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National
Agricultural
Statistics
Service



Agricultural Chemical Usage Postharvest Applications - Oats and Potatoes Summary

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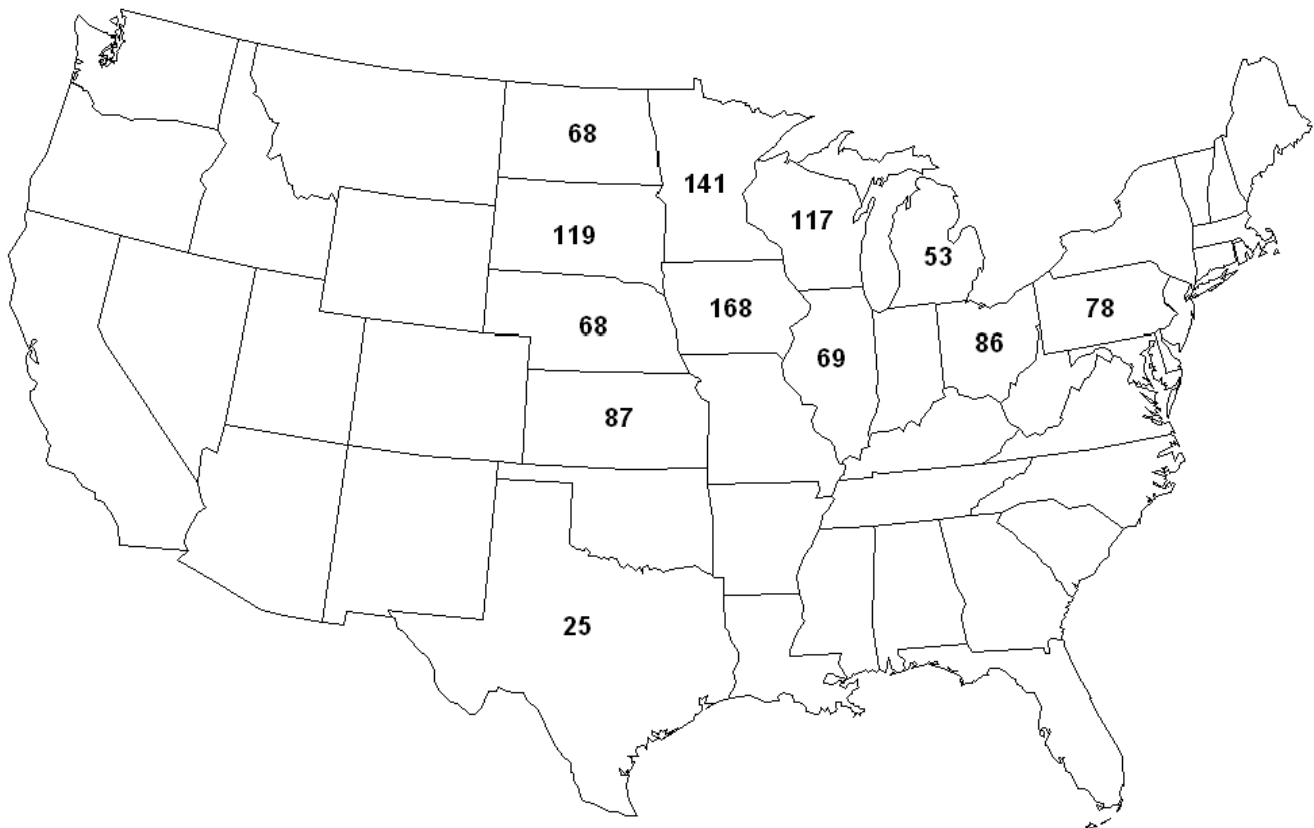
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Postharvest Chemical Use Estimates for Oats

Oats Overview: The agricultural chemical use estimates in this report are based on data compiled from the 2006 Oats Postharvest Chemical Use Survey. The Postharvest Survey was conducted for oats marketed from August 1, 2005 to July 31, 2006 which covers the 2005 crop. All results refer to pesticide applications and integrated pest management at off-farm storage and processing facilities after the oats were harvested. On-farm postharvest applications were beyond the scope of this survey.

There were 1,079 oat storage and processing facility reports summarized across the 12 surveyed States. The U.S. map below shows the number of summarized reports by State. There were insufficient reports to publish chemical data at the State level for Iowa, Kansas, North Dakota, Pennsylvania, and Texas for chemical application rates. No pesticides were reported in Illinois, Michigan, Nebraska, or Ohio.

Number of Usable Oat Postharvest Reports 2005-06 Marketing Year



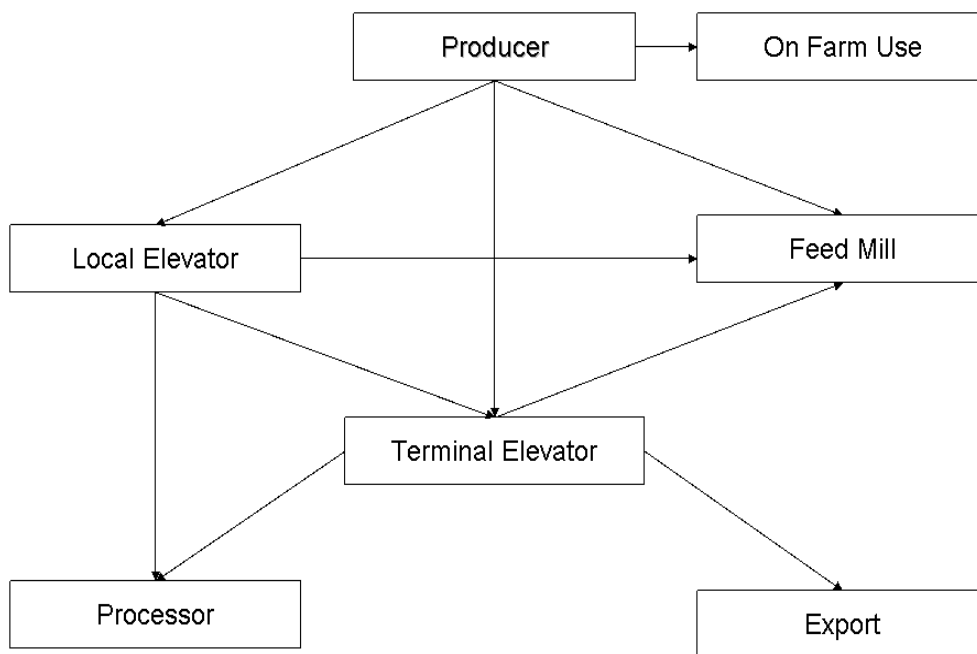
After harvest, oats are generally marketed through local and/or terminal elevators, except those which are used on the farm. The diagram below shows the traditional postharvest marketing channels for oats. Most oats are used for livestock feed. This grain may be pulled out of the marketing channel at any point. Processors are also recipients of the grain at any point along the marketing channel.

The totals for the Program States, as well as individual State totals where data permit, are published for the percent of oats treated, number of applications, rate per application, rate per marketing year, and the total amount of active ingredient applied. A table detailing total pesticide usage by class for the Program States is also included. Totals for the Program States 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 applied. The Program States include the major oat producing States.

Oats moving from a local elevator to a terminal elevator were duplicated in the total amount handled. The intent of the survey was to obtain the entire amount of chemicals applied to the stored oats; therefore, this duplication in quantity handled is necessary. No provision was made for cross-State movement. The State or region of origin was not part of the survey, so all of the oats handled in a program State were included in this survey.

In addition to chemical applications, grain storage operators were also asked a series of questions pertaining to their pest management practices. Answers to these questions are summarized and included in the report. A copy of the survey instrument used to collect the data is also included.

Oat Postharvest Market Channels



Highlights for Oats

Pesticides: Aluminum phosphide and malathion were the top two chemicals used on oats, based on percent of volume treated. Aluminum phosphide is an insecticidal fumigant used to kill insects, insect larvae, and mites. Malathion is an insecticide.

Of the total chemical applications made to oats in 2005-06 in the 12 Program States, 43 percent was applied by mixing pellets/tablets, 26 percent by direct powdering, 13 percent by top dress, 9 percent by direct spray, 6 percent by re-circulation, and 4 percent by seed treatment.

Of the total chemical applications made to oats in 2005-06 in the 12 Program States, 20 percent was applied on inbound oats, 26 percent during binning of oats, and 54 percent while the oats were stored.

Operations in the following States applied the listed chemicals to oats after harvest. However, there were an insufficient number of reports to publish State level usage data.

Iowa:	aluminum phosphide, malathion, and silicon dioxide.
Kansas:	aluminum phosphide and malathion.
Minnesota:	malathion and silicon dioxide.
North Dakota:	aluminum phosphide.
Pennsylvania:	aluminum phosphide, malathion, and silicon dioxide.
Texas:	aluminum phosphide and methoprene.
Wisconsin:	cyfluthrin and methyl bromide.

Pest Management Practices: The pest management practices section of the questionnaire asked for mechanical devices or cleaning practices used at the operations surveyed. The timing for inspecting and measuring temperatures in the storage units varies by the season. Therefore, the responses to these pest management questions are organized by “Spring and Summer” and “Fall and Winter.”

**Oats: Postharvest Chemical Applications,
Percent Treated and Total Applied,
Program States, 2005-06 Marketing Year ¹**

State	Volume Handled	Percent Treated and Total Applied					
		Insecticide		Fungicide		Other Chemical	
	<i>1,000 Bu.</i>	<i>Percent</i>	<i>1,000 Lbs.</i>	<i>Percent</i>	<i>1,000 Lbs.</i>	<i>Percent</i>	<i>1,000 Lbs.</i>
IL	1,244						
IA	38,933	0.3	0.1				
KS	1,974	*	*				
MI	1,746						
MN	30,412	5.7	0.8				
NE	9,525						
ND	10,236	*	*				
OH	2,579						
PA	2,867	*	*				
SD	22,342	21.5	0.4				
TX	10,541	*	*				
WI	14,669	1.9	0.4				
Program States	147,069	5.9	1.9				

* Insufficient reports to publish data.

¹ Blank cells represent no data reported for the item.

**Oats: Postharvest Chemical Applications,
Program States, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Appli- cations	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per 1,000 Bu.</i>	<i>Pounds per 1,000 Bu.</i>	<i>1,000 Lbs</i>
Insecticides:					
Aluminum phosphide	5.1	1.0	0.057	0.057	0.4
Malathion	0.7	1.0	0.415	0.415	0.4

**Oats: Postharvest Chemical Applications,
Minnesota, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per 1,000 Bu.</i>	<i>Pounds per 1,000 Bu.</i>	<i>1,000 Lbs</i>
Insecticides: Aluminum phosphide	4.8	1.0	0.052	0.052	0.1

**Oats: Postharvest Chemical Applications,
South Dakota, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per 1,000 Bu.</i>	<i>Pounds per 1,000 Bu.</i>	<i>1,000 Lbs</i>
Insecticides: Aluminum phosphide	19.6	1.0	0.040	0.040	0.2
Malathion	2.6	1.0	0.405	0.405	0.2

**Oats: Postharvest Chemical Applications,
Wisconsin, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per 1,000 Bu.</i>	<i>Pounds per 1,000 Bu.</i>	<i>1,000 Lbs</i>
Insecticides: Malathion	0.6	1.0	0.411	0.411	*

* Total applied is less than 50 pounds.

**Oats: Postharvest Chemical Use,
Method of Application,
Program States, 2005-06 Marketing Year**

Method of Application	Oats
	<i>Percent</i>
Direct Powdering	26
Direct Spray	9
Mixing Pellets/Tablets	43
Re-Circulation	6
Seed Treatment	4
Top Dress	13
Total	100

**Oats: Postharvest Chemical Use,
Timing of Application,
Program States, 2005-06 Marketing Year**

When Applied	Oats
	<i>Percent</i>
In Bound	20
During Binning	26
While Stored	54
Total	100

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**All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, Program States,
2005-06 Marketing Year^{1 2}**

Practice	State					
	IL	IA	KS	MI	MN	NE
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Mechanical Devices:						
Aeration controller	30	50	48	41	35	59
Deep bin sampler	4	6	12	4	6	18
Grain spreader	27	28	10	12	21	37
Phosphine pellet dispenser	3	8	45	5	4	18
Protein analyzer	3	11	9	6	16	10
Power probe	45	46	33	6	14	47
Re-circulation fumigation device	4	5	17	4	5	15
Temperature cable	42	36	71	16	26	59
Cleaning Activities:						
Clean aeration ducts	80	78	80	62	69	85
Control vegetation around bins	97	95	98	94	93	100
Core bins after filling	81	77	44	64	58	88
Fumigate empty bins	45	54	66	30	29	56
Hose down empty warehouse bins	20	8	18	7	11	
Pick up spilled grain	97	98	97	96	92	100
Sweep or vacuum empty bins	91	95	92	87	84	97
Other cleaning activities	12	4	3		1	

Practice	State						
	ND	OH	PA	SD	TX	WI	ALL
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Mechanical Devices:							
Aeration controller	59	44	13	30	40	13	37
Deep bin sampler	3	5		9	12	2	6
Grain spreader	8	30	13	11	12	15	20
Phosphine pellet dispenser	12	2	4	10	32	2	10
Protein analyzer	80	5	1	50	20	2	17
Power probe	12	28		10	12	7	23
Re-circulation fumigation device	1	1		4		2	5
Temperature cable	19	65	1	17	20	18	33
Cleaning Activities:							
Clean aeration ducts	84	82	38	66	60	60	71
Control vegetation around bins	99	98	78	95	96	93	94
Core bins after filling	59	58	16	54	16	45	58
Fumigate empty bins	25	72	34	33	52	30	43
Hose down empty warehouse bins	7	12	6	2	28	8	9
Pick up spilled grain	100	98	87	98	92	94	96
Sweep or vacuum empty bins	100	92	81	95	80	87	90
Other cleaning activities	2	7	4	3		6	4

¹ Descriptions of these items are included in the Terms and Definitions section of this report on pages 30-32.

² Blank cells represent no data reported for the item.

**All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, Program States,
2005-06 Marketing Year, Spring and Summer ^{1 2}**

Practice	State					
	IL	IA	KS	MI	MN	NE
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Inspected for insects:						
Concrete Silos:						
Daily	9	3	6	6		
Twice a week		1	2			7
Weekly	16	11	22	2	4	15
Every two weeks	6	6	10	5	2	15
Monthly	19	12	30	16	10	19
Other	3	4	8		1	1
Do not monitor		1	2	8	1	
Do not have structure	48	62	19	63	81	43
Steel Bins and Tanks:						
Daily	10	6	5	10	7	1
Twice a week		2		6	1	10
Weekly	26	18	17	17	13	21
Every two weeks	9	13	11	7	18	25
Monthly	41	39	36	36	36	28
Other	6	10	10	2	6	4
Do not monitor	3	5	6	13	11	1
Do not have structure	6	6	15	10	7	9
Other Structures:						
Daily	1	3	1	10	3	3
Twice a week	1	1		2		4
Weekly	15	9	6	5	10	3
Every two weeks	7	7	2		9	15
Monthly	7	14	15	8	24	9
Other	1	4			3	
Do not monitor	3	4	5	6	6	1
Do not have structure	64	59	71	70	45	65

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**All Grain Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, Program States,
2005-06 Marketing Year, Spring and Summer (continued)**^{1 2}

Practice	State						
	ND	OH	PA	SD	TX	WI	ALL
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Inspected for insects:							
Concrete Silos:							
Daily	2	3	3	6	4	1	3
Twice a week		6		1		1	1
Weekly	9	18	3	3		2	9
Every two weeks	9	4	1	3	17	1	5
Monthly	18	19	1	8	21		13
Other	3					2	2
Do not monitor	1	4	3	1		1	2
Do not have structure	58	46	89	77	58	91	65
Steel Bins and Tanks:							
Daily	6	10	11	7	4	8	7
Twice a week	3	6	5	3		4	3
Weekly	15	15	17	13	13	20	17
Every two weeks	12	4	8	6	13	8	11
Monthly	46	35	13	49	38	28	35
Other	4		8	3	8	15	7
Do not monitor	7	7	8	12	13	6	7
Do not have structure	7	23	30	8	13	12	11
Other Structures:							
Daily	7	5	12	8		6	5
Twice a week	1		1	2		3	1
Weekly	13	5	11	13		5	9
Every two weeks	19	2	5	8	8	2	7
Monthly	39	3	9	44	4	5	16
Other	2		3	3		8	3
Do not monitor	3	7	9	1		3	4
Do not have structure	16	78	49	23	88	68	56

¹ Numbers for each type of structure may not add to 100 due to rounding.

² Blank cells represent no data reported for the item.

**All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, Program States,
2005-06 Marketing Year, Fall and Winter ^{1 2}**

Practice	State					
	IL	IA	KS	MI	MN	NE
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Inspected for insects:						
Concrete Silos:						
Daily	9	3	6	4		
Twice a week	1	1	1			6
Weekly	12	9	18	4	4	12
Every two weeks	4	6	9	2	2	15
Monthly	22	13	34	16	9	22
Other	3	4	9		1	1
Do not monitor	1	2	2	11	2	1
Do not have structure	48	62	19	63	81	43
Steel Bins and Tanks:						
Daily	10	5	5	10	6	1
Twice a week	1	2		6	1	7
Weekly	22	16	16	15	13	18
Every two weeks	7	14	7	5	15	19
Monthly	44	38	41	36	38	36
Other	7	11	10	2	7	7
Do not monitor	3	7	6	17	13	3
Do not have structure	6	6	15	10	7	9
Other Structures:						
Daily	1	2	1	10	3	3
Twice a week	1	1		2		4
Weekly	13	7	6	5	8	
Every two weeks	6	8	1		8	13
Monthly	10	14	15	6	24	12
Other	1	4			3	
Do not monitor	3	4	6	8	8	3
Do not have structure	64	59	71	70	45	65

--continued

**All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, Program States,
2005-06 Marketing Year, Fall and Winter (continued) ^{1 2}**

Practice	State						
	ND	OH	PA	SD	TX	WI	ALL
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Inspected for insects:							
Concrete Silos:							
Daily	2	3	3	3	4	1	3
Twice a week		4		1		1	1
Weekly	9	15	1	5	8	2	8
Every two weeks	10	2	1	3	13	1	5
Monthly	17	23	3	10	17	1	14
Other	3					2	2
Do not monitor	1	6	3	2		1	3
Do not have structure	58	46	89	77	58	91	65
Steel Bins and Tanks:							
Daily	4	10	11	3	4	7	6
Twice a week	3	4	5	2		3	3
Weekly	15	14	15	14	21	17	16
Every two weeks	12	4	7	7	8	5	10
Monthly	47	35	16	48	33	30	37
Other	4		8	4	8	18	8
Do not monitor	7	11	9	14	13	7	9
Do not have structure	7	23	30	8	13	12	12
Other Structures:							
Daily	7	5	12	4		5	4
Twice a week			1	2		3	1
Weekly	13	5	8	14		4	8
Every two weeks	16	4	5	8	8	2	7
Monthly	43	3	11	44	4	5	17
Other	2		3	3		9	3
Do not monitor	3	6	11	3		3	5
Do not have structure	16	78	49	23	88	68	56

¹ Numbers for each type of structure may not add to 100 due to rounding.

² Blank cells represent no data reported for the item.

**All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, Program States,
2005-06 Marketing Year, Spring and Summer ^{1 2}**

Practice	State					
	IL	IA	KS	MI	MN	NE
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Measured Grain Temperature:						
Concrete Silos:						
Daily	1	4	5		1	3
Twice a week	4	3	3	2		15
Weekly	11	12	41	7	6	16
Every two weeks	6	3	9	2		13
Monthly	4	8	12	11	6	3
Other	1	4	2			1
Do not monitor	23	4	8	15	7	6
Do not have structure	48	62	19	63	80	43
Steel Bins and Tanks:						
Daily	1	5	2	8	1	3
Twice a week	4	4	2	2	1	18
Weekly	30	14	34	11	16	22
Every two weeks	13	11	8	5	16	21
Monthly	13	20	13	25	23	9
Other	3	9	7		1	4
Do not monitor	30	32	18	40	34	13
Do not have structure	4	6	15	10	7	10
Other Structures:						
Daily		2	1	2	1	1
Twice a week	1	2		2		6
Weekly	16	6	7	5	10	7
Every two weeks	3	5	3		7	12
Monthly	3	8	6	2	17	1
Other		3			1	3
Do not monitor	12	14	13	21	19	6
Do not have structure	65	60	70	68	46	63

--continued

**All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, Program States,
2005-06 Marketing Year, Spring and Summer (continued)**^{1 2}

Practice	State						
	ND	OH	PA	SD	TX	WI	ALL
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Measured Grain Temperature:							
Concrete Silos:							
Daily		1		4		1	2
Twice a week		11					3
Weekly	7	24		3	8	2	11
Every two weeks		9		3	8		4
Monthly	17	3	3	3	13		6
Other	1					1	1
Do not monitor	17	5	11	10	13	6	9
Do not have structure	58	46	87	77	58	90	64
Steel Bins and Tanks:							
Daily	3	2	3	4		4	3
Twice a week		2				5	3
Weekly	13	24	8	8	4	10	16
Every two weeks	1	8	1	7	8	3	9
Monthly	28	19	7	30	17	14	18
Other	4	2	1	3	4	5	4
Do not monitor	43	17	50	42	54	46	34
Do not have structure	7	25	30	7	13	13	12
Other Structures:							
Daily	3		1	4			1
Twice a week		2					1
Weekly	13	2	5	7	8	4	7
Every two weeks	1		1	7		2	4
Monthly	25	1	5	19	4	2	8
Other	1	1	1	3		2	2
Do not monitor	38	15	36	36		23	21
Do not have structure	17	78	49	24	88	68	56

¹ Numbers for each type of structure may not add to 100 due to rounding.

² Blank cells represent no data reported for the item.

**All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, Program States,
2005-06 Marketing Year, Fall and Winter ^{1 2}**

Practice	State					
	IL	IA	KS	MI	MN	NE
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Measured Grain Temperature:						
Concrete Silos:						
Daily	1	4	2		1	3
Twice a week	6	2	3			7
Weekly	10	11	36	9	6	16
Every two weeks	6	3	12	2	1	13
Monthly	4	9	16	11	5	10
Other	1	4	2			1
Do not monitor	23	4	9	15	7	7
Do not have structure	48	62	19	63	80	41
Steel Bins and Tanks:						
Daily	1	5	1	6	1	3
Twice a week	6	2	2		1	7
Weekly	29	14	30	13	15	23
Every two weeks	12	11	9	5	19	18
Monthly	15	22	14	25	22	21
Other	3	9	8		1	4
Do not monitor	30	31	21	42	34	13
Do not have structure	4	6	15	10	7	10
Other Structures:						
Daily		2	1	2	1	1
Twice a week	3	1				4
Weekly	15	7	6	7	10	7
Every two weeks	3	4	5		10	12
Monthly	3	8	6	2	14	3
Other		3			1	3
Do not monitor	12	14	13	21	19	6
Do not have structure	65	60	70	68	46	63

--continued

**All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, Program States,
2005-06 Marketing Year, Fall and Winter (continued) ^{1 2}**

Practice	State						
	ND	OH	PA	SD	TX	WI	ALL
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Measured Grain Temperature:							
Concrete Silos:							
Daily		1		1		1	1
Twice a week	1	11					2
Weekly	6	20		5	13	2	10
Every two weeks		12		3	4		4
Monthly	17	6	3	3	13		7
Other	1					1	1
Do not monitor	17	5	11	11	13	6	9
Do not have structure	58	46	87	77	58	90	64
Steel Bins and Tanks:							
Daily	1	3	3	1		4	3
Twice a week	1	2			4	5	3
Weekly	12	21	5	8	8	10	15
Every two weeks	4	9	3	8	4	2	9
Monthly	27	21	7	30	17	14	20
Other	4	2	1	3	4	7	4
Do not monitor	43	17	52	43	50	45	34
Do not have structure	7	23	30	7	13	13	11
Other Structures:							
Daily	3		1	1			1
Twice a week	1	2					1
Weekly	12	2	1	8	8	4	7
Every two weeks	1		1	7		1	4
Monthly	25	1	7	20	4	2	8
Other	1	1	1	3		3	2
Do not monitor	38	15	37	38		23	21
Do not have structure	17	78	50	24	88	68	56

¹ Numbers for each type of structure may not add to 100 due to rounding.

² Blank cells represent no data reported for the item.

**All Grains Handled: Pest Management Practices,
Strategies Used in Determining Fumigation Schedule,
Program States, 2005-06 Marketing Year ¹**

Practice	State					
	IL	IA	KS	MI	MN	NE
	<i>Percent of Operations</i>	<i>Percent of Operations</i>	<i>Percent of Operations</i>	<i>Percent of Operations</i>	<i>Percent of Operations</i>	<i>Percent of Operations</i>
Preset calendar date	5	4	10	27	4	2
Bin samples	30	36	29	14	22	20
Combined with other handling operations	15	6	13	15	9	11
Insect trap counts	5	1	3			
Visual grain inspection	40	51	43	44	58	67
Other	5	1	1		8	

Practice	State						
	ND	OH	PA	SD	TX	WI	ALL
	<i>Percent of Operations</i>	<i>Percent of Operations</i>	<i>Percent of Operations</i>	<i>Percent of Operations</i>	<i>Percent of Operations</i>	<i>Percent of Operations</i>	<i>Percent of Operations</i>
Preset calendar date		24	6	4		7	6
Bin samples	25	6	13	33	35	32	28
Combined with other handling operations	5		31	14	35	7	12
Insect trap counts	5	6	6	8			3
Visual grain inspection	65	65	31	41	29	47	49
Other			13			8	2

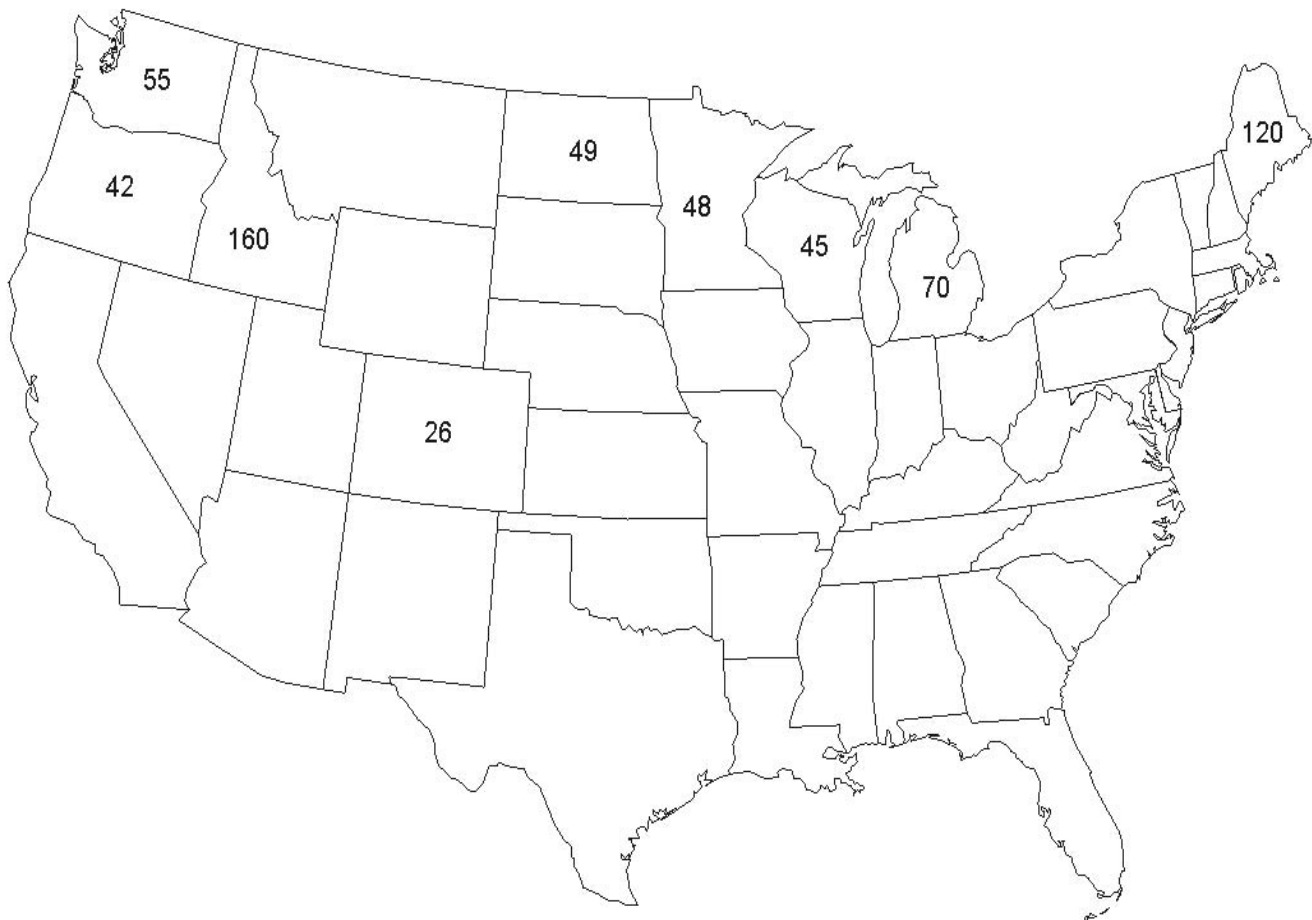
¹ Blank cells represent no data reported for the item.

Postharvest Chemical Use Estimates for Potatoes

Potato Overview: The agricultural chemical use estimates in this report are based on data compiled from the 2006 Potato Postharvest Chemical Use Survey. The Postharvest Survey was conducted for potatoes marketed from August 1, 2005 to July 31, 2006 which covers the 2005 crop. All results refer to pesticide applications and integrated pest management at off-farm warehouses, shippers, and processors and farms with storage facilities.

There were 615 warehouse, shipper, processor, and grower reports summarized across 9 States. The U.S. map below shows the number of summarized reports by State.

Number of Usable Potatoes Postharvest Reports 2005-06 Marketing Year



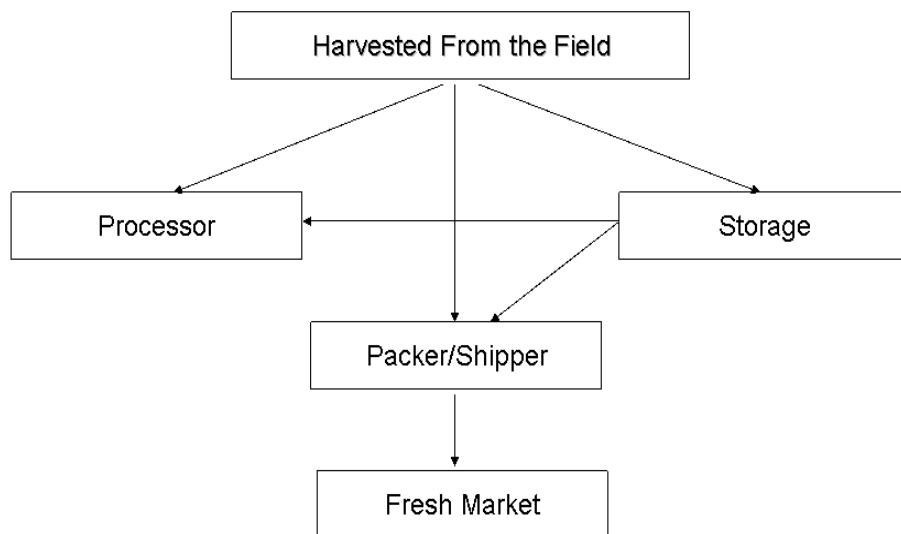
After harvest, potatoes are generally marketed to processors or to the fresh market through packers and shippers. This is largely based on variety. A portion of these potatoes go from the field to the storage facility. These are later marketed either to processors or to packers and shippers for the fresh market as the need arises. The diagram below demonstrates the traditional postharvest marketing channels for potatoes.

The totals for the Program States, as well as individual State totals where data permit, are published for the percent of potatoes treated, number of applications, rate per application, rate per marketing year, and the total amount of active ingredient applied. A table detailing total pesticide usage by class for the Program States is also included. Totals for the Program States and individual State totals are published for the percent of potatoes treated, number of applications, rate per application, rate per marketing year, and the total amount of active ingredient applied. The Program States include the major potato producing States.

Potatoes moving from a storage operator to a packer and shipper will be duplicated in the total amount handled. The intent of the survey was to obtain the entire amount of chemicals applied to the potatoes, so this duplication in quantity handled is necessary. No provision was made for cross-State movement. The State or region of origin of the potatoes was not part of the survey, so all of the potatoes handled in a Program State were included in this survey.

In addition to chemical applications, potato storage operators were also asked a series of questions pertaining to their pest management practices. Answers to these questions are summarized and included in the report. A copy of the survey instrument used to collect the data is also included.

Potato Postharvest Market Channels



Highlights for Potatoes

Pesticides: Chlorpropham, calcium hypochlorite, and naphthalene were the top three active ingredients used on potatoes, based on percent of volume treated. Chlorpropham and naphthalene are growth regulators used to inhibit sprout growth on potatoes. Calcium hypochlorite is a sanitizer used to disinfect potatoes.

Of the total chemical applications made to potatoes in 2005-06 in the 9 Program States, 70 percent was applied by gas/fog, 19 percent by direct spray, 8 percent by mist, 2 percent by seed treatment, and 1 percent by immersion.

Of the total chemical applications made to potatoes in 2005-06 in the 9 Program States, 8 percent was applied to potatoes that were not in storage, 5 percent before storage, 55 percent during storage, and 32 percent after storage.

Operations in the following States applied the listed chemicals to potatoes after harvest. However, there were an insufficient number of reports to publish State level usage data.

Colorado:	chlorine dioxide and thiabendazole (TBZ).
Idaho:	chlorine, peroxyacetic acid, phosphorus acid, pseudo-syring ESC-10, sodium hypochlorite, and thiabendazole (TBZ).
Maine:	calcium hypochlorite, fludioxonil, hydrogen peroxide (dioxide), methyl bromide, phosphorus acid, and sodium hypochlorite.
Michigan:	chlorine, fludioxonil, imidacloprid, mancozeb, naphthalene, pseudo-syring ESC-10, and thiophanate methyl.
Minnesota:	hydrogen peroxide (dioxide), peroxyacetic acid, and sodium hypochlorite.
North Dakota:	fludioxonil and mancozeb.
Oregon:	chlorine dioxide, naphthalene, and thiabendazole (TBZ)
Washington:	bacillus subtilis, chlorine dioxide, and hydrogen peroxide (dioxide).
Wisconsin:	chlorine dioxide and thiabendazole (TBZ).

Pest Management Practices: The pest management practices section of the questionnaire asked for mechanical devices and cleaning practices used at the operations surveyed. This section also asked the time intervals that stored potatoes were checked for insects and temperature and/or humidity.

**Potatoes: Postharvest Chemical Applications,
Percent Treated and Total Applied,
Program States, 2005-06 Marketing Year ¹**

State	Volume Handled <i>1,000 Cwt.</i>	Percent Treated and Total Applied					
		Insecticide		Fungicide		Other Chemical	
		<i>Percent</i>	<i>1,000 Lbs.</i>	<i>Percent</i>	<i>1,000 Lbs.</i>	<i>Percent</i>	<i>1,000 Lbs.</i>
CO	20,471			*	*	78.6	3.5
ID	165,139			0.6	1.0	58.8	86.9
ME	14,631	*	*	9.3	0.2	46.0	17.7
MI	8,686	*	*	*	*	55.6	6.0
MN	16,691					31.6	1.0
ND	35,247			*	*	32.5	17.4
OR	30,610			*	*	67.0	7.1
WA	126,779			*	*	43.9	18.4
WI	26,620			*	*	61.1	26.0
Program States	444,876	*	*	0.8	2.3	52.6	184.1

* Insufficient reports to publish data.

¹ Blank cells represent no data reported for the item.

**Potatoes: Postharvest Chemical Applications,
Program States, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Appli- cations	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Calcium hypochlorite	5.4	1.0	*	*	4.2
Chlorine dioxide	2.9	1.0	*	*	0.1
Chlorpropham	47.5	1.1	0.001	0.001	168.1
Fludioxinil	0.1	1.0	*	*	(¹)
Hydrogen peroxide	3.0	1.1	*	*	0.8
Napthalene	5.0	1.0	*	*	10.7
Sodium hypochlorite	0.3	1.3	*	*	(¹)
Thiabendazole (TBZ)	0.6	1.0	*	*	0.3

* Rate applied less than 0.0005 pounds.

¹ Total applied less than 50 pounds.

**Potatoes: Postharvest Chemical Applications,
Colorado, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Chlorpropham	65.4	1.2	*	*	1.5
Hydrogen peroxide	10.7	1.0	*	*	0.1
Napthalene	18.5	1.1	*	0.001	1.9

* Rate applied less than 0.0005 pounds.

**Potatoes: Postharvest Chemical Applications,
Idaho, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Calcium hypochlorite	14.4	1.0	*	*	4.2
Chlorine dioxide	4.5	1.0	*	*	0.1
Chlorpropham	50.6	1.1	0.001	0.001	74.7
Hydrogen peroxide	6.0	1.1	*	*	0.7
Napthalene	7.6	1.0	0.001	0.001	7.1

* Rate applied less than 0.0005 pounds.

**Potatoes: Postharvest Chemical Applications,
Maine, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Chlorpropham	43.9	1.0	0.003	0.003	17.7
Thiabendazole (TBZ)	9.1	1.0	*	*	0.1

* Rate applied less than 0.0005 pounds.

**Potatoes: Postharvest Chemical Applications,
Michigan, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Chlorpropham	52.6	1.0	0.001	0.001	6.0

**Potatoes: Postharvest Chemical Applications,
Minnesota, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Chlorpropham	31.5	1.0	*	*	1.0

* Rate applied less than 0.0005 pounds.

**Potatoes: Postharvest Chemical Applications,
North Dakota, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Chlorpropham	32.5	1.0	0.002	0.002	17.4

**Potatoes: Postharvest Chemical Applications,
Oregon, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Chlorpropham	56.5	1.0	*	*	6.8

* Rate applied less than 0.0005 pounds.

**Potatoes: Postharvest Chemical Applications,
Washington, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Chlorpropham	41.8	1.1	*	*	18.0
Napthalene	1.5	1.0	*	*	0.3

* Rate applied less than 0.0005 pounds.

**Potatoes: Postharvest Chemical Applications,
Wisconsin, 2005-06 Marketing Year**

Agricultural Chemical	Volume Treated	Applications	Rate per Application	Rate per Mkt. Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Cwt.</i>	<i>Pounds per Cwt.</i>	<i>1,000 Lbs</i>
Chlorpropham	61.0	1.0	0.001	0.002	24.9
Napthalene	6.0	1.0	0.001	0.001	1.2

**Potatoes: Postharvest Chemical Use,
Method of Application,
Program States, 2005-06 Marketing Year**

Method of Application	Potatoes
	<i>Percent</i>
Direct Spray	19
Gas/Fog	70
Immersion	1
Mist	8
Seed Treatment	2
Total	100

**Potatoes: Postharvest Chemical Use,
Timing of Application,
Program States, 2005-06 Marketing Year**

Timing of Application	Potatoes
	<i>Percent</i>
Not Stored	8
Before Storage	5
During Storage	55
After Storage	32
Total	100

**Potatoes: Pest Management Practices,
Percent of Operations Utilizing Practice,
Program States, 2005-06 Marketing Year ^{1 2}**

Practice	State				
	CO	ID	ME	MI	MN
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Mechanical Devices:					
Aeration controller	15	74	50	46	50
Re-circulation fumigation device	12	25	6	15	4
Cleaning Activities:					
Clean aeration ducts	85	78	69	64	85
Clean and disinfect potato warehouses	92	87	85	82	92
Clean and sanitize packing/processing facilities	96	79	82	80	73
Control vegetation	92	97	85	90	92
Pick up spilled potatoes/clean surrounding areas	96	96	85	92	89
Use pest/rodent control measures	92	56	70	78	79
Other activities					

Practice	State				
	ND	OR	WA	WI	ALL
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Mechanical Devices:					
Aeration controller	57	76	43	53	57
Re-circulation fumigation device	10	31	32	23	17
Cleaning Activities:					
Clean aeration ducts	90	95	73	87	77
Clean and disinfect potato warehouses	98	100	76	98	88
Clean and sanitize packing/processing facilities	88	93	71	84	81
Control vegetation	98	100	81	98	92
Pick up spilled potatoes/clean surrounding areas	98	100	79	100	92
Use pest/rodent control measures	83	45	69	75	68
Other activities				3	*

* Less than 0.5 %.

¹ Descriptions of these items are included in the Terms and Definitions section of this report on pages 30-32.

² Blank cells represent no data reported for the item.

**Potatoes: Pest Management Practices,
Percent of Operations Utilizing Practice,
Program States, 2005-06 Marketing Year^{1 2}**

Practice	State				
	CO	ID	ME	MI	MN
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Inspected for insects:					
Automatically	8	2	3	3	5
Hourly		*			
Daily	36	18	24	8	32
Twice a week	4	14	7	9	14
Weekly	20	39	31	18	25
Other		4	5	12	
Do not monitor	32	22	30	49	25
Measured Potato Temperature and/or Humidity:					
Automatically	40	7	12	28	23
Hourly		1		3	5
Daily	44	65	57	30	43
Twice a week	4	14	15	5	5
Weekly	8	10	16	8	5
Other		*			
Do not monitor	4	3	1	26	21

Practice	State				
	ND	OR	WA	WI	ALL
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Inspected for insects:					
Automatically			9		3
Hourly					*
Daily	35	21	15	17	22
Twice a week	6	7	13	7	10
Weekly	23	17	40	33	31
Other	2	24	2	5	5
Do not monitor	34	31	21	38	29
Measured Potato Temperature and/or Humidity:					
Automatically	11	19	33	25	16
Hourly	7		3		1
Daily	61	45	36	49	54
Twice a week	4	10	8	4	11
Weekly	13	17	11	5	11
Other		7		3	1
Do not monitor	5	2	9	15	7

* Less than 0.5%.

¹ Numbers for each type of structure may not add to 100 due to rounding.

² Blank cells represent no data reported for the item.

Survey Procedures: The population for the 2006 Oat Postharvest Chemical Use Survey included off-farm facilities that stored or handled oats during the 2005-06 marketing year. Off-farm facilities included mills, elevators, warehouses, terminals, and processors.

The population for the 2006 Potato Postharvest Chemical Use Survey included off-farm facilities that stored or handled potatoes and farms with storage facilities. Off-farm facilities included warehouses, shippers, and processors. Farms with on-farm storage were also included in the population.

Estimation Procedures: The chemical application data, reported by product names or trade names, were reviewed within State and across States for reasonableness and consistency. The reported data were compared with manufacturers' recommendations and data from other operations using the same product. Following this review, product information was converted to active ingredient level. Chemical data in this publication are reported at the active ingredient level.

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

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

Since all operations handling 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 percent of volume treated will be higher than the variability for estimates of application rates. This is because application rates have a narrower range of responses, which 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 a commonly used active ingredient such as chlorpropham, will exhibit less variability than a rarely used chemical like fludioxinil.

Non-sampling errors are errors that occur during a survey process, and unlike sampling variability, are difficult to measure. Non-sampling errors can occur in complete censuses as well as sample surveys. They are caused by the inability to obtain correct information from each person surveyed, differences in interpreting questions or definitions, and mistakes in coding or processing the data. Special efforts are taken at each step of the survey to minimize non-sampling errors.

Terms and Definitions

Active ingredient: 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: An automatic (usually computer-based) system that determines the optimum running time (considering humidity and temperature) for aeration fans on the grain or potato storage units. They can usually be set for drying or storage mode.

Agricultural chemicals: The active ingredients in pesticide products.

Application rates: The average number of pounds of a pesticide active ingredient applied to a volume of a commodity. 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: 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. Smaller particles, called fines, tend to concentrate in the center of the bin. This material compacts, restricting airflow which in turn affects grain temperatures and thus pests. For this reason, it is recommended that a portion of grain be 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 one to reach deep into a grain bin and sample grain that is normally out of reach to typical probe samplers.

Direct powdering: Usually applying a fungicide or insecticide that is a powder or dust directly on to the grain.

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 device that disperses the grain out from the fall line and fills the bin uniformly rather than forming a cone in the center of the bin.

Immersion: A pesticide application method where potatoes are totally covered with the pesticide product. Immersion includes treatment of potatoes in flumes and dump tanks.

Marketing year: Refers to the period immediately following harvest of the crop through the marketing or disposition of the crop.

Mixing pellets/tablets: A pesticide application method where the grain is mixed with pellets or tablets. The pellets or tablets contain phosphine (aluminum phosphate) and form a gas. Phosphine is used as an insecticidal fumigant.

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 three classes of pesticides presented in this report and the pests targeted are: insecticides - insects, fungicides - fungi, and other chemicals - other forms of life. Miticides and nematicides are included as insecticides while, growth regulators and sanitizers are included as other chemicals.

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.

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

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

Processor: Operations that change the form of the commodity. They 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, 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 or potato storage unit. The PVC runs from the top, down the sides, through the fan, and into the bottom of the grain storage unit. Rather than probing fumigant pellets into the grain mass from the surface of the grains, you can use a much lower concentration of fumigant and place the pellets in the PVC pipe from outside of the grain storage unit. 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 cable: Cable running from top to bottom in a storage unit that automatically measures grain temperature and outputs this information to a central system.

Top Dress: Spraying the top of the grain with a pesticide product. Its primary purpose is to treat the space between the top of the grain and the top of the bin for insects.

Trade name: A 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 amount of a commodity handled by the market segment. In this release, it is the total amount of a commodity summarized in the particular table that passed through the firms.

Volume treated: 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.

Pesticide Classes, Common Names, and Trade Names

The following is a list of the pesticide classes, common names, and trade names of active ingredients in this publication. The classes are Insecticide(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 postharvest commodities and NASS does not mean to promote the use of any specific trade name.

Classes	Common Names	Trade Names
I	Aluminum phosphide	Aluminum Phosphide 55%, Gastoxin Fumigation Tablets, Fumitoxin Tablets (55%) Fumitoxin Pellets, Phostoxin Pellets, Weevil-Cide 60% Pellets
F	Bacillus subtilis	Seranade Max, Serenada ASO
O	Calcium hypochlorite	HTH 300 Gram Tablets, Calcium Hypochlorite
O	Chlorine	Drench-Chlor
O	Chlorine dioxide	Oxine, OxyFresh, Purogene
O	Chlorpropham	IVI Sprout Block CIPC 98%,CIPC 7A, Decco 270 Aerosol, Decco 271 Aerosol, Decco 276 EC, Pin Nip 98.6, Sprout Nip 7A, Sprout Nip EC, Spud Nip-4, CIPC 2 EC, CIPC 98A, Pin Nip EC 2 EC, Shelf Life 2EC, IVI Sprout Block 2 EC, Pin Nip Technical Chlorpropham
I	Cyfluthrin	Tempo SC Ultra
F	Fludioxonil	Maxim MZ, Maxim 4FS
O	Hydrogen peroxide	OxiDate, Tsunami 100 aka Oxy-15, StorOx
I	Imidacloprid	Tops-MZ-Gaicho
I	Malathion	Malathion 57 EC, 6% Grain Protector, Malathion Spray
F	Mancozeb	Mancozeb 6% Firbark, Maxim MZ, Tops-Mz-Gaicho
I	Methoprene	Dicaon II
I	Methyl bromide	Meth-O-Gas 100, Methyl Bromide 100
O	Napthalene	1,4SHIP RTU Aerosol, 1,4Sight, Amplify Sprout Inhibitor
O	Peroxyacetic acid	Tsunami 100 aka Oxy-15
F	Phosphorous acid	Phostrol
F	Pseudo syring ESC-10	Bio-Save 10 LP
I	Silicon dioxide	Diatomaceous Earth Insecticide
O	Sodium hypochlorite	Agclor 310, Bleach, All Liquid Bleach, Sodium Hypochlorite Sanitizer, Chlorguard II Chlorinating Solution
F	Thiabendazole (TBZ)	Decco Salt No.19, Mertect 340-F
F	Thiophanate-methyl	Tops-MZ-Gaicho

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2006 OATS POSTHARVEST CHEMICAL USE SURVEY



**NATIONAL
AGRICULTURAL
STATISTICS
SERVICE**

U.S. Department of Agriculture
Rm. 5805, South Building
1400 Independence Avenue, S.W.
Washington, D.C. 20250-2000
Phone: 1-800-727-9540
Fax: 202-690-2090

VERSION 01	POID _____	SUBTRACT _____	T-TYPE 0	TABLE 000	LINE 00
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CONTACT RECORD		
DATE	TIME	NOTES

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 Oats 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 records during the interview.

BEGINNING TIME [MILITARY]

004 _____

Name _____
Address _____ _____
Phone(____) _____

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

1. Did this operation (as listed on the label) handle/receive any oats from July 1, 2005 through June 30, 2006?

YES - [Go to page 3.]

NO- [Go to page 2.]

Now I would like to ask about the oats handled/received from July 1, 2005 through June 30, 2006.

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

1. What was the total quantity of the oats handled/received from July 1, 2005 through June 30, 2006 on this operation?

UNIT CODES

- 1 - BUSHEL (32 lbs)
- 4 - SHORT TON (2,000 lbs)
- 5 - CWT. (100 lbs)
- 6 - POUNDS (lbs)
- 7 - METRIC TON (2,204.6 lbs)
- 9 - OTHER

QUANTITY	UNIT	If "9" enter POUNDS/UNIT
200	201	202
_____	_____	_____

a. Of the oats in item 1, how many **DID NOT** receive postharvest chemical applications while in storage, on the ground, in barges, ships, railcars or on trucks?

QUANTITY	OR	PERCENT OF TOTAL NOT TREATED
206		207
_____		_____

ENUMERATOR NOTE: [If postharvest chemicals were NOT applied, go to Section C, page 6.]
 [If postharvest chemicals were applied, go to page 4.]

COMPLETION CODE for
CHEMICAL EDIT TABLE

1 - Incomp/R	300
3 - Valid Zero	

Now I have some questions about postharvest chemical data on **oats** handled, stored, or processed by your operation from July 1, 2005 through June 30, 2006. I will be asking for chemical products 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 insure we do not miss any products used. Include oats treated while in storage or on the ground, or 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 2

- 1 - In Bound
- 2 - During Binning
- 3 - While Stored
- 4 - Out Bound

CHEMICAL PRODUCT NAME	LINE	1 What product was applied? <i>(in Respondent Booklet)</i>		2 When was this product applied? <i>[Enter code from above.]</i>	3 What was the total quantity of oats treated with this chemical <i>(in column 1)?</i>
		(a) COMMON OR TRADE NAME	(b) PRODUCT CODE		
	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 <i>(Liquid or Dry)</i>	Where Purchased <i>[Ask only if EPA No. cannot be reported.]</i>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

UNIT CODES FOR COLUMN 4
 1 - BUSHEL (32 lbs)
 4 - SHORT TON (2,000 lbs)
 5 - CWT. (100 lbs)
 6 - POUNDS (lbs)
 7 - METRIC TON (2,204.6 lbs)
 9 - OTHER

UNIT CODES FOR COLUMN 7
 1 - POUNDS
 12 - GALLONS
 13 - QUARTS
 14 - PINTS
 15 - OUNCES, LIQUID
 28 - OUNCES, DRY
 30 - GRAMS
 40 - KILOGRAMS
 41 - LITERS
 45 - PELLETS
 46 - TABLETS
 50 - OTHER (Specify _____)

APPLICATION CODES FOR COLUMN 8
 2 - SEED TREATMENT
 3 - DIRECT SPRAY
 5 - TOP DRESS
 7 - MIXING PELLETS/TABLETS
 9 - DIRECT POWDERING
 10 - RE-CIRCULATION
 11 - OTHER (Specify _____)

LINE	4	5	6	7	8
	[Enter Unit code from above.]	If column 4 unit equals "9" enter pounds per unit. [If unit is pounds, enter 1.0.]	What was the total amount of formulated product applied to the (column 3) amount of OATS?	[Enter unit code from above.]	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:

Now I have some questions about pest management practices you may have used at your facilities. Include **all grains** handled.

T-TYPE	TABLE	LINE
0	000	00

1. Did you use a ---

- | | CODE |
|---|------|
| a. power probe?
<input type="checkbox"/> YES – [Enter code 1 and continue.] <input type="checkbox"/> NO – [Continue.] | 650 |
| b. aeration controller?
<input type="checkbox"/> YES – [Enter code 1 and continue.] <input type="checkbox"/> NO – [Continue.] | 651 |
| c. phosphine pellet dispenser?
<input type="checkbox"/> YES – [Enter code 1 and continue.] <input type="checkbox"/> NO – [Continue.] | 652 |
| d. temperature cable in bins?
<input type="checkbox"/> YES – [Enter code 1 and continue.] <input type="checkbox"/> NO – [Continue.] | 653 |
| e. grain spreader in bins?
<input type="checkbox"/> YES – [Enter code 1 and continue.] <input type="checkbox"/> NO – [Continue.] | 654 |
| f. re-circulation fumigation device?
<input type="checkbox"/> YES – [Enter code 1 and continue.] <input type="checkbox"/> NO – [Continue.] | 655 |
| g. deep bin sampler?
<input type="checkbox"/> YES – [Enter code 1 and continue.] <input type="checkbox"/> NO – [Continue.] | 656 |
| h. protein analyzer?
<input type="checkbox"/> YES – [Enter code 1 and continue.] <input type="checkbox"/> NO – [Continue.] | 657 |

2. How often are your grain inspected for insects in your (concrete silos, steel tanks or bins, or other structures) (including wood bins) during the spring/summer and fall/winter months?

	SPRING/SUMMER	FALL/WINTER	CODE
Concrete Silos.	658	659	1 - DAILY 2 - TWICE A WEEK 3 - WEEKLY 4 - EVERY 2 WEEKS 5 - MONTHLY 6 - OTHER – (Specify _____) 7 - DO NOT MONITOR 8 - DO NOT HAVE STRUCTURE
Steel Tanks or Bins.	660	661	
Other Structures (include wood bins).	662	663	

3. How often do you measure grain temperature in your (concrete silos, steel tanks or bins, or other structures) (including wood bins) during the spring/summer and fall/winter months?

	SPRING/SUMMER	FALL/WINTER	CODE
Concrete Silos.	664	665	1 - DAILY 2 - TWICE A WEEK 3 - WEEKLY 4 - EVERY 2 WEEKS 5 - MONTHLY 6 - OTHER – (Specify _____) 7 - DO NOT MONITOR 8 - DO NOT HAVE STRUCTURE
Steel Tanks or Bins.	666	667	
Other Structures (include wood bins).	668	669	

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

Did you ---

a. sweep or vacuum, empty bins?

YES - [Enter code 1 and continue.]

NO - [Continue.]

CODE
670

b. hose down empty bins?

YES - [Enter code 1 and continue.]

NO - [Continue.]

671

c. fumigate empty bins?

YES - [Enter code 1 and continue.]

NO - [Continue.]

672

d. pick up spilled grain?

YES - [Enter code 1 and continue.]

NO - [Continue.]

673

e. control vegetation around bins?

YES - [Enter code 1 and continue.]

NO - [Continue.]

674

f. clean aeration ducts?

YES - [Enter code 1 and continue.]

NO - [Continue.]

675

g. core bins after filling?

YES - [Enter code 1 and continue.]

NO - [Continue.]

676

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.]

CODE
677

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

OFFICE USE
678
679
680
681

6. Did you fumigate grain?

YES - [Enter code 1 and continue.]

NO - Go to Conclusion.

CODE
682

a. What was the strategy(ies) you used to decide when to fumigate grain? (Enter up to two strategies.)

1 - PRESET CALENDAR DATE
2 - BIN SAMPLES
3 - COMBINED WITH OTHER HANDLING OPERATIONS
4 - INSECT TRAP COUNTS
5 - VISUAL GRAIN INSPECTION
6 - OTHER - (Describe _____)

CODE
683
684

COMPLETION CODE for PEST MANAGEMENT SECTION
1 - Incompl/R 600
3 - Valid Zero

CONCLUSION

SURVEY PUBLICATIONS

That completes the survey. Would you like to receive a copy of the results in the mail?
 (The survey results will also be available on the Internet at <http://www.nass.usda.gov/>)

YES – [Enter code 1 and continue.] **NO** – [Continue.]

[Thank the respondent then review this questionnaire.]

ENDING TIME [MILITARY]:

CODE

099

005

**OFFICE USE
TIME IN HOURS**

006

RECORDS USE

Did respondent use operation records to report chemical data?

YES – [Enter code 1 and continue.] **NO** – [Continue.]

064

SUPPLEMENTS USED

Record the total number of chemical treatment supplements used to complete this interview.

NUMBER

068

Reported by: _____ Telephone No. (____) _____

Response		Respondent		Mode		Enum ID	Eval	Date			R Unit	Adj Factor	Optional	Optional
								MM	DD	YY				
1-Comp	9901	1- Op/Mgr	9902	2-Tel	9903	098	100	9910			921	922	002	003
2-R		2-Sp		3-Face-to										
3-Inac		3-Acct/Bkpr		-Face										
4-Office Hold		4-Partner												
8-Known Zero		9-Other								06				
S/E Name														



2006 POTATO POSTHARVEST CHEMICAL USE SURVEY



**NATIONAL
AGRICULTURAL
STATISTICS
SERVICE**

U.S. Department of Agriculture
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1400 Independence Avenue, S.W.
Washington, D.C. 20250-2000
Phone: 1-800-727-9540
Fax: 202-690-2090

VERSION	POID	SUBTRACT	T-TYPE	TABLE	LINE
02	_____	___	0	000	00

CONTACT RECORD		
DATE	TIME	NOTES

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 Potato 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 records during the interview.

BEGINNING TIME [MILITARY]. 004 _____

Name _____

Address _____

Phone(____) _____

- [Name, address and partners verified and updated if necessary.]*
1. Did this operation *(as listed on the label)* store, pack/ship or process any potatoes from July 1, 2005 through June 30, 2006?
- YES** - *[Go to page 3.]*
- NO** - *[Go to page 2.]*

1. From July 1, 2005 through June 30, 2006, did your operation---

a. change potatoes to a processed product by cooking, drying, frying or freezing?

YES - [Enter code 1 and continue.] NO - [Continue.]

CODE
105

b. sort, grade, package or ship primarily fresh market (table stock) potatoes?

YES - [Enter code 1 and continue.] NO - [Continue.]

CODE
106

c. store fresh potatoes at about 40 to 55 degrees in an insulated, ventilated building or cellar for later use (after harvest) to be shipped or processed?

YES - [Enter code 1 and go to item 2.] NO - [Go to item 2.]

CODE
107

Now I would like to ask about the 2005 crop year potatoes.

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

UNIT CODES

- 4 - Short Ton (2,000 lbs)
- 5 - CWT. (100 lbs)/SACK
- 6 - Pounds (lbs)
- 7 - Metric Ton (2204.6)
- 8 - Barrel (165 lbs)
- 9 - Other

2. What was the total (table and/or processed) quantity of the 2005 crop potatoes stored, packed/shipped or processed on this operation? . . .

QUANTITY	UNIT	If "9" enter POUNDS/UNIT
200	201	202
<i>(If unit is pounds, enter 1.0)</i>		

a. Of the potatoes in item 1, how many **DID NOT** receive postharvest chemical applications?

QUANTITY	OR	PERCENT OF TOTAL NOT TREATED
206		207

UNIT CODES

- 4 - Short Ton (2,000 lbs)
- 5 - CWT. (100 lbs)/SACK
- 6 - Pounds (lbs)
- 7 - Metric Ton (2204.6 lbs)
- 8 - Barrel (165 lbs)
- 9 - Other

3. What is the total potato storage capacity of all facilities operated by this operation?

CAPACITY	UNIT	If "9" enter POUNDS/UNIT
203	204	205
<i>(If unit is pounds, enter 1.0.)</i>		

COMPLETION CODE for
CHEMICAL EDIT TABLE

1 - Incomp/R	300
3 - Valid Zero	

Now I will be collecting data on potatoes, only. I will need information for all products applied after harvest. This includes postharvest chemicals applied to all the June crop year potatoes stored, packed/shipped or processed by your operation. I will be asking for the specific product and amount used, quantity of potatoes treated 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.

OFFICE USE
LINES IN TABLE

T-TYPE	TABLE	LINE	399
3	001	99	

STORAGE CODES FOR COLUMN 2
 5 – Not Stored
 6 – Before Storage
 7 – During Storage
 8 – After Storage

CHEMICAL PRODUCT NAME	LINE	1 What product was applied? <i>(in Respondent Booklet)</i>		2 When was this product applied? <i>[Enter code from above.]</i>	3 What was the total quantity of 2005 crop year potatoes treated with this chemical <i>(column 1)?</i>
		(a) COMMON OR TRADE NAME	(b) PRODUCT CODE		
	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 <i>(Liquid or Dry)</i>	Where Purchased <i>[Ask only if EPA No. cannot be reported.]</i>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

UNIT CODES FOR COLUMN 4
 4 - SHORT TON (2,000 lbs)
 5 - CWT. (100 lbs)/SACK
 6 - POUNDS (lbs)
 7 - METRIC TON (2,204.6 lbs)
 8 - BARREL (165 lbs)
 9 - OTHER

UNIT CODES FOR COLUMN 7
 1 - POUNDS
 12 - GALLONS
 13 - QUARTS
 14 - PINTS
 15 - OUNCES, LIQUID
 28 - OUNCES, DRY
 30 - GRAMS
 40 - KILOGRAMS
 41 - LITERS
 45 - PELLETS
 46 - TABLETS
 50 - OTHER (Specify _____)

APPLICATION CODES FOR COLUMN 8
 1 - IMMERSION
 2 - SEED TREATMENT
 3 - DIRECT SPRAY
 6 - GAS/FOG
 8 - MIST
 11 - OTHER

LINE	4	5	6	7	8
	[Enter Unit code from above.]	If column 4 unit equals "9" enter pounds per unit. [If unit is pounds, enter 1.0.]	What was the total amount of formulated product applied to the (column 4) amount of potatoes?	[Enter unit code from above.]	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:

Now I have some questions about pest management practices you may have used at your facilities. Include **all potatoes** handled.

T-TYPE	TABLE	LINE
0	000	00

1. Did you use a ---

a. aeration controller?

YES – [Enter code 1 and continue.] NO – [Continue.].....

CODE

651

b. re-circulation fumigation device?

YES – [Enter code 1 and continue.] NO – [Continue.].....

CODE

655

2. How often are your potatoes inspected for insects in your potato storage warehouses?

- 1 - AUTOMATICALLY MONITORED
 - 2 - HOURLY
 - 3 - DAILY
 - 4 - TWICE A WEEK
 - 5 - WEEKLY
 - 6 - OTHER – (Specify _____)
 - 7 - DO NOT MONITOR

CODE

685

3. How often do you measure potato temperature and/or humidity in your potato storage warehouses?

- 1 - AUTOMATICALLY MONITORED
 - 2 - HOURLY
 - 3 - DAILY
 - 4 - TWICE A WEEK
 - 5 - WEEKLY
 - 6 - OTHER – (Specify _____)
 - 7 - DO NOT MONITOR

CODE

686

4. Which practices do you use at your potato storage processing facilities---

Did you ---

a. clean and disinfect potato warehouses?

YES - [Enter code 1 and continue.]

NO - [Continue.]

671

b. use pest/rodent control measures?

YES - [Enter code 1 and continue.]

NO - [Continue.]

672

c. pick up spilled potatoes/clean surrounding areas?

YES - [Enter code 1 and continue.]

NO - [Continue.]

673

d. control vegetation around warehouses?

YES - [Enter code 1 and continue.]

NO - [Continue.]

674

e. clean aeration ducts?

YES - [Enter code 1 and continue.]

NO - [Continue.]

675

f. clean or sanitize packing/processing facilities and equipment?

YES - [Enter code 1 and continue.]

NO - [Continue.]

676

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.]

677

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

OFFICE USE

678
679
680
681

COMPLETION CODE for PEST MANAGEMENT SECTION

1 - Incompl/R	600
3 - Valid Zero	

CONCLUSION

SURVEY PUBLICATIONS

That completes the survey. Would you like to receive a copy of the results in the mail?
 (The survey results will also be available on the Internet at <http://www.nass.usda.gov/>)

YES – [Enter code 1 and continue.] **NO** – [Continue.]

[Thank the respondent then review this questionnaire.]

ENDING TIME [MILITARY]

CODE

099

005

**OFFICE USE
TIME IN HOURS**

006

RECORDS USE

Did respondent use operation records to report chemical data?

YES – [Enter code 1 and continue.] **NO** – [Continue.]

064

SUPPLEMENTS USED

Record the total number of chemical treatment supplements used to complete this interview.

NUMBER

068

Reported by: _____ Telephone No. (____) _____

Response	9901	Respondent		Mode		Enum ID	Eval	Date			R Unit	Adj Factor	Optional	Optional
		1- Op/Mgr	9902	2-Tel	9903			MM	DD	YY				
1-Comp		1- Op/Mgr	9902	2-Tel	9903	098	100	9910			921	922	002	003
2-R		2-Sp		3-Face-to -Face										
3-Inac		3-Acct/Bkpr												
4-Office Hold		4-Partner												
8-Known Zero		9-Other												
								_ _ _ _ 06						
S/E Name														

Report Features

Released March 28, 2007, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. For information on "Agricultural Chemical Usage" call (202) 720-6146, office hours 7:30 a.m. to 4:00 p.m. ET.

General Questions should be directed to Chief, Environmental, Environmental, Economics, and Demographics Branch at (202)720-6146. Below are the commodity specialists to contact for additional information.

Kevin Barnes, Chief, Environmental, Economics, and Demographics Branch	(202) 720-6146
Mark R. Miller, Head, Environmental and Demographics Section	(202) 720-0684
Liana Cuffman, Environmental Statistician	(202) 690-0392

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