

Agricultural Chemical Usage

Postharvest Applications – Oats Summary

By Pamela K. Kanagy

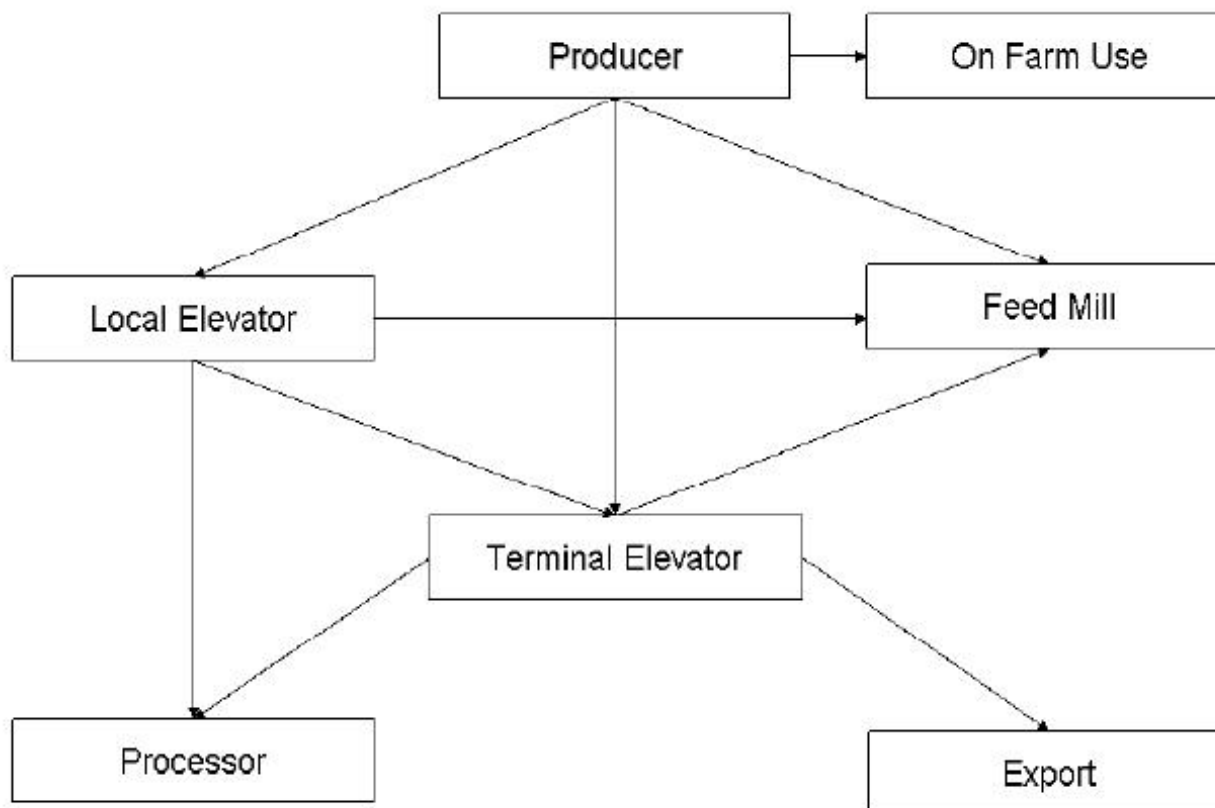
The following chemical use data is the most recent data available.

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.

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.

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.

Oat Postharvest Market Channels



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

Agricultural Chemical	Volume Treated	Applications	Rate Per Application	Rate Per Market Year	Total Applied
	<i>Percent</i>	<i>Number</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

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

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>
2,867	*	*				

* Insufficient reports to publish data. ¹ Blank cells represent no data reported for the item.

**Pennsylvania: Oats – All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, 2005-06 Marketing Year ¹**

Practice	Percent of Acres Receiving Practice
	<i>Percent</i>
Mechanical Devices:	
Aeration controller	13
Deep bin sampler	
Grain spreader	13
Phosphine pellet dispenser	4
Protein analyzer	1
Power probe	
Re-circulation fumigation device	
Temperature cable	1
Cleaning Activities:	
Clean aeration ducts	38
Control vegetation around bins	78
Core bins after filling	16
Fumigate empty bins	34
Hose down empty warehouse bins	6
Pick up spilled grain	87
Sweep or vacuum empty bins	81
Other cleaning activities	4

¹ Blank cells represent no data reported for the item.

Pennsylvania: Oats – All Grains Handled: Pest Management Practices,
Percent of Operations Utilizing Practice, 2005-06 Marketing Year^{1 2}

Practice	Spring and Summer	Fall and Winter
Inspected for insects:		
Concrete Silos:		
Daily	3	3
Twice a week		
Weekly	3	1
Every two weeks	1	1
Monthly	1	3
Other		
Do not monitor	3	3
Do not have structure	89	89
Steel Bins and Tanks:		
Daily	11	11
Twice a week	5	5
Weekly	17	15
Every two weeks	8	7
Monthly	13	16
Other	8	8
Do not monitor	8	9
Do not have structure	30	30
Other Structures:		
Daily	12	12
Twice a week	1	1
Weekly	11	8
Every two weeks	5	5
Monthly	9	11
Other	3	3
Do not monitor	9	11
Do not have structure	49	49

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.

**Pennsylvania: Oats – Pest Management Practices, Percent of Operations
Utilizing Practice, 2005-06 Marketing Year, Continued** ^{1 2}

Practice	Spring and Summer	Fall and Winter
Measured Grain Temperature:		
Concrete Silos:		
Daily		
Twice a week		
Weekly		
Every two weeks		
Monthly	3	3
Other		
Do not monitor	11	11
Do not have structure	87	87
Steel Bins and Tanks:		
Daily	3	3
Twice a week		
Weekly	8	5
Every two weeks	1	3
Monthly	7	7
Other	1	1
Do not monitor	50	52
Do not have structure	30	30
Other Structures:		
Daily	1	1
Twice a week		
Weekly	5	1
Every two weeks	1	1
Monthly	5	7
Other	1	1
Do not monitor	36	37
Do not have structure	49	50

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.

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

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.

Agricultural Chemical Usage

2005 Selected Field Crops

By Pamela K. Kanagy

**The following chemical use data is the most recent data available.
For the complete report, go to www.nass.usda.gov and click on "Environmental" in the gray column along the left-hand side.**

Oats

Pesticides, Fertilizers, Pest Management Practices:

Nitrogen: Pennsylvania farmers applied nitrogen to 90 percent of the 140,000 acres of oats planted in 2005. Total nitrogen applied to oats in 2005 was 4.5 million pounds. The average rate per application was 33 pounds per acre with the average number of applications of 1.1.

Potash: Oat growers in the State applied potash to 82 percent of the 140,000 acres planted in 2005. The total amount applied was 5.1 million pounds at a rate of 45 pounds per acre per crop year.

Phosphate: Phosphate was applied to 81 percent of Pennsylvania's oat acres planted in 2005. Total phosphate applied to oats in 2005 was 4.9 million pounds.

Pesticides: Herbicides were applied to 58 percent of the oat acreage planted. 2,4-D was the most common herbicide applied with a total amount applied of 9,000 pounds on 16 percent of Pennsylvania's oat acreage.

Pennsylvania: Oats - Planted Acreage, Pesticide,
Percent of Area Receiving Applications and Total Applied, 2005¹

Crop	Planted Acreage	Area Receiving and Total Applied					
		Herbicide		Insecticide		Fungicide	
	1,000 Acres	Percent	1,000 Lbs.	Percent	1,000 Lbs.	Percent	1,000 Lbs.
Oats	140	58	46	-	-	-	-

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

Pennsylvania: Oats - Fertilizer Primary Nutrient Applications, 2005

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate Per Application	Rate Per Crop Year	Total Applied
	1,000 Acres	Percent	Number	Pounds Per Acre		Million Lbs.
Oats	140					
Nitrogen		90	1.1	33	36	4.5
Phosphate		81	1.0	43	43	4.9
Potash		82	1.0	45	45	5.1
Sulfur		2	1.0	34	34	0.1

Pennsylvania: Oats - Agricultural Chemical Applications, 2005¹

Active Ingredient	Area Applied	Applications	Rate Per Application	Rate Per Crop Year	Total Applied
	Percent	Number	Pounds Per Acre	Pounds Per Acre	1,000 Lbs.
Herbicides					
2,4-D, dimeth. salt	16	1.0	0.378	0.387	9
2,4-DB, dimeth. salt	8	1.0	0.580	0.580	6
MCPA, dimethyl. salt	15	1.0	0.350	0.350	8

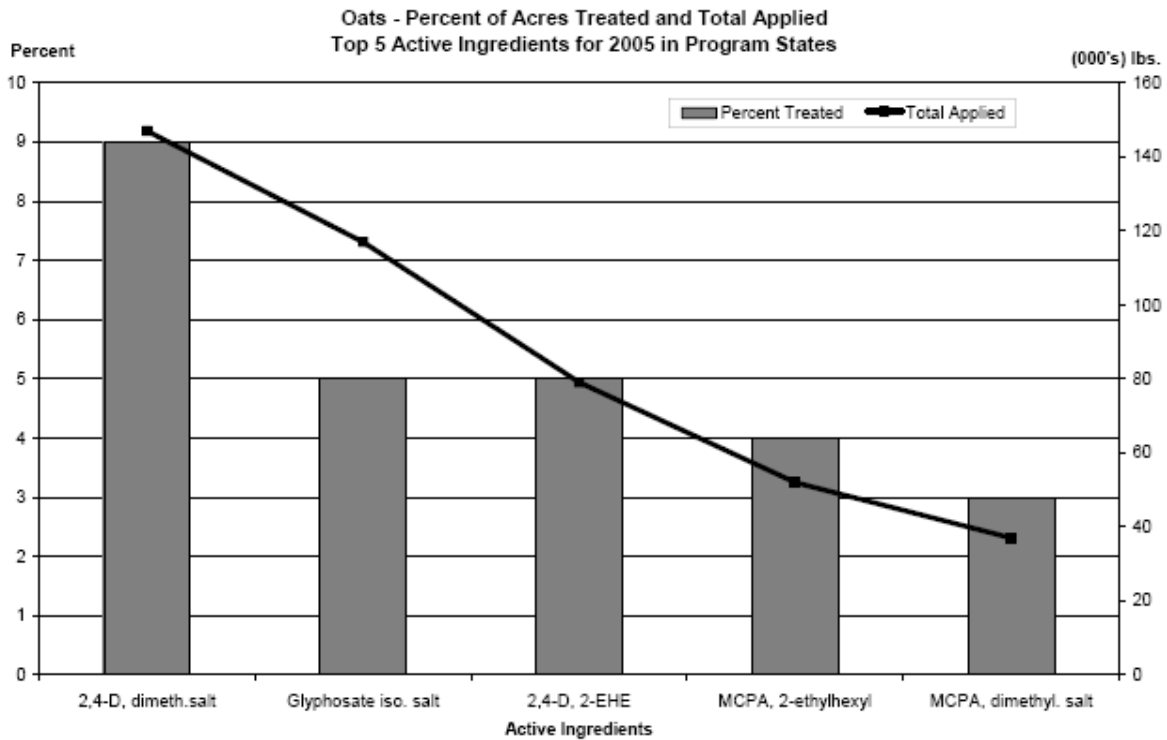
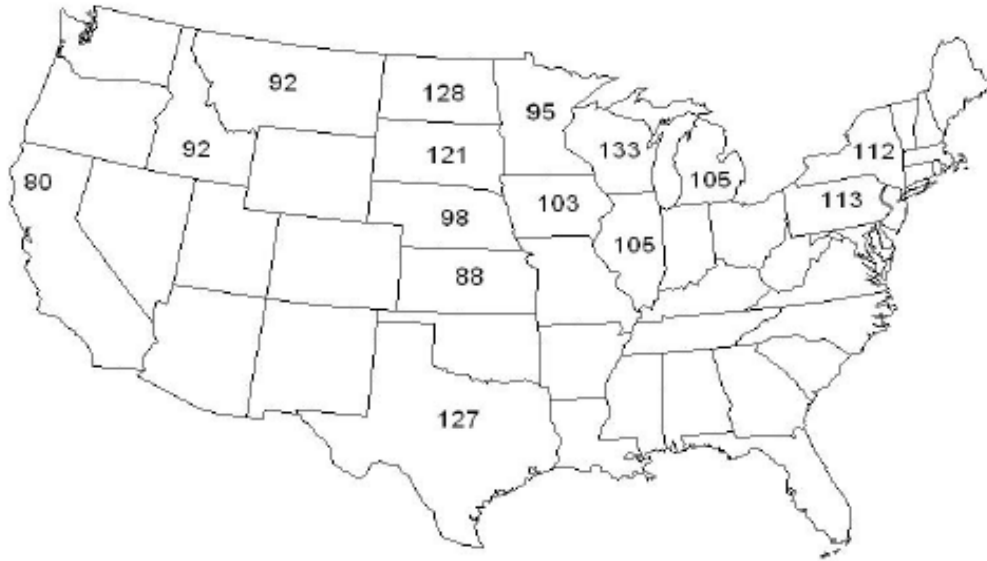
¹ Planted acreage in 2005 for Pennsylvania was 140,000 acres.

**Pennsylvania: Pest Management Practices - Percent of Acres Receiving Practice
and Percent of Farms Receiving Practice for Oats, 2005**

Practice	Percent of Acres Receiving Practice		Percent of Farms Receiving Practice	
	PA	US	PA	US
	<i>Percent of Acres</i>		<i>Percent of Farms</i>	
Prevention Practice:				
No-till or minimum till used to manage pests	21	38	16	37
Plow down crop residue	54	39	53	37
Remove crop residue	17	15	20	15
Clean implements after fieldwork	21	32	16	26
Field edges/etc. chopped, mowed/etc.	24	24	19	23
Water management practices		2		2
Avoidance Practices:				
Adjust planting/harvesting dates	11	12	11	11
Rotate crops to control pests	88	62	87	71
Crop variety chosen for pest resistance	4	11	2	11
Planting locations planned to avoid pests	12	10	12	10
Monitoring Practices:				
Scouting by general observation	42	40	42	42
Deliberate scouting activities	23	24	20	19
Field was not scouted	35	37	39	38
Scouted for pests	3	4	1	3
Scouting due to pest advisory warning		1		1
Scouting due to pest development model	*	3	*	2
Scouted for weeds	63	60	59	59
Scouting for weeds was done by:				
Operator, partner, or family member	92	88	96	92
An employee		5		1
Farm supply or chemical dealer	3	5	2	6
Indep. crop consultant or comm. scout	5	2	3	2
Scouted for insects or mites	29	38	26	33
Scouting for insects or mites was done by:				
Operator, partner, or family member	84	83	91	88
An employee		8		1
Farm supply or chemical dealer	7	6	4	9
Indep. crop consultant or comm. scout	9	3	5	2
Scouted for diseases	26	30	24	27
Scouting for diseases was done by:				
Operator, partner, or family member	83	82	92	87
An employee		9		1
Farm supply or chemical dealer	7	6	4	10
Indep. crop consultant or comm. scout	9	3	4	2
Field mapping of weed problems	4	4	3	4
Soil/plant tissue analysis to detect pests	5	2	2	1
Records kept to track pests	12	6	10	6
Weather monitoring	52	53	55	53
Suppression Practices:				
Biological pesticides				
Scouting used to make decisions	4	5	3	4
Maintain ground cover or physical barriers	31	33	31	36
Adjust planting methods	6	9	4	7
Alternate pesticides with different MOA	16	13	14	14

* Percentage is less than 0.5 percent.

Oats: Number of Usable Reports 2005



Corn

Pesticides, Fertilizers, Pest Management Practices:

Nitrogen: Pennsylvania farmers applied nitrogen to 88 percent of the 1,350,000 acres of corn planted in 2005. Total nitrogen applied to corn in 2005 was 108.4 million pounds. The average rate per application was 62 pounds per acre with the average number of applications of 1.5.

Phosphate: Phosphate was applied to 64 percent of Pennsylvania's corn acres planted in 2005. Total phosphate applied to corn in 2005 was 40.7 million pounds.

Potash: Corn growers in the State applied potash to 58 percent of the 1,350,000 acres planted in 2005. The total amount

applied was 37.4 million pounds at a rate of 44 pounds per acre per crop year.

Pesticides: Herbicides were applied to 97 percent of the corn acreage planted. The herbicide Atrazine was the leading agricultural chemical applied with a total applied of 1,291,000 pounds on 87 percent of Pennsylvania's corn acreage. Insecticides were applied to 21 percent of corn acreage in Pennsylvania for the 2005 crop year. Chlorpyrifos was the most common insecticide applied to corn with a total amount applied of 128,000 pounds on 9 percent of Pennsylvania's corn acreage.

Pennsylvania: Corn - Planted Acreage, Pesticide, Percent of Area Receiving Applications and Total Applied, 2005

Crop	Planted Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide ²		Fungicide		Other	
	1,000 Acres	Percent	1,000 Lbs.	Percent	1,000 Lbs.	Percent	1,000 Lbs.	Percent	1,000 Lbs.
Corn	1,350	97	3,346	21	154	-	-	-	-

Pennsylvania: Corn - Fertilizer Primary Nutrient Applications, 2005

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate Per Application	Rate Per Crop Year	Total Applied
	1,000 Acres	Percent	Number	Pounds per Acre	Pounds per Acre	Million Lbs.
Corn	1,350					
Nitrogen		88	1.5	62	92	108.4
Phosphate		64	1.1	44	47	40.7
Potash		58	1.1	44	48	37.4
Sulfur		6	1.1	33	37	3.0

Pennsylvania: Corn - Agricultural Chemical Applications 2005 ¹

Active Ingredient	Area Applied	Applications	Rate Per Application	Rate Per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	Pounds per Acre	1,000 Lbs.
Herbicides					
2,4-D, 2-EHE	5	1.0	0.597	0.597	40
2,4-D, dimeth.salt	6	1.2	0.623	0.731	63
Acetochlor	11	1.0	1.610	1.610	234
Atrazine	87	1.0	1.063	1.096	1,291
Dicamba, Dimet.salt	5	1.0	0.194	0.194	14
Dicamba, Sodium salt	2	1.0	0.106	0.106	2
Diflufenzopyr-sodium	2	1.0	0.042	0.042	1
Glyphosate iso. salt	28	1.1	0.766	0.832	319
Isoxaflutole	5	1.0	0.062	0.062	5
Mesotrione	26	1.0	0.136	0.136	47
Metolachlor	3	1.0	1.217	1.217	49
Nicosulfuron	13	1.0	0.020	0.020	4
Paraquat	9	1.0	0.458	0.458	54
Pendimethalin	26	1.0	0.928	0.928	324
Rimsulfuron	13	1.0	0.011	0.011	2
S-Metolachlor	48	1.0	1.220	1.220	783
Simazine	1	1.0	1.123	1.123	14
Insecticides					
Chlorpyrifos	9	1.0	1.018	1.018	128
Cyfluthrin	2	1.4	0.009	0.013	(²)
Lambda-cyhalothrin	2	1.0	0.014	0.014	(²)
Tefluthrin	7	1.0	0.097	0.097	9

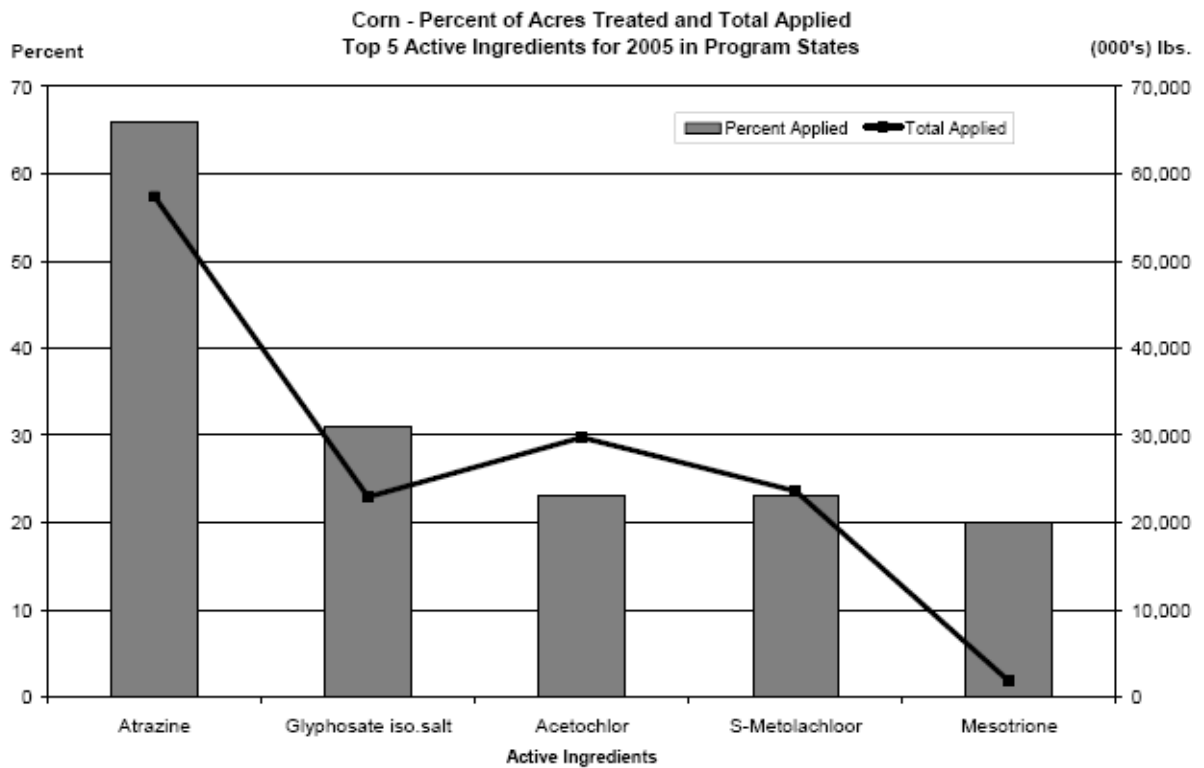
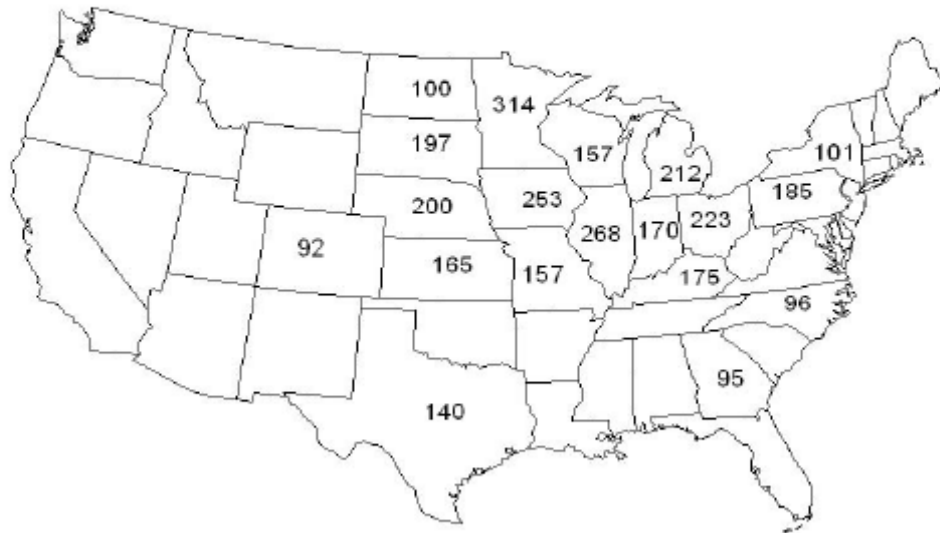
¹ Planted acres in 2003 for Pennsylvania were 1.4 million acres. ² Total applied is less than 500 lbs.

**Pennsylvania: Pest Management Practices - Percent of Acres Receiving Practice
and Percent of Farms Receiving Practice for Corn, 2005**

Practice	Percent of Acres Receiving Practice		Percent of Farms Receiving Practice	
	PA	US	PA	US
	<i>Percent of Acres</i>		<i>Percent of Farms</i>	
Prevention Practices:				
No-till or minimum till used to manage pests	68	62	63	61
Plow down crop residue	31	22	37	24
Remove crop residue	14	4	16	6
Clean implements after fieldwork	33	35	30	33
Field edges/etc. chopped, mowed/etc.	45	44	39	41
Water management practices	2	3	3	2
Avoidance Practices:				
Adjust planting/harvesting dates	4	10	5	9
Rotate crops to control pests	71	80	71	79
Crop variety chosen for pest resistance	51	52	42	44
Planting locations planned to avoid pests	11	16	15	14
Monitoring Practices:				
Scouting by general observation	39	41	46	42
Deliberate scouting activities	43	50	43	45
Field was not scouted	18	9	11	13
Scouted for pests	12	17	14	14
Scouting due to pest advisory warning	1	9	3	7
Scouting due to pest development model	8	8	10	7
Scouted for weeds	82	90	89	86
Scouting for weeds was done by:				
Operator, partner, or family member	79	79	78	81
An employee	1	1	2	1
Farm supply or chemical dealer	8	9	7	10
Indep. crop consultant or comm. scout	12	11	13	8
Scouted for insects or mites	49	67	53	59
Scouting for insects or mites was done by:				
Operator, partner, or family member	75	74	73	77
An employee	1	1	3	1
Farm supply or chemical dealer	7	10	4	11
Indep. crop consultant or comm. scout	16	15	20	11
Scouted for diseases	37	49	36	43
Scouting for diseases was done by:				
Operator, partner, or family member	73	71	69	75
An employee	1	1	4	1
Farm supply or chemical dealer	8	10	4	11
Indep. crop consultant or comm. scout	18	19	23	13
Field mapping of weed problems	11	11	14	10
Soil/plant tissue analysis to detect pests	6	5	3	4
Records kept to track pests	17	21	18	17
Weather monitoring	63	61	60	58
Suppression Practices:				
Biological pesticides	4	7	4	5
Scouting used to make decisions	17	23	20	18
Maintain ground cover or physical barriers	44	42	49	42
Adjust planting methods	6	14	8	12
Alternate pesticides with different MOA	29	29	23	28

* Percentage is less than 0.5 percent.

Corn: Number of Usable Reports 2005



Agricultural Chemical Usage, 2007

Fruit - Apples

By Sherry S. Deane

The following chemical use data is the most recent data available.

This release is a brief summary of data for on-farm use of commercial fertilizers, agricultural chemicals, and pest management practices from producers of apples for the 2007 crop year taken from the **Agricultural Chemical Usage 2007 Field Crops Summary** issued by the National Agricultural Statistics Service in Washington, D.C. The complete report, with many more details, including organic apple information, is available on the Internet at www.nass.usda.gov/Statistics_by_Subject/Environmental/; click on "Field Crops".

Information in this report is collected from the Agricultural Resources Management Survey (ARMS). The ARMS survey is conducted in cooperation with the Economic Research Service (ERS). Data collection occurred between October and December of 2007. The agricultural chemical use estimates in this report focus on the acreage treated and application rates for herbicides, insecticides, fungicides, and other pesticides. The survey also collected information about production practices; that information will be released by ERS at a later date at www.ers.usda.gov/data/costsandreturns/.

Herbicides were applied to 84 percent of the 21,500 bearing acres of apples in Pennsylvania. A total of 30,700 pounds was applied to that acreage. The active ingredient most commonly used was Glyphosate isopropylamine salt with a total application of 8,300 pounds. It was applied to 26 percent of the bearing acreage at a rate of 1.504 pounds per acre. The second-most used herbicide was Simazine. A total of 4,700 pounds was used on 11 percent of all bearing acres.

There was an average of 1.2 applications made at a rate of 1.710 pounds per acre.

Insecticides were applied to 98 percent of Pennsylvania's bearing apple acreage. A total of 235,200 pounds was applied. Petroleum oil was the active ingredient used in the largest volume. A total of 67,200 pounds was applied to 12 percent of all bearing acres. There was an average of 1.4 applications made at a rate of 19.510 pounds per acre. The insecticide most commonly used was Azinphos-methyl. It was applied to 70 percent of the bearing acreage at a rate of 1.226 pounds per acre, for a total of 18,500 pounds applied.

Fungicides were applied to 97 percent of the state's bearing apple acreage. A total application of 307,600 pounds was made. Captan was the most commonly used active ingredient with 109,100 pounds of the chemical applied to 80 percent of all bearing acres. An average of 4.8 applications was made at a rate of 1.326 pounds per acre. The second-most common fungicide in use was Mancozeb. A total of 82,500 pounds was applied to 68 percent of bearing acres. It was applied at a rate of 1.589 pounds per acre an average of 3.6 times.

Other chemicals were applied to 70 percent of bearing apple acreage in the state. A total of 4,200 pounds was applied. Ethephon was the most used active ingredient of these chemicals as a total of 2,000 pounds was applied to 27 percent of the state's bearing acreage. It was applied at a rate of 0.208 pounds per acre with an average of 1.6 applications.



Pennsylvania ¹ and Program States ²: Apples – Agricultural Chemical Applications, 2007

Active Ingredient	Area Applied		Applications		Rate per Application		Rate per Crop Year		Total Applied	
	PA	US ²	PA	US ²	PA	US ²	PA	US ²	PA	US ²
	Percent		Number		Pounds per Acre				1,000 lbs.	
Herbicides										
2,4-D dimeth. salt	15	8	1.1	1.3	1.120	0.977	1.260	1.280	4.1	29.7
Diuron	9	6	1.2	1.1	1.682	1.484	2.059	1.688	3.9	31.0
Glyphosate iso. salt	26	45	1.2	1.6	1.219	1.193	1.504	1.925	8.3	250.5
Paraquat	22	12	1.1	1.2	0.818	1.194	0.908	1.440	4.2	49.7
Pendimethalin	9	3	1.0	1.4	1.771	1.443	1.858	2.055	3.4	16.6
Simazine	11	10	1.2	1.3	1.710	1.421	1.989	1.843	4.7	52.1
Terbacil	2	1	1.0	1.0	0.603	0.826	0.603	0.826	0.2	2.0
Insecticides										
Abamectin	12	2	1.4	1.2	0.008	0.010	0.011	0.012	3/	0.1
Acetamiprid	29	37	1.6	1.7	0.141	0.147	0.224	0.254	1.4	27.0
Azinphos-methyl	70	62	2.8	2.5	0.433	0.832	1.226	2.045	18.5	363.3
Benzoic acid	54	19	1.9	1.4	0.133	0.197	0.252	0.273	2.9	15.2
Bt subsp. kurstaki	2	10	1.8	1.8	4/	4/	4/	4/	4/	4/
Carbaryl	44	52	1.4	1.4	1.005	1.115	1.402	1.566	13.3	233.8
Chlorpyrifos	36	59	1.7	1.2	0.941	1.502	1.567	1.732	12.0	292.2
Cyfluthrin	8	1	1.2	1.1	0.028	0.032	0.032	0.034	0.1	0.1
Diazinon	34	8	1.9	1.4	0.796	1.504	1.504	2.078	11.1	50.1
Endosulfan	2	9	1.2	1.2	2.302	1.458	2.690	1.723	1.2	43.3
Esfenvalerate	26	10	1.8	1.5	0.034	0.044	0.061	0.064	0.3	1.9
Ethion	3	5/	1.8	1.9	0.347	0.220	0.636	0.413	0.3	0.4
Etoxazole	10	3	1.0	1.0	0.050	0.085	0.050	0.088	0.1	0.7
Fenpropathrin	23	12	1.6	1.6	0.175	0.258	0.278	0.402	1.4	14.3
Gamma-cyhalothrin	20	5	1.4	2.0	0.010	0.015	0.014	0.030	0.1	0.4
Imidacloprid	21	25	1.4	1.5	0.036	0.086	0.051	0.128	0.2	9.3
Lambda-cyhalothrin	15	10	2.5	1.5	0.015	0.031	0.038	0.048	0.1	1.4
Methomyl	23	4	2.1	1.8	0.352	0.526	0.747	0.943	3.7	9.5
Novaluron	22	15	1.9	1.5	0.093	0.163	0.178	0.238	0.8	10.6
Petroleum distillate	28	58	1.5	1.8	7.101	17.808	10.610	31.410	64.5	5,281.8
Petroleum oil	12	4	1.4	1.5	19.510	14.180	26.389	20.719	67.2	262.0
Phosmet	39	25	3.3	2.2	1.098	1.609	3.592	3.561	30.3	255.0
Pyridaben	2	7	1.2	1.1	0.216	0.248	0.262	0.262	0.1	5.6
Thiacloprid	10	8	1.6	1.5	0.094	0.167	0.147	0.258	0.3	5.7
Fungicides										
Basic copper sulfate	11	3	1.5	1.2	1.041	1.239	1.542	1.523	3.7	13.3
Boscalid	13	14	1.4	1.4	0.013	0.014	0.018	0.020	0.1	0.8
Captan	80	34	4.8	5.2	1.326	1.988	6.350	10.274	109.1	1,005.5
Chlorothalonil	3	5/	1.0	1.2	0.708	1.303	0.708	1.537	0.4	1.2
Copper hydroxide	5	7	1.4	1.3	1.707	2.617	2.383	3.361	2.6	66.8
Copper oxychloride sulfate	3	2	1.0	1.5	2.534	1.529	2.534	2.264	1.8	13.3
Copper oxychloride	8	2	1.0	1.0	3.477	2.526	3.577	2.626	5.9	13.3
Cyprodinil	15	4	1.4	1.5	0.171	0.183	0.240	0.276	0.8	3.4
Dodine	3	3	1.3	1.5	0.490	0.800	0.659	1.223	0.5	9.4
Fenarimol	5	13	2.4	1.4	0.047	0.067	0.112	0.091	0.1	3.5
Kresoxim-methyl	56	13	1.8	1.7	0.081	0.111	0.148	0.190	1.8	7.0
Mancozeb	68	37	3.6	2.7	1.589	2.676	5.701	7.309	82.5	769.8
Metiram	23	7	3.0	3.1	1.818	2.586	5.533	8.078	26.9	172.7
Myclobutanil	33	36	2.1	1.5	0.115	0.128	0.247	0.191	1.7	19.5
Pyraclostrobin	13	14	1.4	1.4	0.001	0.001	0.001	0.001	3/	3/
Streptomycin	4	9	1.8	1.6	0.145	0.173	0.257	0.273	0.2	6.7
Thiophanate-methyl	60	18	2.7	2.5	0.320	0.375	0.873	0.939	11.2	49.8
Thiram	2	5/	2.9	2.6	5.188	4.592	15.194	11.709	5.0	5.6
Trifloxystrobin	24	20	1.9	1.6	0.051	0.066	0.100	0.103	0.5	6.0
Ziram	30	11	3.0	2.0	2.025	3.009	6.173	6.100	39.8	195.7

See footnote(s) at end of table.

—continued

Pennsylvania¹ and Program States²: Apples – Agricultural Chemical Applications, 2007 (continued)

Active Ingredient	Area Applied		Applications		Rate per Application		Rate per Crop Year		Total Applied	
	PA	US ²	PA	US ²	PA	US ²	PA	US ²	PA	US ²
	<i>Percent</i>		<i>Number</i>		<i>Pounds per Acre</i>		<i>Pounds per Acre</i>		<i>1,000 lbs.</i>	
Other Chemicals										
Benzyladenine	16	23	1.2	1.3	0.050	0.034	0.061	0.043	0.2	2.9
Butenoic Acid Hydro.	11	15	1.3	1.1	0.099	0.071	0.128	0.075	0.3	3.3
Chlorophacinone	3	2	1.0	1.1	0.001	0.001	0.001	0.001	^{3/}	^{3/}
Dodecadien-1-ol	2	2	1.8	1.3	0.010	0.012	0.017	0.016	^{3/}	0.1
Ethephon	27	13	1.6	1.3	0.208	0.485	0.335	0.615	2.0	23.3
Gibberellic acid	1	3	1.8	1.8	0.020	0.026	0.035	0.048	^{3/}	0.4
Gibberellins A4A7	4	18	1.0	1.0	0.016	0.024	0.016	0.024	^{3/}	1.2
NAA, Sodium	31	11	1.4	1.4	0.012	0.012	0.016	0.017	0.1	0.5
Prohexadione calcium	6	6	1.7	2.0	0.102	0.213	0.178	0.422	0.2	7.4
Spirodiclofen	17	7	1.6	1.2	0.145	0.208	0.232	0.239	0.9	4.8
Zinc phosphide	8	2	1.0	1.4	0.173	0.117	0.173	0.159	0.3	1.0

¹ Bearing acreage in 2007 for Pennsylvania is 21,500 acres.

² The 7 Program States consist of: California, Florida, Michigan, New York, North Carolina, Oregon, **Pennsylvania**, and Washington totaling 288,000 bearing acres.

³ Total applied is less than 50 lbs.

⁴ Rate and total applied are not available because amounts of active ingredient are not comparable between products.

⁵ Area applied is less than 0.5 percent.

**Pennsylvania and Program States¹: Apples – Fertilizer Use, 2007
Percent of Acres Treated and Total Applied**

State	Bearing Acreage	Percent of Acres Treated and Total Applied							
		Nitrogen		Phosphate		Potash		Sulfur	
	<i>Acres</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>	<i>Percent</i>	<i>1,000 Lbs.</i>
PA	21,500	45	287.0	29	182.2	29	234.5	^{2/}	^{2/}
US ¹	288,000	71	10,861.8	24	2,445.8	34	6,327.0	12	962.1

¹ The 7 Program States consist of: California, Florida, Michigan, New York, North Carolina, Oregon, **Pennsylvania**, and Washington.

² Insufficient reports to publish data for the fertilizer primary nutrient.

Pennsylvania and Program States¹: Apples – Fertilizer Primary Nutrient Applications, 2007

Primary Nutrient	Bearing Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 Lbs.</i>
Pennsylvania	21,500					
Nitrogen		45	1.2	25	30	287.0
Phosphate		29	1.1	27	29	182.2
Potash		29	1.1	35	38	234.5
Program States¹	288,000					
Nitrogen		71	1.5	35	53	10,861.8
Phosphate		24	1.5	24	36	2,445.8
Potash		34	1.4	47	65	6,327.0

¹ The 7 Program States consist of : California, Florida, Michigan, New York, North Carolina, Oregon, **Pennsylvania**, and Washington.

**Pest Management Practices – Percent of Acres Receiving Practice and
Percent of Farms Utilizing Practice, Apples, 2007**

Practice	Percent of Acres Receiving Practice		Percent of Farms Utilizing Practice	
	PA	Program States ¹ 2007	PA	Program States ¹ 2007
Prevention Practices:				
Remove crop residue, leaf litter, or remove prunings	51	67	65	62
Clean implements after block work	21	54	21	47
Chop, spray, mow or plow	87	85	88	80
Applied herbicides before weeds emerged	27	19	19	16
Applied herbicides after weeds emerged	75	56	66	53
Applied insecticides to this apple block	95	96	94	93
Maintain beneficial insect or vertebrate habitat	43	51	42	45
Protection of beneficial organisms	55	61	60	60
Non-chemical controls for deer	13	10	14	13
Avoidance Practices:				
Adjust harvesting dates	6	10	7	12
Crop variety chosen for pest resistance	12	8	9	9
Monitoring Practices:				
Deliberate scouting activities	91	88	87	85
Scouting by general observation	6	10	9	11
Scouted for pests	78	77	66	73
Scouting due to pest advisory warning	41	33	28	31
Scouting due to pest development model	49	51	41	44
Scouted for weeds	91	85	87	79
Scouting for weeds was done by:				
Operator, partner, or family member	55	42	61	51
Farm supply or chemical dealer	42	33	34	28
Scouted for insects and mites	96	98	94	95
Scouting for insects or mites was done by:				
Operator, partner, or family member	41	28	44	36
Farm supply or chemical dealer	53	42	48	40
Scouted for diseases	95	96	95	92
Scouting for diseases was done by:				
Operator, partner, or family member	42	30	46	39
Farm supply or chemical dealer	53	42	47	38
Records kept to track pests	63	68	52	62
Soil/plant tissue analysis to detect pests	23	18	11	16
Weather monitoring	94	86	92	85
Pesticide applicator training	61	56	52	54
Suppression Practices:				
Biological pest controls	65	63	51	53
Biological pesticides	35	43	33	42
Beneficial organisms	13	11	5	6
Scouting used to make decisions	75	62	67	61
Maintain ground cover or physical barriers	67	70	68	64
Living mulch	66	51	60	55
Alternate pesticides with different MOA	94	76	91	75

¹ The 7 Program States consist of: California, Florida, Michigan, New York, North Carolina, Oregon, **Pennsylvania**, and Washington.



Agricultural Chemical Usage, 2006

Vegetables - Snap Beans, Sweet Corn, Pumpkins

By Adam W. Pike

The following chemical use data is the most recent data available.

The following displays statistics for on-farm use of commercial fertilizers, agricultural chemicals, and integrated pest management practices from producers of targeted vegetable crops. Chemical application rates listed by active ingredient are also featured in this publication. The agricultural chemical use estimates in this report focus on the acreage treated with herbicides, insecticides, fungicides, and other pesticides for selected vegetable crops. Information is provided from a survey funded by the USDA Pesticide Data Program that targeted 23 vegetable crops and 19 states. Pennsylvania was surveyed for 3 different vegetable crops: snap beans for processing, fresh market sweet corn, and pumpkins.

Snap Beans, Processing: Growers of processed snap beans applied nitrogen to 96 percent of the crop's acreage. Phosphate and Potash were both applied to 81 percent of the acreage, while 30 percent of the acreage received sulfur applications. Herbicide applications were reported on 95 percent of the surveyed acres. The herbicides used most were **EPTC**, applied to 39 percent of the acreage, **Trifluralin**, used on 38 percent of the acreage, and **S-Metolachlor**, applied to 35 percent of the acreage. Insecticides were applied to 73 percent of the acres. Insecticides commonly used included **Bifenthrin** on 40 percent of the acreage, followed by **Acephate** and **Zetacypermethrin**, at 16 and 11 percent coverage, respectively. Fungicides were applied to 53 percent of the acres. **Thiophanate-methyl**, used on 37 percent of the acres, was the most widely used fungicide.

Corn, Sweet, Fresh: Nitrogen was applied to 95 percent of the 2006 fresh market sweet corn acreage in the following Program States: California, Colorado, Florida, Georgia, Illinois, Michigan, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Texas, and Wisconsin. Phosphate, potash, and sulfur were applied to 91, 85, and 27 percent of the acreage, respectively. Herbicides were applied to 83 percent of the fresh market sweet corn acres. **Atrazine** was used on 71 percent of the acreage, followed by **S-Metolachlor** on 39 percent.

Insecticides were applied to 88 percent of the acreage; **Lambda-cyhalothrin**, applied to 52 percent of the acreage; and **Chlorpyrifos** and **Thiodicarb** which were both applied to 23 percent of the acreage. Fungicides were used on 20 percent of the acres. The most commonly used fungicides were **Mancozeb** and **Propiconazole**, both of which were applied to 11 percent of the acreage.

Pumpkins: Nitrogen was applied to 90 percent of the pumpkin acreage in the Program States: California, Illinois, Michigan, Ohio, and Pennsylvania. Phosphate, potash, and sulfur applications were made to 63, 85, and 13 percent of the acreage, respectively. Herbicides were applied to 75 percent of the acres planted to pumpkins, while insecticide and fungicide applications were made to 79 and 75 percent of the acres, respectively. Major herbicides used included **Clomazone**, applied to 60 percent of the acreage, followed by **Ethalfuralin**, applied to 25 percent of the acreage. The more commonly used insecticides were **Bifenthrin**, **Carbaryl**, and **Endosulfan**, covering 40, 18, and 16 percent of the acreage, respectively. **Chlorothalonil** was the most widely used fungicide and was applied on 48 percent of the acreage. **Copper hydroxide** was the most utilized fungicide, applied to 28 percent of the acreage, followed by **Azoxystrobin**, on 22 percent of the acreage.

Pennsylvania: Vegetable Crops – Planted Acreage, Pesticide, Percent of Area Receiving Applications and Total Applied, 2006

Crop	Planted Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide		Fungicide		Other	
	<i>Acres</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>	<i>Percent</i>	<i>1,000 lbs</i>
Snap Beans, Processed	10,900	93	19.7	89	2.1	41	2.9	(¹)	
Sweet Corn, Fresh	20,200	95	77.3	73	10.6	22	0.6	(¹)	
Pumpkins	8,500	87	16.7	90	7.7	90	30.4	(¹)	

¹ Insufficient reports to publish data for pesticide class.

Pennsylvania: Fertilizer Primary Nutrient Applications, 2006

Primary Nutrient	Planted Acreage	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Acres</i>	<i>Percent</i>	<i>Number</i>	<i>Lbs per Acre</i>	<i>Lbs per Acre</i>	<i>1,000 lbs</i>
Snap Bean, Processed	10,900					
Nitrogen		98	5.9	28	164	1,755.6
Phosphate		98	6.6	39	258	2,766.3
Potash		98	5.7	43	248	2,655.7
Sulfur		36	5.0	10	48	188.9
Sweet Corn, Fresh	20,200					
Nitrogen		99	9.1	46	418	8,321.8
Phosphate		92	6.5	54	348	6,486.5
Potash		93	6.5	39	250	4,665.9
Sulfur		6	5.8	12	67	78.4
Pumpkins	8,500					
Nitrogen		88	6.4	65	413	3,085.0
Phosphate		82	5.9	68	402	2,799.9
Potash		84	5.9	68	398	2,832.7
Sulfur		4	5.0	8	40	14.2

Pennsylvania: Snap Beans, Processed – Agricultural Chemical Applications, 2006 ¹

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 lbs</i>
Herbicides					
Bentazon	13	1.0	0.539	0.539	0.7
Fomesafen	13	1.2	0.255	0.297	0.4
Glyphosate iso. salt	45	1.0	1.058	1.086	5.3
Halosulfuron	59	1.0	0.029	0.029	0.2
S-Metolachlor	88	1.0	1.023	1.071	10.2
Sethoxydim	5	1.3	0.338	0.443	0.3
Insecticides					
Acephate	21	1.1	0.591	0.629	1.5
Bifenthrin	28	1.0	0.062	0.064	0.2
Fungicides					
Boscalid	22	1.0	0.313	0.320	0.8

¹ Planted acreage in 2006 for Pennsylvania was 10,900 acres.

Pennsylvania: Sweet Corn, Fresh – Agricultural Chemical Applications, 2006 ¹

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 lbs</i>
Herbicides					
2, 4-D, dimeth. Salt	2	1.0	0.505	0.505	0.2
Atrazine	70	1.1	1.524	1.666	23.4
Bentazon	2	1.0	0.654	0.654	0.3
Carfentrazone-ethyl	4	1.0	0.008	0.008	(²)
Glyphosate iso. salt	6	1.0	1.105	1.105	1.4
Halosulfuron	3	1.0	0.028	0.028	(²)
Mesotrione	25	1.0	0.121	0.121	0.6
Pendimethalin	37	1.0	1.603	1.609	12.1
S-Metochlor	62	1.7	1.815	2.998	37.4

Table continued on next page.

Pennsylvania: Sweet Corn, Fresh – Agricultural Chemical Applications, 2006 ¹ (continued)

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 lbs</i>
Insecticides					
Chlorpyrifos	5	1.6	0.715	1.147	1.2
Cyfluthrin	11	1.8	0.022	0.039	0.1
Endosulfan	4	1.2	0.870	1.081	0.8
Esfenvalerate	5	1.1	0.039	0.044	(²)
Lambda-cyhalothrin	56	2.5	0.027	0.068	0.8
Methomyl	20	2.2	0.381	0.831	3.3
Permethrin	9	1.8	0.131	0.239	0.4
Tebupirimphos	7	1.0	0.183	0.183	0.3
Tefluthrin	2	1.0	0.031	0.032	(²)
Thiodicarb	7	1.7	0.620	1.044	1.5
Zeta-cypermethrin	2	2.9	0.024	0.071	(²)
Fungicides					
Propiconazole	17	1.0	0.082	0.082	0.3

¹ Planted acreage in 2006 for Pennsylvania was 20,200 acres

² Total applied is less than 50 lbs.

Pennsylvania: Pumpkins – Agricultural Chemical Applications, 2006 ¹

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 lbs</i>
Herbicides					
Clethodim	5	1.0	0.101	0.101	(²)
Clomazone	78	1.0	0.349	0.350	2.3
Ethalfuralin	65	1.0	0.783	0.784	4.4
Glyphosate iso. salt	52	1.0	1.428	1.480	6.6
Halosulfuron	15	1.1	0.034	0.037	(²)
S-Metolachlor	10	2.4	1.032	2.455	2.1
Insecticides					
Bifenthrin	49	2.0	0.049	0.096	0.4
Endosulfan	59	1.1	0.752	0.855	4.3
Esfenvalerate	5	1.9	0.035	0.067	(²)
Imidacloprid	11	1.1	0.134	0.149	0.1
Lambda-cyhalothrin	11	2.1	0.024	0.050	(²)
Methomyl	12	2.2	0.395	0.879	0.9
Permethrin	7	2.9	0.157	0.456	0.3
Fungicides					
Azoxystrobin	16	1.5	0.153	0.234	0.3
Boscalid	52	1.1	0.015	0.017	0.1
Chlorothalonil	83	1.8	1.434	2.586	18.2
Copper hydroxide	14	1.6	0.599	0.936	1.1
Copper resinate	5	2.9	0.061	0.176	0.1
Cymoxanil	9	2.1	0.102	0.215	0.2
Famoxadone	9	2.1	0.098	0.205	0.2
Mancozeb	15	1.5	1.587	2.420	3.1
Maneb	4	1.0	1.535	1.565	0.5
Mefenoxam	4	1.5	0.839	1.269	0.4
Myclobutanil	13	2.1	0.101	0.217	0.2
Pyraclostrobin	55	2.1	0.072	0.149	0.7

¹ Planted acreage in 2006 for Pennsylvania was 8,500 acres.

² Total applied is less than 50 lbs.

**Pest Management Practices – Percent of Farms & Percent of Acres
Utilizing Practice, Vegetables, 2006**

Practice	Percent of Farms Utilizing Practice		Percent of Acres Utilizing Practice	
	PA	Program States ¹ 2006	PA	Program States ¹ 2006
Prevention Practices:				
No-till or minimum till used to manage pests	35	25	48	28
Remove or plow down crop residue	66	63	68	71
Clean implements after field work	47	55	60	68
Field cultivated for weed control	56	70	43	76
Field edges/etc. chopped, mowed/etc.	61	59	56	72
Water management practices	28	42	39	52
Avoidance Practices:				
Adjust planting/harvesting dates	18	18	15	26
Rotate crops to control pests	87	79	89	81
Planting locations planned to avoid pests	48	35	54	37
Grow trap crop to control insects	4	5	8	8
Crop variety chosen for pest resistance	48	37	51	43
Monitoring Practices:				
Scouting by general observation	69	72	74	87
Deliberate scouting activities	27	23	24	10
Field was not scouted	4	5	2	3
Established scouting process/insect trap used	30	37	40	60
Scouting due to pest advisory warning	24	16	24	23
Scouting due to pest development model	25	17	27	25
Scouted for weeds	93	91	97	94
Scouting for weeds was done by:				
Operator, partner, or family member	87	73	74	40
An employee	2	3	2	9
Farm supply or chemical dealer	4	6	10	15
Indep. crop consultant or comm.. scout	6	8	15	25
Other	1	10	(²)	10
Scouted for insects and mites	93	93	95	97
Scouting for insects or mites was done by:				
Operator, partner, or family member	85	65	72	31
An employee	2	3	2	9
Farm supply or chemical dealer	4	8	10	17
Indep. crop consultant or comm.. scout	8	10	16	29
Other	1	14	(²)	14
Scouted diseases	87	90	85	96
Scouting for diseases was done by:				
Operator, partner, or family member	85	66	69	31
An employee	2	3	2	8
Farm supply or chemical dealer	5	8	12	17
Indep. crop consultant or comm.. scout	8	10	17	30
Other	1	14	(²)	14
Records kept to track pests	30	37	38	62
Field mapping of pest problem	13	17	26	35
Soil/plant tissue analysis to detect pests	9	16	15	45
Weather monitoring	74	59	81	78
Biological pest controls	8	7	7	15
Suppression Practices:				
Biological pesticides	8	10	5	28
Beneficial organisms	1	6	1	11
Scouting used to make decisions	30	35	38	53
Maintain ground cover or physical barriers	61	43	75	45
Adjusted planting methods	20	24	23	23
Alternate pesticide with different MOA	51	36	49	63

¹ The 19 Program States include Arizona, California, Colorado, Florida, Georgia, Illinois, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Oregon, **Pennsylvania**, South Carolina, Tennessee, Texas, Washington, and Wisconsin. ² Percentage is less than 0.5.

Agricultural Chemical Usage

2007 Nursery & Floriculture

By Pamela K. Kanagy

*The following chemical use data is the most recent data available.
For the complete report, search on the keywords 'Agricultural chemical usage'
at www.nass.usda.gov.*

This report is the third chemical use survey issued by the National Agricultural Statistics Service on nursery and floriculture crops. The publication is part of a series on "Agricultural Chemical Usage", which also provides statistics for on-farm chemical usage for field crops, fruits, livestock, and vegetables. The last chemical use survey for nursery and floriculture crops was published in 2003 for the 2002 production year. NASS collects on-farm chemical use data to enhance the quality of information used in the evaluation of issues related to agricultural chemicals. Pest management data are used to measure Integrated Pest Management (IPM) adoption levels and evaluate the impact of alternative pesticide regulations, policies, and practices. This report includes all chemical use in calendar year 2006 related to the production of nursery and floriculture crops in 6 major producing states: California, Florida, Michigan, Oregon, Pennsylvania, and Texas. There were 1,908 reports (201,631 chemical applications) summarized for the 2006 Nursery and Floriculture Chemical Use Survey.

Chemical Use Highlights: There were 374 active ingredients reported as being used by nursery and floriculture operations in the 6 Program States in 2006. A total of 5.59 million pounds of active ingredient, up 17 percent from 4.77 million in 2003, was applied in the Program States: California, Florida, Michigan, Oregon, Pennsylvania, and Texas. Fungicides accounted for 34 percent (1.89 million pounds) of the total chemicals applied. Insecticides - 18 percent (988,600 pounds); herbicides - 17 percent (984 thousand pounds); and other chemicals (growth regulators, rooting compounds, fumigants, disinfectants, etc.) accounted for 31 percent (1.78 million pounds) of the total.

The most commonly used pesticide by percent of operations within the production categories were as follows:

All Nursery: Herbicides, Simazine - 23 percent; insecticides, Carbaryl - 32 percent; Fungicides, Chlorothalonil - 63 percent; and Other Chemicals, Hydrogen peroxide and Pelargonic acid - 1 percent.

Transplants for Commercial Vegetable and Strawberry Production: Herbicides, Glyphosate, Atrazine and S-Metolachlor - 37 percent; Insecticides, Imidacloprid and Potassium salts, - 44 percent; Fungicides, Chlorothalonil - 56 percent; and Other Chemicals, Chloromequat chloride, Daminozide, Ethephon and Paclobutrazol - 5 percent.

Nursery Propagation or Lining-out Stock: Herbicides, Glyphosate - 33 percent; Insecticides, Chlorfenapyr - 23 percent; Fungicides, Thiophanate - 7 percent.

Broadleaf Evergreens: Herbicides, Isoxaben - 82 percent; Insecticides, Acephate - 14 percent; Fungicides, Azoxystrobin, Chlorothalonil, Copper hydroxide, Copper sulfate, Fosetyl-al, Mancozeb, Phosphorous acid, Propiconazole, Thiophanate, Thionphanate-methyl - 2 percent; and Other Chemicals, Hydrogen peroxide - 2 percent.

Coniferous Evergreens: Herbicides, Glyphosate - 52 percent; Insecticides, Chlorpyrifos - 40 percent; and Fungicides, Chlorothalonil - 45 percent.

Christmas Trees: Herbicides, Glyphosate - 64 percent; Insecticides, Dimethoate - 43 percent; Fungicides, Chlorothalonil - 95 percent.

All Floriculture: Herbicides, Glyphosate iso. salt - 6 percent; Insecticides, Imidacloprid - 51 percent; Fungicides, Etridiazole - 32 percent; and Other Chemicals, Ethephon - 26 percent.

Cut Flowers: Herbicides, Glyphosate iso. salt, Isoxaben, Trifluralin - 28 percent; Insecticides, Diazinon - 35 percent; Fungicides, Chlorothalonil and Mancozeb - 40 percent; and Other Chemicals, Daminozide - 20 percent.

Flowering Plants: Herbicides, Glyphosate iso. salt - 5 percent; Insecticides, Imidacloprid - 40 percent; Fungicides, Etridiazole - 26 percent; and Other Chemicals, Ethephon - 31 percent.

Bedding Plants: Herbicides, Glyphosate iso. salt - 4 percent; Insecticides, Imidacloprid - 41 percent, Spinosad - 42 percent; Fungicides, Etridiazole - 30 percent; and Other Chemicals, Ethephon - 23 percent.

Floriculture Propagation Material: Insecticides, Cyfluthrin - 20 percent; Fungicides, Fenhexamid - 53 percent; and Other Chemicals, Ethephon - 44 percent.



Pennsylvania: Nursery - Number of Operations by Gross Value of Sales, 2006

\$10,000 to \$99,999	\$100,000 to \$249,999	\$250,000 to \$499,999	\$500,000 to \$999,999	\$1,000,000 to \$1,999,999	\$2,000,000 to \$4,999,999	\$5,000,000 to \$9,999,999	\$10,000,000 or more	Total Operations
351	71	31	19	11	11	4	-	498

Pennsylvania: Floriculture - Number of Operations by Gross Value of Sales, 2006

\$10,000 to \$19,999	\$20,000 to \$39,999	\$40,000 to \$49,999	\$50,000 to \$99,999	\$100,000 to \$499,999	\$500,000 or more	Total	Expanded Wholesale Value ¹
91	128	50	244	165	52	730	170,706

¹ Wholesale value of sales as reported by growers with \$100,000 or more in sales of floriculture crops plus a calculated wholesale value of sales or growers with sales below \$100,000. The value of sales for growers below the \$100,000 level was estimated by multiplying the number of growers in each size group by the mid-point of each dollar value range.

Pennsylvania: Active Ingredient - Total Applied by Production Category and Pesticide Class, 2006 ¹

Pesticide Class	Pesticide Class					
	All Nursery and Floriculture	All Nursery	Nursery Propagation or Lining-out Stock	Broadleaf Evergreens	Coniferous Evergreens	Deciduous Shade Trees
	<i>1,000 Pounds</i>					
Herbicides	42.3	40.6	0.8	0.1	14.3	2.5
Insecticides	52.8	51.5	0.2	0.3	6.1	9.2
Fungicides	33.3	31.3	0.5	0.4	7.0	0.1
Other Chemicals	2.4	0.4	--	*	--	*
All	130.8	123.8	1.4	0.8	27.4	11.9
Pesticide Class	Pesticide Class					
	Deciduous Flowering Trees	Deciduous Shrubs	Fruit and Nut Plants	Christmas Trees	All Floriculture	Cut Flowers
	<i>1,000 Pounds</i>					
Herbicides	3.3	3.8	-	14.3	1.7	*
Insecticides	1.7	1.4	*	32.0	1.2	*
Fungicides	0.1	0.1	*	21.9	2.1	0.3
Other Chemicals	--	0.3	--	--	2.0	*
All	5.1	5.6	*	68.2	7.0	0.4
Pesticide Class	Pesticide Class					
	Flowering Plants	Bedding Plants	Foliage Plants	Floriculture Propagation Material	Herbaceous Perennials	Non-production Areas
	<i>1,000 Pounds</i>					
Herbicides	0.1	1.2	0.4	--	*	2.1
Insecticides	0.2	0.5	0.1	*	0.3	*
Fungicides	0.5	1.0	0.1	*	0.2	*
Other Chemicals	0.2	1.5	*	0.3	--	*
All	0.9	4.2	0.5	0.3	0.5	2.1

* Totals applied are less than 50 pounds. ¹ May not add due to rounding.

