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

LAWN CARE PESTICIDE USE IN NEW JERSEY: 2007 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 sixth survey completed in the lawn care series (2007).

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 almost 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 4025 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 2007 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 2008.

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, 3431 out of 4025 (85%) applicators were accounted for. Pesticides used by the lawn care industry in New Jersey for 2007 totaled 428478 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 2007 Lawn Care Pesticide Use Survey.

HERBICIDES:

2,4-D	78849
2,4-DP	1796
2,4-DT	26351
Alachlor	345
Benfluralin	5060
Bensulide	24
Bromacil	4
Carfentrazone-ethyl	115
Chlorsulfuron	<1
Clopyralid	4937
Dicamba	13343
Dichlobenil	173
Diquat	23
Dithiopyr	20938
Diuron	3486
DSMA, MSMA	5358
Ethofumesate	<1
Fenoxaprop-ethyl	117
Fluazifop-butyl	2
Flumioxazin	9
Fluroxypyr-meptyl	2515
Glufosinate-ammonium	26
Glyphosate	37900
Glyphosate-trimesium	7
Halosulfuron-methyl	104
Imazapyr	71
Imazapic	2
Isoxaben	808
MCPA	60739
Mecoprop	28901
Mesotrione	1
Metalochlor	152
Metsulfuron-methyl	<1
Oryzalin	2784
Oxadiazon	64
Paraquat	23
Pelargonic acid	977
Pendimethalin	13860
Prodiamine	15533
Prometon	162
Pyraflufen-ethyl	<1
Quinclorac	4670
Siduron	725
Simazine	7
Sulfentrazone	1385
Sulfometuron	69
Triclopyr	5219
Trifluralin	7670
TOTAL HERBICIDES:	345304

INSECTICIDES:

Acephate	497
Bifenazate	8
Bifenthrin	3952
Carbaryl	10251
Chlorpyrifos	95
Cyfluthrin	70
Cyhalothrin	17
Cypermethrin	5
Deltamethrin	2
Diazinon	1
Fenitrothion	5
Fluvalinate	30
Halofenozide	2883
Hexythiazox	<1
Hydramethylnon	<1
Imidacloprid	11652
Malathion	247
Oil	5609
Permethrin	17470
Pyrethrins	<1
Soap	410
Spinosad	242
Spiromesifen	3
Thiamethoxam	1
Trichlorfon	12204
TOTAL INSECTICIDES:	65654

FUNGICIDES:

Azoxystrobin	29
Boscalid	2
Chloroneb	10
Chlorothalonil	5380
Etridiazole	6
Fenarimol	<1
Fludioxonil	14
Flutolanil	49
Fosetyl-al	370
Iprodione	365
Mancozeb	1735
Mefenoxam	1
Metalaxyl	86
Myclobutanil	330
Polyoxin D	3
Propamocarb HCL	443
Propiconazole	1359
Pyraclostrobin	4
Quintozene	43
Thiophanate-methyl	2932
Triadimefon	1385
Trifloxystrobin	1347
Triticonazole	12
Vinclozolin	302
TOTAL FUNGICIDES:	16207

GROWTH HORMONES:

Dikegulac sodium	9
Ethephon	<1
Mefluidide	7
Paclobutrazol	2
Trinexapac-ethyl	62
TOTAL HORMONES:	80

REPELLENTS:

Anthraquinone	392
Methyl Anthranilate	51
TOTAL REPELLENTS:	443

MISCELLANEOUS:

Borate	10
Copper hydroxide	1
Ferrous sulfate (moss killer)	9
Metaldehyde	97
Piperonyl butoxide	1
Potassium phosphate	672
TOTAL MISCELL:	781

TOTAL PESTICIDE USE: 428478

Herbicides:	80%
Insecticides:	15%
Fungicides:	4%
Growth Hormones:	<1%
Repellents:	<1%
Miscellaneous:	<1%

Table 2. Highest use compounds in the New Jersey 2007 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	106996	32%	25%
MCPA	60739	15%	14%
Glyphosate	37900	9%	9%
Mecoprop	28901	9%	7%
Dithiopyr	20938	6%	5%
INSECTICIDES:			
Permethrin	17470	30%	4%
Trichlorfon	12204	20%	3%
Imidacloprid	11652	18%	3%
Carbaryl	10251	11%	2%
Oil	5609	8%	1%
Bifenthrin	3952	6%	1%
FUNGICIDES:			
Chlorothalonil	5380	33%	1%
Mancozeb	1735	11%	--
Thiophanate	1498	9%	--
Thiophanate-methyl	1434	9%	--
Triadimefon	1385	8%	--
Propiconazole	1359	8%	--
Trifloxystrobin	1347	8%	--

Table 3. Total pesticide amounts (lbs active ingredient) by county, New Jersey 2007 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	6623	2%
Bergen	33597	8%
Burlington	18605	4%
Camden	15710	4%
Cape May	2144	1%
Cumberland	7404	2%
Essex	9157	2%
Gloucester	44935	10%
Hudson	368	<1%
Hunterdon	4561	1%
Mercer	11733	3%
Middlesex	39750	9%
Monmouth	62297	15%
Morris	30663	7%
Ocean	23079	5%
Passaic	4084	1%
Salem	3910	1%
Somerset	81022	19%
Sussex	1902	<1%
Union	17461	4%
Warren	9474	2%
TOTAL	428478	100%

(updated 9/11)