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Department of
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National
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Service

Agricultural Chemical Usage

Postharvest Applications - Corn and Wheat

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Postharvest Chemical Use Estimates for Corn and Wheat

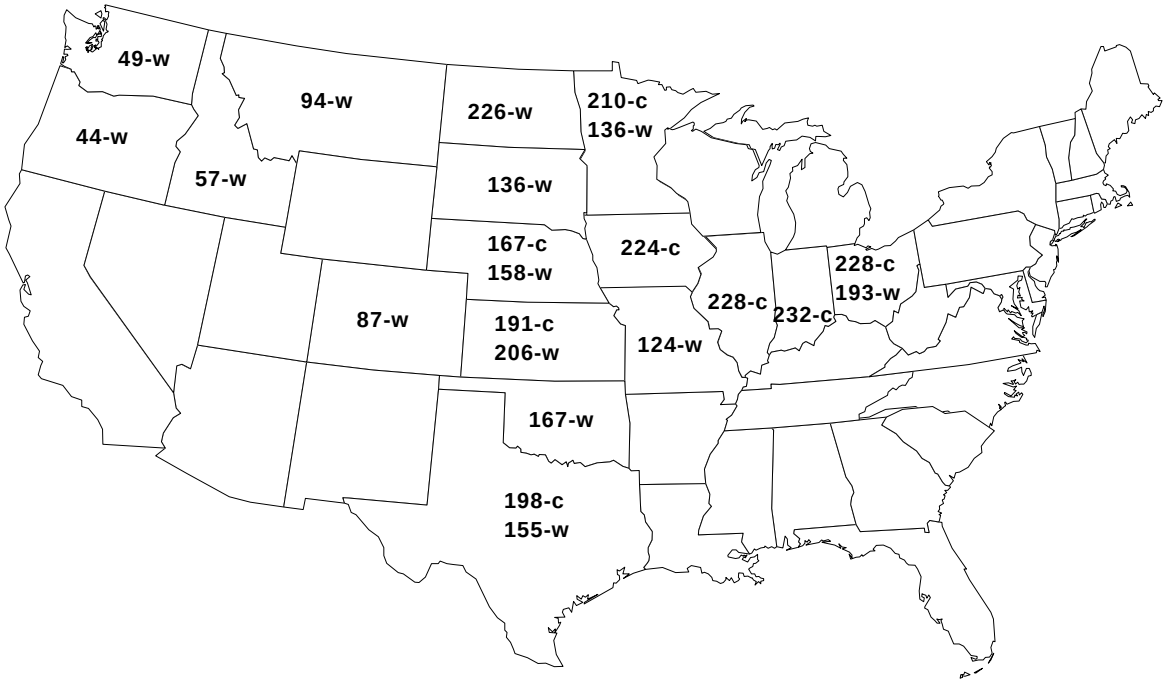
Overview: The agricultural chemical use estimates in this report are based on data compiled from the Postharvest Chemical Use Surveys. Separate surveys were conducted for corn and wheat in the summer of 1998, covering the 1997 crop. All results refer to pesticide applications made at the grain storage facility after the crops were harvested. On-farm applications were beyond the scope of this survey. The time frame for these applications were September 1, 1997 to August 31, 1998 for corn and June 1, 1997 to May 31, 1998 for wheat, which correspond to the marketing year.

The table below shows survey coverage for the 1997 marketing year. The table includes statistics on the number of States surveyed, the number of reports summarized, and the percent of the U.S. production accounted for by the surveyed States. The following U.S. map shows the number of summarized reports by State in the 1998 survey.

Agricultural Chemical Use Survey Coverage, 1997 Marketing Year

Crop	States Surveyed	Reports Summarized	U.S. Production Included in Surveyed States
	--- Number ---		Percent
Corn	8	1,678	74
Wheat	14	1,956	82

Number of Usable Reports, 1997
c - corn; w - wheat



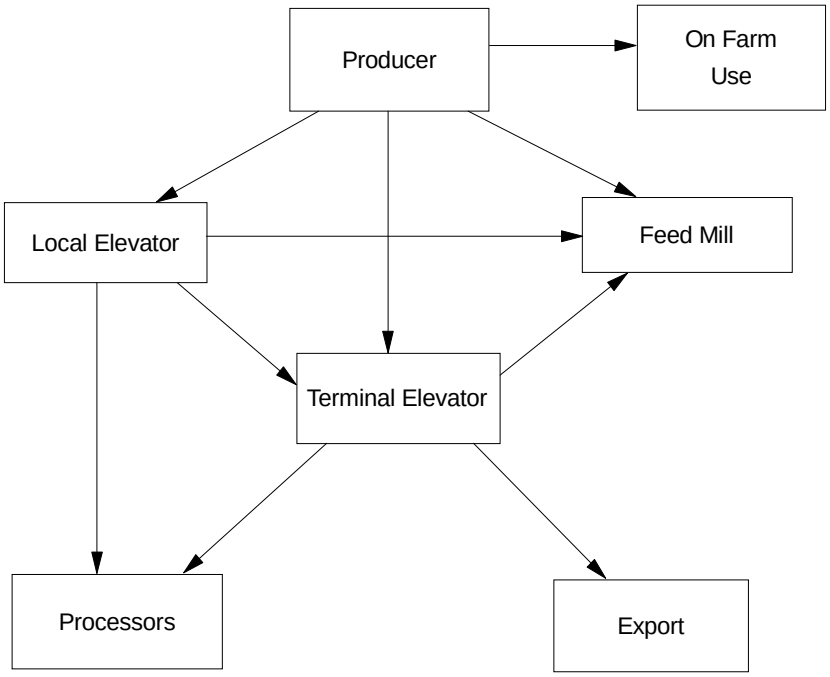
After harvest, corn and wheat are generally marketed through local and/or terminal elevators, except that which is used on farm. A large portion of the corn crop and some of the wheat is used in livestock feed. This grain may be pulled out of the marketing channel at any point. Processors are also a recipient of the grain at any point along the marketing channel. The diagram following these comments demonstrates the postharvest marketing channel for corn and wheat.

Corn and wheat moving from a local elevator to a terminal elevator will be duplicated in the total amount handled. The intent of the survey was to obtain the entire amount of chemicals applied to the corn or wheat, so this duplication in quantity handled is necessary. No provision was made for cross-State movement. The State or region of origin of the corn or wheat was not part of the survey, so all of the corn or wheat handled in a survey State were included in this survey.

For both corn and wheat, totals for the States surveyed and individual State totals are published for the percent of grain treated, number of applications, rate per application, rate per marketing year, and the total amount of active ingredient that was applied. A table detailing total pesticide usage by class for the surveyed States is also included. Total volume handled was rounded to 10 million bushels.

Grain storage operators were also asked a series of questions concerning their pest management practices. These questions are summarized and included in the report. A copy of the survey instrument, or questionnaire, that was used to collect the data is also included.

Corn and Wheat Postharvest Market Channels



Highlights

Corn: Grain storage operators in eight major corn producing States were surveyed following the 1997 marketing year. These States accounted for 74 percent of the total U.S. corn production.

The postharvest chemicals most commonly used on corn in the surveyed States were aluminum phosphide and malathion based on percent of grain treated. Although aluminum phosphide is commonly referred to as a fumigant, and is used to kill insects, insect larvae, and mites, it is classified as an insecticide by the EPA. Malathion is an insecticide.

Some grain storage facilities reported applying metalaxyl and captan, which are seed treatments, to corn.

Wheat: Grain storage operators in fourteen major wheat producing States were surveyed following the 1997 marketing year. These States accounted for 82 percent of the total U.S. wheat production.

The postharvest chemicals most commonly used on wheat in the surveyed States were aluminum phosphide and malathion based on percent of grain treated. Although aluminum phosphide is commonly referred to as a fumigant, and is used to kill insects, insect larvae, and mites, it is classified as an insecticide by the EPA. Malathion is an insecticide.

Several seed treatments were reported for wheat. These include: difenoconazole, imazalil, imidacloprid, lindane, metalaxyl, tebuconazole, and thiram.

Corn: Postharvest Chemical Applications,
Percent Treated and Total Applied,
States Surveyed and Total, 1997 Marketing Year

State	Volume Handled	Percent Treated and Total Applied					
		Insecticide		Fungicide		Other Chemical	
	Mil. bu.	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent	1,000 Lbs
IL	1,520	1.69	4.6				
IN	780	1.41	4.5				
IA	1,400	1.37	37.0	0.16	31.4		
KS	310	3.36	1.9				
MN 1/	1,040	0.89	2.0				
NE	770	1.54	4.1				
OH 1/	420	2.34	1.9				
TX	260	18.88	21.0				
Tot.1/	6,500	2.25	77.0	0.04	31.5		

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

Corn: Postharvest Chemical Applications
States Surveyed, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Appli-cations	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	1.56	1.1	0.20	0.22	21.8
Malathion	0.45	1.0	0.26	0.27	8.1
Methyl bromide	0.01	1.0	2.04	2.04	1.8
Pirimiphos-methyl	0.15	1.0	0.38	0.38	3.6
Silicon dioxide	0.12	1.0	5.30	5.30	41.6
Fungicides:					
Captan	0.03	1.0	13.51	13.51	27.8
Metalaxyl	0.03	1.0	0.72	0.72	1.6

1/ Volume handled by grain storage facilities in the eight States surveyed was 6.5 billion bushels. States included are IL, IN, IA, KS, MN, NE, OH, and TX.

2/ Insufficient reports to publish usage data for Carbon dioxide, Chloropicin, Chlorpyrifos, Chlorpyrifos-methyl, Cyfluthrin, d-trans-allethrin, Fludioxonil, Bicycloheptene, Magnesium phosphide, Petroleum distillate, Piperonyl butoxide, Propionic acid, and Pyrethrins.

Corn: Postharvest Chemical Applications
Illinois, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	1.57	1.0	0.18	0.18	4.3

1/ Volume handled by Illinois grain storage facilities was 1.5 billion bushels.
2/ Insufficient reports to publish usage data for Pirimiphos-methyl and Malathion.

Corn: Postharvest Chemical Applications
Indiana, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	0.87	1.0	0.15	0.15	1.0
Malathion	0.51	1.3	0.36	0.47	1.9

1/ Volume handled by Indiana grain storage facilities was 780 million bushels.
2/ Insufficient reports to publish usage data for Methyl bromide and Pirimiphos-methyl.

Corn: Postharvest Chemical Applications
Iowa, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	0.31	1.0	0.13	0.13	0.6
Malathion	0.46	1.0	0.38	0.39	2.5
Pirimiphos-methyl	0.42	1.0	0.48	0.48	2.8
Silicon dioxide	0.31	1.0	7.19	7.19	31.1
Fungicides:					
Captan	0.15	1.0	13.51	13.51	27.8
Metalaxyl	0.16	1.0	0.72	0.72	1.6

1/ Volume handled by Iowa grain storage facilities was 1.4 billion bushels.
2/ Insufficient reports to publish usage data for Chlorpyrifos and Fludioxonil.

Corn: Postharvest Chemical Applications
Kansas, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	3.21	1.0	0.17	0.17	1.6

1/ Volume handled by Kansas grain storage facilities was 310 million bushels.
2/ Insufficient reports to publish usage data for Malathion, Methyl bromide, and Pirimiphos-methyl.

Corn: Postharvest Chemical Applications
Minnesota, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	0.26	1.0	0.15	0.15	0.4
Malathion	0.58	1.0	0.24	0.24	1.5

1/ Volume handled by Minnesota grain storage facilities was 1.0 billion bushels.
2/ Insufficient reports to publish usage data for Chloropicrin, Magnesium phosphide, Methyl bromide, and Silicon dioxide.

Corn: Postharvest Chemical Applications
Nebraska, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	1.33	1.0	0.35	0.37	3.7

1/ Volume handled by Nebraska grain storage facilities was 770 million bushels.
2/ Insufficient reports to publish usage data for Malathion, Methyl bromide, and Pirimiphos-methyl.

Corn: Postharvest Chemical Applications
Ohio, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	0.81	1.0	0.21	0.22	0.7
Malathion	1.46	1.0	0.16	0.16	1.0

1/ Volume handled by Ohio grain storage facilities was 420 million bushels.
2/ Insufficient reports to publish usage data for Bicycloheptene, Cyfluthrin, d-trans-Allethrin, Petroleum distillate, Piperonyl butoxide, Pirimiphos-methyl, Propionic acid, Pyrethrins, and Silicon dioxide.

Corn: Postharvest Chemical Applications
Texas, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	15.50	1.2	0.20	0.23	9.4
Malathion	1.85	1.0	0.17	0.17	0.8
Pirimiphos-methyl	0.66	1.0	0.34	0.34	0.6
Silicon dioxide	1.10	1.0	3.59	3.59	10.2

1/ Volume handled by Texas grain storage facilities was 260 million bushels.
2/ Insufficient reports to publish usage data for Carbon dioxide and Chlorpyrifos-methyl.

Wheat: Postharvest Chemical Applications,
Percent Treated and Total Applied,
States Surveyed and Total, 1997 Marketing Year

State	Volume Handled	Percent Treated and Total Applied					
		Insecticide		Fungicide		Other Chemical	
	Mil. bu.	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent	1,000 Lbs
CO	90	12.66	5.6				
ID	120	11.92	3.9	0.03	1.7		
KS 1/	780	22.23	62.3				
MN	170	0.41	0.3				
M0 1/	110	18.25	5.4				
MT	170	3.55	3.6	0.17	5.0		
NE	140	23.48	8.0				
ND	330	1.90	1.4				
OH	70	10.31	1.1				
OK	260	27.63	15.5				
OR 1/	290	15.03	3.5				
SD	100	5.25	1.6				
TX 1/	590	12.89	16.2				
WA	390	11.82	46.9	0.22	15.1		
Total	3,610	14.21	175.3	0.03	21.9	0.02	1.3

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

Wheat: Postharvest Chemical Applications
State Surveyed, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Appli-cations	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	11.56	1.0	0.18	0.19	78.0
Chlorpyrifos-methyl	1.35	1.0	0.23	0.23	11.2
Lindane	0.02	1.0	11.70	11.78	8.8
Malathion	1.47	1.0	0.40	0.40	21.4
Methyl bromide	0.35	1.0	2.79	2.83	36.1
Silicon dioxide	0.22	1.0	2.33	2.33	18.9
Fungicides:					
Cyfluthrin	0.01	1.0	0.24	0.24	0.1
Difenoconazole	0.02	1.0	9.56	9.65	5.9
Tebuconazole	0.01	1.0	0.93	0.93	0.3
Thiram	0.01	1.1	27.72	30.03	12.6
Other Chemicals:					
Chloropicrin	0.02	1.0	2.28	2.28	1.3

1/ Volume handled by grain storage facilities in the fourteen States surveyed was 3.6 billion bushels. States included are CO, ID, KS, MN, MO, MT, NE, ND, OH, OK, OR, SD, TX, and WA.

2/ Insufficient reports to publish usage data for Carbon dioxide, Carboxin, Imazalil, Imidacloprid, Magnesium phosphide, Metalaxyl, Methoxychlor, Petroleum distillate, Pirimiphos-methyl, Piperonyl butoxide, Pyrethrins, and Silica gel.

Wheat: Postharvest Chemical Applications
Colorado, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	11.85	1.0	0.22	0.22	2.2
Methyl bromide	1.56	1.0	2.51	2.51	3.3

1/ Volume handled by Colorado grain storage facilities was 90 million bushels.
2/ Insufficient reports to publish usage data for Chlorpyrifos-methyl and Malathion.

Wheat: Postharvest Chemical Applications
Idaho, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	6.43	1.0	0.24	0.24	1.8
Chlorpyrifos-methyl	5.86	1.0	0.28	0.28	1.9

1/ Volume handled by Idaho grain storage facilities was 120 million bushels.
2/ Insufficient reports to publish usage data for Carboxin, Difenoconazole, Malathion, Silicon dioxide, Tebuconazole, and Thiram.

Wheat: Postharvest Chemical Applications
Kansas, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	20.28	1.0	0.18	0.18	28.5
Chlorpyrifos-methyl	0.52	1.0	0.18	0.18	0.7
Malathion	0.26	1.0	0.68	0.68	1.4
Methyl Bromide	1.24	1.0	2.97	3.01	29.2

1/ Volume handled by Kansas grain storage facilities was 780 million bushels.
2/ Insufficient reports to publish usage data for Silicon dioxide and Chloropicrin.

Wheat: Postharvest Chemical Applications
Minnesota, 1997 Marketing Year 1/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide 2/	0.12	1.0	0.17	0.17	
Chlorpyrifos-methyl	0.21	1.0	0.35	0.35	0.1
Malathion	0.12	1.0	0.43	0.43	0.1

1/ Volume handled by Minnesota grain storage facilities was 170 million bushels.
2/ Total applied is less than 50 pounds.

Wheat: Postharvest Chemical Applications
Missouri, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	14.89	1.0	0.18	0.18	3.0
Chlorpyrifos-methyl	1.86	1.0	0.31	0.33	0.7
Malathion	1.96	1.0	0.54	0.54	1.2

1/ Volume handled by Missouri grain storage facilities was 110 million bushels.
2/ Insufficient reports to publish usage data for Carboxin, Methoxychlor, Petroleum distillate, Piperonyl butoxide, Pirimiphos-methyl, Pyrethrins, Silicon dioxide, and Thiram.

Wheat: Postharvest Chemical Applications
Montana, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	2.88	1.0	0.23	0.24	1.2
Chlorpyrifos-methyl	0.43	1.0	0.30	0.30	0.2
Malathion	0.32	1.0	0.33	0.33	0.2

1/ Volume handled by Montana grain storage facilities was 170 million bushels.
2/ Insufficient reports to publish usage data for Carboxin, Difenoconazole, Imazilil, Lindane, Metalaxyl, Silicon dioxide, Tebuconazole, and Thiram.

Wheat: Postharvest Chemical Applications
Nebraska, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	21.96	1.0	0.12	0.12	3.7
Malathion	1.31	1.0	0.42	0.42	0.7
Methyl bromide	0.83	1.0	3.13	3.13	3.5

1/ Volume handled by Nebraska grain storage facilities was 140 million bushels.
2/ Insufficient reports to publish usage data for Chlorpyrifos-methyl and Cyfluthrin.

Wheat: Postharvest Chemical Applications
North Dakota, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	0.53	1.0	0.21	0.21	0.4
Chlorpyrifos-methyl	1.37	1.0	0.14	0.14	0.6

1/ Volume handled by North Dakota grain storage facilities was 330 million bushels.
2/ Insufficient reports to publish usage data for Malathion, Magnesium phosphide, and Silicon dioxide.

Wheat: Postharvest Chemical Applications
Ohio, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	8.63	1.0	0.12	0.12	0.8
Chlorpyrifos-methyl	0.70	1.0	0.15	0.15	0.1
Malathion	0.68	1.1	0.29	0.33	0.2

1/ Volume handled by Ohio grain storage facilities was 70 million bushels.
2/ Insufficient reports to publish usage data for Cyfluthrin, Petroleum distillate, Piperonyl butoxide, Pyrethrins, Silica gel, and Silicon dioxide.

Wheat: Postharvest Chemical Applications
Oklahoma, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	27.10	1.1	0.19	0.20	13.9
Malathion	0.72	1.1	0.73	0.78	1.4

1/ Volume handled by Oklahoma grain storage facilities was 260 million bushels.
2/ Insufficient reports to publish usage data for Chlorpyrifos-methyl and Silicon dioxide.

Wheat: Postharvest Chemical Applications
Oregon, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	1.93	1.0	0.21	0.21	1.2
Chlorpyrifos-methyl	1.22	1.0	0.13	0.13	0.5

1/ Volume handled by Oregon grain storage facilities was 290 million bushels.
2/ Insufficient reports to publish usage data for Difenoconazole, Imidacloprid, Lindane, Malathion, Methyl bromide, Petroleum distillate, Piperonyl butoxide, Pyrethrins, and Silicon dioxide.

Wheat: Postharvest Chemical Applications
South Dakota, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	3.81	1.0	0.22	0.22	0.8
Chlorpyrifos-methyl	1.17	1.0	0.26	0.26	0.3
Malathion	0.41	1.0	0.60	0.60	0.2

1/ Volume handled by South Dakota grain storage facilities was 100 million bushels.
2/ Insufficient reports to publish usage data for Methyl bromide and Silicon dioxide.

Wheat: Postharvest Chemical Applications
Texas, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	12.84	1.0	0.18	0.19	14.1
Malathion	0.75	1.0	0.43	0.43	1.9

1/ Volume handled by Texas grain storage facilities was 590 million bushels.
2/ Insufficient reports to publish usage data for Carbon dioxide, Chloropicrin, Chlorpyrifos-methyl, and Silicon dioxide.

Wheat: Postharvest Chemical Applications
Washington, 1997 Marketing Year 1/ 2/

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	Percent	Number	Pounds per 1,000 Bu.		1,000 Lbs
Insecticides:					
Aluminum phosphide	6.90	1.0	0.24	0.24	6.4
Chlorpyrifos-methyl	6.09	1.0	0.25	0.25	6.0
Lindane	0.17	1.0	10.55	10.63	6.9
Fungicides:					
Carboxin	0.02	1.1	17.73	19.16	1.2
Difenoconazole	0.12	1.0	10.98	11.10	5.2
Tebuconazole	0.06	1.0	0.93	0.93	0.2
Thiram	0.07	1.1	27.94	31.58	8.4

1/ Volume handled by Washington grain storage facilities was 390 million bushels.
2/ Insufficient reports to publish usage data for Imazilil, Imidacloprid, Malathion, and Silicon dioxide.

Pest Management Practices,
Percent of Operations Utilizing Practice,
Corn, 1997 Marketing Year 1/

Practice	States Surveyed								
	IL	IN	IA	KS	MN	NE	OH	TX	ALL
	-- Percent of Operations --								
Mechanical Devices:									
Aeration controller	38	39	42	45	38	50	46	40	42
Deep bin sampler	3	5	8	4	6	13	3	10	6
Grain spreader in bins	18	12	32	9	28	20	27	16	21
Phosphine pellet dispenser	12	7	4	48	9	15	18	23	15
Power probe	39	36	38	18	12	41	30	20	32
Protein analyzer	2	5	7	13	16	12	5	14	8
Re-circulation fumigation device		1	2	5	3	2	6	13	3
Temperature cables in bins	54	43	38	76	43	45	69	27	50
Cleaning Activities:									
Clean aeration ducts	84	86	89	85	82	84	89	71	85
Clean/screen grain	4		1		1				1
Clean surrounding areas	4		2	11		6	6	17	5
Control vegetation around bins	98	97	99	98	97	93	97	96	97
Core bins after filling	86	85	80	39	68	57	73	36	71
Fumigate empty bins	10		10	18	3			13	7
Hose down empty bins	9	12	15	7	14	4	12	20	11
Pick up spilled grain	99	99	100	99	97	100	100	95	99
Sweep empty bins	99	99	98	94	92	95	95	91	96

1/ Descriptions of these items are included in the Terms and Definitions section of this report.

Pest Management Practices,
Percent of Operations Utilizing Practice,
Corn, 1997 Marketing Year

Practice	States Surveyed								
	IL	IN	IA	KS	MN	NE	OH	TX	ALL
	-- Percent of Operations --								
Inspected for insects:									
Concrete Silos:									
Weekly	22	39	30	34	23	30	44	30	30
Every two weeks	27	8	27	13	16	29	7	29	21
Monthly	25	33	26	40	38	29	29	26	30
Other	15	13	15	9	6	9	10	12	12
Do not inspect	11	7	2	4	17	3	10	3	7
Steel Tanks or Bins:									
Weekly	24	39	27	27	23	35	36	26	29
Every two weeks	27	12	23	14	21	26	12	24	21
Monthly	28	30	30	44	39	32	34	31	32
Other	12	10	9	11	9	4	12	11	10
Do not inspect	9	9	11	4	8	3	6	8	8
Measure grain temperature:									
Concrete Silos:									
Weekly	31	42	43	55	47	42	59	41	43
Every two weeks	23	6	33	18	12	23	9	17	19
Monthly	15	14	13	18	14	21	10	10	15
Other	15	7	6	5	3	8	15	12	10
Do not inspect	16	31	5	4	24	6	7	20	13
Steel Tanks or Bins:									
Weekly	33	36	33	40	31	36	45	21	34
Every two weeks	24	9	20	12	12	18	13	13	17
Monthly	17	14	13	25	32	24	16	14	19
Other	12	7	7	13	7	11	6	11	10
Do not inspect	14	34	27	10	18	11	20	41	20

Pest Management Practices,
Percent of Operations Utilizing Practice,
Wheat, 1997 Marketing Year 1/

Practice	States Surveyed								
	CO	ID	KS	MN	MO	MT	NE	ND	OH
	-- Percent of Operations --								
Mechanical Devices:									
Aeration controller	48	32	50	41	39	18	44	41	52
Deep bin sampler	8	7	6	5	3	9	23	9	5
Grain spreader in bins	7	4	6	15	10	3	20	6	24
Power probe	21	14	28	13	13	7	39	10	37
Protein analyzer	58	18	13	55	7	73	28	97	4
Re-circulation fumigation device	9	9	4	4	9	4	2	4	7
Temperature cables in bins	55	7	66	38	29	7	46	21	71
Cleaning Activities:									
Clean aeration ducts	81	69	74	81	72	42	89	78	94
Clean/screen grain				10	1		1	12	
Clean surrounding areas	1		8		4		3	6	6
Control vegetation around bins	94	90	98	97	94	98	97	98	97
Core bins after filling	56	32	36	63	64	40	59	61	66
Fumigate empty bins	15	9	11	1	26	10		7	
Hose down empty bins	16	19	6	7	12	6	5	9	12
Pick up spilled grain	98	91	99	97	95	99	99	99	99
Sweep empty bins	96	89	90	93	91	89	95	97	99
Vacuum bins	1			4		7			

Practice	States Surveyed					
	OK	OR	SD	TX	WA	ALL
	-- Percent of Operations --					
Mechanical Devices:						
Aeration controller	56	31	32	46	47	44
Deep bin sampler	5	23	9	12	4	9
Grain spreader in bins	3	5	6	9	4	10
Phosphine pellet dispenser	55	13	20	35	55	30
Power probe	11	9	14	27	6	21
Protein analyzer	11	32	78	24	35	36
Re-circulation fumigation device	16	7	5	16	2	7
Temperature cables in bins	55	9	23	36	12	42
Cleaning Activities:						
Clean aeration ducts	70	60	73	77	61	76
Clean/screen grain		7				2
Clean surrounding areas	3	4	1	19		5
Control vegetation around bins	99	89	99	95	100	97
Core bins after filling	35	35	52	35	49	49
Fumigate empty bins	35	21	4	10	15	11
Hose down empty bins	23	28	5	18	19	11
Pick up spilled grain	99	87	99	94	100	98
Sweep empty bins	87	91	94	87	93	92
Vacuum bins			1		12	1

1/ Definitions of these items are included in the Terms and Definitions section of this report.

Pest Management Practices,
Percent of Operations Utilizing Practice,
Wheat, 1997 Marketing Year

Practice	States Surveyed								
	CO	ID	KS	MN	MO	MT	NE	ND	OH
	-- Percent of Operations --								
Inspected for insects:									
Concrete Silos:									
Weekly	15	17	31	17	47	21	24	30	53
Every two weeks	17	31	13	22	6	15	23	23	7
Monthly	56	39	39	28	28	32	37	34	22
Other	7	9	14	19	10	27	15	5	10
Do not inspect	5	4	3	14	9	5	1	8	8
Steel Tanks or Bins:									
Weekly	21	23	24	19	37	18	28	17	46
Every two weeks	19	17	24	21	16	17	28	26	10
Monthly	49	34	39	40	29	40	32	52	26
Other	8	17	6	7	8	14	8	3	10
Do not inspect	3	9	7	13	10	11	4	2	8
Measure grain temperature:									
Concrete Silos:									
Weekly	40	12	53	24	62	16	44	10	59
Every two weeks	22	16	15	12	3		21	21	11
Monthly	13	17	22	3	10	11	21	30	10
Other	5	25	6	9	19	17	10	10	12
Do not inspect	20	30	4	52	6	56	4	29	8
Steel Tanks or Bins:									
Weekly	30	6	46	19	30	9	31	13	49
Every two weeks	16	10	19	12	7	5	23	18	13
Monthly	21	21	17	26	19	16	24	30	15
Other	7	24	12	8	10	11	9	10	5
Do not inspect	26	39	6	35	34	59	13	29	18

--continued

Pest Management Practices,
Percent of Operations Utilizing Practice,
Wheat, 1997 Marketing Year (continued)

Practice	States Surveyed					
	OK	OR	SD	TX	WA	ALL
	-- Percent of Operations --					
Inspected for insects:						
Concrete Silos:						
Weekly	27	37	6	26	19	30
Every two weeks	22	6	33	25	30	18
Monthly	42	33	52	26	29	35
Other	5	18	6	19	19	12
Do not inspect	4	6	3	4	3	5
Steel Tanks or Bins:						
Weekly	16	29	17	20	24	24
Every two weeks	30	11	31	29	26	23
Monthly	42	32	43	23	36	38
Other	8	17	3	15	12	8
Do not inspect	4	11	6	13	2	7
Measure grain temperature:						
Concrete Silos:						
Weekly	36	37	3	40	10	41
Every two weeks	16	6	35	15	17	16
Monthly	24	14	8	14	27	18
Other	7	20	11	8	19	10
Do not inspect	17	23	43	23	27	15
Steel Tanks or Bins:						
Weekly	36	29	13	18	12	27
Every two weeks	11	6	25	15	14	16
Monthly	27	11	24	14	31	22
Other	7	18	7	10	19	10
Do not inspect	19	36	31	43	24	25

Survey Procedures: Operations chosen from the NASS List Sampling Frame were known to or expected to provide off-farm storage for corn and wheat. The sample was selected with probability proportional to size in terms of the amount of corn or wheat reported by the operation on one of NASS's quarterly Grain Stocks Surveys in 1997.

Estimation Procedures: The chemical applications data, reported by product name or trade name were reviewed within State and across States for reasonableness and consistency. This review compared reported data with manufacturer's recommendations and with data from other operations using the same product. Following this review, product information was converted to active ingredient level. The chemical usage estimates in this publication are of those active ingredients.

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

Reliability: The probability nature of the survey provides for expansion of data so estimates are statistically representative of chemical use on the targeted commodities in the surveyed States. The reliability of these survey results are affected by sampling variability and nonsampling errors.

Nonsampling errors are errors that 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 between collection and publication. In this survey, procedures and analysis were carried out in a consistent and orderly manner to minimize the occurrence of these types of errors.

Variability for estimates of volume of the commodity handled will be higher than the variability for estimates of application rates. This is because application rates have a narrower range of responses and the manufacturer's recommended rates extra space are generally followed.

Sampling variability of the estimates also differs by chemical and crop. 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 aluminum phosphide on corn in Texas, will exhibit less variability than a rarely used or reported product.

Terms and Definitions

Active ingredient: The active ingredient is the specific chemical which kills or controls the target pests. Usage data are reported by pesticide product and are converted to an amount of active ingredient.

Aeration Controller: Automatic (usually computer-based) system that determines the optimum running time (considering humidity and temperature) for aeration fans on the grain bins. They can usually be set for drying or storage mode.

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

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

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

Core bins after filling: When grain is placed into a bin, it is usually filled from the top. The grain forms a cone as if fills the bin. Because grain contains other things (including broken pieces of grain), smaller particles (called fines) tend to concentrate in the center of the bin. This finer material compacts, restricting airflow which in turn affects grain temperatures and thus pests. For this reason, it is recommended that a portion of grain is extracted from the bottom center of the bin. This core can then be reloaded onto the top and spread over the surface to distribute the fines evenly.

Deep bin sampler: Usually a vacuum type device that allows you to reach deep into a grain bin and sample grain that is normally out of reach to typical probe samplers.

Fumigant: A substance or mixture of substances which produce a gas vapor, fume or smoke intended to destroy insects, rodents, or bacteria.

Grain spreader: When grain is loaded into the grain bin, it can first be put through a spreader which swings the grain out from the fall line and fills the bin uniformly rather than forming a cone in the center of the bin.

Marketing year: A marketing year refers to the period immediately following harvest of the crop through the marketing or disposition of the crop. The marketing year for corn was September 1, 1997 to August 31, 1998, and June 1, 1997 to May 31, 1998 for wheat.

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.

Phosphine pellet dispenser: Manually or automatically dispenses phosphine pellets to a stream of grain as it is being loaded.

Postharvest: After the commodity is harvested from the field, any subsequent activity is termed postharvest. Postharvest chemical usage refers to chemical applications after the commodity is taken from the field or orchard.

Power probe: A fully integrated mechanized system for sampling stationary lots of grain in trucks or similar conveyance. It obtains a representative sample by inserting a probe like device into grain, opening the probe to allow grain to enter, closing, and then the sample is pneumatically withdrawn from the probe.

Processor: Processors actually change the form of the commodity. These firms may have storage facilities as well.

Protein analyzer: Usually infrared analyzers that can, within a matter of minutes, determine the composition of grain. Values obtained can include protein, oil, and starch content, moisture content, and kernel density.

Re-circulation fumigation device: A fan that is combined with PVC pipe on the outside of a grain bin. The PVC runs from the top down the sides, through the fan and into the bottom of the grain bin. Rather than probing fumigant pellets into the grain mass from the surface of the grain, you can use a much lower concentration of fumigant and place the pellets in the PVC pipe from outside of the grain bin. Advantages include using less chemical, increased worker safety, and more uniform distribution of the gas since the fans force the fumigant throughout the grain mass.

Temperature cables: Cables running from top to bottom in grain bin that automatically determine grain temperature and output this information to a central system.

Terminal elevator: An elevator where large amounts of grain are brought for sale and distribution. Grain usually leave these facilities by rail or barge.

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

Volume Handled: The volume of a commodity handled by the market segment. In this release, it is the total amount of a commodity that passed through the firms summarized in the particular table.

Volume treated: The amount that represents the percentage of volume handled receiving one or more applications of a specific agricultural chemical. This report does not contain total quantity treatments. However, total quantity treatments can be calculated by multiplying the total volume handled by the percent of volume treated and the average number of applications.

Trade Names, Common Names, and Classes

The following is a list of 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 the data. Pre-mixes are not cataloged. The list may not be complete for all postharvest chemicals used on corn and wheat, and NASS does not mean to imply use of any specific trade name.

Class	Common Name	Trade Name
I	Aluminum phosphide	several
I	Bicycloheptene	Virchem Thirty-Four
F	Captan	Captan
I	Carbon dioxide	Carbon dioxide
F	Carboxin	Vitavax
O	Chloropicrin	Larvacide
I	Chlorpyrifos	Lorsban, Dursban
I	Chloropyrifos-methyl	Reldan
I	Cyfluthrin	Tempo 2
I	D-trans-allethrin	Virchem Thirty-Four
F	Difenoconazole	Dividend
F	Fludioxonil	Maxim
F	Imazilil	Flo-Pro
I	Imidacloprid	Gancho
I	Lindane	Lindane
I	Malathion	several
F	Metalaxyl	Apron
I	Methyl bromide	several
I	Methoxychlor	several
I	Petroleum distellate	several
I	Piperonyl butoxide	several
I	Pirimiphos-methyl	Actellic
F	Propionic acid	Tenox P
I	Pyrethrins	several
I	Silica gel	Protect-it
I	Silicon dioxide	Diatomaceous Earth, Insect-Away
F	Tebuconazole	Thiram
F	Thiram	Vitavax, Thiram

NASS **NATIONAL AGRICULTURAL STATISTICS SERVICE**
U.S. Department of Agriculture
Rm 5805, South Building
1400 Independence Avenue, S.W.
Washington, D.C. 20250-2000
202-720-7017

1997-98 CORN POSTHARVEST CHEMICAL USE SURVEY

Form Approved
O.M.B. Number 0535-0218
Approval Expires 07/31/00
Project Code 143

VERSION	POID	SUBT.	T-TYPE	TABLE	LINE
1	_ _ _ _ _ _ _ _ _ _	_ _	0	000	00

CONTACT RECORD		
DATE	TIME	NOTES

RESPONSE CODES

3 - COMPLETED
4 - SCREENOUT
5 - NO CORN HANDLED/ RECEIVED
8 - REFUSAL
9 - INACCESSIBLE

OFFICE USE 001

OPTIONAL 002

INTRODUCTION
[*Introduce yourself, and ask for the operator. Rephrase in your own words.*]

We are collecting information on chemical use and need your help to make the information as accurate as possible. Authority for collection of information on the Corn Postharvest Chemical Use Survey is Title 7, Section 2204 of the U.S. Code. This information will be used for analysis and to compile and publish estimates for your state and the United States. Response to this survey is confidential and voluntary.

We encourage you to refer to your operation records during the interview.

BEGINNING TIME [*MILITARY*] . . . . . 003 _ _ _ _

Name _____

Address _____

_____

Phone (_____) _____

☐ [*Name, address and partners verified and updated if necessary.*]

1. Did this operation (*as listed on the label*) handle/receive any corn from September 1, 1997 to August 31, 1998?

   ☐ **YES** - [*Go to page 3.*]

   ☐ **NO** - [*Go to page 2.*]

ADJUSTMENT FACTOR
005 . _ _ _

CHANGE IN OPERATOR

- [***Complete this section only if item 1 on the front page is answered "No".***]

1. Has the operation named on the label been **sold, rented, or turned over** to someone else?

   ☐ **YES** - [*Continue.*] ☐ **NO** →

   a. Will the operation handle or receive corn or other crops at any of its facilities in 1998?

   ☐ **YES** ☐ **DON'T KNOW** ☐ **NO**

   [***Regardless of answer above, write a note to explain the situation, then go to back page Conclusion.***]

2. Please provide the name and address of the operation that has taken over the business you formerly operated:

   Operation Name: _____

   Operator Name: _____

   Address: _____

   City: _____ State: _____ Zip: _____

   Phone: _____

NOTES and CALCULATIONS:

A QUANTITY HANDLED A

Now I would like to ask about the corn handled/received from September 1, 1997 to August 31, 1998.

Please use your records to help us get an accurate record of corn receipts.

1. What was the total quantity of the corn handled/received from September 1, 1997 to August 31, 1998 on this operation? . . . . . .

QUANTITY
200

1 BUSHEL (56 lbs) 4 SHORT TON (2,000 lbs) 5 CWT. (100 lbs.) 6 POUNDS 7 METRIC TON (2,204.6 lbs) 8 OTHER	If unit equals "8", enter
UNIT	POUNDS/UNIT
201	202

a. Of the item 1 corn, how much **DID NOT** receive postharvest chemical applications? . . . . . .

QUANTITY
206

OR

PERCENT OF TOTAL NOT TREATED
207

ENUMERATOR NOTE: [*Does item code 200 equal item code 206?*]
OR
[*Does item code 207 equal 100%?*]

☐ **YES** - Verify the operation did not apply any postharvest chemicals to corn in storage, on the ground, in **barges, ships, rail cars or on trucks** between September 1, 1997 and August 31, 1998.

If no postharvest chemicals were applied go to Section **C**, page 6.

If postharvest chemicals were applied, correct either item code 206 or item code 207 and go to page 4.

☐ **NO** - Go to page 4.

COMPLETION CODE for CHEMICAL EDIT TABLE	
1 - Incomplete / Refusal 3 - Valid Zero	300

Now I have some questions about postharvest chemical data on **corn** handled, stored or processed by

B POSTHARVEST CHEMICAL TREATMENTS APPLIED B

your operation from September 1, 1997 to August 31, 1998. I will be asking for five things: product used, quantity treated, total amount of product applied, and timing and method of application. Please use your records to answer the questions as accurately as possible and to help make sure we do not miss any products used. Include corn treated in barges, ships, rail cars or on trucks by this operation.

OFFICE USE LINES IN TABLE

T-TYPE	TABLE	LINE	399
3	001	99	

STORAGE CODES FOR COLUMN 4
5 Before Binning
6 During Binning
7 After Binning
8 Not Binned

NOTES	LINE	3 What product was applied? (*In Respondent Booklet*) a COMMON OR TRADE NAME	3 What product was applied? (*In Respondent Booklet*) b PRODUCT CODE	4 When was this product used? [*Enter code from above.*]	5 What was the total quantity of corn treated with this chemical (*in column 3*)?
	01		302	303	304 . __
	02		302	303	304 . __
	03		302	303	304 . __
	04		302	303	304 . __
	05		302	303	304 . __
	06		302	303	304 . __
	07		302	303	304 . __
	08		302	303	304 . __
	09		302	303	304 . __
	10		302	303	304 .

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

LINE NO.	EPA No. or Trade name and Formulation	Form Purchased (Liquid or Dry)	Where Purchased [*Ask only if EPA No. cannot be reported.*]
_____	_____	_____	_____
_____	_____	_____	_____
_____			

UNIT CODES FOR COLUMN 6
1 - BUSHEL (*56 lbs*)
4 - SHORT TON (*2,000 lbs*)
5 - CWT. (*100lbs.*)
6 - POUNDS
7 - METRIC TON (*2,204.6 lbs*)
8 - OTHER

UNIT CODES FOR COLUMN 9
1 POUNDS
12 GALLONS
13 QUARTS
14 PINTS
15 OUNCES
30 GRAMS
40 KILOGRAMS
41 LITERS
45 PELLETS/TABLETS
50 OTHER (*Specify* _____)

APPLICATION CODES FOR COLUMN 10
3 - DIRECT SPRAY
5 - TOP DRESS
7 - MIXING PELLETS
9 - DIRECT POWDERING
10 - OTHER
(*Specify* _____)

LINE	6 [*Enter unit code from above.*]	7 If column 6 unit equals "8", enter pounds per unit.	8 What was the total amount of formulated product applied to the (*column 5*) amount of corn?	9 [*Enter unit code from above.*]	10 What was the method used to apply this product? CODE
01	305	306 . ___	307 . ___	308	309
02	305	306 . ___	307 . ___	308	309
03	305	306 . ___	307 . ___	308	309
04	305	306 . ___	307 . ___	308	309
05	305	306 . ___	307 . ___	308	309
06	305	306 . ___	307 . ___	308	309
07	305	306 . ___	307 . ___	308	309
08	305	306 . ___	307 . ___	308	309
09	305	306 . ___	307 . ___	308	309
10	305	306 . ___	307 . ___	308	309

Enumerator Notes:

T-TYPE	TABLE	LINE
0	000	00

Now I have some questions about pest management practices you may have used at your facilities.

1. Did you use a--

			CODE
a. power probe?	☐ **YES** - [*Enter code 1 and continue.*]	☐ **NO**	650
b. aeration controller?	☐ **YES** - [*Enter code 1 and continue.*]	☐ **NO**	651
c. phosphine pellet dispenser?	☐ **YES** - [*Enter code 1 and continue.*]	☐ **NO**	652
d. temperature cables in bins?	☐ **YES** - [*Enter code 1 and continue.*]	☐ **NO**	653
e. grain spreader in bins?	☐ **YES** - [*Enter code 1 and continue.*]	☐ **NO**	654
f. re-circulation fumigation device?	☐ **YES** - [*Enter code 1 and continue.*]	☐ **NO**	655
g. deep bin sampler?	☐ **YES** - [*Enter code 1 and continue.*]	☐ **NO**	656
h. protein analyzer?	☐ **YES** - [*Enter code 1 and continue.*]	☐ **NO**	657

2. How often is your grain inspected for insects?

		CONCRETE SILOS	STEEL TANKS OR BINS
1 WEEKLY 2 EVERY 2 WEEKS 3 MONTHLY 4 OTHER - (*Specify* _____) 5 DO NOT MONITOR	. . . . .	658	659

3. How often do you measure grain temperature?

		CONCRETE SILOS	STEEL TANKS OR BINS
1 WEEKLY 2 EVERY 2 WEEKS 3 MONTHLY 4 OTHER - (*Specify* _____) 5 DO NOT MONITOR	. . . . .	660	661

4. Which practices do you use at storage facilities--

		CODE
a. sweep empty bins?	☐ YES - [*Enter code 1 and continue.*] ☐ NO	662
b. hose down empty bins?	☐ YES - [*Enter code 1 and continue.*] ☐ NO	663
c. pick up spilled grain?	☐ YES - [*Enter code 1 and continue.*] ☐ NO	664
d. control vegetation around bins?	☐ YES - [*Enter code 1 and continue.*] ☐ NO	665
e. clean aeration ducts?	☐ YES - [*Enter code 1 and continue.*] ☐ NO	666
f. core bins after filling?	☐ YES - [*Enter code 1 and continue.*] ☐ NO	667

5. Did you do any other cleaning activities besides the ones listed above to your storage facilities?

☐ YES - [*Enter code 1 and continue.*] ☐ NO - [*Go to item 6.*] 668

a. What did you do? [*Record responses below.*]

OFFICE USE

_____ 669

_____ 670

_____ 671

_____ 672

6. What strategy did you use to decide when to fumigate grain?

1	PRESENT CALENDAR DATE
2	BIN SAMPLES
3	COMBINED WITH OTHER HANDLING OPERATIONS
4	INSECT TRAP COUNTS
5	OTHER - (*Describe* _____)

. . . . . CODE 673

COMPLETION CODE for PEST MANAGEMENT SECTION

1	Incomplete/Refusal	500

CONCLUSION

SURVEY PUBLICATIONS

That completes the survey. Would you like to receive a free copy of the results when they are published?

CODE 023

☐ **YES** - [*Enter code 1.*] ☐ **NO**

[*Thank the respondent then review this questionnaire.*]

RECORDS USE

Did respondent use operation records to report chemical data?

024

☐ **YES** - [*Enter code 1.*] ☐ **NO**

ENDING TIME [*MILITARY*] 025 _ _ _ _

OFFICE USE - TIME IN HOURS 026 . _ _

SUPPLEMENTS USED

NUMBER

Record the total number of pesticide supplements used to complete this interview. 028

RESPONDENT

1	OPERATOR/MANAGER OR PARTNER
2	BOOKKEEPER
3	OTHER

CODE 029

Respondent's name:

_____ _____

(*Phone*)

_____ _____

ENUMERATOR _____ ENUMERATOR ID 030

DATE MM DD YY 031 _ _ / _ _ / 98

OFFICE USE EVALUATION 032

Report Features

Released March 18, 1999, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. For information on "Agricultural Chemical Usage" call (202) 720-2127, office hours 7:30 a.m. to 4:00 p.m. ET.

The next **"Agricultural Chemical Usage: Postharvest Applications"** will be released during the spring of 2000. This report will cover the use of postharvest chemicals used on soybeans and oats during the 1998 marketing year.

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

James A. Ewing, Environmental Statistician	(202) 690-2284
Glenn Strasburg, Environmental Statistician	(202) 720-7492
C. Ray Halley, Chief, Crops Branch	(202) 720-2127

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Released March 18, 1999, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. For information on "Agricultural Chemical Usage-Postharvest Applications" call (202) 720-2128, office hours 7:30 a.m. to 4:00 p.m. ET.

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