

LAWN CARE PESTICIDE USE IN NEW JERSEY: 1998 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 third survey completed in the lawn care series (1998).

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 4437 licensed commercial applicators holding a category "3B" (turf) on his or her license. Surveys were mailed over an eight month period in 1999, the first mailing going to all New Jersey registered pesticide businesses with a responsible applicator holding a 3B category on his or her license. A second mailing went to all 3B applicators and a third mailing went out certified to non-respondents. Survey forms were mailed along with return envelopes and instructional letters asking for 1998 lawn care pesticide use. Lists of 3B businesses and applicators were kept in the office and marked off as surveys returned.

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, 4020 out of 4437 (91%) 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.

[Curt Brown, Research Scientist II] revised 6/02

Table 1. Pesticide amounts (lbs. active ingredient) reported in the New Jersey 1998 Lawn Care Pesticide Use Survey.

HERBICIDES:

2,4-D	93448
2,4-DP	7522
Atrazine	17
Benfluralin	18711
Bensulide	224
Bentazon	135
Bromacil	59
Bromoxynil	301
Butylate	23
Chlorsulfuron	<1
Chlorthal-Dimethyl	444
Clopyralid	3819
Dicamba	10127
Dichlobenil	86
Diquat	11
Dithiopyr	1265
Diuron	126
DSMA, MSMA	1164
Endothal	40
Ethofumesate	5
Fenoxaprop-ethyl	421
Fluazifop-butyl	4
Flumetsulam	6
Glufosinate-ammonium	246
Glyphosate	28052
Imazapyr	8
Isoxaben	457
MCPA	15565
Mecoprop	42546
Metalochlor	461
Napropamide	11
Oryzalin	3770
Oxadiazon	60
Oxyfluorfen	2
Paraquat	92
Pelargonic acid	2663
Pendimethalin	71060
Prodiamine	4133
Prometon	331
Quinclorac	11
Sethoxydim	1

Siduron	626
Simazine	110
Sulfometuron	1
Tebuthiuron	157
Triclopyr	19612
<u>Trifluralin</u>	<u>12131</u>
TOTAL HERBICIDES:	340064

INSECTICIDES:

Abamectin	<1
Acephate	924
Bendiocarb	3232
Bifenthrin	91
Carbaryl	7392
Chlorpyrifos	20036
Cyfluthrin	5542
Cyhalothrin	140
Deltamethrin	2
Diazinon	1031
Dicofol	142
Dimethoate	122
Disulfoton	2
Fluvalinate	4
Fonofos	215
Halofenozide	1043
Imidacloprid	20007
Isazofos	29
Isofenphos	104
Lindane	5
Malathion	64
Microbial (Bt)	1
Oil	18454
Permethrin	281
Propoxur	<1
Resmethrin	<1
Soap	895
<u>Trichlorfon</u>	<u>22926</u>
TOTAL INSECTICIDES:	102684

FUNGICIDES:

Anilazine	6
Azoxystrobin	88
Benomyl	12
Chloroneb	51
Chlorothalonil	16608
Cyproconazole	57
Etridiazole	35
Fenarimol	58
Ferbam	<1
Flutolanil	45
Fosetyl-al	3565
Iprodione	19430
Mancozeb	5139
Metalaxyl	328
Myclobutanil	459
Oxythioquinox	287
PMA	3
Propamocarb HCL	3271
Propiconazole	437
Quintozene	740
Thiophanate-methyl	3400
Thiram	567
Triadimefon	5961
Triforine	<1
Vinclozolin	8967
TOTAL FUNGICIDES:	69514

GROWTH HORMONES:

Dikegulac	2
Ethephon	1
Flurprimidol	15
Mefluidide	9
Paclobutrazol	471
Trinexapac-ethyl	90
TOTAL HORMONES:	588

REPELLENTS:

Denatonium Benzoate	1
<u>Methyl Anthranilate</u>	<u>151</u>
TOTAL REPELLENTS:	152

RODENTICIDES:

<u>Zinc Phosphide</u>	<u>2</u>
TOTAL RODENTICIDES:	2

TOTAL PESTICIDE USE: 513004

Herbicides:	66%
Insecticides:	20%
Fungicides:	14%
Growth Hormones:	0%
Repellents:	0%
Rodenticides:	0%

Table 2. Highest use compounds in 1998 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	93448	28%	18%
Pendimethalin	71060	21%	14%
Mecoprop	42546	13%	8%
Glyphosate	28052	8%	6%
Triclopyr	19612	6%	4%
Benfluralin	18711	6%	4%
MCPA	15565	5%	3%
INSECTICIDES:			
Trichlorfon	22926	22%	5%
Chlorpyrifos	20036	20%	4%
Imidacloprid	20007	20%	4%
Oil	18454	18%	4%
Carbaryl	7392	7%	1%
Cyfluthrin	5542	5%	1%
FUNGICIDES:			
Iprodione	19430	28%	4%
Chlorothalonil	16608	24%	3%
Vinclozolin	8967	13%	2%
Triadimefon	5961	9%	1%
Mancozeb	5139	7%	1%
Fosetyl-al	3565	5%	1%
Thiophanate-methyl	3400	5%	1%

Table 3. Total pesticide amounts (in pounds active ingredient) by county, 1998 lawn care survey.

<u>COUNTY</u>	<u>Amount</u>	<u>% of Total Use</u>
Atlantic	4821	1%
Bergen	93900	18%
Burlington	22941	4%
Camden	24241	5%
Cape May	3180	1%
Cumberland	3121	1%
Essex	12667	2%
Gloucester	4915	1%
Hudson	388	<1%
Hunterdon	7095	1%
Mercer	55849	11%
Middlesex	54297	11%
Monmouth	43846	9%
Morris	63681	12%
Ocean	61603	12%
Passaic	8880	2%
Salem	685	<1%
Somerset	21007	4%
Sussex	2407	<1%
Union	19082	4%
Warren	4398	1%
TOTAL	513004	100%