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Agricultural Chemical Usage
1998 Restricted Use Pesticides Summary

October 1999

1998 Agricultural Chemical Use Estimates for Restricted Use Pesticides

Overview: The agricultural chemical use estimates in this report are based on data compiled from the Agricultural Resource Management Survey, the Vegetable Chemical Use Survey, which were both conducted during the fall of 1998, and the 1997 and 1998 Fall Area Survey. All targeted field crop and vegetable crop results refer to on farm use of restricted use pesticides for the 1998 crop year. “All Livestock” and “General Farm Use” results were obtained during the 1997 crop year. Data were collected late in the growing season or after the farm operator had indicated that planned applications were completed. Trained enumerators personally interviewed farm operators or managers to obtain information on chemical applications made on sampled farm operations.

The table below shows survey coverage for 1997 and 1998 for field crops. In the table are statistics on the number of States surveyed, the number of reports summarized, and the percent of the U.S. crop acres accounted for in the surveyed states.

As determined by the U.S. Environmental Protection Agency (EPA), a restricted use pesticide is a pesticide which is available for purchase and use only by certified pesticide applicators or persons under their direct supervision and only for the uses covered by the certified applicator’s certification. This group of pesticides is not available for use by the general public because of the very high toxicities and/or environmental hazards associated with these materials. However, an active ingredient may be restricted for one crop but not for another. This report shows only those active ingredients which are restricted for each specific crop, based on the “Restricted Use Product (RUP) Report, June 1999" published by the EPA.

Agricultural Chemical Use Survey Coverage, 1997 and 1998

Crop	1997			1998		
	States Surveyed	Reports Summarized	US Acreage Included	States Surveyed	Reports Summarized	US Acreage Included
	--- Number ---		Percent	--- Number ---		Percent
Barley 1/	-	-	-	48	525	100
Corn 2/	10	1,688	77	16	2,461	89
Cotton, Upland 2/	12	1,137	96	10	1,502	92
Hay, Alfalfa 1/	-	-	-	48	755	100
Hay, Other 1/	-	-	-	48	575	100
Oats 1/	-	-	-	48	278	100
Pasture and Rangeland 1/	48	2,167	100	48	1,270	100
Potatoes, Fall 2/	7	633	79	2	287	8
Soybeans 2/	19	2,530	93	16	2,466	91
Wheat, Winter 2/	14	1,427	84	19	1,804	87
Wheat, Durum 2/	1	118	83	4	50	96
Wheat, Other Spring 2/	4	298	93	7	467	99

1/ Fall Area Survey.
2/ Agricultural Resource Management.

Highlights

Field Crops: The data was compiled from two surveys conducted in the Fall of 1998, the Agricultural Resource Management Study (ARMS) and the Fall Area Survey (FAS). Targeted crops in the ARMS include corn, fall potatoes, upland cotton, soybeans, and winter, durum, and other spring wheat. States surveyed account for 8 to 99 percent of the U.S. acreage for these crops.

Crops targeted for chemical use data in the FAS were barley, oats, alfalfa hay, other hay, and pasture and rangeland. Sample sizes in the FAS for these crops were not large enough to support state level estimates.

The herbicide atrazine was the most widely used restricted use herbicide on any crop, with 69 percent of the corn acres reported as being treated. The only other restricted use herbicide applied on more than 20 percent of planted acres was acetochlor on corn.

A wide range of restricted use insecticides were reported. Several restricted use insecticides were reported on cotton but only aldicarb and lambda-cyhalothrin were used on more than 15 percent of the planted acres. The survey indicates a broad use of insecticides on fall potatoes. Esfenvalerate was used on 62 percent of the acres planted to potatoes and methamidophos was used on 24 percent of the acreage.

The fungicide triphenyltin hydroxide was applied to 37 percent of the potato acres planted. Paraquat was applied to 19 percent of the upland cotton acres.

There were no reported applications of restricted use pesticides on oats and durum wheat.

Vegetable Crops: Growers in 16 states were surveyed to obtain chemical use data on selected vegetable crops in 1998. The data on applications cover the period immediately following harvest of the 1997 crop through harvest of the 1998 crop.

Only a few different restricted use herbicides were applied to vegetable crops. Atrazine was applied to 57 percent of the fresh sweet corn acres and 51 percent of the processing sweet corn acres. Paraquat was used on 60 percent of the acres for eggplant and 40 percent of the acres for bell peppers.

Several restricted use insecticides were used extensively on vegetable crops. Permethrin was used on 90 percent of the celery acres, while lambda-cyhalothrin was used on 80 percent of the cabbage for kraut acres. Permethrin was also used on 77 percent of the head lettuce, 72 percent of the other lettuce acres, 37 percent of the fresh tomatoes, and 53 percent of the fresh spinach acres. On head lettuce, cypermethrin and methomyl were used on 55 percent of the acres. Methyl bromide was used on 38 to 50 percent of the acres for strawberries, fresh tomatoes, eggplant, and bell peppers.

Livestock and General Farm Use: The 1997 Fall Area Survey (FAS) collected information concerning chemicals applied to all livestock and for general farm use. Livestock species targeted were 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.

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

Alfalfa Hay: Agricultural Chemical Applications,
Restricted Use Pesticides
United States, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	1	1.1	0.35	0.40	95
Insecticides:					
Carbofuran	3	1.0	0.43	0.46	276
Cyfluthrin	1	1.0	0.03	0.03	9
Lambda-cyhalothrin	1	1.0	0.02	0.02	3
Methomyl	*	1.1	0.42	0.49	29
Methyl parathion	*	1.1	0.20	0.23	14
Permethrin	1	1.4	0.10	0.14	33

* Area applied is less than one percent.
1/ Harvested acres in 1998 for the United States were 23.6 million acres. Excludes AK and HI.

Barley: Agricultural Chemical Applications,
Restricted Use Pesticides
United States, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Diclofop-methyl	1	1.0	0.76	0.76	67
Picloram	1	1.0	0.02	0.02	1

1/ Planted acres in 1998 for the United States were 6.34 million acres. Excludes AK and HI.

Corn: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Acetamide	*	1.0	0.61	0.61	97
Acetochlor	25	1.0	1.81	1.85	32,955
Alachlor	4	1.0	1.71	1.72	4,898
Atrazine	69	1.1	0.99	1.09	53,507
Butylate	*	1.0	6.71	6.71	406
Cyanazine	9	1.0	1.52	1.55	9,479
Paraquat	2	1.0	0.48	0.50	535
Insecticides:					
Carbofuran	1	1.0	0.83	0.83	542
Chlorethoxyfos	1	1.0	0.14	0.14	122
Chlorpyrifos	6	1.0	1.01	1.01	4,008
Cyfluthrin	3	1.0	0.006	0.006	12
Fonofos	1	1.0	0.94	0.94	499
Lambda-cyhalothrin	2	1.0	0.02	0.02	23
Methyl parathion	1	1.0	0.41	0.42	275
Permethrin	2	1.0	0.09	0.09	129
Phorate	*	1.0	0.78	0.78	158
Tefluthrin	5	1.0	0.10	0.10	368
Terbufos	6	1.0	1.13	1.14	5,043

* Area applied is less than one percent.
1/ Planted acres in 1998 for the 16 states surveyed were 71.4 million acres. States included are CO, IL, IN, IA, KS, KY, MI, MN, MO, NE, NC, OH, PA, SD, TX, and WI.

Fall Potatoes: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Azinphos-methyl	2	1.5	0.46	0.71	1
Disulfoton	2	1.1	2.77	3.16	6
Esfenvalerate	62	1.7	0.04	0.08	5
Ethoprop	5	1.0	3.61	3.61	18
Methamidophos	24	1.1	0.87	0.96	23
Methyl parathion	4	3.3	0.42	1.42	5
Oxamyl	*	1.1	0.69	0.82	0
Permethrin	9	1.3	0.15	0.20	2
Phorate	1	1.0	2.84	2.84	3
Fungicides:					
Triphenyltin hydrox.	37	2.8	0.11	0.30	11

* Area applied is less than one percent.
1/ Planted acres in 1998 for the 2 states surveyed were 99,000 acres. States included are PA and WI.

Other Hay: Agricultural Chemical Applications,
Restricted Use Pesticides
United States, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Atrazine	*	1.0	1.08	1.09	49
Paraquat	*	1.0	0.28	0.28	5
Picloram	2	1.2	0.08	0.10	70
Insecticides:					
Methomyl	*	1.7	0.24	0.43	24

* Area applied is less than one percent.
1/ Harvested acres in 1998 for the United States were 36.4 million acres. Excludes AK and HI.

Other Spring Wheat: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Diclofop-methyl	4	1.0	0.88	0.88	605
Insecticides:					
Methyl parathion	2	1.0	0.39	0.39	148

1/ Planted acres in 1998 for the 7 states surveyed were 15.5 million acres. States included are ID, MN, MT, ND, OR, SD, and WA.

Pasture and Rangeland: Agricultural Chemical Applications,
Restricted Use Pesticides
United States, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Atrazine	*	1.0	1.07	1.15	30
Picloram	1	1.5	0.08	0.13	459

* Area applied is less than one percent.
1/ Pasture and Rangeland acres for the United States were 489.3 million acres. Excludes AK and HI.

Soybeans: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Alachlor	2	1.0	1.67	1.71	2,100
Imazaquin	8	1.0	0.08	0.09	446
Paraquat	1	1.0	0.45	0.46	390
Insecticides:					
Esfenvalerate	*	1.0	0.03	0.03	1
Lambda-cyhalothrin	*	1.3	0.02	0.02	5
Methomyl	*	1.0	0.29	0.29	40

* Area applied is less than one percent.
1/ Planted acres in 1998 for the 16 states surveyed were 65.7 million acres. States included are AR, IL, IN, IA, KS, KY, LA, MI, MN, MS, MO, NE, NC, OH, SD, and TN.

Upland Cotton: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Cyanazine	16	1.1	0.70	0.80	1,497
Metolachlor	4	1.0	0.82	0.83	360
Insecticides:					
Abamectin	2	1.2	0.007	0.008	2
Aldicarb	22	1.0	0.63	0.64	1,680
Azinphos-methyl	2	1.6	0.24	0.40	95
Bifenthrin	*	1.0	0.06	0.07	4
Carbofuran	5	1.0	0.25	0.27	163
Cypermethrin	7	2.5	0.06	0.14	123
Deltamethrin	5	1.5	0.03	0.04	23
Dicrotophos	6	1.6	0.24	0.39	268
Diflubenzuron	1	1.2	0.12	0.16	10
Disulfoton	5	1.0	0.76	0.76	418
Esfenvalerate	3	1.5	0.03	0.05	14
Fenpropathrin	*	1.0	0.18	0.18	6
Lambda-cyhalothrin	19	2.0	0.03	0.06	134
Methamidophos	*	1.0	0.43	0.46	26
Methomyl	2	1.2	0.38	0.46	131
Methyl parathion	9	3.4	0.48	1.68	1,745
Oxamyl	11	1.6	0.25	0.41	567
Permethrin	1	1.0	0.06	0.06	5
Phorate	5	1.0	0.74	0.74	491
Sulprofos	*	1.2	0.63	0.80	8
Other Chemicals:					
Paraquat	19	1.0	0.27	0.30	660

* Area applied is less than one percent.
1/ Planted acres in 1998 for the 10 states surveyed were 12.0 million acres. States included are AL, AZ, AR, CA, GA, LA, MS, NC, TN, and TX.

Winter Wheat: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Disulfoton	1	1.0	0.12	0.12	27
Lambda-cyhalothrin	1	1.0	0.03	0.03	7
Methyl parathion	*	1.0	0.70	0.70	73

* Area applied is less than one percent.
1/ Planted acres in 1998 for the 19 states surveyed were 40.4 million acres. States included are CA, CO, GA, ID, IL, KS, LA, MN, MS, MO, MT, NE, NC, OH, OK, OR, SD, TX, and WA.

Asparagus: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	15	1.1	0.60	0.71	8.1
Insecticides:					
Disulfoton	39	1.7	0.95	1.66	49.1
Fonofos	1	1.3	2.80	3.62	2.1
Methomyl	1	2.2	0.59	1.31	1.1
Permethrin	12	2.2	0.08	0.17	1.6

1/ Planted acres in 1998 for the 4 states surveyed were 76,000 acres.
States included are CA, MI, NJ, and WA.

Beans, Lima, Fresh: Agricultural Chemical Applications,
Restricted Use Pesticides
Georgia, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Permethrin	2	1.9	0.11	0.21	*

* Total applied is less than 50 pounds.
1/ Planted acres in 1998 for Georgia were 3,000 acres.

Beans, Lima, Proc.: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Alachlor	14	1.1	3.04	3.41	17.6
Insecticides:					
Methomyl	8	1.2	0.67	0.81	2.4

1/ Planted acres in 1998 for the 6 states surveyed were 36,400 acres.
States included are CA, IL, NJ, OR, WA, and WI.

Beans, Snap, Fresh: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Esfenvalerate	25	6.9	0.04	0.28	5.1
Methomyl	39	5.7	0.47	2.70	75.4
Permethrin	*	1.2	0.16	0.20	0.1

* Area applied is less than 1 percent.
1/ Planted acres in 1998 for the 7 states surveyed were 71,900 acres.
States included are CA, FL, GA, MI, NJ, NY, and NC.

Beans, Snap, Proc.: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Disulfoton	8	1.3	0.97	1.35	16.9
Esfenvalerate	11	1.8	0.05	0.08	1.4
Ethoprop	9	1.0	2.14	2.14	29.7
Methomyl	3	1.4	0.69	1.00	4.9
Methyl parathion	22	1.8	0.49	0.91	31.7

1/ Planted acres in 1998 for the 8 states surveyed were 156,300 acres.
States included are CA, IL, MI, NJ, NY, NC, OR, and WI.

Broccoli: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Cypermethrin	3	1.1	0.08	0.09	0.4
Disulfoton	4	1.0	1.05	1.09	5.5
Esfenvalerate	40	1.2	0.03	0.04	2.4
Fonofos	1	1.1	1.63	1.84	1.7
Lambda-cyhalothrin	4	1.1	0.03	0.03	0.1
Methamidophos	3	1.4	0.79	1.15	4.6
Methomyl	14	1.6	0.56	0.94	17.3
Oxydemeton-methyl	35	1.2	0.42	0.50	23.6
Permethrin	7	1.1	0.09	0.10	0.9
Pyrethrins	1	2.0	0.007	0.010	**
Rotenone	*	1.0	0.005	0.005	**
Tralomethrin	1	1.0	0.02	0.02	**

* Area applied is less than 1 percent.
** Total applied is less than 50 pounds.
1/ Planted acres in 1998 for the 3 states surveyed were 133,500 acres.
States included are AZ, CA, and TX.

Cabbage, Fresh: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Azinphos-methyl	4	1.4	0.53	0.75	1.9
Cypermethrin	4	1.5	0.09	0.14	0.4
Disulfoton	3	1.2	1.61	1.96	4.2
Esfenvalerate	29	2.3	0.03	0.08	1.6
Fenamiphos	1	1.0	1.46	1.52	0.9
Lambda-cyhalothrin	37	2.3	0.03	0.07	1.7
Methamidophos	10	1.2	0.69	0.86	5.9
Methomyl	24	2.6	0.51	1.37	23.1
Methyl parathion	1	1.0	0.39	0.39	0.3
Oxydemeton-methyl	10	1.8	0.52	0.94	6.4
Permethrin	28	2.2	0.17	0.38	7.4
Pyrethrins	1	1.0	0.007	0.007	*
Rotenone	1	1.0	0.006	0.007	*

* Total applied is less than 50 pounds.
1/ Planted acres in 1998 for the 9 states surveyed were 69,800 acres.
States included are CA, FL, GA, MI, NJ, NY, NC, TX, and WI.

Cabbage, Kraut: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Lambda-cyhalothrin	80	2.4	0.02	0.06	0.3
Oxydemeton-methyl	7	1.7	0.48	0.83	0.3
Permethrin	21	1.6	0.10	0.17	0.2

1/ Planted acres in 1998 for the 2 states surveyed were 5,600 acres.
States included are NY and WI.

Carrots, Fresh: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Esfenvalerate	14	1.3	0.04	0.05	0.8
Methomyl	6	1.2	0.55	0.67	4.4
Other Chemicals:					
Dichloropropene	13	1.2	88.37	110.50	1,611.2

1/ Planted acres in 1998 for the 7 states surveyed were 108,700 acres.
States included are AZ, CA, FL, MI, NY, TX, and WA.

Carrots, Proc.: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Esfenvalerate	31	3.6	0.03	0.12	0.8

1/ Planted acres in 1998 for the 6 states surveyed were 21,300 acres.
States included are CA, MI, NY, TX, WA, and WI.

Cauliflower: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Azinphos-methyl	3	1.2	0.73	0.93	1.5
Cypermethrin	15	1.2	0.09	0.12	0.8
Disulfoton	4	1.4	0.87	1.25	2.6
Esfenvalerate	41	1.4	0.04	0.05	1.0
Fonofos	1	1.1	1.36	1.59	1.1
Lambda-cyhalothrin	3	1.1	0.03	0.03	*
Methomyl	10	1.9	0.67	1.32	6.3
Oxydemeton-methyl	56	1.2	0.42	0.51	13.2
Permethrin	38	1.2	0.09	0.11	2.0
Pyrethrins	6	2.0	0.007	0.010	*

* Total applied is less than 50 pounds.
1/ Planted acres in 1998 for the 5 states surveyed are not published to avoid disclosure. States included are AZ, CA, MI, NY, and TX.

Celery: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Azinphos-methyl	4	1.9	0.47	0.90	1.1
Methomyl	65	2.3	0.78	1.82	32.0
Permethrin	90	3.4	0.15	0.50	12.4
Pyrethrins	10	1.2	0.009	0.010	*
Rotenone	9	1.2	0.005	0.007	*

1/ Planted acres in 1998 for the 3 states surveyed were 27,300 acres. States included are CA, MI, and TX.

Corn, Sweet, Fresh: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Alachlor	15	1.2	2.14	2.58	69.5
Atrazine	57	1.0	1.04	1.11	113.2
Cyanazine	6	1.6	1.90	3.19	35.0
Paraquat	1	1.0	0.57	0.59	1.2
Insecticides:					
Cyfluthrin	12	4.0	0.03	0.14	2.8
Esfenvalerate	28	3.0	0.04	0.12	6.0
Lambda-cyhalothrin	35	2.9	0.02	0.06	3.8
Methomyl	48	6.6	0.34	2.27	193.9
Methyl parathion	15	1.2	0.61	0.78	21.6
Oxydemeton-methyl	5	1.0	0.39	0.39	3.6
Permethrin	12	2.2	0.14	0.30	6.2
Phorate	12	1.8	0.52	0.95	20.9
Tefluthrin	5	1.2	0.09	0.11	1.0
Terbufos	7	1.0	1.08	1.11	14.0

1/ Planted acres in 1998 for the 12 states surveyed were 179,180 acres.
States included are CA, FL, GA, IL, MI, NJ, NY, NC, OR, TX, WA, and WI.

Corn, Sweet, Proc.: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Alachlor	19	1.0	2.14	2.27	189.3
Atrazine	51	1.1	0.78	0.89	199.7
Cyanazine	15	1.0	1.56	1.67	110.1
Paraquat	1	1.1	0.32	0.36	1.3
Insecticides:					
Carbofuran	2	1.0	0.86	0.86	6.2
Cyfluthrin	4	1.6	0.03	0.04	0.7
Esfenvalerate	2	1.0	0.04	0.04	0.3
Ethoprop	2	1.0	1.94	1.94	16.8
Fonofos	*	1.0	1.03	1.03	1.3
Lambda-cyhalothrin	32	2.0	0.02	0.05	6.8
Methyl parathion	6	1.6	0.33	0.54	14.2
Permethrin	43	2.4	0.15	0.38	71.7
Tefluthrin	4	1.0	0.08	0.08	1.4
Terbufos	1	1.0	1.18	1.18	5.7

* Area applied is less than 1 percent.
1/ Planted acres in 1998 for the 6 states surveyed were 439,000 acres.
States included are IL, MN, NY, OR, WA, and WI.

Cucumbers, Fresh: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	4	1.0	0.63	0.67	1.3
Insecticides:					
Azinphos-methyl	1	2.2	0.50	1.13	0.8
Carbofuran	3	1.0	0.48	0.51	0.8
Esfenvalerate	14	2.2	0.04	0.09	0.7
Methomyl	7	2.2	0.42	0.97	3.4
Oxamyl	2	1.8	0.69	1.24	1.2
Permethrin	14	2.7	0.11	0.29	2.0
Other Chemicals:					
Methyl bromide	*	1.0	181.14	181.14	39.4

* Area applied is less than 1 percent.
1/ Planted acres in 1998 for the 8 states surveyed were 51,600 acres.
States included are CA, FL, GA, MI, NJ, NY, NC, and TX.

Cucumbers, Pickles: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Carbofuran	4	1.0	0.96	0.99	3.4
Esfenvalerate	9	5.0	0.03	0.17	1.2
Ethoprop	2	1.0	1.35	1.35	1.7
Methomyl	16	1.4	0.72	1.02	12.6
Permethrin	1	2.3	0.07	0.17	0.2
Other Chemicals:					
Dichloropropene	5	1.1	61.43	67.76	260.4

1/ Planted acres in 1998 for the 9 states surveyed were 79,100 acres.
States included are CA, FL, GA, MI, NC, OR, TX, WA, and WI.

Eggplant: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	60	1.0	0.56	0.56	1.1
Insecticides:					
Methomyl	4	3.2	0.27	0.85	0.1
Oxamyl	21	4.2	0.24	1.02	0.7
Other Chemicals:					
Methyl bromide	44	1.0	169.89	169.89	241.0

1/ Planted acres in 1998 for the 2 states surveyed were 3,200 acres.
States included are FL and NJ.

Lettuce, Head: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	2	1.0	0.73	0.74	3.3
Pronamide	35	1.1	0.71	0.79	54.8
Insecticides:					
Cypermethrin	55	1.4	0.08	0.11	12.3
Disulfoton	7	1.0	1.42	1.52	21.5
Esfenvalerate	3	1.1	0.04	0.04	0.3
Lambda-cyhalothrin	8	1.4	0.03	0.04	0.6
Methomyl	55	1.6	0.68	1.11	121.9
Oxamyl	0	1.0	0.89	0.89	0.2
Oxydemeton-methyl	4	1.0	0.44	0.46	3.9
Permethrin	77	1.9	0.15	0.29	43.8
Pyrethrins	4	1.2	0.008	0.010	0.1
Rotenone	4	1.2	0.005	0.007	*
Tralomethrin	7	1.1	0.02	0.02	0.4

* Total applied is less than 50 pounds.
1/ Planted acres in 1998 for the 4 states surveyed were 198,600 acres.
States included are AZ, CA, NJ, and NY.

Lettuce, Other: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	2	1.0	0.53	0.54	0.8
Pronamide	39	1.6	0.75	1.24	43.1
Insecticides:					
Cypermethrin	5	1.4	0.07	0.11	0.5
Disulfoton	2	1.0	1.08	1.13	2.4
Lambda-cyhalothrin	1	1.2	0.03	0.03	*
Methomyl	46	2.1	0.64	1.36	56.4
Permethrin	72	3.5	0.14	0.49	31.5
Pyrethrins	19	1.0	0.010	0.010	0.2
Rotenone	14	1.0	0.005	0.006	0.1
Tralomethrin	14	1.0	0.02	0.02	0.3

* Total applied is less than 50 pounds.
1/ Planted acres in 1998 for the 3 states surveyed were 89,050 acres.
States included are AZ, CA, and FL.

Melons, Cantaloupe: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	4	1.1	0.59	0.70	3.0
Insecticides:					
Azinphos-methyl	1	1.0	0.35	0.36	0.2
Carbofuran	3	1.0	0.56	0.59	1.8
Esfenvalerate	15	1.3	0.04	0.05	0.8
Methomyl	16	1.2	0.54	0.66	10.7
Oxamyl	8	1.3	0.82	1.06	8.9
Permethrin	7	1.9	0.15	0.30	2.1
Other Chemicals:					
Chloropicrin	*	1.0	54.29	54.29	11.9
Dichloropropene	2	1.1	54.49	60.94	102.7
Methyl bromide	1	1.0	139.62	141.42	194.0

* Area applied is less than 1 percent.
1/ Planted acres in 1998 for the 7 states surveyed were 102,380 acres.
States included are AZ, CA, DE, GA, IN, MI, and TX.

Melons, Honeydew: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Esfenvalerate	12	2.4	0.03	0.07	0.2
Methomyl	15	1.0	0.56	0.61	2.5
Permethrin	13	1.3	0.17	0.23	0.8

1/ Planted acres in 1998 for the 3 states surveyed were 26,900 acres.
States included are AZ, CA, and TX.

Melons, Watermelons: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	4	1.0	0.45	0.47	2.6
Insecticides:					
Carbofuran	3	1.0	0.57	0.57	2.2
Esfenvalerate	4	1.8	0.03	0.06	0.4
Methomyl	13	1.9	0.48	0.95	17.7
Oxamyl	1	1.2	1.18	1.43	2.8
Permethrin	6	2.0	0.10	0.21	1.8
Other Chemicals:					
Chloropicrin	1	1.0	27.90	27.90	49.0
Dichloropropene	2	1.0	70.88	77.20	187.0
Methyl bromide	2	1.0	121.97	121.97	437.2

1/ Planted acres in 1998 for the 8 states surveyed were 146,100 acres.
States included are AZ, CA, DE, FL, GA, IN, NC, and TX.

Onions, Dry: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	*	1.1	0.78	0.92	0.2
Insecticides:					
Cypermethrin	16	1.9	0.09	0.16	3.5
Lambda-cyhalothrin	31	2.5	0.03	0.07	2.8
Methomyl	10	1.9	0.48	0.92	12.0
Methyl parathion	6	1.8	0.51	0.95	8.0
Oxamyl	5	1.4	0.83	1.20	8.5
Permethrin	18	2.5	0.13	0.34	8.1
Other Chemicals:					
Chloropicrin	3	1.0	34.78	35.26	154.4
Dichloropropene	5	1.0	168.98	171.77	1,066.3

* Area applied is less than 1 percent.
1/ Planted acres in 1998 for the 9 states surveyed were 133,250 acres.
States included are AZ, CA, GA, MI, NY, OR, TX, WA, and WI.

Peas, Green, Proc.: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Esfenvalerate	20	1.0	0.03	0.04	1.8
Methomyl	*	1.0	0.45	0.46	0.3

* Area applied is less than 1 percent.
1/ Planted acres in 1998 for the 5 states surveyed were 252,700 acres.
States included are MN, NY, OR, WA, and WI.

Peppers, Bell: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	40	1.2	0.54	0.65	14.2
Insecticides:	*	1.6	0.40	0.68	0.1
Cyfluthrin	9	1.7	0.04	0.07	0.3
Disulfoton	2	1.3	1.89	2.53	3.0
Esfenvalerate	15	2.3	0.04	0.09	0.7
Insecticides:					
Fonofos	7	1.1	1.17	1.34	5.2
Lambda-cyhalothrin	1	2.2	0.04	0.10	0.1
Methamidophos	1	1.4	0.37	0.53	0.3
Methomyl	39	2.8	0.48	1.40	30.0
Oxamyl	18	2.9	0.55	1.61	16.3
Oxydemeton-methyl	3	1.7	0.37	0.67	1.1
Permethrin	10	2.4	0.15	0.37	2.1
Other Chemicals:					
Chloropicrin	15	1.0	65.50	68.10	575.5
Dichloropropene	1	1.0	62.51	68.17	26.2
Methyl bromide	38	1.0	188.64	188.64	4,018.3

* Area applied is less than 1 percent.
1/ Planted acres in 1998 for the 6 states surveyed were 55,400 acres.
States included are CA, FL, MI, NJ, NC, and TX.

Spinach, Fresh: Agricultural Chemical Applications,
Restricted Use Pesticides
State Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Methomyl	13	1.6	0.53	0.85	2.2
Permethrin	53	2.0	0.14	0.30	3.2
Pyrethrins	13	1.0	0.01	0.01	*
Rotenone	7	1.0	0.003	0.003	*

* Total applied is less than 50 pounds.
1/ Planted acres in 1998 for the 3 states surveyed were 19,800 acres.
States included are CA, NJ, and TX.

Spinach, Processing: Agricultural Chemical Applications,
Restricted Use Pesticides
Texas, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Insecticides:					
Methomyl	27	1.2	0.49	0.62	0.9
Permethrin	49	2.3	0.18	0.42	1.1

1/ Planted acres in 1998 for Texas were 5,400 acres.

Strawberries: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	14	1.8	0.69	1.27	7.6
Simazine	6	1.0	0.92	0.97	2.6
Insecticides:					
Azinphos-methyl	5	1.2	0.62	0.77	1.8
Carbofuran	*	1.0	1.96	1.96	0.4
Diazinon	8	1.3	0.68	0.95	3.4
Methomyl	20	4.1	0.57	2.39	21.0
Pyrethrins	1	1.3	0.03	0.04	**
Fungicides:					
Chlorothalonil	1	2.4	0.49	1.18	0.5
Other Chemicals:					
Chloropicrin	37	1.3	81.21	106.92	1,701.1
Methyl bromide	50	1.0	245.03	245.03	5,305.2

* Area applied is less than 1 percent.
** Total applied is less than 50 pounds.
1/ Planted acres in 1998 for the 9 states surveyed were 43,000 acres.
States included are CA, FL, MI, NJ, NY, NC, OR, WA, and WI.

Tomatoes, Fresh: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
Paraquat	23	1.2	0.62	0.78	16.1
Insecticides:					
Azinphos-methyl	7	2.6	0.42	1.13	7.4
Cyfluthrin	9	4.0	0.03	0.12	1.0
Esfenvalerate	39	2.7	0.03	0.08	2.8
Lambda-cyhalothrin	4	3.8	0.02	0.07	0.3
Methamidophos	17	5.7	0.65	3.75	58.1
Methomyl	27	2.1	0.58	1.25	31.0
Oxamyl	5	1.2	0.78	1.00	4.5
Permethrin	37	5.0	0.07	0.35	11.5
Pyrethrins	1	1.7	0.007	0.01	**
Rotenone	*	1.2	0.04	0.05	**
Other Chemicals:					
Chloropicrin	22	1.0	47.25	47.38	933.5
Methyl bromide	47	1.0	158.46	159.55	6,756.6

* Area applied is less than 1 percent.
** Total applied is less than 50 pounds
1/ Planted acres in 1998 for the 8 states surveyed were 90,500 acres.
States included are CA, FL, GA, MI, NJ, NY, NC, and TX.

Tomatoes, Processing: Agricultural Chemical Applications,
Restricted Use Pesticides
States Surveyed, 1998 1/

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre		1,000 lbs
Herbicides:					
EPTC	2	1.0	2.61	2.71	15.3
Paraquat	4	1.0	0.85	0.89	10.5
Insecticides:					
Cyfluthrin	3	1.2	0.03	0.04	0.3
Esfenvalerate	32	1.2	0.04	0.05	4.2
Fonofos	2	1.1	1.15	1.26	5.8
Lambda-cyhalothrin	1	1.4	0.02	0.04	0.1
Methamidophos	13	1.3	0.86	1.16	41.5
Methomyl	27	1.2	0.54	0.66	49.7
Oxamyl	1	1.4	0.69	0.97	1.8
Permethrin	14	1.2	0.17	0.20	8.0

1/ Planted acres in 1998 for the 2 states surveyed were 284,300 acres.
States included are CA and MI.

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

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs –				
Insecticides:					
Coumaphos	0.9	13.8	38.9	6.2	59.8
Cyfluthrin	*	0.4	*	0.1	0.6
Fenthion	0.3	27.5	13.6	10.6	52.0
Fenvalerate	0.2	3.3	1.6	1.8	7.0
Lambda-cyhalothrin	*	0.4	*	*	0.6
Lindane		*	9.3	*	11.4
Permethrin	6.3	23.2	23.2	10.0	62.7
Pyrethrins	1.2	4.6	3.6	0.6	10.1

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

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

Agricultural Chemical	Region				
	North-East	North Central	South	West	United States
	-- 1,000 Lbs –				
Herbicides:					
Alachlor	*			*	60.0
Atrazine	400.1	61.0	46.9	33.8	541.9
Cyanazine	*	*	*	*	59.1
Imazaquin	*	*	*		3.3
Paraquat	41.5	9.7	15.3	39.0	105.5
Picloram		6.8	2.2	34.6	43.6
Trifluralin	*	*	*	*	41.3
Insecticides:					
Cyfluthrin	40.3	7.8	0.2	6.8	55.1
Esfenvalerate	*	*	*	*	24.2
Lambda-cyhalothrin	*	*		*	7.9
Methomyl	*	*	*	*	22.1
Permethrin	14.9	12.3	8.7	0.9	36.7
Pyrethrins	*	1.0	*	*	1.4
Other Chemicals:					
Aluminum phosphide		*	0.9	*	1.3

* Insufficient reports to publish data.

Estimation Procedures: The chemical applications data, reported by product name or trade name are reviewed within state and across states 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.

Estimates of the total amount of active ingredient applied are based on the acreage estimates published in the annual NASS report **"Crop Production - 1998 Summary"** [Cr Pr 2-1(99)] for corn, alfalfa hay, barley, oats, other hay, soybeans, wheat, and potatoes. The estimates of cotton acreage were revised and published in the monthly NASS report **"Crop Production"** [Cr Pr 2-2 (5-99] released on May 12, 1999. Estimates of the total amount of active ingredient applied are based on the acreage estimates published in the annual NASS report **"Vegetables - 1998 Summary"** [Vg 1-2(99)c] released on January 28, 1999. The estimates for total amount applied will not be revised even if there are subsequent revisions to acreage for a given crop.

Detailed data within a table may not multiply across or add down due to independent rounding of the published values.

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 pesticides.

Application Rates: The application rates refer to the average number of pounds of a pesticide active ingredient applied to an acre of land. Rate per acre is the average number of pounds applied in one application. Rate per crop year is the average number of pounds applied counting multiple applications. Number of applications is the average number of times a treated acre receives a specific agricultural chemical.

Area applied: The area that represents the percentage of crop acres receiving one or more applications of a specific agricultural chemical. This report does not contain acre treatments. However, acre treatments can be calculated by multiplying the acres planted by the percent of area applied and the average number of applications.

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

Crop year: A crop year refers to the period immediately following harvest for the previous crop through harvest of the current crop.

Pesticides: As defined by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), pesticides include 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.

The four classes of pesticides presented in this report and the pests targeted are: herbicides - weeds, insecticides - insects, fungicides - fungi, and other chemicals - other forms of life. Miticides and nematicides are included as insecticides while soil fumigants, growth regulators, defoliants, and desiccants are included as other chemicals. This report excludes pesticides used for seed treatments and for postharvest applications to the commodity.

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 on field crops and NASS does not mean to imply the use of any specific trade name.

Class:	Common Name	Trade Name
I	abamectin	Agri-Mek, Zephyr, Avid
H	acetamide	Axiom
H	acetochlor	Harness, Topnotch
H	alachlor	Lasso
I	aldicarb	Temik
O	aluminum phosphide	Fumitoxin
I	amitraz	Ovasyn
H	atrazine	AAtrex
I	azinphos-methyl	Guthion
I	bifenthrin	Capture
H	butylate	Genate, Sutan
I	carbofuran	Furadan
I	clofentezine	Apollo
I	chlorethoxyfos	Fortress
O	chloropicrin	several
F	chlorothalonil	Bravo
I	chlorpyrifos	Lorsban, Dursban
I	coumaphos	Co-Ral
H	cyanazine	Bladex
I	cyfluthrin	Baythroid
I	cypermethrin	Ammo, Cymbush
I	deltamethrin	Decis
I	diazinon	several
O	dichloropropene	Telone
H	diclofop-methyl	Hoelon
I	dicrotophos	Bidrin
H	diflubenzuron	Dimilin
I	disulfoton	Di-Syston
H	EPTC	Eptam, Eradicane, Genep
I	esfenvalerate	Asana
I	ethion	Ethion
I	ethoprop	Mocap
I	fenamiphos	Nemacur
I	fenbutatin-oxide	Vendex
I	fenthion	Lysoff, Tiguvon
I	fenpropathrin	Danitol
I	fenvalerate	Ectrin, Pydrin
I	fonofos	Dyfonate
H	imazaquin	Scepter
I	lambda-cyhalothrin	Karate, Warrior
I	lindane	Isotox, Lindane
O	metam-sodium	Vapam
I	methamidophos	Monitor
I	methidathion	Supracide
I	methomyl	Lannate

-- continued

Class:	Common Name	Trade Name
O	methyl bromide	several
I	mehyl parathion	several
I	oxamyl	Vydate
I	oxydemeton-methyl	Metasystox-R
H,O	paraquat	Gramoxone, Cyclone, Starfire
I	permethrin	Ambush, Pounce
I	phorate	Thimet
I	phosphamidon	phosphamidon
H	picloram	Tordon
I	profenofos	Curacron
H	pronamide	Kerb
I	pyrethrins	several
I	rotenone	Rotenone
H	simazine	Princep
O	strychine	several
I	sulprofos	Bolstar
O	sulfuric acid	sulfuric acid
I	tefluthrin	Force
I	terbufos	Counter
I	tralomethrin	Scout
H	trifluralin	Treflan, Trilin, Trific
F	triphenyltin hydroxide	several
O	Zinc phosphide	several

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Report Features

Released October 5, 1999 by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. For information on "Agricultural Chemical Usage" call (202) 720-2127, office hours 7:30 a.m. to 4:00 p.m. ET.

The next "Agricultural Chemical Usage" report will be released March 16, 2000. This report will cover agricultural chemical use for postharvest applications on soybeans and oats in off farm storage facilities.

The next “Agricultural Chemical Usage” report for restricted use pesticides be released on October 5, 2000. This report will cover the use of restricted agricultural chemicals for 1999 on field crops, fruits, and nuts for the major states.

Listed below are persons within the National Agricultural Statistics Service to contact for additional information.

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