

FUMIGANT USE IN NEW JERSEY - 2016 SURVEY

Introduction

The Office of Pesticide Evaluation & Monitoring (OPEM) 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. This is the second survey focusing on fumigant use, with the first survey conducted in 2005.

Fumigation activities in New Jersey are diverse. Fumigators treat both imported and exported commodities and produce. Large and small food manufacturers fumigate food commodities used in food manufacturing operations. Many commodities are fumigated in warehouses in Newark, Elizabeth and the Camden area. Fumigation may be carried out in transitory or temporary quarters. In addition, commercial buildings and homes are fumigated to control various structural pests. Farmers fumigate their soil and their crop storage areas. Ranchers, sod and Christmas tree farmers, turf growers, nursery and greenhouse operators also use fumigants.

Increased reports of suspected fumigant poisonings in the Camden area between 2005 and 2015 required collection of more current data regarding fumigant use in NJ. There were also three license Categories with the potential for fumigant use that were not covered in other surveys or the 2005 fumigant survey. Categories 1A (plant), 7E (wood preserving) and/or 8E (sewer root control) were added for the 2016 survey.

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 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 OPEM pesticide use survey process is used by agencies within the NJ Department of Environmental Protection (NJDEP) along with other State and Federal 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.

Survey Methods

The NJDEP Bureau of Licensing and Pesticide Operation's registration records were used to identify all 796 commercial applicators carrying a Category 7C (fumigation), 7D (food

manufacturing and processing), 1A (plant), 7E (wood preserving) and/or 8E (sewer root control) on their license as of December 2016. A survey form was sent to each licensed applicator. Multiple applicators can work on the same commercial establishment, therefore the accompanying cover letter requested that only one form be returned for each commercial establishment to avoid duplication of response. A total of three mailings were sent during the first six months of 2017.

The survey requested information on each fumigant used. This information included trade name, EPA registration number, percent active ingredient (a.i.), amount applied, and treatment site (warehouse, ship, etc.)

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 pounds of active ingredient (lbs. a.i.).

Results & Discussion

Overall, approximately 79% (627 of 796) of the licensed applicators responded to the survey. This is a 7% decrease in the number of respondents from 2005. The list of non-respondents was turned over to the NJDEP Bureau of Pesticide Compliance for follow-up on the failure to respond.

Table 1 lists the chemicals and their amounts reported in the 2016 survey. Total New Jersey fumigant use for 2016 was 315,026 lbs. a.i. This is nearly a 50% increase from the total lbs. a.i. reported in the 2005 survey (171,590).

Methyl bromide (Meth-O Gas) and sulfuryl fluoride (ProFume, Vikane) represent 94% of the fumigants used in New Jersey. Methyl bromide is typically used as an agricultural soil fumigant, commodity quarantine treatment in transit containers and warehouses, and residential and commercial structural fumigant for indoor pests. Sulfuryl fluoride is widely used as a fumigant to control termites.

Several new compounds were reported in the 2015 survey. They included the soil fumigants chloropicrin, dazomet and methyl isothiocyanate. Together these three compounds represent 3% of the total fumigant use in 2015 (18,579 lbs. a.i.). These three compounds were most likely captured with the addition of the 1A (plant) Category to the survey.

Table 2 lists the amounts and percentages of fumigant use by site. The Other/Unspecified site category has the most reported use at 55%. Other uses listed on the surveys included tarps, soil (agriculture) and shipping containers.

Based on the 50% increase in total use and the gap of time between surveys, OPEM will conduct another fumigation survey in 2019 to obtain comparability data for fumigant usage in New Jersey to evaluate if the increase in usage remains consistent throughout more frequent surveys.

TABLE 1. Fumigant amounts reported in the New Jersey 2016 Fumigant Use Survey.

*Indicates a compound not reported in the 2005 survey.

Compound	Amount (lbs. a.i.)	% of Total Use
Aluminum phosphide	54	<1
Ammonium chloride*	1	<1
Chloropicrin*	1,726	<1
Dazomet*	7,791	2
Dichlobenil*	83	<1
Dichloropropene*	588	<1
Isopropanol*	99	<1
Magnesium phosphide	257	<1
Methyl bromide	169,459	54
Methyl isothiocyanate*	9,062	3
Phenothrin*	1	<1
Sulfuryl fluoride	125,905	40
Total:	315,026	

TABLE 2. Total 2016 fumigant amounts by treatment site.

Site	Amount (lbs. a.i.)	% of Total Use
Warehouse	72,952	23
Trailer	24,554	8
Residential building	618	<1
Food processor	43,240	14
Silo	1,582	<1
Office/business complex	101	<1
Other/unspecified	171,979	54
Total:	315,026	100

