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Agricultural Chemical Usage 2003 Field Crops Summary

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Overview

The agricultural chemical use estimates in this report refer to on-farm use of commercial fertilizers and pesticides on targeted crops for the 2003 crop year. Targeted crops included barley, corn, fall potatoes, sorghum, and upland cotton. Farm and ranch operators were enumerated late in the growing season after the farm operator had indicated that planned applications were completed. The chemical use data were not summarized for geographical areas other than those States published in this report.

The data were compiled from the Agricultural Resources Management Survey (ARMS). The main portion of data collection time frame occurred during the months of October-December of 2003. Relevant portions of the survey instruments used in data collection are included in the back of this publication.

This report excludes pesticides used for seed treatments and postharvest applications to the commodity. Spot treatments, which account for a very small percentage of total applications, are also excluded.

The table below shows the number of States surveyed, the number of summarized reports for each State, and the percent of the Program States' acres planted to that commodity compared with the U.S. total.

Agricultural Chemical Use Survey Coverage, 2003

Crop	2003		
	States Surveyed	Reports Summarized	U.S. Acreage Included in Survey
	-- Number --		Percent
Barley	11	1,526	92
Corn	18	3,013	92
Fall Potatoes	10	872	80
Sorghum	7	880	96
Upland Cotton	12	1,751	90

Highlights

Barley: Nitrogen was applied to 93 percent of the 2003 barley planted acreage in the following Program States: California, Idaho, Minnesota, Montana, North Dakota, Pennsylvania, South Dakota, Utah, Washington, Wisconsin, and Wyoming. Nitrogen applications ranged from 37 percent of the acres treated in Wisconsin to 99 percent in Washington. Barley growers used an average of 1.4 applications per acre while applying 40 pounds of nitrogen per treatment. This computes to a crop year rate per acre of 60 pounds. In the Program States, 79 percent of the acres of barley planted received a phosphate application, while potash was applied to 29 percent of the acreage planted to barley.

Herbicides were applied to 93 percent of the barley planted acreage in 2003. MCPA was the most widely applied herbicide with 45 percent of the planted acreage being treated. It was applied at a rate of 0.32 pounds per acre. The next three most widely applied herbicides applied to barley, namely 2,4-D, bromoxynil, and fenoxaprop, were applied to 30, 29, and 28 percent, respectively, of the planted barley acreage.

In 2003, 3 percent of the barley planted acreage was treated with insecticides. The insecticides applied to barley were all put on less than one percent of the planted acres; therefore, no area applied values were published. Based on total pounds applied, methyl parathion at 9,000 pounds, was the most widely used insecticide on barley acres planted in the Program States. Fungicides were applied to 7 percent of the barley planted acreage in the States in the survey program.

Corn: Nitrogen was applied to 96 percent of the 2003 corn planted acreage in the Program States: Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New York, North Carolina, North Dakota, Ohio, Pennsylvania, South Dakota, Texas, and Wisconsin. Corn growers used an average of 1.7 applications per acre while applying 78 pounds of nitrogen per treatment. This computes to a crop year rate per acre of 136 pounds per acre. In the Program States, 79 percent of the corn planted acreage received a phosphate application, while potash was applied to 64 percent of the planted acreage.

Herbicides were applied to 95 percent of the corn planted acreage in 2003 in the Program States. Atrazine continued to be the most widely applied herbicide with 68 percent of the planted acreage being treated. It was applied at a rate of 1.04 pounds per acre. Acetochlor, at 26 percent of the planted acres treated, was the second most widely applied herbicide, followed by glyphosate and S-metolachlor, both applied to 19 percent of the planted corn acreage treated in the Program States.

In 2003, 29 percent of the corn planted acreage was treated with insecticides in the Program States. Cyfluthrin and tebupirimphos were the most widely applied insecticides, both applied to 7 percent of the acres planted to corn in the States surveyed.

Highlights (continued)

Fall Potatoes: Ten fall producing States were included in the 2003 survey: Colorado, Idaho, Maine, Michigan, Minnesota, North Dakota, Oregon, Pennsylvania, Washington, and Wisconsin. Nitrogen fertilizer was applied to 100 percent of the fall potato acreage in these States. Nitrogen applications averaged 4.0 per acre with a total of 218.5 million pounds applied. Phosphate was applied to 94 percent of the fall potato acres in the Program States, with a total of 158.2 millions pounds applied. Potash was applied to 88 percent of the acreage planted to fall potatoes in the States surveyed.

Herbicides were applied to 91 percent of the fall potato acreage in 2003 in the ten Program States. Metribuzin was the most widely applied herbicide, applied to 69 percent of the planted acreage being treated, at a rate of 0.42 pounds per acre. The next three most widely applied herbicides applied to fall potatoes, pendimethalin, rimsulfuron, and EPTC, were applied to 25, 23, and 22 percent, respectively, of the planted fall potato acres in the Program States. Insecticides were applied to 84 percent of the 2003 fall potato planted acreage. The two most commonly applied insecticides reported in the States surveyed were imidacloprid and cyfluthrin, which were applied to 41 and 31 percent of the fall potato acreage, respectively.

Fungicide treatments were applied to 91 percent of the fall potato acreage in the Program States. Mancozeb was used most commonly, as it was applied to 64 percent of the planted acres, followed closely by chlorothalonil on 56 percent of the fall potato acreage in the States surveyed.

Usage of Other Chemicals, primarily desiccants, varied widely among the States surveyed. Percent of acreage treated ranged from 3 percent in North Dakota to 77 percent in Washington. Overall, 47 percent of the acres planted to fall potatoes in the Program States received an application of an Other Chemical. Diquat and metam-sodium applied to, respectively, 30 and 25 percent of the fall potato planted acreage, were the most commonly applied Other Chemicals.

Highlights (continued)

Sorghum: States surveyed for sorghum include Colorado, Kansas, Missouri, Nebraska, Oklahoma, South Dakota, and Texas. Nitrogen fertilizer was applied to 82 percent of the 2003 sorghum planted acreage in the Program States. Sorghum growers in the Program States applied nitrogen on average 1.3 times per acre, putting down 61 pounds of nitrogen per treatment. Fertilizers with phosphate were applied to 49 percent of the planted acreage and 9 percent of the planted acreage received potash applications.

Sorghum producers in the States surveyed treated 85 percent of the sorghum planted acreage with herbicides. Atrazine was the most widely applied herbicide with 70 percent of the planted acreage being treated in the Program States. It was applied at a rate of 1.04 pounds per acre. Glyphosate was the second most widely used herbicide, applied to 27 percent of the planted sorghum acreage in the Program States.

In 2003, 8 percent of the sorghum planted acreage was treated with insecticides in the Program States. Terbufos was the most widely applied insecticide, which was applied to 4 percent of the acres planted to sorghum in the States surveyed.

Upland Cotton: Producers in the Program States (Alabama, Arizona, Arkansas, California, Georgia, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, and Texas) applied nitrogen fertilizer to 82 percent of the upland cotton planted acreage. The average number of nitrogen applications per acre was 1.5 with an average application rate of 61 pounds per acre. Phosphate was applied on 62 percent of the upland cotton planted acreage in the Program States, with a total of 394.1 million pounds applied. Potash was applied to 52 percent of the planted upland cotton planted acreage in the Program States. Producers in Tennessee applied potash to a high of 96 percent of the upland cotton planted acreage, whereas Arizona producers applied potash to a low of only 11 percent of the planted acreage.

In the Program States, 98 percent of the upland cotton planted acreage was treated with herbicides. The most widely used herbicides were glyphosate, applied to 69 percent of the upland cotton acreage, followed by trifluralin and diuron, applied to 39 and 28 percent, respectively, of the planted acreage in the States surveyed.

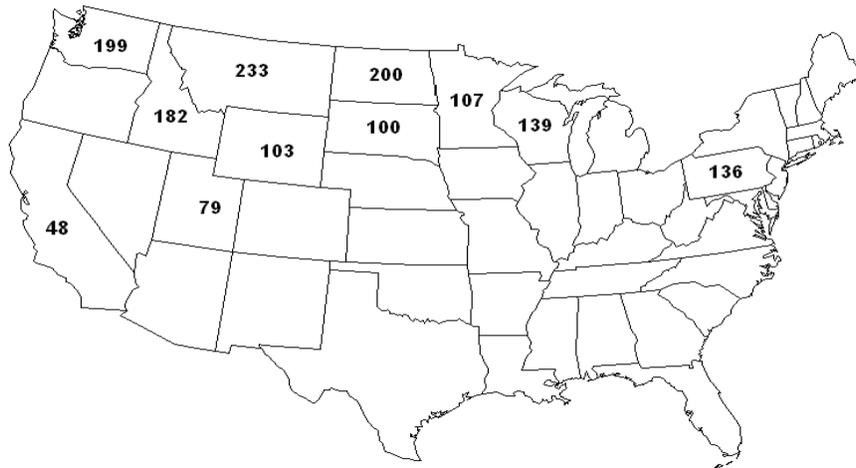
Insecticide applications were made to 64 percent of the upland cotton planted acres in 2003 for the twelve Program States. Malathion, at approximately 6.2 millions pounds, continued to be the most commonly used active ingredient based on total pounds applied. Acephate and Aldicarb were the next two most commonly used insecticides on upland cotton, with 2.5 and 2.0 million pounds applied, respectively, in the Program States. Fungicides were applied to 7 percent of the upland cotton planted acreage in the States in the survey program.

Area treated with Other Chemicals was 66 percent of the 2003 planted acreage in the Program States. In this pesticide class, Ethephon was the active ingredient most commonly used, as it was applied to 50 percent of the acres planted to upland cotton in those States surveyed.

Highlights (continued)

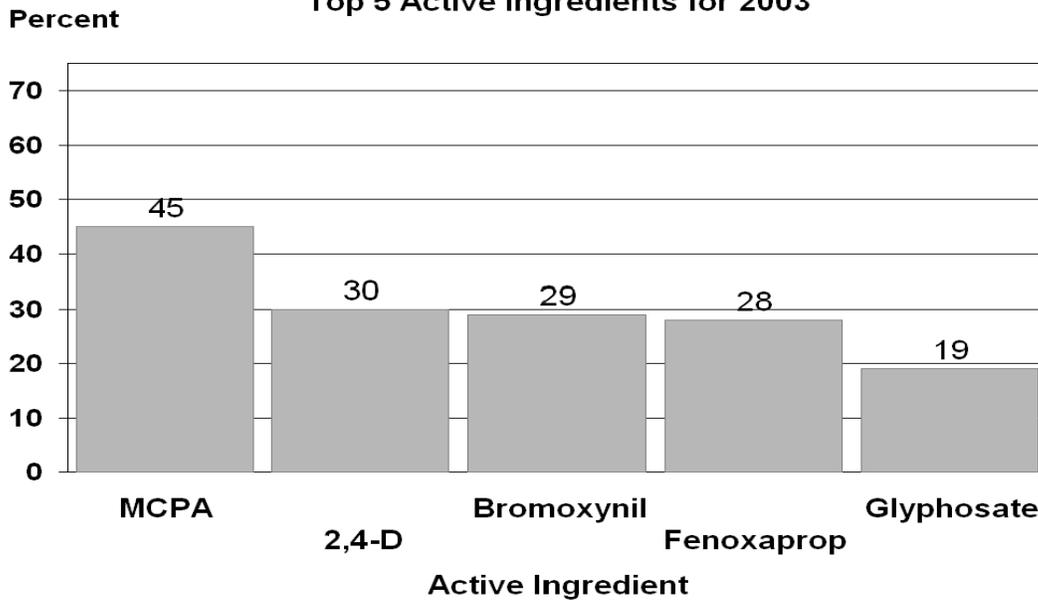
Program States Surveyed for 2003 Field Crops Chemical Usage Survey					
	Barley	Corn	Fall Potatoes	Sorghum	Upland Cotton
Alabama					+
Arizona					+
Arkansas					+
California	+				+
Colorado		+	+	+	
Georgia					+
Idaho	+		+		
Illinois		+			
Indiana		+			
Iowa		+			
Kansas		+		+	
Kentucky		+			
Louisiana					+
Maine			+		
Michigan		+	+		
Minnesota	+	+	+		
Mississippi					+
Missouri		+		+	+
Montana	+				
Nebraska		+		+	
New York		+			
North Carolina		+			+
North Dakota	+	+	+		
Ohio		+			
Oklahoma				+	
Oregon			+		
Pennsylvania	+	+	+		
South Carolina					+
South Dakota	+	+		+	
Tennessee					+
Texas		+		+	+
Utah	+				
Washington	+		+		
Wisconsin	+	+	+		
Wyoming	+				

Barley: Number of Usable Reports, 2003



Barley - Percent of Acres Treated

Top 5 Active Ingredients for 2003



Surveyed States are CA, ID, MN, MT, ND, PA, SD, UT, WA, WI, and WY

Barley: Fertilizer Use by State, 2003
Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>
CA	100	72	5.2	32	0.6	2	0.0
ID	750	91	56.2	58	15.4	25	5.7
MN	190	91	11.4	87	5.6	66	4.0
MT	1,100	92	44.2	88	30.2	52	9.7
ND	2,050	98	116.5	91	50.7	20	4.2
PA	75	69	2.2	39	1.1	40	1.2
SD	75	82	2.6	78	1.9	13	0.2
UT	45	58	2.1	14	0.3	0	0.0
WA	320	99	22.5	58	2.5	8	0.5
WI	55	37	0.5	36	0.7	44	1.8
WY	90	78	7.3	60	2.4	22	0.7
Total	4,850	93	270.7	79	111.4	29	28.0

**Barley: Fertilizer Primary Nutrient Applications,
Program States and Total, 2003**

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>Mil. Lbs</i>
California	100					
Nitrogen		72	1.2	58	73	5.2
Phosphate		32	1.0	19	19	0.6
Potash		2	1.0	7	7	0.0
Idaho	750					
Nitrogen		91	1.1	70	82	56.2
Phosphate		58	1.0	34	36	15.4
Potash		25	1.0	30	30	5.7
Minnesota	190					
Nitrogen		91	1.4	45	66	11.4
Phosphate		87	1.0	32	34	5.6
Potash		66	1.0	32	32	4.0
Montana	1,100					
Nitrogen		92	1.3	33	44	44.2
Phosphate		88	1.0	30	31	30.2
Potash		52	1.0	16	17	9.7
North Dakota	2,050					
Nitrogen		98	1.7	33	58	116.5
Phosphate		91	1.0	27	27	50.7
Potash		20	1.0	10	10	4.2
Pennsylvania	75					
Nitrogen		69	1.3	33	42	2.2
Phosphate		39	1.0	36	38	1.1
Potash		40	1.0	39	40	1.2
South Dakota	75					
Nitrogen		82	1.2	32	41	2.6
Phosphate		78	1.1	29	33	1.9
Potash		13	1.0	18	18	0.2
Utah	45					
Nitrogen		58	1.0	73	80	2.1
Phosphate		14	1.0	45	45	0.3
Potash		0	1.0	45	45	0.0
Washington	320					
Nitrogen		99	1.3	51	71	22.5
Phosphate		58	1.0	13	14	2.5
Potash		8	1.0	19	21	0.5
Wisconsin	55					
Nitrogen		37	1.0	24	26	0.5
Phosphate		36	1.0	33	33	0.7
Potash		44	1.0	74	74	1.8

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**Barley: Fertilizer Primary Nutrient Applications,
Program States and Total, 2003 (continued)**

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>Mil. Lbs</i>
Wyoming	90					
Nitrogen		78	1.0	95	104	7.3
Phosphate		60	1.0	44	44	2.4
Potash		22	1.0	35	35	0.7
Total	4,850					
Nitrogen		93	1.4	40	60	270.7
Phosphate		79	1.0	29	29	111.4
Potash		29	1.0	20	20	28.0

**Barley: Active Ingredients and
Publication Status
By Program States, 2003**

Active Ingredient	Program States						
	ALL	CA	ID	MN	MT	ND	PA
Herbicides							
2,4-D	P	P	P	P	P	P	P
2,4-D, Dimeth. salt	P	P	*		*		
2,4-DB, Dimeth. salt	*						*
2,4-DP, Dimeth. salt	P				*		
Acetic acid	P		*	*	P	*	
Bromoxynil	P	*	P	P	P	P	
Bromoxynil octanoate	P			P	*	P	
Butoxy. ester 2,4-D	P		P		P	*	
Carfentrazone-ethyl	P		*				
Chlorsulfuron	P	*			*		
Clodinafop-propargil	*		*				
Clopyralid	P		P	*	P	*	
Dicamba	P	P	*		P	P	*
Dicamba, Dimet. salt	*						
Dicamba, Sodium salt	*				*		
Dichlorprop	*		*				
Diclofop-methyl	*		*		*		
Difenzoquat	P		P		*		
Diuron	*						
Fenoxaprop	P		P	P	P	P	
Fluroxypyr	P		P	P	P	P	
Fluroxypyr 1-methylh	P		*	*	P	P	
Glyphosate	P		P	*	P	P	P
Glyphosate diam salt	*				*		
Imazamethabenz	P		P		P	*	
MCPA	P	*	P	P	P	P	*
MCPA, dimethyl. salt	P		*		*		
Metsulfuron-methyl	P		*		P		
Nicosulfuron	*		*				
Paraquat	*						*
Picloram	P		*		*	*	
Prosulfuron	P		*				
Sulfentrazone	*				*		
Sulfosate	*		*		*		
Terbutryn	*						
Thifensulfuron	P		P	P	P	P	P
Tralkoxydim	P		P		P	P	
Triallate	P		P		P	*	
Triasulfuron	P		*		P		
Tribenuron-methyl	P		P	P	P	P	*
Trifluralin	P				*	P	

See footnote(s) at end of table.

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**Barley: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States						
	ALL	CA	ID	MN	MT	ND	PA
Insecticides							
Carbaryl	*		*			*	
Carbofuran	P				*		
Chlorpyrifos	*			*		*	
Disulfoton	P	*	*				
Esfenvalerate	*					*	
Ethyl parathion	*		*		*		
Lambda-cyhalothrin	P		*	*			
Malathion	*		*		*		
Methyl parathion	P		*	P		*	
Fungicides							
Azoxystrobin	*	*			*		
Mancozeb	*			*		*	
Propiconazole	P		*	P	*	P	
Pyraclostrobin	P			P		*	
Tebuconazole	P			P		P	
Other Chemicals							
Ethephon	P	*	P		*		
Monocarbamide dihyd.	*						

See footnote(s) at end of table.

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**Barley: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States				
	SD	UT	WA	WI	WY
Herbicides					
2,4-D	P	P	P	P	P
2,4-D, Dimeth. salt	*		*		
2,4-DB, Dimeth. salt					*
2,4-DP, Dimeth. salt			*		
Acetic acid	*	P	*	*	*
Bromoxynil	P	*	P	*	P
Bromoxynil octanoate	*		*		
Butoxy. ester 2,4-D	*	*	*		*
Carfentrazone-ethyl	*		P		
Chlorsulfuron		*	P		
Clodinafop-propargil					
Clopyralid	*		*		*
Dicamba	P	P	*		*
Dicamba, Dimet. salt	*				
Dicamba, Sodium salt					
Dichlorprop					
Diclofop-methyl					
Difenzoquat		*	*		*
Diuron			*		
Fenoxaprop	P		P		*
Fluroxypyr		*	*		P
Fluroxypyr 1-methylh	*				P
Glyphosate	P	*	P		P
Glyphosate diam salt					
Imazamethabenz		*	*		*
MCPA	P	*	P	P	P
MCPA, dimethyl. salt			P		
Metsulfuron-methyl	*		P		
Nicosulfuron					
Paraquat			*		
Picloram	*		*		P
Prosulfuron			*		
Sulfentrazone					
Sulfosate					
Terbutryn	*				
Thifensulfuron	*	*	P		P
Tralkoxydim	*		P		*
Triallate		*	P		P
Triasulfuron			*		
Tribenuron-methyl	*	*	P		P
Trifluralin	*				*

See footnote(s) at end of table.

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**Barley: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States				
	SD	UT	WA	WI	WY
Insecticides					
Carbaryl		*			
Carbofuran		*			*
Chlorpyrifos					
Disulfoton		*			
Esfenvalerate					
Ethyl parathion					
Lambda-cyhalothrin					P
Malathion					
Methyl parathion					
Fungicides					
Azoxystrobin					
Mancozeb					
Propiconazole					
Pyraclostrobin	*				
Tebuconazole					
Other Chemicals					
Ethephon					
Monocarbamide dihyd.			*		

P Usage data are published for this active ingredient.

* Usage data are not published for this active ingredient.

**Barley: Pesticide, Planted Acreage,
Percent of Area Receiving Applications and Total Applied,
Program States and Total, 2003**

State	Planted Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide		Fungicide		Other	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA ¹	100	67	32						
ID ¹	750	94	573	3	16			5	9
MN	190	89	88	8	3	39	9		
MT ¹	1,100	93	1,005	2	5				
ND	2,050	98	1,067	4	12	11	20		
PA	75	32	8						
SD ¹	75	86	34						
UT ¹	45	75	17						
WA ¹	320	94	358						
WI	55	21	5						
WY	90	83	57	10	(²)				
Total	4,850	93	3,249	3	41	7	31	1	31

¹ Insufficient reports to publish data for one or more pesticide classes.

² Total applied is less than 500 lbs.

**Barley: Agricultural Chemical Applications,
Program States, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	30	1.0	0.38	0.42	602
2,4-D, Dimeth. salt	*	1.0	0.50	0.50	16
2,4-DP, Dimeth. salt	*	1.0	0.40	0.41	14
Acetic acid	3	1.0	0.33	0.35	49
Bromoxynil	29	1.0	0.24	0.24	340
Bromoxynil octanoate	3	1.0	0.24	0.24	30
Butoxy, ester 2,4-D	6	1.0	0.41	0.43	135
Carfentrazone-ethyl	*	1.0	0.007	0.007	(²)
Chlorsulfuron	*	1.0	0.01	0.01	(²)
Clopyralid	2	1.0	0.09	0.09	9
Dicamba	5	1.2	0.06	0.08	20
Difenzoquat	1	1.0	0.56	0.56	36
Fenoxaprop	28	1.0	0.06	0.06	77
Fluroxypyr	12	1.0	0.06	0.06	35
Fluroxypyr 1-methyl	3	1.0	0.11	0.11	15
Glyphosate	19	1.3	0.39	0.53	480
Imazamethabenz	2	1.0	0.32	0.32	37
MCPA	45	1.0	0.32	0.33	723
MCPA, dimethyl. salt	*	1.0	0.39	0.39	13
Metsulfuron-methyl	5	1.0	0.003	0.003	1
Picloram	*	1.0	0.009	0.009	1
Prosulfuron	*	1.0	0.01	0.01	(²)
Thifensulfuron	14	1.0	0.01	0.01	10
Tralkoxydim	8	1.0	0.15	0.15	55
Triallate	8	1.0	1.12	1.12	456
Triasulfuron	2	1.0	0.01	0.01	1
Tribenuron-methyl	12	1.0	0.007	0.007	4
Trifluralin	2	1.0	0.45	0.45	40
Insecticides					
Carbofuran	*	1.4	0.11	0.16	3
Disulfoton	*	1.0	0.69	0.69	7
Lambda-cyhalothrin	*	1.0	0.02	0.02	(²)
Methyl parathion	*	1.0	0.25	0.27	9
Fungicides					
Propiconazole	3	1.0	0.07	0.08	11
Pyraclostrobin	*	1.0	0.05	0.05	1
Tebuconazole	3	1.0	0.08	0.08	11
Other Chemicals					
Ethephon	*	1.0	0.28	0.28	12

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for the 11 Program States were 4.9 million acres.

States included are CA, ID, MN, MT, ND, PA, SD, UT, WA, WI, and WY.

² Total applied is less than 500 lbs.

**Barley: Agricultural Chemical Applications,
California, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	55	1.0	0.49	0.49	27
2,4-D, Dimeth. salt	10	1.0	0.44	0.44	5
Dicamba	23	1.0	0.02	0.02	1

¹ Planted acres in 2003 for California were 100,000 acres.

**Barley: Agricultural Chemical Applications,
Idaho, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	19	1.0	0.38	0.38	54
Bromoxynil	40	1.0	0.26	0.26	77
Butoxy. ester 2,4-D	18	1.0	0.45	0.46	61
Clopyralid	5	1.0	0.08	0.08	3
Difenzoquat	5	1.0	0.59	0.59	24
Fenoxaprop	2	1.0	0.08	0.08	1
Fluroxypyr	10	1.0	0.07	0.07	5
Glyphosate	6	1.0	0.42	0.43	18
Imazamethabenz	7	1.0	0.29	0.29	15
MCPA	47	1.0	0.35	0.35	125
Thifensulfuron	16	1.0	0.02	0.02	3
Tralkoxydim	26	1.0	0.15	0.15	28
Triallate	19	1.0	0.90	0.90	130
Tribenuron-methyl	14	1.0	0.009	0.01	1
Other Chemicals					
Ethephon	5	1.0	0.28	0.28	10

¹ Planted acres in 2003 for Idaho were 750,000 acres.

**Barley: Agricultural Chemical Applications,
Minnesota, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	23	1.0	0.52	0.52	22
Bromoxynil	30	1.0	0.23	0.24	14
Bromoxynil octanoate	16	1.0	0.27	0.27	8
Fenoxaprop	43	1.0	0.06	0.06	5
Fluroxypyr	10	1.0	0.11	0.11	2
MCPA	63	1.0	0.29	0.29	35
Thifensulfuron	16	1.0	0.02	0.02	1
Tribenuron-methyl	6	1.0	0.005	0.005	(²)
Insecticides					
Methyl parathion	5	1.3	0.12	0.16	1
Fungicides					
Propiconazole	19	1.1	0.06	0.07	3
Pyraclostrobin	5	1.0	0.05	0.05	1
Tebuconazole	14	1.0	0.11	0.11	3

¹ Planted acres in 2003 for Minnesota were 190,000 acres.

² Total applied is less than 500 lbs.

**Barley: Agricultural Chemical Applications,
Montana, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	36	1.2	0.35	0.45	177
Acetic acid	7	1.0	0.29	0.32	24
Bromoxynil	15	1.0	0.31	0.31	53
Butoxy, ester 2,4-D	14	1.0	0.37	0.40	61
Clopyralid	3	1.0	0.08	0.08	3
Dicamba	12	1.5	0.05	0.08	11
Fenoxaprop	3	1.0	0.06	0.06	2
Fluroxypyr	3	1.0	0.08	0.08	3
Fluroxypyr 1-methylh	3	1.1	0.07	0.09	3
Glyphosate	45	1.6	0.38	0.62	307
Imazamethabenz	5	1.0	0.35	0.35	19
MCPA	20	1.0	0.36	0.37	83
Metsulfuron-methyl	11	1.0	0.002	0.002	(²)
Thifensulfuron	9	1.0	0.007	0.007	1
Tralkoxydim	12	1.0	0.13	0.13	18
Triallate	13	1.0	1.26	1.26	177
Triasulfuron	10	1.0	0.009	0.009	1
Tribenuron-methyl	15	1.0	0.005	0.006	1

¹ Planted acres in 2003 for Montana were 1.1 million acres.

² Total applied is less than 500 lbs.

**Barley: Agricultural Chemical Applications,
North Dakota, 2003¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	31	1.0	0.37	0.37	233
Bromoxynil	38	1.0	0.22	0.22	170
Bromoxynil octanoate	4	1.0	0.23	0.23	20
Dicamba	4	1.0	0.08	0.08	6
Fenoxaprop	58	1.0	0.06	0.06	68
Fluroxypyr	21	1.0	0.06	0.06	24
Fluroxypyr 1-methylh	3	1.0	0.12	0.12	7
Glyphosate	11	1.0	0.38	0.38	86
MCPA	63	1.0	0.29	0.29	378
Thifensulfuron	15	1.0	0.01	0.01	4
Tralkoxydim	*	1.0	0.26	0.26	5
Tribenuron-methyl	9	1.0	0.008	0.008	1
Trifluralin	4	1.0	0.48	0.48	36
Fungicides					
Propiconazole	5	1.0	0.08	0.08	8
Tebuconazole	6	1.0	0.07	0.07	8

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for North Dakota were 2.1 million acres.

**Barley: Agricultural Chemical Applications,
Pennsylvania, 2003¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	6	1.0	0.93	0.93	4
Glyphosate	4	1.0	0.98	0.98	3
Thifensulfuron	22	1.0	0.02	0.02	(²)

¹ Planted acres in 2003 for Pennsylvania were 75,000 acres.

² Total applied is less than 500 lbs.

**Barley: Agricultural Chemical Applications,
South Dakota, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	20	1.0	0.55	0.55	9
Bromoxynil	31	1.0	0.22	0.23	5
Dicamba	15	1.0	0.06	0.06	1
Fenoxaprop	24	1.0	0.05	0.05	1
Glyphosate	18	1.1	0.43	0.48	6
MCPA	42	1.0	0.28	0.29	9

¹ Planted acres in 2003 for South Dakota were 75,000 acres.

**Barley: Agricultural Chemical Applications,
Utah, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	51	1.0	0.48	0.48	11
Acetic acid	10	1.0	0.45	0.45	2
Dicamba	6	1.0	0.12	0.12	(²)

¹ Planted acres in 2003 for Utah were 45,000 acres.

² Total applied is less than 500 lbs.

**Barley: Agricultural Chemical Applications,
Washington, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	34	1.0	0.43	0.46	50
Bromoxynil	17	1.0	0.31	0.33	18
Carfentrazone-ethyl	6	1.0	0.008	0.008	(²)
Chlorsulfuron	3	1.0	0.008	0.008	(²)
Fenoxaprop	2	1.2	0.08	0.10	1
Glyphosate	36	1.0	0.44	0.46	53
MCPA	42	1.0	0.52	0.54	73
MCPA, dimethyl. salt	4	1.0	0.63	0.63	7
Metsulfuron-methyl	22	1.0	0.004	0.004	(²)
Thifensulfuron	31	1.0	0.01	0.01	1
Tralkoxydim	6	1.0	0.19	0.19	4
Triallate	33	1.0	1.22	1.27	133
Tribenuron-methyl	24	1.0	0.005	0.005	(²)

¹ Planted acres in 2003 for Washington were 320,000 acres.

² Total applied is less than 500 lbs.

**Barley: Agricultural Chemical Applications,
Wisconsin, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	10	1.0	0.54	0.54	3
MCPA	7	1.0	0.36	0.36	1

¹ Planted acres in 2003 for Wisconsin were 55,000 acres.

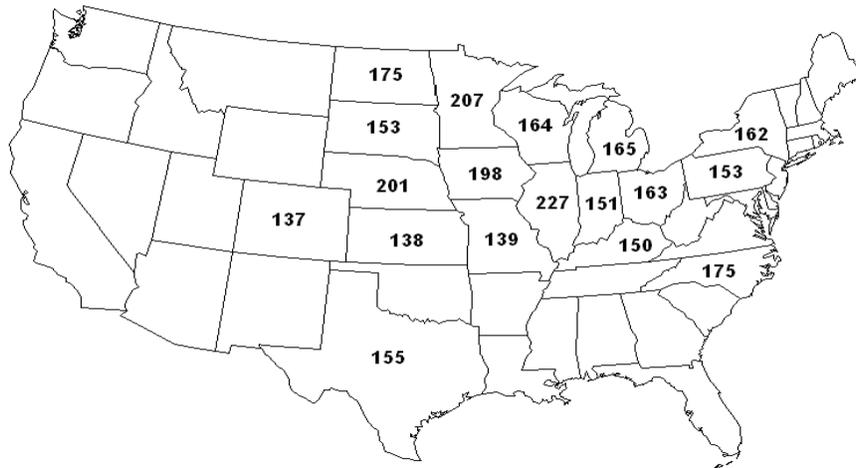
**Barley: Agricultural Chemical Applications,
Wyoming, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	34	1.0	0.43	0.45	14
Bromoxynil	9	1.0	0.16	0.16	1
Fluroxypyr	16	1.0	0.06	0.06	1
Fluroxypyr 1-methylh	24	1.0	0.12	0.12	3
Glyphosate	5	1.3	1.13	1.54	7
MCPA	40	1.0	0.48	0.48	17
Picloram	10	1.0	0.003	0.003	(²)
Thifensulfuron	25	1.0	0.02	0.02	(²)
Triallate	10	1.0	1.18	1.18	11
Tribenuron-methyl	25	1.0	0.007	0.007	(²)
Insecticides					
Lambda-cyhalothrin	10	1.0	0.02	0.02	(²)

¹ Planted acres in 2003 for Wyoming were 90,000 acres.

² Total applied is less than 500 lbs.

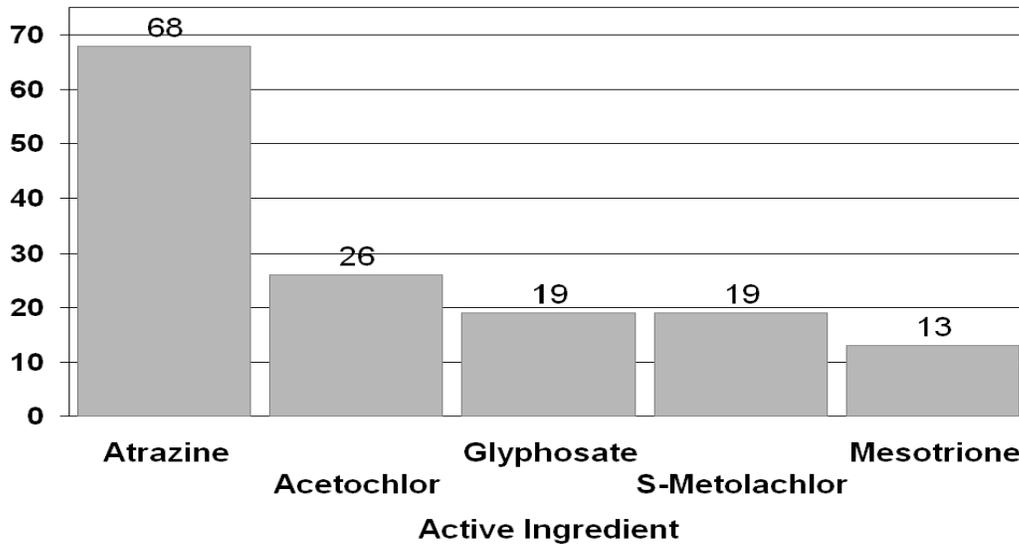
Corn: Number of Usable Reports, 2003



Corn - Percent of Acres Treated

Top 5 Active Ingredients for 2003

Percent



Surveyed States are CO, IL, IN, IA, KS, KY, MI, MN, MO, NE, NY, NC, ND, OH, PA, SD, TX, and WI

Corn: Fertilizer Use by State, 2003
Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>
CO	1,080	89	138.2	59	30.0	31	8.3
IL	11,200	98	1,758.5	83	751.4	78	963.9
IN	5,600	99	854.4	85	376.4	83	640.0
IA	12,400	93	1,544.3	59	468.6	65	670.6
KS	2,900	99	453.9	81	92.7	30	33.5
KY	1,170	98	189.0	83	81.0	78	76.1
MI	2,300	99	281.8	86	95.3	88	201.6
MN	7,200	95	835.9	89	309.2	73	349.2
MO	2,900	99	482.2	91	162.0	88	210.7
NE	8,100	95	1,005.1	76	232.1	25	39.3
NY	1,000	98	81.7	81	43.3	75	50.9
NC	740	99	95.9	89	37.9	86	61.8
ND	1,450	98	157.2	87	62.8	37	20.0
OH	3,300	100	538.6	91	225.7	85	284.6
PA	1,450	91	98.6	72	52.2	66	33.5
SD	4,400	92	396.5	78	159.8	25	27.9
TX	1,830	98	261.4	85	70.9	37	17.1
WI	3,750	99	380.1	90	138.6	89	233.6
Total	72,770	96	9,553.3	79	3,389.9	64	3,922.6

**Corn: Fertilizer Primary Nutrient Applications,
Program States and Total, 2003**

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>Mil. Lbs</i>
Colorado	1,080					
Nitrogen		89	2.2	64	144	138.2
Phosphate		59	1.1	39	47	30.0
Potash		31	1.4	16	25	8.3
Illinois	11,200					
Nitrogen		98	1.8	88	161	1,758.5
Phosphate		83	1.0	78	80	751.4
Potash		78	1.0	108	110	963.9
Indiana	5,600					
Nitrogen		99	2.0	75	154	854.4
Phosphate		85	1.3	59	79	376.4
Potash		83	1.1	120	138	640.0
Iowa	12,400					
Nitrogen		93	1.4	94	133	1,544.3
Phosphate		59	1.0	61	64	468.6
Potash		65	1.0	80	83	670.6
Kansas	2,900					
Nitrogen		99	1.8	85	158	453.9
Phosphate		81	1.1	36	39	92.7
Potash		30	1.0	39	39	33.5
Kentucky	1,170					
Nitrogen		98	1.5	108	165	189.0
Phosphate		83	1.0	76	84	81.0
Potash		78	1.0	78	83	76.1
Michigan	2,300					
Nitrogen		99	2.0	61	123	281.8
Phosphate		86	1.0	46	48	95.3
Potash		88	1.2	79	100	201.6
Minnesota	7,200					
Nitrogen		95	1.6	74	122	835.9
Phosphate		89	1.0	44	48	309.2
Potash		73	1.0	64	67	349.2
Missouri	2,900					
Nitrogen		99	1.5	112	169	482.2
Phosphate		91	1.0	60	62	162.0
Potash		88	1.0	80	82	210.7
Nebraska	8,100					
Nitrogen		95	1.9	67	130	1,005.1
Phosphate		76	1.0	35	38	232.1
Potash		25	1.0	19	20	39.3

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**Corn: Fertilizer Primary Nutrient Applications,
Program States and Total, 2003 (continued)**

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>Mil. Lbs</i>
New York	1,000					
Nitrogen		98	1.6	50	84	81.7
Phosphate		81	1.0	50	54	43.3
Potash		75	1.1	61	68	50.9
North Carolina	740					
Nitrogen		99	2.1	60	130	95.9
Phosphate		89	1.1	51	57	37.9
Potash		86	1.0	92	97	61.8
North Dakota	1,450					
Nitrogen		98	1.6	66	111	157.2
Phosphate		87	1.1	44	50	62.8
Potash		37	1.0	37	37	20.0
Ohio	3,300					
Nitrogen		100	1.9	84	164	538.6
Phosphate		91	1.1	64	75	225.7
Potash		85	1.1	92	101	284.6
Pennsylvania	1,450					
Nitrogen		91	1.5	48	75	98.6
Phosphate		72	1.1	45	50	52.2
Potash		66	1.1	32	35	33.5
South Dakota	4,400					
Nitrogen		92	1.3	71	98	396.5
Phosphate		78	1.1	42	47	159.8
Potash		25	1.1	23	26	27.9
Texas	1,830					
Nitrogen		98	1.9	75	146	261.4
Phosphate		85	1.3	34	45	70.9
Potash		37	1.5	16	25	17.1
Wisconsin	3,750					
Nitrogen		99	1.8	55	102	380.1
Phosphate		90	1.0	38	41	138.6
Potash		89	1.1	61	70	233.6
Total	72,770					
Nitrogen		96	1.7	78	136	9,553.3
Phosphate		79	1.1	53	59	3,389.9
Potash		64	1.0	78	85	3,922.6

**Corn: Active Ingredients and
Publication Status
By Program States, 2003**

Active Ingredient	Program States						
	ALL	CO	IL	IN	IA	KS	KY
Herbicides							
2,4-D	P	P	P	P	P	P	P
2,4-D, Dimeth. salt	P	*					
Acetamide	P	P	P	*	P		
Acetic acid	P		*	*	*	*	
Acetochlor	P	*	P	P	P	P	P
Alachlor	P	*	*	*	*	P	
Ametryn	P						
Atrazine	P	P	P	P	P	P	P
Bentazon	*						
Bromoxynil	P		P	*	*	*	
Butoxy. ester 2,4-D	*						*
Butylate	*						*
Carfentrazone-ethyl	P	*	*			*	*
Clethodim	*						
Clomazone	*						
Clopyralid	P		P	P	P	*	*
Cyanazine	P				*		
Dicamba	P	P	P	P	P	*	*
Dicamba, Dimet. salt	P	P	P	*	P	P	P
Dicamba, Pot. salt	P	P	P	*	*		
Dicamba, Sodium salt	P	*	*	*	P	*	*
Dichlorprop	P						
Diflufenzopyr-sodium	P	P	P	P	P	P	P
Dimethenamid	P	*	P	*	*	P	
Dimethenamid-P	P	*	P	*	P	*	*
Diuron	*			*			
EPTC	P						
Flumetsulam	P		P	P	P	*	*
Flumiclorac-pentyl	*		*				
Foramsulfuron	P	*	*		*	*	*
Glufosinate-ammonium	P	*	*	*	P	*	
Glyphosate	P	P	P	P	P	P	P
Glyphosate diam salt	P	*	*	*			*
Halosulfuron	P		*		*		
Imazapyr	P	*	P	*	*	*	P
Imazethapyr	P	*	P	*	*	*	P
Isoxaflutole	P	P	P	P	P	P	*
Linuron	P	*	*				*
MCPA	*	*		*	*		
Mesotrione	P	*	P	P	P	P	P
Metolachlor	P	P	P	P	P	P	P
Metribuzin	P	*	*	*	*		*
Nicosulfuron	P	P	P	P	P	P	P
Paraquat	P		P	*			P
Pendimethalin	P	*				*	
Primisulfuron	P		P	P	*	P	*
Propachlor	*						*
Prosulfuron	P		P	*	*	P	*
Pyridate	*						
Rimsulfuron	P	P	P	P	P	P	P
S-Metolachlor	P	P	P	P	P	P	P
Sethoxydim	*						
Simazine	P	*	P	P	*	*	P
Sulfosate	P				*	*	
Thifensulfuron	P	*	*	*			*
Tribenuron-methyl	*						*
Trifluralin	P					*	
Vernolate	*						

See footnote(s) at end of table.

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**Corn: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States						
	ALL	CO	IL	IN	IA	KS	KY
Insecticides							
Benzoic acid	*						
Bifenthrin	P	*	P	*	*	P	P
Bt (Bacillus thur.)	*						
Carbaryl	*				*		*
Carbofuran	P	P	*		*	*	*
Chlorethoxyfos	*		*				
Chlorpyrifos	P	*	P	P	P	*	*
Cyfluthrin	P	P	P	P	P	P	
Cypermethrin	*	*					
Diazinon	P		*				
Dimethoate	P	P				P	
Disulfoton	*						
Esfenvalerate	*	*					
Ethyl parathion	*						
Fipronil	P	P	*	P	*	*	
Fonofos	*					*	
Helicoverpa zea NPV	*	*					
Lambda-cyhalothrin	P		P	*			P
Methyl parathion	P	*				P	
Mevinphos	*						
Permethrin	P	*	*	*			*
Phorate	*						
Propargite	P	*					
Tebupirimphos	P	P	P	P	P	P	
Tefluthrin	P	*	P	P	*	*	*
Terbufos	P	P	*	P	*		
Zeta-cypermethrin	P		*	*		*	*
Fungicides							
Azoxystrobin	*						
Mancozeb	*	*					
Propiconazole	*		*				
Sulfur	*						
Trifloxystrobin	*		*				
Other Chemicals							
Garlic oil	P						

See footnote(s) at end of table.

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**Corn: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	MI	MN	MO	NE	NY	NC
Herbicides						
2,4-D	P	*	P	P	*	P
2,4-D, Dimeth. salt				*		
Acetamide		*	*	P		
Acetic acid	*		*			*
Acetochlor	P	P	P	P		*
Alachlor	*	*	P	P	P	P
Ametryn						P
Atrazine	P	P	P	P	P	P
Bentazon						*
Bromoxynil	*	P	*	*		
Butoxy. ester 2,4-D						
Butylate						
Carfentrazone-ethyl	*	*	*	*		
Clethodim	*					
Clomazone	*					
Clopyralid	P	P	P	P	*	*
Cyanazine				*	*	
Dicamba	P	P	*	P	P	*
Dicamba, Dimet. salt	P	P	*	P	*	
Dicamba, Pot. salt	*	P		*		*
Dicamba, Sodium salt	*	*	*		*	
Dichlorprop						P
Diflufenzopyr-sodium	P	P	*	P		
Dimethenamid	P	*	*	P	*	*
Dimethenamid-P	*	P	P	P	*	*
Diuron						
EPTC		*				
Flumetsulam	P	P	P	P	P	*
Flumiclorac-pentyl			*			
Foramsulfuron	*	*	*	*	*	
Glufosinate-ammonium	*	P	*	*	*	*
Glyphosate	P	P	P	P	P	P
Glyphosate diam salt	*	*	*	*	*	
Halosulfuron			*	*	P	
Imazapyr		*	*	P		*
Imazethapyr		*	*	P		*
Isoxaflutole	*		*	P		
Linuron					*	P
MCPA						*
Mesotrione	P	P	P	P	P	
Metolachlor	P	P	P	P	P	P
Metribuzin			*	*		
Nicosulfuron	P	P	P	P	P	P
Paraquat			*			P
Pendimethalin	P	*		*	P	
Primisulfuron	*	P	*	P	*	
Propachlor		*	*			
Prosulfuron			*	P		
Pyridate				*		
Rimsulfuron	P	P	P	P	P	P
S-Metolachlor	P	P	P	P	P	P
Sethoxydim			*			
Simazine			P		P	P
Sulfosate			*		*	*
Thifensulfuron	P		*	*	*	
Tribenuron-methyl						
Trifluralin				*		*
Vernolate						*

See footnote(s) at end of table.

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**Corn: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	MI	MN	MO	NE	NY	NC
Insecticides						
Benzoic acid						
Bifenthrin	P	*	*	P	*	
Bt (Bacillus thur.)					*	
Carbaryl					*	
Carbofuran		*		*		*
Chlorethoxyfos						
Chlorpyrifos	P	P	P	*	P	P
Cyfluthrin	*	*		P	*	
Cypermethrin						
Diazinon					*	
Dimethoate						
Disulfoton						*
Esfenvalerate	*		*			
Ethyl parathion				*		
Fipronil	*	*		P	*	
Fonofos						
Helicoverpa zea NPV						
Lambda-cyhalothrin		*	P			*
Methyl parathion	*			*		
Mevinphos			*			
Permethrin			P	P		
Phorate		*				
Propargite						
Tebupirimphos	*	*		P	*	
Tefluthrin	*	*	*	P	P	
Terbufos	*	*		P	*	P
Zeta-cypermethrin			P	*		
Fungicides						
Azoxystrobin	*					
Mancozeb	*					
Propiconazole						
Sulfur			*			
Trifloxystrobin						
Other Chemicals						
Garlic oil					*	

See footnote(s) at end of table.

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**Corn: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	ND	OH	PA	SD	TX	WI
Herbicides						
2,4-D	*	P	P	*	*	*
2,4-D, Dimeth. salt			*	*		*
Acetamide	*	P				P
Acetic acid		P	*	*		*
Acetochlor	P	P	P	P	P	P
Alachlor	*	*	*		*	P
Ametryn						
Atrazine	P	P	P	P	P	P
Bentazon		*				*
Bromoxynil	*	*		P		
Butoxy. ester 2,4-D					*	
Butylate					*	
Carfentrazone-ethyl	*				*	*
Clethodim						
Clomazone						
Clopyralid	P	P	*	P	*	P
Cyanazine		*	*	*		
Dicamba	P	P	P	P	*	P
Dicamba, Dimet. salt	P	P	*	*	P	P
Dicamba, Pot. salt	*	*		*		P
Dicamba, Sodium salt	P	*			P	
Dichlorprop		*				
Diflufenzopyr-sodium	P	P	*	*	P	P
Dimethenamid	*	P	*		P	*
Dimethenamid-P	*	P	*	P	P	P
Diuron					*	
EPTC	P			*		
Flumetsulam	P	P	*	P	*	P
Flumiclorac-pentyl						
Foramsulfuron	P	*		*	*	*
Glufosinate-ammonium	P			P		P
Glyphosate	P	P	P	P	P	P
Glyphosate diam salt	*	*	*	*		
Halosulfuron		*	*		*	*
Imazapyr		*		*		*
Imazethapyr		*		*		*
Isoxaflutole	*	P	P	P	P	
Linuron						
MCPA						
Mesotrione	P	*	P	P	*	P
Metolachlor	*	P	P	*	*	P
Metribuzin		P				*
Nicosulfuron	P	P	P	P	P	P
Paraquat			P			
Pendimethalin		*	P		P	P
Primisulfuron		*	P	P	P	P
Propachlor			*			
Prosulfuron			*		P	
Pyridate						
Rimsulfuron	P	P	P	P	P	P
S-Metolachlor	*	P	P	*	P	P
Sethoxydim						
Simazine		P	*			*
Sulfosate				*	*	
Thifensulfuron	*	*	*		*	
Tribenuron-methyl						
Trifluralin					*	
Vernolate						

See footnote(s) at end of table.

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**Corn: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	ND	OH	PA	SD	TX	WI
Insecticides						
Benzoic acid					*	
Bifenthrin	*			*	P	
Bt (Bacillus thur.)		*				
Carbaryl					*	*
Carbofuran					*	*
Chlorethoxyfos			*			
Chlorpyrifos		P	P	*	P	P
Cyfluthrin		*	*	*	P	*
Cypermethrin						
Diazinon		*	*			
Dimethoate						
Disulfoton						
Esfenvalerate						
Ethyl parathion		*				
Fipronil		*	*		*	*
Fonofos				*		
Helicoverpa zea NPV						
Lambda-cyhalothrin	*		*	*	*	*
Methyl parathion					*	
Mevinphos						
Permethrin		*	*		P	*
Phorate			*		*	
Propargite					*	
Tebupirimphos		*	*	*	P	*
Tefluthrin		*	P	*	P	P
Terbufos	*	*	*		P	*
Zeta-cypermethrin		*	*		P	
Fungicides						
Azoxystrobin						
Mancozeb						
Propiconazole						
Sulfur						
Trifloxystrobin						
Other Chemicals						
Garlic oil			*		*	

P Usage data are published for this active ingredient.

* Usage data are not published for this active ingredient.

**Corn: Pesticide, Planted Acreage,
Percent of Area Receiving Applications and Total Applied,
Program States and Total, 2003**

State	Planted Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide ¹		Fungicide		Other	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CO ²	1,080	77	1,099	39	278				
IL ²	11,200	98	28,926	58	1,640				
IN	5,600	93	13,064	52	1,323				
IA	12,400	96	25,328	14	623				
KS	2,900	97	6,041	29	337				
KY	1,170	97	2,716	16	52				
MI ²	2,300	98	4,934	14	206				
MN	7,200	95	10,927	13	454				
MO ²	2,900	98	7,733	33	139				
NE	8,100	93	15,209	36	742				
NY ²	1,000	96	2,107	28	141				
NC	740	97	1,854	28	213				
ND ²	1,450	96	1,564						
OH	3,300	96	9,198	11	110				
PA ²	1,450	92	3,620	31	179				
SD ²	4,400	96	6,003						
TX ²	1,830	87	2,273	53	594				
WI	3,750	98	6,533	22	273				
Total ²	72,770	95	149,136	29	7,465	*	232		

* Applied on less than 0.5 percent of acres.

¹ Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

² Insufficient reports to publish data for one or more pesticide classes.

**Corn: Agricultural Chemical Applications,
Program States, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	5	1.0	0.41	0.41	1,468
2,4-D, Dimeth. salt	*	1.0	0.21	0.21	17
Acetamide	2	1.0	0.42	0.42	731
Acetic acid	1	1.0	0.48	0.48	388
Acetochlor	26	1.0	1.88	1.90	36,067
Alachlor	2	1.0	1.72	1.72	2,615
Ametryn	*	1.0	1.12	1.12	82
Atrazine	68	1.0	1.04	1.13	55,642
Bromoxynil	2	1.0	0.27	0.27	327
Carfentrazone-ethyl	*	1.0	0.009	0.009	6
Clopyralid	7	1.0	0.10	0.10	520
Cyanazine	*	1.0	0.98	0.98	102
Dicamba	8	1.0	0.18	0.18	1,051
Dicamba, Dimet. salt	4	1.0	0.10	0.10	292
Dicamba, Pot. salt	4	1.0	0.37	0.37	1,044
Dicamba, Sodium salt	1	1.0	0.12	0.12	118
Dichlorprop	*	1.0	0.27	0.29	18
Diflufenzopyr-sodium	4	1.0	0.04	0.04	133
Dimethenamid	2	1.0	0.84	0.84	1,442
Dimethenamid-P	5	1.0	0.50	0.50	1,668
EPTC	*	1.0	3.54	3.54	566
Flumetsulam	7	1.0	0.04	0.04	214
Foramsulfuron	1	1.0	0.03	0.03	27
Glufosinate-ammonium	3	1.0	0.32	0.33	833
Glyphosate	19	1.2	0.69	0.86	11,913
Glyphosate diam salt	*	1.1	0.69	0.77	438
Halosulfuron	*	1.0	0.03	0.03	20
Imazapyr	2	1.0	0.002	0.002	4
Imazethapyr	2	1.0	0.007	0.007	11
Isoxaflutole	8	1.0	0.06	0.06	321
Linuron	*	1.0	0.70	0.70	93
Mesotrione	13	1.0	0.10	0.10	976
Metolachlor	6	1.0	1.57	1.57	6,384
Metribuzin	*	1.0	0.13	0.13	67
Nicosulfuron	11	1.0	0.02	0.02	166
Paraquat	1	1.0	0.51	0.51	381
Pendimethalin	2	1.0	1.03	1.03	1,727
Primisulfuron	5	1.0	0.02	0.02	83
Prosulfuron	2	1.0	0.009	0.009	17
Rimsulfuron	10	1.0	0.01	0.01	77
S-Metolachlor	19	1.0	1.36	1.38	18,948
Simazine	2	1.0	1.01	1.01	1,492
Sulfosate	*	1.6	1.22	2.06	249
Thifensulfuron	*	1.0	0.006	0.006	3
Trifluralin	*	1.0	0.69	0.69	75

See footnote(s) at end of table.

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**Corn: Agricultural Chemical Applications,
Program States, 2003 ¹ (continued)**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Insecticides					
Bifenthrin	3	1.0	0.06	0.06	118
Carbofuran	*	1.0	0.79	0.79	332
Chlorpyrifos	4	1.0	1.00	1.00	3,024
Cyfluthrin	7	1.0	0.006	0.006	32
Diazinon	*	1.0	0.47	0.47	62
Dimethoate	*	1.0	0.34	0.34	61
Fipronil	2	1.0	0.12	0.12	141
Lambda-cyhalothrin	1	1.0	0.02	0.02	20
Methyl parathion	*	1.1	0.33	0.39	186
Permethrin	1	1.0	0.08	0.09	71
Propargite	*	2.2	1.24	2.78	322
Tebupirimphos	7	1.0	0.12	0.12	565
Tefluthrin	6	1.0	0.11	0.11	523
Terbufos	2	1.0	1.11	1.12	1,660
Zeta-cypermethrin	1	1.0	0.03	0.03	31
Other Chemicals					
Garlic oil	*	1.0	0.54	0.54	42

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for the 18 Program States were 72.8 million acres.

States included are CO, IL, IN, IA, KS, KY, MI, MN, MO, NE, NY, NC, ND, OH, PA, SD, TX, and WI.

**Corn: Agricultural Chemical Applications,
Colorado, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	8	1.1	0.24	0.27	23
Acetamide	3	1.0	0.42	0.42	12
Atrazine	44	1.0	0.82	0.87	413
Dicamba	22	1.0	0.13	0.13	31
Dicamba, Dimet. salt	9	1.0	0.08	0.08	8
Dicamba, Pot. salt	6	1.0	0.21	0.21	15
Diflufenzopyr-sodium	10	1.0	0.04	0.04	4
Glyphosate	36	1.2	0.68	0.87	340
Isoxaflutole	3	1.0	0.03	0.03	1
Metolachlor	3	1.0	0.57	0.57	18
Nicosulfuron	17	1.0	0.02	0.02	3
Rimsulfuron	16	1.0	0.009	0.009	2
S-Metolachlor	9	1.0	1.14	1.14	114
Insecticides					
Carbofuran	3	1.0	0.69	0.69	22
Cyfluthrin	15	1.0	0.006	0.006	1
Dimethoate	3	1.0	0.23	0.23	8
Fipronil	5	1.0	0.09	0.09	5
Tebupirimphos	15	1.0	0.12	0.12	20
Terbufos	9	1.0	1.25	1.25	125

¹ Planted acres in 2003 for Colorado were 1.1 million acres.

**Corn: Agricultural Chemical Applications,
Illinois, 2003¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	7	1.0	0.41	0.41	303
Acetamide	2	1.0	0.54	0.54	121
Acetochlor	30	1.0	1.94	1.99	6,618
Atrazine	77	1.1	1.25	1.47	12,767
Bromoxynil	2	1.0	0.27	0.27	56
Clopyralid	5	1.0	0.10	0.10	53
Dicamba	11	1.0	0.16	0.17	211
Dicamba, Dimet. salt	3	1.0	0.11	0.11	32
Dicamba, Pot. salt	10	1.0	0.39	0.39	442
Diflufenzopyr-sodium	3	1.0	0.04	0.04	15
Dimethenamid	3	1.0	1.03	1.03	291
Dimethenamid-P	8	1.0	0.66	0.66	625
Flumetsulam	5	1.0	0.03	0.03	18
Glyphosate	11	1.0	0.60	0.60	730
Imazapyr	6	1.0	0.002	0.002	2
Imazethapyr	6	1.0	0.007	0.007	5
Isoxaflutole	6	1.0	0.06	0.06	44
Mesotrione	12	1.0	0.08	0.08	109
Metolachlor	7	1.0	1.75	1.75	1,329
Nicosulfuron	9	1.0	0.02	0.02	18
Paraquat	3	1.0	0.50	0.50	166
Primisulfuron	8	1.0	0.02	0.02	23
Prosulfuron	4	1.0	0.008	0.008	4
Rimsulfuron	7	1.1	0.01	0.01	9
S-Metolachlor	26	1.0	1.31	1.36	3,957
Simazine	5	1.0	0.98	0.98	544
Insecticides					
Bifenthrin	2	1.0	0.05	0.05	12
Chlorpyrifos	7	1.0	0.91	0.91	747
Cyfluthrin	21	1.0	0.006	0.006	15
Lambda-cyhalothrin	5	1.0	0.02	0.02	13
Tebupirimphos	21	1.0	0.12	0.12	276
Tefluthrin	16	1.0	0.12	0.12	205

¹ Planted acres in 2003 for Illinois were 11.2 million acres.

**Corn: Agricultural Chemical Applications,
Indiana, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	9	1.0	0.33	0.33	166
Acetochlor	33	1.0	1.97	1.97	3,621
Atrazine	83	1.0	1.19	1.25	5,814
Clopyralid	3	1.0	0.11	0.11	20
Dicamba	10	1.0	0.12	0.12	71
Diflufenzopyr-sodium	3	1.0	0.03	0.03	6
Flumetsulam	5	1.0	0.06	0.06	18
Glyphosate	10	1.2	0.62	0.75	430
Isoxaflutole	10	1.0	0.06	0.06	34
Mesotrione	6	1.0	0.15	0.15	50
Metolachlor	5	1.0	1.53	1.53	390
Nicosulfuron	6	1.0	0.02	0.02	6
Primisulfuron	10	1.0	0.02	0.02	14
Rimsulfuron	5	1.0	0.01	0.01	4
S-Metolachlor	22	1.0	1.32	1.32	1,623
Simazine	4	1.0	0.79	0.79	165
Insecticides					
Chlorpyrifos	9	1.0	1.21	1.21	621
Cyfluthrin	14	1.0	0.006	0.006	5
Fipronil	4	1.0	0.12	0.12	26
Tebupirimphos	14	1.0	0.11	0.11	90
Tefluthrin	15	1.0	0.11	0.11	93
Terbufos	6	1.0	1.37	1.37	473

¹ Planted acres in 2003 for Indiana were 5.6 million acres.

**Corn: Agricultural Chemical Applications,
Iowa, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	3	1.0	0.45	0.45	154
Acetamide	4	1.0	0.43	0.43	225
Acetochlor	37	1.0	2.06	2.06	9,570
Atrazine	70	1.0	0.91	0.99	8,598
Clopyralid	9	1.0	0.10	0.10	113
Dicamba	3	1.0	0.19	0.19	72
Dicamba, Dimet. salt	4	1.0	0.10	0.10	51
Dicamba, Sodium salt	2	1.0	0.12	0.12	29
Diflufenzopyr-sodium	4	1.0	0.04	0.04	24
Dimethenamid-P	6	1.0	0.46	0.46	320
Flumetsulam	9	1.0	0.04	0.04	47
Glufosinate-ammonium	7	1.0	0.29	0.29	256
Glyphosate	10	1.0	0.79	0.85	1,070
Isoxaflutole	17	1.0	0.07	0.07	135
Mesotrione	27	1.0	0.09	0.09	301
Metolachlor	3	1.0	1.91	1.91	622
Nicosulfuron	15	1.0	0.02	0.02	42
Rimsulfuron	14	1.0	0.01	0.01	22
S-Metolachlor	17	1.0	1.49	1.49	3,074
Insecticides					
Chlorpyrifos	3	1.0	1.01	1.01	366
Cyfluthrin	5	1.0	0.005	0.005	3
Tebupirimphos	5	1.0	0.10	0.10	63

¹ Planted acres in 2003 for Iowa were 12.4 million acres.

**Corn: Agricultural Chemical Applications,
Kansas, 2003¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	7	1.0	0.33	0.35	72
Acetochlor	19	1.0	1.80	1.80	988
Alachlor	11	1.0	1.85	1.85	583
Atrazine	72	1.1	0.97	1.11	2,296
Dicamba, Dimet. salt	3	1.0	0.11	0.11	11
Diflufenzopyr-sodium	4	1.0	0.04	0.04	5
Dimethenamid	8	1.0	1.01	1.01	236
Glyphosate	32	1.3	0.64	0.87	816
Isoxaflutole	6	1.0	0.03	0.03	6
Mesotrione	9	1.0	0.07	0.07	18
Metolachlor	6	1.0	1.24	1.24	213
Nicosulfuron	11	1.0	0.02	0.02	7
Primisulfuron	9	1.0	0.02	0.02	5
Prosulfuron	9	1.0	0.009	0.009	2
Rimsulfuron	9	1.0	0.01	0.01	3
S-Metolachlor	14	1.0	1.40	1.40	582
Insecticides					
Bifenthrin	16	1.0	0.08	0.08	35
Cyfluthrin	3	1.0	0.007	0.007	1
Dimethoate	5	1.0	0.37	0.37	53
Methyl parathion	8	1.1	0.39	0.44	104
Tebupirimphos	3	1.0	0.14	0.14	11

¹ Planted acres in 2003 for Kansas were 2.9 million acres.

**Corn: Agricultural Chemical Applications,
Kentucky, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	6	1.0	0.37	0.37	24
Acetochlor	6	1.0	1.59	1.59	120
Atrazine	81	1.0	1.32	1.43	1,358
Dicamba, Dimet. salt	4	1.0	0.08	0.08	4
Diflufenzopyr-sodium	5	1.0	0.04	0.04	2
Glyphosate	24	1.1	0.82	0.90	251
Imazapyr	23	1.0	0.002	0.002	1
Imazethapyr	23	1.0	0.006	0.006	2
Mesotrione	10	1.0	0.12	0.12	15
Metolachlor	14	1.0	1.51	1.51	239
Nicosulfuron	16	1.0	0.02	0.02	4
Paraquat	16	1.0	0.42	0.43	78
Rimsulfuron	13	1.0	0.009	0.01	2
S-Metolachlor	16	1.0	1.28	1.37	261
Simazine	17	1.0	1.24	1.24	249
Insecticides					
Bifenthrin	4	1.0	0.04	0.04	2
Lambda-cyhalothrin	3	1.0	0.03	0.03	1

¹ Planted acres in 2003 for Kentucky were 1.2 million acres.

**Corn: Agricultural Chemical Applications,
Michigan, 2003¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	8	1.0	0.46	0.51	94
Acetochlor	19	1.0	1.98	1.98	876
Atrazine	68	1.0	1.14	1.16	1,814
Clopyralid	10	1.0	0.12	0.12	27
Dicamba	6	1.0	0.26	0.26	36
Dicamba, Dimet. salt	7	1.0	0.13	0.13	22
Diflufenzopyr-sodium	8	1.0	0.05	0.05	10
Dimethenamid	*	1.0	0.96	0.96	21
Flumetsulam	14	1.0	0.04	0.04	13
Glyphosate	22	1.2	0.73	0.89	443
Mesotrione	7	1.0	0.15	0.15	23
Metolachlor	6	1.0	1.34	1.34	181
Nicosulfuron	10	1.0	0.02	0.02	5
Pendimethalin	12	1.0	1.11	1.11	317
Rimsulfuron	11	1.0	0.01	0.01	3
S-Metolachlor	23	1.0	1.39	1.39	735
Thifensulfuron	4	1.0	0.006	0.006	1
Insecticides					
Bifenthrin	4	1.0	0.05	0.05	4
Chlorpyrifos	5	1.0	1.28	1.28	146

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for Michigan were 2.3 million acres.

**Corn: Agricultural Chemical Applications,
Minnesota, 2003¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Acetochlor	30	1.0	1.73	1.73	3,683
Atrazine	45	1.0	0.63	0.64	2,112
Bromoxynil	3	1.0	0.31	0.31	63
Clopyralid	8	1.0	0.10	0.10	54
Dicamba	11	1.0	0.26	0.26	210
Dicamba, Dimet. salt	4	1.0	0.09	0.09	24
Dicamba, Pot. salt	8	1.0	0.34	0.34	183
Diflufenzopyr-sodium	4	1.0	0.04	0.04	13
Dimethenamid-P	5	1.0	0.08	0.08	30
Flumetsulam	8	1.0	0.04	0.04	20
Glufosinate-ammonium	9	1.0	0.27	0.29	198
Glyphosate	22	1.2	0.72	0.91	1,427
Mesotrione	18	1.0	0.11	0.11	144
Metolachlor	3	1.0	2.13	2.13	392
Nicosulfuron	21	1.0	0.02	0.02	30
Primisulfuron	4	1.0	0.02	0.02	5
Rimsulfuron	17	1.0	0.01	0.01	12
S-Metolachlor	12	1.0	1.93	1.93	1,682
Insecticides					
Chlorpyrifos	3	1.0	1.17	1.17	214

¹ Planted acres in 2003 for Minnesota were 7.2 million acres.

**Corn: Agricultural Chemical Applications,
Missouri, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	3	1.0	0.38	0.38	36
Acetochlor	19	1.0	1.99	1.99	1,114
Alachlor	5	1.0	2.54	2.54	379
Atrazine	89	1.1	1.28	1.51	3,894
Clopyralid	6	1.1	0.10	0.11	20
Dimethenamid-P	6	1.1	0.74	0.83	148
Flumetsulam	6	1.1	0.03	0.04	7
Glyphosate	12	1.1	0.67	0.79	267
Mesotrione	9	1.0	0.08	0.08	20
Metolachlor	15	1.0	1.54	1.54	662
Nicosulfuron	12	1.0	0.02	0.02	7
Rimsulfuron	12	1.0	0.01	0.01	4
S-Metolachlor	23	1.0	1.23	1.23	816
Simazine	3	1.0	1.00	1.00	95
Insecticides					
Chlorpyrifos	6	1.0	0.63	0.63	106
Lambda-cyhalothrin	9	1.0	0.02	0.02	4
Permethrin	4	1.0	0.11	0.11	13
Zeta-cypermethrin	11	1.0	0.03	0.03	8

¹ Planted acres in 2003 for Missouri were 2.9 million acres.

**Corn: Agricultural Chemical Applications,
Nebraska, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	7	1.0	0.39	0.39	229
Acetamide	7	1.0	0.32	0.32	187
Acetochlor	25	1.0	1.67	1.67	3,323
Alachlor	4	1.0	1.19	1.19	403
Atrazine	72	1.0	0.96	1.02	5,985
Clopyralid	6	1.0	0.09	0.09	43
Dicamba	4	1.0	0.20	0.20	70
Dicamba, Dimet. salt	3	1.0	0.13	0.13	30
Diflufenzopyr-sodium	2	1.0	0.05	0.05	9
Dimethenamid	3	1.0	0.53	0.53	122
Dimethenamid-P	2	1.0	0.58	0.58	114
Flumetsulam	6	1.0	0.03	0.03	15
Glyphosate	18	1.2	0.70	0.85	1,261
Imazapyr	2	1.0	0.002	0.002	(²)
Imazethapyr	2	1.0	0.007	0.007	1
Isoxaflutole	14	1.0	0.05	0.05	56
Mesotrione	13	1.0	0.12	0.12	121
Metolachlor	7	1.0	1.31	1.31	780
Nicosulfuron	4	1.0	0.02	0.02	6
Primisulfuron	7	1.0	0.02	0.02	13
Prosulfuron	7	1.0	0.008	0.008	4
Rimsulfuron	5	1.0	0.01	0.01	4
S-Metolachlor	23	1.0	1.15	1.15	2,129
Insecticides					
Bifenthrin	5	1.0	0.04	0.04	16
Cyfluthrin	4	1.0	0.009	0.009	3
Fipronil	5	1.0	0.12	0.12	49
Permethrin	4	1.1	0.07	0.08	30
Tebupirimphos	4	1.0	0.12	0.12	37
Tefluthrin	10	1.0	0.10	0.10	76
Terbufos	3	1.0	1.01	1.05	246

¹ Planted acres in 2003 for Nebraska were 8.1 million acres.

² Total applied is less than 500 lbs.

**Corn: Agricultural Chemical Applications,
New York, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Alachlor	4	1.0	1.80	1.80	70
Atrazine	70	1.0	0.97	1.01	709
Dicamba	16	1.0	0.25	0.25	41
Flumetsulam	3	1.0	0.10	0.10	3
Glyphosate	24	1.0	0.77	0.79	191
Halosulfuron	5	1.0	0.02	0.02	1
Mesotrione	21	1.0	0.17	0.17	37
Metolachlor	7	1.0	1.30	1.30	95
Nicosulfuron	12	1.0	0.02	0.02	2
Pendimethalin	29	1.0	1.33	1.33	384
Rimsulfuron	13	1.0	0.01	0.01	1
S-Metolachlor	30	1.0	1.55	1.55	470
Simazine	2	1.0	1.07	1.07	23
Insecticides					
Chlorpyrifos	8	1.0	1.06	1.06	80
Tefluthrin	9	1.0	0.12	0.12	11

¹ Planted acres in 2003 for New York were 1.0 million acres.

**Corn: Agricultural Chemical Applications,
North Carolina, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	10	1.1	0.36	0.40	30
Alachlor	18	1.0	1.82	1.82	239
Ametryn	10	1.0	1.12	1.12	82
Atrazine	78	1.0	1.18	1.22	699
Dichlorprop	4	1.1	0.26	0.31	8
Glyphosate	27	1.4	0.69	1.00	202
Linuron	2	1.0	0.80	0.80	13
Metolachlor	16	1.0	1.35	1.35	163
Nicosulfuron	11	1.0	0.02	0.02	2
Paraquat	14	1.0	0.50	0.52	52
Rimsulfuron	4	1.1	0.01	0.01	(²)
S-Metolachlor	23	1.0	1.10	1.10	188
Simazine	14	1.0	1.14	1.14	115
Insecticides					
Chlorpyrifos	8	1.0	1.06	1.06	63
Terbufos	18	1.0	1.01	1.01	133

¹ Planted acres in 2003 for North Carolina were 740,000 acres.

² Total applied is less than 500 lbs.

**Corn: Agricultural Chemical Applications,
North Dakota, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Acetochlor	19	1.0	1.52	1.52	428
Atrazine	34	1.0	0.50	0.50	245
Clopyralid	3	1.0	0.07	0.07	3
Dicamba	11	1.0	0.19	0.19	29
Dicamba, Dimet. salt	24	1.0	0.11	0.11	40
Dicamba, Sodium salt	2	1.0	0.10	0.10	3
Diflufenzopyr-sodium	25	1.0	0.05	0.05	16
EPTC	2	1.0	3.17	3.17	104
Flumetsulam	3	1.0	0.02	0.02	1
Foramsulfuron	7	1.0	0.03	0.03	3
Glufosinate-ammonium	6	1.1	0.34	0.37	35
Glyphosate	40	1.4	0.62	0.92	537
Mesotrione	3	1.0	0.08	0.08	4
Nicosulfuron	19	1.0	0.02	0.02	6
Rimsulfuron	16	1.0	0.01	0.01	2

¹ Planted acres in 2003 for North Dakota were 1.5 million acres.

**Corn: Agricultural Chemical Applications,
Ohio, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	11	1.0	0.50	0.50	188
Acetamide	4	1.0	0.44	0.44	60
Acetic acid	9	1.0	0.47	0.47	136
Acetochlor	30	1.0	2.08	2.14	2,130
Atrazine	85	1.0	1.29	1.31	3,700
Clopyralid	3	1.0	0.11	0.11	10
Dicamba	4	1.0	0.24	0.24	31
Dicamba, Dimet. salt	6	1.0	0.10	0.11	23
Diflufenzopyr-sodium	6	1.0	0.04	0.04	8
Dimethenamid	15	1.0	0.57	0.57	274
Dimethenamid-P	3	1.0	0.67	0.67	60
Flumetsulam	3	1.0	0.04	0.04	4
Glyphosate	26	1.1	0.75	0.83	720
Isoxaflutole	5	1.0	0.05	0.05	8
Metolachlor	13	1.0	1.78	1.78	782
Metribuzin	2	1.0	0.13	0.13	10
Nicosulfuron	5	1.0	0.02	0.02	3
Rimsulfuron	3	1.0	0.01	0.01	1
S-Metolachlor	14	1.0	1.23	1.23	578
Simazine	6	1.0	1.00	1.00	209
Insecticides					
Chlorpyrifos	2	1.0	0.86	0.86	67

¹ Planted acres in 2003 for Ohio were 3.3 million acres.

**Corn: Agricultural Chemical Applications,
Pennsylvania, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	7	1.0	0.62	0.62	65
Acetochlor	6	1.0	1.81	1.81	167
Atrazine	78	1.0	1.18	1.20	1,356
Dicamba	14	1.0	0.15	0.15	30
Glyphosate	20	1.1	0.90	1.02	300
Isoxaflutole	2	1.0	0.05	0.05	1
Mesotrione	7	1.0	0.13	0.13	14
Metolachlor	10	1.0	1.26	1.30	188
Nicosulfuron	12	1.0	0.02	0.02	3
Paraquat	6	1.0	0.63	0.63	53
Pendimethalin	40	1.0	1.02	1.02	594
Primisulfuron	6	1.0	0.01	0.01	1
Rimsulfuron	10	1.0	0.01	0.01	2
S-Metolachlor	36	1.0	1.24	1.24	639
Insecticides					
Chlorpyrifos	11	1.0	0.92	0.92	151
Tefluthrin	11	1.0	0.13	0.13	21

¹ Planted acres in 2003 for Pennsylvania were 1.5 million acres.

**Corn: Agricultural Chemical Applications,
South Dakota, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Acetochlor	26	1.0	1.61	1.61	1,869
Atrazine	30	1.0	0.67	0.68	899
Bromoxynil	4	1.0	0.28	0.28	46
Clopyralid	4	1.0	0.08	0.08	14
Dicamba	12	1.0	0.23	0.23	116
Dimethenamid-P	3	1.0	0.18	0.18	23
Flumetsulam	4	1.0	0.03	0.03	5
Glufosinate-ammonium	4	1.1	0.42	0.47	81
Glyphosate	50	1.5	0.64	1.00	2,225
Isoxaflutole	10	1.0	0.07	0.07	30
Mesotrione	6	1.0	0.11	0.11	29
Nicosulfuron	4	1.0	0.02	0.02	4
Primisulfuron	4	1.0	0.02	0.02	4
Rimsulfuron	4	1.0	0.01	0.01	2

¹ Planted acres in 2003 for South Dakota were 4.4 million acres.

**Corn: Agricultural Chemical Applications,
Texas, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Acetochlor	5	1.0	0.91	0.91	86
Atrazine	69	1.1	0.87	1.00	1,275
Dicamba, Dimet. salt	7	1.0	0.09	0.09	12
Dicamba, Sodium salt	9	1.0	0.11	0.11	18
Diflufenzopyr-sodium	16	1.0	0.04	0.04	11
Dimethenamid	5	1.0	0.56	0.56	47
Dimethenamid-P	8	1.0	0.47	0.47	65
Glyphosate	35	1.1	0.57	0.65	421
Isoxaflutole	8	1.0	0.03	0.03	4
Nicosulfuron	20	1.0	0.02	0.02	8
Pendimethalin	4	1.0	0.71	0.71	46
Primisulfuron	6	1.0	0.02	0.02	2
Prosulfuron	6	1.0	0.01	0.01	1
Rimsulfuron	8	1.0	0.01	0.01	2
S-Metolachlor	7	1.0	0.75	0.75	96
Insecticides					
Bifenthrin	4	1.0	0.06	0.06	4
Chlorpyrifos	3	1.0	0.88	0.88	44
Cyfluthrin	9	1.0	0.006	0.006	1
Permethrin	7	1.0	0.07	0.07	9
Tebupirimphos	9	1.0	0.12	0.12	20
Tefluthrin	3	1.0	0.08	0.08	5
Terbufos	13	1.0	0.95	0.95	228
Zeta-cypermethrin	4	1.0	0.03	0.03	2

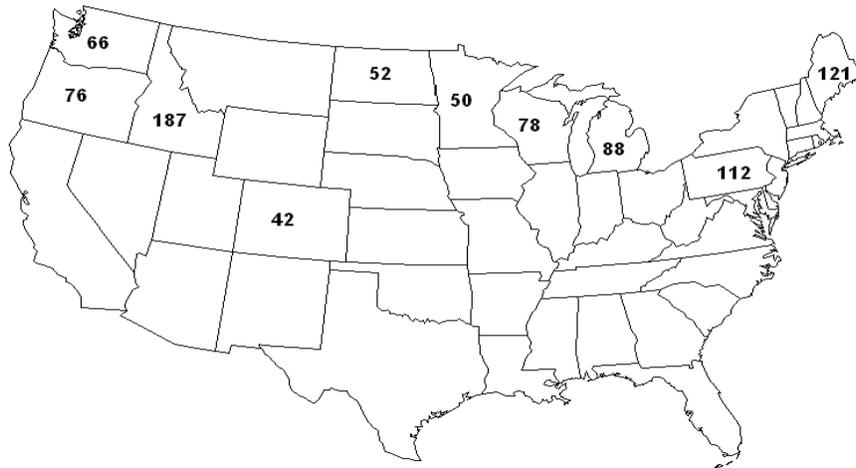
¹ Planted acres in 2003 for Texas were 1.8 million acres.

**Corn: Agricultural Chemical Applications,
Wisconsin, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Acetamide	3	1.0	0.65	0.65	75
Acetochlor	22	1.0	1.72	1.72	1,408
Alachlor	3	1.0	1.73	1.73	172
Atrazine	58	1.0	0.77	0.79	1,708
Clopyralid	31	1.0	0.12	0.12	140
Dicamba	18	1.0	0.11	0.11	76
Dicamba, Dimet. salt	5	1.0	0.10	0.10	17
Dicamba, Pot. salt	10	1.0	0.41	0.41	156
Diflufenzopyr-sodium	3	1.0	0.05	0.05	6
Dimethenamid-P	7	1.0	0.22	0.22	55
Flumetsulam	34	1.0	0.04	0.04	53
Glufosinate-ammonium	4	1.0	0.37	0.37	51
Glyphosate	9	1.0	0.87	0.87	280
Mesotrione	13	1.0	0.15	0.15	76
Metolachlor	5	1.0	1.42	1.42	248
Nicosulfuron	16	1.0	0.02	0.02	10
Pendimethalin	8	1.0	0.86	0.86	245
Primisulfuron	9	1.0	0.02	0.02	7
Rimsulfuron	11	1.0	0.01	0.01	4
S-Metolachlor	28	1.0	1.55	1.55	1,645
Insecticides					
Chlorpyrifos	3	1.0	0.75	0.75	96
Tefluthrin	10	1.0	0.11	0.11	43

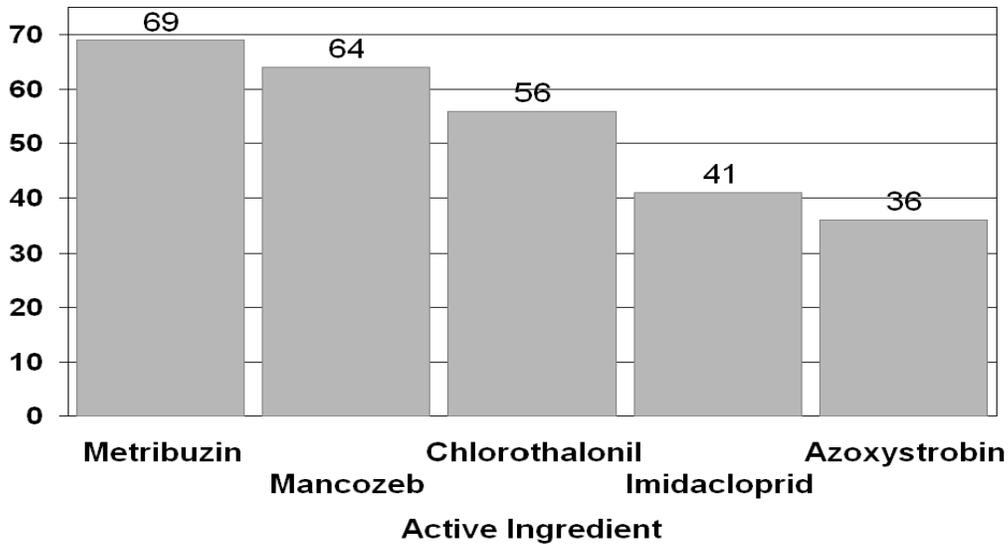
¹ Planted acres in 2003 for Wisconsin were 3.8 million acres.

Fall Potatoes: Number of Usable Reports, 2003



Fall Potatoes - Percent of Acres Treated
Top 5 Active Ingredients for 2003

Percent



Surveyed States are CO, ID, ME, MI, MN, ND, OR, PA, WA, and WI

Fall Potatoes: Fertilizer Use by State, 2003
Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>
CO	73	98	15.9	96	9.7	90	7.0
ID	360	100	81.4	95	63.2	86	37.3
ME	66	100	12.0	100	12.3	100	13.8
MI	46	100	8.5	98	4.0	98	9.1
MN	60	100	8.6	94	4.9	92	8.5
ND	117	97	16.5	92	10.0	84	13.7
OR	43	100	10.7	96	7.4	84	8.8
PA	15	100	1.9	99	1.3	99	1.4
WA	163	100	43.1	85	33.2	82	30.7
WI	81	100	19.9	99	12.2	100	25.5
Total	1,024	100	218.5	94	158.2	88	155.8

**Fall Potatoes: Fertilizer Primary Nutrient Applications,
Program States and Total, 2003**

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>Mil. Lbs</i>
Colorado	73					
Nitrogen		98	5.7	39	223	15.9
Phosphate		96	1.5	89	138	9.7
Potash		90	2.2	48	107	7.0
Idaho	360					
Nitrogen		100	4.6	49	226	81.4
Phosphate		95	2.0	92	185	63.2
Potash		86	1.3	91	121	37.3
Maine	66					
Nitrogen		100	1.0	167	182	12.0
Phosphate		100	1.0	187	187	12.3
Potash		100	1.1	185	208	13.8
Michigan	46					
Nitrogen		100	3.4	54	184	8.5
Phosphate		98	1.5	59	89	4.0
Potash		98	1.5	135	203	9.1
Minnesota	60					
Nitrogen		100	2.2	65	143	8.6
Phosphate		94	1.1	74	88	4.9
Potash		92	1.3	113	154	8.5
North Dakota	117					
Nitrogen		97	3.6	40	144	16.5
Phosphate		92	1.4	64	93	10.0
Potash		84	1.2	112	139	13.7
Oregon	43					
Nitrogen		100	3.0	83	251	10.7
Phosphate		96	1.5	114	179	7.4
Potash		84	1.7	143	244	8.8
Pennsylvania	15					
Nitrogen		100	2.0	64	133	1.9
Phosphate		99	1.1	75	89	1.3
Potash		99	1.1	87	99	1.4
Washington	163					
Nitrogen		100	3.6	73	265	43.1
Phosphate		85	1.9	121	239	33.2
Potash		82	1.3	169	229	30.7
Wisconsin	81					
Nitrogen		100	6.6	37	246	19.9
Phosphate		99	2.1	70	152	12.2
Potash		100	3.9	80	314	25.5

--continued

**Fall Potatoes: Fertilizer Primary Nutrient Applications,
Program States and Total, 2003 (continued)**

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>Mil. Lbs</i>
Total	1,023					
Nitrogen		100	4.0	53	215	218.5
Phosphate		94	1.7	94	165	158.2
Potash		88	1.6	106	172	155.8

**Fall Potatoes: Active Ingredients and
Publication Status
By Program States, 2003**

Active Ingredient	Program States					
	ALL	CO	ID	ME	MI	MN
Herbicides						
2,4-D	P					*
Acetic acid	*					*
Atrazine	*		*			
Clethodim	P				*	
Clopyralid	*		*			
DCPA	*		*			
Dicamba, Pot. salt	*		*			
EPTC	P	P	P			*
Glufosinate-ammonium	P			*	P	*
Glyphosate	P		*		P	*
Linuron	P			P	P	P
Metolachlor	P	*	*	*	P	*
Metribuzin	P	P	P	P	P	P
Pendimethalin	P	*	P		P	*
Rimsulfuron	P	*	P	P	P	P
S-Metolachlor	P	P	P		P	P
Sethoxydim	P				*	*
Trifluralin	P		*			

See footnote(s) at end of table.

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**Fall Potatoes: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	ALL	CO	ID	ME	MI	MN
Insecticides						
Abamectin	*				*	
Aldicarb	P		P			
Azadirachtin	*					
Azinphos-methyl	P				*	*
Bt (Bacillus thur.)	*					*
Carbaryl	P		*		*	
Carbofuran	P		P			
Cryolite	*					
Cyfluthrin	P	P	P	P	P	P
Diazinon	P		P			
Dimethoate	P				P	*
Disulfoton	P		*			
Endosulfan	P		P	*	P	*
Esfenvalerate	P	*	P	P	P	P
Ethoprop	P		P	*	*	
Imidacloprid	P	P	P	P	P	P
Indoxacarb	*					
Kaolin	*					
Malathion	P					*
Methamidophos	P		P	P	P	*
Methomyl	P		*	*		
Methyl parathion	P					
Oxamyl	P	P	P		P	
Permethrin	P	P	P	*	P	*
Phorate	P	*	P		*	*
Phosmet	P		*		*	
Piperonyl butoxide	P		*			
Propargite	P		*			
Pymetrozine	P		P	P	*	*
Pyrethrins	*					
Rotenone	*					
Spinosad	P			*	*	*
Thiamethoxam	P	P	P	*	P	P
Trichlorfon	P				*	
Zeta-cypermethrin	*					

See footnote(s) at end of table.

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**Fall Potatoes: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	ALL	CO	ID	ME	MI	MN
Fungicides						
Azoxystrobin	P	P	P	P	P	P
Basic copper sulfate	*		*			
Captan	*					
Chlorothalonil	P	P	P	P	P	P
Coniothyrium minitan	*					
Copper amm. complex	*		*	*		
Copper hydroxide	P	P	P	P	P	*
Copper oxychlor. sul.	*					
Copper resinate	*					
Copper sulfate	P		*		*	
Cymoxanil	P		*	P	P	*
Dicloran	*		*			
Dimethomorph	P		*	*	*	
Fluazinam	P		P			*
Fludioxonil	*	*				
Flutolanil	P	*	P			*
Iprodione	P		*			
Mancozeb	P	P	P	P	P	P
Maneb	P	*	*	*	*	*
Mefenoxam	P	P	P	P	P	P
Metalaxyl	P	*	P	P	*	*
Metiram	P		*	P	*	P
PCNB	P		P			*
Phosphorous acid	*					
Propamocarb hydroch.	P				*	
Pyraclostrobin	P	*	P	P	P	*
Sulfur	P	P	*		*	
Triphenyltin hydrox.	P	P		P	P	P
Zoxamide	P		*			*

See footnote(s) at end of table.

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**Fall Potatoes: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	ALL	CO	ID	ME	MI	MN
Other Chemicals						
Busan 881	P		*			
Chloropicrin	*					
Cytokinins	P			*		
Dichloropropene	P	*	P			
Diquat	P	P	P	P	P	P
Endothall	P		*	*	*	*
Harpin protein	P					
Indolebutyric acid	P			*		
Maleic hydrazide	P		P	P	P	
Metam-sodium	P	*	P		*	*
Paraquat	P	*	*	P	P	
Potassium gibber.	P			*		
Sulfuric acid	P	P	P			
Zinc phosphide	*		*			

See footnote(s) at end of table.

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**Fall Potatoes: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States				
	ND	OR	PA	WA	WI
Herbicides					
2,4-D	*				
Acetic acid					
Atrazine					
Clethodim	*			*	*
Clopyralid					
DCPA					
Dicamba, Pot. salt					
EPTC		P	*	P	
Glufosinate-ammonium		P		P	*
Glyphosate	*	*	P	*	P
Linuron	*		*		P
Metolachlor		*	P	*	*
Metribuzin	P	P	P	P	P
Pendimethalin	P	P	P	P	P
Rimsulfuron	P	P	*	P	P
S-Metolachlor	*	P	P	*	P
Sethoxydim	*	*	*		*
Trifluralin		*		P	

See footnote(s) at end of table.

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**Fall Potatoes: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States				
	ND	OR	PA	WA	WI
Insecticides					
Abamectin					
Aldicarb		P		P	
Azadirachtin					*
Azinphos-methyl		*	*		P
Bt (Bacillus thur.)			*		
Carbaryl		*	*	*	*
Carbofuran	*	P	*	P	
Cryolite			*		
Cyfluthrin	P	P	P	P	P
Diazinon			*	*	P
Dimethoate	P	*	P	P	P
Disulfoton	*	*	*	*	
Endosulfan		P	P	*	P
Esfenvalerate	P	P	*	P	P
Ethoprop		P	*	P	P
Imidacloprid	P	P	P	P	P
Indoxacarb		*		*	
Kaolin			*		
Malathion			*		*
Methamidophos	*	P	P	P	*
Methomyl		P	*		
Methyl parathion			*	*	
Oxamyl		P	P	P	P
Permethrin		*	P	*	*
Phorate		P	*	P	
Phosmet			*	*	P
Piperonyl butoxide					*
Propargite	*	P		P	
Pymetrozine	*	*		P	*
Pyrethrins			*		
Rotenone			*		
Spinosad	*		P	*	*
Thiamethoxam	P	*	*	*	P
Trichlorfon			*		
Zeta-cypermethrin			*		

See footnote(s) at end of table.

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**Fall Potatoes: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States				
	ND	OR	PA	WA	WI
Fungicides					
Azoxystrobin	P	P	P	P	P
Basic copper sulfate			*		*
Captan		*	*		*
Chlorothalonil	P	P	P	P	P
Coniothyrium minitan					*
Copper amm. complex				*	
Copper hydroxide		*	P	P	P
Copper oxychlo. sul.				*	
Copper resinate				*	
Copper sulfate			*		
Cymoxanil	P	*	P	P	P
Dicloran		*		*	
Dimethomorph		*	*	*	
Fluazinam		*		P	
Fludioxonil					
Flutolanil	*	P	*	*	*
Iprodione		*		P	
Mancozeb	P	P	P	P	P
Maneb	*		*		
Mefenoxam	P	P	P	P	P
Metalaxyl	*	P	P	P	*
Metiram		*	P	P	*
PCNB		*		P	*
Phosphorous acid			*		
Propamocarb hydroch.			*	*	
Pyraclostrobin	P	P	*	P	P
Sulfur	*	*		P	*
Triphenyltin hydrox.	P	*	*	*	P
Zoxamide	P		*	*	P

See footnote(s) at end of table.

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**Fall Potatoes: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States				
	ND	OR	PA	WA	WI
Other Chemicals					
Busan 881		*		*	
Chloropicrin				*	
Cytokinins					*
Dichloropropene		*		P	
Diquat	P	P	P	P	P
Endothall			*	*	*
Harpin protein					P
Indolebutyric acid					*
Maleic hydrazide	*	P	*	P	P
Metam-sodium	*	P	*	P	*
Paraquat		*	*	P	*
Potassium gibber.					*
Sulfuric acid		*		*	
Zinc phosphide					

P Usage data are published for this active ingredient.

* Usage data are not published for this active ingredient.

**Fall Potatoes: Pesticide, Planted Acreage,
Percent of Area Receiving Applications and Total Applied,
Program States and Total, 2003**

State	Planted Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide ¹		Fungicide		Other	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CO	73	84	168	71	40	90	122	57	14,815
ID	360	89	693	78	458	78	606	57	31,892
ME	66	100	34	88	18	100	576	21	52
MI	46	94	68	99	19	96	382	48	696
MN	60	94	42	69	6	98	461	4	1,294
ND	117	82	57	80	29	99	1,350	3	311
OR	43	95	71	83	140	94	169	70	3,626
PA	15	91	28	99	23	96	126	6	3
WA	163	94	339	97	701	99	1,704	77	20,847
WI	81	94	72	99	133	99	1,038	38	1,846
Total	1,024	91	1,577	84	1,571	91	6,538	47	75,386

¹ Total Applied excludes Bt's (Bacillus thuringiensis) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Fall Potatoes: Agricultural Chemical Applications,
Program States, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	*	2.1	0.05	0.11	1
Clethodim	*	1.0	0.09	0.09	1
EPTC	22	1.0	3.26	3.39	755
Glufosinate-ammonium	4	1.0	0.36	0.37	14
Glyphosate	2	1.0	0.55	0.56	14
Linuron	6	1.0	0.67	0.67	40
Metolachlor	3	1.0	1.46	1.46	38
Metribuzin	69	1.0	0.42	0.43	307
Pendimethalin	25	1.0	0.73	0.76	197
Rimsulfuron	23	1.1	0.02	0.02	5
S-Metolachlor	12	1.0	1.33	1.37	165
Sethoxydim	1	1.0	0.40	0.40	6
Trifluralin	3	1.2	0.62	0.75	24
Insecticides					
Aldicarb	7	1.0	2.72	2.72	188
Azinphos-methyl	2	1.9	0.48	0.91	20
Carbaryl	*	1.1	0.97	1.12	11
Carbofuran	4	1.3	0.56	0.78	31
Cyfluthrin	31	1.5	0.03	0.04	14
Diazinon	3	1.0	2.14	2.30	69
Dimethoate	9	1.9	0.27	0.53	48
Disulfoton	*	1.0	2.77	2.77	9
Endosulfan	6	1.1	0.88	1.04	62
Esfenvalerate	17	1.5	0.04	0.06	10
Ethoprop	4	1.0	4.14	4.32	170
Imidacloprid	41	1.2	0.09	0.12	51
Malathion	*	1.0	1.05	1.09	1
Methamidophos	13	1.5	0.92	1.38	185
Methomyl	*	1.0	0.40	0.41	1
Methyl parathion	3	1.9	1.04	2.04	62
Oxamyl	8	2.2	0.81	1.81	156
Permethrin	3	1.4	0.13	0.20	7
Phorate	11	1.0	2.84	2.84	315
Phosmet	4	1.7	0.49	0.86	34
Piperonyl butoxide	*	1.0	0.41	0.41	4
Propargite	6	1.0	1.58	1.67	107
Pymetrozine	8	1.5	0.08	0.12	10
Spinosad	*	1.1	0.07	0.08	1
Thiamethoxam	11	1.2	0.06	0.08	9
Trichlorfon	*	1.2	0.05	0.06	(²)

See footnote(s) at end of table.

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**Fall Potatoes: Agricultural Chemical Applications,
Program States, 2003¹ (continued)**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Fungicides					
Azoxystrobin	36	1.4	0.17	0.25	92
Chlorothalonil	56	4.5	0.91	4.13	2,385
Copper hydroxide	8	1.5	0.63	0.98	75
Copper sulfate	*	1.0	0.88	0.90	2
Cymoxanil	6	1.2	0.11	0.14	8
Dimethomorph	1	1.5	0.12	0.18	2
Fluazinam	19	1.5	0.23	0.36	70
Flutolanil	10	1.0	0.34	0.34	34
Iprodione	7	1.1	0.74	0.87	61
Mancozeb	64	3.4	1.24	4.23	2,748
Maneb	*	1.8	0.96	1.76	17
Mefenoxam	27	1.3	0.20	0.27	73
Metalaxyl	9	1.2	0.21	0.27	25
Metiram	3	3.3	1.29	4.28	152
PCNB	7	1.5	1.70	2.68	204
Propamocarb hydroch.	*	1.0	0.59	0.60	3
Pyraclostrobin	15	1.6	0.11	0.18	27
Sulfur	10	1.9	2.66	5.22	507
Triphenyltin hydrox.	13	1.9	0.12	0.23	32
Zoxamide	4	1.4	0.15	0.21	9
Other Chemicals					
Busan 881	2	1.0	145.64	145.64	2,336
Cytokinins	*	1.4	(³)	(³)	(²)
Dichloropropene	3	1.0	155.24	155.24	5,510
Diquat	30	1.4	0.33	0.48	149
Endothall	*	1.0	0.23	0.23	1
Harpin protein	*	1.3	0.004	0.006	(²)
Indolebutyric acid	*	1.4	(³)	(³)	(²)
Maleic hydrazide	10	1.0	1.89	1.89	193
Metam-sodium	25	1.0	121.70	123.11	31,758
Paraquat	2	1.1	0.42	0.48	10
Potassium gibber.	*	1.4	(³)	(³)	(²)
Sulfuric acid	13	1.0	256.02	271.18	35,329

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for the 10 Program States were 1.0 million acres. States included are CO, ID, ME, MI, MN, ND, OR, PA, WA, and WI.

² Total applied is less than 500 lbs.

³ Rate per acre is too insignificant to report.

**Fall Potatoes: Agricultural Chemical Applications,
Colorado, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
EPTC	52	1.0	3.43	3.43	130
Metribuzin	66	1.1	0.19	0.21	10
S-Metolachlor	20	1.0	1.23	1.23	18
Insecticides					
Cyfluthrin	22	1.5	0.03	0.05	1
Imidacloprid	27	1.5	0.06	0.10	2
Oxamyl	22	1.9	0.63	1.22	20
Permethrin	23	1.0	0.14	0.15	3
Thiamethoxam	23	1.0	0.07	0.07	1
Fungicides					
Azoxystrobin	71	1.3	0.10	0.14	7
Chlorothalonil	54	2.0	0.53	1.08	42
Copper hydroxide	13	1.0	0.39	0.39	4
Mancozeb	27	1.4	1.18	1.68	33
Mefenoxam	45	1.2	0.12	0.15	5
Sulfur	26	1.4	0.91	1.28	25
Triphenyltin hydrox.	26	1.0	0.15	0.16	3
Other Chemicals					
Diquat	9	1.0	0.31	0.31	2
Sulfuric acid	51	1.2	321.19	387.95	14,394

¹ Planted acres in 2003 for Colorado were 73,100 acres.

**Fall Potatoes: Agricultural Chemical Applications,
Idaho, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
EPTC	31	1.0	3.22	3.27	362
Metribuzin	78	1.0	0.46	0.48	135
Pendimethalin	35	1.0	0.77	0.77	97
Rimsulfuron	25	1.3	0.02	0.02	2
S-Metolachlor	14	1.0	1.49	1.59	80
Insecticides					
Aldicarb	7	1.0	2.49	2.49	62
Carbofuran	5	1.4	0.86	1.21	22
Cyfluthrin	22	1.2	0.03	0.04	3
Diazinon	3	1.2	2.67	3.23	34
Endosulfan	6	1.0	0.58	0.58	14
Esfenvalerate	10	1.2	0.06	0.07	3
Ethoprop	3	1.0	3.42	3.42	32
Imidacloprid	34	1.1	0.11	0.13	15
Methamidophos	5	1.0	0.89	0.90	18
Oxamyl	5	1.3	0.79	1.07	21
Permethrin	*	1.2	0.15	0.19	1
Phorate	22	1.0	2.80	2.80	221
Pymetrozine	13	1.2	0.07	0.09	4
Thiamethoxam	3	1.0	0.08	0.08	1
Fungicides					
Azoxystrobin	28	1.3	0.16	0.21	21
Chlorothalonil	29	1.4	1.07	1.52	158
Copper hydroxide	6	1.0	0.88	0.96	20
Fluazinam	19	1.5	0.22	0.33	23
Flutolanil	7	1.0	0.28	0.28	7
Mancozeb	43	1.5	1.21	1.88	288
Mefenoxam	16	1.1	0.25	0.30	18
Metalaxyl	8	1.0	0.24	0.25	8
PCNB	3	1.0	1.00	1.07	10
Pyraclostrobin	13	1.0	0.13	0.13	6
Other Chemicals					
Dichloropropene	2	1.0	188.43	188.43	1,384
Diquat	7	1.2	0.37	0.45	11
Maleic hydrazide	3	1.0	1.84	1.84	22
Metam-sodium	33	1.0	77.58	77.58	9,341
Sulfuric acid	26	1.0	224.91	224.91	20,836

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for Idaho were 360,000 acres.

**Fall Potatoes: Agricultural Chemical Applications,
Maine, 2003¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Linuron	15	1.0	0.83	0.83	8
Metribuzin	82	1.0	0.46	0.46	25
Rimsulfuron	3	1.0	0.02	0.02	(²)
Insecticides					
Cyfluthrin	35	1.6	0.03	0.05	1
Esfenvalerate	11	1.7	0.04	0.08	1
Imidacloprid	69	1.0	0.18	0.18	8
Methamidophos	11	1.5	0.63	0.97	7
Pymetrozine	5	1.7	0.08	0.13	(²)
Fungicides					
Azoxystrobin	20	1.0	0.11	0.11	1
Chlorothalonil	74	4.9	0.73	3.57	175
Copper hydroxide	9	2.3	0.51	1.19	7
Cymoxanil	4	1.3	0.11	0.15	(²)
Mancozeb	87	6.7	0.94	6.38	365
Mefenoxam	25	1.1	0.23	0.26	4
Metalaxyl	3	1.5	0.06	0.09	(²)
Metiram	6	5.5	0.84	4.68	20
Pyraclostrobin	5	1.0	0.13	0.13	(²)
Triphenyltin hydrox.	21	1.6	0.11	0.19	3
Other Chemicals					
Diquat	89	1.9	0.25	0.48	28
Maleic hydrazide	19	1.0	1.82	1.82	23
Paraquat	5	1.0	0.34	0.34	1

¹ Planted acres in 2003 for Maine were 66,000 acres.

² Total applied is less than 500 lbs.

**Fall Potatoes: Agricultural Chemical Applications,
Michigan, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Glufosinate-ammonium	6	1.2	0.24	0.30	1
Glyphosate	2	1.0	1.29	1.29	1
Linuron	35	1.0	0.64	0.64	10
Metolachlor	22	1.0	1.19	1.19	12
Metribuzin	54	1.1	0.32	0.36	9
Pendimethalin	27	1.8	0.48	0.89	11
Rimsulfuron	5	1.2	0.02	0.02	(²)
S-Metolachlor	45	1.0	1.14	1.14	24
Insecticides					
Cyfluthrin	43	1.3	0.02	0.03	1
Dimethoate	5	1.1	0.45	0.50	1
Endosulfan	2	1.0	0.68	0.71	1
Esfenvalerate	23	1.6	0.03	0.05	1
Imidacloprid	45	1.1	0.17	0.19	4
Methamidophos	5	1.1	0.71	0.80	2
Oxamyl	7	1.1	1.02	1.13	4
Permethrin	1	2.8	0.10	0.28	(²)
Thiamethoxam	27	1.0	0.17	0.17	2
Fungicides					
Azoxystrobin	43	1.7	0.10	0.18	4
Chlorothalonil	83	8.9	0.69	6.14	236
Copper hydroxide	4	4.3	0.70	3.00	5
Cymoxanil	4	2.3	0.11	0.27	1
Mancozeb	71	2.9	1.30	3.87	126
Mefenoxam	36	1.9	0.13	0.26	4
Pyraclostrobin	6	1.2	0.10	0.12	(²)
Triphenyltin hydrox.	32	1.1	0.13	0.15	2
Other Chemicals					
Diquat	68	1.2	0.36	0.45	14
Maleic hydrazide	35	1.0	2.15	2.15	35
Paraquat	6	1.0	0.32	0.32	1

¹ Planted acres in 2003 for Michigan were 46,000 acres.

² Total applied is less than 500 lbs.

**Fall Potatoes: Agricultural Chemical Applications,
Minnesota, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Linuron	9	1.0	1.01	1.01	6
Metribuzin	57	1.0	0.39	0.42	14
Rimsulfuron	16	1.0	0.02	0.02	(²)
S-Metolachlor	11	1.0	1.07	1.07	7
Insecticides					
Cyfluthrin	26	1.2	0.03	0.03	1
Esfenvalerate	16	1.6	0.02	0.03	(²)
Imidacloprid	37	1.4	0.08	0.11	3
Thiamethoxam	28	1.1	0.03	0.04	1
Fungicides					
Azoxystrobin	27	1.6	0.11	0.19	3
Chlorothalonil	66	4.7	0.90	4.30	171
Mancozeb	66	3.9	1.38	5.42	216
Mefenoxam	30	1.0	0.45	0.45	8
Metiram	17	2.7	1.27	3.45	35
Triphenyltin hydrox.	29	2.4	0.12	0.29	5
Other Chemicals					
Diquat	57	1.4	0.36	0.52	18

¹ Planted acres in 2003 for Minnesota were 60,000 acres.

² Total applied is less than 500 lbs.

**Fall Potatoes: Agricultural Chemical Applications,
North Dakota, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Metribuzin	42	1.0	0.35	0.35	17
Pendimethalin	17	1.0	1.24	1.24	25
Rimsulfuron	44	1.0	0.02	0.02	1
Insecticides					
Cyfluthrin	45	2.3	0.02	0.05	3
Dimethoate	25	2.1	0.22	0.46	14
Esfenvalerate	12	1.2	0.03	0.04	1
Imidacloprid	45	1.5	0.05	0.07	4
Thiamethoxam	23	1.8	0.03	0.06	2
Fungicides					
Azoxystrobin	27	1.1	0.10	0.11	4
Chlorothalonil	80	8.2	0.99	8.12	759
Cymoxanil	7	1.1	0.10	0.11	1
Mancozeb	79	4.5	1.28	5.81	539
Mefenoxam	17	1.0	0.13	0.13	3
Pyraclostrobin	29	2.2	0.10	0.22	8
Triphenyltin hydrox.	19	2.4	0.14	0.35	8
Zoxamide	14	1.2	0.17	0.21	4
Other Chemicals					
Diquat	34	1.4	0.39	0.56	22

¹ Planted acres in 2003 for North Dakota were 117,000 acres.

**Fall Potatoes: Agricultural Chemical Applications,
Oregon, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
EPTC	22	1.0	3.35	3.50	34
Glufosinate-ammonium	9	1.0	0.38	0.38	1
Metribuzin	69	1.0	0.41	0.43	13
Pendimethalin	46	1.0	0.57	0.59	12
Rimsulfuron	51	1.0	0.02	0.02	1
S-Metolachlor	17	1.0	1.19	1.19	9
Insecticides					
Aldicarb	9	1.0	2.93	2.93	11
Carbofuran	6	1.0	1.37	1.37	4
Cyfluthrin	12	2.1	0.03	0.07	(²)
Endosulfan	7	1.1	0.70	0.78	2
Esfenvalerate	36	2.8	0.02	0.07	1
Ethoprop	6	1.6	7.18	11.53	31
Imidacloprid	20	1.6	0.10	0.16	1
Methamidophos	17	1.3	0.96	1.28	10
Methomyl	*	1.0	0.52	0.52	(²)
Oxamyl	30	4.3	0.94	4.08	53
Phorate	8	1.0	2.53	2.53	8
Propargite	29	1.0	0.61	0.61	8
Fungicides					
Azoxystrobin	44	1.0	0.22	0.23	4
Chlorothalonil	68	1.8	1.13	2.06	60
Flutolanil	30	1.0	0.32	0.32	4
Mancozeb	82	1.6	1.27	2.10	74
Mefenoxam	35	1.2	0.16	0.20	3
Metalaxyl	22	1.8	0.14	0.25	2
Pyraclostrobin	7	1.4	0.14	0.20	1
Other Chemicals					
Diquat	11	1.0	0.49	0.49	2
Maleic hydrazide	19	1.0	2.62	2.62	22
Metam-sodium	54	1.0	118.79	122.98	2,848

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for Oregon were 42,800 acres.

² Total applied is less than 500 lbs.

**Fall Potatoes: Agricultural Chemical Applications,
Pennsylvania, 2003¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Glyphosate	14	1.0	0.70	0.70	2
Metolachlor	18	1.0	2.02	2.03	5
Metribuzin	84	1.0	0.53	0.56	7
Pendimethalin	36	1.0	1.00	1.00	5
S-Metolachlor	42	1.0	1.45	1.46	9
Insecticides					
Cyfluthrin	41	1.9	0.03	0.05	(²)
Dimethoate	23	2.1	0.18	0.39	1
Endosulfan	6	1.6	0.67	1.11	1
Imidacloprid	82	1.4	0.10	0.14	2
Methamidophos	18	1.0	0.94	1.02	3
Oxamyl	4	1.0	0.32	0.33	(²)
Permethrin	4	1.8	0.05	0.09	(²)
Spinosad	15	1.2	0.08	0.10	(²)
Fungicides					
Azoxystrobin	16	1.2	0.11	0.14	(²)
Chlorothalonil	57	2.5	0.98	2.48	20
Copper hydroxide	9	2.0	0.57	1.19	2
Cymoxanil	17	1.5	0.12	0.18	(²)
Mancozeb	89	5.9	1.18	7.06	91
Mefenoxam	14	1.7	0.13	0.23	1
Metalaxyl	28	1.8	0.09	0.18	1
Metiram	11	5.2	1.05	5.49	9
Other Chemicals					
Diquat	40	1.0	0.30	0.32	2

¹ Planted acres in 2003 for Pennsylvania were 14,500 acres.

² Total applied is less than 500 lbs.

**Fall Potatoes: Agricultural Chemical Applications,
Washington, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
EPTC	40	1.1	3.19	3.54	228
Glufosinate-ammonium	17	1.0	0.37	0.37	11
Metribuzin	76	1.0	0.44	0.44	55
Pendimethalin	19	1.0	0.53	0.54	17
Rimsulfuron	14	1.0	0.02	0.02	(²)
Trifluralin	17	1.2	0.63	0.79	21
Insecticides					
Aldicarb	25	1.0	2.84	2.84	116
Carbofuran	7	1.0	0.25	0.27	3
Cyfluthrin	51	1.3	0.03	0.04	3
Dimethoate	14	2.0	0.42	0.84	19
Esfenvalerate	13	1.2	0.04	0.05	1
Ethoprop	14	1.0	3.97	3.97	91
Imidacloprid	53	1.3	0.05	0.06	5
Methamidophos	57	1.6	0.94	1.54	144
Oxamyl	14	2.6	0.82	2.19	51
Phorate	14	1.0	3.07	3.07	72
Propargite	31	1.0	1.81	1.94	97
Pymetrozine	10	1.8	0.09	0.16	3
Fungicides					
Azoxystrobin	39	1.3	0.42	0.58	37
Chlorothalonil	62	2.4	0.98	2.41	242
Copper hydroxide	6	1.2	0.72	0.91	9
Cymoxanil	12	1.1	0.12	0.14	3
Fluazinam	67	1.5	0.24	0.37	40
Iprodione	42	1.1	0.74	0.87	60
Mancozeb	83	3.0	1.44	4.32	583
Mefenoxam	29	1.0	0.27	0.29	14
Metalaxyl	13	1.2	0.20	0.25	6
Metiram	9	3.3	1.60	5.41	80
PCNB	38	1.7	1.77	3.00	184
Pyraclostrobin	10	1.4	0.12	0.17	3
Sulfur	39	2.1	3.09	6.66	423
Other Chemicals					
Dichloropropene	12	1.0	157.83	157.83	3,189
Diquat	23	1.0	0.44	0.46	18
Maleic hydrazide	18	1.0	1.90	1.90	57
Metam-sodium	55	1.0	173.42	173.42	15,527
Paraquat	3	1.0	0.36	0.38	2

¹ Planted acres in 2003 for Washington were 163,000 acres.

² Total applied is less than 500 lbs.

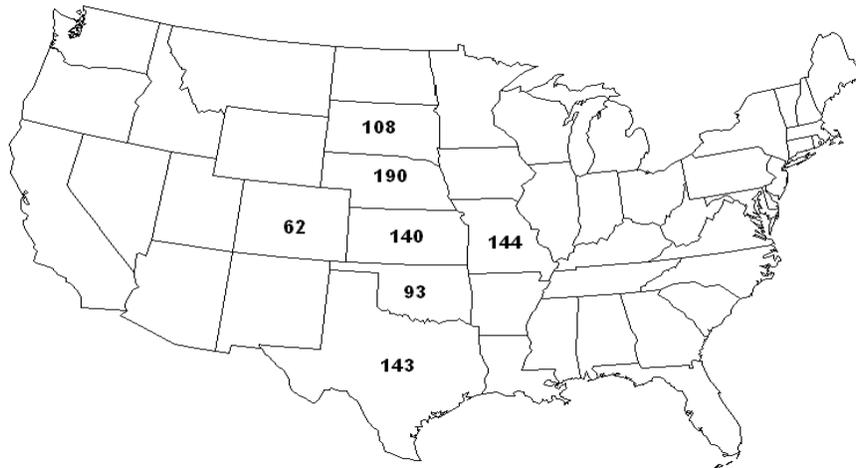
**Fall Potatoes: Agricultural Chemical Applications,
Wisconsin, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Glyphosate	11	1.0	0.65	0.65	6
Linuron	28	1.0	0.51	0.51	12
Metribuzin	63	1.0	0.40	0.43	22
Pendimethalin	29	1.0	0.72	0.72	17
Rimsulfuron	41	1.0	0.02	0.02	1
S-Metolachlor	14	1.0	1.16	1.16	13
Insecticides					
Azinphos-methyl	26	1.9	0.48	0.93	20
Cyfluthrin	25	1.6	0.03	0.05	1
Diazinon	11	1.0	0.50	0.50	4
Dimethoate	26	1.1	0.28	0.32	7
Endosulfan	36	1.3	1.11	1.45	43
Esfenvalerate	58	1.4	0.04	0.06	3
Ethoprop	3	1.0	3.67	3.67	9
Imidacloprid	41	1.0	0.18	0.20	6
Oxamyl	13	1.1	0.61	0.72	7
Phosmet	37	1.9	0.44	0.85	26
Thiamethoxam	27	1.0	0.07	0.08	2
Fungicides					
Azoxystrobin	66	2.0	0.10	0.20	11
Chlorothalonil	94	6.8	1.00	6.88	522
Copper hydroxide	24	1.6	0.51	0.86	17
Cymoxanil	18	1.2	0.12	0.15	2
Mancozeb	89	4.8	1.25	6.02	434
Mefenoxam	58	1.8	0.16	0.30	14
Pyraclostrobin	33	1.7	0.10	0.18	5
Triphenyltin hydrox.	43	2.4	0.11	0.26	9
Zoxamide	17	1.1	0.16	0.18	3
Other Chemicals					
Diquat	78	1.5	0.31	0.49	31
Harpin protein	3	1.3	0.004	0.006	(²)
Maleic hydrazide	27	1.0	1.41	1.41	31

¹ Planted acres in 2003 for Wisconsin were 81,000 acres.

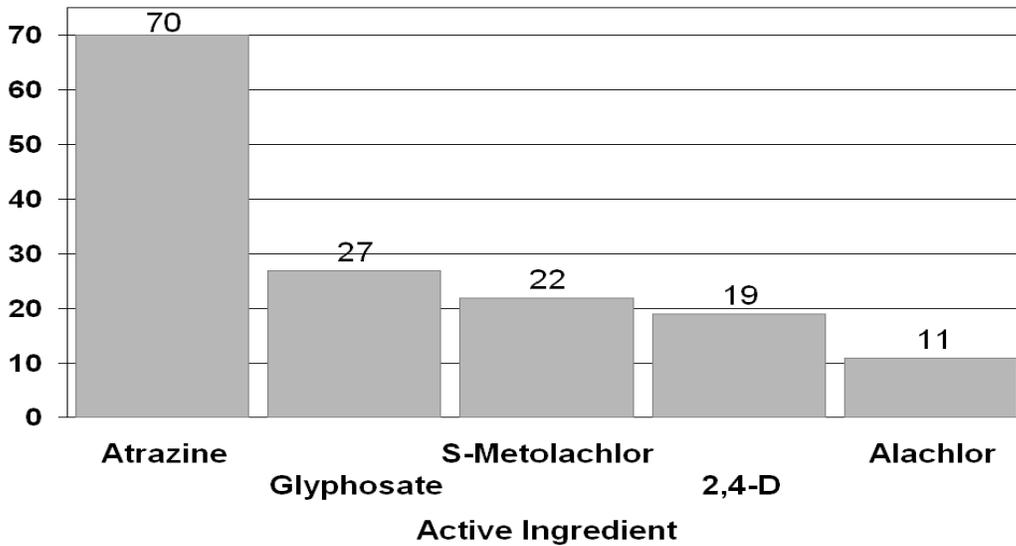
² Total applied is less than 500 lbs.

Sorghum: Number of Usable Reports, 2003



Sorghum - Percent of Acres Treated Top 5 Active Ingredients for 2003

Percent



Surveyed States are CO, KS, MO, NE, OK, SD, and TX

Sorghum, All: Fertilizer Use by State, 2003
Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>
CO	270	61	7.8	39	5.5	0	0.0
KS	3,550	97	261.8	55	57.5	4	4.7
MO	215	100	25.0	75	9.1	72	10.8
NE	660	99	56.7	40	6.1	1	0.1
OK	300	69	15.5	36	3.6	11	0.8
SD	270	84	13.0	54	4.4	3	0.1
TX	3,200	63	182.8	43	45.5	14	5.5
Total	8,465	82	562.6	49	131.7	9	22.0

**Sorghum, All: Fertilizer Primary Nutrient Applications,
Program States and Total, 2003**

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>Mil. Lbs</i>
Colorado	270					
Nitrogen		61	1.4	33	47	7.8
Phosphate		39	1.0	51	51	5.5
Potash		0	1.0	2	2	0.0
Kansas	3,550					
Nitrogen		97	1.3	55	76	261.8
Phosphate		55	1.0	28	29	57.5
Potash		4	1.0	35	35	4.7
Missouri	215					
Nitrogen		100	1.2	92	117	25.0
Phosphate		75	1.0	55	56	9.1
Potash		72	1.0	69	70	10.8
Nebraska	660					
Nitrogen		99	1.4	61	86	56.7
Phosphate		40	1.0	23	23	6.1
Potash		1	1.0	9	9	0.1
Oklahoma	300					
Nitrogen		69	1.4	52	74	15.5
Phosphate		36	1.1	29	33	3.6
Potash		11	1.0	21	22	0.8
South Dakota	270					
Nitrogen		84	1.3	42	57	13.0
Phosphate		54	1.0	30	30	4.4
Potash		3	1.0	10	10	0.1
Texas	3,200					
Nitrogen		63	1.1	75	90	182.8
Phosphate		43	1.0	33	33	45.5
Potash		14	1.0	12	12	5.5
Total	8,465					
Nitrogen		82	1.3	61	81	562.6
Phosphate		49	1.0	31	32	131.7
Potash		9	1.0	27	27	22.0

**Sorghum, All: Active Ingredients and
Publication Status
By Program States, 2003**

Active Ingredient	Program States							
	ALL	CO	KS	MO	NE	OK	SD	TX
Herbicides								
2,4-D	P	P	P	P	P	P	P	P
2,4-D, Dimeth. salt	P	*	*		*			*
Acetic acid	P		*		P	*		
Alachlor	P	*	P	P	P	*	P	P
Atrazine	P	P	P	P	P	P	P	P
Bentazon	*			*				
Bromoxynil	P		*	*	P		*	
Butoxy. ester 2,4-D	P	*	*		*	*	*	*
Carfentrazone-ethyl	P		*		P		*	
Dicamba	P	P	P	*	P	*	P	P
Dicamba, Dimet. salt	*		*					
Dicamba, Pot. salt	P	*	*		*		*	*
Dicamba, Sodium salt	*				*			
Dimethenamid	P		P	P	P	P	P	P
Dimethenamid-P	*		*					
Fluroxypyr	*		*					
Glyphosate	P	P	P	P	P	P	P	P
Glyphosate diam salt	P		*	*	P			
Halosulfuron	P	*	*		P			
Metolachlor	P	*	P	P	P	P	P	*
Metsulfuron-methyl	P	*	*		*	P		P
Paraquat	P			*	P		*	
Picloram	*		*					
Propachlor	P			*	*		*	*
Prosulfuron	P		P	*	*			P
Quinclorac	P	*			*		P	
S-Metolachlor	P		P	P	P	P	P	P
Sulfosate	*				*			
Trifluralin	*							*

See footnote(s) at end of table.

--continued

**Sorghum, All: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States							
	ALL	CO	KS	MO	NE	OK	SD	TX
Insecticides								
Bifenthrin	*				*			
Bt (Bacillus thur.)	*					*		
Carbaryl	*			*				
Chlorpyrifos	P			*	P			*
Cyfluthrin	*							*
Dimethoate	*							*
Esfenvalerate	*			*	*			*
Ethyl parathion	*			*	*			
Helicoverpa zea NPV	*				*			
Lambda-cyhalothrin	P			*			*	*
Methomyl	*			*				
Petroleum distillate	*	*						
Terbufos	P				*			*
Zeta-cypermethrin	*			*				*
Other Chemicals								
Propionic acid	*			*				

P Usage data are published for this active ingredient.

* Usage data are not published for this active ingredient.

**Sorghum, All: Pesticide, Planted Acreage,
Percent of Area Receiving Applications and Total Applied,
Program States and Total, 2003**

State	Planted Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide ¹		Fungicide		Other	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CO ²	270	52	132						
KS	3,550	90	9,014						
MO ²	215	98	571	6	4				
NE	660	98	2,030	4	29				
OK ²	300	84	329						
SD ²	270	87	430						
TX	3,200	78	2,881	20	208				
Total ²	8,465	85	15,390	8	265				

¹ Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

² Insufficient reports to publish data for one or more pesticide classes.

**Sorghum, All: Agricultural Chemical Applications,
Program States, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	19	1.2	0.29	0.35	571
2,4-D, Dimeth. salt	*	1.0	0.30	0.30	14
Acetic acid	*	1.3	0.22	0.30	10
Alachlor	11	1.0	2.17	2.24	2,172
Atrazine	70	1.1	1.04	1.19	7,039
Bromoxynil	*	1.0	0.24	0.24	20
Butoxy. ester 2,4-D	*	1.2	0.35	0.42	12
Carfentrazone-ethyl	1	1.0	0.003	0.003	(²)
Dicamba	7	1.1	0.14	0.16	101
Dicamba, Pot. salt	3	1.0	0.27	0.27	57
Dimethenamid	7	1.0	0.90	0.97	541
Glyphosate	27	1.4	0.56	0.81	1,823
Glyphosate diam salt	2	1.1	0.52	0.59	104
Halosulfuron	*	1.0	0.03	0.03	2
Metolachlor	6	1.1	1.20	1.41	750
Metsulfuron-methyl	5	1.0	0.002	0.003	1
Paraquat	*	1.0	0.71	0.71	23
Propachlor	*	1.0	0.96	0.96	45
Prosulfuron	6	1.0	0.02	0.02	10
Quinclorac	*	1.0	0.22	0.22	7
S-Metolachlor	22	1.0	1.05	1.09	2,023
Insecticides					
Chlorpyrifos	1	1.0	0.72	0.72	62
Lambda-cyhalothrin	*	1.0	0.02	0.02	1
Terbufos	4	1.1	0.39	0.47	159

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for the 7 Program States were 8.5 million acres.

States included are CO, KS, MO, NE, OK, SD, and TX.

² Total applied is less than 500 lbs.

**Sorghum, All: Agricultural Chemical Applications,
Colorado, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	34	1.4	0.24	0.34	31
Atrazine	30	1.0	0.30	0.30	25
Dicamba	16	1.3	0.09	0.12	5
Glyphosate	39	1.1	0.49	0.55	57

¹ Planted acres in 2003 for Colorado were 270,000 acres.

**Sorghum, All: Agricultural Chemical Applications,
Kansas, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	24	1.2	0.24	0.31	266
Alachlor	16	1.0	2.66	2.79	1,574
Atrazine	79	1.1	1.11	1.31	3,707
Dicamba	8	1.2	0.12	0.16	42
Dimethenamid	8	1.1	0.91	1.01	281
Glyphosate	38	1.5	0.54	0.82	1,112
Metolachlor	12	1.2	1.22	1.50	619
Prosulfuron	5	1.0	0.02	0.02	4
S-Metolachlor	32	1.0	1.04	1.10	1,237

¹ Planted acres in 2003 for Kansas were 3.6 million acres.

**Sorghum, All: Agricultural Chemical Applications,
Missouri, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	7	1.1	0.54	0.62	10
Alachlor	35	1.0	1.61	1.65	126
Atrazine	94	1.1	1.30	1.43	291
Dimethenamid	12	1.0	0.79	0.83	21
Glyphosate	7	1.0	0.59	0.63	10
Metolachlor	16	1.0	1.25	1.25	44
S-Metolachlor	22	1.0	1.23	1.23	59

¹ Planted acres in 2003 for Missouri were 215,000 acres.

**Sorghum, All: Agricultural Chemical Applications,
Nebraska, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	30	1.0	0.40	0.42	83
Acetic acid	2	1.0	0.12	0.12	2
Alachlor	16	1.0	1.52	1.54	165
Atrazine	96	1.1	1.28	1.43	907
Bromoxynil	5	1.0	0.24	0.24	8
Carfentrazone-ethyl	1	1.3	0.007	0.009	(²)
Dicamba	9	1.0	0.39	0.39	24
Dimethenamid	17	1.1	1.05	1.16	133
Glyphosate	27	1.5	0.71	1.07	189
Glyphosate diam salt	1	1.0	0.66	0.66	5
Halosulfuron	7	1.0	0.03	0.03	1
Metolachlor	4	1.0	1.43	1.43	41
Paraquat	2	1.0	0.94	0.94	12
S-Metolachlor	53	1.0	1.22	1.27	441
Insecticides					
Chlorpyrifos	3	1.0	1.23	1.24	27

¹ Planted acres in 2003 for Nebraska were 660,000 acres.

² Total applied is less than 500 lbs.

**Sorghum, All: Agricultural Chemical Applications,
Oklahoma, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	32	1.1	0.38	0.46	44
Atrazine	52	1.1	0.88	1.04	163
Dimethenamid	6	1.0	0.83	0.83	16
Glyphosate	26	1.1	0.49	0.56	43
Metolachlor	6	1.0	1.06	1.06	19
Metsulfuron-methyl	12	1.0	0.005	0.005	(²)
S-Metolachlor	10	1.0	0.93	0.93	29

¹ Planted acres in 2003 for Oklahoma were 300,000 acres.

² Total applied is less than 500 lbs.

**Sorghum, All: Agricultural Chemical Applications,
South Dakota, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	20	1.1	0.38	0.42	23
Alachlor	11	1.0	2.11	2.11	64
Atrazine	46	1.0	0.98	0.98	121
Dicamba	16	1.0	0.13	0.13	6
Dimethenamid	8	1.0	1.39	1.39	31
Glyphosate	52	1.3	0.56	0.78	109
Metolachlor	3	1.0	1.14	1.14	10
Quinclorac	12	1.0	0.21	0.21	7
S-Metolachlor	13	1.0	1.42	1.42	49

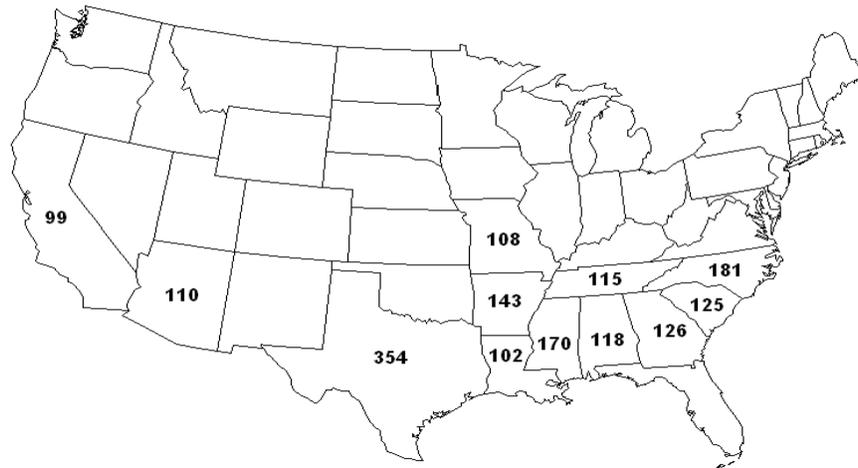
¹ Planted acres in 2003 for South Dakota were 270,000 acres.

**Sorghum, All: Agricultural Chemical Applications,
Texas, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	9	1.0	0.35	0.37	113
Alachlor	6	1.0	1.25	1.25	229
Atrazine	59	1.1	0.87	0.97	1,826
Dicamba	6	1.0	0.12	0.12	22
Dimethenamid	3	1.0	0.60	0.60	60
Glyphosate	12	1.4	0.57	0.81	302
Metsulfuron-methyl	7	1.1	0.002	0.002	1
Prosulfuron	10	1.0	0.02	0.02	6
S-Metolachlor	8	1.0	0.77	0.77	208

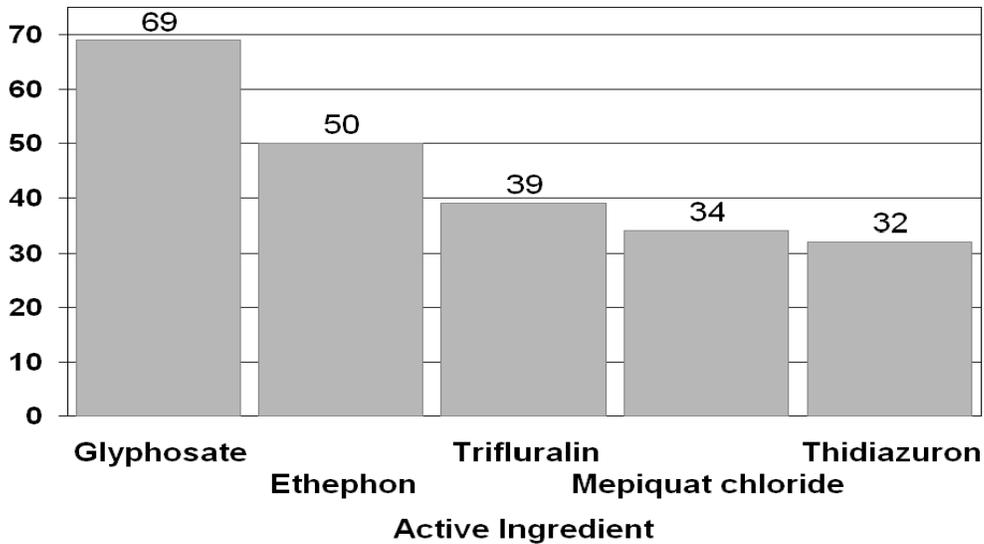
¹ Planted acres in 2003 for Texas were 3.2 million acres.

Upland Cotton: Number of Usable Reports, 2003



Upland Cotton - Percent of Acres Treated Top 5 Active Ingredients for 2003

Percent



Surveyed States are AL, AZ, AR, CA, GA, LA, MS, MO, NC, SC, TN, and TX

Upland Cotton: Fertilizer Use by State, 2003
Percent of Acres Treated and Total Amount Applied

State	Planted Acreage	Percent of Acres Treated and Total Applied					
		Nitrogen		Phosphate		Potash	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>	<i>Pct</i>	<i>Mil. Lbs</i>
AL	525	97	51.9	84	31.2	83	33.4
AZ	215	93	35.3	35	4.6	11	0.8
AR	980	97	89.7	84	33.5	90	79.9
CA	550	94	72.9	47	14.3	25	11.6
GA	1,300	100	124.5	90	65.8	91	105.8
LA	525	99	45.1	45	8.8	59	16.1
MS	1,110	99	119.8	45	23.0	70	82.2
MO	400	100	35.5	73	11.6	81	26.2
NC	810	97	59.9	74	24.4	93	79.7
SC	220	95	16.0	78	7.9	90	21.6
TN	560	97	50.0	92	27.3	96	46.4
TX	5,600	61	258.0	50	141.7	20	28.6
Total	12,795	82	958.6	62	394.1	52	532.3

**Upland Cotton: Fertilizer Primary Nutrient Applications,
Program States and Total, 2003**

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>Mil. Lbs</i>
Alabama	525					
Nitrogen		97	1.7	59	102	51.9
Phosphate		84	1.0	68	70	31.2
Potash		83	1.1	67	77	33.4
Arizona	215					
Nitrogen		93	2.9	60	178	35.3
Phosphate		35	1.0	57	63	4.6
Potash		11	1.7	19	33	0.8
Arkansas	980					
Nitrogen		97	1.3	68	94	89.7
Phosphate		84	1.0	39	41	33.5
Potash		90	1.1	78	91	79.9
California	550					
Nitrogen		94	1.9	74	141	72.9
Phosphate		47	1.0	55	55	14.3
Potash		25	1.0	79	84	11.6
Georgia	1,300					
Nitrogen		100	1.9	48	96	124.5
Phosphate		90	1.1	48	56	65.8
Potash		91	1.2	72	90	105.8
Louisiana	525					
Nitrogen		99	1.1	76	87	45.1
Phosphate		45	1.0	36	37	8.8
Potash		59	1.0	50	52	16.1
Mississippi	1,110					
Nitrogen		99	1.2	84	109	119.8
Phosphate		45	1.0	46	46	23.0
Potash		70	1.0	102	106	82.2
Missouri	400					
Nitrogen		100	1.3	64	89	35.5
Phosphate		73	1.0	38	40	11.6
Potash		81	1.0	75	80	26.2
North Carolina	810					
Nitrogen		97	1.9	40	76	59.9
Phosphate		74	1.1	36	41	24.4
Potash		93	1.2	87	106	79.7
South Carolina	220					
Nitrogen		95	1.6	47	77	16.0
Phosphate		78	1.0	42	46	7.9
Potash		90	1.1	93	109	21.6

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**Upland Cotton: Fertilizer Primary Nutrient Applications,
Program States and Total, 2003 (continued)**

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>1,000 Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>Mil. Lbs</i>
Tennessee	560					
Nitrogen		97	1.1	80	92	50.0
Phosphate		92	1.0	53	53	27.3
Potash		96	1.0	85	86	46.4
Texas	5,600					
Nitrogen		61	1.3	58	76	258.0
Phosphate		50	1.0	48	50	141.7
Potash		20	1.0	24	25	28.6
Total	12,795					
Nitrogen		82	1.5	61	92	958.6
Phosphate		62	1.0	47	50	394.1
Potash		52	1.1	71	80	532.3

**Upland Cotton: Active Ingredients and
Publication Status
By Program States, 2003**

Active Ingredient	Program States						
	ALL	AL	AZ	AR	CA	GA	LA
Herbicides							
2,4-D	P	*		P		*	P
2,4-D, Dimeth. salt	*	*					*
Acetic acid	*						*
Acifluorfen	*						*
Atrazine	*	*					*
Bensulide	*						
Bromoxynil	P		*	*	*		
Carfentrazone-ethyl	P	P	P	P	P	P	P
Clethodim	P		*	*	*		*
Clomazone	P			*			
Cyanazine	P			*			*
DCPA	*						*
DSMA	P	*				*	
Dicamba	P						
Dichlobenil	*	*					
Diuron	P	P	P	P	P	P	P
Fluazifop-P-butyl	*	*			*		
Flumioxazin	*			*		*	
Fluometuron	P	P	*	P		*	P
Glyphosate	P	P	P	P	P	P	P
Glyphosate diam salt	P	P	*	*	*		P
Lactofen	P	*		*			*
Linuron	P						*
MSMA	P	P		P		P	P
Metolachlor	P	*	*	*	*	*	*
Norflurazon	P		*	*		*	
Oxyfluorfen	P		*	*	P		
Pendimethalin	P	P	P	P	P	P	*
Picloram	*						
Prometryn	P	P	P	P	P	*	P
Pyraflufen ethyl	P						
Pyridate	*			*			
Pyrithiobac-sodium	P	P	P	P	P	P	P
Quizalofop-P-ethyl	*		*				*
S-Metolachlor	P			P	P	*	*
Sethoxydim	*			*	*	*	*
Sulfosate	P	*		P		*	P
Thifensulfuron	P						
Trifluralin	P	P	P	P	P	P	*

See footnote(s) at end of table.

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**Upland Cotton: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States						
	ALL	AL	AZ	AR	CA	GA	LA
Insecticides							
Abamectin	P		*		P		
Acephate	P	*	P	P	*	*	P
Acetamiprid	P		P		P		*
Aldicarb	P	P	*	P	P	P	P
Azadirachtin	*						
Azinphos-methyl	*						
Benzoic acid	P		*				*
Bifenthrin	P	*	*	*	*	*	*
Bt (Bacillus thur.)	P		*	*		*	*
Buprofezin	P		*		*		
Carbaryl	*		*				
Carbofuran	P				*		
Carbophenothion	*						
Chlorfenapyr	*						
Chlorpyrifos	P	*	P	*	P		*
Cyfluthrin	P	*	*	P	P	P	P
Cypermethrin	P	P	P	P	*	*	P
Deltamethrin	P					P	
Diazinon	*						
Dicofol	P		*	*	P		
Diclotophos	P	P		P		P	P
Diflubenzuron	*					*	
Dimethoate	P	*	*		P		*
Disulfoton	P	*		P			
Emamectin benzoate	*						
Endosulfan	P		P	*	*		*
Esfenvalerate	P		P	P	*	*	
Ethyl parathion	*					*	
Fenamiphos	*		*				
Fenpropathrin	P		*		*		
Imidacloprid	P	*		*	P		P
Indoxacarb	P		*		P		*
Lambda-cyhalothrin	P	P	*	P	*	P	P
Malathion	P		*	P			P
Methamidophos	P			*			
Methomyl	P		*	P	*	*	
Methyl parathion	P		P	*	*	P	P
Monocrotophos	*						
Naled	P				*		
Oxamyl	P	*	P	P	P	*	
Permethrin	P	*			*		*
Petroleum distillate	P	*	*	*		*	
Phorate	P	P	*	*	P	P	
Piperonyl butoxide	*		*				
Potassium salts	*						
Profenofos	P				*	*	P
Propargite	P				P		
Pyriproxyfen	P		P		P		
Spinosad	P	*		*		*	P
Sulfur	*						
Sulprofos	*						
Tebufenozide	P				P		
Thiamethoxam	P	P		P	P		P
Thiodicarb	*						
Tralomethrin	P					P	*
Zeta-cypermethrin	P	P	*	P	*	P	P

See footnote(s) at end of table.

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**Upland Cotton: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States						
	ALL	AL	AZ	AR	CA	GA	LA
Fungicides							
Azoxystrobin	P	*		*	*		P
Carboxin	P	*			*		
Dicloran	*	*					
Etridiazole	P	*		P	*	P	*
Iprodione	P	*		*			*
Mancozeb	*		*				
Mefenoxam	P	P		P			*
Metalaxyl	P	*		P	*		*
PCNB	P	P		P	*	P	*
Other Chemicals							
Arsenic acid	P		*			*	
Bacillus cereus	P	P	P	P	P	P	P
Cacodylic acid	*			*			
Chloropicrin	*					*	
Cyclanilide	P	P		P	P	P	*
Cytokinins	P		*			*	
Dichloropropene	*	*				*	
Dimethipin	P	*				*	*
Endothall	P		*		P		
Ethephon	P	P	P	P	P	P	P
Garlic oil	*						
Gibberellic acid	P	*	*			*	*
Gossypure	P		P				
Harpin protein	*	*					
Hexadecadien (Z,Z)	P		P				
Indolebutyric acid	P	*	*			*	*
Mepiquat chloride	P	P	P	P	P	P	P
Methyl bromide	*						
Monocarbamide dihyd.	P	P	P	P	P	*	P
NAA	*						
Paraquat	P	P	P	*	P	P	*
Potassium gibber.	*						
Sodium chlorate	P	P	P	P	P	*	*
Thidiazuron	P	P	P	P	P	P	P
Tribufos	P	P	P	P	P	P	P

See footnote(s) at end of table.

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**Upland Cotton: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	MS	MO	NC	SC	TN	TX
Herbicides						
2,4-D	P	P	P	P	*	*
2,4-D, Dimeth. salt				*		
Acetic acid	*					
Acifluorfen						
Atrazine						
Bensulide	*	*	*			
Bromoxynil	*					
Carfentrazone-ethyl	P	P	P	P	P	P
Clethodim	*	*	*	*		P
Clomazone					P	*
Cyanazine	P		*	*		*
DCPA						
DSMA	*		*	*		
Dicamba	*				P	
Dichlobenil						
Diuron	P	P	*	*	P	P
Fluazifop-P-butyl						*
Flumioxazin			*			
Fluometuron	P	P	P	P	P	P
Glyphosate	P	P	P	P	P	P
Glyphosate diam salt		P	*	*	*	
Lactofen	*		*			
Linuron	P		*	*	*	*
MSMA	P	P	P	P	*	*
Metolachlor	*	*	*			*
Norflurazon	P	P			*	*
Oxyfluorfen						
Pendimethalin	P	*	P	P	P	P
Picloram	*					
Prometryn	P	*	P	P	P	P
Pyraflufen ethyl	*		P	P		*
Pyridate						
Pyrithiobac-sodium	P	P	P	P	P	P
Quizalofop-P-ethyl						
S-Metolachlor		*	P	*	*	*
Sethoxydim						
Sulfosate	*		*	*	*	
Thifensulfuron	*	*			*	
Trifluralin	P	P	*	P	P	P

See footnote(s) at end of table.

--continued

**Upland Cotton: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	MS	MO	NC	SC	TN	TX
Insecticides						
Abamectin		*				
Acephate	P	P	P	P	P	P
Acetamiprid	P					*
Aldicarb	P	*	P	P	P	P
Azadirachtin		*				
Azinphos-methyl		*			*	*
Benzoic acid	P	*				
Bifenthrin		P				
Bt (Bacillus thur.)	*	*	*	*		*
Buprofezin						
Carbaryl			*			
Carbofuran	*				*	*
Carbophenothion				*		
Chlorfenapyr			*		*	
Chlorpyrifos				*	P	*
Cyfluthrin	P	P	P	P	P	*
Cypermethrin	P	P	P	P	P	P
Deltamethrin	*		*	*		*
Diazinon						*
Dicofol				*		
Dicrotophos	P	P	P	P	P	P
Diflubenzuron						*
Dimethoate	*	*	*		*	
Disulfoton		*	*	*	P	
Emamectin benzoate		*				
Endosulfan					*	
Esfenvalerate	P	*	*	*	*	*
Ethyl parathion			*			
Fenamiphos						
Fenpropathrin						
Imidacloprid	P	P	*	*	P	*
Indoxacarb	P			*		*
Lambda-cyhalothrin	P	P	P	P	P	P
Malathion	P				*	P
Methamidophos		*			*	
Methomyl	*					
Methyl parathion					*	
Monocrotophos	*					
Naled	*					
Oxamyl	*	*			*	P
Permethrin	*	*	*			*
Petroleum distillate		*				
Phorate	*		P	P	P	*
Piperonyl butoxide						
Potassium salts	*				*	
Profenofos	*	*		*		*
Propargite						
Pyriproxyfen						
Spinosad		*		*		*
Sulfur					*	
Sulprofos	*		*		*	
Tebufenozide						
Thiamethoxam	P	*			P	*
Thiodicarb			*			
Tralomethrin			*	P		*
Zeta-cypermethrin	P	P	P	P	P	*

See footnote(s) at end of table.

--continued

**Upland Cotton: Active Ingredients and
Publication Status
By Program States, 2003 (continued)**

Active Ingredient	Program States					
	MS	MO	NC	SC	TN	TX
Fungicides						
Azoxystrobin	*	*	*		P	
Carboxin	*					
Dicloran						
Etridiazole	P	*	P	*	P	*
Iprodione	*	*			*	*
Mancozeb						
Mefenoxam	P		P	*	P	
Metalaxyl	P		*		*	
PCNB	P	*	P	P	P	*
Other Chemicals						
Arsenic acid			*			
Bacillus cereus	P	P	P	P	P	P
Cacodylic acid			*			
Chloropicrin					*	
Cyclanilide	P	*	P	P	P	P
Cytokinins	*			*	*	
Dichloropropene						
Dimethipin	*	*	*			
Endothall			*			
Ethephon	P	P	P	P	P	P
Garlic oil		*				
Gibberellic acid	*	*			P	*
Gossypure						
Harpin protein						
Hexadecadien (Z,Z)						
Indolebutyric acid	*	*		*	P	*
Mepiquat chloride	P	P	P	P	P	P
Methyl bromide					*	
Monocarbamide dihyd.	*	P	P	P	*	*
NAA	*					
Paraquat	P	*	P	P	P	P
Potassium gibber.				*		
Sodium chlorate	P	*	*	*	P	*
Thidiazuron	P	P	P	*	*	P
Tribufos	P	P	P	P	P	P

P Usage data are published for this active ingredient.

* Usage data are not published for this active ingredient.

**Upland Cotton: Pesticide, Planted Acreage,
Percent of Area Receiving Applications and Total Applied,
Program States and Total, 2003**

State	Planted Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide ¹		Fungicide		Other ¹	
	<i>1,000 Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
AL	525	99	1,336	84	260	15	44	93	930
AZ ²	215	94	382	74	374			80	323
AR	980	96	2,703	89	3,575	17	64	92	1,947
CA	550	97	1,005	95	899	7	13	96	2,091
GA	1,300	96	2,994	73	746	4	43	91	2,709
LA	525	100	1,448	97	2,007	17	11	99	690
MS	1,110	100	3,475	94	1,534	17	63	99	1,590
MO ²	400	96	636	74	146			95	822
NC	810	97	2,118	88	420	7	41	90	2,041
SC	220	92	470	97	141	3	4	79	307
TN	560	98	1,270	88	422	20	33	90	863
TX	5,600	99	7,701	36	3,102	2	22	31	1,400
Total	12,795	98	25,542	64	13,632	7	348	66	15,715

¹ Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

² Insufficient reports to publish data for one or more pesticide classes.

**Upland Cotton: Agricultural Chemical Applications,
Program States, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	4	1.0	0.75	0.77	378
Bromoxynil	*	1.8	0.38	0.68	14
Carfentrazone-ethyl	7	1.1	0.02	0.03	27
Clethodim	*	1.0	0.13	0.13	14
Clomazone	*	1.0	0.22	0.22	16
Cyanazine	*	1.3	0.46	0.62	52
DSMA	*	1.2	1.17	1.48	18
Dicamba	*	1.0	0.20	0.20	18
Diuron	28	1.2	0.39	0.49	1,738
Fluometuron	8	1.1	0.70	0.77	755
Glyphosate	69	2.0	0.69	1.43	12,635
Glyphosate diam salt	1	2.1	0.76	1.63	235
Lactofen	*	1.4	0.11	0.15	6
Linuron	1	1.0	0.42	0.42	71
MSMA	7	1.2	1.07	1.29	1,157
Metolachlor	3	1.0	0.60	0.62	269
Norflurazon	*	1.0	0.33	0.34	29
Oxyfluorfen	*	1.0	0.31	0.31	11
Pendimethalin	20	1.0	0.71	0.73	1,813
Prometryn	11	1.1	0.70	0.82	1,175
Pyraflufen ethyl	*	1.0	0.002	0.002	(²)
Pyriithiobac-sodium	12	1.1	0.07	0.08	124
S-Metolachlor	2	1.2	0.81	1.02	322
Sulfosate	1	2.4	1.07	2.59	465
Thifensulfuron	*	1.0	0.20	0.20	6
Trifluralin	39	1.0	0.78	0.83	4,156

See footnote(s) at end of table.

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**Upland Cotton: Agricultural Chemical Applications,
Program States, 2003¹ (continued)**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Insecticides					
Abamectin	3	1.1	0.006	0.007	3
Acephate	20	2.1	0.47	1.00	2,537
Acetamiprid	2	1.3	0.06	0.08	23
Aldicarb	25	1.0	0.60	0.62	2,006
Benzoic acid	*	1.2	0.06	0.07	5
Bifenthrin	*	1.0	0.07	0.07	6
Bt (Bacillus thur.) ³	*	1.1			
Buprofezin	*	1.0	0.32	0.32	12
Carbofuran	1	1.0	0.16	0.16	21
Chlorpyrifos	2	1.4	0.65	0.96	245
Cyfluthrin	9	1.7	0.03	0.06	65
Cypermethrin	8	1.3	0.06	0.08	83
Deltamethrin	1	1.4	0.02	0.03	5
Dicofol	*	1.1	0.84	0.97	94
Dicrotophos	15	1.6	0.27	0.44	817
Dimethoate	*	1.1	0.30	0.34	34
Disulfoton	*	1.1	0.55	0.60	44
Endosulfan	1	1.4	0.54	0.76	101
Esfenvalerate	1	1.1	0.03	0.03	6
Fenpropathrin	*	1.6	0.20	0.32	11
Imidacloprid	3	1.3	0.04	0.05	20
Indoxacarb	2	1.2	0.09	0.12	33
Lambda-cyhalothrin	11	1.4	0.02	0.03	36
Malathion	11	5.2	0.81	4.25	6,201
Methamidophos	*	1.0	0.12	0.12	4
Methomyl	*	1.4	0.25	0.36	24
Methyl parathion	2	1.1	0.56	0.62	147
Naled	*	1.5	0.56	0.88	76
Oxamyl	3	1.2	0.26	0.32	133
Permethrin	*	1.0	0.06	0.07	3
Petroleum distillate	*	1.0	0.65	0.65	25
Phorate	5	1.0	0.51	0.52	309
Profenofos	2	1.1	0.59	0.69	145
Propargite	*	1.0	1.41	1.41	129
Pyriproxyfen	*	1.0	0.05	0.05	5
Spinosad	1	2.1	0.06	0.13	21
Tebufenozide	*	1.1	0.13	0.15	7
Thiamethoxam	7	1.7	0.03	0.05	44
Tralomethrin	1	1.8	0.02	0.03	6
Zeta-cypermethrin	7	1.3	0.03	0.05	38

See footnote(s) at end of table.

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**Upland Cotton: Agricultural Chemical Applications,
Program States, 2003¹ (continued)**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Fungicides					
Azoxystrobin	2	1.0	0.08	0.08	21
Carboxin	*	1.0	0.03	0.03	1
Etridiazole	3	1.0	0.11	0.12	41
Iprodione	*	1.0	0.16	0.16	18
Mefenoxam	2	1.0	0.07	0.07	20
Metalaxyl	*	1.0	0.05	0.05	6
PCNB	4	1.0	0.40	0.43	240
Other Chemicals					
Arsenic acid	*	1.0	0.98	0.98	35
Bacillus cereus ³	14	1.8			
Cyclanilide	11	1.0	0.12	0.13	173
Cytokinins	*	1.1	(⁴)	(⁴)	(²)
Dimethipin	*	1.0	0.39	0.40	25
Endothall	*	1.1	0.07	0.08	2
Ethephon	50	1.0	1.01	1.10	7,060
Gibberellic acid	*	1.0	(⁴)	(⁴)	(²)
Gossypure	*	1.2	0.005	0.006	(²)
Hexadecadien (Z,Z)	*	1.3	0.005	0.007	(²)
Indolebutyric acid	*	1.0	(⁴)	(⁴)	(²)
Mepiquat chloride	34	1.7	0.05	0.09	401
Monocarbamide dihyd.	7	1.0	2.80	2.84	2,418
Paraquat	15	1.0	0.31	0.33	640
Sodium chlorate	5	1.1	1.81	2.10	1,233
Thidiazuron	32	1.1	0.07	0.08	343
Tribufos	30	1.1	0.55	0.63	2,383

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for the 12 Program States were 12.8 million acres.
States included are AL, AZ, AR, CA, GA, LA, MS, MO, NC, SC, TN, and TX.

² Total applied is less than 500 lbs.

³ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

⁴ Rate per acre is too insignificant to report.

**Upland Cotton: Agricultural Chemical Applications,
Alabama, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Carfentrazone-ethyl	6	1.0	0.05	0.05	2
Diuron	27	1.0	0.37	0.40	55
Fluometuron	11	1.0	0.63	0.63	36
Glyphosate	93	2.4	0.76	1.83	887
Glyphosate diam salt	7	2.0	0.74	1.52	57
MSMA	6	1.0	1.30	1.39	47
Pendimethalin	20	0.9	0.79	0.76	79
Prometryn	11	1.1	0.75	0.89	51
Pyriithiobac-sodium	8	1.3	0.05	0.06	3
Trifluralin	11	1.0	0.65	0.65	39
Insecticides					
Aldicarb	43	1.0	0.67	0.67	152
Cypermethrin	17	1.5	0.06	0.09	9
Diclotophos	28	1.5	0.20	0.31	45
Lambda-cyhalothrin	17	1.3	0.02	0.02	2
Phorate	5	1.0	0.90	0.90	22
Thiamethoxam	18	1.1	0.02	0.02	2
Zeta-cypermethrin	22	1.5	0.03	0.04	5
Fungicides					
Mefenoxam	4	1.0	0.21	0.21	5
PCNB	11	1.0	0.51	0.51	30
Other Chemicals					
Bacillus cereus ²	20	2.1			
Cyclanilide	18	1.0	0.14	0.15	14
Ethephon	77	1.0	1.10	1.15	464
Mepiquat chloride	41	1.8	0.04	0.08	18
Monocarbamide dihyd.	4	1.0	3.66	3.66	82
Paraquat	10	1.0	0.31	0.31	16
Sodium chlorate	4	1.0	0.62	0.62	15
Thidiazuron	19	1.0	0.07	0.08	8
Tribufos	60	1.0	0.57	0.58	181

¹ Planted acres in 2003 for Alabama were 525,000 acres.

² Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Upland Cotton: Agricultural Chemical Applications,
Arizona, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Carfentrazone-ethyl	9	1.2	0.02	0.02	1
Diuron	63	1.4	0.25	0.34	47
Glyphosate	39	1.8	0.76	1.40	119
Pendimethalin	28	1.3	1.02	1.41	84
Prometryn	34	1.3	0.90	1.19	87
Pyriithiobac-sodium	11	1.2	0.07	0.08	2
Trifluralin	15	1.0	0.75	0.81	26
Insecticides					
Acephate	45	1.7	0.80	1.38	134
Acetamiprid	7	1.3	0.08	0.10	2
Chlorpyrifos	24	2.0	0.78	1.57	79
Cypermethrin	4	1.8	0.22	0.41	4
Endosulfan	40	1.6	0.57	0.93	79
Esfenvalerate	5	1.0	0.04	0.04	1
Methyl parathion	4	1.1	0.70	0.77	7
Oxamyl	15	1.1	0.58	0.67	21
Pyriproxyfen	23	1.0	0.05	0.05	3
Other Chemicals					
Bacillus cereus ²	23	1.4			
Ethephon	17	1.1	0.74	0.85	31
Gossypure	5	1.2	0.005	0.006	(³)
Hexadecadien (Z,Z)	5	1.3	0.005	0.007	(³)
Mepiquat chloride	29	1.5	0.05	0.07	4
Monocarbamide dihyd.	12	1.2	1.83	2.20	57
Paraquat	12	1.0	0.33	0.33	8
Sodium chlorate	16	1.1	4.39	4.98	172
Thidiazuron	62	1.1	0.11	0.12	16
Tribufos	11	1.1	1.15	1.29	31

¹ Planted acres in 2003 for Arizona were 215,000 acres.

² Rates and total applied are not available because amounts of active ingredient are not comparable between products.

³ Total applied is less than 500 lbs.

**Upland Cotton: Agricultural Chemical Applications,
Arkansas, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	3	1.3	0.81	1.07	37
Carfentrazone-ethyl	12	1.2	0.02	0.02	3
Diuron	31	1.3	0.60	0.82	251
Fluometuron	17	1.3	0.66	0.91	149
Glyphosate	81	2.9	0.67	2.01	1,590
MSMA	5	1.7	0.86	1.48	72
Pendimethalin	6	1.0	0.75	0.75	47
Prometryn	17	1.3	0.49	0.64	110
Pyriithiobac-sodium	13	1.2	0.04	0.05	6
S-Metolachlor	9	1.9	0.50	0.97	83
Sulfosate	10	2.1	1.12	2.37	235
Trifluralin	10	1.0	0.73	0.73	71
Insecticides					
Acephate	20	2.0	0.44	0.89	171
Aldicarb	30	1.0	0.59	0.59	175
Cyfluthrin	7	1.9	0.03	0.06	4
Cypermethrin	12	1.2	0.03	0.03	4
Dicrotophos	22	1.3	0.32	0.43	93
Disulfoton	3	1.0	0.51	0.51	15
Esfenvalerate	2	1.0	0.02	0.03	1
Lambda-cyhalothrin	26	1.7	0.03	0.03	7
Malathion	55	7.7	0.72	5.59	2,992
Methomyl	4	1.0	0.35	0.38	14
Oxamyl	6	1.7	0.20	0.35	20
Thiamethoxam	22	2.6	0.04	0.10	23
Zeta-cypermethrin	11	1.1	0.04	0.05	6
Fungicides					
Etridiazole	4	1.0	0.17	0.17	6
Mefenoxam	10	1.0	0.07	0.07	6
Metalaxyl	3	1.0	0.07	0.07	2
PCNB	7	1.0	0.59	0.59	42
Other Chemicals					
Bacillus cereus ²	6	2.4			
Cyclanilide	9	1.6	0.12	0.19	18
Ethephon	75	1.4	1.05	1.56	1,155
Mepiquat chloride	59	1.9	0.10	0.20	114
Monocarbamide dihyd.	2	1.0	2.62	2.62	44
Sodium chlorate	3	1.6	0.52	0.86	24
Thidiazuron	31	1.3	0.07	0.09	28
Tribufos	70	1.5	0.51	0.80	548

¹ Planted acres in 2003 for Arkansas were 980,000 acres.

² Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Upland Cotton: Agricultural Chemical Applications,
California, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Carfentrazone-ethyl	10	1.1	0.02	0.02	1
Diuron	67	1.0	0.07	0.07	26
Glyphosate	47	1.6	0.77	1.25	326
Oxyfluorfen	4	1.0	0.33	0.33	7
Pendimethalin	18	1.0	0.82	0.83	83
Prometryn	20	1.1	1.42	1.57	169
Pyriithiobac-sodium	21	1.0	0.05	0.05	6
S-Metolachlor	17	1.0	1.29	1.29	118
Trifluralin	48	1.0	0.84	0.84	223
Insecticides					
Abamectin	75	1.1	0.006	0.007	3
Acetamiprid	25	1.2	0.07	0.09	13
Aldicarb	36	1.2	1.03	1.29	252
Chlorpyrifos	26	1.4	0.64	0.94	134
Cyfluthrin	11	1.2	0.03	0.04	2
Dicofol	15	1.0	0.91	0.91	76
Dimethoate	9	1.0	0.37	0.37	17
Imidacloprid	12	1.2	0.05	0.06	4
Indoxacarb	30	1.3	0.10	0.13	21
Oxamyl	11	1.0	0.65	0.70	44
Phorate	5	1.4	1.09	1.55	39
Propargite	17	1.0	1.41	1.41	129
Pyriproxyfen	10	1.0	0.05	0.05	3
Tebufenozide	9	1.1	0.13	0.15	7
Thiamethoxam	20	1.0	0.03	0.03	4
Other Chemicals					
Bacillus cereus ²	7	1.4			
Cyclanilide	8	1.0	0.17	0.17	7
Endothall	2	1.0	0.09	0.09	1
Ethephon	73	1.0	0.94	0.97	392
Mepiquat chloride	56	1.6	0.05	0.07	23
Monocarbamide dihyd.	47	1.0	2.64	2.68	691
Paraquat	49	1.1	0.45	0.52	141
Sodium chlorate	45	1.0	2.73	2.73	680
Thidiazuron	67	1.0	0.10	0.10	37
Tribufos	14	1.1	1.28	1.52	120

¹ Planted acres in 2003 for California were 550,000 acres.

² Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Upland Cotton: Agricultural Chemical Applications,
Georgia, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Carfentrazone-ethyl	7	1.0	0.02	0.02	2
Diuron	32	1.2	0.53	0.67	277
Glyphosate	90	1.9	0.71	1.36	1,585
MSMA	17	1.0	1.10	1.12	246
Pendimethalin	27	1.0	0.80	0.80	282
Pyriithiobac-sodium	17	1.0	0.07	0.08	17
Trifluralin	33	1.0	0.90	0.90	389
Insecticides					
Aldicarb	53	1.0	0.58	0.60	417
Cyfluthrin	4	1.6	0.03	0.06	3
Deltamethrin	6	1.8	0.03	0.05	3
Dicrotophos	20	1.4	0.28	0.42	107
Lambda-cyhalothrin	4	1.0	0.02	0.02	1
Methyl parathion	10	1.1	0.64	0.72	97
Phorate	4	1.0	0.82	0.82	44
Tralomethrin	10	1.7	0.02	0.04	5
Zeta-cypermethrin	9	1.1	0.03	0.04	4
Fungicides					
Etridiazole	4	1.5	0.11	0.17	9
PCNB	4	1.5	0.44	0.66	35
Other Chemicals					
Bacillus cereus ²	32	2.1			
Cyclanilide	30	1.0	0.12	0.13	49
Ethephon	79	1.0	1.19	1.22	1,247
Mepiquat chloride	50	2.2	0.03	0.07	44
Paraquat	3	1.0	0.43	0.43	16
Thidiazuron	41	1.0	0.07	0.07	35
Tribufos	62	1.0	0.40	0.41	330

¹ Planted acres in 2003 for Georgia were 1.3 million acres.

² Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Upland Cotton: Agricultural Chemical Applications,
Louisiana, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	22	1.0	0.88	0.90	105
Carfentrazone-ethyl	20	1.1	0.03	0.04	4
Diuron	69	1.2	0.57	0.69	250
Fluometuron	11	1.1	0.72	0.81	48
Glyphosate	88	1.9	0.71	1.39	644
Glyphosate diam salt	8	2.3	0.87	2.05	88
MSMA	24	1.6	0.85	1.37	175
Prometryn	13	1.8	0.34	0.62	42
Pyrithiobac-sodium	7	1.1	0.04	0.05	2
Sulfosate	6	1.4	1.19	1.68	52
Insecticides					
Acephate	61	2.2	1.51	3.43	1,096
Aldicarb	23	1.0	0.53	0.53	65
Cyfluthrin	17	1.4	0.03	0.05	5
Cypermethrin	45	1.8	0.06	0.12	29
Dicrotophos	34	1.8	0.30	0.56	100
Imidacloprid	16	1.3	0.04	0.05	4
Lambda-cyhalothrin	32	1.5	0.02	0.03	6
Malathion	27	3.8	1.14	4.42	619
Methyl parathion	6	1.2	0.51	0.63	20
Profenofos	10	1.5	0.51	0.78	39
Spinosad	9	1.1	0.06	0.07	4
Thiamethoxam	9	2.1	0.03	0.06	3
Zeta-cypermethrin	26	1.6	0.03	0.05	7
Fungicides					
Azoxystrobin	15	1.0	0.08	0.08	7
Other Chemicals					
Bacillus cereus ²	14	2.3			
Ethephon	70	1.0	0.88	0.93	340
Mepiquat chloride	41	2.5	0.05	0.14	29
Monocarbamide dihyd.	7	1.0	2.77	2.77	95
Thidiazuron	82	1.0	0.11	0.11	48
Tribufos	36	1.0	0.44	0.47	90

¹ Planted acres in 2003 for Louisiana were 525,000 acres.

² Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Upland Cotton: Agricultural Chemical Applications,
Mississippi, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	8	1.0	0.59	0.59	53
Carfentrazone-ethyl	6	1.3	0.02	0.03	2
Cyanazine	1	1.0	0.79	0.79	12
Diuron	71	1.5	0.36	0.54	432
Fluometuron	12	1.2	0.56	0.68	91
Glyphosate	96	2.7	0.69	1.89	2,027
Linuron	8	1.0	0.48	0.48	44
MSMA	22	1.2	1.10	1.33	326
Norflurazon	4	1.0	0.21	0.21	10
Pendimethalin	15	1.0	0.84	0.85	145
Prometryn	14	1.1	0.87	1.00	155
Pyriithiobac-sodium	8	1.2	0.03	0.04	3
Trifluralin	3	1.0	0.66	0.66	23
Insecticides					
Acephate	65	2.8	0.36	1.02	736
Acetamiprid	5	1.4	0.05	0.07	4
Aldicarb	32	1.0	0.49	0.49	176
Benzoic acid	4	1.3	0.05	0.07	3
Cyfluthrin	20	2.4	0.04	0.10	23
Cypermethrin	19	1.1	0.05	0.05	11
Dicrotophos	34	1.5	0.34	0.53	198
Esfenvalerate	4	1.1	0.04	0.05	2
Imidacloprid	7	1.6	0.03	0.06	5
Indoxacarb	2	1.1	0.11	0.13	3
Lambda-cyhalothrin	16	1.8	0.02	0.04	7
Malathion	13	2.6	0.64	1.72	245
Thiamethoxam	19	1.7	0.02	0.04	8
Zeta-cypermethrin	12	1.4	0.04	0.05	7
Fungicides					
Etridiazole	7	1.0	0.09	0.09	8
Mefenoxam	5	1.0	0.03	0.03	2
Metalaxyl	6	1.0	0.04	0.04	3
PCNB	13	1.0	0.30	0.32	48
Other Chemicals					
Bacillus cereus ²	22	2.2			
Cyclanilide	16	1.0	0.09	0.09	15
Ethephon	80	1.0	0.93	0.98	871
Mepiquat chloride	39	2.1	0.03	0.06	28
Paraquat	7	1.0	0.40	0.40	33
Sodium chlorate	9	1.3	1.39	1.85	192
Thidiazuron	75	1.0	0.06	0.06	53
Tribufos	49	1.0	0.65	0.68	369

¹ Planted acres in 2003 for Mississippi were 1.1 million acres.

² Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Upland Cotton: Agricultural Chemical Applications,
Missouri, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	9	1.0	0.57	0.57	20
Carfentrazone-ethyl	23	1.5	0.02	0.03	3
Diuron	20	1.1	0.27	0.31	24
Fluometuron	13	1.0	0.47	0.47	24
Glyphosate	84	2.3	0.59	1.39	468
Glyphosate diam salt	2	1.7	0.58	1.03	10
MSMA	5	1.0	0.55	0.56	11
Norflurazon	4	1.0	0.49	0.49	7
Pyriithiobac-sodium	17	1.5	0.03	0.04	3
Trifluralin	9	1.0	0.41	0.41	15
Insecticides					
Acephate	27	1.6	0.24	0.41	44
Bifenthrin	8	1.0	0.07	0.08	2
Cyfluthrin	11	1.2	0.03	0.03	2
Cypermethrin	12	1.0	0.03	0.03	2
Dicrotophos	9	1.4	0.16	0.24	9
Imidacloprid	6	1.0	0.03	0.04	1
Lambda-cyhalothrin	8	1.0	0.01	0.01	(²)
Zeta-cypermethrin	16	1.1	0.03	0.03	2
Other Chemicals					
Bacillus cereus ³	19	1.3			
Ethephon	92	1.1	1.14	1.33	489
Mepiquat chloride	47	1.6	0.03	0.06	11
Monocarbamide dihyd.	19	1.0	2.41	2.45	182
Thidiazuron	31	1.0	0.06	0.06	8
Tribufos	56	1.0	0.54	0.57	128

¹ Planted acres in 2003 for Missouri were 400,000 acres.

² Total applied is less than 500 lbs.

³ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Upland Cotton: Agricultural Chemical Applications,
North Carolina, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	5	1.0	0.43	0.43	17
Carfentrazone-ethyl	13	1.0	0.03	0.03	3
Fluometuron	16	1.0	0.97	0.98	128
Glyphosate	90	2.4	0.70	1.72	1,252
MSMA	19	1.0	1.39	1.47	222
Pendimethalin	25	1.0	0.68	0.68	135
Prometryn	28	1.0	0.80	0.88	196
Pyraflufen ethyl	6	1.0	0.003	0.003	(²)
Pyriithiobac-sodium	6	1.1	0.03	0.04	2
S-Metolachlor	7	1.0	0.95	0.95	51
Insecticides					
Acephate	23	1.1	0.28	0.33	61
Aldicarb	43	1.0	0.67	0.68	238
Cyfluthrin	28	1.2	0.03	0.04	10
Cypermethrin	4	1.2	0.07	0.09	3
Dicrotophos	4	1.4	0.21	0.30	11
Lambda-cyhalothrin	26	1.4	0.02	0.03	6
Phorate	9	1.0	0.80	0.80	58
Zeta-cypermethrin	5	1.2	0.03	0.03	1
Fungicides					
Etridiazole	3	1.0	0.13	0.13	3
Mefenoxam	4	1.0	0.13	0.13	4
PCNB	7	1.0	0.55	0.58	33
Other Chemicals					
Bacillus cereus ³	37	1.5			
Cyclanilide	25	1.0	0.15	0.15	31
Ethephon	78	1.0	1.15	1.16	734
Mepiquat chloride	62	1.5	0.07	0.12	58
Monocarbamide dihyd.	35	1.0	3.32	3.35	945
Paraquat	4	1.2	0.32	0.40	14
Thidiazuron	9	1.0	0.05	0.05	4
Tribufos	37	1.0	0.66	0.66	198

¹ Planted acres in 2003 for North Carolina were 810,000 acres.

² Total applied is less than 500 lbs.

³ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Upland Cotton: Agricultural Chemical Applications,
South Carolina, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
2,4-D	11	1.0	0.40	0.40	10
Carfentrazone-ethyl	8	1.0	0.02	0.02	(²)
Fluometuron	25	1.1	0.57	0.66	37
Glyphosate	89	2.1	0.62	1.35	264
MSMA	11	1.2	1.04	1.28	31
Pendimethalin	12	1.0	0.59	0.61	16
Prometryn	26	1.1	0.95	1.12	63
Pyraflufen ethyl	7	1.0	0.002	0.002	(²)
Pyriithiobac-sodium	18	1.1	0.09	0.10	4
Trifluralin	14	1.0	0.74	0.74	23
Insecticides					
Acephate	4	1.8	0.16	0.30	3
Aldicarb	73	1.0	0.69	0.70	112
Cyfluthrin	25	1.7	0.03	0.05	3
Cypermethrin	7	1.5	0.07	0.10	2
Dicrotophos	12	1.5	0.22	0.33	9
Lambda-cyhalothrin	18	1.9	0.02	0.03	1
Phorate	4	1.0	0.75	0.75	6
Tralomethrin	10	2.2	0.03	0.03	1
Zeta-cypermethrin	5	2.9	0.04	0.12	1
Fungicides					
PCNB	3	1.0	0.60	0.60	4
Other Chemicals					
Bacillus cereus ³	25	1.6			
Cyclanilide	14	1.0	0.10	0.10	3
Ethephon	58	1.1	1.14	1.30	167
Mepiquat chloride	41	1.7	0.05	0.09	8
Monocarbamide dihyd.	5	1.0	2.75	2.75	30
Paraquat	4	1.0	0.85	0.87	7
Tribufos	52	1.0	0.75	0.78	90

¹ Planted acres in 2003 for South Carolina were 220,000 acres.

² Total applied is less than 500 lbs.

³ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Upland Cotton: Agricultural Chemical Applications,
Tennessee, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Carfentrazone-ethyl	7	1.2	0.02	0.03	1
Clomazone	7	1.0	0.11	0.11	5
Dicamba	16	1.0	0.20	0.20	18
Diuron	29	1.0	0.42	0.46	74
Fluometuron	14	1.0	0.67	0.67	51
Glyphosate	95	2.7	0.66	1.81	959
Pendimethalin	10	1.0	0.73	0.73	40
Prometryn	8	1.1	0.72	0.79	37
Pyriithiobac-sodium	9	1.1	0.04	0.05	2
Trifluralin	3	1.1	0.29	0.34	5
Insecticides					
Acephate	18	1.7	0.48	0.85	87
Aldicarb	20	1.0	0.57	0.57	63
Chlorpyrifos	5	1.0	0.51	0.51	14
Cyfluthrin	29	1.1	0.03	0.03	5
Cypermethrin	11	2.0	0.06	0.11	7
Dicrotophos	32	1.2	0.24	0.30	53
Disulfoton	4	1.2	0.49	0.64	16
Imidacloprid	7	1.3	0.02	0.03	1
Lambda-cyhalothrin	19	1.2	0.02	0.02	2
Phorate	4	1.0	0.46	0.46	10
Thiamethoxam	18	1.3	0.02	0.03	3
Zeta-cypermethrin	14	1.2	0.04	0.05	4
Fungicides					
Azoxystrobin	9	1.0	0.10	0.10	5
Etridiazole	5	1.1	0.11	0.12	3
Mefenoxam	10	1.0	0.06	0.06	3
PCNB	12	1.0	0.26	0.28	18
Other Chemicals					
Bacillus cereus ²	14	1.3			
Cyclanilide	28	1.0	0.13	0.13	20
Ethephon	68	1.0	1.26	1.31	498
Gibberellic acid	4	1.1	(³)	(³)	(⁴)
Indolebutyric acid	4	1.1	(³)	(³)	(⁴)
Mepiquat chloride	66	1.6	0.07	0.12	43
Paraquat	16	1.0	0.49	0.49	44
Sodium chlorate	6	1.0	0.35	0.35	11
Tribufos	56	1.1	0.50	0.55	171

¹ Planted acres in 2003 for Tennessee were 560,000 acres.

² Rates and total applied are not available because amounts of active ingredient are not comparable between products.

³ Rate per acre is too insignificant to report.

⁴ Total applied is less than 500 lbs.

**Upland Cotton: Agricultural Chemical Applications,
Texas, 2003 ¹**

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs</i>
Herbicides					
Carfentrazone-ethyl	3	1.0	0.03	0.03	5
Clethodim	*	1.0	0.12	0.12	7
Diuron	14	1.0	0.35	0.36	276
Fluometuron	3	1.0	0.68	0.68	121
Glyphosate	48	1.3	0.69	0.93	2,516
Pendimethalin	24	1.0	0.65	0.66	887
Prometryn	7	1.0	0.47	0.49	184
Pyriithiobac-sodium	13	1.0	0.10	0.10	75
Trifluralin	71	1.0	0.78	0.83	3,325
Insecticides					
Acephate	13	1.9	0.13	0.25	183
Aldicarb	11	1.0	0.45	0.45	286
Cypermethrin	3	1.0	0.07	0.07	13
Diclotophos	8	1.9	0.23	0.45	192
Lambda-cyhalothrin	4	1.0	0.02	0.02	4
Malathion	9	4.5	0.93	4.20	2,220
Oxamyl	3	1.1	0.12	0.14	24
Other Chemicals					
Bacillus cereus ²	6	1.6			
Cyclanilide	2	1.0	0.10	0.10	10
Ethephon	19	1.0	0.64	0.65	674
Mepiquat chloride	14	1.2	0.02	0.03	21
Paraquat	23	1.0	0.25	0.27	344
Thidiazuron	22	1.3	0.07	0.09	108
Tribufos	4	1.0	0.61	0.61	128

* Area applied is less than 0.5 percent.

¹ Planted acres in 2003 for Texas were 5.6 million acres.

² Rates and total applied are not available because amounts of active ingredient are not comparable between products.

Pest Management Practices - Highlights

In an effort to enhance and improve statistics available for pest management practices on field crops, NASS has revamped this particular section of the survey. The 2003 ARMS II survey asked considerably more pest management practices questions than have been asked in previous surveys. Some questions formerly asked were modified to more accurately capture current pest management practices on the commodities being surveyed. Other questions were removed due to changes in common practices on specific crops. Some questions remained unchanged, so year to year comparisons are still valid. Corn was surveyed in 2002, with the pest management practices published in May 2003. Upland cotton and fall potatoes were last surveyed in 2001, and barley and sorghum were surveyed for pest management practices in 1998.

The manner in which the questions pertaining to scouting were asked has changed between 2002 and 2003. Scouting is now classified as scouting by either general observation or scouting deliberately. Tillage practices is now a separate question than information regarding field edge, roadway and fence line maintenance. Formerly this was one question but it is now broken out into two separate questions.

Barley: Producers reported a high percent of farms (88 percent) scouting for pests on barley. Scouting for weeds, diseases, and insects was done most often by the operator, partner, or a family member. Rotating crops to control pests and weather monitoring were the next two most common practices reported by 58 and 34 percent of farms respectively.

Corn: Scouting for weeds was used on 84 percent of the farms growing corn and on 88 percent of the corn acres. Scouting for diseases and insects were very common pest management practices used on corn. Three-quarters of the corn growers surveyed rotated crops in the field during the past three years in order to manage pests.

Fall Potatoes: The two most common pest management practices for fall potatoes were scouting for pests and rotating field crops, each practice performed on over 90 percent of the farms in the ten Program States. Cultivating the fall potato field for weed control during the growing season was practiced on 97 percent of the farms surveyed. Maintaining field edges, lanes, ditches, roadways, or fence lines as a prevention practice was used on 81 percent of the fall potato acres.

Sorghum: Producers of sorghum reported a high level of scouting for weeds, at 86 percent of farms. Rotating crops to control pests and scouting for insects and mites were the next two most common practices reported by 66 and 58 percent of farms, respectively.

Upland Cotton: Scouting for weeds, insects and diseases was used by 87, 91, and 75 percent, respectively, of the cotton farms on acres in the twelve Program States. Prevention practices of maintaining field edges, lanes, ditches, roadways, or fence lines by chopping, mowing, plowing, or burning to manage pests was used by 67 percent of the farms on 73 percent of the upland cotton acres in the States surveyed. Producers continue to increase usage of pest resistant varieties of upland cotton, with a range from 20 - 70 percent of acres planted in the Program States.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Barley, 2003**

Practice	States			
	CA	ID	MN	MT
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	2	18	10	38
Remove or plow down crop residue	22	30	37	23
Clean implements after fieldwork	43	38	40	38
Field cultivated for weed control				
Field edges/etc. chopped, mowed/etc.	29	41	44	16
Water management practices	6	16		5
Avoidance Practices:				
Adjust planting/harvesting dates	7	4		13
Rotate crops to control pests	27	43	87	48
Planting locations planned to avoid pests	5	6	11	9
Grow trap crop to control insects				
Seed variety chosen for pest resistance	24	7	5	4
Monitoring Practices:				
Scouting by general observation	37	55	31	40
Deliberate scouting activities	38	41	65	58
Field was not scouted	25	4	4	2
Scouting due to pest advisory warning	3	8		8
Scouting due to pest development model	2	6	1	3
Scouted for weeds	73	96	95	94
Scouting for weeds was done by:				
Operator, partner, or family member	65	79	74	98
An employee		1	1	1
Farm supply or chemical dealer	18	15	12	*
Indep. crop consultant or comm. scout	17	5	14	1
Scouted for insects and mites	33	76	69	82
Scouting for insects/mites was done by:				
Operator, partner, or family member	49	77	67	98
An employee		2	3	1
Farm supply or chemical dealer	40	17	16	*
Indep. crop consultant or comm. scout	10	5	14	1
Scouted for diseases	39	71	72	67
Scouting for diseases was done by:				
Operator, partner, or family member	58	78	68	98
An employee		2	1	1
Farm supply or chemical dealer	33	16	16	*
Indep. crop consultant or comm. scout	9	4	16	1
Records kept to track pests	20	12	36	18
Field mapping of weed problem	19	8	8	10
Soil/plant tissue analysis to detect pests		7	4	1
Weather monitoring	34	37	37	37
Biological pest controls				
Suppression Practices:				
Biological pesticides	3	*	1	1
Beneficial organisms				
Scouting used to make decisions	16	11	16	7
Maintain ground cover or physical barriers	10	11	8	20
Adjust planting methods				
Alternate pesticides with different MOA	9	21	14	21

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Barley, 2003 (continued)**

Practice	States			
	ND	PA	SD	UT
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	44	22	55	6
Remove or plow down crop residue	25	30	9	21
Clean implements after fieldwork	52	14	42	16
Field cultivated for weed control				
Field edges/etc. chopped, mowed/etc.	27	26	19	25
Water management practices				2
Avoidance Practices:				
Adjust planting/harvesting dates	5	2	16	4
Rotate crops to control pests	87	72	81	28
Planting locations planned to avoid pests	16	4	20	2
Grow trap crop to control insects				
Seed variety chosen for pest resistance	15	8	8	11
Monitoring Practices:				
Scouting by general observation	52	33	47	51
Deliberate scouting activities	45	34	42	30
Field was not scouted	3	32	11	19
Scouting due to pest advisory warning	2	*		2
Scouting due to pest development model	2	7	1	4
Scouted for weeds	97	68	89	81
Scouting for weeds was done by:				
Operator, partner, or family member	89	71	96	100
An employee			1	
Farm supply or chemical dealer	2	10	1	
Indep. crop consultant or comm. scout	9	19	3	
Scouted for insects and mites	59	34	46	39
Scouting for insects/mites was done by:				
Operator, partner, or family member	84	68	96	100
An employee				
Farm supply or chemical dealer	1	6	2	
Indep. crop consultant or comm. scout	15	26	2	
Scouted for diseases	64	34	43	32
Scouting for diseases was done by:				
Operator, partner, or family member	85	69	96	100
An employee				
Farm supply or chemical dealer	1	5	2	
Indep. crop consultant or comm. scout	14	26	2	
Records kept to track pests	18	16	15	1
Field mapping of weed problem	8	4	2	2
Soil/plant tissue analysis to detect pests	2	4	8	
Weather monitoring	55	15	38	13
Biological pest controls				
Suppression Practices:				
Biological pesticides				1
Beneficial organisms				
Scouting used to make decisions	13	16	15	2
Maintain ground cover or physical barriers	29	17	33	5
Adjust planting methods				
Alternate pesticides with different MOA	30	4	13	2

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Barley, 2003 (continued)**

Practice	States			Program States
	WA	WI	WY	
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	32	9	9	34
Remove or plow down crop residue	16	26	18	25
Clean implements after fieldwork	47	9	9	43
Field cultivated for weed control				
Field edges/etc. chopped, mowed/etc.	23	5	35	27
Water management practices	*		8	4
Avoidance Practices:				
Adjust planting/harvesting dates	8	2	1	7
Rotate crops to control pests	79	57	43	67
Planting locations planned to avoid pests	10	3	2	11
Grow trap crop to control insects				
Seed variety chosen for pest resistance	17	7	2	11
Monitoring Practices:				
Scouting by general observation	26	35	41	46
Deliberate scouting activities	68	26	37	49
Field was not scouted	7	39	22	5
Scouting due to pest advisory warning	1		5	4
Scouting due to pest development model	2	1	4	3
Scouted for weeds	93	55	76	94
Scouting for weeds was done by:				
Operator, partner, or family member	58	93	87	86
An employee	*			*
Farm supply or chemical dealer	39		10	7
Indep. crop consultant or comm. scout	3	4	2	6
Scouted for insects and mites	42	29	50	64
Scouting for insects/mites was done by:				
Operator, partner, or family member	50	75	86	84
An employee	1			1
Farm supply or chemical dealer	44	8	4	7
Indep. crop consultant or comm. scout	6	12	11	8
Scouted for diseases	56	18	31	63
Scouting for diseases was done by:				
Operator, partner, or family member	54	82	86	84
An employee	1			1
Farm supply or chemical dealer	42		6	7
Indep. crop consultant or comm. scout	4	9	8	9
Records kept to track pests	30	2	10	18
Field mapping of weed problem	8	2	1	8
Soil/plant tissue analysis to detect pests	4	3		3
Weather monitoring	63	1	10	44
Biological pest controls				
Suppression Practices:				
Biological pesticides	1			1
Beneficial organisms				
Scouting used to make decisions	17	5	13	12
Maintain ground cover or physical barriers	23	10	6	21
Adjust planting methods				
Alternate pesticides with different MOA	43	*	25	25

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Barley, 2003**

Practice	States			
	CA	ID	MN	MT
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	*	13	38	28
Remove or plow down crop residue	24	33	31	31
Clean implements after fieldwork	56	30	35	25
Field cultivated for weed control				
Field edges/etc. chopped, mowed/etc.	35	43	35	17
Water management practices	9	13		2
Avoidance Practices:				
Adjust planting/harvesting dates	10	2		10
Rotate crops to control pests	30	37	79	41
Planting locations planned to avoid pests	7	3	3	9
Grow trap crop to control insects				
Seed variety chosen for pest resistance	31	8	2	3
Monitoring Practices:				
Scouting by general observation	34	60	63	38
Deliberate scouting activities	51	34	31	60
Field was not scouted	15	5	6	2
Scouting due to pest advisory warning	5	8		20
Scouting due to pest development model	2	8	1	1
Scouted for weeds	83	95	94	94
Scouting for weeds was done by:				
Operator, partner, or family member	65	75	86	99
An employee		*	*	*
Farm supply or chemical dealer	23	18	7	*
Indep. crop consultant or comm. scout	12	7	6	*
Scouted for insects and mites	47	72	32	79
Scouting for insects/mites was done by:				
Operator, partner, or family member	54	78	67	99
An employee		*	2	*
Farm supply or chemical dealer	42	19	23	*
Indep. crop consultant or comm. scout	4	3	8	*
Scouted for diseases	50	61	35	68
Scouting for diseases was done by:				
Operator, partner, or family member	58	86	70	99
An employee		*	1	*
Farm supply or chemical dealer	38	11	20	*
Indep. crop consultant or comm. scout	4	3	10	*
Records kept to track pests	23	9	15	13
Field mapping of weed problem	27	4	3	9
Soil/plant tissue analysis to detect pests		8	1	1
Weather monitoring	45	32	48	37
Biological pest controls				
Suppression Practices:				
Biological pesticides	3	*	1	*
Beneficial organisms				
Scouting used to make decisions	14	9	6	5
Maintain ground cover or physical barriers	15	12	4	16
Adjust planting methods				
Alternate pesticides with different MOA	11	15	5	19

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Barley, 2003 (continued)**

Practice	States			
	ND	PA	SD	UT
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	45	21	46	5
Remove or plow down crop residue	24	33	9	25
Clean implements after fieldwork	56	11	28	10
Field cultivated for weed control				
Field edges/etc. chopped, mowed/etc.	29	17	11	47
Water management practices				2
Avoidance Practices:				
Adjust planting/harvesting dates	10	1	10	16
Rotate crops to control pests	86	70	69	21
Planting locations planned to avoid pests	22	3	8	2
Grow trap crop to control insects				
Seed variety chosen for pest resistance	14	9	2	7
Monitoring Practices:				
Scouting by general observation	48	36	42	51
Deliberate scouting activities	44	28	47	34
Field was not scouted	8	36	11	15
Scouting due to pest advisory warning	2	*		2
Scouting due to pest development model	1	7	1	3
Scouted for weeds	92	64	89	85
Scouting for weeds was done by:				
Operator, partner, or family member	92	67	97	100
An employee			*	
Farm supply or chemical dealer	2	10	1	
Indep. crop consultant or comm. scout	6	24	2	
Scouted for insects and mites	58	36	48	40
Scouting for insects/mites was done by:				
Operator, partner, or family member	89	69	98	100
An employee				
Farm supply or chemical dealer	1	3	1	
Indep. crop consultant or comm. scout	10	28	1	
Scouted for diseases	59	36	43	21
Scouting for diseases was done by:				
Operator, partner, or family member	89	70	98	100
An employee				
Farm supply or chemical dealer	1	2	2	
Indep. crop consultant or comm. scout	10	28	1	
Records kept to track pests	19	14	9	1
Field mapping of weed problem	7	4	1	1
Soil/plant tissue analysis to detect pests	1	4	2	
Weather monitoring	45	16	35	29
Biological pest controls				
Suppression Practices:				
Biological pesticides				1
Beneficial organisms				
Scouting used to make decisions	11	20	9	2
Maintain ground cover or physical barriers	30	20	28	3
Adjust planting methods				
Alternate pesticides with different MOA	29	6	15	1

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Barley, 2003 (continued)**

Practice	States			Program States
	WA	WI	WY	
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	22	8	5	27
Remove or plow down crop residue	26	23	16	29
Clean implements after fieldwork	45	8	8	30
Field cultivated for weed control				
Field edges/etc. chopped, mowed/etc.	29	7	36	25
Water management practices	*		8	3
Avoidance Practices:				
Adjust planting/harvesting dates	5	2	2	7
Rotate crops to control pests	75	57	44	58
Planting locations planned to avoid pests	10	1	3	9
Grow trap crop to control insects				
Seed variety chosen for pest resistance	15	5	2	8
Monitoring Practices:				
Scouting by general observation	29	32	45	44
Deliberate scouting activities	67	21	32	44
Field was not scouted	4	48	23	12
Scouting due to pest advisory warning	2		5	8
Scouting due to pest development model	3	*	2	3
Scouted for weeds	96	50	76	87
Scouting for weeds was done by:				
Operator, partner, or family member	65	94	84	88
An employee	*			*
Farm supply or chemical dealer	34		12	6
Indep. crop consultant or comm. scout	*	3	4	6
Scouted for insects and mites	36	23	50	58
Scouting for insects/mites was done by:				
Operator, partner, or family member	64	84	84	89
An employee	*			*
Farm supply or chemical dealer	35	1	6	5
Indep. crop consultant or comm. scout	1	10	10	6
Scouted for diseases	51	16	29	53
Scouting for diseases was done by:				
Operator, partner, or family member	63	84	77	89
An employee	1			*
Farm supply or chemical dealer	36		10	5
Indep. crop consultant or comm. scout	1	9	13	6
Records kept to track pests	30	1	8	14
Field mapping of weed problem	11	1	2	6
Soil/plant tissue analysis to detect pests	2	2		2
Weather monitoring	69	1	7	34
Biological pest controls				
Suppression Practices:				
Biological pesticides	*			*
Beneficial organisms				
Scouting used to make decisions	15	2	8	9
Maintain ground cover or physical barriers	20	16	5	18
Adjust planting methods				
Alternate pesticides with different MOA	53	*	22	18

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Corn, 2003**

Practice	States			
	CO	IL	IN	IA
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	57	43	33	45
Remove or plow down crop residue	24	16	12	8
Clean implements after fieldwork	41	24	8	25
Field cultivated for weed control	44	20	10	22
Field edges/etc. chopped, mowed/etc.	49	63	36	45
Water management practices	18	*		
Avoidance Practices:				
Adjust planting/harvesting dates	6	9	4	8
Rotate crops to control pests	46	82	66	75
Planting locations planned to avoid pests	6	11	5	19
Grow trap crop to control insects	3	13	1	13
Seed variety chosen for pest resistance	31	31	11	46
Monitoring Practices:				
Scouting by general observation	39	53	47	56
Deliberate scouting activities	59	39	36	33
Field was not scouted	2	8	17	11
Scouting due to pest advisory warning	3	7	3	7
Scouting due to pest development model	2	7	1	8
Scouted for weeds	96	92	83	89
Scouting for weeds was done by:				
Operator, partner, or family member	60	85	95	89
An employee	1	1		1
Farm supply or chemical dealer	12	13	1	6
Indep. crop consultant or comm. scout	26	*	4	4
Scouted for insects and mites	92	85	65	63
Scouting for insects/mites was done by:				
Operator, partner, or family member	55	88	92	87
An employee	1	1		1
Farm supply or chemical dealer	14	10	2	7
Indep. crop consultant or comm. scout	30	*	7	4
Scouted for diseases	80	80	54	53
Scouting for diseases was done by:				
Operator, partner, or family member	55	87	91	85
An employee	1	1		2
Farm supply or chemical dealer	13	11	1	9
Indep. crop consultant or comm. scout	31	*	8	5
Records kept to track pests	38	25	23	16
Field mapping of weed problem	6	13	8	15
Soil/plant tissue analysis to detect pests	8	5	8	3
Weather monitoring	39	46	25	47
Biological pest controls				
Suppression Practices:				
Biological pesticides	9	7	1	14
Beneficial organisms				
Scouting used to make decisions	28	28	15	19
Maintain ground cover or physical barriers	38	13	11	20
Adjust planting methods	6	5	4	11
Alternate pesticides with different MOA	17	34	22	31

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Corn, 2003 (continued)**

Practice	States			
	KS	KY	MI	MN
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	53	59	51	33
Remove or plow down crop residue	18	19	37	25
Clean implements after fieldwork	40	21	22	37
Field cultivated for weed control	32	10	20	42
Field edges/etc. chopped, mowed/etc.	43	49	22	45
Water management practices	18	2	3	1
Avoidance Practices:				
Adjust planting/harvesting dates	9	3	3	4
Rotate crops to control pests	67	76	81	85
Planting locations planned to avoid pests	10	8	11	11
Grow trap crop to control insects	13	2	5	13
Seed variety chosen for pest resistance	50	28	23	46
Monitoring Practices:				
Scouting by general observation	47	54	37	47
Deliberate scouting activities	50	24	43	45
Field was not scouted	3	22	19	8
Scouting due to pest advisory warning	7	2	3	6
Scouting due to pest development model	11	5	3	7
Scouted for weeds	96	78	81	92
Scouting for weeds was done by:				
Operator, partner, or family member	59	89	89	80
An employee	1		1	1
Farm supply or chemical dealer	1	7	6	7
Indep. crop consultant or comm. scout	39	4	3	12
Scouted for insects and mites	84	65	61	67
Scouting for insects/mites was done by:				
Operator, partner, or family member	54	89	85	77
An employee	1		2	2
Farm supply or chemical dealer	*	6	7	7
Indep. crop consultant or comm. scout	45	5	6	14
Scouted for diseases	78	59	52	51
Scouting for diseases was done by:				
Operator, partner, or family member	52	86	84	73
An employee	2		2	1
Farm supply or chemical dealer		8	7	7
Indep. crop consultant or comm. scout	47	6	7	19
Records kept to track pests	47	21	20	20
Field mapping of weed problem	16	10	10	11
Soil/plant tissue analysis to detect pests	20	9	7	5
Weather monitoring	54	32	48	59
Biological pest controls				
Suppression Practices:				
Biological pesticides	11	8	3	16
Beneficial organisms				
Scouting used to make decisions	41	13	21	21
Maintain ground cover or physical barriers	31	23	19	18
Adjust planting methods	12	4	9	7
Alternate pesticides with different MOA	30	18	30	27

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Corn, 2003 (continued)**

Practice	States			
	MO	NE	NY	NC
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	36	59	26	43
Remove or plow down crop residue	18	18	41	44
Clean implements after fieldwork	8	24	16	23
Field cultivated for weed control	17	58	26	12
Field edges/etc. chopped, mowed/etc.	48	52	27	46
Water management practices		24		1
Avoidance Practices:				
Adjust planting/harvesting dates	5	11	3	10
Rotate crops to control pests	65	68	53	83
Planting locations planned to avoid pests	8	18	8	17
Grow trap crop to control insects	18	23	3	1
Seed variety chosen for pest resistance	37	54	31	29
Monitoring Practices:				
Scouting by general observation	40	39	28	63
Deliberate scouting activities	48	51	48	27
Field was not scouted	12	10	24	10
Scouting due to pest advisory warning	6	11	3	3
Scouting due to pest development model	5	12	7	4
Scouted for weeds	87	90	76	90
Scouting for weeds was done by:				
Operator, partner, or family member	92	62	63	92
An employee	1	2		4
Farm supply or chemical dealer	4	5	12	1
Indep. crop consultant or comm. scout	2	30	26	2
Scouted for insects and mites	79	80	50	71
Scouting for insects/mites was done by:				
Operator, partner, or family member	93	60	51	91
An employee		1		5
Farm supply or chemical dealer	5	5	16	1
Indep. crop consultant or comm. scout	2	34	33	1
Scouted for diseases	69	72	45	65
Scouting for diseases was done by:				
Operator, partner, or family member	93	55	54	92
An employee		1		6
Farm supply or chemical dealer	5	6	14	1
Indep. crop consultant or comm. scout	2	38	31	1
Records kept to track pests	11	40	38	14
Field mapping of weed problem	5	15	23	12
Soil/plant tissue analysis to detect pests	3	20	8	12
Weather monitoring	27	48	43	45
Biological pest controls				
Suppression Practices:				
Biological pesticides	11	14	9	2
Beneficial organisms				
Scouting used to make decisions	12	37	26	20
Maintain ground cover or physical barriers	21	44	10	26
Adjust planting methods	6	8	4	10
Alternate pesticides with different MOA	18	36	33	17

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Corn, 2003 (continued)**

Practice	States			
	ND	OH	PA	SD
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	38	59	43	48
Remove or plow down crop residue	27	22	33	12
Clean implements after fieldwork	36	29	15	23
Field cultivated for weed control	33	8	4	10
Field edges/etc. chopped, mowed/etc.	48	58	34	24
Water management practices	1			1
Avoidance Practices:				
Adjust planting/harvesting dates	10	16	2	5
Rotate crops to control pests	80	85	61	87
Planting locations planned to avoid pests	29	16	13	24
Grow trap crop to control insects	24	1	1	26
Seed variety chosen for pest resistance	56	12	18	46
Monitoring Practices:				
Scouting by general observation	28	54	35	44
Deliberate scouting activities	68	37	42	49
Field was not scouted	5	10	24	7
Scouting due to pest advisory warning	4	4	6	9
Scouting due to pest development model	3	14	7	4
Scouted for weeds	95	90	74	93
Scouting for weeds was done by:				
Operator, partner, or family member	76	80	72	70
An employee	2		*	*
Farm supply or chemical dealer	2	19	16	14
Indep. crop consultant or comm. scout	21	2	11	16
Scouted for insects and mites	69	66	50	68
Scouting for insects/mites was done by:				
Operator, partner, or family member	67	73	67	69
An employee	2		*	
Farm supply or chemical dealer	2	25	17	11
Indep. crop consultant or comm. scout	29	2	16	21
Scouted for diseases	68	57	40	64
Scouting for diseases was done by:				
Operator, partner, or family member	66	72	61	67
An employee	2		1	
Farm supply or chemical dealer	3	27	18	11
Indep. crop consultant or comm. scout	29	*	20	22
Records kept to track pests	35	25	25	30
Field mapping of weed problem	12	5	7	10
Soil/plant tissue analysis to detect pests	9	24	2	8
Weather monitoring	73	45	47	48
Biological pest controls				
Suppression Practices:				
Biological pesticides	9	3	5	22
Beneficial organisms				
Scouting used to make decisions	30	21	17	25
Maintain ground cover or physical barriers	31	24	27	23
Adjust planting methods	21	16	5	8
Alternate pesticides with different MOA	27	35	29	18

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Corn, 2003 (continued)**

Practice	States		Program States
	TX	WI	
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:			
No-till/minimum till used to manage pests	32	43	45
Remove or plow down crop residue	60	17	19
Clean implements after fieldwork	38	18	25
Field cultivated for weed control	59	27	27
Field edges/etc. chopped, mowed/etc.	74	19	45
Water management practices	16	*	4
Avoidance Practices:			
Adjust planting/harvesting dates	12	5	7
Rotate crops to control pests	72	76	76
Planting locations planned to avoid pests	17	14	14
Grow trap crop to control insects	8	3	12
Seed variety chosen for pest resistance	38	24	37
Monitoring Practices:			
Scouting by general observation	51	36	47
Deliberate scouting activities	40	41	42
Field was not scouted	9	23	11
Scouting due to pest advisory warning	7	1	6
Scouting due to pest development model	9	6	7
Scouted for weeds	91	77	88
Scouting for weeds was done by:			
Operator, partner, or family member	72	73	80
An employee	1	1	1
Farm supply or chemical dealer	1	14	8
Indep. crop consultant or comm. scout	26	12	11
Scouted for insects and mites	83	47	71
Scouting for insects/mites was done by:			
Operator, partner, or family member	67	59	77
An employee	1	2	1
Farm supply or chemical dealer	2	24	8
Indep. crop consultant or comm. scout	30	16	14
Scouted for diseases	77	37	62
Scouting for diseases was done by:			
Operator, partner, or family member	67	48	75
An employee	2	2	1
Farm supply or chemical dealer	2	30	9
Indep. crop consultant or comm. scout	30	20	15
Records kept to track pests	24	34	26
Field mapping of weed problem	4	18	12
Soil/plant tissue analysis to detect pests	8	4	8
Weather monitoring	36	31	45
Biological pest controls			
Suppression Practices:			
Biological pesticides	10	4	10
Beneficial organisms			
Scouting used to make decisions	27	25	24
Maintain ground cover or physical barriers	23	8	21
Adjust planting methods	15	9	8
Alternate pesticides with different MOA	26	28	29

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Corn, 2003**

Practice	States			
	CO	IL	IN	IA
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	46	39	38	55
Remove or plow down crop residue	38	20	13	6
Clean implements after fieldwork	42	16	9	25
Field cultivated for weed control	59	14	12	17
Field edges/etc. chopped, mowed/etc.	61	69	30	49
Water management practices	16	1		
Avoidance Practices:				
Adjust planting/harvesting dates	4	9	5	8
Rotate crops to control pests	51	76	71	75
Planting locations planned to avoid pests	4	13	5	17
Grow trap crop to control insects	3	6	*	12
Seed variety chosen for pest resistance	25	23	12	40
Monitoring Practices:				
Scouting by general observation	46	59	41	59
Deliberate scouting activities	52	32	43	29
Field was not scouted	2	9	16	11
Scouting due to pest advisory warning	2	5	2	5
Scouting due to pest development model	1	4	1	6
Scouted for weeds	97	91	84	89
Scouting for weeds was done by:				
Operator, partner, or family member	67	88	91	91
An employee	1	*		*
Farm supply or chemical dealer	11	11	3	6
Indep. crop consultant or comm. scout	20	*	6	3
Scouted for insects and mites	96	86	63	65
Scouting for insects/mites was done by:				
Operator, partner, or family member	64	89	88	91
An employee	1	*		*
Farm supply or chemical dealer	12	11	4	5
Indep. crop consultant or comm. scout	22	*	8	3
Scouted for diseases	86	79	54	57
Scouting for diseases was done by:				
Operator, partner, or family member	64	88	87	88
An employee	2	*		1
Farm supply or chemical dealer	12	12	4	7
Indep. crop consultant or comm. scout	23	*	9	4
Records kept to track pests	32	19	17	24
Field mapping of weed problem	5	15	11	13
Soil/plant tissue analysis to detect pests	7	6	11	3
Weather monitoring	32	31	22	50
Biological pest controls				
Suppression Practices:				
Biological pesticides	6	5	*	14
Beneficial organisms				
Scouting used to make decisions	19	17	19	20
Maintain ground cover or physical barriers	43	19	9	30
Adjust planting methods	5	12	4	18
Alternate pesticides with different MOA	13	28	21	37

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Corn, 2003 (continued)**

Practice	States			
	KS	KY	MI	MN
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	68	49	48	21
Remove or plow down crop residue	10	16	47	34
Clean implements after fieldwork	42	20	31	38
Field cultivated for weed control	29	5	18	49
Field edges/etc. chopped, mowed/etc.	21	47	25	50
Water management practices	7	*	2	1
Avoidance Practices:				
Adjust planting/harvesting dates	5	2	2	2
Rotate crops to control pests	81	66	77	88
Planting locations planned to avoid pests	6	10	10	9
Grow trap crop to control insects	6	1	4	10
Seed variety chosen for pest resistance	39	27	17	43
Monitoring Practices:				
Scouting by general observation	72	63	34	50
Deliberate scouting activities	26	22	40	43
Field was not scouted	1	16	26	7
Scouting due to pest advisory warning	3	4	2	6
Scouting due to pest development model	4	4	2	5
Scouted for weeds	98	84	74	93
Scouting for weeds was done by:				
Operator, partner, or family member	83	95	91	84
An employee	1		*	*
Farm supply or chemical dealer	1	5	4	6
Indep. crop consultant or comm. scout	15	1	4	9
Scouted for insects and mites	82	60	52	65
Scouting for insects/mites was done by:				
Operator, partner, or family member	81	95	87	79
An employee	*		*	1
Farm supply or chemical dealer	*	4	6	8
Indep. crop consultant or comm. scout	19	1	7	11
Scouted for diseases	68	58	49	41
Scouting for diseases was done by:				
Operator, partner, or family member	78	93	87	74
An employee	1		*	1
Farm supply or chemical dealer		6	6	7
Indep. crop consultant or comm. scout	22	1	7	18
Records kept to track pests	49	11	17	22
Field mapping of weed problem	8	4	11	17
Soil/plant tissue analysis to detect pests	10	4	4	4
Weather monitoring	62	30	50	65
Biological pest controls				
Suppression Practices:				
Biological pesticides	8	3	2	10
Beneficial organisms				
Scouting used to make decisions	29	10	18	14
Maintain ground cover or physical barriers	26	21	20	22
Adjust planting methods	13	7	10	5
Alternate pesticides with different MOA	34	11	29	34

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Corn, 2003 (continued)**

Practice	States			
	MO	NE	NY	NC
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	38	70	19	48
Remove or plow down crop residue	17	12	43	44
Clean implements after fieldwork	12	20	16	23
Field cultivated for weed control	15	60	30	11
Field edges/etc. chopped, mowed/etc.	52	60	31	45
Water management practices		12		*
Avoidance Practices:				
Adjust planting/harvesting dates	3	9	2	5
Rotate crops to control pests	73	80	56	91
Planting locations planned to avoid pests	5	13	7	9
Grow trap crop to control insects	14	16	1	*
Seed variety chosen for pest resistance	31	61	26	28
Monitoring Practices:				
Scouting by general observation	42	32	27	45
Deliberate scouting activities	42	55	44	38
Field was not scouted	16	14	29	17
Scouting due to pest advisory warning	10	7	5	3
Scouting due to pest development model	5	8	5	3
Scouted for weeds	80	86	71	83
Scouting for weeds was done by:				
Operator, partner, or family member	96	73	75	94
An employee	1	3		1
Farm supply or chemical dealer	3	4	6	2
Indep. crop consultant or comm. scout	1	19	19	3
Scouted for insects and mites	67	56	44	72
Scouting for insects/mites was done by:				
Operator, partner, or family member	97	65	67	94
An employee		*		2
Farm supply or chemical dealer	3	5	7	2
Indep. crop consultant or comm. scout	1	30	26	2
Scouted for diseases	57	52	42	67
Scouting for diseases was done by:				
Operator, partner, or family member	96	60	71	95
An employee		*		2
Farm supply or chemical dealer	3	6	6	1
Indep. crop consultant or comm. scout	1	34	23	3
Records kept to track pests	7	25	29	7
Field mapping of weed problem	3	9	19	7
Soil/plant tissue analysis to detect pests	2	14	4	14
Weather monitoring	28	57	44	35
Biological pest controls				
Suppression Practices:				
Biological pesticides	8	11	8	1
Beneficial organisms				
Scouting used to make decisions	7	25	19	11
Maintain ground cover or physical barriers	19	58	13	20
Adjust planting methods	4	6	5	7
Alternate pesticides with different MOA	17	45	29	21

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Corn, 2003 (continued)**

Practice	States			
	ND	OH	PA	SD
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	40	57	39	42
Remove or plow down crop residue	24	23	33	15
Clean implements after fieldwork	39	23	10	22
Field cultivated for weed control	29	10	4	13
Field edges/etc. chopped, mowed/etc.	44	50	31	22
Water management practices	1			1
Avoidance Practices:				
Adjust planting/harvesting dates	8	14	2	5
Rotate crops to control pests	74	85	62	86
Planting locations planned to avoid pests	21	17	12	19
Grow trap crop to control insects	18	1	*	22
Seed variety chosen for pest resistance	49	13	19	42
Monitoring Practices:				
Scouting by general observation	39	56	39	51
Deliberate scouting activities	54	30	37	41
Field was not scouted	7	13	24	8
Scouting due to pest advisory warning	3	4	3	6
Scouting due to pest development model	1	11	6	4
Scouted for weeds	93	86	74	92
Scouting for weeds was done by:				
Operator, partner, or family member	84	86	73	71
An employee	1		*	*
Farm supply or chemical dealer	4	12	16	18
Indep. crop consultant or comm. scout	12	2	10	10
Scouted for insects and mites	55	65	45	65
Scouting for insects/mites was done by:				
Operator, partner, or family member	73	81	65	71
An employee	1		1	
Farm supply or chemical dealer	6	16	18	17
Indep. crop consultant or comm. scout	20	3	17	13
Scouted for diseases	55	57	38	63
Scouting for diseases was done by:				
Operator, partner, or family member	73	82	59	70
An employee	1		1	
Farm supply or chemical dealer	6	18	20	17
Indep. crop consultant or comm. scout	20	1	20	13
Records kept to track pests	28	19	25	28
Field mapping of weed problem	7	3	6	6
Soil/plant tissue analysis to detect pests	5	18	2	4
Weather monitoring	66	49	53	48
Biological pest controls				
Suppression Practices:				
Biological pesticides	6	2	2	22
Beneficial organisms				
Scouting used to make decisions	21	20	19	20
Maintain ground cover or physical barriers	25	25	22	16
Adjust planting methods	17	11	5	6
Alternate pesticides with different MOA	26	33	25	12

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Corn, 2003 (continued)**

Practice	States		Program States
	TX	WI	
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:			
No-till/minimum till used to manage pests	30	39	43
Remove or plow down crop residue	54	20	23
Clean implements after fieldwork	34	14	21
Field cultivated for weed control	65	24	22
Field edges/etc. chopped, mowed/etc.	67	18	42
Water management practices	9	*	1
Avoidance Practices:			
Adjust planting/harvesting dates	10	2	5
Rotate crops to control pests	73	69	75
Planting locations planned to avoid pests	17	7	11
Grow trap crop to control insects	4	2	6
Seed variety chosen for pest resistance	28	19	28
Monitoring Practices:			
Scouting by general observation	53	42	47
Deliberate scouting activities	34	34	37
Field was not scouted	13	24	15
Scouting due to pest advisory warning	4	1	4
Scouting due to pest development model	6	7	5
Scouted for weeds	87	75	84
Scouting for weeds was done by:			
Operator, partner, or family member	82	75	84
An employee	1	*	*
Farm supply or chemical dealer	1	13	8
Indep. crop consultant or comm. scout	17	12	8
Scouted for insects and mites	75	46	62
Scouting for insects/mites was done by:			
Operator, partner, or family member	76	58	80
An employee	1	*	*
Farm supply or chemical dealer	2	23	10
Indep. crop consultant or comm. scout	21	18	10
Scouted for diseases	70	31	53
Scouting for diseases was done by:			
Operator, partner, or family member	81	38	77
An employee	1	*	*
Farm supply or chemical dealer	3	34	11
Indep. crop consultant or comm. scout	16	27	11
Records kept to track pests	12	28	22
Field mapping of weed problem	3	16	11
Soil/plant tissue analysis to detect pests	4	5	6
Weather monitoring	33	31	43
Biological pest controls			
Suppression Practices:			
Biological pesticides	5	4	6
Beneficial organisms			
Scouting used to make decisions	20	26	19
Maintain ground cover or physical barriers	21	11	22
Adjust planting methods	15	9	9
Alternate pesticides with different MOA	19	23	28

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Fall Potatoes, 2003**

Practice	States			
	CO	ID	ME	MI
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	42	9	9	4
Remove or plow down crop residue	60	42	52	83
Clean implements after fieldwork	68	65	26	23
Field cultivated for weed control	100	93	97	94
Field edges/etc. chopped, mowed/etc.	99	87	74	48
Water management practices	77	53	6	30
Avoidance Practices:				
Adjust planting/harvesting dates	21	11		5
Rotate crops to control pests	80	79	80	95
Planting locations planned to avoid pests	14	24	2	32
Grow trap crop to control insects	10			1
Seed variety chosen for pest resistance	19	10	1	14
Monitoring Practices:				
Scouting by general observation	12	22	49	22
Deliberate scouting activities	88	77	50	78
Field was not scouted		1	1	1
Scouting due to pest advisory warning	21	19	21	21
Scouting due to pest development model	42	26	11	27
Scouted for weeds	100	93	66	99
Scouting for weeds was done by:				
Operator, partner, or family member	52	68	96	39
An employee		10		22
Farm supply or chemical dealer	6	6	2	3
Indep. crop consultant or comm. scout	42	15	2	36
Scouted for insects and mites	100	94	99	99
Scouting for insects/mites was done by:				
Operator, partner, or family member	44	68	81	37
An employee		10		22
Farm supply or chemical dealer	8	7	2	3
Indep. crop consultant or comm. scout	48	15	17	38
Scouted for diseases	100	95	98	99
Scouting for diseases was done by:				
Operator, partner, or family member	45	69	81	37
An employee		9		22
Farm supply or chemical dealer	8	7	2	3
Indep. crop consultant or comm. scout	47	16	17	38
Records kept to track pests	76	42	39	48
Field mapping of weed problem	6	27	4	7
Soil/plant tissue analysis to detect pests	58	68	28	57
Weather monitoring	69	62	83	67
Biological pest controls	11	*	6	*
Suppression Practices:				
Biological pesticides	16	1	3	2
Beneficial organisms	21	10		
Scouting used to make decisions	52	44	60	58
Maintain ground cover or physical barriers	50	40	19	55
Adjust planting methods	14	9	1	15
Alternate pesticides with different MOA	59	50	42	86

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Fall Potatoes, 2003 (continued)**

Practice	States			
	MN	ND	OR	PA
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	19	23	12	1
Remove or plow down crop residue	51	36	42	75
Clean implements after fieldwork	70	52	82	41
Field cultivated for weed control	100	97	92	97
Field edges/etc. chopped, mowed/etc.	61	57	92	50
Water management practices	32	28	52	5
Avoidance Practices:				
Adjust planting/harvesting dates	24	7	12	18
Rotate crops to control pests	91	93	92	94
Planting locations planned to avoid pests	22	42	32	36
Grow trap crop to control insects	2	8		
Seed variety chosen for pest resistance	3	4	4	18
Monitoring Practices:				
Scouting by general observation	12	4	24	13
Deliberate scouting activities	85	94	76	86
Field was not scouted	3	2		*
Scouting due to pest advisory warning	20	23	19	11
Scouting due to pest development model	17	17	13	4
Scouted for weeds	87	96	100	93
Scouting for weeds was done by:				
Operator, partner, or family member	85	33	52	87
An employee	3	7	23	10
Farm supply or chemical dealer	4	3	24	1
Indep. crop consultant or comm. scout	8	56		2
Scouted for insects and mites	94	98	100	99
Scouting for insects/mites was done by:				
Operator, partner, or family member	88	30	48	88
An employee		7	24	9
Farm supply or chemical dealer	4	3	27	1
Indep. crop consultant or comm. scout	7	59		2
Scouted for diseases	90	98	100	96
Scouting for diseases was done by:				
Operator, partner, or family member	88	30	50	88
An employee		7	23	9
Farm supply or chemical dealer	5	3	27	1
Indep. crop consultant or comm. scout	8	59		2
Records kept to track pests	55	75	78	22
Field mapping of weed problem	14	6	14	1
Soil/plant tissue analysis to detect pests	32	46	50	9
Weather monitoring	77	76	84	59
Biological pest controls			4	*
Suppression Practices:				
Biological pesticides		1	4	6
Beneficial organisms		8	5	
Scouting used to make decisions	56	56	34	34
Maintain ground cover or physical barriers	40	22	42	35
Adjust planting methods		16	9	2
Alternate pesticides with different MOA	60	66	77	81

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Fall Potatoes, 2003 (continued)**

Practice	States		Program States
	WA	WI	
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:			
No-till/minimum till used to manage pests	20	11	15
Remove or plow down crop residue	79	49	52
Clean implements after fieldwork	80	38	60
Field cultivated for weed control	97	74	94
Field edges/etc. chopped, mowed/etc.	98	75	81
Water management practices	39	45	43
Avoidance Practices:			
Adjust planting/harvesting dates	14	2	11
Rotate crops to control pests	92	79	85
Planting locations planned to avoid pests	63	12	30
Grow trap crop to control insects	3	5	3
Seed variety chosen for pest resistance	40	17	14
Monitoring Practices:			
Scouting by general observation	54	16	25
Deliberate scouting activities	46	84	74
Field was not scouted		*	1
Scouting due to pest advisory warning	16	20	19
Scouting due to pest development model	15	32	22
Scouted for weeds	99	99	94
Scouting for weeds was done by:			
Operator, partner, or family member	62	45	60
An employee	13	6	10
Farm supply or chemical dealer	22	2	8
Indep. crop consultant or comm. scout	4	46	22
Scouted for insects and mites	99	100	97
Scouting for insects/mites was done by:			
Operator, partner, or family member	51	37	57
An employee	12	3	9
Farm supply or chemical dealer	33	2	10
Indep. crop consultant or comm. scout	4	57	24
Scouted for diseases	99	97	97
Scouting for diseases was done by:			
Operator, partner, or family member	50	35	57
An employee	12	3	8
Farm supply or chemical dealer	34	2	11
Indep. crop consultant or comm. scout	4	58	24
Records kept to track pests	74	88	59
Field mapping of weed problem	18	33	18
Soil/plant tissue analysis to detect pests	85	48	59
Weather monitoring	89	89	74
Biological pest controls			1
Suppression Practices:			
Biological pesticides	3	9	3
Beneficial organisms	3		7
Scouting used to make decisions	37	87	50
Maintain ground cover or physical barriers	18	46	35
Adjust planting methods	15	11	10
Alternate pesticides with different MOA	93	82	65

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Fall Potatoes, 2003**

Practice	States			
	CO	ID	ME	MI
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	29	87	7	14
Remove or plow down crop residue	64	92	44	77
Clean implements after fieldwork	77	93	21	36
Field cultivated for weed control	100	99	96	91
Field edges/etc. chopped, mowed/etc.	98	98	68	61
Water management practices	77	92	12	36
Avoidance Practices:				
Adjust planting/harvesting dates	13	2		17
Rotate crops to control pests	82	97	81	95
Planting locations planned to avoid pests	10	88	7	36
Grow trap crop to control insects	10			3
Seed variety chosen for pest resistance	13	1	1	19
Monitoring Practices:				
Scouting by general observation	28	4	43	24
Deliberate scouting activities	72	96	55	72
Field was not scouted		*	2	4
Scouting due to pest advisory warning	17	88	16	16
Scouting due to pest development model	27	3	13	19
Scouted for weeds	100	99	73	95
Scouting for weeds was done by:				
Operator, partner, or family member	63	10	95	55
An employee		86		8
Farm supply or chemical dealer	8	2	3	8
Indep. crop consultant or comm. scout	30	2	2	28
Scouted for insects and mites	100	99	98	96
Scouting for insects/mites was done by:				
Operator, partner, or family member	53	10	74	53
An employee		86		8
Farm supply or chemical dealer	9	1	4	9
Indep. crop consultant or comm. scout	38	2	22	30
Scouted for diseases	100	100	96	96
Scouting for diseases was done by:				
Operator, partner, or family member	55	11	78	53
An employee		85		8
Farm supply or chemical dealer	9	1	4	9
Indep. crop consultant or comm. scout	36	3	18	30
Records kept to track pests	75	90	37	57
Field mapping of weed problem	4	3	2	10
Soil/plant tissue analysis to detect pests	42	94	29	33
Weather monitoring	68	92	82	75
Biological pest controls	10	*	6	1
Suppression Practices:				
Biological pesticides	15	*	2	3
Beneficial organisms	20	1		
Scouting used to make decisions	44	93	52	50
Maintain ground cover or physical barriers	58	91	29	49
Adjust planting methods	10	1	1	18
Alternate pesticides with different MOA	61	94	29	63

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Fall Potatoes, 2003 (continued)**

Practice	States			
	MN	ND	OR	PA
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	14	14	17	2
Remove or plow down crop residue	44	30	41	80
Clean implements after fieldwork	68	40	76	55
Field cultivated for weed control	98	99	87	94
Field edges/etc. chopped, mowed/etc.	62	47	88	55
Water management practices	14	23	36	7
Avoidance Practices:				
Adjust planting/harvesting dates	18	5	7	28
Rotate crops to control pests	90	96	90	96
Planting locations planned to avoid pests	27	40	19	31
Grow trap crop to control insects	8	22		
Seed variety chosen for pest resistance	2	5	4	4
Monitoring Practices:				
Scouting by general observation	9	9	33	19
Deliberate scouting activities	87	91	67	80
Field was not scouted	4	1		1
Scouting due to pest advisory warning	28	19	15	12
Scouting due to pest development model	18	11	10	4
Scouted for weeds	87	97	100	94
Scouting for weeds was done by:				
Operator, partner, or family member	92	31	67	89
An employee	2	3	12	8
Farm supply or chemical dealer	4	2	21	1
Indep. crop consultant or comm. scout	2	65		2
Scouted for insects and mites	94	99	100	98
Scouting for insects/mites was done by:				
Operator, partner, or family member	94	31	62	90
An employee		3	13	8
Farm supply or chemical dealer	4	2	25	1
Indep. crop consultant or comm. scout	2	65		2
Scouted for diseases	91	99	100	96
Scouting for diseases was done by:				
Operator, partner, or family member	94	31	64	90
An employee		3	12	8
Farm supply or chemical dealer	4	2	24	1
Indep. crop consultant or comm. scout	2	65		2
Records kept to track pests	50	85	67	18
Field mapping of weed problem	6	7	10	1
Soil/plant tissue analysis to detect pests	20	37	48	7
Weather monitoring	72	84	73	52
Biological pest controls			3	*
Suppression Practices:				
Biological pesticides		1	3	9
Beneficial organisms		3	2	
Scouting used to make decisions	56	70	32	18
Maintain ground cover or physical barriers	27	39	23	37
Adjust planting methods		12	5	4
Alternate pesticides with different MOA	60	78	68	79

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Fall Potatoes, 2003 (continued)**

Practice	States		Program States
	WA	WI	
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:			
No-till/minimum till used to manage pests	14	10	56
Remove or plow down crop residue	79	47	77
Clean implements after fieldwork	74	42	75
Field cultivated for weed control	98	74	97
Field edges/etc. chopped, mowed/etc.	95	67	86
Water management practices	36	44	64
Avoidance Practices:			
Adjust planting/harvesting dates	10	5	5
Rotate crops to control pests	93	78	93
Planting locations planned to avoid pests	53	18	63
Grow trap crop to control insects	3	3	2
Seed variety chosen for pest resistance	28	22	4
Monitoring Practices:			
Scouting by general observation	50	18	14
Deliberate scouting activities	50	82	86
Field was not scouted		*	1
Scouting due to pest advisory warning	10	16	59
Scouting due to pest development model	10	28	7
Scouted for weeds	100	99	95
Scouting for weeds was done by:			
Operator, partner, or family member	66	49	34
An employee	11	6	55
Farm supply or chemical dealer	18	1	3
Indep. crop consultant or comm. scout	4	43	7
Scouted for insects and mites	100	98	99
Scouting for insects/mites was done by:			
Operator, partner, or family member	60	39	33
An employee	11	1	53
Farm supply or chemical dealer	24	2	4
Indep. crop consultant or comm. scout	4	57	10
Scouted for diseases	100	96	98
Scouting for diseases was done by:			
Operator, partner, or family member	59	38	33
An employee	11	1	53
Farm supply or chemical dealer	25	2	4
Indep. crop consultant or comm. scout	4	59	10
Records kept to track pests	60	82	74
Field mapping of weed problem	17	32	5
Soil/plant tissue analysis to detect pests	72	42	70
Weather monitoring	85	84	85
Biological pest controls			1
Suppression Practices:			
Biological pesticides	9	5	2
Beneficial organisms	2		1
Scouting used to make decisions	35	83	74
Maintain ground cover or physical barriers	28	43	68
Adjust planting methods	11	13	3
Alternate pesticides with different MOA	86	71	80

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Sorghum, 2003**

Practice	States			
	CO	KS	MO	NE
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	43	56	25	67
Remove or plow down crop residue	15	19	12	13
Clean implements after fieldwork	41	52	16	18
Field cultivated for weed control	35	14	18	39
Field edges/etc. chopped, mowed/etc.	18	46	35	28
Water management practices				
Avoidance Practices:				
Adjust planting/harvesting dates	15	7	7	3
Rotate crops to control pests	57	68	57	86
Planting locations planned to avoid pests	7	14	6	15
Grow trap crop to control insects				
Seed variety chosen for pest resistance	22	29	21	48
Monitoring Practices:				
Scouting by general observation	66	57	53	58
Deliberate scouting activities	26	24	26	38
Field was not scouted	9	19	21	4
Scouting due to pest advisory warning	13	3	4	6
Scouting due to pest development model	7	1	2	3
Scouted for weeds	91	81	78	96
Scouting for weeds was done by:				
Operator, partner, or family member	94	90	94	89
An employee			6	
Farm supply or chemical dealer	6	1		3
Indep. crop consultant or comm. scout	*	9	*	8
Scouted for insects and mites	43	52	62	73
Scouting for insects/mites was done by:				
Operator, partner, or family member	99	86	92	88
An employee			8	
Farm supply or chemical dealer	1	*		2
Indep. crop consultant or comm. scout		14	*	10
Scouted for diseases	30	49	54	48
Scouting for diseases was done by:				
Operator, partner, or family member	95	85	91	83
An employee			9	
Farm supply or chemical dealer		*		2
Indep. crop consultant or comm. scout	5	14	1	15
Records kept to track pests	16	15	4	17
Field mapping of weed problem	1	6	3	8
Soil/plant tissue analysis to detect pests		2	1	8
Weather monitoring	15	23	14	24
Biological pest controls				
Suppression Practices:				
Biological pesticides	5	*	*	1
Beneficial organisms				
Scouting used to make decisions	13	10	12	11
Maintain ground cover or physical barriers	17	18	16	52
Adjust planting methods	14	8	10	3
Alternate pesticides with different MOA	13	15	11	18

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Sorghum, 2003 (continued)**

Practice	States			Program States
	OK	SD	TX	
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	39	50	21	42
Remove or plow down crop residue	45	18	50	31
Clean implements after fieldwork	68	25	51	47
Field cultivated for weed control	33	29	73	40
Field edges/etc. chopped, mowed/etc.	35	13	73	52
Water management practices	*		2	1
Avoidance Practices:				
Adjust planting/harvesting dates	6	18	14	10
Rotate crops to control pests	57	76	59	65
Planting locations planned to avoid pests	12	19	8	11
Grow trap crop to control insects				
Seed variety chosen for pest resistance	50	17	28	30
Monitoring Practices:				
Scouting by general observation	72	45	54	56
Deliberate scouting activities	16	44	29	28
Field was not scouted	12	11	17	16
Scouting due to pest advisory warning		2	5	4
Scouting due to pest development model	4	4	3	2
Scouted for weeds	88	89	81	83
Scouting for weeds was done by:				
Operator, partner, or family member	96	90	94	92
An employee				*
Farm supply or chemical dealer		2	3	2
Indep. crop consultant or comm. scout	4	7	3	6
Scouted for insects and mites	40	58	63	58
Scouting for insects/mites was done by:				
Operator, partner, or family member	92	89	84	86
An employee				*
Farm supply or chemical dealer			5	3
Indep. crop consultant or comm. scout	8	11	11	11
Scouted for diseases	38	44	50	48
Scouting for diseases was done by:				
Operator, partner, or family member	92	89	85	86
An employee				*
Farm supply or chemical dealer			3	1
Indep. crop consultant or comm. scout	8	11	12	13
Records kept to track pests	10	11	15	14
Field mapping of weed problem	1	10	1	4
Soil/plant tissue analysis to detect pests	5	3		2
Weather monitoring	11	21	31	25
Biological pest controls				
Suppression Practices:				
Biological pesticides	*	2		*
Beneficial organisms				
Scouting used to make decisions	9	8	12	11
Maintain ground cover or physical barriers	22	38	12	19
Adjust planting methods	6	12	7	8
Alternate pesticides with different MOA	9	10	8	12

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Sorghum, 2003**

Practice	States			
	CO	KS	MO	NE
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	34	52	24	63
Remove or plow down crop residue	11	25	9	16
Clean implements after fieldwork	28	57	19	28
Field cultivated for weed control	37	13	13	40
Field edges/etc. chopped, mowed/etc.	17	45	38	24
Water management practices				
Avoidance Practices:				
Adjust planting/harvesting dates	12	6	12	3
Rotate crops to control pests	42	68	51	84
Planting locations planned to avoid pests	5	19	5	12
Grow trap crop to control insects				
Seed variety chosen for pest resistance	19	36	21	42
Monitoring Practices:				
Scouting by general observation	68	64	57	65
Deliberate scouting activities	17	24	26	33
Field was not scouted	15	12	18	3
Scouting due to pest advisory warning	5	3	4	3
Scouting due to pest development model	5	*	1	2
Scouted for weeds	84	88	82	97
Scouting for weeds was done by:				
Operator, partner, or family member	96	90	98	93
An employee			2	
Farm supply or chemical dealer	4	1		3
Indep. crop consultant or comm. scout	*	8	*	5
Scouted for insects and mites	32	60	55	78
Scouting for insects/mites was done by:				
Operator, partner, or family member	96	87	97	95
An employee			3	
Farm supply or chemical dealer	4	*		2
Indep. crop consultant or comm. scout		12	*	4
Scouted for diseases	26	52	50	53
Scouting for diseases was done by:				
Operator, partner, or family member	98	86	97	93
An employee			3	
Farm supply or chemical dealer		*		1
Indep. crop consultant or comm. scout	2	14	*	5
Records kept to track pests	7	11	2	8
Field mapping of weed problem	*	3	1	3
Soil/plant tissue analysis to detect pests		1	1	3
Weather monitoring	13	22	8	19
Biological pest controls				
Suppression Practices:				
Biological pesticides	4	*	*	1
Beneficial organisms				
Scouting used to make decisions	6	13	13	5
Maintain ground cover or physical barriers	17	19	20	58
Adjust planting methods	8	7	16	3
Alternate pesticides with different MOA	12	16	15	16

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Sorghum, 2003 (continued)**

Practice	States			Program States
	OK	SD	TX	
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	26	46	25	41
Remove or plow down crop residue	52	20	59	35
Clean implements after fieldwork	56	23	59	52
Field cultivated for weed control	21	39	75	38
Field edges/etc. chopped, mowed/etc.	21	17	73	50
Water management practices	*		1	*
Avoidance Practices:				
Adjust planting/harvesting dates	4	13	11	8
Rotate crops to control pests	53	75	61	66
Planting locations planned to avoid pests	8	21	9	14
Grow trap crop to control insects				
Seed variety chosen for pest resistance	59	13	32	34
Monitoring Practices:				
Scouting by general observation	77	53	58	62
Deliberate scouting activities	8	40	23	24
Field was not scouted	15	8	20	14
Scouting due to pest advisory warning		1	5	3
Scouting due to pest development model	3	1	3	2
Scouted for weeds	85	92	79	86
Scouting for weeds was done by:				
Operator, partner, or family member	97	96	97	93
An employee				*
Farm supply or chemical dealer		1	1	1
Indep. crop consultant or comm. scout	3	3	2	5
Scouted for insects and mites	31	52	53	58
Scouting for insects/mites was done by:				
Operator, partner, or family member	92	96	88	89
An employee				*
Farm supply or chemical dealer			5	2
Indep. crop consultant or comm. scout	8	4	8	9
Scouted for diseases	30	40	42	47
Scouting for diseases was done by:				
Operator, partner, or family member	91	97	89	89
An employee				*
Farm supply or chemical dealer			2	1
Indep. crop consultant or comm. scout	9	3	9	11
Records kept to track pests	5	4	10	9
Field mapping of weed problem	1	7	1	2
Soil/plant tissue analysis to detect pests	3	1		1
Weather monitoring	20	16	23	21
Biological pest controls				
Suppression Practices:				
Biological pesticides	*	2		*
Beneficial organisms				
Scouting used to make decisions	9	4	7	10
Maintain ground cover or physical barriers	14	39	11	21
Adjust planting methods	3	7	8	7
Alternate pesticides with different MOA	7	6	5	12

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Upland Cotton, 2003**

Practice	States		
	AL	AZ	AR
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:			
No-till/minimum till used to manage pests	55	21	31
Remove or plow down crop residue	26	76	50
Clean implements after fieldwork	26	24	40
Field cultivated for weed control	16	91	40
Field edges/etc. chopped, mowed/etc.	69	72	90
Water management practices	3	22	10
Avoidance Practices:			
Adjust planting/harvesting dates	13	16	5
Rotate crops to control pests	25	34	13
Planting locations planned to avoid pests	5	10	2
Grow trap crop to control insects	3	4	3
Seed variety chosen for pest resistance	54	65	69
Monitoring Practices:			
Scouting by general observation	31	8	22
Deliberate scouting activities	69	92	77
Field was not scouted			1
Scouting due to pest advisory warning	18	35	19
Scouting due to pest development model	22	19	24
Scouted for weeds	93	94	85
Scouting for weeds was done by:			
Operator, partner, or family member	73	45	35
An employee	4	1	2
Farm supply or chemical dealer	1	12	1
Indep. crop consultant or comm. scout	22	41	63
Scouted for insects and mites	98	100	99
Scouting for insects/mites was done by:			
Operator, partner, or family member	48	26	18
An employee	4	*	1
Farm supply or chemical dealer	2	25	2
Indep. crop consultant or comm. scout	46	48	79
Scouted for diseases	84	68	85
Scouting for diseases was done by:			
Operator, partner, or family member	64	32	26
An employee	2	1	2
Farm supply or chemical dealer	2	18	1
Indep. crop consultant or comm. scout	33	50	71
Records kept to track pests	50	51	67
Field mapping of weed problem	3	4	11
Soil/plant tissue analysis to detect pests	5	12	18
Weather monitoring	63	49	72
Biological pest controls	7	9	21
Suppression Practices:			
Biological pesticides	18	23	17
Beneficial organisms	2	1	
Scouting used to make decisions	43	43	49
Maintain ground cover or physical barriers	18	16	4
Adjust planting methods	14	3	5
Alternate pesticides with different MOA	22	44	24

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Upland Cotton, 2003 (continued)**

Practice	States		
	CA	GA	LA
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:			
No-till/minimum till used to manage pests	8	41	40
Remove or plow down crop residue	79	42	64
Clean implements after fieldwork	56	53	48
Field cultivated for weed control	97	17	41
Field edges/etc. chopped, mowed/etc.	77	70	79
Water management practices	20	1	1
Avoidance Practices:			
Adjust planting/harvesting dates	1	1	4
Rotate crops to control pests	50	41	16
Planting locations planned to avoid pests	3	12	7
Grow trap crop to control insects	3	2	3
Seed variety chosen for pest resistance	20	55	52
Monitoring Practices:			
Scouting by general observation	13	25	9
Deliberate scouting activities	87	73	91
Field was not scouted		3	
Scouting due to pest advisory warning	30	16	12
Scouting due to pest development model	26	23	30
Scouted for weeds	95	83	88
Scouting for weeds was done by:			
Operator, partner, or family member	31	57	40
An employee	8	1	2
Farm supply or chemical dealer	31		*
Indep. crop consultant or comm. scout	31	41	58
Scouted for insects and mites	100	97	100
Scouting for insects/mites was done by:			
Operator, partner, or family member	8	44	2
An employee	6	1	*
Farm supply or chemical dealer	46		1
Indep. crop consultant or comm. scout	39	55	97
Scouted for diseases	91	85	88
Scouting for diseases was done by:			
Operator, partner, or family member	9	50	5
An employee	7	1	*
Farm supply or chemical dealer	43		*
Indep. crop consultant or comm. scout	41	49	95
Records kept to track pests	81	41	57
Field mapping of weed problem	17	6	12
Soil/plant tissue analysis to detect pests	31	9	6
Weather monitoring	61	61	85
Biological pest controls	6	1	
Suppression Practices:			
Biological pesticides	15	12	12
Beneficial organisms	6		
Scouting used to make decisions	72	32	28
Maintain ground cover or physical barriers	9	23	14
Adjust planting methods	5	7	2
Alternate pesticides with different MOA	67	11	30

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Upland Cotton, 2003 (continued)**

Practice	States		
	MS	MO	NC
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:			
No-till/minimum till used to manage pests	41	48	41
Remove or plow down crop residue	78	22	40
Clean implements after fieldwork	40	2	40
Field cultivated for weed control	18	32	19
Field edges/etc. chopped, mowed/etc.	71	32	52
Water management practices	2	4	
Avoidance Practices:			
Adjust planting/harvesting dates	7	1	5
Rotate crops to control pests	15	6	43
Planting locations planned to avoid pests	4	2	4
Grow trap crop to control insects	7	3	1
Seed variety chosen for pest resistance	70	32	49
Monitoring Practices:			
Scouting by general observation	22	7	27
Deliberate scouting activities	78	83	70
Field was not scouted	*	10	3
Scouting due to pest advisory warning	7	20	31
Scouting due to pest development model	17	10	19
Scouted for weeds	97	77	93
Scouting for weeds was done by:			
Operator, partner, or family member	75	50	64
An employee	5		2
Farm supply or chemical dealer	2	*	2
Indep. crop consultant or comm. scout	18	50	30
Scouted for insects and mites	99	89	94
Scouting for insects/mites was done by:			
Operator, partner, or family member	11	36	58
An employee	*		3
Farm supply or chemical dealer	2	*	2
Indep. crop consultant or comm. scout	86	63	36
Scouted for diseases	61	79	79
Scouting for diseases was done by:			
Operator, partner, or family member	30	40	59
An employee	*		2
Farm supply or chemical dealer	2	*	3
Indep. crop consultant or comm. scout	67	60	36
Records kept to track pests	77	47	41
Field mapping of weed problem	7	5	19
Soil/plant tissue analysis to detect pests	2	4	12
Weather monitoring	73	43	80
Biological pest controls	1	9	2
Suppression Practices:			
Biological pesticides	23	17	13
Beneficial organisms			*
Scouting used to make decisions	55	35	59
Maintain ground cover or physical barriers	37	7	36
Adjust planting methods	7	2	4
Alternate pesticides with different MOA	36	13	29

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Acres Receiving Practice,
Upland Cotton, 2003 (continued)**

Practice	States			Program States
	SC	TN	TX	Percent of Acres
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
Prevention Practices:				
No-till/minimum till used to manage pests	40	56	15	29
Remove or plow down crop residue	38	32	36	44
Clean implements after fieldwork	50	40	63	50
Field cultivated for weed control	16	7	83	53
Field edges/etc. chopped, mowed/etc.	59	66	78	73
Water management practices	*	1	3	4
Avoidance Practices:				
Adjust planting/harvesting dates	3	8	9	7
Rotate crops to control pests	40	15	24	25
Planting locations planned to avoid pests	19	3	3	5
Grow trap crop to control insects	3	21	5	5
Seed variety chosen for pest resistance	46	66	34	46
Monitoring Practices:				
Scouting by general observation	21	36	45	32
Deliberate scouting activities	79	61	38	60
Field was not scouted	*	2	16	8
Scouting due to pest advisory warning	8	16	14	16
Scouting due to pest development model	49	21	15	19
Scouted for weeds	81	91	80	85
Scouting for weeds was done by:				
Operator, partner, or family member	70	54	74	63
An employee	7	6	1	2
Farm supply or chemical dealer	1	1	4	4
Indep. crop consultant or comm. scout	21	39	20	30
Scouted for insects and mites	97	97	72	86
Scouting for insects/mites was done by:				
Operator, partner, or family member	50	51	47	37
An employee	6	7	1	2
Farm supply or chemical dealer	1	1	7	6
Indep. crop consultant or comm. scout	41	41	44	55
Scouted for diseases	63	94	52	68
Scouting for diseases was done by:				
Operator, partner, or family member	64	51	49	42
An employee	2	7	2	2
Farm supply or chemical dealer	2	1	6	6
Indep. crop consultant or comm. scout	29	40	42	50
Records kept to track pests	42	34	27	43
Field mapping of weed problem	8	3	14	11
Soil/plant tissue analysis to detect pests	9	6	2	7
Weather monitoring	74	33	39	54
Biological pest controls	3	17	2	4
Suppression Practices:				
Biological pesticides	21	8	5	11
Beneficial organisms			2	1
Scouting used to make decisions	47	29	24	36
Maintain ground cover or physical barriers	25	24	7	15
Adjust planting methods	1	2	3	4
Alternate pesticides with different MOA	9	29	10	20

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Upland Cotton, 2003**

Practice	States		
	AL	AZ	AR
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:			
No-till/minimum till used to manage pests	42	24	42
Remove or plow down crop residue	28	68	57
Clean implements after fieldwork	36	24	49
Field cultivated for weed control	14	91	52
Field edges/etc. chopped, mowed/etc.	76	75	90
Water management practices	1	16	10
Avoidance Practices:			
Adjust planting/harvesting dates	7	14	4
Rotate crops to control pests	22	35	14
Planting locations planned to avoid pests	2	10	5
Grow trap crop to control insects	6	3	2
Seed variety chosen for pest resistance	47	66	61
Monitoring Practices:			
Scouting by general observation	34	18	35
Deliberate scouting activities	66	82	64
Field was not scouted			1
Scouting due to pest advisory warning	14	31	16
Scouting due to pest development model	16	20	20
Scouted for weeds	79	93	88
Scouting for weeds was done by:			
Operator, partner, or family member	82	53	49
An employee	2	1	2
Farm supply or chemical dealer	*	9	4
Indep. crop consultant or comm. scout	15	37	45
Scouted for insects and mites	98	100	99
Scouting for insects/mites was done by:			
Operator, partner, or family member	47	34	30
An employee	2	*	1
Farm supply or chemical dealer	1	19	5
Indep. crop consultant or comm. scout	51	46	64
Scouted for diseases	71	76	89
Scouting for diseases was done by:			
Operator, partner, or family member	69	45	38
An employee	2	1	2
Farm supply or chemical dealer	1	10	4
Indep. crop consultant or comm. scout	29	44	56
Records kept to track pests	53	48	66
Field mapping of weed problem	1	4	5
Soil/plant tissue analysis to detect pests	1	10	9
Weather monitoring	54	50	74
Biological pest controls	4	10	26
Suppression Practices:			
Biological pesticides	8	17	13
Beneficial organisms	*	1	
Scouting used to make decisions	44	29	43
Maintain ground cover or physical barriers	12	16	3
Adjust planting methods	12	3	5
Alternate pesticides with different MOA	22	42	28

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Upland Cotton, 2003 (continued)**

Practice	States		
	CA	GA	LA
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:			
No-till/minimum till used to manage pests	15	51	44
Remove or plow down crop residue	79	49	64
Clean implements after fieldwork	49	60	54
Field cultivated for weed control	96	19	29
Field edges/etc. chopped, mowed/etc.	69	68	76
Water management practices	24	*	2
Avoidance Practices:			
Adjust planting/harvesting dates	1	1	1
Rotate crops to control pests	43	42	23
Planting locations planned to avoid pests	4	20	3
Grow trap crop to control insects	3	1	3
Seed variety chosen for pest resistance	25	58	52
Monitoring Practices:			
Scouting by general observation	21	36	23
Deliberate scouting activities	79	62	77
Field was not scouted		2	
Scouting due to pest advisory warning	24	9	14
Scouting due to pest development model	23	21	27
Scouted for weeds	91	88	82
Scouting for weeds was done by:			
Operator, partner, or family member	31	69	49
An employee	11	1	2
Farm supply or chemical dealer	29		*
Indep. crop consultant or comm. scout	29	30	48
Scouted for insects and mites	100	98	100
Scouting for insects/mites was done by:			
Operator, partner, or family member	8	57	2
An employee	9	1	*
Farm supply or chemical dealer	42		1
Indep. crop consultant or comm. scout	40	42	96
Scouted for diseases	88	88	75
Scouting for diseases was done by:			
Operator, partner, or family member	8	63	6
An employee	11	1	*
Farm supply or chemical dealer	39		1
Indep. crop consultant or comm. scout	42	36	93
Records kept to track pests	74	34	68
Field mapping of weed problem	17	3	20
Soil/plant tissue analysis to detect pests	29	13	7
Weather monitoring	51	71	82
Biological pest controls	5	2	
Suppression Practices:			
Biological pesticides	20	11	20
Beneficial organisms	9		
Scouting used to make decisions	63	31	23
Maintain ground cover or physical barriers	15	30	11
Adjust planting methods	5	6	*
Alternate pesticides with different MOA	59	8	33

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Upland Cotton, 2003 (continued)**

Practice	States		
	MS	MO	NC
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:			
No-till/minimum till used to manage pests	28	55	36
Remove or plow down crop residue	48	36	42
Clean implements after fieldwork	28	3	41
Field cultivated for weed control	16	24	16
Field edges/etc. chopped, mowed/etc.	46	29	54
Water management practices	*	3	
Avoidance Practices:			
Adjust planting/harvesting dates	9	*	4
Rotate crops to control pests	10	6	39
Planting locations planned to avoid pests	3	3	3
Grow trap crop to control insects	3	3	1
Seed variety chosen for pest resistance	43	39	47
Monitoring Practices:			
Scouting by general observation	53	5	32
Deliberate scouting activities	47	79	61
Field was not scouted	*	16	6
Scouting due to pest advisory warning	4	21	26
Scouting due to pest development model	11	6	14
Scouted for weeds	99	71	90
Scouting for weeds was done by:			
Operator, partner, or family member	84	42	64
An employee	1		4
Farm supply or chemical dealer	1	*	2
Indep. crop consultant or comm. scout	14	57	29
Scouted for insects and mites	99	83	92
Scouting for insects/mites was done by:			
Operator, partner, or family member	47	29	61
An employee	*		5
Farm supply or chemical dealer	*	*	2
Indep. crop consultant or comm. scout	52	71	32
Scouted for diseases	84	72	76
Scouting for diseases was done by:			
Operator, partner, or family member	61	31	59
An employee	*		4
Farm supply or chemical dealer	*	*	2
Indep. crop consultant or comm. scout	38	68	34
Records kept to track pests	47	54	36
Field mapping of weed problem	4	5	23
Soil/plant tissue analysis to detect pests	1	3	9
Weather monitoring	39	48	86
Biological pest controls	*	8	1
Suppression Practices:			
Biological pesticides	13	16	9
Beneficial organisms			*
Scouting used to make decisions	31	30	59
Maintain ground cover or physical barriers	28	5	37
Adjust planting methods	6	1	6
Alternate pesticides with different MOA	19	8	25

* Less than 0.5 percent.

**Pest Management Practices,
Percent of Farms Utilizing Practice,
Upland Cotton, 2003 (continued)**

Practice	States			Program States
	SC	TN	TX	Percent of Farms
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
Prevention Practices:				
No-till/minimum till used to manage pests	38	53	18	35
Remove or plow down crop residue	34	43	40	45
Clean implements after fieldwork	51	32	57	45
Field cultivated for weed control	12	19	80	37
Field edges/etc. chopped, mowed/etc.	62	71	81	67
Water management practices	*	*	5	3
Avoidance Practices:				
Adjust planting/harvesting dates	1	5	10	6
Rotate crops to control pests	32	9	29	28
Planting locations planned to avoid pests	16	1	4	6
Grow trap crop to control insects	3	10	4	3
Seed variety chosen for pest resistance	47	62	30	45
Monitoring Practices:				
Scouting by general observation	18	41	51	38
Deliberate scouting activities	82	57	34	56
Field was not scouted	*	2	14	6
Scouting due to pest advisory warning	7	23	9	15
Scouting due to pest development model	57	23	12	18
Scouted for weeds	79	93	82	87
Scouting for weeds was done by:				
Operator, partner, or family member	74	54	65	65
An employee	7	5	3	3
Farm supply or chemical dealer	1	1	3	2
Indep. crop consultant or comm. scout	17	40	29	29
Scouted for insects and mites	96	98	75	91
Scouting for insects/mites was done by:				
Operator, partner, or family member	49	51	34	45
An employee	7	7	4	3
Farm supply or chemical dealer	1	1	6	4
Indep. crop consultant or comm. scout	42	41	56	48
Scouted for diseases	53	94	56	75
Scouting for diseases was done by:				
Operator, partner, or family member	68	49	31	49
An employee	2	8	5	3
Farm supply or chemical dealer	2	1	4	3
Indep. crop consultant or comm. scout	27	42	60	44
Records kept to track pests	41	23	36	41
Field mapping of weed problem	5	3	20	12
Soil/plant tissue analysis to detect pests	10	4	2	7
Weather monitoring	78	28	43	60
Biological pest controls	1	10	1	4
Suppression Practices:				
Biological pesticides	18	7	17	13
Beneficial organisms			13	3
Scouting used to make decisions	48	20	30	39
Maintain ground cover or physical barriers	24	21	7	21
Adjust planting methods	*	*	4	5
Alternate pesticides with different MOA	9	16	12	19

* Less than 0.5 percent.

Survey, Estimation Procedures, and Reliability

Survey Procedures: Data for barley, corn, fall potatoes, sorghum, and upland cotton were collected on the 2003 Agricultural Resources Management Survey (ARMS) during the months of August through December 2003. Large screening samples were drawn from the NASS List Sampling Frame. This extensive sampling frame covers all types of farms and accounts for approximately 82% of all land in farms in the U.S. All farms on the list had a possibility of being selected for the screening sample. Farms thought to have the crops of interest were more likely to be in the screening sample. Sampled farms were screened to determine if they grew the target crops in 2003. From this subpopulation of operations identified as producing a crop of interest, a subsample of farms was selected in such a way as to insure that each identified producer had an opportunity to be selected. In general, larger farms were more likely to be selected than smaller farms. Once a farm producing barley, corn, fall potatoes, sorghum, or upland cotton was selected, one field was randomly selected from all the fields on the farm. The operator of the sampled field was personally interviewed to obtain information on chemical applications made to the selected field.

Estimation Procedures: The chemical application data, reported by product name or trade name, are reviewed within each State and across States for reasonableness and consistency. This review compares reported data with manufacturers' recommendations and with data from other farm operators using the same product. Following this review, product information is converted to an active ingredient level. The chemical usage estimates in this publication consist of survey estimates of those active ingredients. For this publication, detailed data within a table may not multiply across or add down due to independent rounding of the published values.

Estimates of the total amount of active ingredient applied are based on the acreage estimates published in the annual NASS report "**Crop Production - 2003 Summary**" [Cr Pr 2-1(04)] for barley, corn, fall potatoes, sorghum, and upland cotton. Please note that the estimates for total amount of an active ingredient applied will not be revised even if there are subsequent revisions to acreage for a given crop.

Reliability: The surveys were designed so that the estimates are statistically representative of chemical use on the targeted crops in the surveyed States. The reliability of these survey results is affected by sampling variability and non-sampling errors.

Since all operations producing the crops of interest are not included in the sample, survey estimates are subject to sampling variability. 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 crop. Variability for estimates of acres treated will be higher than the variability for estimates of application rates. This is because application rates have a narrower range of responses, are recommended by the manufacturer of the product, and are generally followed. 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 atrazine, will exhibit less variability than a more rarely used product. For more commonly used chemicals, cv's will range from 5-35 percent at the U.S. level and 5-75 percent at the state or 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 these surveys, 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: Refers to the mechanism of action in pesticides 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.

Allelopathic: The release of chemical compounds from a plant that will inhibit the growth of another plant, such as weeds.

Application Rates: Refer to the average number of pounds of a fertilizer primary nutrient or pesticide active ingredient is applied to an acre of land. Rate per application is the average number of pounds applied per acre in one application. Rate per crop year is the average number of pounds applied per acre counting multiple applications. Number of applications is the average number of times a treated acre received a specific primary nutrient or active ingredient.

Area applied: Represents the percentage of crop acres receiving one or more applications of a specific primary nutrient or active ingredient. 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.

Avoidance: May be practiced when pest populations exist in a field or site but the impact of the pest on the crop can be avoided through some cultural practice. Examples of avoidance tactics include crop rotation such that the crop of choice is not a host for the pest, choosing cultivars with genetic resistance to pests, using trap crops, choosing cultivars with maturity dates that may allow harvest before pest populations develop, fertilization programs to promote rapid crop development, and simply not planting certain areas of fields where pest populations are likely to cause crop failure. Some tactics for prevention and avoidance strategies may overlap.

The following pest management questions were categorized as avoidance practices:

Were planting or harvesting dates adjusted for this field to manage pests?

Were crops rotated in this field during the past 3 years for the purpose of managing pests?

Were planting locations planned to avoid infestation of pests?

Was a trap crop grown to help manage insects in this field?

Was a seed variety chosen to plant in this field because it had resistance to a specific pest?

Beneficial Insects: Insects collected and introduced into locations because of their value in biologic control as prey on harmful insects and parasites.

Chemigation: Application of an agricultural chemical by injecting it into irrigation water.

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

Terms and Definitions (continued)

Crop year: Refers to the period immediately following harvest of the previous crop through harvest of the current crop.

Cultivars: A horticulturally or agriculturally derived variety of a plant, as distinguished from a natural variety.

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.

Fertilizer: Refers to applications of the primary nutrients; nitrogen, phosphate, and potash.

Fungi: A lower form of parasitic plant life which often reduces crop production and/or lowers the grade quality of its host.

Land in Farms: All land operated as part of a farming operation during the year. It includes crop and livestock acreage, wasteland, woodland, pasture, land in summer fallow, idle cropland, and land enrolled in the Conservation Reserve Program and other set-aside, conservation, or commodity acreage programs. It excludes public, industrial, and grazing association land, and nonagricultural land. It excludes all land operated by establishments not qualifying as farms.

Monitoring: Includes proper identification of pests through systematic sampling or counting or other forms of scouting. Also, weather monitoring to predict levels of pest populations or to determine the most effective time to make pesticide applications, and soil testing where appropriate.

The following pest management practices questions were categorized as monitoring practices:

In 2003, how was this field primarily scouted for insects, weeds, diseases and/or beneficial organisms? (By conducting general observations while performing routine tasks? By deliberately going to the field specifically for scouting activities? This field was not scouted?)

Was an established scouting process used (systematic sampling, recording counts, etc.) or were insect traps used in this field?

Was scouting for pests done in this field due to a pest advisory warning?

Was scouting for pests done in this field due to a pest development model?

Was this field scouted for weeds? (If so, Who did the majority of the scouting? Operator, partner or family member, OR An employee, OR Farm supply or chemical dealer, OR Independent crop consultant or commercial scout?)

Terms and Definitions (continued)

Monitoring (continued):

Was this field scouted for insects and mites? (If so, Who did the majority of the scouting? Operator, partner or family member, OR An employee, OR Farm supply or chemical dealer, OR Independent crop consultant or commercial scout?)

Was this field scouted for diseases? (If so, Who did the majority of the scouting? Operator, partner or family member, OR An employee, OR Farm supply or chemical dealer, OR Independent crop consultant or commercial scout?)

Were written or electronic records kept for this field to track the activity or numbers of weeds, insects or diseases?

Was field mapping data used for making weed management decisions on this field?

Were the services of a diagnostic laboratory used for pest identification or soil or plant tissue pest analysis for this field?

Was weather data used to assist in determining either the need or when to make pesticide applications?

Were floral lures, attractants, repellants, pheromone traps or other biological pest controls used on this field?

Nematodes: Microscopic, worm-shaped parasitic animals. Damage to many crops can be severe.

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 nematocides are included as insecticides while soil fumigants, growth regulators, defoliants, and desiccants are included as other chemicals.

Pheromone: A chemical substance produced by an insect which serves as a stimulus to other individuals of the same species for one or more behavioral responses.

Terms and Definitions (continued)

Prevention: Is the practice of keeping a pest population from infesting a crop or field. It includes such tactics as using pest-free seeds or transplants, alternative tillage approaches such as no-till or strip-till systems, choosing cultivars with genetic resistance to insects or disease, irrigation scheduling to avoid situations conducive to disease development, cleaning tillage and harvesting equipment between fields or operations, using field sanitation procedures, and eliminating alternate hosts or sites for insect pests and disease organisms.

The following pest management questions were categorized as prevention practices:

Were field edges, lanes, ditches, roadways or fence lines chopped, mowed, plowed, or burned to manage pests for this field?

Were crop residues plowed down or removed in this field to manage pests?

Were equipment and implements cleaned after completing field work in this field to reduce the spread of pests?

Were water management practices such as irrigation scheduling, controlled drainage, or treatment of retention water used on this field to manage pests?

Was this field cultivated for weed control during the growing season?

Was no-till or minimum till used to manage pests in this field?

Suppression: Tactics include cultural practices such as narrow row spacings or optimized in-row plant populations, using cover crops or mulches, or using crops with allelopathic potential in the rotation. Physical suppression tactics may include cultivation or mowing for weed control, baited or pheromone traps for certain insects, and temperature management or exclusion devices for insect and disease management. Biological pesticides and controls, including mating disruption for insects, can be considered as alternatives to conventional pesticides. Determining pest thresholds and alternating pesticide active ingredients to avoid resistance buildup are suppression methods which minimize pesticide use.

The following questions were categorized as suppression practices:

Was scouting data compared to published information on infestation thresholds to determine when to take measures to manage pests in this field?

Were any biological pesticides such as Bt (*Bacillus thuringiensis*), insect growth regulators (Courier, Intrepid, etc.) neem or other natural/biological based products sprayed or applied to manage pests in this field?

Were any beneficial organisms (insects, nematodes, fungi) applied or released in this field to manage pests?

Were ground covers, mulches, or other physical barriers maintained for this field to manage pest problems?

Was row spacing or plant density adjusted in this field to manage pests?

Were pesticides with different mechanisms of action rotated or tank mixed for the primary purpose of keeping pests from becoming resistant to pesticides?

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.

Trade Names, Common Names, and Classes

The following is a list showing 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 barley, corn, fall potatoes, sorghum, and upland cotton and NASS does not mean to imply use of any specific trade name.

Class	Common Name	Trade Name
H	2,4-D	Agsco, Amine, Barrage, Class, DMA, Dacamine, Defy, Envy, Formula, Hi-Dep, Riverside, Salvo, Savage, Shotgun, Starane, Tiller, Turret, Weed Rhap, Weedar, Weedmaster, Weedone
H	2,4-D, Dimeth. salt	Banvel+2,4-D, Saber, Weedar
H	2,4-DB, Dimeth. salt	Butyrac
H	2,4-DP, Dimeth. salt	Amine
I	Abamectin	Agri Mek, Zephyr
I	Acephate	Acephate, Orthene
H	Acetamide	Axiom, Define, Epic
I	Acetamiprid	Assail, Intruder
H	Acetic acid	Esteron, LV 4, LV 400, Salvan, Starane + Salvo
H	Acetochlor	Degree Xtra, DoublePlay, Field Master, Fultime, Harness, Keystone, Surpass, TopNotch, Volley
H	Alachlor	Arena, Bronco, Bullet, Lariat, Lasso, Micro-Tech, Partner, Saddle
I	Aldicarb	Temik
H	Atrazine	AAtrax, Atrazine, Banvel-K+Atrazine, Basis Gold, Bicep, Bucril+Atrazine, Bullet, Cinch, Degree, Expert, Extrazine, Field Master, Fultime, G-Max, Guardsman, Harness, Keystone, Laddok, Lariat, Lasso, LeadOff, Liberty, Lumax, Marksman, Moxy+Atrazine, RamRad/Atrazine, Ready Master, Shotgun, Simazat, Steadfast, Sutazine, Volley
I	Azinphos-methyl	Azinphos, Guthion
F	Azoxystrobin	Abound, Amistar, Quadris
O	Bacillus cereus	Mep-Plus, Pix-Plus
O	Bacillus thur. (Bt)	Able, BMP, Condor, Delta, Dipel, Javelin, M-Trak, Match,Thuricide
H	Bentazon	Ascend, Basagran, Laddok
I	Benzoic acid	Intrepid
I	Bifenthrin	Capture, Double Threat
H	Bromoxynil	Brominal, Bromox/MCPA, Bromoxynil, Bronate, Bucril, Bucril+Atrazine, Moxy+Atrazine, Rhino
H	Bromoxynil octanoate	Bronate
H	Butoxy. ester 2,4-D	2,4-D/Weedone LV6
I	Carbaryl	Carbaryl, Sevin
I	Carbofuran	Furadan
H	Carfentrazone-ethyl	Aim, Priority, Shark
O	Chloropicrin	Telone
F	Chlorothalonil	Bravo, ECHO, Ensign, Equus, Flouronil, Ridomil, Tattoo, Terranil
I	Chlorpyrifos	Chlorpyrifos, Lock-on, Lorsban, Nufos

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Trade Names, Common Names, and Classes (continued)

Class	Common Name	Trade Name
H	Chlorsulfuron	Finesse, Glean
H	Clethodim	Prism, Select
H	Clomazone	Command
H	Clopyralid	Accent, Curtail, Hornet, Stinger
F	Copper hydroxide	Champ, Kocide, Mankocide, Nu-Cop, Ridomil
H	Cyanazine	Bladex, Cy-Pro, Extrazine
O	Cyclanilide	Finish
I	Cyfluthrin	Aztec, Baythroid, Leverage
F	Cymoxanil	Curzate, Manex
I	Cypermethrin	Ammo, Battery, Up-Cyde
O	Cytokinins	Early Harvest, Foliar Trigger, Stimulate
I	Deltamethrin	Decis
I	Diazinon	Diazinon
I	Dicamba	Banvel, Celebrity, Clarity, Cleanout, Fallow Master, NorthStar, Oracle, Rave, Weedmaster
H	Dicamba, Dimet. salt	Distinct, Sterling
H	Dicamba, Pot. salt	Banvel-K+Atrazine, Marksman
H	Dicamba, Sodium salt	Celebrity, Dicamba, Yukon
O	Dichloropropene	Telone
H	Dichlorprop	Weedone
F	Dichloran	Botran
I	Dicofol	Kelthane
I	Dicrotophos	Bidrin
H	Difenzoquat	Avenge
H	Diflufenopyr-sodium	Celebrity Plus, Distinct
H	Dimethenamid	Frontier, Guardsman, LeadOff
H	Dimethenamid-P	G-Max, Guardsman, Outlook
O	Dimethipin	Harvade
I	Dimethoate	Cygon, Digon, Dimate, Dimethoate
F	Dimethomorph	Acrobat
H	Diquat	Diquat, Reglone
H	DSMA	DSMA
I	Disulfoton	Di-Syston, Terraclor
H	Diuron	Direx, Diuron, Dropp, Ginstar, Karmex, Surefire
H	EPTC	DoublePlay, Eptam, Eradicane
I	Endosulfan	Endosulfan, Phaser, Thiodan, Thionex
O	Endothall	Accelerate, Des-i-cate, Desiccate II
I	Esfenvalerate	Asana
O	Ethephon	Boll'd, Cerone, CottonQuik, Finish, Prep, Super Boll
I	Ethoprop	Mocap
I	Ethyl parathion	Parathion
F	Etridiazole	Temik, Terraclor
H	Fenoxaprop	Puma, Tiller
I	Fipronil	Regent
H	Fluazinam	Omega
H	Flumetsulam	Accent Gold, Bicep, Hornet, Python
H	Fluometuron	Cotoran, Flo-Met, Meturon
H	Fluroxypyr	Starane, Starane+Saber
H	Fluroxypyr 1-methyl	Starane+Salvo, Starane+Sword

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Trade Names, Common Names, and Classes (continued)

Class	Common Name	Trade Name
F	Flutolanil	Moncut
H	Foramsulfuron	Option
O	Garlic Oil	Empower, Envirepel, Guardian
O	Gibberellic acid	PGR, RyzUp, Stimulate
H	Glufosinate-ammonium	Liberty, Rely
H	Glyphosate	Bronco, Buccaneer, Clear-Out, Cornerstone, Credit, Engame, Expert, Fallow Master, Field Master, Gly Star, Glyfos, Glymix, Glyphomax, Glyphosate, Honcho, Landmaster, Mirage, RT Master, Rattler, Ready Master, Roundup
H	Glyphosate diam. salt	Touchdown
H	Halosulfuron	Battalion, Permit, Priority, Yukon
H	Imazamethabenz	Assert
H	Imazapyr	Lightning
H	Imazethapyr	Lightning
I	Imidacloprid	Admire, Leverage, Provado, Trimax
O	Indolebutyric acid	Early Harvest, PGR, Stimulate
I	Indoxacarb	Avaunt, Steward
F	Iprodione	Iprodione, Rovral
H	Isoxaflutole	Balance, Epic
H	Lactofen	Cobra
I	Lambda-cyhalothrin	Demand, Karate, Warrior
H	Linuron	Linex, Lorox
H	MCPA	Agasco, Bromox, Bronate, Chiptox, Curtail, Dagger MCP Ester, MCP Amine, Rhino, Rhomene, Rhonox, Starane+Sword, Sword, Tiller, Weedone, Wildcard
H	MSMA	Ansar, Bueno, Daconate, MSMA, Weed-Hoe
I	Malathion	Atrapa, Cythion, Fyfanon, Malathion
O	Maleic hydrazide	Maleic hydrazide, Royal, Sprout Stop, Super Sprout Stop
F	Mancozeb	Acrobat, Curzate, Dithane, Gavel, Manex, Mankocide, Manzate, Penncozeb, Ridomil
F	Maneb	Maneb
F	Mefanoxam	Flourish, Flouronil, Ridomil
O	Mepiquat pentaborate	Pentia
O	Mepiquat chloride	Mep-Plus, Mepex, Mepichlor, Pix
H	Mesotrione	Callisto, Camix, Lumax
F	Metalaxyl	Kodiak, Prevail, Ridomil
O	Metam-sodium	Busan, Sectagon, Vapam
I	Methamidophos	Monitor
I	Methomyl	Lannate
I	Methyl parathion	Declare, Methyl Parathion, Penncap-M
F	Metiram	Polyram
H	Metolachlor	Bicep, Dual, Turbo
H	Metribuzin	Axiom, Lexone, Sencor, Turbo
H	Metsulfuron-methyl	Ally, Finesse, Valuron
O	Monocarbamide dihyd.	CottonQuik, Engame

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Trade Names, Common Names, and Classes (continued)

Class	Common Name	Trade Name
H	Nicosulfuron	Accent, Basis, Celebrity, DPX-79406, Steadfast
H	Norflurazon	Zorial
I	Oxamyl	Vydate
H	Paraquat	Cyclone, Gramoxone, Starfire, Surefire
H	Pendimethalin	Pendimax, Prowl
F	PCNB	Blocker, Kodiak, Prevail, Ridomil, Temik, Terraclor
I	Permethrin	Ambush, Eight, Perm-up, Permethrin, Permethrin, Pounce
I	Petroleum distillate	Clean Crop, Oil
I	Phorate	Phorate, Thimet
I	Phosmet	Imidan
H	Picloram	Tordon
I	Piperonyl butoxide	Incitem PBO-8, Permethrin Plus
O	Potassium gibber.	Early Harvest
H	Primisulfuron	Beacon, Exceed, NorthStar, Spirit
I	Profenophos	Curacron
H	Prometryn	Caparol, Cotton-Pro, Prometryne
H	Propachlor	Ramrod
I	Propargite	Comite, Omite
F	Propiconazole	Bumper, PropiMax, Stratego, Tilt
H	Prosulfuron	Exceed, Peak, Spirit
I	Pymetrozine	Fulfill
F	Pyraclostrobin	Headline
H	Pyraflufen ethyl	ET
H	Pyriothiobac-sodium	Staple
H	Rimsulfuron	Accent, Basis, DPX-79406, Matrix, Steadfast
H	S-Metolachlor	Bicep, Camix, Cinch, Dual, Expert, Lumax
H	Sethoxydim	Poast, Ultima
H	Simazine	Princep, Sim-Trol, Simazat, Simazine
O	Sodium chlorate	Defol, First Choice, Leafex, Pick-Quik, Poly-Foliant, Sodium Chlorate
I	Spinosad	SpinTor, Success, Tracer
H	Sulfosate	Touchdown
F	Sulfur	Bravo, Kumulus, Microspere, Sul-Preme, Sulfur, Super Six, Super-Sul, That Big, Thiolux
O	Sulfuric acid	Sulfuric Acid
I	Tebupirimphos	Aztec
I	Tefluthrin	Force
I	Terbufos	Counter
I	Thiamethoxam	Actara, Centric, Platinum, Ridomil
O	Thidiazuron	Dropp, FreeFall, Ginstar
H	Thifensulfuron	Ally, Basis, Harmony, Pinnacle, X-TRA Cheyenne
H	Tralkoxydim	Achieve
I	Tralomethrin	Scout
H	Triallate	Buckle, Far-Go
H	Tribenuron-methyl	Ally Extra, Express, Harmony, X-TRA Cheyenne
O	Tribufos	Def 6, Folex
H	Trifluralin	Buckle, Treflan, Tri-4, Trific, Trifluralin, Trilin, Trust
F	Triphenyltin hydrox.	April Tin, Super Tin
I	Zeta-cypermethrin	Fury, Mustang
F	Zoxamide	Gavel

C FERTILIZER and NUTRIENT APPLICATIONS---SELECTED FIELD C

1. Were commercial FERTILIZERS applied to this field for the 2003 corn crop? YES = 1

CODE 0202	EDIT TABLE 0201
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2. [If COMMERCIAL fertilizer applied, continue, else go to Section D.]
3. How many commercial fertilizer applications were made to this field for the 2003 crop?

NUMBER 0203

(Include applications made by airplanes and commercial applicators)
4. Now I need to record information for each application.

CHECK LIST		T-TYPE	TABLE
<p style="text-align: center;">INCLUDE</p> <input type="checkbox"/> Custom applied fertilizers <input type="checkbox"/> Fertilizer applied in the fall of 2002 and those applied earlier if this field was fallow in 2002 <input type="checkbox"/> Commercially prepared manure	<p style="text-align: center;">EXCLUDE</p> <input type="checkbox"/> Micronutrients <input type="checkbox"/> Unprocessed manure <input type="checkbox"/> Fertilizer applied to previous crops in this field <input type="checkbox"/> Lime and Gypsum	2	001
		LINE	OFFICE USE
			0213

LINE	2→ →→ MATERIALS USED			3 What quantity was applied per acre? [Leave this column blank if actual nutrients were reported.]	4 [Enter material code.] 1 Pounds 12 Gallons 19 Pounds of actual nutrients	5 When was this applied? 1 In the fall Before seeding 2 In the spring Before seeding 3 At seeding 4 After seeding	6 How was this applied? 1 Broadcast, ground without incorporation 2 Broadcast, ground with incorporation 3 Broadcast, by air 4 In seed furrow 5 In irrigation water 6 Chisel, injected or knifed in 7 Banded/Sidedressed in or over row 8 Foliar or directed spray	7 How many acres were treated in this application? ACRES
	N Nitrogen	P ₂ O ₅ Phosphate	K ₂ O Potash					
01	0205	0206	0207	0208	0209	0210	0211	0212
02	0205	0206	0207	0208	0209	0210	0211	0212
03	0205	0206	0207	0208	0209	0210	0211	0212
04	0205	0206	0207	0208	0209	0210	0211	0212
05	0205	0206	0207	0208	0209	0210	0211	0212
06	0205	0206	0207	0208	0209	0210	0211	0212
07	0205	0206	0207	0208	0209	0210	0211	0212
08	0205	0206	0207	0208	0209	0210	0211	0212

T-TYPE 0	TABLE 000	LINE 00
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1. Including both custom applications and applications made by this operation, let's list all the chemicals used on this field for the 2003 potato crop.

Were any herbicides, insecticides, fungicides or other chemicals used on the potato field for the 2003 crop? YES = 1

CODE	EDIT TABLE
0302	0301

[Probe for applications made in the fall of 2002 (and those made earlier if this field was fallow).]
 [If no pesticides applied, go to Section E.]

*Include defoliants, fungicides, herbicides, insecticides, growth regulators (neem, Bt, etc.)
 Include biological/botanical pesticides, microbial agents, miticides, nematocides, rodenticides, and soil fumigants.*

Exclude fertilizers, adjuvants, (e.g. wetting agents, stickers, spreaders, etc.), seed treatments.

T-TYPE	TABLE
3	001
LINE 99	OFFICE USE LINES IN TABLE 0319

NOTES	LINE	2 What products were applied to this field? [Show product codes from Respondent Booklet.]	3 Was this product bought in liquid or dry form? [Enter L or D.]	4 Was this part of a tank mix? [If tank mix, enter line number of first product in mix.]	5 When was this applied? 1 BEFORE planting 3 AT planting 4 AFTER planting	6 How much was applied per acre per application?	OR	7 What was the total amount applied per application in this field?
	01	0305		0306	0307	0308		0309
	02	0305		0306	0307	0308		0309
	03	0305		0306	0307	0308		0309
	04	0305		0306	0307	0308		0309
	05	0305		0306	0307	0308		0309
	06	0305		0306	0307	0308		0309
	07	0305		0306	0307	0308		0309
	08	0305		0306	0307	0308		0309
	09	0305		0306	0307	0308		0309
	10	0305		0306	0307	0308		0309
	11	0305		0306	0307	0308		0309
	12	0305		0306	0307	0308		0309
	13	0305		0306	0307	0308		0309
	14	0305		0306	0307	0308		0309

2. [For pesticides not listed in Respondent Booklet, specify --]

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

APPLICATION CODES for column 9	
1 Broadcast, ground without incorporation	6 Chisel, injected or knifed in
2 Broadcast, ground with incorporation	7 Banded in or over row
3 Broadcast, by air (Aerial application)	8 Foliar or directed spray
4 In seed furrow	9 Spot treatments
5 In irrigation water	

[If column 9=9, then column 6 and 10 must be blank.]

L I N E	8 [Enter unit code.]	9 How was this product applied? [Enter code from above.]	10 How many acres in this field were treated with this product? ACRES	11 How many times was it applied? NUMBER
	1 Pounds 12 Gallons 13 Quarts 14 Pints 15 Liquid Ounces 28 Dry Ounces 30 Grams			
01	310	0311	0312 .__	0313
02	310	0311	0312 .__	0313
03	310	0311	0312 .__	0313
04	310	0311	0312 .__	0313
05	310	0311	0312 .__	0313
06	310	0311	0312 .__	0313
07	310	0311	0312 .__	0313
08	310	0311	0312 .__	0313
09	310	0311	0312 .__	0313
10	310	0311	0312 .__	0313
11	310	0311	0312 .__	0313
12	310	0311	0312 .__	0313
13	310	0311	0312 .__	0313
14	310	0311	0312 .__	0313

Now I have some questions about your pest management decisions and practices used on this field for the 2003 potato crop.
By pests, we mean WEEDS, INSECTS and DISEASES.

T-TYPE	TABLE	LINE
0	000	00

1. [Enumerator Action: *Were PESTICIDE APPLICATIONS reported in Section D?*]

- YES - [Continue.] NO - [Go to item 10.]

2. Was weather data used to assist in determining either the need or when to make pesticide applications? YES = 1 CODE
1600

3. Were any biological pesticides such as Bt (*Bacillus thuringiensis*), insect growth regulators (*Courier, Intrepid, etc.*) neem or other natural/biological based products sprayed or applied to manage pests in this field? YES = 1 1601

4. Were pesticides with different mechanisms of action rotated or tank mixed for the primary purpose of keeping pests from becoming resistant to pesticides? YES = 1 1602

10. In 2003, how was this field primarily scouted for insects, weeds, diseases and/or beneficial organisms--

- | | |
|---|------------------------------------------------------------------------------------------------------------|
| 1 | By conducting general observations while performing routine tasks? (Enter code 1 and go to item 13.) |
| 2 | By deliberately going to the field specifically for scouting activities? (Enter code 2 and go to item 11.) |
| 3 | This field was not scouted? (Enter code 3 and go to item 17.) |

CODE
1608

11. Was an established scouting process used (*systematic sampling, recording counts, etc.*) or were insect traps used in this field? YES = 1 CODE
1609

12. Was scouting for pests done in this field due to--

- a. a pest advisory warning? YES = 1 1610
- b. a pest development model? YES = 1 1611

1	3 [If column 1 = YES, ask--] Who did the majority of the scouting for [column 1]-- 1 Operator, partner or family member 2 An employee 3 Farm supply or chemical dealer 4 Independent crop consultant or commercial scout	
13. Was this potato field scouted for--	YES = 1	CODE
a. weeds?	1612	1614
b. insects and mites?	1615	1617
c. diseases?	1618	1620

15. Were written or electronic records kept for this field to track the activity or numbers of weeds, insects or diseases? YES = 1 CODE
1623

16. Was scouting data compared to published information on infestation thresholds to determine when to take measures to manage pests in this field? YES = 1 1624

17. Was field mapping data used for making weed management decisions on this field? YES = 1 1625

18. Were the services of a diagnostic laboratory used for pest identification or soil or plant tissue pest analysis for this field? YES = 1 1626

- CODE
19. Were crop residues plowed down or removed in this field to manage pests? ... YES = 1
20. Were crops rotated in this field during the past 3 years for the purpose of managing pests? ... YES = 1
21. Were ground covers, mulches, or other physical barriers maintained for this field to manage pest problems? ... YES = 1
22. Was a seed variety chosen to plant in this field because it had resistance to a specific pest? ... YES = 1
23. Was no-till or minimum till used to manage pests in this field? ... YES = 1
24. Were planting locations planned to avoid infestation of pests? ... YES = 1
25. Were planting or harvesting dates adjusted for this field to manage pests? ... YES = 1
26. Was row spacing or plant density adjusted in this field to manage pests? ... YES = 1
27. Was a trap crop grown to help manage insects in this field? ... YES = 1
28. Were any beneficial organisms (insects, nematodes, fungi) applied or released in this field to manage pests? ... YES = 1
29. Were floral lures, attractants, repellants, pheromone traps or other biological pest controls used on this field? ... YES = 1
- a. [If item 28 or 29 = YES, ask-]
 What were the TOTAL materials and application costs for all biological pest controls for this field?
*[Include landlord's and contractor's share.
 Exclude biological pesticides.
 Exclude biological pest control treatment costs for the BWEP or PBWP.]*
- | DOLLARS & CENTS
PER ACRE | OR | TOTAL DOLLARS |
|-----------------------------------|----|-----------------------------------|
| <input type="text" value="1638"/> | | <input type="text" value="1639"/> |
30. Was this field cultivated for weed control during the growing season? ... YES = 1
31. Were field edges, lanes, ditches, roadways or fence lines chopped, mowed, plowed, or burned to manage pests for this field? ... YES = 1
32. Were equipment and implements cleaned after completing field work in this field to reduce the spread of pests? ... YES = 1
33. Was this field flooded or irrigated for the 2003 crop? ... YES = 1
- a. [If item 33 = YES, ask-]
 Were water management practices such as irrigation scheduling, controlled drainage, or treatment of retention water used on this field to manage pests? ... YES = 1

Completion Code for Pest Management Data	
1 - Incomplete/Refusal	0340

Report Features

Released May 20, 2004 by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. For information on "Agricultural Chemical Usage" call Doug Farmer (202) 720-6146, office hours 7:30 a.m. to 4:00 p.m. ET.

The next "Agricultural Chemical Usage" report will be released July 14, 2004. This report will cover agricultural chemical use for the 2003 crop year for fruits in selected states.

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

Doug Farmer, Environmental Statistician (202) 690-7492

Sarah Hoffman, Head, Environmental and Demographics Section (202) 720-0684

Linda Hutton, Chief, Environmental, Economics, and Demographics Branch (202) 720-6146

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