

Pesticide Use Trends in the U.S.: Agricultural Pesticides¹

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Introduction

The EPA, in cooperation with the USDA and FDA, is responsible for regulating the production and use of pesticides in the U.S. This document is one of a series that provides data on volumes used and sales of pesticides from the latest EPA survey data available, 2001 – 2002. This document focuses on the agricultural pesticides market sector. Other documents within this series address the industry/commercial/government and lawn and garden sectors. The intent of this information is only to present an objective profile and does not attempt to interpret, reach conclusions about, or make inferences regarding the data. Conclusions should not be drawn in regards to impacts on human health, the environment, or the economy.

Data sources

The data reported in this document are based upon EPA estimates. EPA does not have a program devoted specifically to estimating pesticide use; rather, they use the best available information from the public domain and proprietary sources. The data are approximate values and not statistically precise.

The sources that EPA consults for compiling this information include:

- The Pesticide Data Center in the Biological and Economic Analysis Division of EPA's Office of Pesticide Programs;
- Several national database services for compiling agricultural pesticide use data, including the USDA; and
- Proprietary data sources with vendor permission, including Doane Marketing Research, Inc., Kline and Company, Inc., SRI, Inc., Wood Mackenzie; and Mike Bukley, Inc.

Explanation of data components

The expenditure data presented in Table 1 separate broad classes of pesticides – herbicides, insecticides, fungicides, and other pesticides. The “herbicide” data combine plant growth regulators (PGR) with them, while “fungicides” and “insecticides” exclude sulfur and petroleum oil. Data summarized for “other” pesticides combine the total for rodenticides, molluscicides, nematocides, fumigants, aquatic, pesticides for the control of birds

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The use of trade names in this publication is solely for the purpose of providing specific information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication does not signify our approval to the exclusion of other products of suitable composition. Use pesticides safely. Read and follow directions on the manufacturer's label.

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and fish, and other miscellaneous pesticides. Sulfur and petroleum oil are included in the “other” category as well. The use data shown in Table 2 are presented similarly, except that nematicides and fumigants are presented as a separate category. In reporting the amount used, data are presented as pounds of active ingredient (a.i.). Totals may not add precisely due to rounding.

U.S. agricultural pesticide expenditures

U.S. agricultural pesticide expenditures totaled more than \$7 billion in both 2000 and 2001 (Table 1). Expenditures on herbicides/plant growth regulators accounted for the largest portion of total expenditures – more than 66% both years, followed by expenditures on insecticides, fungicides, and other pesticides, respectively. There was little change in relative quantities of pesticide expenditures for each class of pesticide both years. Total expenditures for agricultural pesticides as a whole were down in 2001 compared to 2000.

U.S. agricultural pesticide amount used

U.S. pesticide amount used in both 2000 and 2001 was approximately 700 million pounds averaged over the two years (Table 2). The largest portion of total placecountry-regionU.S. agricultural pesticides used each year was herbicides, followed by nematicides and fumigants, insecticides and miticides, fungicides, and other pesticides. Total volume of agricultural pesticides used was down in 2001 compared to 2000.

Most commonly used conventional agricultural pesticide active ingredients

Table 3 shows the ten most commonly used conventional agricultural pesticide active ingredients in 2001 and selected earlier years back to 1987. Glyphosate was the most used active ingredient in 2001, between 85 million and 90 million pounds, displacing atrazine, which had been the most used active ingredient in agriculture for a number of years. Of the top twenty-five active ingredients (entire list

not shown), fifteen are herbicides; three are fungicides; two are insecticides; four are fumigants; and one is a plant growth regulator.

Additional information

Kiely, T., D. Donaldson, and A. Grube. 2004. Pesticides Industry Sales and Usage: 2000 and 2001 Market Estimates. EPA's Biological and Economic Analysis Division, Office of Pesticide Programs, and Office of Prevention, Pesticides, and Toxic Substances
<http://www.epa.gov/pesticides>.

Table 1. Table 1. U.S. agricultural pesticide expenditures by pesticide class – 2000 and 2001.

Class	Millions \$	% of Total
2000		
Herbicides/PGR	5,007	66
Insecticides/Miticides	1,411	19
Fungicides	647	8
Other	547	7
Total	7,612	
2001		
Herbicides	4,987	67
Insecticides/Miticides	1,326	18
Fungicides	615	8
Other	476	6
Total	7,404	

Table 2. U.S. agricultural pesticide amount used by pesticide class – 2000 and 2001.

Class	Millions Pounds a.i.	% of Total
2000		
Herbicides/PGR	432	60
Insecticides/Miticides	90	12
Fungicides	44	6
Nematicides/Fumigants	131	18
Other	25	3
Total	722	
2001		
Herbicides	433	64
Insecticides/Miticides	73	11
Fungicides	42	6
Nematicides/Fumigants	102	15
Other	25	4
Total	675	

Table 3. Ten most commonly used conventional agricultural pesticide active ingredients (millions pounds active ingredient).

Active Ingredient	Type *	2001		1999		1997		1987	
		Rank	Range **	Rank	Range	Rank	Range	Rank	Range
Glyphosate	H	1	85-90	2	67-73	5	34-38	17	6-8
Atrazine	H	2	74-80	1	74-80	1	75-82	1	71-76
Metam sodium	Fum	3	57-62	3	60-64	3	53-58	15	5-8
Acetochlor	H	4	30-35	4	30-35	7	31-36	NA	NA
2,4-D	H	5	28-33	6	28-33	8	29-33	5	29-33
Malathion	I	6	20-25	7	28-32	NA	NA	NA	NA

Table 3. Ten most commonly used conventional agricultural pesticide active ingredients (millions pounds active ingredient).

Active Ingredient	Type*	2001		1999		1997		1987	
		Rank	Range**	Rank	Range	Rank	Range	Rank	Range
Methyl bromide	Fum	7	20-25	5	28-33	4	38-45	NA	NA
Dichloro-propene	Fum	8	20-25	11	17-20	6	32-37	4	30-35
s-Metol-achlor	H	9	20-24	12	16-19	NA	NA	NA	NA
Metolachlor	H	10	15-22	8	26-30	2	63-69	3	45-50

* H = herbicide; Fum = fumigant; I = insecticide.
** Range is the estimate taken from several data sources.