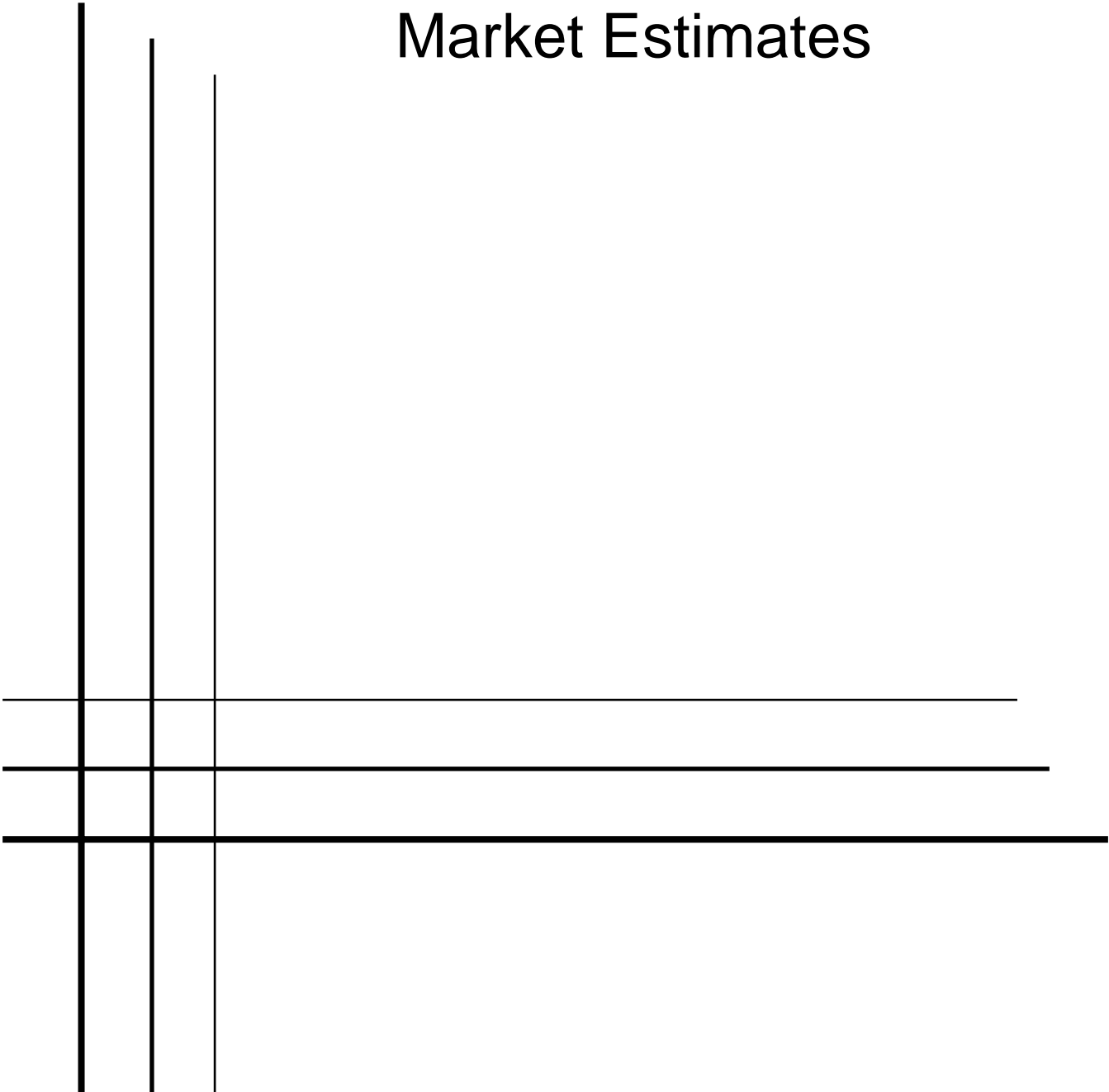




Pesticides Industry Sales and Usage

2000 and 2001
Market Estimates



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Pesticides Industry Sales and Usage

2000 and 2001 Market Estimates

By
Timothy Kiely
David Donaldson
Arthur Grube, Ph.D.

Biological and Economic Analysis Division
Office of Pesticide Programs
Office of Prevention, Pesticides, and Toxic Substances
U.S. Environmental Protection Agency
Washington, DC 20460

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1. Introduction

Purpose of Report

Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA), U.S. Environmental Protection Agency (EPA), in cooperation with the States and other agencies, such as the Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA), is responsible for regulating the production and use of pesticides in the United States. This report provides contemporary and historical economic information on the U.S. pesticide producing and using sectors covered by these state and federal regulatory programs. Economic profile information covers a variety of topics, particularly the pesticide market with respect to dollar values and quantities of active ingredient. The EPA Pesticide Program has issued such market reports since 1979.

This report is intended only to present objective economic profile and trend information reflecting the best available information on pesticide sales and use. It does not attempt to interpret, reach conclusions about, or make inferences about the data. Detailed analysis of causal factors or implications, such as potential impacts on human health, the environment, or the economy, falls beyond the scope of this project.

We caution the reader not to infer too much from changes in the amount of pesticides used from year to year. Changes in the amount of pesticides used are not necessarily correlated to changes in the level of pest control or changes in the human health and environmental risks associated with pesticide use.

Data Sources

Neither EPA nor any other agency has a program devoted specifically to estimating the overall pesticide market in terms of dollars spent and quantity of active ingredient used on an annual basis. This report uses the best available information from the public domain and proprietary sources. The numbers in the report represent approximate values rather than precise values with known statistical properties.

The Agency has a wide variety of public and proprietary information upon which to base estimates of pesticide sales and use. The Pesticide Data Center in the Biological and Economic Analysis Division (BEAD) of EPA's Office of Pesticide Programs (OPP) maintains extensive files and library materials. These materials cover different pesticide types and groupings in the agricultural market sector, which account for a majority of the use of conventional pesticides, and in non-agricultural market sectors. The Agency uses three national database services for the agricultural sector, including one from the USDA, and a number of more specific data sources. Similar data sources cover the non-agricultural sectors. EPA also uses proprietary data sources, with vendor permission, to estimate agricultural and non-agricultural market sectors. These proprietary data sources, produced by well-known organizations, also serve pesticide registrants and other private sector firms analyzing the U.S. pesticide market.

Overview of Contents/Scope of Report

This report profiles the U.S. pesticide industry for the years 2000 and 2001. Data, estimated using several different parameters (e.g., pesticide type, pesticide group, market sector), appear in tabular format. The scope of the report is largely inclusive of the U.S. pesticide industry and includes data on expenditures, volume, imports, exports, firms, individuals involved in production and use of pesticides, number of pesticides, and number of certified applicators, among other topics. The report includes graphical representations of the data where useful. Although most of the information covers the years 2000 and 2001, this report also includes a historical section.

Following this Introduction (Section 1), Section 2 summarizes U.S. and world pesticide user expenditures in 2000 and 2001, and Section 3 summarizes U.S. and world pesticide amounts used in 2000 and 2001. Section 4 presents background information on pesticide market sectors. Finally, Section 5 presents historical data summarizing pesticide expenditures and estimates of amount used since 1982.

The writing of the 2002 and 2003 pesticides industry sales and usage report is scheduled to begin once all of the supporting pesticide sales and usage data for 2003 are published (Fall 2004). If you have questions regarding this report or need further information, please contact the authors at the following address:

Biological and Economic Analysis Division
Office of Pesticide Programs (7503C)
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

You may also contact the authors by e-mail or (telephone): kiely.timothy@epa.gov (703-308-8112), donaldson.david@epa.gov (703-308-9546), and grube.arthur@epa.gov (703-308-8095).

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2. 2000 and 2001 Sales

2.1 World and U.S. Pesticide Expenditures

World pesticide expenditures totaled more than \$32.5 billion in 2000 and nearly \$32.0 billion in 2001 (see Table 2.1). Expenditures on herbicides accounted for the largest portion of total expenditures (more than 40%), followed by expenditures on insecticides, fungicides, and other pesticides, respectively. Total expenditures were down in 2001 due to decreased spending on all pesticide types.

U.S. pesticide expenditures totaled more than \$11 billion in 2000 and 2001, in proportions similar to those of world expenditures, with a relatively larger proportion of total U.S. expenditures on herbicides (see Figure 2.1). U.S. expenditures accounted for more than 33% of total world expenditures on pesticides, more than 40% of world expenditures on herbicides, more than 33% of world expenditures on insecticides, and more than 10% and 25% of world expenditures on fungicides and other pesticides, respectively.² The Agency based its estimates of world and U.S. pesticide expenditures on the estimated pesticide expenditures and estimated changes in pesticide expenditures by type derived from public and proprietary EPA databases. See Section 2.3 for a more detailed look at U.S. expenditures on pesticides in 2000 and 2001.

Table 2.1
World and U.S. Pesticide Expenditures at User Level
by Pesticide Type, 2000 and 2001 Estimates

Year	World Market		U.S. Market		U.S. Percentage of World Market
	Mil \$	%	Mil \$	%	
2000					
Herbicides ¹	14,319	44	6,365	57	44
Insecticides ²	9,102	28	3,129	28	34
Fungicides ²	6,384	19	860	8	13
Other ³	2,964	9	811	7	27
Total	32,769	100	11,165	100	34
2001					
Herbicides ¹	14,118	44	6,410	58	45
Insecticides ²	8,763	28	3,124	28	36
Fungicides ²	6,027	19	835	8	14
Other ³	2,848	9	721	7	25
Total	31,756	100	11,090	100	35

Note: Totals may not add due to rounding. Table does not cover wood preservatives, specialty biocides, and chlorine/hypochlorites.

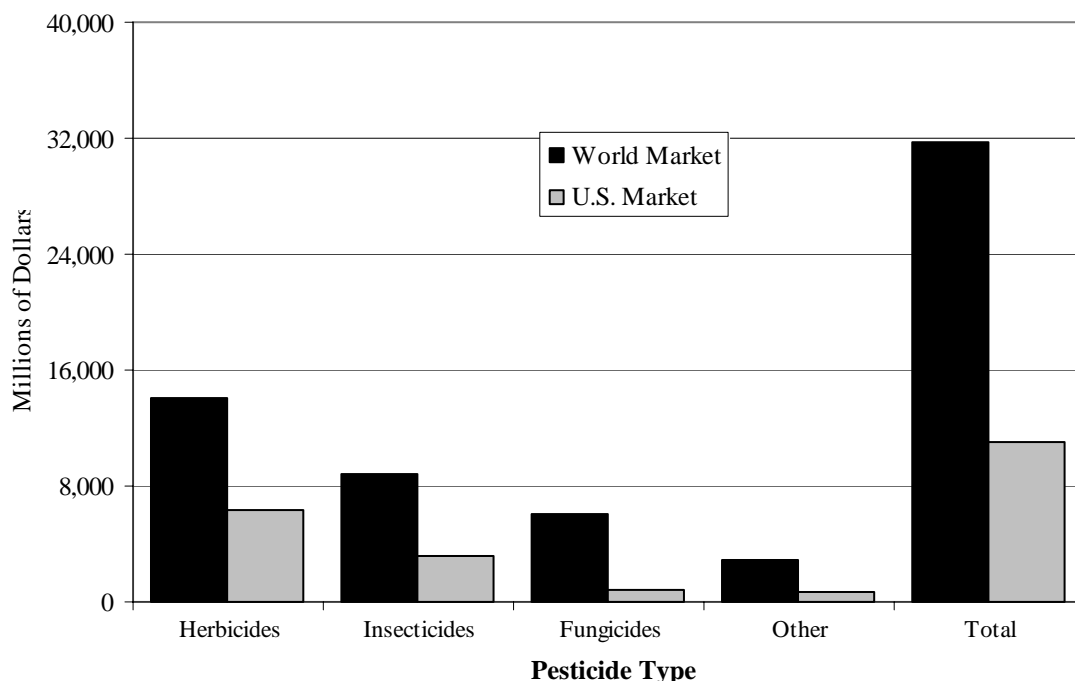
Source: EPA estimates based on Croplife America annual surveys, Cropnosis Limited data, and EPA proprietary data.

1. "Herbicides" include herbicides and plant growth regulators.

2. "Insecticides" and "fungicides" exclude sulfur and petroleum oil.

3. "Other" includes nematocides, fumigants, rodenticides, molluscicides, aquatic and fish/bird pesticides, other miscellaneous conventional pesticides, plus other chemicals used as pesticides (e.g., sulfur and petroleum oil).

Figure 2.1
World and U.S. Pesticide Expenditures at User Level
by Pesticide Type, 2001 Estimates



2.2 Value of U.S. Pesticides: Producer Level

Table 2.2 summarizes the 2000 and 2001 average U.S. value of pesticides at the producer level, including production, import, export, and supply (total and net). Pesticide sales related to U.S. production and consumption of pesticides comprised \$9.3 billion of domestic production, \$1.0 billion of imports, \$1.6 billion of exports, and \$8.7 billion of net supply at the producer level.

Table 2.2
Value of U.S. Pesticide Production, Imports, Exports, and Supply
at Producer Level

Category	Annual Sales (Billions of Dollars)
	Average of 2000 and 2001
Production	9.3
Imports	1.0
Total Supply	10.3
Exports	1.6
Net Supply	8.7

Note: Excludes industrial wood preservatives, specialty biocides, and chlorine/hypochlorites. Includes conventional pesticides and other chemicals used as pesticides (e.g., sulfur and petroleum oil).
 Source: EPA estimates based on Croplife America annual surveys, USDA Foreign Agricultural Service's Trade Internet System (<http://www.fas.usda.gov/ustrade>), and EPA proprietary data.

2.3 Pesticide Expenditures in the U.S.: Users

U.S. expenditures at the user level for conventional and other pesticides totaled more than \$11 billion in both 2000 and 2001 (see Table 2.3). The conventional and other pesticides included in the estimates are herbicides, insecticides, fungicides, nematocides, fumigants, sulfur, petroleum oil, and others. The estimates exclude expenditures on specialty biocides, wood preservatives, and chlorine/hypochlorites.

Reductions in spending in the agricultural sector on all pesticide types more than offset increases in spending in the non-agricultural sectors (industry/commercial/government, home and garden) in 2001, resulting in a decline in total 2001 expenditures. Expenditures in the agriculture sector accounted for more than two-thirds of total expenditures in both years. Herbicide expenditures dominated in all sectors except the home and garden sector, where insecticides comprised nearly 60% of all expenditures (see Figure 2.2). The estimated expenditures rely on the estimated changes in pesticide expenditures by sector and type provided in public and proprietary EPA databases.

Table 2.3
User Expenditures on Pesticides in the U.S.
by Pesticide Type and Market Sector, 2000 and 2001 Estimates

Year	Herbicides / Plant Growth Regulators		Insecticides / Miticides		Fungicides		Other ¹		Total	
	Mil \$	%	Mil \$	%	Mil \$	%	Mil \$	%	Mil \$	%
2000										
Agriculture	5,007	79	1,411	45	647	75	547	67	7,612	68
Ind/Comm/Gov	762	12	468	15	172	20	83	10	1,485	13
Home & Garden	596	9	1,250	40	41	5	181	22	2,068	19
Total	6,365	100	3,129	100	860	100	811	100	11,165	100
2001										
Agriculture	4,987	78	1,326	42	615	74	476	66	7,404	67
Ind/Comm/Gov	792	12	510	16	172	21	61	8	1,535	14
Home & Garden	631	10	1,288	41	48	6	184	26	2,151	19
Total	6,410	100	3,124	100	835	100	721	100	11,090	100

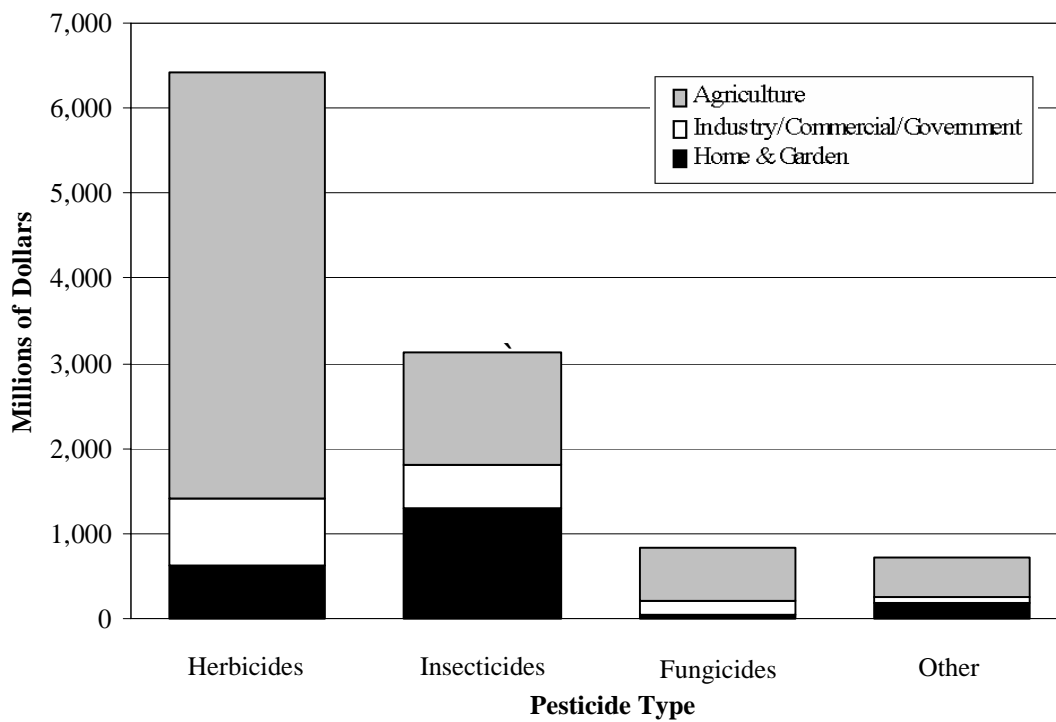
Note: Totals may not add due to rounding. Table does not cover industrial wood preservatives, specialty biocides, and chlorine/hypochlorites.

Source: EPA estimates based on Croplife America annual surveys and EPA proprietary data.

See Tables 5.1 to 5.4 for 1982-2001 estimates.

1. "Other" includes nematocides, fumigants, rodenticides, molluscicides, aquatic and fish/bird pesticides, other miscellaneous conventional pesticides, plus other chemicals used as pesticides (e.g., sulfur and petroleum oil).

Figure 2.2
User Expenditures on Pesticides in the U.S.
by Pesticide Type and Market Sector, 2001 Estimates



2.4 Pesticide and Farm Expenditures in the U.S.

Pesticides are an important component of total farm expenditures and are integral to farm budgeting and management. U.S. pesticide expenditures in 2000 and 2001 totaled 3.9% and 3.7% of total farm expenditures, respectively (see Table 2.4). Total farm expenditures increased slightly in 2001 while pesticide expenditures declined. Total farm expenditures are based on USDA estimates and pesticide expenditure estimates from Table 2.3.

Table 2.4
Farm Production Expenditures in the U.S.

Expenditure (Billion \$)	2000	2001
Pesticides	\$7.6	\$7.4
Total	\$193.6	\$200.8
Pesticides as % of Total	3.9%	3.7%

Source: EPA Estimates (Table 2.3); USDA/National Agricultural Statistics Service (NASS) (<http://www.usda.gov/nass>).

3. 2000 and 2001 Usage

3.1 World and U.S. Pesticide Amount Used

World pesticide amount used exceeded 5.0 billion pounds in 2000 and 2001 (see Table 3.1). Herbicides accounted for the largest portion of total use, followed by other pesticide use, insecticide use, and fungicide use. Total world pesticide amount used decreased in 2001 for all pesticide types.

U.S. pesticide amount used in both 2000 and 2001 exceeded 1.2 billion pounds, in proportions similar to those of world pesticide use, with a larger portion of total U.S. pesticide use on herbicides and other pesticides (see Figure 3.1). U.S. pesticide amount used accounted for more than 20% of total world pesticide amount used, more than 25% of world herbicide amount used, less than 10% of world insecticide amount used, and approximately 15% and 30% of world fungicides and other pesticide amount used, respectively. The estimates of world and U.S. pesticide use rely on estimated pesticide amount used and estimated changes in pesticide amount used by type derived from public and proprietary EPA databases. Subsequent sections provide a more detailed analysis of U.S. pesticide amount used in 2000 and 2001.

Table 3.1
World and U.S. Amount of Pesticide Active Ingredient at User Level
by Pesticide Type, 2000 and 2001 Estimates

Year	World Market		U.S. Market		U.S. Percentage of World Market
	Mil lbs of a.i.	%	Mil lbs of a.i.	%	
2000					
Herbicides ¹	1,944	36	542	44	28
Insecticides	1,355	25	122	10	9
Fungicides	516	10	74	6	14
Other ²	1,536	29	496	40	32
Total	5,351	100	1,234	100	23
2001					
Herbicides ¹	1,870	37	553	46	30
Insecticides	1,232	24	105	9	9
Fungicides	475	9	73	6	15
Other ²	1,469	29	472	39	32
Total	5,046	100	1,203	100	24

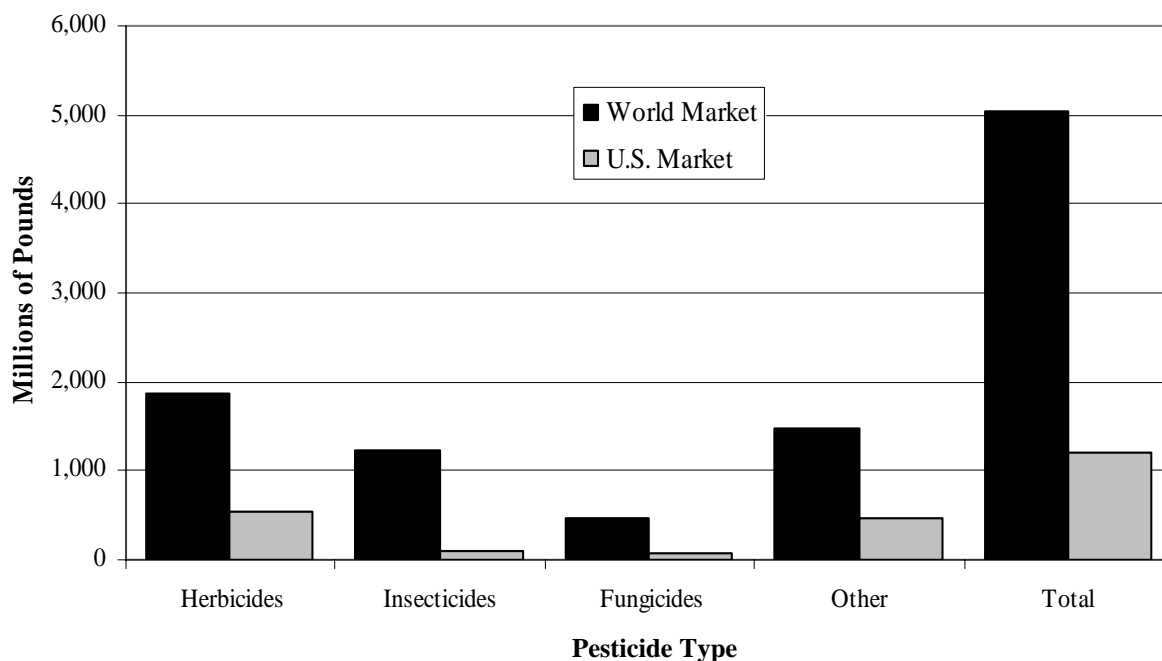
Note: Totals may not add due to rounding. Table does not cover wood preservatives, specialty biocides, and chlorine/hypochlorites. The abbreviation "a.i." stands for active ingredient.

Source: EPA estimates based on Croplife America annual surveys, Croponosis Limited data, USDA/NASS data (<http://www.usda.gov/nass>), and EPA proprietary data.

1. "Herbicides" include herbicides and plant growth regulators.

2. "Other" includes nematicides, fumigants, rodenticides, molluscicides, aquatic and fish/bird pesticides, other miscellaneous conventional pesticides, plus other chemicals used as pesticides (e.g., sulfur and petroleum oil).

Figure 3.1
World and U.S. Pesticide Amounts of Active Ingredient at User Level
by Pesticide Type, 2001 Estimates



3.2 Pesticide Supply in the U.S.: Producer Level

Table 3.2 summarizes the 2000 and 2001 average U.S. distribution of pesticides at the producer level, including amount of production, amount of imports, amount of exports, and amount of supply (total and net). Pesticide amount related to U.S. pesticide production and consumption comprised 1.6 billion pounds of domestic production, 0.1 billion pounds of imports, 0.4 billion pounds of exports, and 1.3 billion pounds of net supply.

Table 3.2
U.S. Pesticide Production, Imports, Exports, and Supply
in Amount of Active Ingredient Produced at the Producer Level

Category	Active Ingredient (Billions of Pounds)
	Average of 2000 and 2001
Production	1.6
Imports	0.1
Total Supply	1.7
Exports	0.4
Net Supply	1.3

Note: Excludes industrial wood preservatives, specialty biocides, and chlorine/hypochlorites. Includes conventional pesticides and other chemicals used as pesticides (e.g., sulfur and petroleum oil). Source: EPA estimates based on Croplife America annual surveys, USDA Foreign Agricultural Service's Trade Internet System (<http://www.fas.usda.gov/ustrade>), and EPA proprietary data.

3.3 Pesticide Amount Used in the U.S.: Total

Total pesticide amount used in the United States approximated 5 billion pounds in both 2000 and 2001 (see Table 3.3). This estimate includes the conventional, other, wood preservative, specialty biocide, and chlorine/hypochlorite pesticide groups. With more than 2.5 billion pounds used, chlorine/hypochlorites exceeded all other pesticide groups combined (see Figure 3.2). The estimates of use by group rely on the estimated amount used and changes in estimated amount used by pesticide group derived from public and proprietary EPA databases. A discussion of the amount used of each pesticide group in 2000 and 2001 appears in subsequent sections (see footnotes to Table 3.3 for locations).

Table 3.3
Amount of Pesticides Used in the U.S.
by Pesticide Group, 2000 and 2001 Estimates

Pesticide Group	Total (Million Pounds)	
	2000	2001
Conventional Pesticides ¹	926	888
Other Pesticides ²	308	315
Specialty Biocides ³	353	363
Chlorine/Hypochlorites ⁴	2,532	2,609
Wood Preservatives ⁵	809	797
Total	4,928	4,972

1. See Table 3.4 (conventional pesticides) for additional details and specific source information.

2. "Other pesticides" include other chemicals used as pesticides (e.g. sulfur and petroleum oil). See Table 3.11 (other pesticides) for additional details and specific source information.

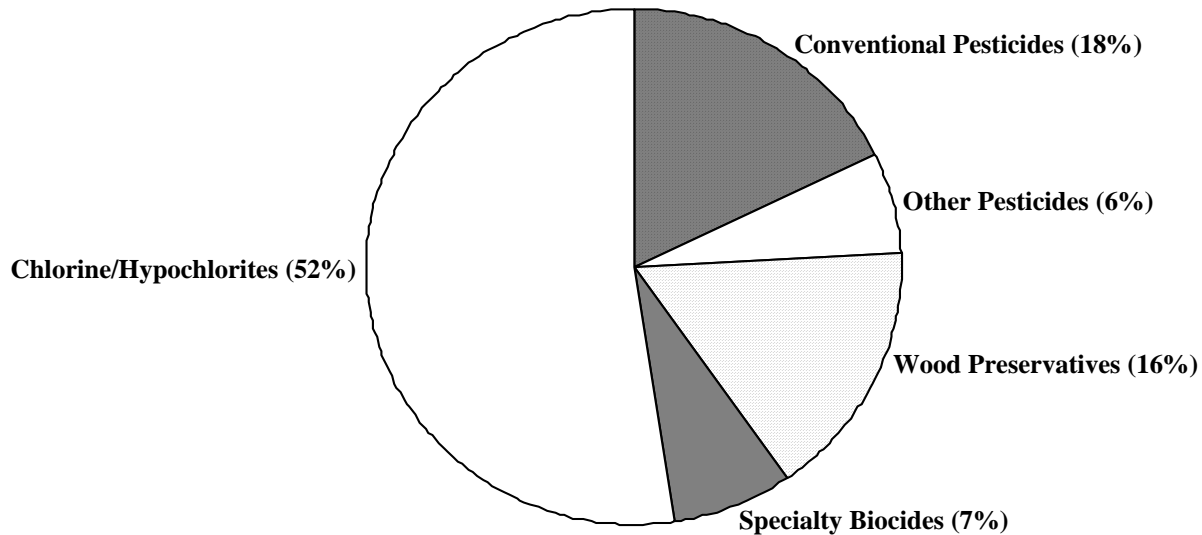
3. See Table 3.12 (specialty biocides) for additional details and specific source information.

4. See Table 3.13 (chlorine/hypochlorites) for additional details and specific source information.

5. Source: American Wood Preservatives Institute (AWPI) and EPA proprietary data.

"Wood Preservatives" include creosote, pentachlorophenol, and chromated copper arsenate (CCA).

Figure 3.2
Amount of Pesticides Used in the U.S.
by Pesticide Group, 2001 Estimates



3.4 Amount of Pesticides Used in the U.S.: Conventional

Table 3.4 shows that conventional pesticide amount used in 2000 and 2001 totaled 926 and 888 million pounds of active ingredient, respectively. This category of pesticide use was second highest among all pesticide groups in the U.S. after chlorine/hypochlorites. Table 3.4 shows the breakout of this use by pesticide type and market sector. Pesticide types in this group include herbicides, plant growth regulators, insecticides, miticides, fungicides, nematicides, fumigants, and others.¹ The amount used in the agricultural sector accounted for the majority of the total amount used in both years, with the two non-agricultural sectors (industry/commercial/government and home & garden) cumulatively accounting for less than 25% of the total use in each year (see Table 3.4). The amount used in the agriculture sector accounted for the majority of the total amount used by pesticide type in both years as well – more than 60% of the total amount used of each type, except for fungicides in 2000 (59%) and 2001 (58%). Figure 3.3 graphs the distribution of use by pesticide type and sector. The estimated use levels rely on the estimated amount used and changes in amount used of conventional pesticides by sector and type derived from public and proprietary EPA databases.

**Table 3.4
Amount of Conventional Pesticide Active Ingredient Used in the U.S.
by Pesticide Type and Market Sector, 2000 and 2001 Estimates**

Year	Herbicides / Plant Growth Regulators		Insecticides / Miticides		Fungicides		Nematicide / Fumigant		Other Conventional ¹		Total	
	Mil lbs of a.i.	%	Mil lbs of a.i.	%	Mil lbs of a.i.	%	Mil lbs of a.i.	%	Mil lbs of a.i.	%	Mil lbs of a.i.	%
2000												
Agriculture	432	80	90	74	44	59	131	84	25	78	722	78
Ind/Comm/Gov	48	9	17	14	19	26	24	15	6	19	114	12
Home & Garden	62	11	15	12	11	15	1	1	1	3	90	10
Total	542	100	122	100	74	100	156	100	32	100	926	100
2001												
Agriculture	433	78	73	70	42	58	102	80	25	83	675	76
Ind/Comm/Gov	49	9	15	14	19	26	24	19	4	13	111	13
Home & Garden	71	13	17	16	12	16	1	1	1	3	102	11
Total	553	100	105	100	73	100	127	100	30	100	888	100

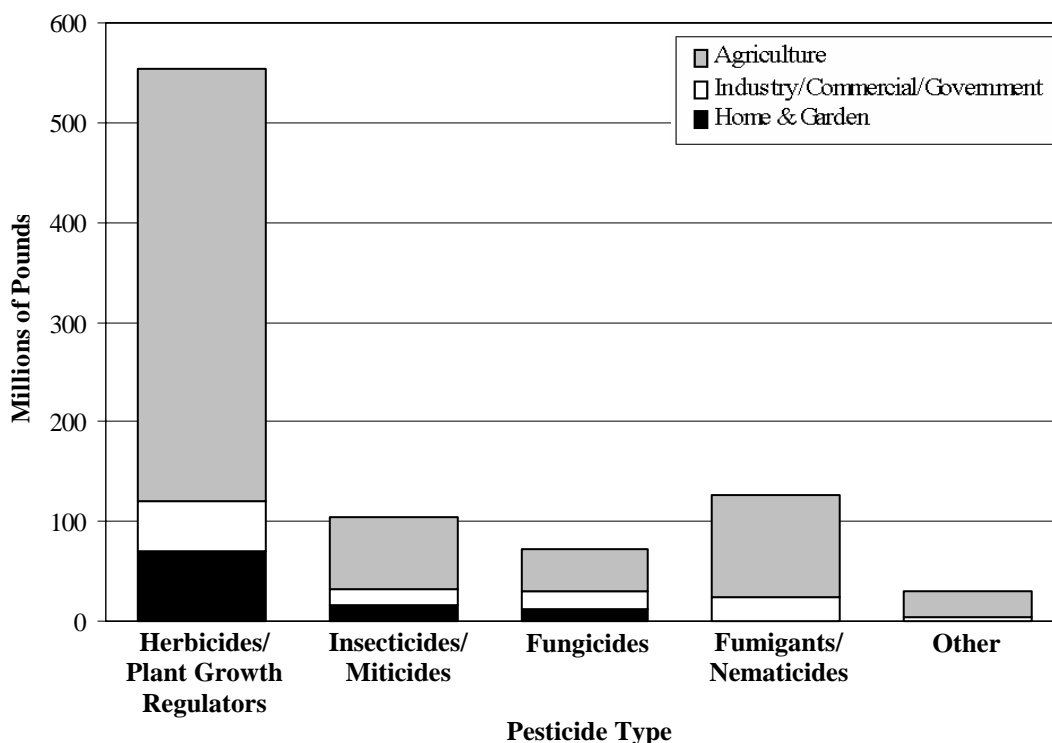
Note: Totals may not add due to rounding. Table does not cover industrial wood preservatives, specialty biocides, chlorine/hypochlorites, and other chemicals used as pesticides (e.g., sulfur and petroleum oil). The abbreviation “a.i.” stands for active ingredient.

Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass/>), and EPA proprietary data.

See Tables 5.5 to 5.8 for 1982-2001 estimates.

1. “Other Conventional” pesticides include rodenticides, molluscicides, aquatic and fish/bird pesticides, and other miscellaneous conventional pesticides.

Figure 3.3
Amount of Conventional Pesticide Active Ingredient Used in the U.S.
by Pesticide Type and Market Sector, 2001 Estimates



3.5 Share of U.S. Amount of Conventional Pesticide Active Ingredient Used in the Agricultural and Non-Agricultural Market Sectors

Table 3.5 shows the agricultural and non-agricultural market share of total conventional pesticides consumed in 2000 and 2001. The agricultural sector accounts for more than 75% of the total amount of conventional pesticides used in both years. See Table 5.9 in the Historical Data section of this report for data covering the years 1964 through 2001.

Table 3.5
Share of U.S. Amount of Conventional Pesticide Active Ingredient
Agricultural and Non-Agricultural Market Sector Shares, 2000 and 2001 Estimates

Year	U.S.	Agricultural Market Sector		Non-Agricultural Market Sector	
	Mil lbs of a.i.	Mil lbs of a.i.	% of U.S.	Mil lbs of a.i.	% of U.S.
2000	926	722	78	204	22
2001	888	675	76	213	24

Note: Conventional pesticides only, excluding sulfur, petroleum oil and other chemicals used as pesticides (e.g., sulfuric acid and insect repellents), wood preservatives, specialty biocides, and chlorine/hypochlorites.
 See Table 5.9 for 1964 - 2001. The abbreviation "a.i." stands for active ingredient.
 Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass>), and EPA proprietary data.

3.6 Most Commonly Used Conventional Pesticide Active Ingredients in the U.S. Agricultural Market Sector

Table 3.6 shows the 25 most commonly used conventional pesticide active ingredients in the agricultural sector in 2001 and selected earlier years. 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. Fifteen of the top 25 active ingredients used are herbicides; three are fungicides; two are insecticides; four are fumigants; and one is a plant growth regulator. The rankings rely on the estimated pounds of conventional pesticides used in the agricultural sector, taken from public and proprietary EPA databases.

Table 3.6
Most Commonly Used Conventional Pesticide Active Ingredients,
Agricultural Market Sector, 2001, 1999, 1997, and 1987 Estimates
(Ranked by Range in Millions of Pounds of 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
Methyl Bromide	Fum	7	20-25	5	28-33	4	38-45	NA	NA
Dichloropropene	Fum	8	20-25	11	17-20	6	32-37	4	30-35
Metolachlor-s	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
Pendimethalin	H	11	15-19	10	17-22	9	24-28	10	10-13
Trifluralin	H	12	12-16	9	18-23	10	21-25	6	25-30
Chlorothalonil	F	13	8-11	13	9-11	15	7-10	19	5-7
Copper Hydroxide	F	14	8-10	15	8-10	13	10-13	19	5-7
Chlorpyrifos	I	15	8-10	16	8-10	14	9-13	14	6-9
Alachlor	H	16	6-9	17	7-10	12	13-16	2	55-60
Propanil	H	17	6-9	18	7-10	22	6-8	13	7-10
Chloropicrin	Fum	18	5-9	14	8-10	25	5-6	NA	NA
Dimethenamid	H	19	6-8	20	6-8	20	6-9	NA	NA
Mancozeb	F	20	6-8	21	6-8	17	7-10	21	4-6
Ethephon	PGR	21	5-8	24	5-6	NA	NA	NA	NA
EPTC	H	22	5-8	19	7-9	18	7-10	8	17-21
Simazine	H	23	5-7	NA	NA	NA	NA	NA	NA
Dicamba	H	24	5-7	22	6-8	16	7-10	23	4-6
Sulfosate	H	25	3-7	NA	NA	NA	NA	NA	NA

Note: List is limited to conventional pesticides and does not include sulfur and petroleum oil usage (see Table 3.11 for estimates).

H indicates herbicide; I, insecticide; Fum, fumigant; F, fungicide; and PGR, plant growth regulator. NA indicates that an estimate is not available.

Source: EPA estimates based on USDA/NASS (<http://www.usda.gov/nass>) and EPA proprietary data.

3.7 Most Commonly Used Conventional Pesticide Active Ingredients in the U.S. Non-Agricultural Market Sectors

Tables 3.7 and 3.8 show the ten most commonly used conventional pesticide active ingredients in the two non-agricultural sectors (home & garden and industry/commercial/government) in both 2001 and 1999. In both sectors, 2,4-D was the most used active ingredient, with between eight and eleven million pounds used in the home and garden sector (see Table 3.7), and between 16 and 18 million pounds used in the industry/commercial/government sector (see Table 3.8). Seven of the top ten in the home and garden sector are herbicides and three are insecticides. Six of the top ten in the industry/commercial/government sector are herbicides, two are fungicides, and two are insecticides. As noted in Table 3.8, due to the fact that some applicators apply pesticide in both markets, there may be some usage reported in one market that may have occurred in the other. The rankings rely on the estimated amount used of conventional pesticides in the non-agricultural sector taken from EPA proprietary databases.

**Table 3.7
Most Commonly Used Conventional Pesticide Active Ingredients, Home and Garden Market Sector, 2001 and 1999 Estimates (Ranked by Range in Millions of Pounds of Active Ingredient)**

Active Ingredient	Type	2001		1999	
		Rank	Range	Rank	Range
2,4-D	H	1	8-11	1	7-9
Glyphosate	H	2	5-8	2	5-8
Pendimethalin	H	3	3-6	NA	NA
Diazinon	I	4	4-6	5	2-4
MCPP	H	5	4-6	3	3-5
Carbaryl	I	6	2-4	7	2-4
Dicamba	H	7	2-4	4	3-5
Malathion	I	8	2-4	9	1-3
DCPA	H	9	1-3	10	1-3
Benefin	H	10	1-3	8	1-3

Note: Does not include moth controls: Paradiolobenzene (30 - 35 million pounds per year) and naphthalene (2 - 4 million pounds per year). Also does not include insect repellent N,N-diethyl-meta-toluamide (5 - 7 millions pounds per year). H indicates herbicide and I, insecticide. NA indicates that an estimate is not available. Source: EPA proprietary data.

**Table 3.8
Most Commonly Used Conventional Pesticide Active Ingredients, Industry/Commercial/Government Market Sector, 2001 and 1999 Estimates (Ranked by Range in Millions of Pounds of Active Ingredient)**

Active Ingredient	Type	2001		1999	
		Rank	Range	Rank	Range
2,4-D	H	1	16-18	1	17-20
Glyphosate	H	2	13-15	2	11-14
Copper Sulfate	F	3	4-6	3	5-7
Pendimethalin	H	4	3-5	4	3-5
Chlorothalanyl	F	5	2-4	7	2-4
Chlorpyrifos	I	6	2-4	5	3-5
Diuron	H	7	2-4	8	2-4
MSMA	H	8	2-4	6	2-4
Triclopyr	H	9	1-3	10	1-3
Malathion	I	10	1-3	9	1-3

Note: Includes applications to homes and gardens by professional applicators. Does not include sulfur or petroleum oil. H indicates herbicide; I, insecticide; and F, fungicide. Source: EPA proprietary data.

3.8 Amount of Organophosphate Insecticides Used in the U.S.

Table 3.9 shows the total amount of organophosphate insecticide used in 1980, 1985, and annually since 1990. The top ten active ingredients in this pesticide class include malathion, chlorpyrifos, terbufos, diazinon, methyl-parathion, phorate, acephate, phosmet, azinphos-methyl, and dimethoate (see Table 3.10). Since the passage of the Food Quality Protection Act (FQPA) in 1996, this class of conventional pesticides has been a primary focus of EPA reregistration activities. For more information on the active ingredients included in this pesticide class and their reregistration and registration status, go to U.S. EPA's Office of Pesticide Programs Web site at <http://www.epa.gov/pesticides/op/>.

The amount of organophosphate insecticides used has declined nearly 45% since 1980, from an estimated 131 million pounds in 1980 to 73 million pounds in 2001 (see Figure 3.4). Since 1980, however, organophosphate use as a percent of total insecticide use has increased, from 58% in 1980 to 70% in 2001. The increase in use in 1999 was due mainly to the increased amount of malathion used as part of the USDA-sponsored Boll Weevil Eradication Program (<http://www.aphis.usda.gov/ppq/weevil/>). Malathion use in this program decreased over the last two years, resulting in a decline in total organophosphate use. The estimates of organophosphate insecticide use rely on the estimated amount used and changes in the amount used of organophosphates from public and proprietary EPA databases.

Table 3.9
Amount of Organophosphate Insecticide Active Ingredients Used in the U.S.,
All Market Sectors, 1980 - 2001 Estimates

Year	All Insecticides	Organophosphates	
	Mil lbs of a.i.	Mil lbs of a.i.	% of All Insecticides
1980	228	131	58
1985	161	114	71
1990	121	85	70
1991	114	82	72
1992	116	84	72
1993	115	79	69
1994	124	83	67
1995	125	80	64
1996	116	75	65
1997	112	73	65
1998	103	66	64
1999	126	91	72
2000	122	88	72
2001	105	73	70

Note: The abbreviation "a.i." stands for active ingredient.

Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass/>), and EPA proprietary data.

Figure 3.4
Total Amount of Organophosphate and All Other Insecticides Active Ingredients
Used in the U.S. in All Market Sectors, 1980 - 2001

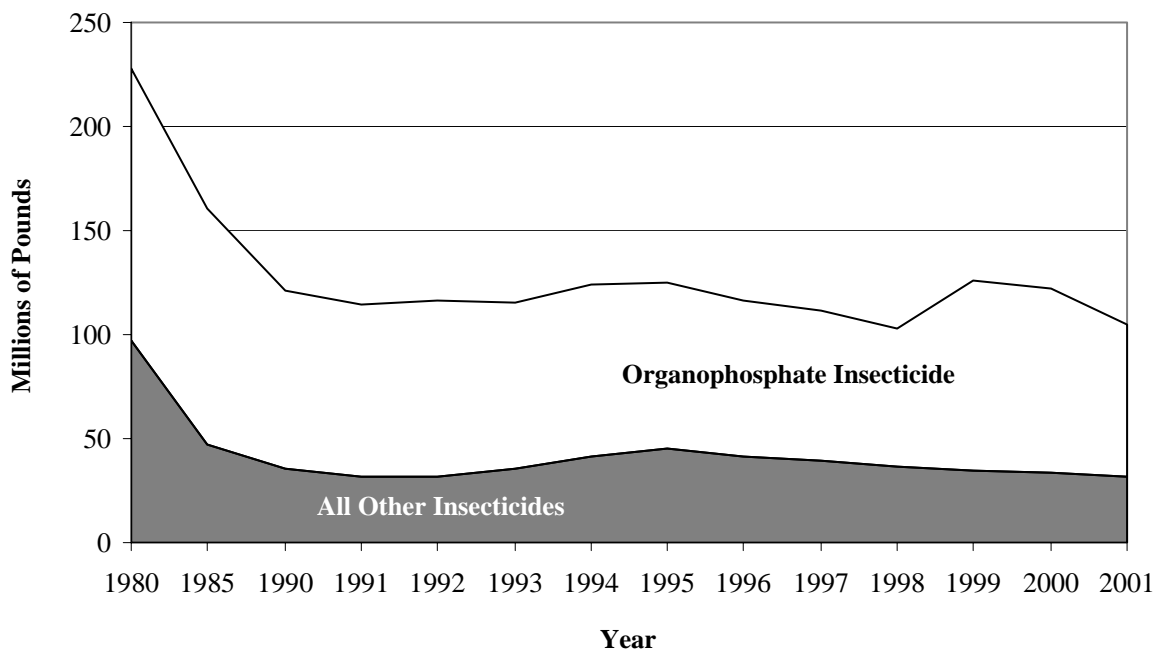


Table 3.10
Most Commonly Used Organophosphate Insecticide Active Ingredients,
All Market Sectors, 2001 and 1999 Estimates
(Ranked by Range in Millions of Pounds of Active Ingredient)

Active Ingredient	2001		1999	
	Rank	Range	Rank	Range
Malathion	1	23-32	1	30-38
Chlorpyrifos	2	11-16	2	13-19
Diazinon	3	4-7	4	4-7
Terbufos	4	3-5	3	5-7
Acephate	5	2-3	7	2-3
Phorate	6	2-3	6	2-3
Methyl Parathion	7	1-3	5	2-4
Phosmet	8	1-2	9	1-2
Azinphos-Methyl	9	1-2	8	1-2
Dimethoate	10	1-2	10	1-2

Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass/>), and EPA proprietary data.

3.9 Pesticide Amount Used in the U.S.: Other

The total amount of other pesticides used in the U.S. was more than 300 million pounds in 2000 and 2001 (see Table 3.11). The pesticides in this group include sulfur and petroleum oil and other chemicals used as pesticides, such as sulfuric acid, insect repellants (e.g., DEET), moth control products (e.g., paradichlorobenzene), and others.¹ Nearly all of the sulfur and oil used (85%) is in the agricultural sector, while the use of the other pesticides in this group is mainly in the agricultural and home and garden sectors (93%). The increase in the amount used in 2001 resulted mainly from an increase in the use of sulfur and petroleum oil in the agricultural sector. The amount of sulfur and petroleum oil and of the other pesticides used in this group in the non-agricultural sectors did not change substantially between 2000 and 2001. Nearly three-fourths of the total amount of sulfur, oil, and other pesticides used was in the agricultural sector. The estimated use levels rely on the amount used and changes in the amount used of sulfur, oil, and other pesticides by sector and type derived from public and proprietary EPA databases.

Table 3.11
Other Pesticides Used in the U.S.
by Pesticide Type and Market Sector, 2000 and 2001 Estimates

Year	Sulfur & Oil		Other ¹		Total	
Sector	Mil lbs of a.i.	%	Mil lbs of a.i.	%	Mil lbs of a.i.	%
2000						
Agriculture	166	85	60	53	226	73
Ind/Comm/Gov	14	7	8	7	22	7
Home & Garden	15	8	45	40	60	19
Total	195	100	113	100	308	100
2001						
Agriculture	172	86	60	53	232	74
Ind/Comm/Gov	14	7	8	7	22	7
Home & Garden	15	7	46	40	61	19
Total	201	100	114	100	315	100

Note: Totals may not add due to rounding. Table estimates do not include industrial wood preservatives, specialty biocides, and chlorine/hypochlorites. The abbreviation "a.i." stands for active ingredient.

Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass>), and EPA proprietary data.

See Tables 5.5 to 5.8 for 1982-2001 estimates.

1. "Other" includes sulfuric acid, insect repellents, zinc sulfate, moth control chemicals (e.g., Paradichlorobenzene and naphthalene), and other miscellaneous chemicals produced largely for non-pesticidal purposes.

3.10 Pesticide Amount Used in the U.S.: Specialty Biocides and Chlorine/Hypochlorites

Tables 3.12 and 3.13 show the total amount of specialty biocides and chlorine/hypochlorites by end-use market in the U.S. in 2000 and 2001, respectively. Specialty biocides include water treatment chemicals, disinfectants and sanitizers, and products for other uses, such as in adhesives and sealants, leather, etc. More than two-thirds of the total amount of specialty biocides comprised water treatment chemicals. Chlorine/hypochlorites serve as water disinfectants, with 60% of their amount used in potable and waste water and 40% in recreational water. The estimates of the amount used rely on EPA proprietary databases and industry projections.

Table 3.12
Specialty Biocides Used in the U.S.
by End Use Market, 2000 and 2001 Estimates

Year	Total	
	Mil lbs	%
End Use		
2000		
Recreational and Industrial Water Treatment ¹	237	67
Disinfectants and Sanitizers ²	64	18
Other Specialty Biocides ³	52	15
Total	353	100
2001		
Recreational and Industrial Water Treatment ¹	244	67
Disinfectants and Sanitizers ²	65	18
Other Specialty Biocides ³	54	15
Total	363	100

Source: EPA estimates based on EPA proprietary data.

1. "Recreational and Industrial Water Treatment" does not include hypochlorite or chlorine consumption, which is reported separately in Table 3.13.

2. "Disinfectants and Sanitizers" includes industrial/institutional applications and household cleaning products. Specialty biocides only. Does not include hypochlorite or chlorine consumption, which is reported separately.

3. "Other Specialty Biocides" includes biocides for adhesives and sealants, leather, synthetic latex polymers, metalworking fluids, paints and coatings, petroleum products, plastics, and mineral slurries.

Table 3.13
Chlorine/Hypochlorites Used in the U.S.
by End Use Market, 2000 and 2001 Estimates

Year	Total	
	Mil lbs	%
End Use		
2000		
Disinfectant of Potable and Waste Water	1,520	60
Disinfectant for Recreational Water	1,012	40
Total	2,532	100
2001		
Disinfectant of Potable and Waste Water	1,566	60
Disinfectant for Recreational Water	1,043	40
Total	2,609	100

Note: The estimated amount has not changed from 1998/1999 due to a lack of available data.

Source: EPA estimates based on EPA proprietary data.

4. Producers and Users

4.1 Pesticide Producers and Users

Table 4.1 lists estimates of the number of firms that are pesticide producers, formulators, and distributors. Table 4.2 lists estimates of farm land, acres harvested, and the number of farms using pesticides and fertilizers. Table 4.3 lists estimates of the number of pest control firms and certified pesticide applicators. Table 4.4 lists estimates of the number of households using pesticides.

Table 4.1
Number of U.S. Pesticide Producers, Formulators, and Distributors

Major Pesticide Producers	18
Other Pesticide Producers	100
Major Pesticide Formulators	150 - 200
Other Pesticide Formulators	2,000
Major Distributors and Establishments	250 - 350
Other Distributors and Establishments	16,900

Source: EPA estimates based on EPA proprietary data.

Table 4.2
Land in Farms, Land Harvested, Number of Farms, and Farms Using Pesticides

Land in Farms (acres)	941M
Land Harvested (acres)	311M
Total Number of Farms	2.156M
Total Number of Farms with Cropland	1.661M
Total Number of Farms with Harvested Cropland	1.411M
Number of Farms Using Chemicals for:	
Insects on Crops/Hay	366,000
Nematodes	43,000
Diseases on Crops/Orchards	112,000
Weed/Grass/Brush	685,000
Defoliation/Fruit Thinning	51,000
Any or all of the above	941,000
Any or all of the above plus fertilizer	1,325,000

Source: 1997 USDA Census of Agriculture (<http://www.nass.usda.gov/Census>), 2003 USDA Agricultural Statistics (<http://www.usda.gov/nass/pubs/agstats/htm>). M = million

Table 4.3
Number of Commercial Pest Control Firms and Number of Certified Applicators

Commercial Pest Control Firms	33,100
Private ¹ Certified Applicators	693,181
Commercial ² Certified Applicators	421,730

Source: Estimates based on 1992 EPA National Home and Garden Pesticide Use Survey and 2001 EPA estimates of the number of certified private and commercial pesticide applicators.

1. Private certified applicators refers primarily to individual farmers.
2. Commercial certified applicators refers to professional pesticide applicators.

Table 4.4
Number of U.S. Households Using Pesticides

Pesticide Type	U.S. Households
Insecticides	59 Million
Fungicides	14 Million
Herbicides	41 Million
Repellents	53 Million
Disinfectants	59 Million
Any Pesticides	78 Million

Note: In 2000 the U.S. Census Bureau estimated the U.S. population to be 281.4 million with 105.5 million households. Source: EPA estimates based on 1992 EPA National Home and Garden Survey and 2000 U.S. Census Bureau population estimates (<http://quickfacts.census.gov/qfd/states/>).

5. Historical Data

5.1 Annual Expenditures on Pesticides in the U.S.: 1982 - 2001

Tables 5.1 through 5.4 and corresponding figures summarize annual user expenditures on pesticides since 1982. Table 5.1 summarizes user expenditures on pesticides in all markets combined, while Tables 5.2, 5.3 and 5.4 and corresponding figures summarize user expenditures in the agricultural, industry/commercial/government, and home and garden markets, respectively. In each market, user expenditures on pesticides have increased in total and by type since 1982, although the total amount fluctuated from year to year.

Table 5.1
Annual User Expenditures on Pesticides in the U.S. by Pesticide Type, 1982 - 2001 Estimates
All Market Sectors

Year	Expenditure (Millions of Dollars)				Year	Expenditure (Millions of Dollars)			
	Herbicides/ PGR	Insecticides	Fungicides and Other	Total		Herbicides/ PGR	Insecticides	Fungicides and Other	Total
1982	3,772	2,014	540	6,326	1992	5,004	2,198	1,183	8,385
1983	3,870	2,074	731	6,675	1993	5,094	2,479	1,259	8,832
1984	4,488	1,809	708	7,005	1994	5,944	2,722	1,408	10,074
1985	3,920	1,823	963	6,706	1995	6,276	3,017	1,488	10,781
1986	3,858	1,759	967	6,584	1996	6,599	2,849	1,521	10,969
1987	3,973	2,008	1,049	7,030	1997	6,846	2,957	1,528	11,331
1988	4,121	1,964	1,190	7,275	1998	6,853	2,872	1,691	11,416
1989	4,305	1,978	1,141	7,424	1999	6,368	3,046	1,741	11,155
1990	4,473	2,083	1,171	7,727	2000	6,365	3,129	1,671	11,165
1991	4,682	2,139	1,223	8,044	2001	6,410	3,124	1,556	11,090

Note: Excludes wood preservatives, specialty biocides, and chlorine/hypochlorites.
 Source: EPA estimates based on Croplife America annual surveys and EPA proprietary data.

Figure 5.1
Annual User Expenditures on Pesticides in the U.S. by Pesticide Type, 1982 - 2001 Estimates
All Market Sectors

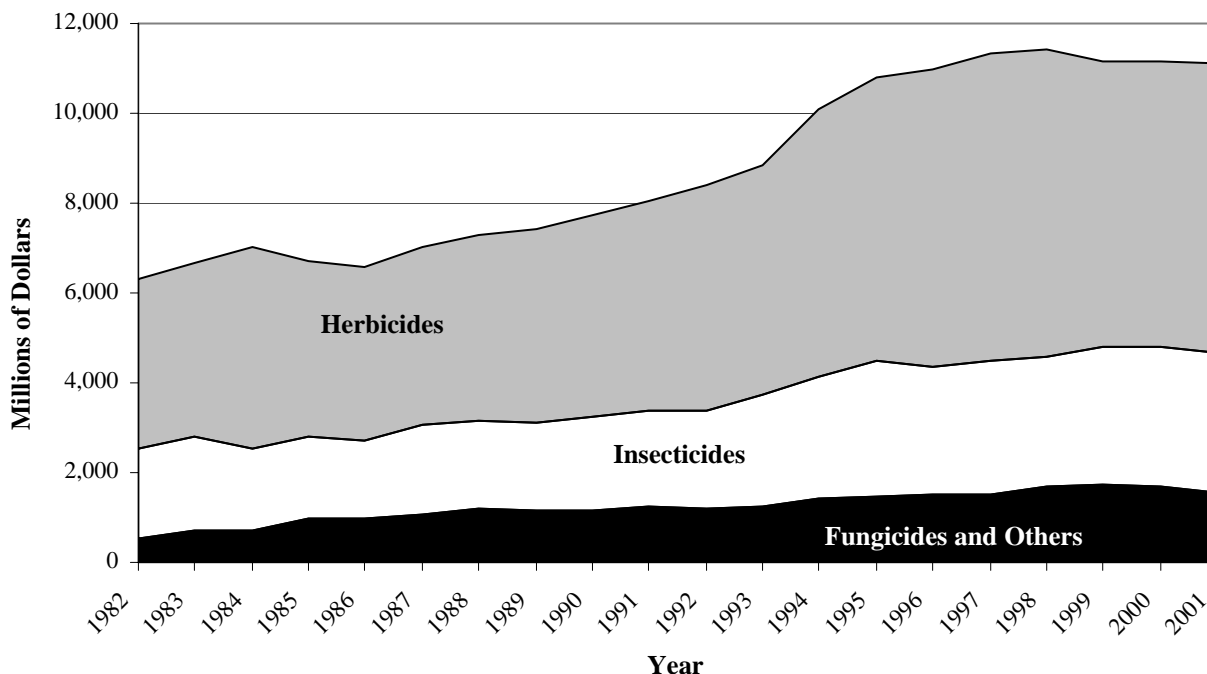


Table 5.2
Annual User Expenditures on Pesticides in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Agricultural Market Sector

Year	Expenditure (Millions of Dollars)				Year	Expenditure (Millions of Dollars)			
	Herbicides/ PGR	Insecticides	Fungicides and Other	Total		Herbicides/ PGR	Insecticides	Fungicides and Other	Total
1982	2,465	1,109	268	3,842	1992	3,915	1,058	829	5,802
1983	2,800	1,261	450	4,511	1993	3,987	1,123	895	6,005
1984	3,390	903	418	4,711	1994	4,808	1,293	1,036	7,137
1985	2,900	990	615	4,505	1995	5,112	1,607	1,107	7,826
1986	2,775	914	600	4,289	1996	5,399	1,480	1,128	8,007
1987	2,935	1,145	650	4,730	1997	5,610	1,551	1,124	8,285
1988	3,080	1,010	775	4,865	1998	5,632	1,427	1,209	8,268
1989	3,255	978	800	5,033	1999	5,012	1,370	1,243	7,625
1990	3,463	1,067	842	5,372	2000	5,007	1,411	1,194	7,612
1991	3,644	687	884	5,215	2001	4,987	1,326	1,091	7,404

Note: Excludes wood preservatives, specialty biocides, and chlorine/hypochlorites.
 Source: EPA estimates based on Croplife America annual surveys and EPA proprietary data.

Figure 5.2
Annual User Expenditures on Pesticides in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Agricultural Market Sector

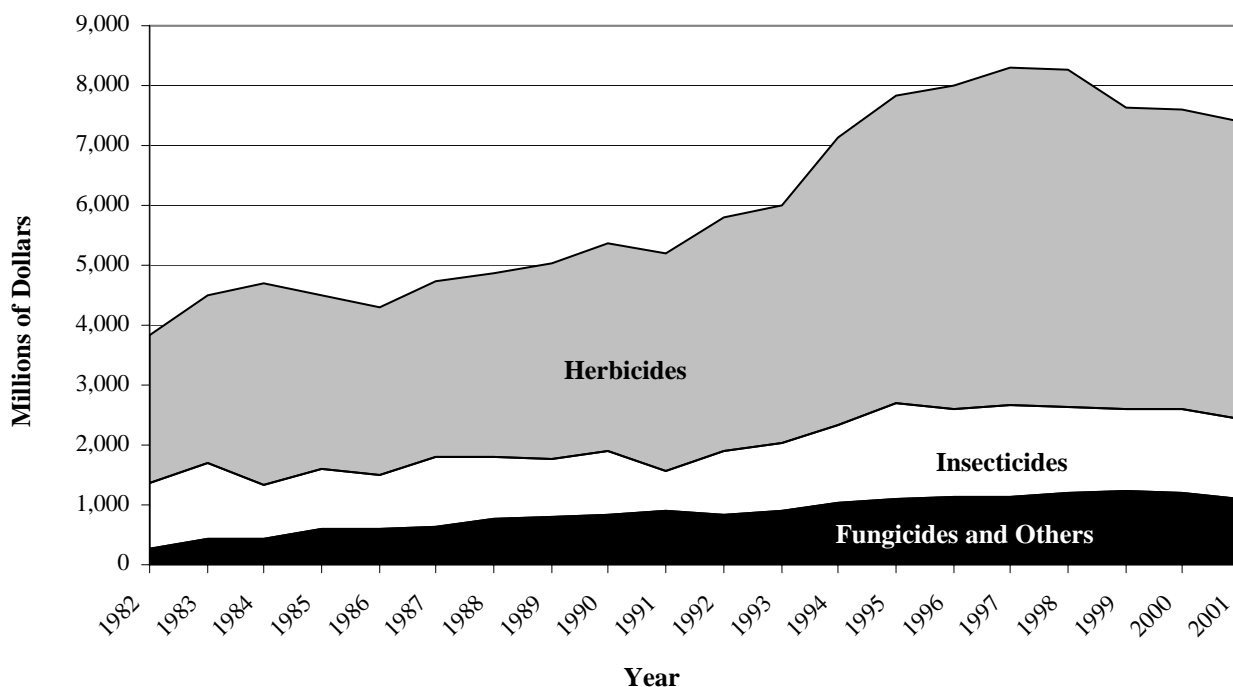


Table 5.3
Annual User Expenditures on Pesticides in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Industry/Commercial/Government Market Sector

Year	Expenditure (Millions of Dollars)				Year	Expenditure (Millions of Dollars)			
	Herbicides/ PGR	Insecticides	Fungicides and Other	Total		Herbicides/ PGR	Insecticides	Fungicides and Other	Total
1982	852	305	142	1,299	1992	648	378	186	1,212
1983	720	288	144	1,152	1993	660	406	191	1,257
1984	720	365	150	1,235	1994	679	533	197	1,409
1985	600	315	180	1,095	1995	700	527	202	1,429
1986	642	316	192	1,150	1996	721	458	208	1,387
1987	576	330	210	1,116	1997	743	386	214	1,343
1988	600	394	240	1,234	1998	728	425	292	1,445
1989	630	317	180	1,127	1999	794	463	289	1,546
1990	593	307	169	1,069	2000	762	468	255	1,485
1991	616	328	176	1,120	2001	792	510	233	1,535

Note: Excludes wood preservatives, specialty biocides, and chlorine/hypochlorites.
 Source: EPA estimates based on Croplife America annual surveys and EPA proprietary data.

Figure 5.3
Annual User Expenditures on Pesticides in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Industry/Commercial/Government Market Sector

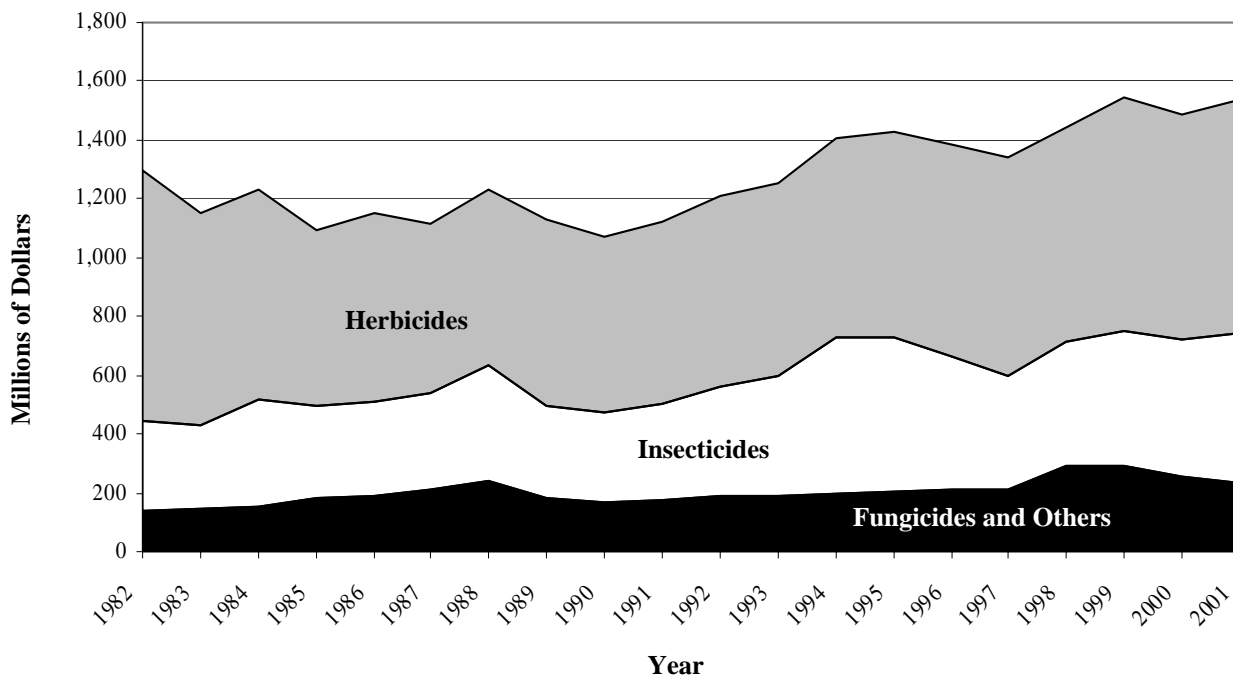
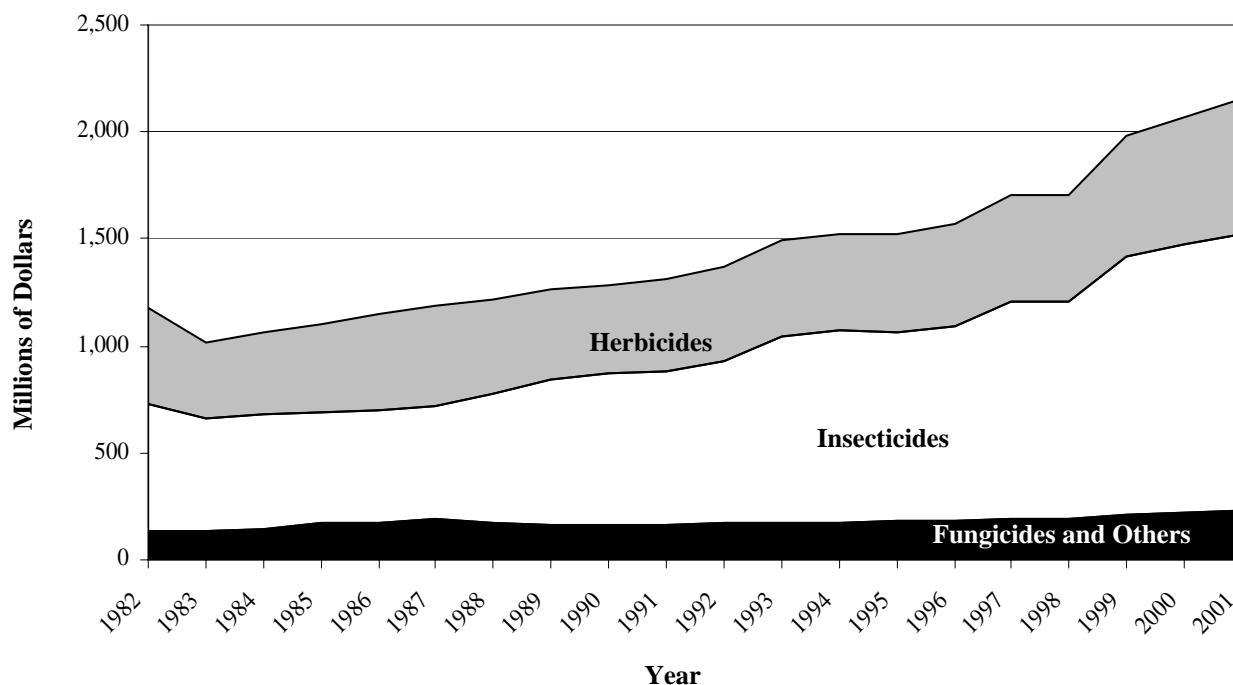


Table 5.4
Annual User Expenditures on Pesticides in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Home and Garden Market Sector

Year	Expenditure (Millions of Dollars)				Year	Expenditure (Millions of Dollars)			
	Herbicides/ PGR	Insecticides	Fungicides and Other	Total		Herbicides/ PGR	Insecticides	Fungicides and Other	Total
1982	445	600	130	1,175	1992	441	762	168	1,371
1983	350	525	137	1,012	1993	446	870	174	1,490
1984	378	542	140	1,060	1994	456	895	175	1,526
1985	420	518	168	1,106	1995	465	883	179	1,527
1986	441	529	175	1,145	1996	479	910	185	1,574
1987	462	534	189	1,185	1997	493	1,020	190	1,703
1988	441	601	175	1,217	1998	493	1,020	190	1,703
1989	420	683	161	1,264	1999	562	1,213	209	1,984
1990	417	710	160	1,287	2000	596	1,250	222	2,068
1991	423	724	162	1,309	2001	631	1,288	232	2,151

Note: Excludes wood preservatives, specialty biocides, and chlorine/hypochlorites.
 Source: EPA estimates based on Croplife America annual surveys and EPA proprietary data.

Figure 5.4
Annual User Expenditures on Pesticides in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Home and Garden Market Sector



5.2 Annual Amount of Pesticides Used in the U.S.: 1982 - 2001

Tables 5.5 through 5.8 and corresponding figures summarize annual pounds of pesticides used since 1982. Table 5.5 summarizes the amount of pesticides used in all markets combined, while Tables 5.6, 5.7 and 5.8 and corresponding figures summarize the amount of pesticides used in the agricultural, industry/commercial/government, and home and garden markets, respectively. In each market, except home and garden, the amount of pesticides used has decreased in total since 1982, although the total amount fluctuated from year to year.

Table 5.5
Annual Amount of Pesticide Active Ingredient Used in the U.S. by Pesticide Type, 1982 - 2001 Estimates
All Market Sectors

Year	Million Pounds of Active Ingredient						Year	Million Pounds of Active Ingredient					
	Herbi- cides/ PGR	Insecti- cides	Fungi- cides	Other Conv ¹	Other ²	Total		Herbi- cides/ PGR	Insecti- cides	Fungi- cides	Other Conv ¹	Other ²	Total
1982	620	198	117	149	298	1,382	1992	554	116	81	189	246	1,186
1983	573	185	115	148	287	1,308	1993	527	115	80	192	248	1,162
1984	634	173	109	145	284	1,345	1994	583	124	79	199	244	1,229
1985	611	161	110	138	284	1,304	1995	556	125	77	203	249	1,210
1986	590	151	109	138	278	1,266	1996	578	116	79	222	234	1,229
1987	532	141	100	133	269	1,175	1997	568	112	81	197	270	1,228
1988	557	132	99	137	266	1,191	1998	555	103	86	168	294	1,206
1989	567	123	98	154	251	1,193	1999	534	126	79	173	332	1,244
1990	564	121	91	173	252	1,201	2000	542	122	74	188	308	1,234
1991	546	114	86	182	226	1,154	2001	553	105	73	157	315	1,203

Note: Excludes wood preservatives, specialty biocides, and chlorine/hypochlorites.

Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass>), and EPA proprietary data.

1. Other conventional pesticides include nematocides, fumigants, and other conventional pesticides.

2. "Other" includes sulfur, petroleum, and other chemicals used as pesticides (e.g., sulfuric acid and insect repellents).

Figure 5.5
Annual Amount of Pesticide Active Ingredient Used in the U.S. by Pesticide Type, 1982 - 2001 Estimates
All Market Sectors

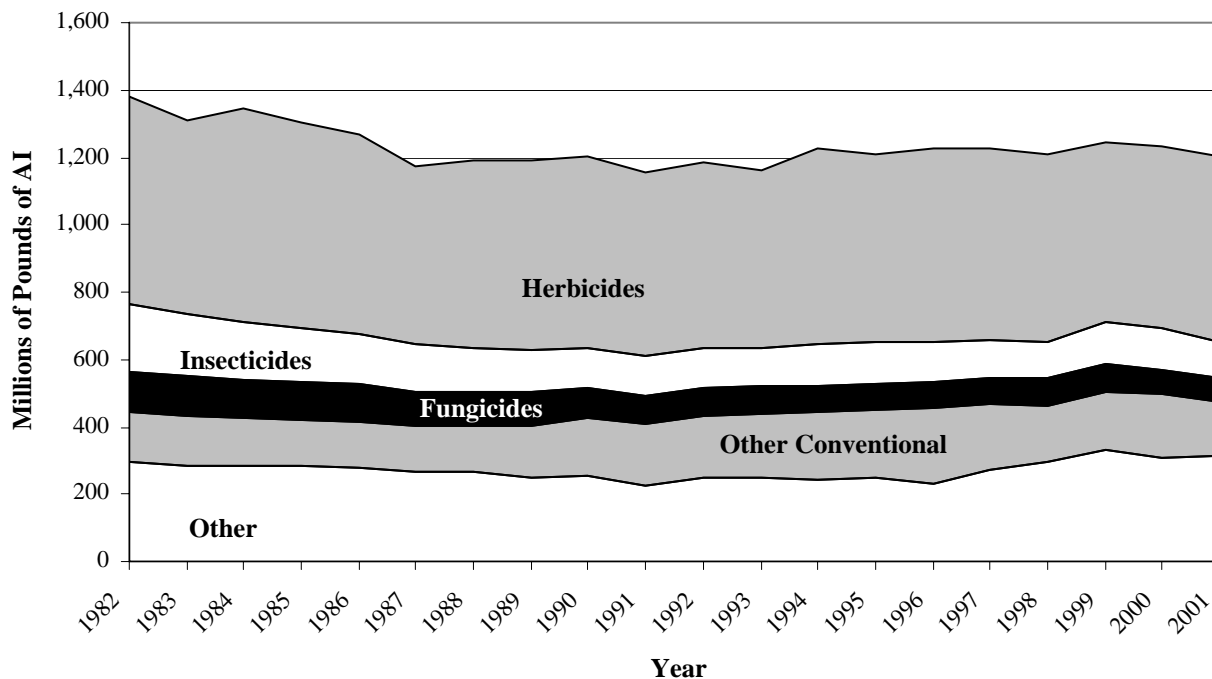


Table 5.6
Annual Amount of Pesticide Active Ingredient Used in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Agricultural Market Sector

Year	Million Pounds of Active Ingredient						Year	Million Pounds of Active Ingredient					
	Herbi- cides/ PGR	Insecti- cides	Fungi- cides	Other Conv ¹	Other ²	Total		Herbi- cides/ PGR	Insecti- cides	Fungi- cides	Other Conv ¹	Other ²	Total
1982	503	141	59	101	207	1011	1992	450	78	45	150	161	884
1983	455	131	59	100	196	941	1993	425	72	47	154	166	864
1984	516	122	56	100	194	988	1994	485	80	48	163	163	939
1985	501	113	59	94	194	961	1995	461	85	49	170	168	933
1986	481	105	59	94	188	927	1996	481	81	51	190	152	955
1987	425	98	52	91	180	846	1997	470	79	53	165	188	955
1988	450	91	54	95	177	867	1998	465	69	54	136	212	936
1989	460	85	54	113	161	873	1999	428	93	45	140	250	956
1990	455	82	50	133	164	884	2000	432	90	44	156	226	948
1991	440	77	47	144	140	848	2001	433	73	42	127	232	907

Note: Excludes wood preservatives, specialty biocides, and chlorine/hypochlorites.

Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass>), and EPA proprietary data.

1. Other conventional pesticides include nematocides, fumigants, and other conventional pesticides.

2. "Other" includes sulfur, petroleum, and other chemicals used as pesticides (e.g., sulfuric acid and insect repellents).

Figure 5.6
Annual Amount of Pesticide Active Ingredient Used in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Agricultural Market Sector

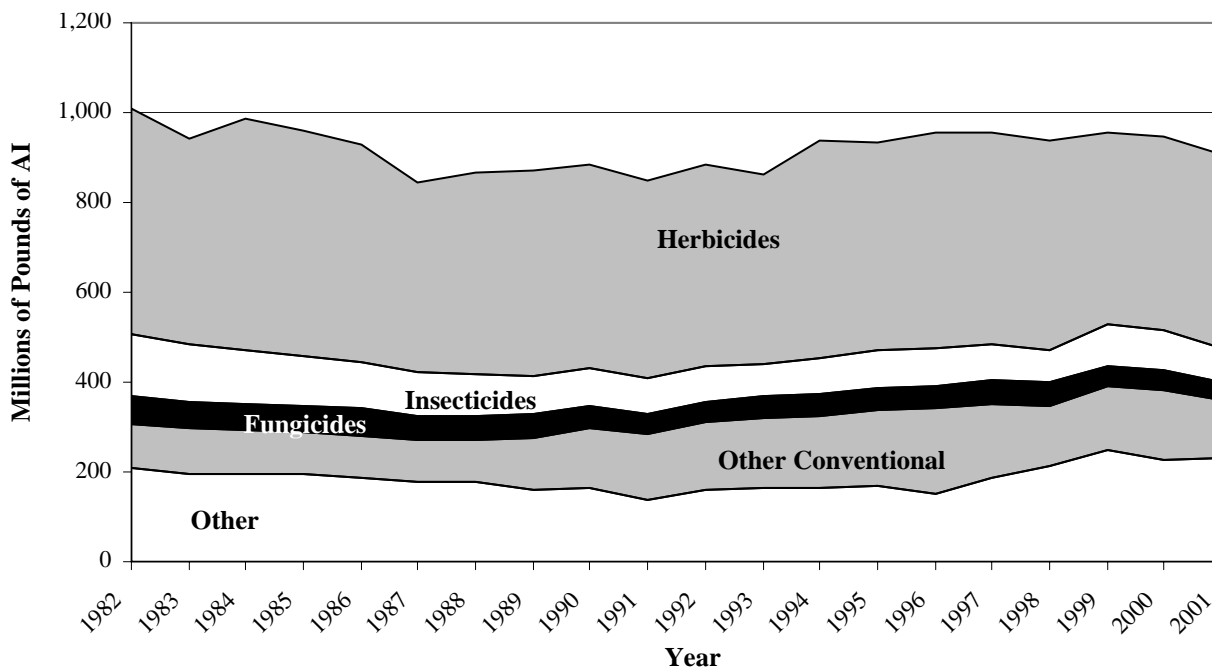


Table 5.7
Annual Amount of Pesticide Active Ingredient Used in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Industry/Commercial/Government Market Sector

Year	Million Pounds of Active Ingredient						Year	Million Pounds of Active Ingredient					
	Herbi- cides/ PGR	Insecti- cides	Fungi- cides	Other Conv ¹	Other ²	Total		Herbi- cides/ PGR	Insecti- cides	Fungi- cides	Other Conv ¹	Other ²	Total
1982	80	33	41	45	24	223	1992	58	27	28	36	21	170
1983	80	32	40	45	24	221	1993	56	30	25	36	20	167
1984	78	31	38	41	24	212	1994	52	30	23	34	20	159
1985	70	30	37	41	23	201	1995	48	28	20	31	22	149
1986	68	29	36	41	23	197	1996	49	24	20	30	22	145
1987	65	28	34	39	22	188	1997	49	20	20	30	22	141
1988	64	27	32	39	22	184	1998	41	21	24	30	22	138
1989	63	27	31	38	22	181	1999	52	19	24	31	22	148
1990	63	27	31	38	22	181	2000	48	17	19	30	22	136
1991	60	26	30	37	21	174	2001	49	15	19	28	22	133

Note: Excludes wood preservatives, specialty biocides, and chlorine/hypochlorites.

Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass>), and EPA proprietary data.

1. Other conventional pesticides include nematocides, fumigants, and other conventional pesticides.

2. "Other" includes sulfur, petroleum, and other chemicals used as pesticides (e.g., sulfuric acid and insect repellents).

Figure 5.7
Annual Amount of Pesticide Active Ingredient Used in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Industry/Commercial/Government Market Sector

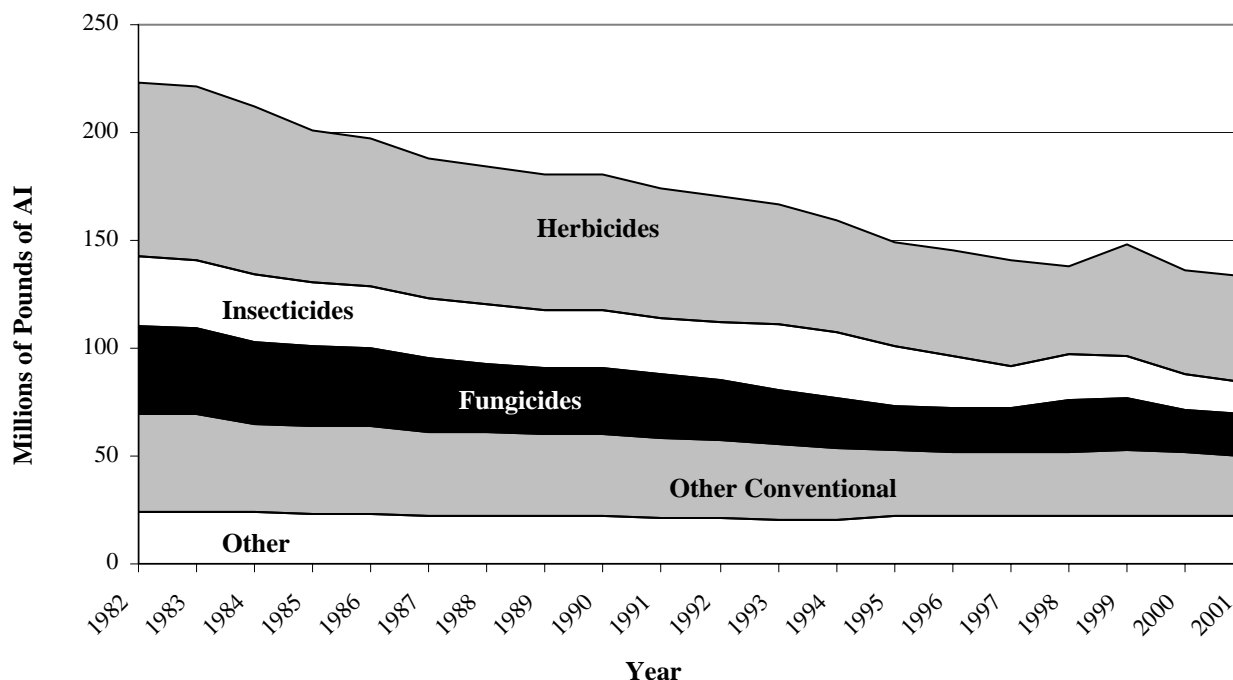


Table 5.8
Annual Amount of Pesticide Active Ingredient Used in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Home and Garden Market Sector

Year	Million Pounds of Active Ingredient						Year	Million Pounds of Active Ingredient					
	Herbi- cides/ PGR	Insecti- cides	Fungi- cides	Other Conv ¹	Other ²	Total		Herbi- cides/ PGR	Insecti- cides	Fungi- cides	Other Conv ¹	Other ²	Total
1982	37	24	17	3	67	148	1992	46	12	8	2	64	132
1983	38	22	16	3	67	146	1993	46	13	8	2	62	131
1984	40	20	15	3	67	145	1994	46	13	8	2	61	130
1985	40	18	14	3	67	142	1995	47	12	8	2	59	128
1986	41	16	14	3	67	141	1996	48	12	8	2	60	130
1987	42	14	14	3	67	140	1997	49	13	8	2	60	132
1988	43	13	13	3	67	139	1998	49	13	8	2	60	132
1989	44	12	13	2	68	139	1999	54	14	10	2	60	140
1990	46	12	10	2	66	136	2000	62	15	11	2	60	150
1991	46	12	9	2	65	134	2001	71	17	12	2	61	163

Note: Excludes wood preservatives, specialty biocides, and chlorine/hypochlorites.

Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass>), and EPA proprietary data.

1. Other conventional pesticides include nematocides, fumigants, and other conventional pesticides.

2. "Other" includes sulfur, petroleum, and other chemicals used as pesticides (e.g., sulfuric acid and insect repellents).

Figure 5.8
Annual Amount of Pesticide Active Ingredient Used in the U.S. by Pesticide Type, 1982 - 2001 Estimates
Home and Garden Market Sector

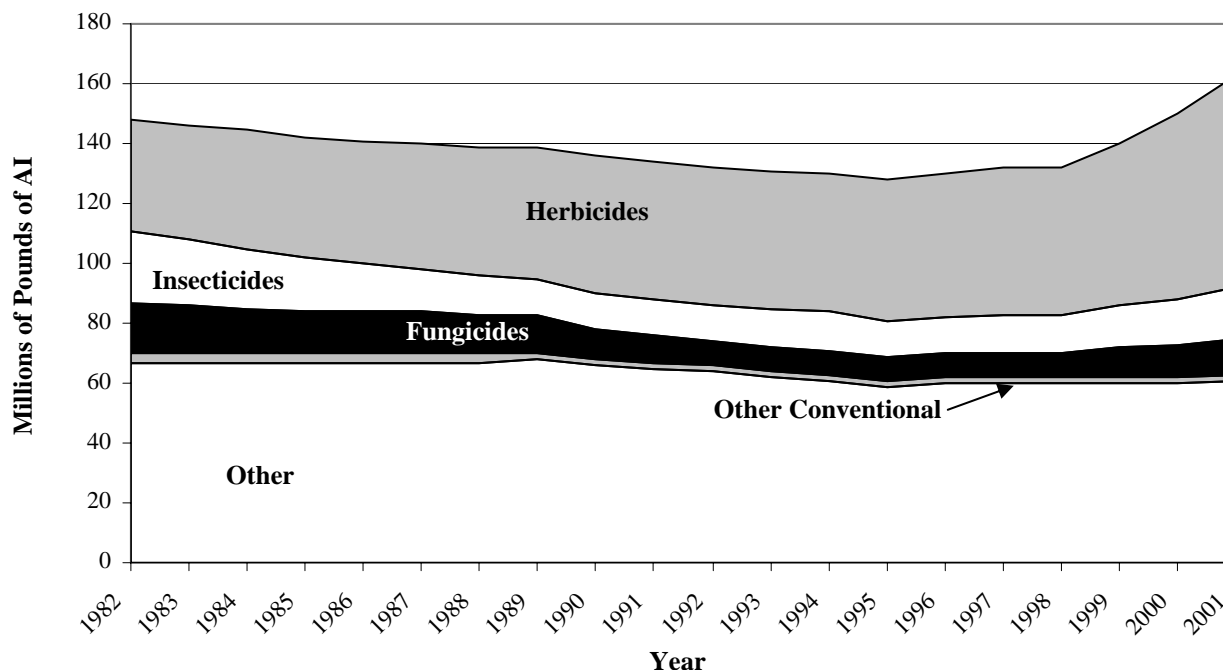


Table 5.9
Conventional Pesticide Active Ingredient Used in the U.S.
Agricultural and Non-Agricultural Market Sector Shares, 1964 - 2001

Year	Total U.S.	Agricultural Sector		Non- Agricultural Sector
	Million Pounds of Active Ingredient	Million Pounds of Active Ingredient	% of total U.S.	Million Pounds of Active Ingredient
1964	617	366	59	251
1965	658	396	60	262
1966	682	414	61	268
1967	712	429	60	283
1968	742	457	62	285
1969	763	491	64	272
1970	760	499	66	261
1971	793	528	67	265
1972	843	575	68	268
1973	882	607	69	275
1974	964	688	71	276
1975	1013	729	72	284
1976	1041	753	72	288
1977	1084	794	73	290
1978	1106	813	74	293
1979	1144	843	74	301
1980	1121	826	74	295
1981	1118	831	74	287
1982	1084	804	74	280
1983	1021	745	73	276
1984	1061	794	75	267
1985	1020	767	75	253
1986	988	739	75	249
1987	906	666	74	240
1988	925	690	75	235
1989	942	712	76	230
1990	949	720	76	229
1991	928	708	76	220
1992	940	723	77	217
1993	914	698	76	216
1994	984	776	79	208
1995	961	765	80	196
1996	996	803	81	193
1997	958	767	80	191
1998	912	724	79	188
1999	912	706	77	206
2000	926	722	78	204
2001	888	675	76	213

Note: Conventional pesticides only, excluding sulfur, petroleum oil and other chemicals used as pesticides (e.g., sulfuric acid and insect repellants), wood preservatives, specialty biocides, and chlorine/hypochlorites.

Source: EPA estimates based on Croplife America annual surveys, USDA/NASS (<http://www.usda.gov/nass>), and EPA proprietary data.

6. Glossary

ACTIVE INGREDIENT (A.I.): The chemical or substance component of a pesticide product intended to kill, repel, attract, mitigate, or control a pest, or that acts as a plant growth regulator, desiccant, or nitrogen stabilizer. The remainder of a formulated pesticide product consists of one or more “inert ingredients” (e.g., water, solvents, emulsifiers, surfactants, clay, and propellants), which are there for reasons other than pesticidal activity.

AGRICULTURAL USER SECTOR (OR MARKET): Pesticides applied by owner/operators and custom/commercial applicators to farms and facilities involved in the production of raw agricultural commodities, principally food, fiber, and tobacco; includes non-crop and post-harvest use as well as crop and field applications.

CERTIFIED APPLICATOR: A person who is authorized to apply “restricted-use” pesticides as a result of meeting requirements for certification under FIFRA-mandated programs. Applicator certification programs are conducted by states, territories, and tribes in accordance with national standards set by EPA. “Restricted-use pesticides” may be used only by or under the direct supervision of specially trained and certified applicators.

COMMERCIAL APPLICATOR: A person applying pesticides as part of a business, applying pesticides for hire, or a person applying pesticides as part of his or her job with another (not for hire) type of business, organization, or agency. Commercial applicators often are certified, but need to be so only if they use restricted-use pesticides.

CROPLIFE AMERICA: Formerly the American Crop Protection Association (ACPA), which publishes an annual pesticide industry profile ([ACPA Industry Profile](#)). The profile is a survey of pesticide sales provided by participating ACPA members.

CONVENTIONAL PESTICIDES: Pesticides that are chemicals or other substances developed and produced primarily or only for use as pesticides. An example is DDT, which was developed and used almost exclusively as a pesticide. Also includes biological and biochemical pesticides, e.g., *Bacillus thuringiensis*.

ECONOMIC USER SECTORS (OR MARKETS): In this report, estimates of quantities used and user expenditures for pesticides are broken out separately for the three general economic user sectors (or markets) as follows: agriculture, industrial/commercial/governmental, and home & garden. These three sectors/markets are defined elsewhere in this glossary.

FDA: The U.S. Food and Drug Administration, a branch of the U.S. Department of Health and Human Services, is involved in regulation of pesticides in the U.S., particularly enforcement of tolerances in food and feed products.

FFDCA: Federal Food, Drug, and Cosmetic Act, the law that controls pesticide residues in food and feed.

FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act, the law that generally controls pesticide sale and use.

FQPA: The Food Quality Protection Act (FQPA) of 1996 amended the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA).

HOME AND GARDEN USER SECTOR (OR MARKET): Involves pesticides applied by homeowners to homes and gardens, including lawns and single- and multiple-unit housing. Does not include pesticides for home & garden applications by professional applicators.

INDUSTRIAL/COMMERCIAL/GOVERNMENTAL USER SECTOR (OR MARKET): Involves pesticides applied by professional applicators (by owner/operators/employees and custom/commercial applicators) to industrial, commercial, and governmental facilities, buildings, sites, and land; plus custom/commercial applications to homes and gardens, including lawns. May also be referred to as “professional market” for pesticides.

NON-AGRICULTURAL SECTORS: General term referring to a combination of home & garden and industrial/commercial/governmental sectors.

OTHER PESTICIDES: Chemicals registered as pesticides but that are produced and marketed mostly for other purposes, i.e., multi-use chemicals. Notable examples are sulfur, petroleum products (e.g., kerosene, oils, and distillates), salt, and sulfuric acid.

PESTICIDE: May be used to refer to an active ingredient (as defined above) or formulated pesticide product registered under FIFRA.

PESTICIDE USER EXPENDITURES: Dollar value of purchases by persons or businesses applying pesticides, such as farmers, commercial pesticide applicators, and homeowners. Reported numbers are nominal values for the years indicated (i.e., not adjusted or indexed for inflation).

PESTICIDE USAGE: Refers to actual applications of pesticides, generally in terms of quantity applied or units treated.

PRIVATE APPLICATOR: A category of applicator certification for farmers and/or employees, such that they can legally apply restricted-use pesticides or supervise others doing so who are not certified.

PRODUCER LEVEL: Refers to pesticide manufactures of registrants.

PROFESSIONAL MARKET: Sales of pesticides for application to industrial/commercial/governmental sector and to homes and gardens, by certified/commercial applicators.

PROPRIETARY DATA: Pesticide industry market research data that EPA purchases from private data research companies. These data are for EPA use only and cannot be divulged without vendor consent. Companies include Doane Marketing Research, Inc.; Kline and Company, Inc.; SRI, Inc.; Wood Mackenzie; and Mike Bukley, Inc.

SAFER PESTICIDES: Pesticides designated as “safer” (or “reduced risk”) by EPA exhibit favorable characteristics affecting health or environmental risks, resistance management, and integrated pest management. Reduced-risk pesticides may be conventional pesticides posing less risk, or biopesticides with unique modes of action, low use volume, lower toxicity, target species specificity, or natural occurrence.

SPECIALTY BIOCIDES: This report provides estimates for end uses as follows: swimming pools, spas, and industrial water treatment (excluding chlorine/hypochlorites, which are reported separately); disinfectants and sanitizers (including industrial/institutional applications and household cleaning products); and other specialty biocides (including biocides for adhesives and sealants, leather, synthetic latex polymers, metal-working fluids, paints and coatings, petroleum products, plastics, and textiles). These categories of end use are covered by FIFRA. Other end uses of specialty biocides (e.g., hospital/medical antiseptics, food/feed preservatives, cosmetics/toiletries) are regulated by the FDA under FFDCA and are not covered in this report.

TOLERANCE: The maximum amount of a pesticide allowable in a food or feed product before it is considered adulterated, usually specified in parts per million.

USDA/FATUS: The U.S. Department of Agriculture, Foreign Agricultural Trade of U.S. Publicly available data on U.S. agricultural imports and exports (<http://www.ers.usda.gov/db/fatus>).

USDA NASS: The U.S. Department of Agriculture, National Agricultural Statistics Service. Publicly available data on U.S. agricultural pesticide use (<http://www.uda.gov/nass/>).

USER LEVEL: Refers to pesticide users (i.e., growers, farmers, home owners, and professional pesticide Applicators).

WOOD PRESERVATIVES: Pesticide active ingredients used in treatment of wood to protect it from insects, fungi, and other pests. This report presents total use of wood preservative chemicals in industrial plants, the bulk of which is for pressure treatment. The major categories of pesticide chemicals included in this report as industrial wood preservatives are water-borne preservatives (mainly chromated copper arsenic), oil-borne preservatives (e.g., copper naphthenate and pentachlorophenol), creosote, creosote-coal tar, and creosote petroleum.

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