United States
Department of
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National
Agricultural
Statistics
Service

Agricultural Chemical Usage
1997 Livestock and General Farm Summary

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1997 Agricultural Chemical Use Estimates for Livestock and General Farm Use

Overview: The agricultural chemical use estimates in this report are based on data compiled from a survey conducted in the Fall of 1997. All results refer to the on-farm use of pesticides during the 1997 calendar year. Fertilizer use was not included.

This report provides pesticide use information on segments of agriculture not previously collected by National Agricultural Statistics Service (NASS). Prior to 1997, the NASS pesticide use program focused on crop-specific items such as corn, soybeans, apples, lettuce, etc. The data in this report, along with the crop-specific pesticide use data, will enable a more comprehensive look at the total amounts of pesticides used in the United States.

Pesticides in this report are defined as herbicides, insecticides, fungicides, and other chemicals. Pesticides are regulated by the Environmental Protection Agency (EPA) and have an EPA number on the container of the product.

A pharmaceutical is classified as a drug and is regulated by the Federal Drug Administration (FDA). Pharmaceuticals generally target internal livestock pests such as viruses, bacteria, worms and grubs. This report excludes pharmaceutical products that treat livestock for only internal pests. Some products can be classified as either a pesticide or a pharmaceutical because they can treat both external and internal pests. Examples of dual purpose products are Doramectin, Eprinomectin, and Ivermectin. These products can be applied to livestock internally as an injectable or oral, or externally as a pour-on.

Livestock species targeted in this survey included cattle, hogs, sheep, equine, and goats. The use of pesticides on goats was collected only in Texas. Equine includes horses, ponies, mules, burros, and donkeys. Domesticated species such as buffalo, emus, ostrich, lamas, etc. were not targeted.

Livestock inventories by state, region, and U.S. are reprinted in this report from previous NASS releases. This table is included for informational purposes only. The data in this report cannot be used to calculate rates since the number of animal treatments was not within the scope of the survey.

General farm use included buildings and structures, roads, ditches, grain storage facilities, farmstead, and other non-cropland areas. Other non-cropland areas include drainage ditches, irrigation canals, riding areas, feedlots, fence rows, etc. Excluded were pesticide applications to cropland and to residential sites such as home, lawn, and garden.

The pesticide use data that was collected on rangeland and pastureland for the 1997 calendar year will be published on May 19, 1999 in the report “Agricultural Chemical Usage - 1998 Field Crops Summary.”

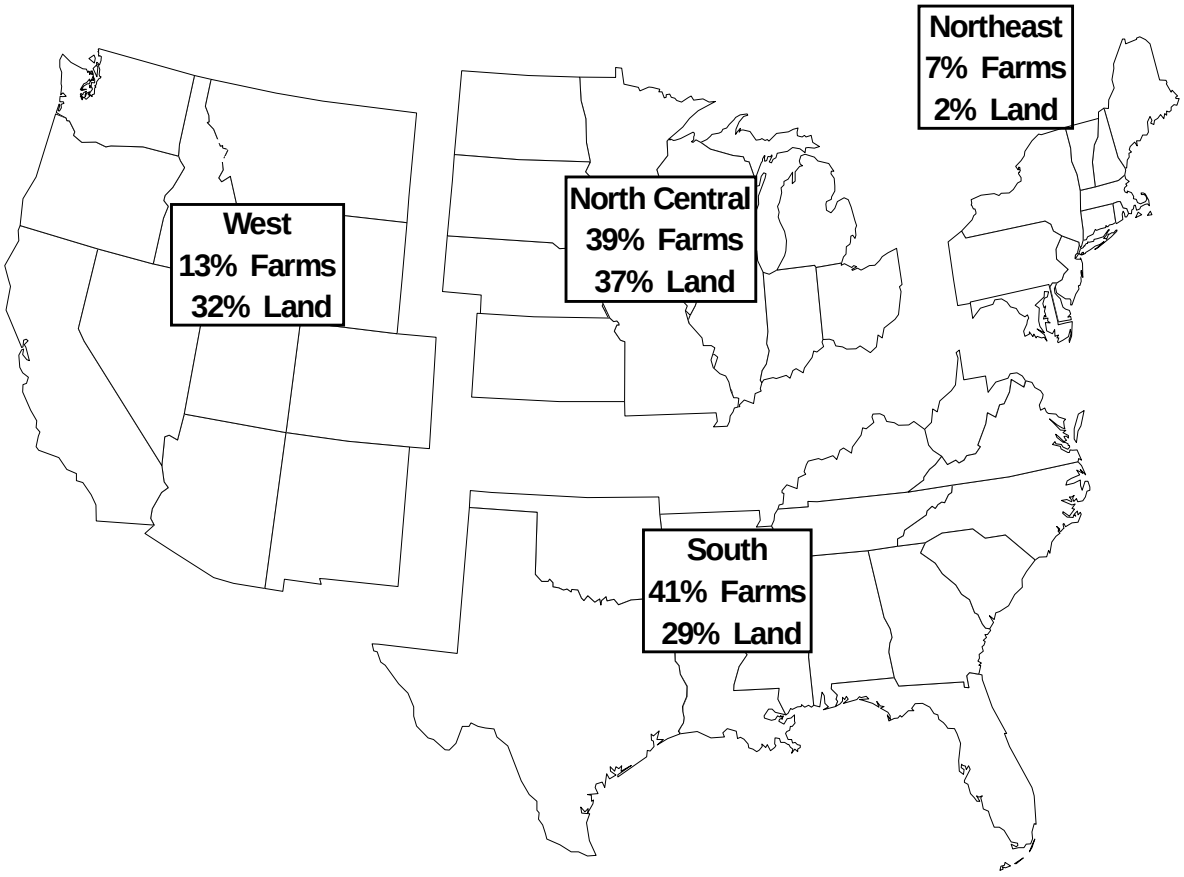
Sample sizes were adequate to publish data only by region and U.S. level. Although data for pesticide usage on poultry was collected during the survey, it was not published due to too few responses.

Reports with Pesticides Summarized
by Region and U.S., 1997

Treatment Site	Region				
	North-East	North Central	South	West	United States
All Livestock	140	1,896	2,065	996	5,097
Beef Cattle	40	1,524	1,928	903	4,395
Dairy Cattle	83	261	73	38	455
Other Livestock	21	211	147	93	472
Hogs	3	147	24	10	184
Sheep	2	26	35	39	102
Equine	16	40	74	45	175
Goats*			32		32
Poultry	2	4	10	5	21
General Farm Use	154	1,440	1,124	1,078	3,796
Grain Storage Facility	23	323	171	74	591
Buildings and Structures	82	734	478	329	1,623
Roads, Ditches and Misc. General Farm Use	53	647	617	824	2,141

* Pesticide data for goats was collected in Texas only.

Distribution of Farms and Land in Farms by Region, 1997



Regions:

Northeast	CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT
North Central	IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI
South	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, WV
West	AZ, CA, CO, ID, MT, NV, NM, OR, UT, WA, WY

Alaska and Hawaii were not included in the survey.

Highlights

Livestock: Agricultural producers applied nearly 2.3 million pounds of insecticides to beef cattle, dairy cattle, sheep, hogs, equine, and goats during 1997. This does not include applications made to household pets. Equine includes horses, ponies, mules, burros, and donkeys. Most products were applied externally by methods of spray, pour-on, rub, ear tag, and dust.

The most commonly used active ingredients on beef cattle in the U.S. were xylene, at 950.9 thousand pounds, and famphur, at 271.7 thousand pounds. Both xylene and famphur are found in Warbex, which is used to control lice, grubs, and flies.

Dichlorvos, which is used to control flies, grubs, and lice, was the most commonly used active ingredient on dairy cattle at 85.4 thousand pounds.

Butoxypolypropylene glycol was the most commonly used insecticide on other livestock (hogs, sheep, equine and goats), at 31.1 thousand pounds. This is used to control flies.

Some active ingredients, such as xylene, piperonyl butoxide, petroleum distillate, and bicycloheptene, are primarily carriers, diluents, synergists, or repellents. These are classified by the EPA as pesticides and are included in this report.

General Farm Use: Almost 6.0 million pounds of herbicides, 1.7 million pounds of insecticide, and 177 thousand pounds of fungicide were applied to or around buildings and structures, grain storage facilities, roads and ditches, and miscellaneous areas on U.S. farms. Excluded are applications to home, lawn, garden, pasture or rangeland, and cropland. The most heavily used herbicide was glyphosate at 2.8 million pounds, while sulfur was the most heavily used insecticide at 658.9 thousand pounds.

Livestock Inventories: Total Number of Head,
by State and Region, 1997

State and Region	Number of Head			
	All Cattle 1/	Sheep 2/	Hogs 3/	All Equine 4/
	1,000 Head			
CT	71	5.0	4.5	25
DE	27		30	10
ME	114	10.0	6.0	16
MD	270	23.0	85	45
MA	64	10.0	18.5	35
NH	45	6.5	4.4	7
NJ	60	14.0	23.0	45
NY	1,480	60.0	79	157
PA	1,720	94.0	1,100	165
RI	6		2.8	2
VT	305	16.4	2.9	19
Northeast:	4,162	238.9	1,356.1	526
IL	1,550	79.0	4,700	99
IN	1,120	56.0	3,950	140
IA	3,900	285.0	14,600	99
KS	6,600	150.0	1,530	104
MI	1,100	85.0	1,030	130
MN	2,650	180.0	5,700	155
MO	4,550	75.0	3,550	140
NE	6,650	95.0	3,500	74
ND	1,940	135.0	200	40
OH	1,350	140.0	1,700	155
SD	3,850	460.0	1,400	74
WI	3,600	78.0	740	115
North Central:	38,860	1,818.0	42,600	1,325

See footnotes at end of table. --continued

Livestock Inventories: Total Number of Head, by State and Region, 1997

State and Region	Number of Head			
	All Cattle 1/	Sheep 2/	Hogs 3/	All Equine 4/
	1,000 Head			
AL	1,600	9.0	190	130
AR	1,900		860	68
FL	1,970		55	170
GA	1,390		520	69
KY	2,600	22.0	570	150
LA	930	9.5	32	65
MS	1,260		220	74
NC	1,100	14.5	9,600	138
OK	5,400	75.0	1,650	165
SC	510		305	64
TN	2,350	14.5	340	185
TX	14,300	1,400.0	580	595
VA	1,780	75.0	400	145
WV	450	50.0	16.0	43
South:	37,540	1,669.5	15,338	2,061
AZ	810	150.0	145	135
CA	4,900	880.0	210	235
CO	3,250	575.0	790	140
ID	1,820	285.0	30	145
MT	2,700	432.0	180	130
NV	520	91.0	7.5	70
NM	1,600	300.0	6.0	64
OR	1,580	319.0	35	120
UT	930	440.0	295	74
WA	1,220	54.0	39	155
WY	1,580	720.0	95	61
West:	20,910	4,246.0	1,832.5	1,329
US 5/	101,472	7,972.4	61,126.6	5,241

1/ January 1, 1997.
2/ Sheep and lambs, January 1, 1997.
3/ Hogs and pigs, December 1, 1997.
4/ January 1, 1998. Includes horses, ponies, mules, burros, and donkeys.
5/ Excludes AK and HI for all cattle, hogs and pigs, and equine. For sheep, excludes AK, AR, DE, FL, GA, HI, MS, RI, and SC.

All Livestock: Pesticide Use by Region, 1997 1/
Total Amount Applied

Region	Insecticide	Fungicide	Other Chemical
	-- 1,000 Lbs --		
Northeast	37.8		
North Central	1,215.8		*
South	473.7		
West	570.4		
United States	2,297.6		*

* Insufficient reports to publish data.
1/ All livestock includes beef cattle, dairy cattle, hogs, sheep, equine, and goats (goats in Texas only).

All Livestock: Agricultural Chemical Applications, 1/
Total Applied, 1997

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Insecticides:					
Amitraz	*	7.2	2.2	*	10.1
Bicycloheptene	0.5	3.9	0.2	0.5	5.2
Bomyl		*	*		*
Butoxypolypr. glycol	5.3	5.7	37.0	19.8	67.8
Carbaryl	*	1.6	35.5	*	38.1
Chlorpyrifos		14.9	7.6	2.3	24.8
Coumaphos	0.9	13.8	38.9	6.2	59.8
Crotoxyphos		*	*		0.7
Cyfluthrin	*	0.4	*	0.1	0.6
Cypermethrin		*	*		*
Cyromazine		*	*		*
Diazinon	*	5.5	*	6.0	14.6
Dichlorvos	5.3	109.6	6.7	5.5	127.1
Diflubenzuron		*	*		*
Dimethoate	*	2.5	*	*	4.8
Dioxathion		*	2.3	*	5.8
Dipropyl isocinchom.		*	*	*	0.4
Doramectin		0.4	*	*	0.5
Eprinomectin	*	0.8	*	0.8	1.6
Ethion		*	*		0.3
Famphur		167.2	4.1	101.8	273.2
Fenthion	0.3	27.5	13.6	10.6	52.0
Fenvalerate	0.2	3.3	1.6	1.8	7.0
Flucythrinate	*	0.6	1.1	*	1.9
Ivermectin	0.2	6.7	7.6	1.4	15.9
Lambda-cyhalothrin	*	0.4	*	*	0.6
Lindane		*	9.3	*	11.4
Malathion	0.5	27.5	49.2	4.3	81.5
Methoprene	*	*	*	*	4.2
Methoxychlor	2.5	33.2	17.5	0.8	53.9
Naled		11.3	*	*	23.1
Permethrin	6.3	23.2	23.2	10.0	62.7
Petroleum distillate	*	78.7	140.9	*	237.4
Phosmet		10.7	*	*	12.1
Piperonyl butoxide	7.8	21.8	18.0	3.2	50.8
Pirimiphos-methyl	*	2.0	1.6	*	4.3
Pyrethrins	1.2	4.6	3.6	0.6	10.1
Pyridaben			*		*
Pyriproxyfen			*		*
Sulfur		*	*	*	*
Tefluthrin		*			*
Tetrachlorvinphos	*	15.6	17.5	*	40.3
Toxaphene			*		*
Trichlorfon	*	1.9	*	4.9	10.5
Trimethacarb		*			*
Xylene		585.4	14.4	356.3	956.1
Zeta-cypermethrin		0.1			0.1
Total Insecticides	37.8	1,215.8	473.7	570.4	2,297.6
Other Chemicals:					
Sodium hypochlorite		*			*
Total Other Chemicals		*			*

* Insufficient reports to publish data.
1/ All livestock includes beef cattle, dairy cattle, hogs, sheep, equine, and goats (goats in Texas only).

Other Livestock: Pesticide Use by Region, 1997 1/
Total Amount Applied

Region	Insecticide	Fungicide	Other Chemical
	-- 1,000 Lbs --		
Northeast	13.0		
North Central	47.9		*
South	70.0		
West	32.4		
United States	163.3		*

* Insufficient reports to publish data for one or more of the pesticide classes.

1/ Other livestock includes hogs, sheep, equine, and goats (goats in Texas only).

Other Livestock: Agricultural Chemical Applications, 1/
Total Applied, 1997

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Insecticides:					
Amitraz		*	*		7.3
Bicycloheptene	*	0.5	0.1	*	0.8
Bomyl			*		*
Butoxypolypr. glycol	5.1	5.7	0.7	19.7	31.1
Carbaryl		*	*		26.5
Chlorpyrifos			*	*	*
Coumaphos		*	*	*	1.4
Cyromazine		*	*		*
Diazinon		*	*		*
Dichlorvos		7.0	*	*	9.0
Dimethoate		*	*	*	*
Dioxathion				*	*
Dipropyl isocinchom.		*	*	*	0.2
Doramectin		*			*
Eprinomectin				*	*
Famphur		*		*	*
Fenthion		*	*	1.1	1.3
Fenvalerate	*	*		*	3.0
Flucythrinate		*			*
Ivermectin	*	1.3	2.1	*	3.4
Lindane		*	*		*
Malathion	*	*	26.4	*	27.0
Methoprene			*		*
Methoxychlor		*		*	*
Naled		*	*		3.0
Permethrin	1.6	1.0	3.5	3.2	9.2
Petroleum distillate	*	*	*		9.6
Phosmet		*	*		6.8
Piperonyl butoxide	4.2	1.5	2.3	2.7	10.6
Pirimiphos-methyl				*	*
Pyrethrins	0.8	0.3	0.4	0.6	2.1
Sulfur				*	*
Tetrachlorvinphos		*		*	*
Xylene		*		*	*
Total Insecticides	13.0	47.9	70.0	32.4	163.3
Other Chemicals:					
Sodium hypochlorite		*			*
Total Other Chemicals		*			*

* Insufficient reports to publish data.
1/ Other livestock includes hogs, sheep, equine, and goats (goats in Texas only).

Beef Cattle: Pesticide Use by Region, 1997
Total Amount Applied

Region	Insecticide	Fungicide	Other Chemical
	-- 1,000 Lbs --		
Northeast	4.9		
North Central	1,004.7		
South	349.0		
West	519.9		
United States	1,878.5		

Beef Cattle: Agricultural Chemical Applications, Total Applied, 1997

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Insecticides:					
Amitraz			*	*	2.1
Bicycloheptene	*	*	0.1		0.3
Bomyl		*			*
Butoxypolypr. glycol			*	*	*
Carbaryl	*	1.5	8.4	*	10.9
Chlorpyrifos		14.7	7.5	2.3	24.4
Coumaphos	*	11.4	37.9	*	53.3
Crotoxyphos		0.7			0.7
Cyfluthrin		0.3	*	*	0.4
Cypermethrin			*		*
Cyromazine		*			*
Diazinon		2.6	2.4	3.5	8.5
Dichlorvos		26.5	5.1	1.2	32.7
Diflubenzuron			*		*
Dimethoate	*	*	*	*	1.8
Dioxathion		*	*		4.5
Dipropyl isocinchom.			*		*
Doramectin		0.4	*	*	0.5
Eprinomectin		0.5	0.1	0.8	1.4
Ethion		*	*		0.3
Famphur		165.9	4.0	101.8	271.7
Fenthion	0.2	24.0	13.6	9.5	47.3
Fenvalerate		1.7	1.6	0.4	3.7
Flucythrinate	*	0.6	1.1	*	1.8
Ivermectin	0.2	3.6	5.3	1.4	10.5
Lambda-cyhalothrin	*	0.4	*	*	0.6
Lindane		*	8.0	*	8.6
Malathion		22.4	22.7	4.2	49.3
Methoprene	*	*	*	*	4.2
Methoxychlor	*	25.8	15.8	*	42.3
Naled		*	*	*	7.9
Permethrin	0.1	14.4	16.3	5.2	36.0
Petroleum distillate	*	67.5	130.4	*	214.7
Phosmet		*	*	*	5.3
Piperonyl butoxide	*	2.5	14.9	*	18.1
Pirimiphos-methyl	*	1.7	1.5	*	3.9
Pyrethrins	*	*	2.9	*	3.0
Pyridaben			*		*
Pyriproxyfen			*		*
Sulfur			*	*	*
Tetrachlorvinphos		13.7	17.4	7.1	38.2
Toxaphene			*		*
Trichlorfon		1.7	1.5	4.9	8.1
Trimethacarb		*			*
Xylene		580.6	14.1	356.2	950.9
Zeta-cypermethrin		0.1			0.1
Total Insecticides	4.9	1,004.7	349.0	519.9	1,878.5

* Insufficient reports to publish data.

Dairy Cattle: Pesticide Use by Region, 1997
Total Amount Applied

Region	Insecticide	Fungicide	Other Chemical
	-- 1,000 Lbs --		
Northeast	19.8		
North Central	163.2		
South	54.7		
West	18.1		
United States	255.7		

Dairy Cattle: Agricultural Chemical Applications, Total Applied, 1997

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Insecticides:					
Amitraz	*	*			*
Bicycloheptene	*	3.3	*	*	4.0
Butoxypolypr. glycol	*		*		*
Carbaryl	*	*	0.6	*	0.6
Chlorpyrifos		*			*
Coumaphos	0.2	1.2	0.9	2.7	5.0
Crotoxyphos			*		*
Cyfluthrin	*	*	*	*	0.2
Cypermethrin		*			*
Cyromazine		*			*
Diazinon	*	0.6	*	2.5	3.1
Dichlorvos	5.3	76.1	*	*	85.4
Diflubenzuron		*			*
Dimethoate		*			*
Dioxathion		*			*
Dipropyl isocinchom.		*			*
Doramectin		*	*	*	*
Eprinomectin	*	0.3	*	*	0.3
Famphur		1.1	*	*	1.2
Fenthion	0.1	3.3	*	*	3.4
Fenvalerate	*	0.2	*	*	0.3
Flucythrinate		*	*		*
Ivermectin	*	1.8	0.1	*	2.0
Lindane		*	*		*
Malathion	*	4.9	*		5.2
Methoxychlor	2.4	7.4	1.8		11.5
Naled		*	*	*	*
Permethrin	4.6	7.9	3.4	1.6	17.5
Petroleum distillate	*	*	8.7		13.1
Phosmet		*			*
Piperonyl butoxide	3.0	17.9	*	*	22.2
Pirimiphos-methyl		*	*		0.3
Pyrethrins	*	4.3	*	*	5.0
Sulfur		*			*
Tefluthrin		*			*
Tetrachlorvinphos	*	1.9	*		2.0
Trichlorfon	*	*			*
Xylene		4.0	*	*	4.2
Total Insecticides	19.8	163.2	54.7	18.1	255.7

* Insufficient reports to publish data.

General Farm Use: Pesticide Use by Region, 1997
Total Amount Applied

Region	Herbicide	Insecticide 1/	Fungicide	Other Chemical
	-- 1,000 Lbs --			
Northeast	1,410.9	89.2		255.6
North Central	1,105.6	291.0	*	136.7
South	1,231.9	460.3	*	9.9
West	2,251.0	899.5	140.3	1.1
United States	5,999.4	1,740.0	177.3	403.3

* Insufficient reports to publish data.
1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

General Farm Use: Agricultural Chemical Applications, Total Applied, 1997

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Herbicides:					
2,4-D	19.1	454.2	108.9	499.8	1,082.0
2,4-D, Dimet. salt				*	*
2,4-DB	*		*		*
Acetochlor		11.2			11.2
Acifluorfen	*				*
Alachlor	*			*	60.0
Ametryn		*		*	0.9
Ammonium benzadox				*	*
Atrazine	400.1	61.0	46.9	33.8	541.9
Barban		*			*
Benefin			*	*	*
Bentazon	*	*			*
Bromacil		*	*	3.3	3.6
Bromoxynil		*	*	*	1.7
Butylate				*	*
Chlorimuron-ethyl	*	*			1.2
Chlorsulfuron		*		*	*
Clomazone	*				*
Clopyralid	*	*		1.8	5.3
Cyanazine	*	*	*	*	59.1
Diallate				*	*
Dicamba	*	74.0	36.3	*	139.6
Dichlobenil				*	*
Dichlorprop		*			*
Difenzoquat				*	*
Dimethenamid	*	*			*
Dipot. Endothall			*		*
Diuron		*	*	60.7	65.9
EPTC	*			*	*
Ethalfluralin	*				*
Fenoxaprop	*	*	*		3.6
Fluazifop-P-butyl	*	*	*	*	1.3
Flumetsulam	*				*
Fomesafen		*	*		*
Glufosinate-ammonium		*			*
Glyphosate	224.6	361.7	934.1	1,270.1	2,790.5
Halosulfuron				*	*
Hexazinone		*	*	*	2.0
Imazamethabenz				*	*
Imazapyr				*	*
Imazapyr, iso. salt		*		*	0.3
Imazaquin	*	*	*		3.3
Imazethapyr	*	*	*		1.0
Linuron	*				*

--continued

General Farm Use: Agricultural Chemical Applications,
Total Applied, 1997 (continued)

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Herbicides: (cont.)					
MCPA		*	*	*	20.8
MCPB		*			*
Metolachlor	*	*	*		521.1
Metribuzin	6.1	*	*	12.6	21.0
Metsulfuron-methyl		*	*	0.4	0.7
MSMA		*			*
Napropamide		*		*	*
Nicosulfuron		*		*	0.5
Oryzalin	*		*	*	49.1
Oxyfluorfen				65.8	65.8
Paraquat	41.5	9.7	15.3	39.0	105.5
Pebulate		*			*
Pendimethalin	*	*	*		59.4
Picloram		6.8	2.2	34.6	43.6
Primisulfuron				*	*
Prometon	*	6.7	7.6	*	16.9
Prometryn			*		*
Propachlor	*	*		*	*
Propanil		*	*		*
Propanoic acid				*	*
Propazine	*				*
Prosulfuron		*	*		*
Pyridate		*		*	*
Quinclorac			*	*	*
Sethoxydim	*	*	*	*	6.6
Simazine	*	*		21.3	24.1
Sodium metaborate		*			*
Sulfometuron methyl		*			*
Sulfosate		*	*		*
Tebuthiuron		*	*		0.6
Terbacil	*			*	*
Thifensulfuron	0.8	*		*	1.1
Thiobencarb			*		*
Triasulfuron		*	*	*	25.1
Tribenuron-methyl	*			*	0.6
Triclopyr	*	16.6	39.0	*	59.4
Trifluralin	*	*	*	*	41.3
Total Herbicides	1,410.9	1,105.6	1,231.9	2,251.0	5,999.4
Insecticides:					
Abamectin			*		*
Acephate			*	*	21.2
Aldicarb			*		*
Amitraz	*			*	*
Azinphos-methyl			*		*
Bendiocarb	*		*		*
Bicycloheptene	*		*	*	0.1
Bifenthrin	*			*	*

--continued

General Farm Use: Agricultural Chemical Applications, Total Applied, 1997 (continued)

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Insecticides: (cont.)					
Bomyl		*			*
Bt (Bacillus thur.) 1/		*	*	*	*
Butoxypolypr. glycol		*		*	*
Carbaryl	*	8.1	49.3	*	64.3
Carbofuran	*				*
Chlorpyrifos		*	29.6	*	30.9
Chlorpyrifos-methyl	*	14.7	*	11.0	26.9
Coumaphos		*	*		*
Cyfluthrin	40.3	7.8	0.2	6.8	55.1
Cyromazine			*		*
Diazinon	*	*	66.1	20.0	91.1
Dichlorvos	*	58.8	2.5	*	62.0
Dicofol			*		*
Diflubenzuron				*	*
Dimethoate	*	2.0		*	4.0
Endosulfan			*		*
Esfenvalerate	*	*	*	*	24.2
Famphur			*		*
Fenoxycarb			*		*
Fenvalerate		*	*		*
Formetanate hydro.			*		*
Hydramethylnon			0.3		0.3
Lambda-cyhalothrin	*	*		*	7.9
Lindane			*		*
Malathion	17.0	86.6	242.9	16.9	363.5
Methomyl	*	*	*	*	22.1
Methoprene	*		*		*
Methoxychlor	*	3.9	0.9	*	5.1
Methyl parathion		*	*		*
Mevinphos			*		*
Naled	*	11.6	*	29.9	53.8
Permethrin	14.9	12.3	8.7	0.9	36.7
Petroleum distillate		48.8	*	*	121.2
Phosmet			*		*
Piperonyl butoxide	*	4.8	1.8	*	9.3
Pirimiphos-methyl	*		*	*	3.5
Propargite				*	*
Pyrethrins	*	1.0	*	*	1.4
Pyriproxyfen			*		*
Ronnel	*	*	*	*	*
Rotenone		*		*	*
Silicon dioxide		*	*	*	3.7
Sulfur		*	*	645.1	658.9
Tebufenozide			*		*
Tefluthrin		*			*
Tetrachlorvinphos	*		*		*
Tetramethrin				*	*
Trichlorfon			*		*
Xylene			*		*
Total Insecticides	89.2	291.0	460.3	899.5	1,740.0

--continued

General Farm Use: Agricultural Chemical Applications, Total Applied, 1997 (continued)

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Fungicides:					
Benomyl			*	*	*
Captan			*		*
Chlorothalonil			*	*	*
Coal tar creosote			*		*
Copper sulfate		*		*	*
Cresol			*		*
Fenarimol				*	*
Mancozeb			*		*
Metalaxyl				*	*
Metiram			*		*
Myclobutanil			*		*
Streptomycin			*		*
Total Fungicides		*	*	140.3	177.3
Other Chemicals:					
4-tert-Amylphenol	17.0	*		*	17.2
Alk. dim. benz.	*	*			*
Alk. dim. eth. benz.	*				*
Aluminum phosphide		*	0.9	*	1.3
Ammonium soap			*		*
Amylphenol		*			*
Benzylchlorophenol	42.6	*		*	43.3
Brodifacoum	*	*	*	*	*
Bromadiolone	*	*		*	*
Bromethalin	*	*	*		*
Capric acid	4.2				4.2
Caprylic acid	12.6				12.6
Chlorine dioxide	5.2				5.2
Cholecalciferol	*				*
Citric acid	41.9				41.9
Difethialone			*		*
Diphacinone	*	*	*		*
Dodecylbenzene	*				*
Ethephon	*				*
Orthophenylphenol	51.1	*		*	51.8
Phosphoric acid	58.1				58.1
Potassium 4-tert-am.			*		*
Potassium o-benzyl			*		*
Potassium salt			*		*
Scilliroside			*		*
Sodium chlorate		*			*
Sodium hypochlorite	*	135.1	*		155.1
Sodium o-benzyl		*			*
Sodium o-phenylphen.		*			*
Warfarin	*	*	*		*
Zinc phosphide				*	*
Total Other Chemicals	255.6	136.7	9.9	1.1	403.3

* Insufficient reports to publish data.
1/ Total applied is not available because amounts of active ingredient are not comparable between products and are not included in Total Insecticides.

Grain Storage Facilities: Pesticide Use by Region, 1997
Total Amount Applied

Region	Insecticide 1/	Fungicide	Other Chemical
	-- 1,000 Lbs --		
Northeast	14.7	*	
North Central	99.5	*	
South	80.0	*	
West	21.6	*	
United States	215.9		1.5

* Insufficient reports to publish data.
1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

Grain Storage Facilities: Agricultural Chemical Applications, Total Applied, 1997

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Insecticides:					
Acephate			*		*
Amitraz				*	*
Bt (Bacillus thur.) 1/		*			*
Carbaryl		*	*		0.5
Chlorpyrifos-methyl	*	14.6	*	11.0	26.5
Coumaphos		*			*
Cyfluthrin		0.5		4.2	4.7
Diazinon		*			*
Dichlorvos	*	*			*
Lindane			*		*
Malathion	13.7	74.0	70.5	6.2	164.4
Methomyl		*			*
Methoprene			*		*
Methoxychlor	*	*	*		5.0
Permethrin		*	*		*
Petroleum distillate		*			*
Piperonyl butoxide	*	*	*		*
Pirimiphos-methyl	*		*	*	3.5
Pyrethrins	*	*	*		*
Ronnel		*			*
Silicon dioxide		*	*	*	3.7
Trichlorfon			*		*
Total Insecticides	14.7	99.5	80.0	21.6	215.9
Other Chemicals:					
Aluminum phosphide		*	*	*	1.3
Brodifacoum	*	*	*		*
Bromethalin	*	*			*
Diphacinone	*	*			*
Sodium hypochlorite		*			*
Warfarin	*	*	*		*
Total Other Chemicals	*	*	*	*	1.5

* Insufficient reports to publish data.
1/ Total applied is not available because amounts of active ingredient are not comparable between products and are not included in Total Insecticides.

Buildings and Structures: Pesticide Use by Region, 1997
Total Amount Applied

Region	Herbicide	Insecticide 1/	Fungicide	Other Chemical
	-- 1,000 Lbs --			
Northeast	44.9	65.0		248.6
North Central	306.3	166.5	*	101.5
South	208.4	140.7	*	9.0
West	200.5	29.5	*	0.8
United States	760.1	401.7	18.5	359.8

* Insufficient reports to publish data.
1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

Buildings and Structures: Agricultural Chemical Applications, Total Applied, 1997

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Herbicides:					
2,4-D		96.2	12.8	75.3	184.2
Acetochlor		*			*
Alachlor	*				*
Ametryn		*			*
Ammonium benzadox				*	*
Atrazine	*	4.9	*	*	7.5
Barban		*			*
Bromacil		*	*	*	0.6
Bromoxynil				*	*
Chlorsulfuron				*	*
Clopyralid		*		*	0.1
Dicamba		*	*	14.8	18.2
Dichlobenil				*	*
Dichlorprop		*			*
Diuron		*	*	1.0	1.6
Fenoxaprop			*		*
Fluazifop-P-butyl				*	*
Glyphosate	41.7	192.7	184.0	67.6	486.1
Hexazinone			*		*
Imazethapyr		*			*
MCPA			*	*	*
MCPB		*			*
Metribuzin		*	*	*	2.4
Metsulfuron-methyl				*	*
MSMA		*			*
Oryzalin				*	*
Oxyfluorfen				2.2	2.2
Paraquat	*	*	*	*	0.9
Picloram		*	*	30.4	30.8
Prometon	*	4.7	3.3	*	10.6
Prometryn			*		*
Propanil		*			*
Pyridate		*			*
Sethoxydim		*			*
Simazine				*	*
Sodium metaborate		*			*
Sulfosate			*		*
Tebuthiuron		*			*
Terbacil				*	*
Thifensulfuron				*	*
Triasulfuron		*		*	*
Tribenuron-methyl				*	*
Triclopyr		1.9	0.5	0.3	2.6
Total Herbicides	44.9	306.3	208.4	200.5	760.1

--continued

Buildings and Structures: Agricultural Chemical Applications, Total Applied, 1997 (continued)

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Insecticides:					
Acephate			*	*	13.4
Amitraz	*				*
Bendiocarb	*				*
Bicycloheptene	*		*		*
Bomyl		*			*
Bt (Bacillus thur.) 1/			*		*
Butoxypolypr. glycol		*			*
Carbaryl		*	25.7	*	35.9
Chlorpyrifos		*	*		6.8
Chlorpyrifos-methyl		*			*
Coumaphos		*	*		*
Cyfluthrin	40.3	7.2	0.2	2.6	50.4
Cyromazine			*		*
Diazinon	*	*	46.1	*	57.3
Dichlorvos	*	58.8	2.5	*	62.0
Dimethoate	*	*		*	2.4
Esfenvalerate		*			*
Fenoxycarb			*		*
Fenvalerate		*	*		*
Hydramethylnon			0.1		0.1
Lambda-cyhalothrin	*	*		*	*
Malathion	2.7	11.4	17.3	10.4	41.7
Methomyl	*	*	*	*	*
Methoprene	*		*		*
Methoxychlor			*		*
Mevinphos			*		*
Naled	*	11.6	10.3	*	25.8
Permethrin	9.1	4.7	*	*	14.4
Petroleum distillate		*	*	*	59.7
Phosmet			*		*
Piperonyl butoxide	*	*	*	*	7.4
Pyrethrins	*	*	*		1.0
Pyriproxyfen			*		*
Ronnel	*	*	*	*	*
Tebufenozide			*		*
Tetrachlorvinphos	*		*		*
Tetramethrin				*	*
Total Insecticides	65.0	166.5	140.7	29.5	401.7

--continued

Buildings and Structures: Agricultural Chemical Applications, Total Applied, 1997 (continued)

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Fungicides:					
Benomyl				*	*
Chlorothalonil				*	*
Coal tar creosote			*		*
Copper sulfate		*			*
Cresol			*		*
Mancozeb			*		*
Metalaxyl				*	*
Total Fungicides		*	*	*	18.5
Other Chemicals:					
4-tert-Amylphenol	*	*		*	17.2
Alk. dim. benz.	*	*			*
Alk. dim. eth. benz.	*				*
Ammonium soap			*		*
Benzylchlorophenol	42.6	*		*	43.3
Brodifacoum	*	*	*	*	*
Bromadiolone	*	*		*	*
Bromethalin	*	*	*		*
Capric acid	4.2				4.2
Caprylic acid	12.6				12.6
Chlorine dioxide	5.2				5.2
Cholecalciferol	*				*
Citric acid	41.9				41.9
Difethialone			*		*
Diphacinone	*	*	*		*
Dodecylbenzene	*				*
Orthophenylphenol	51.1	*		*	51.8
Phosphoric acid	58.1				58.1
Potassium 4-tert-am.			*		*
Potassium o-benzyl			*		*
Potassium salt			*		*
Scilliroside			*		*
Sodium chlorate		*			*
Sodium hypochlorite	*	100.1	*		113.1
Warfarin	*	*	*		*
Zinc phosphide				*	*
Total Other Chemicals	248.6	101.5	9.0	0.8	359.8

* Insufficient reports to publish data.
1/ Total applied is not available because amounts of active ingredient are not comparable between products and are not included in Total Insecticides.

Roads, Ditches and Miscellaneous General Farm Use
Pesticide Use by Region, 1997
Total Amount Applied

Region	Herbicide	Insecticide 1/:	Fungicide	Other Chemical
	-- 1,000 Lbs --			
Northeast	1,366.0	9.5		*
North Central	799.3	25.0		35.0
South	1,023.5	239.6		*
West	2,050.5	848.4		*
United States	5,239.4	1,122.5		42.0

* Insufficient reports to publish data.
1/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products.

Roads, Ditches and Miscellaneous General Farm Use
Agricultural Chemical Applications
Total Applied, 1997

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Herbicides:					
2,4-D	19.1	358.1	96.1	424.5	897.8
2,4-D, Dimet. salt				*	*
2,4-DB	*		*		*
Acetochlor		*			*
Acifluorfen	*				*
Alachlor	*			*	*
Ametryn		*		*	*
Atrazine	400.0	56.1	44.6	33.7	534.4
Benefin			*	*	*
Bentazon	*	*			*
Bromacil			*	*	3.0
Bromoxynil		*	*	*	*
Butylate				*	*
Chlorimuron-ethyl	*	*			1.2
Chlorsulfuron		*		*	*
Clomazone	*				*
Clopyralid	2.2	1.2		1.7	5.1
Cyanazine	*	*	*	*	59.1
Diallate				*	*
Dicamba		72.3	34.5	12.6	119.4
Dicamba, Pot. salt	*				*
Dichlobenil				*	*
Difenzoquat				*	*
Dimethenamid	*	*			*
Dipot. Endothall			*		*
Diuron		*	*	59.7	64.3
EPTC	*			*	*
Ethalfluralin	*				*
Fenoxaprop	*	*	*		3.6
Fluazifop-P-butyl	*	*	*	*	1.3
Flumetsulam	*				*
Fomesafen		*	*		*
Glufosinate-ammonium		*			*
Glyphosate	182.9	169.0	750.0	1,202.5	2,304.4
Halosulfuron				*	*
Hexazinone		*	*	*	*
Imazamethabenz				*	*
Imazapyr				*	*
Imazapyr, iso. salt		*		*	0.3
Imazaquin	*	*	*		3.3
Imazethapyr	*	*	*		*
Linuron	*				*
MCPA		*	*	5.0	19.0
Metolachlor	516.9	*	*		521.1
Metribuzin	6.1	*	*	11.7	18.6
Metsulfuron-methyl		*	*	0.4	0.7
Napropamide		*		*	*
Nicosulfuron		*		*	0.5

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Roads, Ditches and Miscellaneous General Farm Use
Agricultural Chemical Applications
Total Applied, 1997 (continued)

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Herbicides: (cont.)					
Oryzalin	*		*	*	*
Oxyfluorfen				63.6	63.6
Paraquat	41.2	*	*	38.9	104.6
Pebulate		*			*
Pendimethalin	*	*	*		59.4
Picloram		6.7	1.9	4.2	12.7
Primisulfuron				*	*
Prometon		*	*		6.3
Propachlor	*	*		*	*
Propanil		*	*		*
Propanoic acid				*	*
Propazine	*				*
Prosulfuron		*	*		*
Pyridate		*		*	*
Quinclorac			*	*	*
Sethoxydim	*	*	*	*	6.4
Simazine	*	*		*	23.7
Sulfometuron methyl		*			*
Sulfosate		*			*
Tebuthiuron		*	*		*
Terbacil	*				*
Thifensulfuron	0.8	*		*	1.1
Thiobencarb			*		*
Triasulfuron		*	*	*	25.1
Tribenuron-methyl	*			*	0.5
Triclopyr	*	14.7	38.5	*	56.8
Trifluralin	*	*	*	15.2	41.3
Total Herbicides	1,366.0	799.3	1,023.5	2,050.5	5,239.4
Insecticides:					
Abamectin			*		*
Acephate			6.0	*	7.7
Aldicarb			*		*
Azinphos-methyl			*		*
Bendiocarb			*		*
Bicycloheptene			*	*	*
Bifenthrin	*			*	*
Bt (Bacillus thur.) 1/		*		*	*
Butoxypolypr. glycol				*	*
Carbaryl	*	*	23.3	2.3	27.9
Carbofuran	*				*
Chlorpyrifos		*	23.2	*	24.1
Chlorpyrifos-methyl	*	*			*
Coumaphos			*		*
Cyfluthrin		*			*

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Roads, Ditches and Miscellaneous General Farm Use
Agricultural Chemical Applications
Total Applied, 1997 (continued)

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Insecticides: (cont.)					
Diazinon		*	20.0	11.2	31.6
Dichlorvos	*				*
Dicofol			*		*
Diflubenzuron				*	*
Dimethoate				*	*
Endosulfan			*		*
Esfenvalerate	*		*	*	*
Famphur			*		*
Fenoxycarb			*		*
Formetanate hydro.			*		*
Hydramethylnon			0.2		0.2
Lambda-cyhalothrin	*				*
Malathion	*	1.2	155.2	*	157.4
Methomyl				*	*
Methoxychlor				*	*
Methyl parathion		*	*		*
Naled			*	*	28.0
Permethrin	*	7.5	3.6	*	17.6
Petroleum distillate			*	*	61.2
Piperonyl butoxide			*	*	1.8
Propargite				*	*
Pyrethrins			*	*	0.4
Ronnel	*				*
Rotenone		*		*	*
Sulfur		*	*	645.1	658.9
Tefluthrin		*			*
Xylene			*		*
Total Insecticides	9.5	25.0	239.6	848.4	1,122.5
Fungicides:					
Benomyl			*		*
Captan			*		*
Chlorothalonil			*		*
Copper sulfate		*		*	*
Fenarimol				*	*
Metiram			*		*
Myclobutanil			*		*
Streptomycin			*		*
Total Fungicides		*	22.5	*	158.8

--continued

Roads, Ditches and Miscellaneous General Farm Use
Agricultural Chemical Applications
Total Applied, 1997 (continued)

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs --				
Other Chemicals:					
Amylphenol		*			*
Brodifacoum			*		*
Bromadiolone		*			*
Chlorine dioxide	*				*
Ethephon	*				*
Sodium hypochlorite	*	34.8	*		41.7
Sodium o-benzyl		*			*
Sodium o-phenylphen.		*			*
Warfarin		*			*
Zinc phosphide				*	*
Total Other Chemicals	*	35.0	*	*	42.0

* Insufficient reports to publish data.
1/ Total applied is not available because amounts of active ingredient are not comparable between products and are not included in Total Insecticides.

Survey Procedures: The estimates in this report are based on the Fall Agricultural Survey conducted in December, 1997. This survey is based on a sample of 7,169 segments or parcels of land which average approximately 1 square mile. Enumerators conducting the area survey contacted all farmers having operations within the sampled segments and collected a variety of information, including pesticide applications for their entire operation. Estimates are then calculated, using the selection probability of each segment of land.

Estimation Procedures: The chemical applications data, reported by product name or trade name, are reviewed within region and across regions for reasonableness and consistency. This review compares reported data with manufacturer's recommendations and with data from other farm operators using the same product. Following this review, product information are converted to an active ingredient level. The chemical usage estimates in this publication consist of survey estimates of those active ingredients.

These data will not be revised even if there are subsequent revisions to livestock inventories.

Detailed data within a table may not sum by regions to U.S. totals and may not sum to class totals due to independent rounding of published values.

Reliability: The survey was designed so that the estimates are statistically representative of chemical use in the surveyed states. The reliability of these survey results is affected by sampling variability and non-sampling errors.

The results of this survey are subject to sampling variability. Sampling variability is a measure of how the estimates would differ if other samples had been drawn. The sampling variability expressed as a percent of the estimate is called the coefficient of variation (cv). Sampling variability of the estimates differed considerably by chemical and site of application. In general, the more often the chemical was applied, the smaller the sampling variability. For example, estimates of use of a commonly used product, such as glyphosate for general farm purposes other than cropland, will exhibit less variability than a more rarely used product. For more commonly used chemicals, cv's will range from 5-30 percent at the U.S. level and 5-75 percent at the Regional level. Some rarer items could have cv's above 100 percent. These items have insufficient data for publication and these instances are noted with an asterisk (*).

Non-sampling errors occur during a survey process, and unlike sampling variability, are difficult to measure. They may be caused by interviewers failing to follow instructions, poorly worded questions, non-response, problematic survey procedures, or data handling mistakes between collection and publication. In this survey, all survey procedures and analyses were carried out in a consistent and orderly manner to minimize the occurrence of these types of errors.

Terms and Definitions

Active ingredient: The active ingredient is the specific chemical which kills or controls the target pests. Usage data are reported by pesticide product and are converted to an amount of active ingredient. A single method of conversion has been chosen for active ingredients having more than one way of being converted. For example in this report, copper compounds are expressed in their metallic copper equivalent, and others such as 2,4-D and glyphosate are expressed in their acid equivalent.

Agricultural chemicals: The phrase agricultural chemicals refers to the active ingredients in fertilizers and pesticides.

Carrier: An inert liquid, solid, or gas added to an active ingredient to make a pesticide dispense effectively. A carrier is also the material, usually water or oil, used to dilute the formulated product for application.

Common name: The common name is an officially recognized name for an active ingredient. This report shows active ingredient by common name.

Diluent: Any liquid or solid material used to dilute or carry an active ingredient.

Farm: Any establishment from which $1,000 or more of agricultural products were sold or would normally be sold during the year. Government payments are included in sales. Places with all acreage enrolled in set aside or other government programs are considered operating.

Pesticides: As defined by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), includes any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

Repellent: A pesticide used to keep target pests away from a treated area by saturating the area with an odor that is disagreeable to the pest.

Synergist: A material which exhibits synergism, the joint action of the different agents results in an effect greater than the sum of their separate effects.

Trade name: A trademark name given to a specific formulation of a pesticide product. A formulation contains a specific concentration of the active ingredient, carrier materials, and other ingredients such as emulsifiers and wetting agents. Some formulations as in the case of pre-mixes, can contain more than one active ingredient.

Trade Name, Common Name, and Pesticide Class

The following is a list of the common name, associated class and trade name of active ingredients in this publication. The classes are herbicides (H), insecticides (I), fungicides (F), and other chemicals (O). This list is provided as an aid in reviewing pesticide data. Pre-mixes are not cataloged. The list is not complete for all pesticides used and NASS does not mean to imply the use of any specific trade name.

Class	Common Name	Trade Name
H	2,4-D	several
H	2,4-D, Dimethlamine salt	Saber, Weed-B-Gon
H	2,4-DB	Butoxone, Butyrac
O	4-tert-Amylphenol	Bio-Phene,TEK-TROL
I	Abamectin	Agri-Mek, Avid, Zephyr
I	Acephate	Orthene, Payload
H	Acetochlor	Harness, Topnotch
H	Acifluorfen	Blazer, Tackle
H	Alachlor	Lasso
I	Aldicarb	Temik
O	Alkyl dimethyl benzyl	T-San, Lysol
O	Alkyl dimethyl ethyl benzyl	T-San
O	Aluminum phosphide	Fumitoxin
H	Ametryn	Evik
I	Amitraz	Ovasyn
H	Amitrole	Amitrol-T
H	Ammonium benzadox	Topcide
O	Ammonium soap	Creolin, Hinder
O	Amylphenol, Sodium Salt	Moormakleen
H	Atrazine	AAtrex, Atrazine
I	Azinphos-methyl	Guthion
H	Barban	Carbyne
I	Bendiocarb	Turcam
H	Benefin	Balan
F	Benomyl	Benlate
H	Bentazon	Basagran, Pledge
O	Benzylchlorophenol	Bio-Phene, TEK-TROL
I	Bicycloheptene	several
I	Bifenthrin	Brigade, Capture
I	Bomyl	Purina Fly Bait
O	Brodifacoum	several
H	Bromacil	Hyvar
O	Bromadiolone	several
O	Bromethalin	Assault, Trounce
H	Bromoxynil	Brominal, Buctril
I	BT (Bacillus thuringiensis)	several
I	Butoxypolypropylene glycol	Repel X
H	Butylate	Genate, Sutan
O	Capric acid	Mandate
O	Caprylic acid	Mandate
F	Captan	Captan
I,O	Carbaryl	Savit, Sevin
I	Carbofuran	Furadan
H	Chlorimuron-ethyl	Classic
O	Chlorine dioxide	Oxine
O	Chlorophacinone	Rozol
F	Chlorothalonil	Bravo

--continued

Class	Common Name	Trade Name
I	Chlorpyrifos	Dursban, Lorsban
I	Chlorpyrifos-methyl	Reldan
H	Chlorsulfuron	Glean
O	Cholecalciferol	Quintox
O	Citric acid	Mandate
H	Clomazone	Command
H	Clopyralid	Reclaim, Stinger
F	Coal tar creosote	Creosote Solution
F	Copper hydroxide	several
F	Copper sulfate	Copper sulfate
I	Coumaphos	Co-Ral
F	Cresol	Creolin
I	Crotoxyphos	Ciovap
H	Cyanazine	Bladex, Conquest, Extrazine
I	Cyfluthrin	Baythroid
I	Cypermethrin	Ammo, Cymbush
I	Cyromazine	Trigard
H	Diallate	Avadex
I	Diazinon	several
H	Dicamba	Banvel
H	Dichlobenil	Casoron, Norosac
H	Dichlorprop	Weedone
I	Dichlorvos	several
I	Dicofol	Kelthane
H	Difenzoquat	Avenge
O	Difethialone	D-cease
I	Diflubenzuron	Dimilin, Micromite, Vengeance
H	Dimethenamid	Frontier, Guardsman
I	Dimethoate	several
F	Dimethomorph	Acrobat
I	Dioxathion	Del-Tox
O	Diphacinone	Ramik
H	Dipotassium Endothall	Aquathol K
I	Dipropyl isocinchomeronate	Tox-O-Wik
H,O	Diquat	Diquat
H	Diuron	Direx, Karmex
O	Dodecylbenzene sodium sulfonate	Monarch
I	Doramectin	Dectomax
I	Endosulfan	Thiodan
I	Eprinomectin	Eprinex
H	EPTC	Eptam, Eradicane, Genep
I	Esfenvalerate	Asana
H	Ethalfluralin	Curbit, Sonalan
O	Ethephon	Cerone, Ethrel, Prep
I	Ethion	Ethion
I	Famphur	Warbex
F	Fenarimol	Rubigan
H	Fenoxaprop-ethyl and-p-ethyl	Option, Whip
I	Fenoxycarb	Comply
I	Fenthion	Lysoff, Tiguvon
I	Fenvalerate	Ectrin, Pydrin
H	Fluazifop-P-butyl	Fusilade
I	Flucythrinate	AAstar, Pay-off, Guardian
H	Flumetsulam	Broadstrike
H	Fomesafen	Reflex
I	Formetanate hydrochloride	Carzol

--continued

Class	Common Name	Trade Name
O	Gibberellic acid	GibGro, ProGibb, ProVide
H	Glufosinate-ammonium	Ignite
H,O	Glyphosate	Ranger, Rattler, Rodeo, Roundup
H	Halosulfuron	Battalion, Permit
H	Hexazinone	Velpar
I	Hydramethylnon	Amdro
H	Imazamethabenz	Assert
H	Imazapyr	Lightning, Topsite
H	Imazapyr, isopropylamine salt	Arsenal
H	Imazaquin	Scepter
H	Imazethapyr	Pursuit
I	Imidacloprid	Admire
I	Ivermectin	Ivomec
I	Lambda-cyhalothrin	Karate, Saber, Warrior
I	Lindane	Isotox, Lindane
H	Linuron	Linex, Lorox
I	Malathion	several
F	Mancozeb	Dithane
H	MCPA	several
H	MCPB	Thistrol
F	Metalaxyl	Ridomil
I	Methomyl	Lannate
I	Methoprene	Altosid
I	Methoxychlor	several
I	Methyl parathion	several
F	Metiram	Polyram
H	Metolachlor	Dual
H	Metribuzin	Axiom, Lexone, Sencor
H	Metsulfuron-methyl	Ally
I	Mevinphos	Duraphos, Phosdrin
H	MSMA	several
F	Myclobutanil	Nova, Rally
I	Naled	Dibrom
H	Napropamide	Devrinol
H	Nicosulfuron	Accent
O	Orthophenylphenol	Bio-Phene, TEK-TROL
H	Oryzalin	Surflan
H	Oxyfluorfen	Goal
H,O	Paraquat	Cyclone, Gramoxone, Starfire
H	Pebulate	Tillam
H	Pendimethalin	Prowl
I	Permethrin	Ambush, Pounce
I	Petroleum distillate	several
I	Phosmet	Imidan
O	Phosphoric acid	Phos-Circ
H	Picloram	Tordon
I	Piperonyl butoxide	Butacide, Incite, PBO-8
I	Pirimiphos-methyl	Actellic
O	Potassium 4-tert-amylphenate	Magna Phen-100
O	Potassium o-benzyl-p-chlorophenate	Magna Phen-100
O	Potassium salt	Magna-Phen-100
H	Primisulfuron	Beacon
H	Prometon	Pramitol
H	Prometryn	Caparol, Cotton-Pro
H	Propachlor	Ramrod
H	Propanil	Stam
H	Propanoic acid	Phos-Circ

--continued

Class	Common Name	Trade Name
I	Propargite	Comite, Omite
H	Propazine	Milogard
H	Prosulfuron	Peak
I	Pyrethrins	Buhach, Firmotox
I	Pyridaben	Nexter, Pyramite
H	Pyridate	Tough
I	Pyriproxyfen	Knack
H	Quinclorac	Facet
I	Ronnel	Golden Marlin
I	Rotenone	Rotenone
O	Scilliroside	Rat-Nip
H	Sethoxydim	Poast
I	Silicon dioxide	Celite, Diatomaceous earth
H	Simazine	Princep
O	Sodium chlorate	several
O	Sodium Hypochlorite	several
H	Sodium Metaborate	Bareground
O	Sodium o-benzyl-p-chlorphenate	Moormakleen
O	Sodium o-phenylphenate	several
F	Streptomycin	Agri-Strep
H	Sulfometuron methyl	Oust
H	Sulfosate	Touchdown
I,F	Sulfur	several
I	Tebufenozide	Confirm
H	Tebuthiuron	Spike
I	Tefluthrin	Force
H	Terbacil	Sinbar
I	Tetrachlorvinphos	Rabon
I	Tetramethrin	Raid
H	Thifensulfuron methyl	Pinnacle
H	Thiobencarb	Bolero
I	Toxaphene	Stock Tox
H	Triasulfuron	Amber
H	Tribenuron-methyl	Express
I	Trichlorfon	Dylox, Proxol
H	Triclopyr	several
H	Trifluralin	Treflan, Trific, Trilin
I	Trimethacarb	Broot
H	Vernolate	Vernam
O	Warfarin	D-Con, Tom Cat
I	Xylene	Warbex
I	Zeta-cypermethrin	Fury, Mustang
O	Zinc phosphide	several

SECTION K - CHEMICAL APPLICATIONS (Livestock and Poultry)

3. In 1997, were any insecticides, or other chemicals used on any cattle, hogs, sheep, poultry or equine on your total acres operated?

☐ **YES** - [*Continue.*] ☐ **NO** - [*Enter 3 in Code Box 121, and go to next page.*]

4. Now I need to get complete information on all pesticides and chemicals applied to **livestock and poultry** on your total acres operated in 1997.

299	OFFICE USE LINES IN TABLE	122

[**ENUMERATOR NOTE:** *Complete tables for all chemical applications to* ***cattle, hogs, sheep, poultry or equine****. Use supplemental tables if necessary. Include tags, rubs, etc. Exclude pharmaceutical products. If no code is listed in the Respondent Booklet, record the name and formulation of the product applied, what it was used for (insecticide, fungicide, other), whether it was liquid or dry, and (if available) its EPA registration number.*]

LIVESTOCK AND POULTRY TABLE

[*If column 5 is answered, complete columns 7 & 8.*]

LINE	1	2	3	4 OR 5		6	7	8
	COMMODITY CODE 2 Beef Cattle 3 Dairy Cattle 4 Hogs 5 Sheep 6 Poultry 7 Equine **CODE**	What pesticide and chemical products were applied to the [*column 1*] commodity on your total acres operated? [***Use Codes in Respondent Booklet***]	Was this product bought in liquid or dry form? [*Enter L or D.*]	What was the TOTAL amount applied? **QUANTITY**	How much was applied per head/bird per application? **QUANTITY**	1 Pounds 12 Gallons 13 Quarts 14 Pints 15 Ounces 30 Grams 31 CC/ml 35 Tags 37 Pill [***Enter Unit Code.***]	How many head/birds were treated with this product? **NUMBER**	How many times was it applied? **NUMBER**
201	113	114		115	116 . ___	117	120	119
202	113	114		115	116 . ___	117	120	119
203	113	114		115	116 . ___	117	120	119
204	113	114		115	116 . ___	117	120	119
250	113	114		115	116 . ___	117	120	119
206	113	114		115	116 . ___	117	120	119
207	113	114		115	116 . ___	117	120	119
208	113	114		115	116 . ___	117	120	119
209	113	114		115	116 . ___	117	120	119
210	113	114		115	116 . ___	117	120	119
211	113	114		115	116 . ___	117	120	119

LINE	**Pesticide Type** (*Herbicide, Insecticide Fungicide, etc.*)	**EPA No. or Tradename and Formulation**	**Form Purchased** (Liquid or Dry)	**Where Purchased** [*Ask only if EPA No. cannot be reported.*]
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Completion Code for This Page Only	**000**
1- Incomplete 3- Valid Zero	121

SECTION K - CHEMICAL APPLICATIONS (General Farm Use)

5. Were any herbicides, insecticides, fungicides or other chemicals used for general farm uses on your total acres operated?
[***Include*** *buildings, structures, road, ditches, ponds, etc.*]
☐ **YES** - [*Continue.*] ☐ **NO** - [*Enter 3 in Code Box 123, and go to Section L.*]

6. Now I need to get complete information on general farm use of all pesticides and chemicals applied on this operation in 1997.

399	OFFICE USE LINES IN TABLE	124

[**ENUMERATOR NOTE:** *Complete tables for general farm use of all chemical applications. General farm uses include buildings, structures, roads, ditches, storage facilities, etc. Use supplemental tables if necessary. If no code is listed in the Respondent Booklet, record the name and formulation of the product applied, what it was used for (herbicide, insecticide, other), whether it was liquid or dry, and (if available) its EPA registration number.*]

GENERAL FARM USE TABLE

LINE	1 **General Farm Use Code** 9 Grain Storage Facility 10 Buildings/Structures 11 Roads/Ditches 12 Other **CODE**	2 **What pesticide and chemical products were applied to the** [*column 1*] **on your operation?** [*Use codes in Respondent Booklet.*]	3 **Was this product bought in liquid or dry form?** [*Enter L or D.*]	4 **What was the TOTAL amount applied?** **QUANTITY**	6 [*Enter unit code.*] 1 POUNDS 12 GALLONS 13 QUARTS 14 PINTS 15 OUNCES 30 GRAMS
301	113	114		115	117
302	113	114		115	117
303	113	114		115	117
304	113	114		115	117
305	113	114		115	117
306	113	114		115	117
307	113	114		115	117
308	113	114		115	117
309	113	114		115	117
310	113	114		115	117
311	113	114		115	117
312	113	114		115	117

LINE	**Pesticide Type** (*Herbicide, Insecticide Fungicide, etc.*)	**EPA No. or Tradename and Formulation**	**Form Purchased** (Liquid or Dry)	**Where Purchased** [*Ask only if EPA No. cannot be reported.*]
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Completion Code for This Page Only	**000**
1- Incomplete 3- Valid Zero	123

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Report Features

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