

## **LAWN CARE PESTICIDE USE IN NEW JERSEY: 2010 SURVEY**

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### 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 seventh survey completed in the lawn care series (2010).

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 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 2010 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 2011.

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, 3328 out of 3980 (84%) applicators were accounted for. Pesticides used by the lawn care industry in New Jersey for 2010 totaled 476647 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 2010 Lawn Care Pesticide Use Survey.

**HERBICIDES:**

2,4-D	136704
2,4-DE	143
2,4-DP	5096
2,4-DT	17831
Alachlor	18
Aminocyclopyrachlor	<1
Atrazine	<1
Benfluralin	1034
Bispyribac sodium	1
Bromacil	66
Carfentrazone-ethyl	180
Clethodim	2
Clopyralid	1003
Dicamba	17891
Dichlobenil	26
Dimethenamid	111
Diquat	5
Dithiopyr	50153
Diuron	2566
DSMA, MSMA	2331
Ethofumesate	19
Fenoxaprop-ethyl	73
Fluazifop-butyl	1
Fluroxypyr-meptyl	3651
Glufosinate-ammonium	3
Glyphosate	34969
Halosulfuron-methyl	211
Imazapyr	54
Imazapic	<1
Isoxaben	421
MCPA	20132
Mecoprop	77064
Mesotrione	5
Metalochlor	112
Oryzalin	1251
Oxadiazon	23
Oxyfluorfen	2
Paraquat	13
Pelargonic acid	5249
Pendimethalin	4577
Penoxsulam	11

Prodiamine	12150
Prometon	115
Quinclorac	5186
Sethoxydim	<1
Siduron	104
Sulfentrazone	1105
Triclopyr	3565
<u>Trifluralin</u>	<u>3678</u>
TOTAL HERBICIDES:	408906

**INSECTICIDES:**

Abamectin	<1
Acephate	182
Bifenazate	61
Bifenthrin	5951
Carbaryl	2260
Chlorantraniliprole	46
Chlorpyrifos	108
Clothianidin	31
Cyfluthrin	7
Cyhalothrin	5
Dinotefuran	10
Esfenvalerate	4
Fluvalinate	18
Halofenozide	69
Hexythiazox	7
Hydramethylnon	<1
Imidacloprid	15260
Malathion	357
Oil	23595
Permethrin	609
Soap	522
Spiromesifen	7
Thiamethoxam	<1
<u>Trichlorfon</u>	<u>4196</u>
TOTAL INSECTICIDES:	53306

**FUNGICIDES:**

Azoxystrobin	62
Boscalid	28
Captan	3
Chlorothalonil	4014
Cyazofamid	14
Etridiazole	109
Fenarimol	2
Fludioxonil	10
Fluoxastrobin	1
Flutolanil	75
Fosetyl-al	587
Iprodione	754
Mancozeb	160
Maneb	104
Mefenoxam	12
Metalaxyl	52
Metconazole	37
Myclobutanil	441
Polyoxin D	2
Propamocarb HCL	70
Propiconazole	3097
Pyraclostrobin	4
Quintozene	10
Tebuconazole	28
Thiophanate-methyl	2226
Triadimefon	508
Trifloxystrobin	222
Triticonazole	57
Vinclozolin	397
<b>TOTAL FUNGICIDES:</b>	<b>13086</b>

**MISCELLANEOUS:**

Ammonium Chloride	9
Anthraquinone	341
Bromethalin	<1
Neem oil	159
Potassium phosphate	624
Warfarin	<1
<u>WSCP</u>	<u>6</u>
<b>TOTAL MISCELL:</b>	<b>1140</b>

**TOTAL PESTICIDE USE: 476647**

Herbicides:	86%
Insecticides:	11%
Fungicides:	2%
Growth Inhibitors:	<1%
Miscellaneous:	<1%

**GROWTH INHIBITORS:**

Azadirachtin	<1
Dikegulac sodium	2
Ethephon	15
Mefluidide	<1
Paclobutrazol	54
Pyriproxyfen	<1
<u>Trinexapac-ethyl</u>	<u>137</u>
<b>TOTAL INHIBITORS:</b>	<b>209</b>

**Table 2.** Highest use compounds in the New Jersey 2010 Lawn Care Pesticide Use Survey from the main pesticide categories. Shown are compounds  $\geq 5\%$  of category.

Compound	Lbs Active Ingredient	% of Category	% of Total Pesticide Use
<b>HERBICIDES:</b>			
2,4-D formulations	159774	39%	34%
Mecoprop	77064	19%	16%
Dithiopyr	50153	12%	11%
Glyphosate	34969	9%	7%
<b>INSECTICIDES:</b>			
Oil	23595	44%	5%
Imidacloprid	15260	29%	3%
Bifenthrin	5951	11%	1%
Trichlorfon	4196	8%	1%
<b>FUNGICIDES:</b>			
Chlorothalonil	4014	31%	1%
Propiconazole	3097	24%	<1%
Thiophanate-methyl	2226	17%	<1%
Iprodione	754	6%	<1%

**Table 3.** Total pesticide amounts (lbs active ingredient) by county, New Jersey 2010 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.

<u>COUNTY</u>	<u>Amount</u>	<u>% of Total Use</u>
Atlantic	5435	1%
Bergen	44895	10%
Burlington	14473	3%
Camden	6076	1%
Cape May	6131	1%
Cumberland	10458	2%
Essex	57492	12%
Gloucester	8718	2%
Hudson	253	<1%
Hunterdon	4674	1%
Mercer	15154	3%
Middlesex	25600	6%
Monmouth	115565	24%
Morris	38523	8%
Ocean	48160	10%
Passaic	10854	2%
Salem	1994	<1%
Somerset	42785	9%
Sussex	6289	1%
Union	2543	<1%
Warren	10575	2%
<b>TOTAL</b>	<b>476647</b>	<b>100%</b>

(prepared 09/11)