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Department of
Agriculture

National
Agricultural
Statistics
Service



Agricultural Chemical Usage Postharvest Applications - Oats and Potatoes Summary

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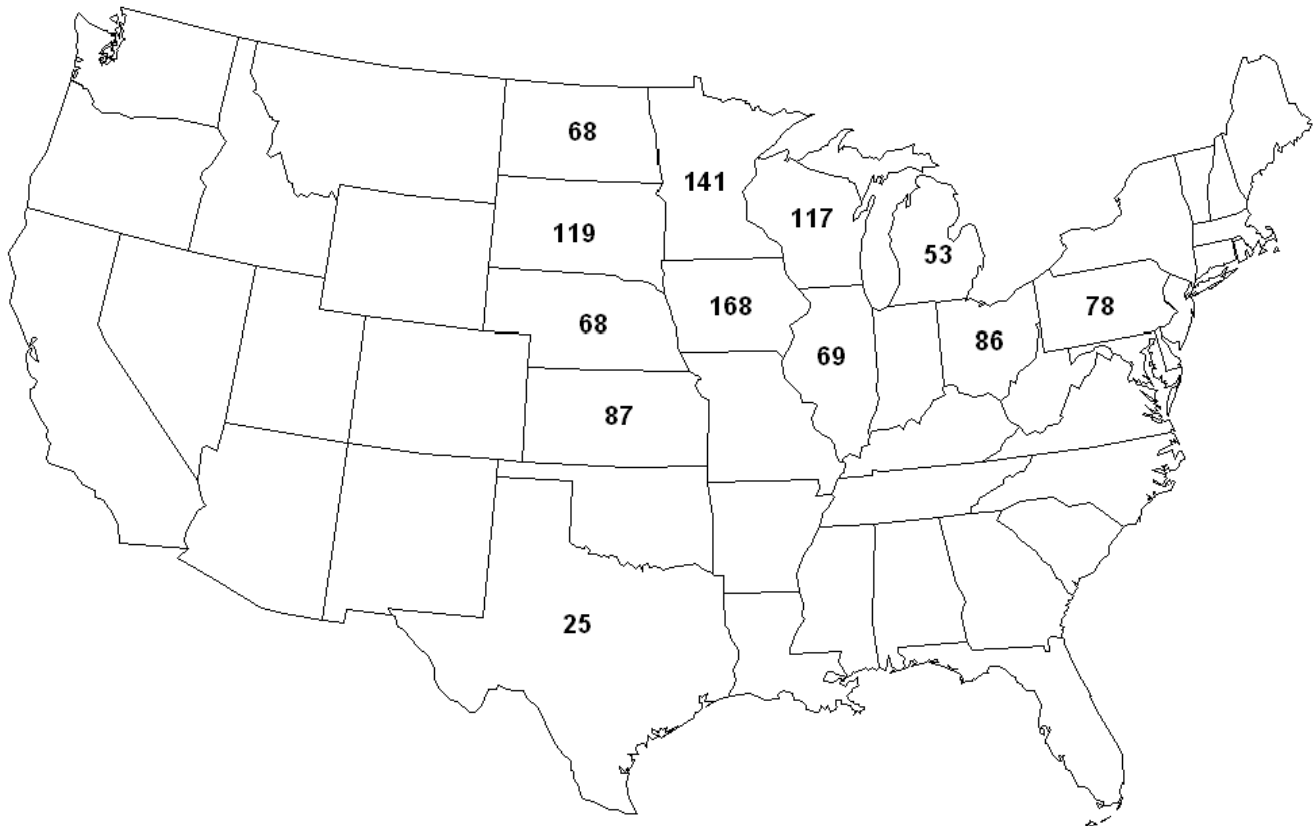
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Postharvest Chemical Use Estimates for Oats

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



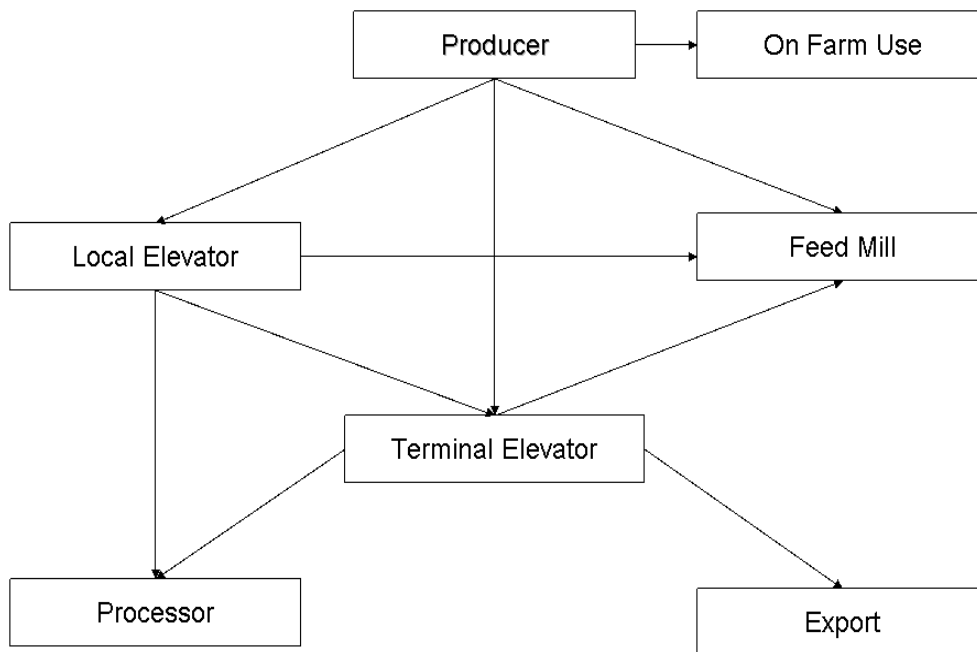
After harvest, oats are generally marketed through local and/or terminal elevators, except those which are used on the farm. The diagram below shows the traditional postharvest marketing channels for oats. Most oats are used for livestock feed. This grain may be pulled out of the marketing channel at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

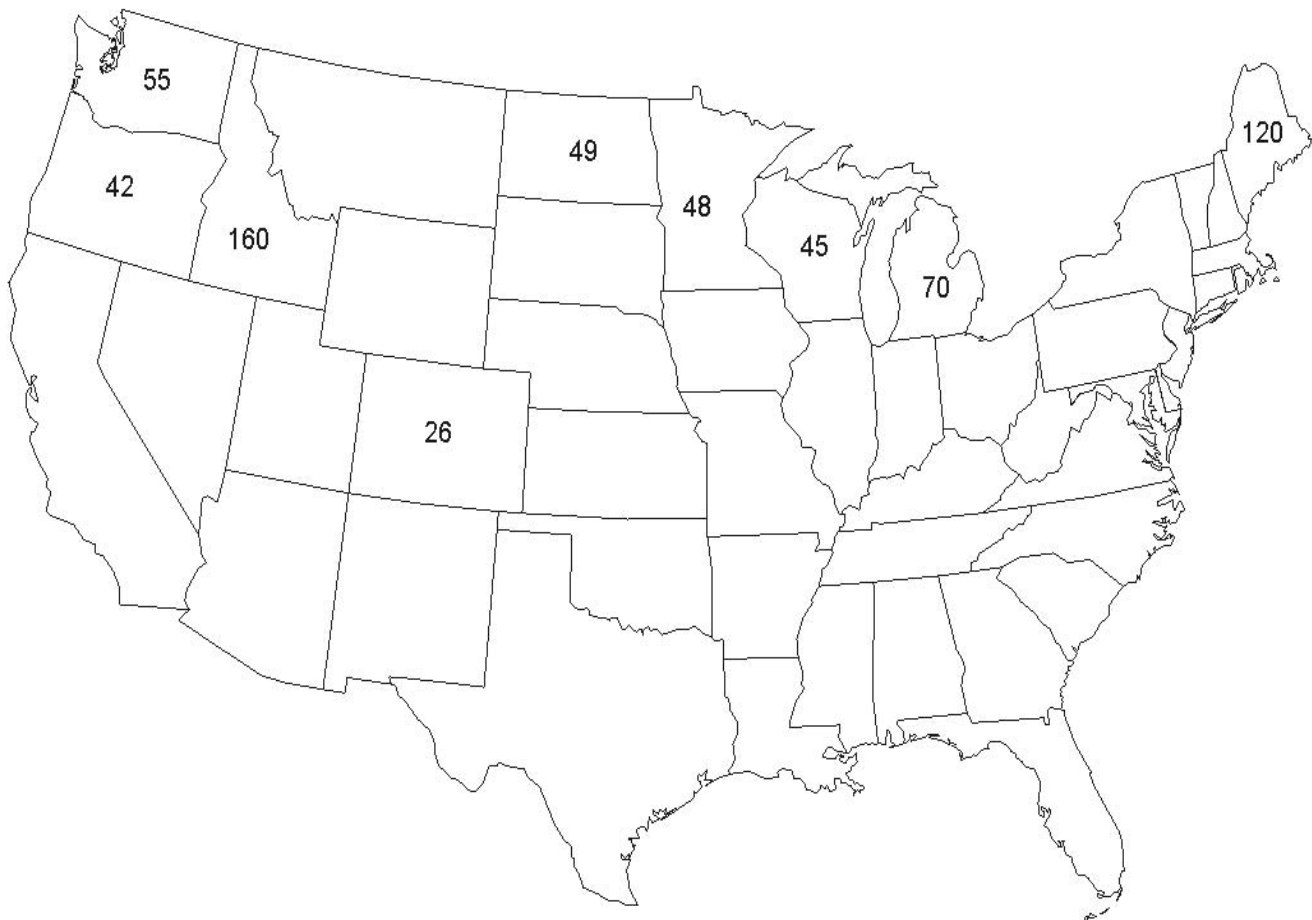
¹ Blank cells represent no data reported for the item.

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



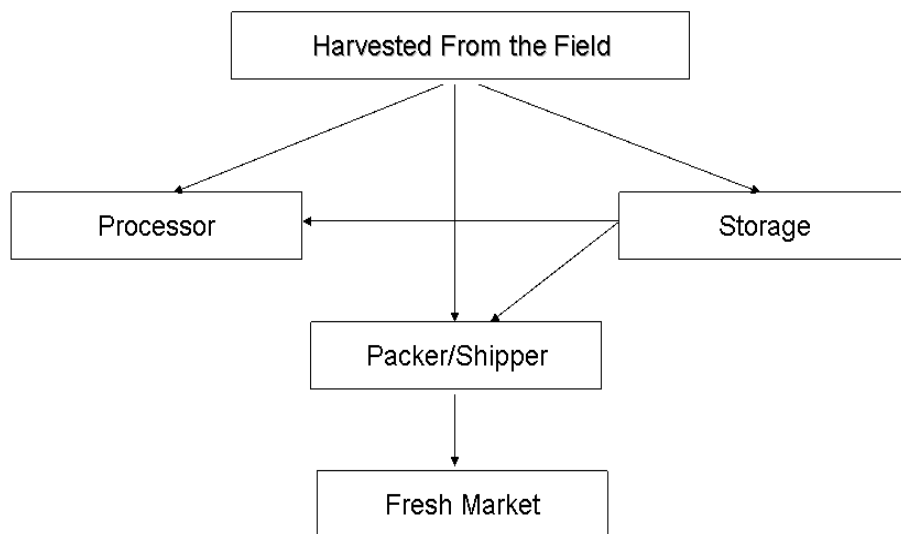
After harvest, potatoes are generally marketed to processors or to the fresh market through packers and shippers. This is largely based on variety. A portion of these potatoes go from the field to the storage facility. These are later marketed either to processors or to packers and shippers for the fresh 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**

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1400 Independence Avenue, S.W.
Washington, D.C. 20250-2000
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Fax: 202-690-2090

| | | | | | |
|----------------------|---------------|-------------------|--------------------|---------------------|-------------------|
| VERSION 01 | POID _____ | SUBTRACT _____ | T-TYPE 0 | TABLE 000 | LINE 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 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 | 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? | | 650 |
| <input type="checkbox"/> YES – [Enter code 1 and continue.] | <input type="checkbox"/> NO – [Continue.] | |
| b. aeration controller? | | 651 |
| <input type="checkbox"/> YES – [Enter code 1 and continue.] | <input type="checkbox"/> NO – [Continue.] | |
| c. phosphine pellet dispenser? | | 652 |
| <input type="checkbox"/> YES – [Enter code 1 and continue.] | <input type="checkbox"/> NO – [Continue.] | |
| d. temperature cable in bins? | | 653 |
| <input type="checkbox"/> YES – [Enter code 1 and continue.] | <input type="checkbox"/> NO – [Continue.] | |
| e. grain spreader in bins? | | 654 |
| <input type="checkbox"/> YES – [Enter code 1 and continue.] | <input type="checkbox"/> NO – [Continue.] | |
| f. re-circulation fumigation device? | | 655 |
| <input type="checkbox"/> YES – [Enter code 1 and continue.] | <input type="checkbox"/> NO – [Continue.] | |
| g. deep bin sampler? | | 656 |
| <input type="checkbox"/> YES – [Enter code 1 and continue.] | <input type="checkbox"/> NO – [Continue.] | |
| h. protein analyzer? | | 657 |
| <input type="checkbox"/> YES – [Enter code 1 and continue.] | <input type="checkbox"/> NO – [Continue.] | |

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
3 - Valid Zero
600

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**

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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 |
| | | (If unit is pounds, enter 1.0) |

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 |
| | | (If unit is pounds, enter 1.0.) |

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.]

CODE

| |
|-----|
| 099 |
|-----|

ENDING TIME [MILITARY]

| |
|-----|
| 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 | | | | | | | | | | | | | | |

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| | |
|--|----------------|
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