NJ Department of Environmental Protection
Division of Compliance & Enforcement
Office of Pesticide Evaluation & Monitoring

RIGHT-OF-WAY PESTICIDE USE IN NEW JERSEY: 2015 SURVEY

Introduction

The Office of Pesticide Evaluation & Monitoring (OPEM) began a series of pesticide use surveys in 1985. These surveys address pesticide use in the state of New Jersey for agriculture, golf courses, termite control, right-of-way, mosquito control, and lawn care. The first right-of-way survey occurred in 1992. The survey has been conducted every three years since 2000 and targets pesticides used for right-of-way pest control. A right-of-way is a land easement reserved for transportation purposes including highways, public footpaths, rail transport and canals, as well as electrical transmission, oil and gas pipelines. This report focuses on the seventh survey completed in the right-of-way series (2015).

All statewide pesticide use surveys are performed under the authority of the New Jersey Pesticide Control Code (NJPCP), N.J.A.C. 7:30-1 et.seq., requiring licensed applicators to maintain pesticide records for three years and to submit use records to the state when requested. This regulative authority provides an accuracy and level of response that is difficult to duplicate in a voluntary, nationwide survey. In fact, these New Jersey surveys could represent a pesticide usage census rather than a probabilistic survey.

The information collected from the NJPCP pesticide use surveys is used by agencies within the NJ Department of Environmental Protection along with other state agencies to aid in research, exposure management and monitoring efforts in areas such as ground water protection, farm worker protection and education, and residual pesticide sampling. The survey data are also entered into state and federal geographical information systems for geographical distribution.

Survey Methods

The NJDEP Bureau of Licensing and Pesticide Operation's registration records were used to identify 604 licensed commercial applicators holding a Category 6B (right-of-way) on his or her license. Three survey mailings were made over the course of six months to the licensed applicators carrying a Category 6B (right-of-way) designation. Survey forms, along with instructional letters and a return envelope, were mailed to these individuals requesting their 2015 right-of-way pesticide use. The survey requested information on each pesticide product used, including trade name, EPA registration number, percent active ingredient, amounts applied and the sites of applications. A list of applicators carrying a Category 6B on their license was kept in the office. As surveys were received, the respondents were

marked off the list. Second and third mailings were made to non-respondents indicating that their completed survey had not been received by OPEM.

Each survey form received by OPEM was logged in and entered into a database. After the April 1st deadline for survey data submission, the database was reviewed for any duplication of entries. Subroutines in the database identified active ingredients and calculated pounds of active ingredients from the information supplied by the respondents.

Results

Once all three mailings were completed, 491 out of 604 (81%) licensed applicators carrying a Category 6B designation had responded. The number of respondents decreased from 87% in 2012 to 81% in 2015. A list of non-responders was referred to the Bureau of Pesticide Compliance for follow-up to determine the reason for failure to submit the requested information. Unreported changes of address or occupation impacted the number of surveys that were received. OPEM then worked with the Bureau of Pesticide Licensing and Registration to make sure contact information for licensed applicators is as current as possible. OPEM also assisted the Bureau of Pesticide Licensing and Registration in the process of building a list of email addresses to be able to utilize digital delivery and data collection methods for the next right-of-way survey.

Table 1 lists the pesticides by chemical name and the amounts applied for right-of-way use during 2015. Aminocyclopyrachlor, a low-toxicity, selective herbicide not reported in the 2012 survey, appeared in the 2015 survey with 1,205 pounds of active ingredient. Glyphosate, a broad-spectrum herbicide, increased in reported use from 26,811 pounds of active ingredient in 2012 to 43,072 pounds of active ingredient in 2015.

Table 2 lists the most frequently used compounds and the percentage of the total right-of-way use for 2015. Glyphosate, a broad-spectrum herbicide, increased in reported use from 26,811 pounds of active ingredient in 2012 to 43,072 pounds of active ingredient in 2015. This is a 10% increase in use from 2012 to 2015.

Table 3 lists the use of the reported compounds by site in 2015. The use on roads increased from 27% in 2012 to 43% in 2015 (10,656 to 24,363 pounds of active ingredient). Railway use decreased from 40% in 2012 to 12% in 2015 (15,766 pounds of active ingredient to 6,420).

Table 4 lists the total pounds of active ingredient per reporting year since the survey began. Overall right-of-way pesticide use increased by 16,060 pounds of active ingredient from 2012 to 2015.

Table 1. Compounds appearing in the 2015 Right-of-Way survey and their amounts (pounds active ingredient).

*Indicates a compound reported in 2015 that was not reported in 2012.

2,4-D	988		
2,4-DP*	47		
Abscisic acid*	5		
Aminocyclopyrachlor *	1,025	Metolachlor	31
Aminopyralid	169	Metsulfuron	139
Bacillus thuringiensis	1	Metsulfuron-methyl*	70
Carbaryl	4	MSMA*	<1
Chloropicrin	13	Oryzalin	42
Chlorsulfuron	93		
Dicamba	460		
Diquat	76	Pendimethalin	717
Dithiopyr	4	Picloram	782
Diuron	720	Prodiamine	612
Fluroxypyr*	1	Prometon	26
Fosamine ammonium	264	Rimsulfuron*	5
Glufosinate-ammonium	58	Simazine*	8
Glyphosate	43,072		
Imazapic	3		
Imazapic-ammonium	25	Sulfometuron	430
Imazapyr	1,421	Tebuthiuron*	1
Indaziflam	282	Triclopyr	4,016
Isoxaben	6	Trifluralin	17
Mecoprop	62	TOTAL:	55,696

Table 2. Highest use compounds in 2015. Shown are compounds >=2% of total.

Glyphosate	43,072	77%
Triclopyr	4,016	7%

Imazapyr	1,421	3%
Aminocyclopyrachlor	1,025	2%
2,4-D	988	2%

Table 3. Right-of-Way 2015 pesticide use (pounds active ingredient) by site.

Roads	24,363	43%
Powerlines	8,939	16%
Building perimeters/ Fencelines	8,898	16%
Railways	6,420	12%
Other*	4,515	8%
Substations	2,027	4%
Pipelines	534	1%
Total:	55,696	100%

* Sites include sewers, air strips, parking lots, trails, and miscellaneous industrial locations.

Table 4. Total pounds of active ingredient applied to right-of-ways during a reporting year.

Reporting Year	Pounds of Active Ingredient
1992	54,272
2000	79,591
2003	83,347
2006	95,453
2009	75,206

2012	39,636
2015	55,696

Summary

It is important to consider the many diverse influences on pesticide use in New Jersey when reporting and evaluating survey data. No single factor, or even set of factors, can completely account for fluctuations in the amounts of active ingredients used from survey to survey. Factors including weather conditions, pest pressures, budgets and economics, and changes in land use can all affect the amount and types of active ingredients applied to right-of-ways.

The pounds of active ingredient applied peaked in 2006, but has been fluctuating throughout the reporting years. Overall right-of-way pesticide use increased by 16,060 pounds of active ingredient from 2012 to 2015.

Glyphosate use has been increasing since the first survey in 1992. Glyphosate is commonly applied to right-of-ways because it is a non-selective herbicide used to eliminate broad leaf plants and grasses. Reported use in 1992 was 24% of the total active ingredient applied. Use has grown to 77% of the total applied in 2015.

Roads and railways have accounted for more than 50% of the targeted right-of-way treatment sites every application year except 2000. In 2000, railways and powerlines accounted for approximately 25% each and roads accounted for approximately 13%.

We will continue to monitor the use of pesticides to treat the right-of-ways in New Jersey. Monitoring helps to identify trends and possible areas of concern, as well as assist OPEM in developing surface and groundwater monitoring projects in the areas where right-of-way treatments occur. Due to the increase in usage of glyphosate reported over time, OPEM is considering ways to monitor for glyphosate to evaluate if the increased usage is having any negative effects in the environment.