

# Pesticide Use Trends in the U.S.: A 25-Year U.S. Summary<sup>1</sup>

---

Frederick M. Fishel<sup>2</sup>

## 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 provides data on volumes used and sales of pesticides from EPA survey data available for the 25-year period, 1982 – 2007. 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 following:

- 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
- Others from private pesticide marketing research companies.

## Explanation of data components

The data presented in Tables 1 - 4 separate broad classes of pesticides – herbicides, insecticides, fungicides, and other pesticides. The "herbicide" data combine plant growth regulators (PGR) with them, while "fungicides" and "other" pesticides are presented as combined data and include sulfur, petroleum oil, nematicides, fumigants, rodenticides, molluscicides, aquatic, and pesticides for the control of birds and fish. Data for wood preservatives, specialty biocides, and chlorine/hypochlorites are not included in the tables under any pesticide class. Totals may not add precisely due to rounding. Tables

---

1. This document is PI-142, one of a series of the Pesticide Information Office, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date January 2007. Revised February 2011. Visit the EDIS website at <http://edis.ifas.ufl.edu>.

2. Frederick M. Fishel, associate professor, Agronomy Department, and director, Pesticide Information Office; Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611.

**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 do 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.**

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. > 4/2/7 7 664 YR. Tj L: Vc 5 VR

1 – 4 report expenditures as a total amount for all market sectors (Table 1) and also are broken into the sectors of agriculture (Table 2), industry/commercial/government (Table 3), and home and garden (Table 4).

Industrial/commercial/governmental uses involve pesticides applied by professional applicators to industrial, commercial, and governmental facilities, plus custom/commercial applications to homes and gardens, including lawns. The amounts of pesticides used are reported likewise – totals and broken into market sector. Data contained in Tables 5 - 8 are presented as pounds of active ingredient (a.i.) per acre. In the "other conventional" pesticide category presented in Tables 5 – 8, the data include nematicides, fumigants, rodenticides, and other miscellaneous conventional pesticides. The data presented in the "other" pesticide category includes sulfur, petroleum, and other chemicals used for pesticides, such as sulfuric acid and insect repellents.

### **Additional information**

- Grube, A., T. Kiely, D. Donaldson, and L. Wu. 2011. Pesticide Industry Sales and Usage: 2006 and 2007 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/opp00001/pestsales/07pestsales/market\\_estimates06-07.pdf](http://www.epa.gov/opp00001/pestsales/07pestsales/market_estimates06-07.pdf).

**Table 1.** U.S. pesticide expenditures, all market sectors.

Year	Expenditure (Millions of Dollars)			Total
	Herbicides/PGR	Insecticides	Fungicide and Other	
2007	5,856	4,337	2,261	12,454
2006	5,673	4,091	2,020	11,784
2005	5,979	4,014	1,984	11,977
2004	6,166	3,874	1,865	11,905
2003	6,240	3,515	1,670	11,425
2002	6,250	3,355	1,566	11,171
2001	6,410	3,124	1,556	11,090
2000	6,365	3,129	1,671	11,165
1999	6,368	3,046	1,741	11,155
1998	6,853	2,872	1,691	11,416
1997	6,846	2,957	1,528	11,331
1996	6,599	2,849	1,521	10,969
1995	6,276	3,017	1,488	10,781
1994	5,944	2,722	1,408	10,074
1993	5,094	2,479	1,259	8,832
1992	5,004	2,198	1,183	8,385
1991	4,682	2,139	1,223	8,044
1990	4,473	2,083	1,171	7,727
1989	4,305	1,978	1,141	7,424
1988	4,121	1,964	1,190	7,275
1987	3,973	2,008	1,049	7,030
1986	3,858	1,759	967	6,584
1985	3,920	1,823	963	6,706
1984	4,488	1,809	708	7,005
1983	3,870	2,074	731	6,675
1982	3,772	2,014	540	6,326

**Table 2.** U.S. pesticide expenditures, agricultural sector.

Year	Expenditure (Millions of Dollars)			Total
	Herbicides/PGR	Insecticides	Fungicide and Other	
2007	4,211	1,999	1,659	7,869
2006	4,077	1,830	1,432	7,339
2005	4,431	1,829	1,410	7,670
2004	4,645	1,750	1,301	7,696
2003	4,784	1,434	1,162	7,380
2002	4,808	1,470	1,069	7,347
2001	4,987	1,326	1,091	7,404
2000	5,007	1,411	1,194	7,612
1999	5,012	1,370	1,243	7,625
1998	5,632	1,427	1,209	8,268
1997	5,610	1,551	1,124	8,285
1996	5,399	1,480	1,128	8,007

**Table 2.** U.S. pesticide expenditures, agricultural sector.

Year	Expenditure (Millions of Dollars)			
	Herbicides/PGR	Insecticides	Fungicide and Other	Total
1995	5,112	1,607	1,107	7,826
1994	4,008	1,293	1,036	7,137
1993	3,987	1,123	895	6,005
1992	3,915	1,058	829	5,802
1991	3,644	687	884	5,215
1990	3,463	1,067	842	5,372
1989	3,255	978	800	5,033
1988	3,080	1,010	775	4,865
1987	2,935	1,145	650	4,730
1986	2,775	914	600	4,289
1985	2,900	990	615	4,505
1984	3,390	903	418	4,711
1983	2,800	1,261	450	4,511
1982	2,465	1,109	268	3,842

**Table 3.** U.S. pesticide expenditures, industry/commercial/government sector.

Year	Expenditure (Millions of Dollars)			
	Herbicides/PGR	Insecticides	Fungicide and Other	Total
2007	896	709	316	1,921
2006	873	694	311	1,878
2005	850	679	306	1,835
2004	847	675	304	1,826
2003	807	688	257	1,752
2002	802	546	255	1,603
2001	792	510	233	1,535
2000	762	468	255	1,485
1999	794	463	289	1,546
1998	728	425	292	1,445
1997	743	386	214	1,343
1996	721	458	208	1,387
1995	700	527	202	1,429
1994	679	533	197	1,409
1993	660	406	191	1,257
1992	648	378	186	1,212
1991	616	328	176	1,120
1990	593	307	169	1,069
1989	630	317	180	1,127
1988	600	394	240	1,234
1987	576	330	210	1,116
1986	642	316	192	1,150
1985	600	315	180	1,095
1984	720	365	150	1,235
1983	720	288	144	1,152
1982	852	305	142	1,299

**Table 4.** U.S. pesticide expenditures, home and garden sector.

Year	Expenditure (Millions of Dollars)			
	Herbicides/PGR	Insecticides	Fungicide and Other	Total
2007	749	1,629	286	2,664
2006	723	1,567	277	2,567
2005	698	1,506	268	2,472
2004	674	1,449	260	2,383
2003	649	1,393	251	2,293
2002	640	1,339	242	2,221
2001	631	1,288	232	2,151
2000	596	1,250	222	2,068
1999	562	1,213	209	1,984
1998	493	1,020	190	1,703
1997	493	1,020	190	1,703
1996	479	910	185	1,574
1995	465	883	179	1,527
1994	456	895	175	1,526
1993	446	870	174	1,490
1992	441	762	168	1,371
1991	423	724	162	1,309
1990	417	710	160	1,287
1989	420	683	161	1,264
1988	441	601	175	1,217
1987	462	534	189	1,185
1986	441	529	175	1,145
1985	420	518	168	1,106
1984	378	542	140	1,060
1983	350	525	137	1,012
1982	445	600	130	1,175

**Table 5.** U.S. pesticide amounts used, all market sectors.

Year	Million Pounds of Active Ingredient					Total
	Herbicides/PGR	Insecticides	Fungicides	Other Conv.	Other	
2007	531	93	70	163	276	1,133
2006	498	99	73	151	306	1,127
2005	513	104	78	149	308	1,152
2004	521	114	75	175	325	1,210
2003	527	115	76	150	335	1,203
2002	527	130	71	157	321	1,206
2001	553	105	73	157	315	1,203
2000	542	122	74	188	308	1,234
1999	534	126	79	173	332	1,244
1998	555	103	86	168	294	1,206
1997	568	112	81	197	270	1,228
1996	578	116	79	222	234	1,229

**Table 5.** U.S. pesticide amounts used, all market sectors.

Year	Million Pounds of Active Ingredient					Total
	Herbicides/PGR	Insecticides	Fungicides	Other Conv.	Other	
1995	556	125	77	203	249	1,210
1994	583	124	79	199	244	1,229
1993	527	115	80	192	248	1,162
1992	554	116	81	189	246	1,186
1991	546	114	86	182	226	1,154
1990	564	121	91	173	252	1,201
1989	567	123	98	154	251	1,193
1988	557	132	99	137	266	1,191
1987	532	141	100	---	---	1,175
1986	590	151	109	---	---	1,266
1985	611	161	110	---	---	1,304
1984	634	173	109	---	---	1,345
1983	573	185	115	---	---	1,308
1982	620	198	117	---	---	1,382

A dash (---) indicates that an estimate is not available.

**Table 6.** U.S. pesticide amounts used, agricultural sector.

Year	Million Pounds of Active Ingredient					Total
	Herbicides/PGR	Insecticides	Fungicides	Other Conv.	Other	
2007	442	65	44	133	193	877
2006	407	69	46	121	223	866
2005	421	73	47	119	225	885
2004	425	82	43	145	242	937
2003	426	80	43	120	252	921
2002	417	97	40	127	238	919
2001	433	73	42	127	232	907
2000	432	90	44	156	226	948
1999	428	93	45	140	250	956
1998	465	69	54	136	212	936
1997	470	79	53	165	188	955
1996	481	81	51	190	152	955
1995	461	85	49	170	168	933
1994	485	80	48	163	163	939
1993	425	72	47	154	166	864
1992	450	78	45	150	161	884
1991	440	77	47	144	140	848
1990	455	82	50	133	164	884
1989	460	85	54	113	161	873
1988	450	91	54	95	177	867
1987	425	98	52	---	---	846
1986	481	105	59	---	---	927
1985	501	113	59	---	---	961
1984	516	122	56	---	---	988

**Table 6.** U.S. pesticide amounts used, agricultural sector.

Year	Million Pounds of Active Ingredient					Total
	Herbicides/PGR	Insecticides	Fungicides	Other Conv.	Other	
1983	455	131	59	---	---	941
1982	503	141	59	---	---	1011

A dash (---) indicates that an estimate is not available.

**Table 7.** U.S. pesticide amounts used, industry/commercial/government sector.

Year	Million Pounds of Active Ingredient					Total
	Herbicides/PGR	Insecticides	Fungicides	Other Conv.	Other	
2007	46	14	19	28	22	129
2006	45	14	20	28	22	129
2005	44	14	22	28	22	130
2004	45	13	22	28	22	130
2003	48	14	22	28	22	134
2002	48	14	20	28	22	132
2001	49	15	19	28	22	133
2000	48	17	19	30	22	136
1999	52	19	24	31	22	148
1998	41	21	24	30	22	138
1997	49	20	20	30	22	141
1996	49	24	20	30	22	145
1995	48	28	20	31	22	149
1994	52	30	23	34	20	159
1993	56	30	25	36	20	167
1992	58	27	28	36	21	170
1991	60	26	30	37	21	174
1990	63	27	31	38	22	181
1989	63	27	31	38	22	181
1988	64	27	32	39	22	184
1987	65	28	34	---	---	188
1986	68	29	36	---	---	197
1985	70	30	37	---	---	201
1984	78	31	38	---	---	212
1983	80	32	40	---	---	221
1982	80	33	41	---	---	223

A dash (---) indicates that an estimate is not available.

**Table 8.** U.S. pesticide amounts used, home and garden sector.

Year	Million Pounds of Active Ingredient					Total
	Herbicides/PGR	Insecticides	Fungicides	Other Conv.	Other	
2007	43	14	7	2	61	127
2006	46	16	7	2	61	132
2005	48	17	9	2	61	137

**Table 8.** U.S. pesticide amounts used, home and garden sector.

Year	Million Pounds of Active Ingredient					Total
	Herbicides/PGR	Insecticides	Fungicides	Other Conv.	Other	
2004	51	19	10	2	61	143
2003	53	21	11	2	61	148
2002	62	19	11	2	61	155
2001	71	17	12	2	61	163
2000	62	15	11	2	60	150
1999	54	14	10	2	60	140
1998	49	13	8	2	60	132
1997	49	13	8	2	60	132
1996	48	12	8	2	60	130
1995	47	12	8	2	59	128
1994	46	13	8	2	61	130
1993	46	13	8	2	62	131
1992	46	12	8	2	64	132
1991	46	12	9	2	65	134
1990	46	12	10	2	66	136
1989	44	12	13	2	68	139
1988	43	13	13	3	67	139
1987	42	14	14	---	---	140
1986	41	16	14	---	---	141
1985	40	18	14	---	---	142
1984	40	20	15	---	---	145
1983	38	22	16	---	---	146
1982	37	24	17	---	---	148

A dash (---) indicates that an estimate is not available.