NJ Department of Environmental Protection
Pesticide Control Program
Pesticide Evaluation & Monitoring

LAWN CARE PESTICIDE USE IN NEW JERSEY: 2013 SURVEY

Introduction

The New Jersey Pesticide Control Program (NJPCP) 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 lawn care survey is conducted every three years and targets pesticides used for lawn care purposes. This report focuses on the eighth survey completed in the lawn care series (2013).

All statewide pesticide use surveys are performed under the authority of the New Jersey Pesticide Control Code, N.J.A.C. 7:30-1 et.seq., requiring applicators to maintain pesticide records for two 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 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.

Methods

The NJPCP's registration records were used to identify all 3980 licensed commercial applicators holding a category "3B" (turf) on his or her license. Survey forms were mailed along with instructional letters and return envelopes asking for 2013 lawn care pesticide use. A total of three mailings (the first to lawn care companies businesses, the second to individuals and the third to non-respondents) were sent during the first seven months of 2014.

The survey requested information on each pesticide product used, including trade name, EPA registration number, percent active ingredient, amounts applied and number of acres treated.

Survey information was entered into a database file. This information file was then merged with a second database that linked trade names with chemical names, and a subprogram converted reported amounts of formulated product to amounts of active ingredient (lbs ai).

Results

Once all three mailings were completed, 3319 out of 3980 (83%) applicators were accounted for. Pesticides used by the lawn care industry in New Jersey for 2013 totaled 547782 lbs ai.

Table 1 lists the chemicals and their respective amounts displayed in pounds of active ingredient appearing in the survey.

Table 2 selects out the highest use compounds.

Table 3 shows lawn care pesticide use by county.

In reporting and evaluating pesticide use, it is important to consider the many, diverse influences on pesticide use. No single factor, or even set of factors, can completely account for fluctuations in the amounts of pesticide active ingredients used from survey to survey. Weather conditions such as temperature and rainfall, in terms of duration, timing and amounts or degrees, influence pest pressure and the associated response. In agricultural settings, issues such as cropping patterns and the associated pest impacts vary from year to year. Economic factors play a significant role, ranging from crop demand to golf course playability to product and/or service cost. The changing face of land use also plays a part. While agricultural acreage has been declining, new home building starts and the associated lawns around those new homes have been increasing.

Another factor is the adoption of IPM (Integrated Pest Management). Short term, some pest control situations may require increased pesticide applications beyond the alternative means contained in an IPM program. Long term, however, IPM should result in overall pesticide use reduction. This may be confounded by the increased use of reduced-risk alternatives that may have higher application rates than the materials they replace.

Table 1. Pesticide amounts (lbs active ingredient) reported in the New Jersey 2013 Lawn Care Pesticide Use Survey.

HERBICIDES:

2,4-D	153736
2,4-DE	181
2,4-DP	3942
2,4-DT	16631
Alachlor	32
Amicarbazone	<1
Aminocyclopyrachlor	<1
Atrazine	34
Benfluralin	10824
Bensulide	13
Bentazone	4
Bispyribac sodium	<1
Bromacil	30
Carfentrazone-ethyl	72
Chlorthal-dimethyl (DCPA)	229
Clopyralid	1900
Dicamba	24634
Dichlobenil	4
Dimethenamid	13
Diquat	25
Dithiopyr	35722
Diuron	750
DSMA, MSMA	236
Ethofumesate	12
Fenoxaprop-ethyl	205
Fluazifop-butyl	3
Fluroxypyr-meptyl	7141
Glufosinate-ammonium	1
Glyphosate	41729
Halosulfuron-methyl	1105
Hydrogen Peroxide	6
Imazapyr	118
Imazapic	<1
Isoxaben	485
MCPA	30040
Mecoprop	107367
Mesotrione	332
Metalochlor	404
Oryzalin	1818
Paraquat	21

Pelargonic acid	201
Pendimethalin	2871
Penoxsulam	421
Primisulfuron	2
Prodiamine	18559
Prometon	43
Pyraflufen	<1
Pyraflufen-ethyl	<1
Quinclorac	5303
Sethoxydim	2
Sodium percarbonate	13
Siduron	96
Simazine	105
Sulfentrazone	1820
Sulfometuron	9
Topramezone	<1
Triclopyr	3995
Trifluralin	7521
TOTAL HERBICIDES:	480767

INSECTICIDES:

Abamectin	3
Acephate	52
Acetamiprid	<1
Bifenazate	12
Bifenthrin	6866
Borate	1
Capsaicin	<1
Carbaryl	2413
Chlorantraniliprole	39
Chlorpyrifos	157
Clothianidin	1
Cyfluthrin	72
Cyhalothrin	6
Deltamethrin	4
Diazinon	130
Dinotefuran	5
Esfenvalerate	<1
Fluvalinate	24
Halofenozide	2

Hexythiazox	<1	Trifloxystrobin	2921
Imidacloprid	21742	Triticonazole	70
Indoxacarb	3	Vinclozolin	201
Limonene	181	TOTAL FUNGICIDES:	25848
Malathion	<1		
Oil	3449		
Permethrin	363	**GROWTH INHIBITORS**:	
Pyrethrins	<1		
Silica gel	6	Azadirachtin	<1
Soap	952	Dikegulac sodium	11
Spinosad	<1	Ethephon	53
Trichlorfon	3885	Mefluidide	<1
TOTAL INSECTICIDES:	40375	Paclobutrazol	58
		Pyriproxyfen	<1
		Trinexapac-ethyl	157
FUNGICIDES:		TOTAL INHIBITORS:	282

Azoxystrobin	620	**MISCELLANEOUS**:	
Boscalid	38		
Chlorothalonil	6731	Anthraquinone	191
Cyazofamid	19	Bacillus Subtilis	<1
Difenoconazole	12	Brodifacoum	<1
Etridiazole	750	Bromethalin	<1
Fenarimol	4	Egg solids	3
Fluazinam	171	Garlic oil	<1
Fludioxonil	10	Indole-3-butyric acid	<1
Flumioxazin	11	Iron pholate	6
Fluoxastrobin	25	Neem oil	257
Flutolanil	146	PBO	2
Fosetyl-al	666	Potassium phosphate	28
Iprodione	817	Sulfur	18
Mancozeb	3814	TOTAL MISCELL:	510
Maneb	62		
Mefenoxam	47		
Metalaxyl	24		
Metconazole	11		
Myclobutanil	331		
Propamocarb HCL	290	**TOTAL PESTICIDE USE: 547782**	
Propiconazole	3511		
Pyraclostrobin	71	Herbicides:	87%
Quintozene	35	Insecticides:	7%
Tebuconazole	327	Fungicides:	5%
Thiabendozole	3	Growth Inhibitors:	<1%
Thiophanate-methyl	3222	Miscellaneous:	<1%
Triadimefon	888		

Table 2. Highest use compounds in the New Jersey 2013 Lawn Care Pesticide Use Survey from the main pesticide categories. Shown are compounds >=5% of category.

Compound	Lbs Active Ingredient	% of Category	% of Total Pesticide Use
HERBICIDES:			
2,4-D formulations	174490	36%	32%
Mecoprop	107367	22%	20%
Glyphosate	41729	9%	7%
Dithiopyr	35722	7%	7%
INSECTICIDES:			
Imidacloprid	21742	54%	4%
Bifenthrin	6866	17%	1%
Trichlorfon	3885	10%	<1%
Oil	3449	9%	<1%
FUNGICIDES:			
Chlorothalonil	6731	26%	1%
Mancozeb	3814	15%	<1%
Propiconazole	3511	14%	<1%
Thiophanate-methyl	3222	12%	<1%

Table 3. Total pesticide amounts (lbs active ingredient) by county, New Jersey 2013 Lawn Care Pesticide Use Survey. County totals for lawn care pesticide use are difficult to quantify since many companies work in two or more counties. The list below is estimated based on the survey information received.

COUNTY	Amount	% of Total Use
Atlantic	6110	<1%
Bergen	45818	8%
Burlington	14975	3%
Camden	8836	2%
Cape May	5242	<1%
Cumberland	1455	<1%
Essex	4371	8%
Gloucester	16567	3%
Hudson	283	<1%
Hunterdon	6523	<1%
Mercer	98943	17%
Middlesex	49287	9%
Monmouth	167207	29%
Morris	37507	7%
Ocean	31778	6%
Passaic	4129	<1%
Salem	4048	<1%
Somerset	20138	4%
Sussex	2735	<1%
Union	10221	<1%
Warren	11609	2%
TOTAL	547782	100%

(prepared 09/15)