rely on biological controls to keep the populations at low levels. Chemical poisons can prolong the explosion phase by reducing competition and by destroying the predators and parasites."

(2) Mass. Division of Forests and Parks: "For the past few decades and despite the fact that extensive defoliation has been experienced, little or no mortality in attacked hardwoods has been noted. The collapse of a gypsy moth population peak to one of insignificant numbers is always accomplished naturally by adisease specific to gypsy moth."

(3) Dr. Ian C. T. Nisbet, Chairman of the Committee on Scientific and Technical Assessments of Environmental Pollutants in the National Academy of Sciences: "Despite extensive control programs using various insecticides,.... the gypsy moth has increased its range steadily in the last three decades.... The increase was particularly rapid during the period when carbaryl (Sevin) was the insecticide of choice.... Thus large-scale treatment with insecticides, including carbaryl, has failed to eradicate the gypsy moth, to control its population or to prevent its spread." Carbaryl often actively interferes with natural control systems by killing insect predators and parasites. The usual effect of carbaryl is to prolong outbreaks of gypsy moths; it sometimes actually promotes outbreaks of gypsy moths or other pests in the succeeding year. In certain cases, the foliage of individual trees may be worth protecting for aesthetic or economic reasons, but it seems reasonable that such programs should be paid for by the individual landowners...., not by the taxpayers. Publicly financed programs using carbaryl.... are ineffective, unreasonable, damaging and potentially hazardous.

(4) Conn. Department of Environmental Protection: ".... aerial spray programs with Sevin are unwarranted because of its past history of ineffectiveness and because of the environmental and health hazards associated with its use."

(5) U.S. Environmental Protection Agency: "At low doses (Sevin) has caused birth defects in various species of animals,If Sevin is to be applied in residential areas, steps should be taken to inform affected residents... with special consideration given to pregnant women and women of child-bearing age."

(6) Newton, Mass. Board of Alderman: "Whereas the Federal Trade Commission issued a complaint.... that the Union Carbide Corporation has misrepresented its product Sevin as safe, non-toxic, and hazard-free and failed to disclose that it is dangerous to health, whereas Sevin is virtually completely absorbed through the skin whereas Sevin may cause embryologic abnormalities, and whereas Sevin is listed in the Mrak Commission Report (by the Dept. of Health, Education and Welfare) as one of the 26 pesticides identified as potential hazards to human health be it resolved that this material will no longer be broadcast by the city in its spraying program for city and selected privately owned trees."

OVER

SUMMATION

The previous comments indicate that application of chemical pesticides, particularly Sevin or carbaryl, is:

- (1) Useless and ineffective; relief from spraying is purely cosmetic and temporary.
- (2) Such spraying only prolongs (and can even worsen) the problem by eliminating natural controls (predators and parasites) for too long a time.
- (3) Potentially hazardous to human health and wildlife.
- (4) Unnecessary - 98% to 99% of attacked trees recover fully.

Alternatives to spraying with chemical pesticides include:

- (1) Just let the cycle pass (as it has many times already).
- (2) Strengthen special trees with fertilizer and watering.
- (3) Consider application of Bacillis thuringiensis (Dipel or Thuricide). It is a biological control, does kill other moths and butterflies, is more expensive but is not so hazardous to human health.
- (4) Individuals or neighborhood groups can remove the egg clusters, caterpillars or adult moths from trees, etc. and destroy them in kerosene.

David R. Longland, Horticulturist
Garden in the Woods
Hemenway Road
Framingham, Mass. 01701
February & July, 1980

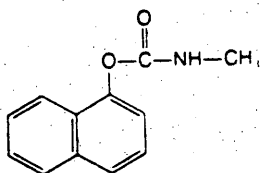
Pesticide Profile

(recovered from the National Coalition Against the Misuse of Pesticides)

CARBARYL

Carbaryl is a high sales volume pesticide marketed by Union Carbide Corporation under the trade name of Sevin®. Carbaryl is available over the counter, and is used in many households in the U.S. It is also used extensively as an agricultural insecticide, and as a Gypsy Moth control agent. Recently it received an exemption under section 24c of FIFRA (special local needs), for use on ghost shrimp in Oregon and Washington.

TOXICITY



Carbaryl is classified chemically as a carbamate. Its formal chemical name is 1-naphthyl methylcarbamate.

Carbamates kill insects because they are cholinesterase inhibitors: that is, they interfere with the normal transmission of nerve impulses. Other animals, including humans, have the same mechanism of neurotransmission, so they are also susceptible to acute carbamate poisoning.

In humans, acute symptoms may include headache, dizziness, weakness, twitching, tremor, nausea and vomiting.

The oral LD₅₀ (a measure of acute toxicity) of carbaryl for rats is variously reported to be between 307mg/kg and 850mg/kg. Roughly translated, this means that about 1 ounce taken by mouth would kill an adult human. The dermal LD₅₀ is between 500mg/kg and 4000mg/kg. Dermal toxicity means the ability to cause poisoning by absorption through the skin.

Carbaryl can also cause kidney damage, and humans appear to be particularly sensitive.

But it is not the acute (immediate) health effects of carbaryl that are cause for concern as much as the chronic (long term) effects.

Carbaryl has been found to be teratogenic (causes birth defects) at low doses in Beagle dogs, and at high doses in guinea pigs, rabbits and dogs. It is fetotoxic (poisonous to the fetus) in mice, rats and gerbils. Carbaryl has been shown to cause spontaneous abortions in Rhesus monkeys at low doses, and was suspected in a case of human miscarriages and birth-defects. Several studies have shown that carbaryl reduces sperm counts, has an adverse effect on sperm motility, and increases sperm cell abnormalities. Carbaryl was found to be weakly mutagenic and a "borderline" carcinogen. And in addition, there is information showing that carbaryl can cause adverse behavioral effects and can enhance viral diseases.

EPA REGISTRATION NO PROBLEM!

After all this, it is fair to wonder why carbaryl is still so readily available and so widely used.

The truth is, that the review process, which is supposed to remove dangerous pesticides from the market, was a dismal failure. In 1975 carbaryl was placed under consideration for a thorough review, due to the accumulating evidence of chronic effects. In December of 1980, however, the EPA's Office of Pesticide Programs (OPP) concluded that there was not enough evidence to warrant a review.

Commentators on this case, including Friends of the Earth and the Center for Science in the Public Interest suggest that the conclusions drawn by the OPP as to carbaryl's safety were completely incompatible with the evidence presented.

Before the decision document cancelling the review was made public, it should have been reviewed by other EPA offices, according to standard agency procedure. Instead, the only entity to review it was the manufacturer, Union Carbide.

Internal EPA documents indicate that scientists within that agency have recommended that at the very least, the label of carbaryl be changed to warn women and men of child-bearing age of the risks!

ENVIRONMENTAL EFFECTS

Although this profile has focused on the human health effects of carbaryl, it is clear that mammalian wild-life and domestic animals have just as much chance of being adversely affected as we do.

As a broad spectrum insecticide, carbaryl is toxic to many beneficial insects, and is extremely toxic to bees.

Crustaceans are highly susceptible to carbaryl, and so are molluscs, at slightly higher concentrations. It is also toxic to fish and to some species of marine algae. Carbaryl bioaccumulates in aquatic systems.

In soil, carbaryl is moderately persistent and is degraded (or transformed) by chemical and microbial activity. Its primary breakdown product, 1-naphthol, is generally considered more toxic than carbaryl itself.

A STUDY OF THE EFFICIENCY OF THE USE OF
PESTICIDES IN AGRICULTURE

SHARON L. NIEREN
TESTIMONY FOR
LESNINK S-1342

By

Rosmarie von Rümker
Gary L. Kelso

with

Freda Horay.
Kathryn A. Lawrence

FINAL REPORT
July 1975

Contract No. 68-01-2608
MRI Project No. 3949-C

For

Environmental Protection Agency
Strategic Studies Unit, OPP WH-566
401 M Street, N.W.
Waterside Mall, Room 507
Washington, D.C. 20460

Attn: Mr. Allan Zipkin
Project Officer

EPA-540/9-75-025

when you
have found
out from
Mittelman
what type
of aircraft,
particle
size
filter
etc
etc

Table 36. LIKELIHOOD OF PESTICIDE DRIFT DURING CROP TREATMENT IN AGRICULTURE
BY METHOD OF APPLICATION

<u>Formulation</u>	<u>Equipment type</u>	<u>Pesticide application method^{a/}</u>	<u>Target</u>	<u>Spray application volume^{b/}</u>	<u>Estimated percent drift over 1,000 ft from target^{c/}</u>
Dust	Aircraft, venturi Airblaster	Air, foliar	Trees	-	70-90
		Ground, foliar	Trees	-	60-80
Spray	Tractor, boom sprayer	Ground, foliar	Plants	ULV	3-10
		Ground, foliar	Plants	LV	1
		Ground, broadcast	Soil	LV	Negligible
		Ground, broadcast	Soil	HV	Negligible
		Ground, band	Soil	ULV	Negligible
		Ground, band	Soil	LV	Negligible
	Tractor, boomless sprayer	Ground, broadcast	Soil	LV	Negligible
		Ground, broadcast	Soil	HV	Negligible
	Spray gun	Ground, foliar	Trees	HV	3-5
		Ground, foliar	Trees	ULV	40-70
		Ground, foliar	Trees	LV	10-40
		Ground, foliar	Trees	LV	10-40
	Orchard airblaster	Air, foliar	Trees	ULV	40-60
		Air, foliar	Trees	LV	10-40
		Air, foliar	Plants	ULV	40-60
		Air, foliar	Plants	LV	10-40
		Air, broadcast	Soil	LV	10-40
Granular	Aircraft, venturi Spreader, centri- fugal	Air, broadcast	Soil	-	1-2
		Ground, broadcast	Soil	-	1
	Spreader, boom	Ground, broadcast	Soil	-	1
		Ground, band	Soil	-	Negligible
	Planter	Ground, band	Soil	-	Negligible
		Ground, band	Soil	-	Negligible

^{a/} Air refers to pesticide application by aircraft, ground refers to pesticide application by ground rigs.

^{b/} HV = High Volume; LV = Low Volume; ULV = Ultra-Low Volume.

^{c/} Assumes a 3 to 5 mph wind; neutral atmospheric stability (S.R. = 0), air temperatures above 60°F; and a relative humidity of 50% or less.

APPENDIX A

FIELD STUDIES ON PESTICIDE DRIFT DURING APPLICATION

As a result of a review of the literature, a number of field studies on pesticide drift were obtained which are representative of attempts to assess the effects on drift from the type of equipment, type of formulation, and techniques used in agriculture. These studies are listed below in the order they appear in this appendix.

1. Aerial application - drift;
2. Aerial application - time of application and drift;
3. Aerial application - low volume versus ultra low volume sprays;
4. Aerial application - low volume versus ultra low volume sprays;
5. Aerial application - dilute versus low volume sprays;
6. Aerial application and mist-blower application compared;
7. Aerial application and ground application compared;
8. Ground application - effects of an additive, nozzle pressure, and evaporation on drift; and
9. Ground application - spray drift in treating orchards.

A brief discussion and the important findings of each study are given below. The references used to obtain these studies appear at the conclusion of this appendix.

AERIAL APPLICATION - DRIFT

Research has been conducted by Wesley E. Yates and Norman B. Akesson at the University of California, Davis, for over a decade to determine the amount of drift involved in various types of spray applications. They have studied drift of dusts and sprays under actual operating conditions.

Tests^{1/} conducted over a period of years have included comparisons of the relative quantities of drift for ground applications and aerial applications; for low volume and ultra low volume applications; for large particles and small particles; and for various climatic conditions. The general relationships these factors have to each other, depending on various circumstances are:

- Aerial applications show a higher potential for drift than ground applications when spraying similar droplet sizes.
- Ultra low volume sprays are usually applied as smaller particles than low volume sprays and are generally more susceptible to drift.
- Particle size definitely affects the drift potential of sprays and solids as well. Smaller particles are highly subject to drift at sizes below 50 μ .
- Stable atmospheric conditions produce fewer total quantities of particle drift than unstable conditions.

Though these conclusions are basic and seemingly self-evident, they provide good guidelines to show some of the factors which must be considered if drift is to be minimized.

Akesson and Yates have found much more detailed information than that presented above, but to include all of their findings in this report would require a great deal of space. The results of their work in determining spray drift from aircraft is best summarized by presentation in a table they have constructed to show the estimated amounts of drift that accompany aerial applications. Table A-1^{2/} represents the knowledge and experience they have on the subject of drift in aerial spray applications, and gives a good overview of the problem dealt with in this study.

G. W. Ware et al., have also conducted a number of drift tests at the University of Arizona, Tucson. They examined the effects of several variables, including formulation, thickeners, temperature, time of application, and gallons of spray per acre, that affected the percent of pesticide deposited on-target from aerial spray applications. A summary of a number of tests conducted over a period of time is given in Table A-2.^{3/}

Table A-2 shows that over a long period involving a number of variables and different conditions, the average on-target deposit of aerially applied pesticides was about 50%. Dust had the lowest deposit in the target area by far--only 14%. The spray deposits varied from 28 to 73%, depending on the variables involved. This table is a good indication that aerial spraying is subject to wide variations in drift losses, and, on the average, pesticides sprayed from aircraft have only a 50% chance of reaching their intended target.

Table A-1 AIRCRAFT SPRAY DROP SIZE RANGE, USE AND APPROXIMATE RECOVERIES

<u>Spray description atomizer</u>	<u>Atomizer example^{a/}</u>	<u>Drop size range (microns pm VMD)^{b/}</u>	<u>Percent estimated deposit in 1,000 ft^{c/}</u>	<u>General use</u>
<u>Coarse aerosols</u> Cone and fan nozzles, and rotary atomizers	80,005 down D2-13 down 200-300 lb/in ²	< 125	< 25	For aerosol applications, vector control and forest insects. Agricultural pathogens, low volume rates, primarily adulticiding use.
<u>Fine sprays</u> Cone and fan nozzles, and rotary atomizers	80,005 down D6-45 down 30-100 lb/in ²	100-300	40-80	Primarily for forest pesticide chemicals and large area vector control with low dosages of low toxicity and rapid degradation chemicals. Also for agricultural insect pathogens.
<u>Medium sprays</u> Cone and fan nozzles, and rotary atomizers	D6-46 down 30-50 lb/in ²	300-600	70-90	Commonly used spray drop size for all low toxicity agricultural chemicals where good coverage is necessary.
<u>Coarse sprays</u> Cone and fan nozzles Spray additives	D6-46 back 20-50 lb/in ²	400-600 with additives up to 2,000	85-98	Recommended for toxic pesticides of restricted classification where thorough plant coverage is not essential.
<u>Minimum drift sprays</u> Jet nozzles Spray additives	D4 to D6 down at less than 60 mph. Back at over 60 mph. 20-50 lb/in ²	800-1,000 with additives up to 5,000	95-98	Recommended for all toxic, restricted class herbicides such as phenoxy-acids and others within limitations of growing season and nearness to susceptible crops.
<u>Maximum drift control</u> Low turbulence nozzles	Microfoils ^{d/} Less than 60 mph airstream	800-1,000	99.+	Actual drift tests show one-fourth the drift residue levels at 500 ft downwind from the Microfoils ^{d/} compared with the D4 to D6 jets used with restricted nonvolatile herbicides, phenoxy-acids and others in the area of susceptible crops, but subject to limitations of growing season and crop.

a/ Numbers refer to Spraying Systems Company, nozzles, down or back refer to position on aircraft boom.

b/ Drop size as determined with water base sprays, oils would give smaller drops.

c/ Deposit estimated in 1,000 ft downwind. Weather conditions: wind velocity 3-5 mph, neutral temperature gradient. Material released under 10 ft height.

Source: Ahnason, H. B., and V. E. Yates, "Physical Parameters Relating to Pesticide Application," p. 29, paper supplied by H. B. Ahnason (1974).

Table A-2. PERCENTAGE ON-TARGET DEPOSIT OF AERIALLY APPLIED INSECTICIDES

<u>Insecticide</u> <u>(AI/acre)</u>	<u>Time of</u> <u>application</u>	<u>Gallon</u> <u>spray/acre</u>	<u>Spray</u> <u>thickener</u>	<u>Temperature</u> <u>(°F)</u>	<u>Relative</u> <u>humidity (%)</u>	<u>Wind</u> <u>(mph)</u>	<u>Sample</u> <u>height (in.)</u>	<u>Actual %</u> <u>deposited</u>	<u>Corrected</u> <u>% deposited</u>
Tosaphene 4.0	6:10 PM	152 dust	-	61	55	3-4	-	14.0	14.0
Tosaphene 4.0	6:10 PM	5.7	-	61	55	3-4	-	47.7	47.7
Methoxychlor 1.75	9:20 AM	8	Yes ^{a/}	93	-	4.9	10	34.4	39.3
Methoxychlor 1.75	9:20 AM	8	-	93	-	4.9	10	38.3	43.8
Methoxychlor 1.75	8:15 AM	7	-	36	-	1.4-2.6	10	49.5	96.5
Methoxychlor 1.75	8:15 AM	7	Yes ^{a/}	36	-	1.4-2.6	10	73.0	107.0
Methoxychlor 1.72	5:54 AM	7	-	60-70	-	1-2.5	10	28.0	35.4
Methoxychlor 1.72	4:00 PM	7	-	95-100	-	2-3.5	10	44.0	53.7
Methoxychlor 2.0	8:20 PM	8	-	83-86	-	< 1.0	ground	33.7	35.4
Methoxychlor 2.0	8:20 PM	8	-	83-86	-	< 1.0	24	69.2	72.8
Methoxychlor 2.0	6:15 PM	5	Yes ^{b/}	90-94	35	6.3-5.3	12	40.4	40.4
Methoxychlor 2.0	7:00 PM	5	-	87-93	43	1.8-2.0	12	38.4	39.7
Methoxychlor 2.0	5:30 PM	5	-	98-103	44	2.9-3.7	12	72.0	77.0
Methoxychlor 2.0	4:30 PM	5	Yes ^{c/}	100-105	19	5-5.6	12	61.3	61.3
Methoxychlor 2.0	5:50 PM	5	Yes ^{d/}	99-103	25	2-3	12	78.0	78.0
Methoxychlor 2.0	3:00 PM	5	-	103-105	28	1.8-2.7	12	32.8	44.7
Methoxychlor 2.0	3:00 PM	5	-	103-105	28	1.8-2.7	12	25.8	26.0
Average								46.7	53.3

^{a/} Spray thickener employed was carboxymethyl-cellulose.

^{b/} Spray thickener employed was Decalin 0.8% (w/w).

^{c/} Spray thickener employed was molasses (74% V/V).

^{d/} Spray thickener employed was Cab-O-Sil (1.5% w/w).

279x

.51

AERIAL APPLICATION - TIME OF APPLICATION AND DRIFT

The objective of this study, conducted by Ware et al. (1972),^{4/} was to determine effects on target deposit and drift when pesticides were applied at a rate of three times daily under different meteorological conditions. Methoxychlor with a fluorescent tracer was applied aerially at a rate of 0.46 lb/acre from a height of 5 to 6 ft at 90 mph using 28 Delavan D-2 floodtip nozzles. Applications were made at 6 a.m. (I), 3 p.m. (II), and 6:50 p.m. (III); all under a 2 to 3°F temperature inversion. The dispersion of the pesticide was determined by analysis of horizontal vertical collection cards placed 18 in. above ground level in both the target area and at distances of 82, 165, 330, 660, and 1,320 ft downwind, and by analysis of 10, 1-ft², alfalfa samples. Pertinent meteorological data and target deposit and drift of the pesticide for the three applications are shown in Table A-3.

On the basis of these tests it was concluded that early morning application resulted in greater insecticide deposit in the target area. However, downwind drift deposit beyond 660 ft was increased. The relatively greater deposit of the early morning application is probably due to a mild temperature inversion in conjunction with lower temperature and higher relative humidity that reduced evaporation from spray droplets.

AERIAL APPLICATION - LOW VOLUME VERSUS ULTRA LOW VOLUME SPRAYS

Brazzel et al. (1968)^{5/} conducted a study in which several pesticides were applied aerially using two methods, ULV and diluted EC, to determine the effect of formulation on the amount of drift. ULV formulations (which are typically applied in amounts of 1/2 pt to 1/2 gal. active ingredient per acre) were applied with an EC boom (D-8 orifices and No. 45 Core) at rates of 1 to 1/2 gal. liquid per acre. EC formulations (which are water diluted and typically applied in volumes of 1 to 10 gal/acre) were applied with the same boom, but with 80015 nozzles and a Micronair[®] atomizer, at rates of 1.5 gal/acre. EC and ULV sprays were each applied at 5 and 20 ft flight heights under conditions in which the wind speed ranged from 2 to 14 mph. The deposit efficiency of the pesticides was determined in a 100 ft target area.

The results of this field study were as follows:

1. Application at a 20 ft flight height resulted in greater drift and less deposit in the target area for both formulations.
2. Overall environmental contamination with ULV was less than with EC applications.

Table A-3. TIME OF APPLICATION VERSUS TARGET DEPOSIT AND DRIFT

<u>Time of application</u>	<u>Relative humidity</u>		<u>Wind (at 8 ft)</u>		<u>Temperature</u>		<u>Target deposit</u>	<u>Drift</u>
	<u>0-ft</u>	<u>8-ft</u>	<u>speed</u>	<u>direction</u>	<u>8-ft</u>	<u>32-ft</u>		
6:00 a.m.	69%	66%	1.5 mph	S	79°F	82°F	75.4%	24.6% ★
3:00 p.m.	28%	34%	3.6 mph	W	101°F	103°F	63.3%	36.7%
6:50 p.m.	28%	42%	3.2 mph	NW	99°F	101°F	54.7%	45.3%

28/x

153

3. The greater efficiency of ULV applications appeared to be due to less evaporation from the droplets. ULV formulations require dispersal as very small droplets to achieve adequate coverage and to avoid phytotoxicity. The droplets dispersed in the 100 to 150 μ range remained heavy enough to fall to the ground in the target area. On the other hand, EC droplets, although initially large, rapidly lost size and weight due to evaporation of the water and became more subject to drift.

4. Tests showed that: "as droplet size increased, percentage recovery in the target area increased, but droplet count decreased. Droplet counts were usually higher with EC, but percentage recovery was lower than for ULV. These results indicate a considerable increase in efficiency of application to a specific target area with an increase in droplet sizes from 100 to 150 μ . However, this increase is accompanied by a decrease in coverage in the target area. Also, these results indicate a reduction in drift, since more of the pesticide reached the target area."

5. A summary of the data obtained for the 12 field tests is given in the following table (Table A-4).

AERIAL APPLICATION - LOW VOLUME VERSUS ULTRA LOW VOLUME SPRAYS

This field test was conducted by Adair et al. (1971)^{6/} to determine the effect of formulation on drift under similar application conditions. Methyl parathion was applied in two formulations. A 4 lb/gal emulsifiable concentrate (EC) formulation, applied both as an undiluted ULV spray and a water-diluted (low volume) spray (2 gal/acre). Both formulations were applied aerially at 80 mph and a height of 5 ft. ULV applications were made with 12 No. 80015 nozzles at the rate of 1 lb/acre, and with 24 No. 80015 nozzles at the rate of 2 lb/acre. LV applications were made by 12 D-8 tip and No. 45 core disc-type cone spray nozzles at the rate of 1 lb/acre.

Ground impaction sheets, oil-sensitive cards, and Casella[®] cascade impactors (placed 5 ft above ground level) were used to determine the amount of methyl parathion deposited in the target area, at distances of 10 and 20 ft upwind, and at distances up to 1/2 mile downwind. The ground impaction sheets and oil-sensitive cards were collected 20 min after pesticide application; cascade impactors at 100, 330, 660, 1,320, and 2,640 ft downwind were operated 2, 5, 7, 10, and 15 min, respectively, after application and were removed 30 min after sampling ceased.

The results of these tests were as follows:

1. Analysis of oil-sensitive cards indicated that the larger drops fell to the ground in the flight path and that drops impacting away from target area decrease in size as distance from the target area increases.

Table A-4. PERCENTAGE PESTICIDE RECOVERY IN A 100-FT TARGET AREA

<u>Formulation</u>	<u>Application height (ft)</u>	<u>Application system</u>	<u>Wind (mph)</u>	<u>Target recovery (%)</u>
ULV	20	ULV boom	2	44.33
ULV	5		2	47.90
EC	20	EC boom	3	11.51
EC	5		4	14.97
ULV	20	ULV boom	10	4.48
ULV	5		11	10.26
EC	20	EC boom	12	1.27
EC	5		14	5.91
ULV	20	ULV boom	10	16.00
ULV	5		11	28.67
ULV	20	Micronair®	6	1.04
ULV	5	22.5°	8	17.96

The analysis also showed that 70 μ sized droplets could drift up to 1/2 mile downwind.

2. Airborne drift at a 5-ft height, as determined using the cascade impactors, showed that drift was greater from ULV applications than from LV applications. In addition, the amount of airborne drift at the 5-ft height quickly stabilized in LV applications while airborne ULV drift was high at 100-ft downwind, gradually decreasing as downwind distance increased.

3. LV sprays were deposited in the narrow target area with more efficiency, but since relatively less was deposited downwind, a large quantity must be quickly airborne. This may be due to water evaporating from the initial droplet leaving a very small droplet which remains airborne.

4. Table A-5 shows the average percent recovery of methyl parathion on the ground impaction sheets, both in the target area and at distances of up to 1/2 mile. These data show that ground downwind deposit of methyl parathion was greater from ULV applications than from LV applications.

5. The previous table shows that a 40-ft swath for LV and 80-ft swath for ULV gave similar deposition in the target area, but more pesticide impacted on the ground downwind using the ULV spray.

AERIAL APPLICATION - DILUTE VERSUS LOW VOLUME SPRAYS

Low volume application of pesticides requires atomization into fine droplets which results in an increased drift hazard. A field study was performed by R. J. Argauer et al.^{7/} to compare deposits of malathion and azinphosmethyl when aerially applied as LV (low volume) and water-diluted emulsifiable concentrates. Tests were performed under adverse climatological conditions to determine maximum possible drift.

Pesticide applications were made aeriaily at 100 mph at heights of 8 and 30 ft. LV applications of malathion and azinphosmethyl were made using the undiluted technical formulations. Water was added to the technical formulations when applying the dilute sprays. Azinphosmethyl was applied at a rate of 0.5 lb active ingredient per acre and malathion at 2.0 lb active ingredient per acre, active ingredient constant regardless of formulation. LV applications were made using a No. 8002 flat spray nozzle directed 45 degrees forward and down into the airstream; water-diluted spray applications were made with a No. D10-45 hollow-cone nozzle directed straight down into the airstream. Mass median diameter of the droplets in each case was approximately 220 μ .

Table A-5. PERCENT RECOVERY OF METHYL PARATHION ON GROUND IMPACTION SHEETS

Formulation and pound active ingredient per acre	Swath width	Target area	Average % recovery								
			Downwind							Total	% Drift
			40	60	80	100'	330	660	1320		
ULV 1.0 lb/acre	40 ft	15.7	9.6	6.6	6.9	3.9	1.10	.10	.03	43.9	56.1
ULV 2.0 lb/acre	40 ft	16.2	14.5	4.8	2.5	2.3	.60	.10	.05	41.0	59.0
ULV 1.0 lb/acre	80 ft	31.7	--	9.6	5.0	4.6	1.20	.20	.10	52.4	47.6
LV 1.0 lb/acre	40 ft	32.8	6.0	3.5	1.9	0.7	.60	.04	.02	45.5	54.5

285x

157

Relative spray deposits were determined by: (a) analysis of glass-fiber filter discs attached to aluminum plates placed perpendicular to the flight line and parallel to the wind direction; and (b) laboratory bioassay of open Petri dishes placed near each collection plate. The relative amounts of airborne azinphosmethyl 6 ft above ground at 200 and 2,000 ft downwind of the application line were determined using two Staplex® high volume air samplers. Filter discs from the azinphosmethyl test were analyzed by a fluorometric method; filter discs collected after the malathion test were analyzed by gas chromatography. Bioassays of the Petri dishes were performed by placing 1 to 7-day-old adult Drosophila melanogaster in each dish; dishes were examined and records of fly mortality were kept.

Pesticide amounts recovered were estimated by adding the amount recovered in the swath path to the amount recovered immediately downwind. Estimated recoveries for azinphosmethyl and malathion applications at two flight heights are shown in Table A-6.

Recovery of the diluted applications ranged from 46 to 96% of total pesticide applied; average recovery for the three tests was 71%. Recovery from the undiluted low volume tests ranged from 18 to 62%, with the average recovery for the four tests 37.5%. In addition, it was determined that more pesticide was recovered when applied from the 30 ft flight height than when applied from the 8 ft flight height. It was postulated that the lower pesticide recovery from the lower application height may be due to severe turbulence caused by the aircraft slipstream reflected by a swirling pesticide deposit pattern in the swath area. At the higher flight pattern, however, drift to adjacent areas was more pronounced due to an increased influence from crosswinds.

AERIAL APPLICATION AND MIST-BLOWER APPLICATION COMPARED

Ware et al.^{8/} conducted a study exploring pesticide drift differences between aerial and tractor-drawn mist blower applications. Aerial and mist-blower (ground) applications to alfalfa fields were made simultaneously in late afternoon. Pertinent meteorological and application data are shown in Table A-7.

Downwind drift contamination was determined by three techniques: (a) analyses of alfalfa samples collected along two drift lines and at 165, 330, 660, 1,320, and 2,640 ft downwind; (b) air scrubbers (operated 66 min for mist applications and 28 min for aerial applications) stationed at four positions, 165 and 330 ft downwind; and (c) glass plates (10 x 25 cm) placed 10 in. above ground at target site and at 165, 330, 660, and 1,320 ft downwind along both drift lines.

Table A-6. ESTIMATED PERCENTAGE SPRAY RECOVERY IN
THE SWATH ZONE TO 0.375 MILES DOWNWIND

Pesticide	Undiluted, technical formulation		Diluted, aqueous formulation	
	8 ft application height	30 ft application height	8 ft application height	30 ft application height
Azinphosmethyl 0.5 lb/acre	18%	62%	46%	--
Malathion 2.0 lb/acre	31%	39%	71%	96%

Table A-7. APPLICATION DATA: AFTERNOON APPLICATION OF METHOXYCHLOR
FROM BOTH A MIST BLOWER AND AIRCRAFT

Application method	Time of application	Wind direction and velocity	Temperature	Application speed	Nozzle pressure and size
Mist blower	4:30 p.m.	W-SW 3.0-5.0 mph	8 ft: 80°F 33 ft: 75°F	4 mph	25 psi Remite® slot-type
Aerial	4:30 p.m.	W-SW 3.0-5.0 mph	8 ft: 80°F 33 ft: 75°F	80 mph	50 psi D-8 tip, No. 45 core

287x
159

All three techniques showed that downwind drift was greater from mist-blower ground application than from aerial applications. "Alfalfa 1/2 mile downwind from the mist blower bore 0.27 ppm [pesticide], with only 0.14 ppm from aerial application." Greater drift from mist-blower applications was also confirmed by analyses of data from the glass plates and air scrubbers.

Droplet size was determined by using microscope slides (1 x 3 in.) placed 10 in. above ground in the target area and at 1,320 ft downwind; slides were collected 30 min after completion of application and droplet spread-diameter determined. Results indicated the mist blower had an average droplet size of 100 μ in the target area and 18 μ at 1,320 ft downwind. Average droplet size in the target area and 1,320 ft downwind was 140 and 34 μ , respectively, for the aerial application.

Thus, each drift measurement technique indicated greater downwind drift to 1/2 mile occurred during mist-blower application than during aerial application. Ware et al. postulated that this was due to mist-blower applications having a smaller droplet size and higher droplet initial velocity (often in excess of 90 mph) both of which contribute to a greater drift hazard.

AERIAL APPLICATION AND GROUND APPLICATION COMPARED

Ware et al.,^{9/} conducted a field study in 1967 to compare: (a) insecticidal drift when applied simultaneously by ground rig and by "standard" aircraft sprayer; and (b) to determine the drift from morning versus late afternoon applications.

Ground applications were made by a high clearance ground sprayer (High Boy, Model 300 FSP, Hahn, Inc.) driven at 3 to 4 mph with 40-psi boom pressure. Methoxychlor emulsion was applied in the evening test at a rate of 70 gal. spray per 10 acres (1.5 lb active ingredient per acre) and in the morning test at a rate of 80 gal. spray per 10 acres (1.8 lb active ingredient per acre).

Aerial applications were made using a Stearman biplane flown at 80 mph (flight height not available) with a 42-ft swath, and 36 No. 8 nozzles at 30 psi. Methoxychlor was applied at the rate of 70 gal. spray per 10 acres (2.0 lb active ingredient per acre) in both the morning and evening tests.

Meteorological conditions during the field tests were as follows: (a) evening--wind from the northwest, 1 mph; temperature inversion of 3 degrees ranging from 83°F at 8 ft to 86°F at 32 ft; relative humidity not recorded; and (b) morning--wind from the southeast, 1 to 2 mph; temperature

lag of 0 to 2°F within 80 to 85°F; relative humidity varying from 72% at 7:00 a.m. to 55% at 9:00.

Relative drift during applications was determined by three Anderson Air Samplers, four Casella® cascade impactors and one air scrubber (morning and evening tests) in addition to two M-S-A Monitaire® samplers attached to the shirt pocket of the airplane flagman and Hi-Boy operator (evening tests only). Naturally impinging drift was measured by glass plates placed at ground level and 24 in. above ground in the target area and at 82, 165, 330, 660, 1,320, 1,990, and 2,640 ft downwind for the evening tests and in target area and at 82, 165, 330, and 660 ft downwind for the morning tests. All analyses were by gas chromatography.

Conclusions drawn from this field test were as follows:

1. At all distances, drift from aerial application was greater than from ground application (e.g., aerial application drift at 1,320 ft was five times greater than ground application drift for the evening test; aerial application drift at 660 ft was 4.2 times greater than from ground application in the morning test application).

2. Impinging drift at ground level was the same quantity as that at 24 in. In addition, drift deposits at these two levels were similar for morning and evening aerial applications. However, deposit at 660 ft for ground application in the morning was 2.6 times greater than deposit for the evening application.

3. The M-S-A Monitaire® samplers determined methoxychlor exposure was at a rate of 0.035 µg/ft³ for the airplane flagman and 0.016 µg/ft³ for the Hi-Boy operator; however, the ground equipment operator received a greater pesticide exposure due to a greater exposure time (58 min versus 19 min).

4. Finally, it was determined that, at 165 ft downwind, more small droplets were airborne during aerial application than during ground application.

GROUND APPLICATION - EFFECTS OF AN ADDITIVE, NOZZLE PRESSURE, AND EVAPORATION ON DRIFT

Paired field studies were performed by Goering and Butler (1973)^{10/} to evaluate ground rig sprayers. To assure application under identical conditions, a dual sprayer, equipped with No. 8802 flat fan nozzles spaced 20 in. apart was mounted on the tractor to produce a swath width of 160 in. The tests were conducted using a dual application. Each mix tank contained a different fluorescent dye tracer. Downwind drift was monitored

by clear mylar collection sheets. Nozzles were calibrated with water prior to drift experiments; measured flow rates were within 4% of the expected rate.

The following effects were evaluated: (a) the effect of a spray thickener additive on drift; (b) effect of nozzle pressure on drift; and (c) effect of 2,4-D amine on evaporation and drift.

The tests consisted of conducting paired studies: (a) with and without a spray additive (E-102) (Tests I, II, III, IV, and IX); (b) with and without 2,4-D amine (Test V); and (c) with different nozzle pressures (Tests VI, VII, and VIII). All test applications except one (V) contained 1.0% 2,4-D amine; V-a contained 0.0% 2,4-D amine. Results are shown in Table A-8.

Spray recovery was 70% or more of the total applied in all experiments except one. Conclusions from these studies were:

1. "The E-102 spray thickener reduced both the amount of drift deposits and the amount of spray loss by increasing deposits within the swath."
2. "Lowering the nozzle height decreased the drift deposits."
3. "Lowering the nozzle pressure decreased the spray loss."
4. "Low temperatures and high relative humidity were associated with decreased drift and decreased spray loss."
5. "Increased air turbulence produced greater spray loss, but less downwind drift deposits."
6. "Increased horizontal wind speed produced greater spray loss, but produced either greater or smaller drift deposits, depending upon other meteorological factors."

GROUND APPLICATION - SPRAY DRIFT IN TREATING ORCHARDS

Pesticide spray treatment of orchards is normally done by sprayers mounted on ground equipment. Thus, a considerable amount of the spray must be directed upwards and as such, is subject to drift out of the orchard. Consequently, to avoid drastically harming nearby crops or wildlife the fruit grower chooses relatively "safe" pesticides from which drift hazard is minimal. Byass and Charlton (1964)^{11/} conducted a study to measure the percentage of the applied pesticide impacting on the downwind trees.

Table A-8. SUMMARY OF RESULTS FROM PAIRED FIELD STUDIES OF DRIFT

Test No.		Temp (°C)	Relative humidity (%)	E-102 (%)	Cumulative recovery (%) ^{a/}
I	a Control	14.6	51.0	0.0	96.9
	b E-102			0.125	104.9
II	a Control	11.9	50.0	0.0	83.8
	b E-102			0.1	100.0
III	a Control	17.9	23.0	0.0	101.4
	b E-102			0.0625	113.8
IV	a Control	14.7	48.0	0.0	70.9
	b E-102			0.0625	90.0
V	a Control	13.9	47.0	0.0	72.0
	b 2,4-D amine			0.0	90.0
VI	a 40 psi	22.3	29.0	0.0	52.2
	b 25 psi			0.0	72.4
VII	a 40 psi	27.8	38.0	0.0	78.5
	b 25 psi			0.0	82.0
VIII	a 40 psi	30.1	38.0	0.0	91.9
	b 25 psi			0.0	82.1
IX	a Control	31.7	42.0	0.0	108.2
	b E-102			0.1	130.1

^{a/} Cumulative recovery includes deposits in the target area and to 1,024 ft downwind. These figures may exceed actual recovery due to overcorrection for dye degradation and correction to zero wind direction; uncorrected figures ranged from 48.8% to 100.3%.

Narrow, folded celluloid slides with a high collection efficiency (approximately 80% for 50 μ droplets at 10 ft/sec) and a size comparable to twigs were used to estimate the amount of pesticide settling on twigs. In addition, spray deposits on apple leaves were measured by dye colorimetry. All dye applications were made in plain water solutions. Pertinent meteorological data were recorded for all applications. Data from nine application tests measuring percentage of deposit on the trees attributable to drifting spray are shown in Table A-9.

It was concluded that in moderate winds: (a) "up to 40% of the final deposit in an orchard sprayed at high volume by air-carried spray may be due to spray settling beyond the sprayed row;" (b) "settling spray will be at a level of about 10% of the dose applied to the sprayed tree at about 100 ft downwind;" if winds are light, settling amount is unpredictable; and if winds are strong, 10% may settle 200 ft downwind.

Table A-9. SPRAYING CONDITIONS AND PROPORTION OF TOTAL LEAF DEPOSIT
FROM DIRECT APPLICATION AND DRIFT

Machine setting (gal/acre)	Machine speed (ft/sec)	Temperature (°F)	Relative humidity (%)	% Deposit				
				Target rows	Downwind rows			Beyond 3rd row
					1st	2nd	3rd	
8-1/3	4.8	53	55	89	7	T*	T	4
8-1/3	5.9	66	60	75	13	7	T	5
10	6.0	56	50	83	13	3	T	1
50	10.3	55	50	75	18	4	T	3
50	6.7	67	60	68	20	7	T	5
125	7.5	57	50	95	T	T	T	-
200	8.9	55	50	62	19	9	5	5
200	7.6	69	60	63	19	9	T	9
250	8.5	58	45	77	10	6	5	2

* Trace amount.

293x
165

REFERENCES TO APPENDIX A

1. Akesson, N. B., W. E. Yates, and P. Christensen, "Aerial Dispersion of Pesticide Chemicals of Known Emissions, Particle Size, and Weather Conditions," Paper furnished by authors.
2. Akesson, N. B., and W. E. Yates, "Physical Parameters Relating to Pesticide Application," Personal Communication.
3. Ware, G. W., W. P. Cahill, P. D. Gerhardt, and K. R. Frost, "Pesticide Drift IV: On-Target Deposits from Aerial Application of Insecticides," J. Econ. Entomol., 63(4):1982-1985 (1970).
4. Ware, G. W., B. J. Estes, W. P. Cahill, and K. R. Frost, "Pesticide Drift VI: Target and Drift Deposits vs. Time of Applications," J. Econ. Entomol., 65(4):1170-1172, August 1972.
5. Brazzel, J. R., W. W. Watson, J. S. Hursh, and M. H. Adair, "The Relative Efficiency of Aerial Application of Ultra-Low-Volume and Emulsifiable Concentrate Formulations of Insecticides," J. Econ. Entomol., 61(2):408-413 (1968).
6. Adair, H. M., F. A. Harris, M. V. Kennedy, M. L. Laster, and E. D. Threadgill, "Drift of Methyl Parathion Aerially Applied Low Volume and Ultra Low Volume," J. Econ. Entomol., 64(3):718-721 (1971).
7. Argauer, R. J., H. C. Mason, C. Corley, A. H. Higgins, J. N. Sauls, and L. A. Liljedahl, "Drift of Water-Diluted and Undiluted Formulations of Malathion and Azinphosmethyl Applied by Airplane," J. Econ. Entomol., 6(14):1015-1020 (1968).
8. Ware, G. W., E. J. Apple, W. P. Cahill, P. D. Gerhardt, and K. R. Frost, "Pesticide Drift II: Mist-Blower vs. Aerial Application of Sprays," J. Econ. Entomol., 62(4):844-846 (1969).
9. Ware, G. W., B. J. Estes, W. P. Cahill, P. D. Gerhardt, and K. R. Frost, "Pesticide Drift I: High Clearance vs. Aerial Application of Sprays," J. Econ. Entomol., 62(4):840-843 (1969).
10. Goering, C. E., and B. J. Butler, "Paired Field Studies of Herbicide Drift," for presentation at the 1973 Winter Meeting, ASAE, 11-14 December 1973, ASAE Paper No. 73-1575.
11. Byass, J. B., and G. K. Charlton, "Spray Drift in Apple Orchards," J. Agr. Eng. Res., 9(1):48-59 (1964).

Transcript of Final Termiticide Regs

333 CMR 10.00: Certification and Licensing of Pesticide Applicators.

333 CMR 10.03 is amended by adding the following:

(27) Pursuant to 333 CMR 10.09 (2) (e), the Department (of Food and Agriculture) shall insure that, by April 1, 1984, all applicators certified in Termite and Structural Pest Control shall have satisfactorily completed an updated training program, approved by the Department, and developed by the Massachusetts Advisory Council for Industrial, Institutional, Structural and Health Related Pest Control, Registrants and the Massachusetts Pesticide Coordinator at the University of Massachusetts.

333 CMR 10.03 is amended by adding the following:

(28) No subsurface pesticide applications shall be made for the control of subterranean termites, to structures with: intra or sub-slab heating ducts; exposed soil areas in basements or crawl spaces; foundations with holes, cracks or voids, or hollow masonry block foundations: except under the following provisions:

(a) *Intra or sub-slab hot air heating ducts: Pre-construction.* Pre-construction treatment may be made only if:

1) The applicator obtains a signed written statement from the contracting entity stating that the heating ducts will be completely encased in concrete, within or below the slab or that the heating ducts are to be constructed of impervious material such as metal or plastic and which are to be sealed to prevent the chemical from moving as a liquid or a vapor from the soil into the duct. It shall be the sole responsibility of the contracting entity to fulfill the terms of this statement; and

2) The applicator has forwarded a copy of said signed statement described in (a)(1) above to the building inspector of the municipality in which the structure is to be constructed. The applicator shall retain a copy of said signed statement in his records for three years.

(b) *Intra or sub-slab hot air heating ducts: Post-construction.* Treatment within the outside perimeter of an existing structure may be made only if:

1) Prior to treatment of structure with heating ducts in or under a slab, an inspection is performed to determine the loca-

tion of heating ducts. Steps that may be taken include but are not limited to: review of construction plans, consultation with the owner or builder, or the use of a metal detector, and

2) Application under the slab is limited to gravity or low pressure treatment. Pressure treatment over 25 psi at the nozzle shall not be used, and

3) There is evidence of an existing termite infestation in the structure or in the absence of such evidence, the applicator obtains a signed written statement from the contracting entity requesting such application, and stating that the contracting entity understands that the application could result in contamination of the heating ducts, and that in the event of such contamination significant structural modification to the heating system may be required.

(c) *Exposed soil areas in basements and crawl spaces.* Treatment of exposed soil areas (i.e., areas which do not have a concrete or bituminous slab cover) in basements and crawl spaces may be made only if:

1) Treatment is made by rodding the interior of the foundation provided that pressure at the nozzle shall not exceed 50 psi and discharge of the termiticide liquid does not occur unless the orifices in the rodding tool are approximately four inches below the surface or, treatment is made by trenching the interior of the foundation and applying the termiticide into the trench to allow it to reach the footing. The trench must be filled with treated soil, then covered with approximately four inches of untreated soil, and

2) The area treated is subjected to ventilation to the outside by either existing windows or vents or the installation of vents in walls which will provide cross ventilation or, the application shall be limited to not more than one half the maximum percent active ingredient of finished termiticide allowed on the label.

(d) *Foundations with holes, cracks or voids.* Treatment of areas outside the perimeter of buildings which have basements or crawl spaces which

extend below the level of the outside grade and which have holes, cracks or voids which may allow infiltration of the pesticides applied may be made only if; visible holes, cracks and voids are filled with mortar or other suitable material to the extent feasible prior to the application to prevent infiltration of pesticides into basements or crawl-spaces or, treatment is limited to trenching the soil to the appropriate depth and treating the removed soil prior to replacing the soil in the trench, provided that such treatment is consistent with label directions. The treated soil must be covered with a layer of untreated soil.

(e) *Hollow masonry block foundations.* Pesticides may be applied to the inside of hollow masonry blocks only if the top of the blocks and all insertion holes are sealed to the extent possible immediately following the pesticide application.

(f) *Applicable to all termiticide applications.* Prior to entering into any contract to apply termiticides, or prior to any termiticide application if a contract exists before the effective date of this regulation; the applicator shall provide the contracting entity with a written statement of notification provided by or approved by the Department which shall contain such information that the Department determines necessary. Such notification shall include but not be limited to information relative to possible accidental contamination sometimes associated with subsurface applications, and steps taken to reduce the risk of such contamination. In such case that the written statement is not available from the Department the applicator shall provide the contracting entity with a copy of the pesticide label, the material safety data sheet, the EP fact sheet for the product intended for use and a copy of this regulation (333 CMR 10.03 (28)).

On "Safe Use" of Pesticides

BY RUTH SHEARER

Anyone who has been involved in pesticide issues for longer than one month, has heard the standard industry line: It's safe,

(a) because it's registered by the EPA,

(b) when applied according to the label,

(c) all of the above and more.

If you would like to have a snappy, accurate rebuttal next time you hear industry's views on the safety of pesticides, read on.

The idea that people can be exposed to pesticides safely is based on a number of faulty assumptions....the myths of pesticide safety. Four of the commonest myths are explored in more detail below.

MYTH #1. Pesticides registered with the EPA have passed stringent health tests.

In 1972, major amendments to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) were passed. Under these amendments the EPA, which had recently taken over administration of FIFRA from the USDA, was charged with: a) reviewing and reregistering the more than 35,000 pesticides currently on the market, and b) registering new pesticides.

Before 1972, no testing for chronic or cumulative injury to animals was required for pesticide registration. Since 1972, re-registrations and new registrations were to be done only after tests on animals indicated that the pesticide was unlikely to cause cancer, mutations, birth-defects, sterility, neurotoxicity, or many less dramatic injuries.

THE TRUTH IS THAT NOW, TEN YEARS LATER, NO PESTICIDE REGISTRATION HAS BEEN CANCELLED FOR LACK OF SAFETY TESTS. AND THE TRUTH IS THAT AS OF FEBRUARY, 1982, NO PESTICIDE ON THE MARKET HAD BEEN REREGISTERED after meeting the health testing standards set by Congress in 1972*

* (Editor's note: Since February, 1982, 11 formulations (4 active ingredients) have been reregistered. However, in April, 1982 the EPA submitted proposals for changes to the pesticide reregistration and RPAR processes. These new proposals will make registration standards much less stringent. In fact, "under the proposed new system, the agency would do what some members of the pesticide industry have been urging for years: proceed with pesticide registration without waiting for completion of registration standards." (Chemical Regulation Reporter, April 30, 1982, Vol.6 #5) It is not clear whether the 4 active ingredients recently reregistered were reregistered under the new proposals or not.

We are examining these new proposals in detail, and will report on them in the next issue of W₂TC NEWS.)

Before a substance can be reregistered, available data are thoroughly reviewed. Registration standards are then published listing the data gaps which must be filled before they can be reregistered. As of July, 1982, registration standards had been published for only 37 active ingredients. At the rate that the EPA has budgeted reviews of old test data for 1981, it will take 37 more years to evaluate data for the approximately 600 currently-used pesticide active ingredients considered most important. Actual reregistration cannot take place until the EPA has received and evaluated the new data requested in the registration standards.

Meanwhile, the EPA currently has no plans to ever require complete testing of mixed ingredients in the combinations which appear in commercial formulations, or which are combined at the time of application, although it is well known that chemicals can interact synergistically (that is, to produce an effect that neither is capable of separately). There are no restrictions on mixing unless adverse effects have already been demonstrated. In other words, mixtures are considered safe until proven dangerous.

MYTH #2. A No-Observable Effect Level (NOEL) can be determined for any pesticide.

There are several problems with this statement.

First, the NOEL differs with each type of test, each route of exposure, and each animal species tested, so it is meaningless unless the particular study used is cited.

Second, the quality of "observation" varies widely; the NOEL for a particular kind of test in a particular species may vary 1000-fold depending on whether it is based on gross observation, histopathology, or clinical chemistry, and whether or not the right organ or biochemical component was studied.

Third, there exists no safe dose (threshold) for any mutagen or cancer initiator, because these injuries are not repaired between exposures and are therefore cumulative throughout life.

MYTH #3. Pesticides are safe when used according to the label.

THE TRUTH IS THAT THIS CLAIM IS MADE BY THE USER AGENCIES, NOT BY THE EPA.

EPA's position on this is stated clearly in the Code of Federal Regulations 162.10: Labeling of pesticides.

(a)(5) False or misleading statements.

Examples of statements in the labeling which constitute misbranding include:

(ix) Claims as to the safety of the pesticide or its ingredients, including statements such as "safe", "non-poisonous", "harmless", or "non-toxic to humans or pets", with or without such a qualifying phrase as "when used as directed".

ON "SAFE USE" OF PESTICIDES CONTD.

A letter from EPA Region X commenting on an environmental impact statement of the Washington Department of Ecology in April, 1980 states: "we would like to re-emphasize that EPA registration of a chemical does not mean that there is zero risk from its use" and "the implication that adherence to label restrictions eliminates all threat to human health is not warranted".

Pesticide labels are still based on the lethal dose after brief exposure, and the degree of toxicity indicated on the label has no correlation with the risk of low-dose cumulative or unrepaired damage, such as nervous system injury, cancer, fetal injury or loss, and mutations which may not appear for generations.

MYTH #4. After a pesticide has been excreted from the body, all possibility of adverse health effects is gone.

THE TRUTH IS, THAT HEALTH EFFECTS OF PESTICIDES CAN BE OF A HIT-AND-RUN NATURE, AND PRODUCE SERIOUS INCAPACITATION WHICH IS NOT DETECTABLE UNTIL AFTER THE PESTICIDE IS NO LONGER MEASURABLE IN BLOOD OR URINE.

Examples include the peripheral neuropathy of 2,4-D poisoning and the arthritis of picloram poisoning, as well as the carcinogenicity of numerous pesticides.

"GOSH, THAT TYLENOL POISONING STORY HAS REALLY BEEN SCARY"



SPIDERWEBBING
CONTINUED FROM PAGE 5

URBAN IPM COMMITTEE

After the Yakima Park bird kill this summer (see July issue of W,TC News), Seattle city Council member Virginia Galle expressed some concern about the possibility of a similar incident in Seattle. Ms. Galle's office wrote a letter to Mayor Royer asking specific questions about the use of pesticides by city departments. The Urban IPM Committee prepared an information and back-ground sheet on pesticide issues to help with drafting this letter.

Members of the Committee are studying the reply from the Mayor's office, and will be meeting later on this fall to evaluate the information. The results of this evaluation will provide the basis for further discussions with the Seattle City Council on pesticides and city policies.

There is still a need to find out more about pest management practices in the Seattle Public Schools. The questionnaire distributed earlier this year produced no information.

The Urban IPM Committee will meet again on Tuesday, November 16 at 7.00pm at the Good Shepherd Center, 4649 Sunnyside North, Seattle.

Contact person: Steve Ruden
(206) 632-5281

MOUNT BAKER WATERSHED PROTECTION ASSOCIATION

The MBWPA has been taking a summer break after their intense negotiations with the DNR over spraying of phenoxy herbicides on the watershed.

After this summer's spray, both the DNR and MBWPA took water samples from a creek near the spray site to test for 2,4-D contamination. MBWPA's sample showed zero 2,4-D, as did one of the DNR's samples. The other DNR sample had a 2,4-D content of 6.5 ppb, but this sample was apparently contaminated from other sources while the sample was being taken.

MBWPA members have begun meeting again regularly this fall, and are committed to maintaining on going communication and contact with DNR officials. They will be meeting with the DNR at least twice a year. Spring spray plans will be available soon, and the MBWPA will be kept informed.

MBWPA also sponsored a presentation by the Whatcom County Weed Supervisor on Tansy Ragwort control. And they are working on developing a play about pesticides for schools.

Contact person: Nogie King
Mount Baker Watershed
Protection Association
Box 73
Acme, WA 98220
(206) 592-2449

PH # 5

O U T L I N E

TO: Farmworker Advocates

FROM: Charles Horwitz

RE: Elements of a Comprehensive State Pesticide
Protection Law

DATE: November 4, 1981

I. REGISTRATION /EVALUATION

Calif.

1. Independent state agency composed of health, scientific, labor, environmental, agricultural, consumer experts to register, evaluate, enforce pesticide laws and regulations. 0
2. Independent evaluation and registration of pesticides health and safety effects. Limited reliance on EPA data. +
3. Data requirements from manufacturers to include chronic as well as acute effect studies on carcinogenicity, teratogenicity and mutagenicity. +
4. Data requirements from manufacturers to include human exposure, foliar residue and minimal field reentry times. +
5. Consideration of "reasonably effective and practical alternative materials less destructive to the environment". +
6. Public participation in registration and evaluation process. 0
7. Public disclosure of health and safety effects on man and the environment. +
8. Hot-line connection between registration and enforcement officials. +

298x

11

Calif.

9. Program to detect, monitor pesticide residues on crops, soil, water, and workers.

+

10. Restricting all toxicity category one pesticides (those with "Danger" on label) to at least a 24 hour minimum re-entry time period.

+

11. Restricting field re-entry times still further when potentiation occurs (when two or more pesticides expose workers at same time).

+

II. PESTICIDE USE RESTRICTIONS

1. County/state system to restrict permits to apply pesticides.

+

2. Record-keeping requirement by applicators, growers of all pesticides used (restricted use as well as general use products).

+

3. Time-period for keeping records at least one year.

+

4. Inspection authority to ascertain where pesticides stored, how they are used and disposed.

+

5. Certified applicators to be trained about chronic, acute effects of pesticides on man and the environment.

+

6. Applicators training to include integrated pest management techniques.

+

III. PESTICIDE WORKER SAFETY/MIXERS, LOADERS APPLICATORS

1. Age restrictions on working with toxicity category one or two pesticides ("Danger" or "Warning" respectively).

+

2. Training by employers before toxicity category one pesticides used.

+

3. Employee personal supervision until training completed; hourly at night; every two hours during daylight.

+

Calif.

4. Emergency medical care -- posting licensed doctor's name, phone. Travel to doctor arranged and paid for by employer.

+

5. Medical supervision. For employees exposed more than 30 hours in 30 days to toxicity category one pesticides, red blood cell cholinesterase tests; baseline and post exposure tests. Medical records to be kept three years. Removal of employee from pesticide exposure if cholinesterase level is below 50% normal baseline.

+

6. Communication with employees working alone with pesticides every two hours during the day and hourly at night.

+

7. Change areas for employees exposed more than 30 hours during a 30 day time period with pesticide category one and two pesticides. Clean space for storing clean clothes. Employer must not allow contaminated clothes taken home.

+

8. Personal washing facilities at mixing, loading site to include soap, water and towels for employees working with category one and two pesticides.

+

9. Protective clothing and safety equipment for employees exposed to toxicity category one and two pesticides.

+

10. Safe equipment and procedures by employer regarding mixing, loading, applying pesticides.

+

IV. PESTICIDE WORKER SAFETY/FIELD WORKERS

1. Emergency medical care. Same as for mixers, loaders and applicators. Signed written agreement between employer and physician about emergency care for field workers.

+

2. Hand washing and toilet facilities. Same as for mixers, loaders, applicators.

+

Calif.

3. Training by employer about pesticide poisoning symptoms. +
4. Training by state about pesticide hazards, symptoms, first-aid, legal remedies. 0
5. Re-entry times of at least 24 hours for all toxicity category one pesticides. +
6. Additional re-entry time when workers exposed to two or more pesticides (potentiation). +
7. Additional re-entry times up to 75 days for pesticides where needed. +
8. Warnings. Orally in language understood by workers. Warning signs for pesticides with at least seven day re-entry times. +
9. Pesticide application records to be kept for at least one year. Public right to inspect. +
10. Treating physicians, insurance companies, employers must report pesticide poisonings. Telephone report within 24 hours; written report within 7 days. +
11. Medical training of physicians about pesticides. +
12. Medical training of nurses, other medical personnel. 0
13. Employees' right to inspection report by state investigators. +
14. Deadlines on completing investigations: 3-14 days, with exceptions where necessary. +
15. Anti-retaliation provision for filing complaint or refusing to work under unsafe working conditions. +
16. Right to protest and organize against unsafe working conditions. +
17. Worker compensation. Employee should have right to choose his/her own treating physician paid for by employer. Punitive awards of 1½ times actual compensation when employer commits "serious and willful misconduct" resulting in pesticide poisoning. +

18. Foliar and soil pesticide residue measuring devices required of employers who employ large numbers of field workers exposed to significant quantities of pesticides. 0
19. Enforceable worker protection regulations which embody above-mentioned elements. +
20. Civil fine provisions which permit State to levy penalties against applicators and growers who violate worker protection regulations. 0
21. Tax assessments against pesticide manufacturers' sales within the State. Funds to be used to administer and enforce pesticide regulations. +
22. Funds also to be used for research and development of IPM. 0
23. Mobile field laboratories to do cholinesterase testing. +
24. State toxicologist assigned to assist enforcement officials in pesticide misuse cases. +
25. Guidelines, protocols and State provisions for emergency assistance to treating physicians of pesticide poisoning victims. +
26. Notification to public of aerial applications where drift may expose populated areas, highways, bodies of water, livestock, and wildlife. 0
27. Aerial applicators should undergo same cholinesterase baseline and post-exposure testing as ground applicators. +
28. Aerial applicators' planes should be marked with larger numbers to permit easier identification by people on the ground. 0

