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***2005 U.S. Pesticide Industry Report  
Executive Summary***

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# ***2005 U.S. Pesticide Industry Report***

## **Introduction**

KRSNetwork introduces *the 2005 U.S. Pesticide Industry Report*, the first report to provide details on changes occurring during the 2005 calendar year within the U.S. pesticide industry. All information provided is from the U.S. Environmental Protection Agency (EPA) and is organized by categories, identifying new companies, chemicals and products, as well as the top 25 leaders in eight trend categories. Because sales data for 2005 is not yet available, the executive summary includes sales data from 2000 and 2001 to provide the reader a backdrop for considering the data in regard to market size and trends.

The report is presented in two parts; Part 1 identifies new introductions that occurred in 2005 and Part 2 provides ranking for the Top 25 products or companies in eight categories as the record stood in 2005.

## **Part 1: New in 2005**

- New Companies
- New Companies by State
- New Products
- New Products (qty per Formulation)
- New Products (qty per Pesticide Type)
- New Active Ingredients
  - New Pesticide Registrations Based on Each New Active Ingredient
- New Restricted Use Products
- New MRIDs Filed in 2005
- New Products Registered in 2005 for Use on Wheat
- New Products Registered in 2005 for Use on Soybeans
- New Products Registered in 2005 for Use on Corn
- New Products Registered in 2005 for Use on Golf Courses
- New Products Registered in 2005 for Use on Golf Courses (by Formulation)
- New Products Registered in 2005 to Control Wood Destroying Organisms

## **Part 2: Top 25 by Category**

- Top 25 Pesticide Companies by Number of Products Registered
- Top 25 Most Active Companies for Product Introductions in 2005
- Top 25 Most Active Ingredients in New Products
- Top 25 MRID Records for 2005
- Top 25 Sites Controlled by Actively Registered Pesticide Products
- Top 25 Pests Controlled by Actively Registered Pesticide Products
- Top 25 Pests on New Pesticide Products in 2005
- Top 25 Sites on New Pesticide Products in 2005

## **Executive Summary**

### ***Background***

Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA), the 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 was developed to provide the regulatory industry and those interested in the regulatory industry a snapshot of all major changes registered with the EPA during the 2005 calendar year, as well as providing the ranking of companies and chemicals in terms of size and most prevalent. Similar annual reports will be produced in the future.

While no corresponding sales data is available for 2005, the most current sales data available from EPA, representing the years 2000 – 2001, is provided in the executive summary in order to provide the reader with general information on market size and industry trends.

This report is intended to present objective data and trend information. It reflects the best available information on pesticide registrations and sales as provided by the U.S.EPA. It does not attempt to interpret, reach conclusions, or make inferences about the data.

### ***Historical Sales Data***

World pesticide expenditures totaled more than \$32.5 billion in 2000 and nearly \$32.0 billion in 2001 (see Table 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 and reflected decreased spending in all pesticide categories.

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 Table 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.

**Table 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 <sup>1</sup>	14,319	44	6,365	57	44
Insecticides <sup>2</sup>	9,102	28	3,129	28	34
Fungicides <sup>2</sup>	6,384	19	860	8	13
Other <sup>3</sup>	2,964	9	811	7	27
Total	32,769	100	11,165	100	34
2001					
Herbicides <sup>1</sup>	14,118	44	6,410	58	45
Insecticides <sup>2</sup>	8,763	28	3,124	28	36
Fungicides <sup>2</sup>	6,027	19	835	8	14
Other <sup>3</sup>	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, Croprosis 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).

## ***Value of U.S. Pesticides: Producer Level***

Table 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).

**Table 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.

## ***Pesticide Expenditures in the U.S.: Users***

While 2001 recorded a slight overall reduction in spending; the loss of sales in the agricultural sector on all pesticide types was almost completely offset by increased spending in the non-agricultural sectors (industry/commercial/government, home and garden). 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 Table 3).

**Table 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 <sup>1</sup>		Total	
Market Sector	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.

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).

## ***Pesticide Amount Used in the U.S.: Total***

Total pesticide amount used in the United States was approximated 5 billion pounds in both 2000 and 2001 (see Table 4). 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. The estimates of use by group rely on the estimated amount used and change in estimated amount used by pesticide group derived from public and proprietary EPA databases.

**Table 4: Amount of Pesticides Used in the U.S. by Pesticide Group, 2000 and 2001 Estimates**

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

1. "Other pesticides" include other chemicals used as pesticides (e.g. sulfur and petroleum oil).
2. Source: American Wood Preservatives Institute (AWPI) and EPA proprietary data. "Wood Preservatives" include creosote, pentachlorophenol, and chromated copper arsenate (CCA).

## *Amount of Pesticides Used in the U.S.: Conventional*

Table 5 shows that conventional pesticide amounts 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 5 shows the breakout of this use by pesticide type and market sector. 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. 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%). 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 5: 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		Total	
Sector	Mil lbs of active		Mil lbs of active.		Mil lbs of active		Mil lbs of active		Mil lbs of active		Mil lbs of active	%
2000												
Agriculture	432	80	90	74	44	9	131	84	25	78	722	78
Ind/Comm/Gov	48	9	17	14	19	6	24	15	6	19	114	12
Home & Garden	62	11	15	12	11	5	1	1	1	3	90	10
Total	542	100	122	100	74	00	156	00	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).

## ***Most Commonly Used Conventional Pesticide Active Ingredients in the U.S. Agricultural Market Sector in 2001***

Table 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 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	-22	9	4-28	10	10-13
Trifluralin	H	12	12-16	9	18-23	10	1-25	6	25-30
Chlorothalonil	F	13	8-11	13	-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	-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	-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	7-21
Simazine	H	23	5-7	NA	NA	NA	NA	NA	NA
Dicamba	H	24	5-7	22	6-8	16	-10	23	4-6
Sulfosate	H	25	3-7	NA	A	NA	NA	NA	NA

Note: List is limited to conventional pesticides and does not include sulfur and petroleum oil usage. 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.

## ***Most Commonly Used Conventional Pesticide Active Ingredients in the***

### **U.S. Non-Agricultural Market Sectors**

This section identifies 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, and between 16 and 18 million pounds used in the industry/commercial/ government sector (see Table 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 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 nonagricultural sector taken from EPA proprietary databases.

**Table 7: 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	7-20
Glyphosate	H	2	3-15	2	11-14
Copper Sulfate	F	3	-6	3	5-7
Pendimethalin	H	4	3-5	4	3-5
Chlorothalanil	F	5	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.

**Table 8: 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: 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.

**Table 9: 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/>).

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

## ***Part 1: New in 2005***

### **NEW COMPANIES in 2005**

One measure of the health of an industry is growth. A significant number of new players and products entered the U.S. market in 2005. Almost 600 new companies registered with EPA and of those companies, 522 of them completed new registrations during 2005. Thirteen new international companies registered with EPA; nine were from Canada, two from Japan, one from Sweden and one from China.

Of the 596 new companies, 27 registered five or more products during their first year. Cerexagri-Nisso LLC, a joint venture between Cerexagri and Nippon Soda, registered the largest number, with a total of 28.

With the exception of New York, the new companies were located in the "sun belt." The top five states for the establishment of new companies were: Florida (87); Texas (43); California (39); Georgia (32); and New York (29.)

### **NEW PRODUCTS in 2005**

Of the 3,728 new products registered with the U.S. EPA, 2,314 or 62% were sub-registrations.

Eleven companies registered at least 30 new products; Bayer Cropscience registered more than 100. The top eleven companies for new product registrations were: Bayer Cropscience (115); Nufarm Americas Inc. (51); Loveland Products, Inc (46); Makhteshim-agan of North America (41); Control Solutions, Inc (40); Mclaughlin Gormley King Co (39); The Andersons Lawn Fertilizer Division, Inc (33); United Phosphorus, Inc (33); E.I Dupont De Nemours and Co., Inc (31); Farnam Companies Inc (31); Florida Pool Products (30).

### **FORMULATIONS**

In new product introductions in 2005, "Soluble Concentrate" was the most popular formulation, representing 28% of all new registrations. "Ready-to-Use" was also a popular formulation, with slightly more than 20% of all new products registered. Three other popular formulations were "Pressurized Liquid," "Granular" and "Emulsifiable Concentrate," representing 10%, 10% and 9% of all new products respectively. When this product mix is compared to total active products, the same five formulations hold the same position with roughly the same percentages.

In contrast, one new product, Gordon's Pondmaster Aquatic Herbicide, was registered by PBI/Gordon Corp as an "Invert-emulsifiable Concentrate." This new product joined two other products with this formulation and represents the smallest formulation category.

## **PESTICIDE TYPES**

Disinfectant and Fungicide lead the new products in pesticide types. Other popular pesticide types were Virucide, Insecticide, and Fungicide/Fungistat followed by Algacide.

On the other end of the scale, two products were registered as a combined Fungicide and Nematicide, and one new product was registered as an Avicide.

## **ACTIVE INGREDIENTS**

When evaluating active ingredients, it is important to note that many actives have synonyms. Nonetheless, it is beneficial to evaluate all product registrations in a given year to determine if any new actives appear in registrations. In 2005, twenty-three new active ingredients appeared for the very first time in product registrations. "Celite" and "PCNB" or "Pentachloronitrobenzene" were two of the most prolific active ingredients, appearing in over 100 products each. In contrast, "Javelin" appeared in only a single product, while "BMP 144" appeared in two.

## **RESTRICTED USE PESTICIDES**

Twenty-eight new products were registered as RUPs. Bayer Cropscience Lp was the most active registrant in this category, registering eight RUP products.

## **NEW MRIDs**

8,600 MRIDs were filed with EPA during 2005. Four companies filed over 250 MRIDs each. They were: Bayer Cropscience Lp, Dow Agrosciences LLC, Syngenta Crop Protection, Inc., and Valent U.S.A. Corporation.

Thirteen other companies each filed over 100 MRIDs. They were: E.I.DuPont De Nemours and Co., Inc., Mason Chemical Co., Isagro S.P.A., Etigra LLC, BASF Corporation, Albaugh Inc., United Phosphorus Inc., Bayer Environmental Science, Gro-pro LLC, Valent Biosciences Corporation, Reckitt Benckiser Inc., and Makhteshim-Agan of North America Inc.

MRID # 46039401 was referenced eight times and represented the most referenced record in 2005. [Lin, J.; Mercier, J.; Thurston, J. (2003) Product Chemistry of QST 20799 Technical. Unpublished study prepared by AgraQuest, Inc. 74 p.]

## **NEW PRODUCTS BY SITE**

This section provides information on new products organized by site, displaying the number of pest each product controls. New products for the following sites are provided: Wheat, Soybeans, Corn, Golf Courses, and Wood Destroying Organisms. We chose these particular sites because of their value to the industry, however if you would like a similar list for a different site, you may contact us for a special report.

## ***Part 2: The Top 25***

The Top 25 is intended to provide a quick look at the pesticide industry from eight different perspectives. While activity for 2005 is recorded the several of the categories, consider the total set of U.S. EPA data.

The following rankings are presented:

Pesticide Companies by Number of Products Registered  
Most Active Companies for Product Introductions in 2005  
Most Active Ingredients in New Products  
MRID Records Submitted in 2005  
Sites Controlled by Actively Registered Pesticide Products  
Pests Controlled by Actively Registered Pesticide Products  
Pests on New Pesticide Products in 2005  
Sites on New Pesticide Products in 2005

While the top rankings in some categories might be anticipated, this section does reveal facts that are not otherwise easily identified. For example, when considering all products, the most common site is bathroom premise, appearing on over 22,000 products. The number one pest, across all registered products is Animal Pathogenic Bacteria (g- And G+ Vegetative), controlled by over 38,000 products.

The top three active ingredients are used in over 300 new products each. Combined, they appear in over one-fourth of all new products registered in 2005:

1. Alkyl\* dimethyl benzyl ammonium chloride \*(50%C14, 40%C12, 10%C16)
2. Arquad 10
3. BTC 2125, component of (with 069111)

## ***References:***

Registration Data: U.S. Environmental Protection Agency, Office of Pesticide Programs Databases

Industry Financial Data: A report by EPA, *Pesticides Industry Sales and Usage, 2000 and 2001 Market Estimates*, Timothy Kiely David and Donaldson Arthur Grube, Ph.D.

## **Ordering the Full Report**

The full 238-page report is available from the KRSNetwork for an introductory price of \$995 (individual use) or \$1495 (corporate use). Printed copies are an additional \$50. The KRSNetwork is focused on providing products and services to the regulated industry that enables decision-making, and accelerates commerce. Custom industry reports are also available; please contact Stuart Edmondson directly: [Stuart@kellyreg.com](mailto:Stuart@kellyreg.com).