



RIGHT-OF-WAY PESTICIDE USE IN NEW JERSEY: 2021 SURVEY

Introduction

The Pesticide Evaluation & Monitoring Section (PEMS) began a series of pesticide use surveys in 1985. These surveys address pesticide use by licensed applicators in the state of New Jersey for agriculture, golf courses, termite control, right-of-way, mosquito control, and lawn care. The right-of-way use survey is conducted every three years and targets pesticides used for right-of-way pest control purposes. A right-of-way is a land easement reserved for transportation purposes including highways, public footpaths, rail transport and canals, as well as electrical transmission, oil and gas pipelines. This report focuses on the ninth survey completed in the right-of-way use series (2021).

All statewide pesticide use surveys are performed under the authority of the New Jersey Pesticide Control Code (NJPCP), N.J.A.C. 7:30-6.8(d) et.seq., requiring licensed applicators to maintain pesticide records for three 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.

The information collected from the PEMS pesticide use surveys is used by programs 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.

Survey Methods

The NJDEP Bureau of Pesticide Control, Licensing and Registration's records were used to identify 700 licensed commercial applicators holding a 6B (right-of-way) category on their license. Survey forms were mailed along with instructional letters and return envelopes asking for only 2021 right-of-way pesticide use. A total of three mailings were sent during the first four months of 2022.

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

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. a.i.).

Results & Discussion

Once all three mailings were completed, 505 out of 700 (72%) applicators responded. Response rates have been steadily declining since the first survey in 1992. PEMS forwarded “returned to sender” surveys and a list of non-responders to the Bureau of Pesticide Control, Licensing and Registration for follow-up.

Pesticides used by the right-of-way pest control industry in New Jersey for 2021 totaled 36,746 lbs. a.i. This is a 31,263 lbs. a.i. decrease (45%) from the reported use in 2018. Table 1 lists all the compounds reported in the 2021 survey and the amounts (lbs. a.i.) applied. All of the pesticides reported as used for right-of-way vegetation control in 2021 were herbicides.

Table 1. Pesticide amounts (lbs. a.i.) reported in the New Jersey 2021 Right-Of-Way Pesticide Use Survey.

<u>COMPOUND</u>	<u>lbs. a.i.</u>	<u>COMPOUND</u>	<u>lbs. a.i.</u>
2,4-D	1,130	Imazapic	4
Aminocyclopyrachlor	500	Imazapic-ammonium	5
Aminopyralid	311	Imazapyr	1,111
Bentazon*	12	Indaziflam	223
Bromacil	5	Isoxaben	2
Carbaryl*	1	Mecoprop-p	105
Clopyralid*	22	Metsulfuron-methyl	241
Dicamba	531	Paraquat	39
Diquat	192	Pelargonic acid*	271
Dithiopyr	68	Pendimethalin	211
Diuron	321	Picloram	196
Florpyrauxifen-benzyl	1	Prodiamine	74
Fluroxypyr-meptyl*	20	Prometon	214
Fosamine*	78	S-metolachlor	7
Glufosinate-ammonium	249	Sulfometuron	438
Glyphosate	27,841	Triclopyr	2,249
Halosulfuron-methyl	2	Trifluralin	9
Hexazinone	63		
		TOTAL:	36,746

*Indicates a compound not reported in the 2018 survey.

Table 2 lists the highest use compounds reported in the 2021 right-of-way survey. The most highly reported pesticide used in right-of-way vegetation control was the herbicide glyphosate.

This herbicide accounted for 76% of the total pesticides applied for right-of-way vegetation control in New Jersey in 2021. Glyphosate is a broad spectrum, systemic herbicide. It is most widely used to control annual broad-leaf weeds. According to the 2021 survey data, 23,242 of the 36,690 lbs. a.i. (63%) of the glyphosate used in right-of-way vegetation control in New Jersey was applied to public roads and railways.

Table 2. Highest use compounds in the New Jersey 2021 Right-Of-Way Pesticide Use Survey.

Compound	Total (lbs. a.i.)	% of Total Usage
Glyphosate	27,841	76
Triclopyr	2,249	6
2,4-D	1,130	3
Imazapyr	1,111	3

Table 3 shows the sites receiving right-of-way applications during the 2021 survey period. Nearly half of the reported herbicide applications occurred on public roads in New Jersey in 2021. This is an increase from the previous right-of-way survey; only 21% of the reported use occurred on public roads in 2018. The second most heavily treated right-of-way site in 2021 was building perimeters/fence lines.

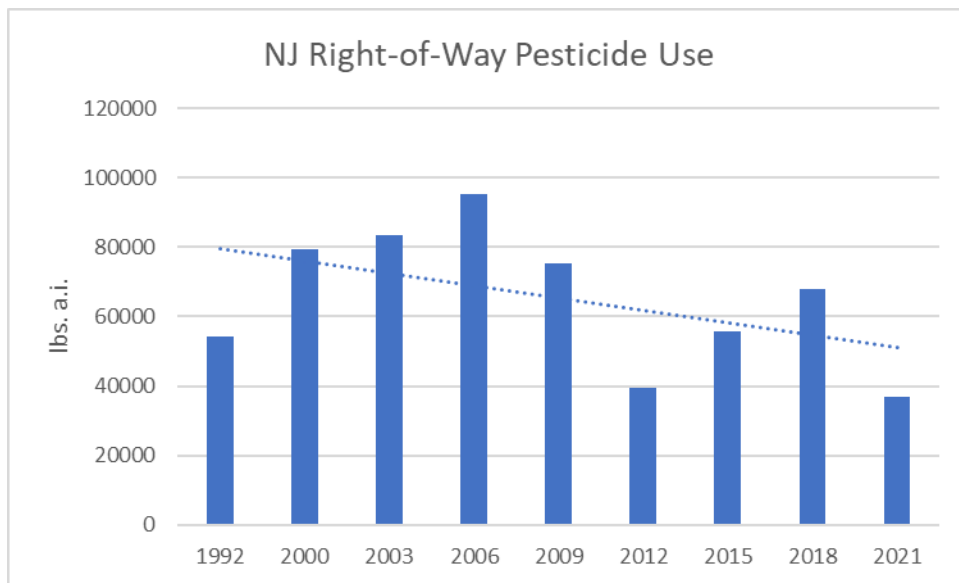
Table 3. Use totals by application site in the New Jersey 2021 Right-Of-Way Use Survey.

Site	Total (lbs. a.i.)	% of Total Usage
Public Roads	17,181	47
Building Perimeters/Fence Lines	7,224	20
Railways	6,395	17
Powerlines	3,143	9
Other*	1,707	5
Substations	773	2
Pipelines	324	1

* Sites include sewers, air strips, parking lots, trails, and miscellaneous industrial locations.

Figure 1 shows the total lbs. a.i. used in New Jersey for each right-of-way use survey conducted. The reported pesticide use for right-of-way vegetation control peaked in 2006. The reported pesticide use for the 2021 survey is nearly half of the reported amount in 2018.

Figure 1. Total lbs. a.i. used in New Jersey for each right-of-way use survey conducted (1992-2021).



Summary & Conclusions

Glyphosate use has been increasing since the first survey in 1992. Glyphosate is commonly applied to right-of-ways because it is a non-selective herbicide used to eliminate broad leaf plants and grasses typically found on right-of-way easements. Reported glyphosate use in 1992 was 24% of the total active ingredient applied; that has grown to 76% of the total applied in 2021. Fifty-two percent (14,546 lbs. a.i.) of the reported glyphosate use was on public roads, which accounts for 85% of the total herbicides applied to public roads in 2021.

The number of licensed applicators holding a category 6B (right-of-way) on their license has steadily increased from 326 in 1992 to 791 in 2021. While the survey response rate has steadily decreased during the same period, the actual number of licensed applicators responding to the survey has remained consistent. The survey responses range from 326 to 658, with an average of 482 responses in a survey year. While the number of actual survey responses has remained consistent, the reported lbs. of a.i. of pesticides applied continues to fluctuate from survey to survey. The fluctuation could be attributed to variation in pest pressure, weather events and budget issues dictating application frequency.