

LAWN CARE PESTICIDE USE IN NEW JERSEY: 2004 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 fifth survey completed in the lawn care series (2004).

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 4533 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 2004 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 2005.

The survey requested information on each pesticide product used. This included 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 chemical names with trade names, and a subprogram converted total amounts of formulated product to total amounts of active ingredient (lbs ai).

Results

Once all three mailings were completed, 3917 out of 4533 (86%) applicators were accounted for.

Table 1 lists the chemicals and their respective amounts 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 2004 Lawn Care Pesticide Use Survey.

HERBICIDES:		Triclopyr	21237
		<u>Trifluralin</u>	<u>6558</u>
2,4-D	119086	TOTAL HERBICIDES:	369555
2,4-DP	1107		
Atrazine	8		
Benfluralin	5547	INSECTICIDES:	
Bensulide	5	Abamectin	<1
Bentazon	5	Acephate	189
Bromacil	13	Bendiocarb	3
Bromoxynil	265	Bifenazate	32
Carfentrazone-ethyl	285	Bifenthrin	2464
Clopyralid	6079	Bt	<1
Dicamba	12898	Carbaryl	7748
Dichlobenil	24	Chlorpyrifos	435
Diquat	<1	Cyfluthrin	36
Dithiopyr	55373	Cyhalothrin	27
Diuron	4146	Cypermethrin	4
DSMA, MSMA	918	Dazomet	451
Ethofumesate	4	Deltamethrin	11
Fenoxaprop-ethyl	765	Diazinon	324
Fluazifop-butyl	1	Dimethoate	28
Fluroxypyr-meptyl	48	Disulfoton	3
Glufosinate-ammonium	36	Fenbutatin	<1
Glyphosate	31740	Fenitrothion	4
Imazapyr	284	Fluvalinate	8
Isoxaben	998	Halofenozide	4970
MCPA	31341	Hexythiazox	6
Mecoprop	27988	Hydramethylnon	<1
Metalochlor	540	Imidacloprid	12625
Oryzalin	3442	Lindane	<1
Oxadiazon	28	Malathion	284
Oxyfluorfen	2	Milky spore	<1
Paraquat	16	Oil	14485
Pelargonic acid	851	Permethrin	5210
Pendimethalin	19315	Soap	417
Prodiamine	12765	<u>Trichlorfon</u>	<u>21689</u>
Pronamide	4	TOTAL INSECTICIDES:	71453
Prometon	46		
Quinclorac	4575		
Sethoxydim	<1		
Siduron	1107		
Simazine	51		
Sulfometuron	53		

FUNGICIDES:

Azoxystrobin	34
Benomyl	16
Captan	<1
Chlorothalonil	12248
Etridiazole	1
Fenarimol	29
Flutolanil	63
Fosetyl-al	186
Iprodione	2053
Mancozeb	1840
Metalaxyl	10
Myclobutanil	107
Polyoxin D	2
Propamocarb HCL	58
Propiconazole	551
Quintozene	330
Thiophanate	6038
Thiophanate-methyl	954
Triadimefon	4450
Thiram	18
Trifloxystrobin	72
Triforine	1
Vinclozolin	177
TOTAL FUNGICIDES:	29238

GROWTH HORMONES:

Chlorflurenol-methyl	1
Ethephon	1
Mefluidide	95
Trinexapac-ethyl	89
TOTAL HORMONES:	186

REPELLENTS:

Anthraquinone	376
Denatonium benzoate	<1
Methyl Anthranilate	2
TOTAL REPELLENTS:	378

MISCELLANEOUS:

Copper hydroxide	16
Metaldehyde	108
Potassium phosphate	84
<u>Sodium carbonate</u>	<u>126</u>
TOTAL MISCELL:	334

TOTAL PESTICIDE USE: 471144

Herbicides:	78%
Insecticides:	15%
Fungicides:	6%
Growth Hormones:	0%
Repellents:	0%
Miscellaneous:	0%

Table 2. Highest use compounds in 2004 from the main pesticide categories. Shown are compounds $\geq 5\%$ of class.

Compound	Lbs active ingredient	% of class	% of total pesticide use
HERBICIDES:			
2,4-D	119086	32%	25%
Dithiopyr	55373	15%	12%
Glyphosate	31740	9%	7%
MCPA	31341	9%	7%
Triclopyr	21237	6%	5%
Pendimethalin	19315	5%	4%
INSECTICIDES:			
Trichlorfon	21689	30%	5%
Oil	14485	20%	3%
Imidacloprid	12625	18%	3%
Carbaryl	7748	11%	2%
Halofenozide	4970	7%	1%
FUNGICIDES:			
Chlorothalonil	12248	42%	3%
Thiophanate, T-methyl	6992	24%	2%
Triadimefon	4450	15%	1%
Iprodione	2053	7%	0%
Mancozeb	1840	6%	0%

Table 3. Total pesticide amounts (lbs active ingredient) by county, 2004 Lawn Care Pesticide Use Survey.

<u>COUNTY</u>	<u>Amount</u>	<u>% of Total Use</u>
Atlantic	7607	2%
Bergen	62607	13%
Burlington	22630	5%
Camden	10045	2%
Cape May	7055	1%
Cumberland	3083	<1%
Essex	27251	6%
Gloucester	7858	2%
Hudson	509	<1%
Hunterdon	6653	1%
Mercer	36231	8%
Middlesex	40296	9%
Monmouth	66664	14%
Morris	68098	14%
Ocean	25472	5%
Passaic	7691	2%
Salem	4020	1%
Somerset	45147	10%
Sussex	3260	<1%
Union	13510	3%
Warren	5457	1%
TOTAL	471144	100%