



Newsletter Extension

Fruit ICM News

Volume 8, No. 36
October 7, 2004

In This Issue

[Calendar](#)

[Human Resource Managers' Forum](#)

[Ag Labor Camp Workshop for Camp Operators](#)

[Improving Grape Quality with Precision Ag](#)

[U.S. Apple Production to Increase in 2004](#)

[Terminal Market Wholesale Fruit Prices](#)

[Preliminary Ohio September Climatological Data](#)

Calendar

October 14-15: Midwest Fruit Workers Meeting, Marion County Extension Office, Indianapolis, IN. Contact John Strang by e-mail at jstrang@uky.edu.

November 3: Ohio Vegetable and Small Fruit Research and Development Program Board Meeting, Waterman Research Lab, Wittmeyer Conference Room. Contact Tom Sachs at 614-246-8292 or e-mail growohio@ofbf.org or click on <<http://www.ohiovegetables.org>>.

November 9: Ohio Ag and Hort Human Resource Managers' Forum, Hilliard, OH. See article following calendar for details and contacts.

November 11: Ohio Fruit Growers Society Board Meeting, Dutch Heritage, Bellville. Contact Tom Sachs at 614-246-8292 or e-mail growohio@ofbf.org or click on <<http://www.ohiovegetables.org>>.

November 16: Agricultural Labor Camp Workshop for Camp Operators, Fremont One Stop, Fremont. Sponsored by OSU Extension Ag & Hort Labor Education Program and Mid American Ag & Hort Services (MAAHS) for those who own, operate, or are considering the development of

temporary labor camps for agricultural and food processing workers. See article in this issue for more information.

Labor Camp Workshop also offered:

November 17 in Springfield at Midwest Livestock & Expo Center, 9:30 a.m. to 12:00 noon.

November 23 in Wooster at OARDC Fisher Auditorium, 9:30 a.m. to 12:00 noon.

December 14 in Pomeroy at the OSU Meigs County Extension office, 2:30 to 4:30 p.m.

November 18: Ohio Fruit Growers Society Research, Extension/Education, and Ohio Apple Operating Committee Meetings, Dutch Heritage, Bellville. Contact Tom Sachs at 614-246-8292 or e-mail growohio@ofbf.org or click on <http://www.ohiovegetables.org>.

January 19-21, 2005: Ohio Fruit and Vegetable Growers Congress / Ohio Direct Marketing Conference, Toledo SeaGate Centre. Contact Tom Sachs at 614-246-8292 or e-mail growohio@ofbf.org.

February 10-12, 2005: North American Farmers' Direct Marketing Conference and Trade Show, Boston Park Plaza Hotel, Boston, MA. Contact 413-529-0386, e-mail info@nafdma.com, or click on <http://www.nafdma.com>.

February 16-19, 2005: North American Berry Conference, Nashville, Tennessee. Conference of North American Bramble Growers and North American Strawberry Growers. See Issue 34 for more information <http://ipm.osu.edu/fruit/04icm34.pdf>

MAAHS Piloting Ohio Ag and Hort Human Resource Managers' Forum

Source: John Wargowsky, Executive Director, Mid American Ag and Hort Services, Inc.

Do you have ag or hort human resource (HR) responsibilities? Would you like to interact with ag and hort HR people from across the state? Would you benefit from knowing how other HR people tackle some of the same problems you face? Do you face some tough HR problems that occur over and over?

Mid American Ag and Hort Services (MAAHS) is pleased to announce the first Ohio Ag and Hort Human Resource Managers' Forum for people who answered yes to one or more of these questions.

The Forum will be held Tuesday, November 9, in Hilliard from 10:00 a.m. to 2:30 p.m. This opportunity will provide a forum for fostering professional development and advancing effective human resource practices for human resource managers in agricultural and horticultural businesses.

"I am interested in learning how other agricultural businesses handle HR issues when the task is compounded by the seasonal, migrant, and language barrier factors," said a wholesale nursery HR manager in western Ohio who will attend the pilot forum.

The featured topic will be "making motivation an employer/employee partnership." Bernie Erven of Erven HR Services LLC, a well-respected human resource expert, will develop a case study and facilitate this two-hour portion of the program. John Wargowsky, Executive Director of MAAHS, will review how the U.S. Department of Labor's new overtime pay regulations affect agricultural and horticultural businesses. The program will conclude with an open discussion on continuing such a forum and how it should be structured.

"This forum is a way for me to find out how other HR managers are effectively dealing with the day-to-day people issues and complying with the ever-increasing labor laws and regulations that face our industry," said a vegetable HR manager in northeast Ohio. An HR manager with a poultry firm in northwest Ohio said

she will attend the forum to interact with other HR managers in the agricultural field and to benefit from sharing experiences.

The registration fee of \$50 for MAAHS members and \$70 for non-MAAHS members includes lunch and materials. Participation in the pilot Forum is limited to the first 40 registrants and reservations are requested by November 1. Contact MAAHS at 614-246-8286, labor@ofbf.org or <http://www.midamservices.org>. (Click on "Events" for more information.)

Agricultural Labor Camp Workshops For Camp Operators

Source: John Wargowsky, Executive Director, Mid American Ag and Hort Services, Inc.

Ohio State University Extension Ag and Hort Labor Education Program and Mid American Ag and Hort Services (MAAHS) are sponsoring a series of workshops in November and December for those who own, operate or are considering the development of temporary labor camps for agricultural and food processing workers. These workshops will help camp operators to comply with applicable local, state and federal regulations while providing a benefit that improves worker recruiting and retention efforts.

Workshop Schedule:

- November 16, 9:30 AM - Noon at the Fremont One Stop in Fremont
- November 17, 9:30 AM - Noon at the Midwest Livestock and Expo Center in Springfield
- November 23, 9:30 AM - Noon at OARDC Fisher Auditorium in Wooster
- December 14, 2:30 - 4:30 PM, at the OSU Meigs County Extension office in Pomeroy.

New labor camp manuals will be distributed at these meetings. An online version will be available by mid-November at <www.midamservices.org> by clicking on 'Quick Ref' and then "Checklists."

"The workshops provide an excellent opportunity for camp operators to interact with state and federal camp inspectors away from the point of inspection," explained John Wargowsky, Executive Director of MAAHS.

Additional workshop presenters include staff with the Ohio Department of Health, US Department of Labor - Wage & Hour Division, Ohio Department of Job and Family Services, and the Ohio Environmental Protection Agency. Other partners in this educational effort include the Ohio Fruit Growers Society, Ohio Vegetable and Potato Growers Association, Ohio Farm Bureau Federation, and Ohio Nursery and Landscape Association. "We are excited to provide this opportunity for Ohio growers to better understand the various local, state, and federal requirements of operating a temporary labor camp," said Francisco Espinoza, Program Assistant with Ohio State University Extension's Ag and Hort Labor Education Program. "Ohio has a good reputation of providing housing for migrant and temporary workers and we hope to make that even better," Espinoza continued.

Those wishing more information about attending a free workshop or obtaining a free labor camp manual may contact MAAHS at 614-246-8286, maahs@ofbf.org, or visit <www.midamservices.org> and click on "Events."

Improving Grape Quality With Precision Agriculture

Source: Reza Ehsani, Assistant Professor, OSU Extension and Dharmendra Saraswat, written by Candace Pollock

Precision agriculture is mainly equated with production of field crops, but the technology is finding its place among other agricultural industries. Ohio State University agricultural engineers are conducting research on the feasibility of using precision agriculture on Ohio grapes - a commodity where both quality and quantity are important to the viability of juice and wine production.

"Research in other places, like California and Australia, has shown that field variability (soil type, compaction, drainage, for example) has a big impact on grape quality. Growers don't know how much they are losing, but precision agriculture can help quantify that," said Reza Ehsani, an Ohio State Extension agricultural engineer working on the project. "Other areas have seen success in using precision agriculture to improve quality for more premium wine production. It would stand to reason that growers in Ohio could see the same successes by using the technology."

Ehsani, along with graduate student Dharmendra Saraswat, are conducting research at Troutman Vineyards in Wooster, Ohio, using aerial imagery, GPS (Global Positioning System), EC (electrical conductivity) sensor and GIS (geographic information system) to measure and visualize variability throughout the fields.

The goal is to find the factors that can cause variability and measure how those factors can impact grape quality,” said Saraswat, pointing out that precision agriculture research in other places has shown an eight-fold variability within a single field. “We are looking for effective tools and methods of collecting information that a grower can use to make better management decisions. It’s all about saving growers money while increasing a crop’s productivity.”

The researchers are taking aerial images of the vineyard during two stages of the grape’s development: veraison (the point when the fruit begins to accumulate sugar) and near harvest. “The reason these two stages are important is because they have the maximum correlation with what is going on in the ground,” said Saraswat. “The idea is to extract several vegetative indices from aerial imagery and see which ones correlate with yield and quality.”

Researchers are also exploring the possibility of using aerial imagery for making management decisions, such as where pruning or leaf removal are required. If one or both are done improperly, grape quality can be impacted. “Pruning decisions usually help achieve a balance between fruit production and adequate, but not excessive, shoot growth,” said Saraswat. “In regards to leaf removal, you want the grapes exposed to the appropriate amount of sunlight in order to accumulate sugars properly. The extent of vine growth obtained from aerial imagery is expected to guide in this regard.”

Ehsani said that other precision agriculture equipment, such as a network of wireless weather monitoring units, could be used to monitor the weather and aid in better controlling for frost, an event that can damage grapes and impact yields. “The inputs in grape production are huge,” said Ehsani. “If we can help growers reduce those inputs by even 1 percent with better management through precision agriculture, that’s a significant savings.”

U.S. Apple Production to Increase Again in 2004

Source: Fruit and Tree Nuts Outlook, ERS, USDA <http://www.ers.usda.gov/publications/fts/Sep04/FTS312.pdf>

The U.S. Department of Agriculture’s (USDA) initial forecast for the 2004 U.S. apple crop is set at 9.4 billion pounds, 9 percent greater than in 2003 and also 10 percent greater than in 2002. While larger than the previous 2 years, this year’s crop size, if realized, will be smaller than those produced in prior years since 1989. The increase in overall production will come from the expected increases in production in the eastern and western apple-producing states, while output in the central states is anticipated to decline.

At a combined total of nearly 6.0 billion pounds, the western states expect to harvest 15 percent more apples in 2004 than a year ago, with most states in the region anticipating increased production with the exception of California and Utah. In Washington, where more than half of U.S. apples are produced, this year’s apple crop is forecast at 5.2 billion pounds, 16 percent larger than the weather-reduced crop in 2003.

Adequate chill hours this winter, a mild spring, and favorable weather conditions during the bloom period had resulted in a good fruit set, raising the prospects for increased production. Growers encountered wind and hail problems in May, but these had little effect on overall production because most of the damage was isolated and many of the growers were able to thin out the damage.

Crop quality is reported to be good. The second largest apple-producing state in the region, California, expects to harvest 440 million pounds, down 2 percent from a year ago partly due to a spring heat wave that contributed to both reduced production, specifically of Fuji variety apples, and to the production of smaller-sized fruit in general. The California Apple Commission has also cited factors such as acreage reduction and the “off-year” of the crops’ alternate-bearing cycle as factors leading to a significant drop in the state’s Fuji apple production this year. Benefitting from a warm spring and excellent pollination conditions, Oregon’s crop is forecast 26 percent larger, at 170 million pounds.

Production in the eastern states is forecast at 2.3 billion pounds during 2004, 3 percent more than a year ago. Eight out of the 15 states in the region surveyed by USDA for apple production are expecting increased production, including New York, the region’s largest producer. New York’s 2004 apple crop is forecast at 1.1 billion pounds, 6 percent larger than a year ago. Despite a May hailstorm sweeping across the eastern part of the state and causing

damage to some orchards, good quality and size are reported overall.

Production in Pennsylvania and Virginia, the second and third largest producers, are forecast down 3 percent and 4 percent, respectively. In Virginia, favorable pollination conditions contributed to a good

fruit set, but frost and cold temperatures in April and May caused some damage in some growing areas. Reduced production in both states may also be attributed to aggressive chemical thinning by their growers and to natural fruit drop. The heavy thinning experienced in both states and more than adequate rainfall are contributing to larger fruit size.

The apple crop in the central states is forecast at 1.1 billion pounds, 7 percent smaller than a year ago. Forecast production in Michigan, the main producer in the region, is set at 760 million pounds, down 10 percent, mostly due to the effects of a severe frost in May and an early summer hailstorm. Aside from frost and hail, problems with scab and fire blight in the state, particularly in the southwest and ridge growing areas, are creating concerns about the quality of the crop.

Between 65 and 75 percent of the U.S. fresh-market apple crop is supplied by Washington, and the anticipated larger crop there this year points to increased production for fresh use during the 2004/05 marketing season. Slightly over 2 percent of the 2004 U.S. apple crop is anticipated to be rendered as waste or shrinkage and therefore will not be marketed, based on estimates from the U.S. Apple Association. Still, the larger production will likely drive down grower prices for fresh-market apples from last season, and together should help boost domestic and international demand for U.S. apples.

During the 2003/04 season, growers received an average of 29.5 cents per pound for the fresh-market crop. While prices for the new season

are expected to be lower, the good quality of the crop in general relatively low inventories of 2003 apples, and less market competition from the expected smaller domestic pear crop this fall will likely offset some of the downward push on prices.

Approaching the 2004/05 season, fresh-market apples in cold storage on July 1 were down 26 percent from the same time last year and 32 percent less than the 5-year average. However, in addition to the expected larger production, the earlier start to this season in most growing areas have pushed fresh apple shipments up sharply in August relative to last year, based on weekly shipment data from USDA's Agricultural Marketing Service. As a result, fresh apple grower prices in August declined from July, and unlike previous years, this was the first time since 1987 that apple prices have shown weakness relative to the

previous month at the start of the season. At 27.3 cents per pound, the August average grower price was also 7.3 cents lower than the August 2003 average.

More than half of U.S. apples used for processing are produced in Michigan, New York, Pennsylvania, California, and Virginia. Production in these states, except in New York, is forecast lower in 2004. Despite these declines, the expected production increases in New York, Washington, and other smaller producing states in the eastern and central region could still bring total processing production during the 2004/05 season above last season. New York alone produces about 15 percent of U.S. processing apples, and Washington supplies 30 to 40 percent. One would

typically expect prices to drop with increased production. However, during the 2003/04 season, the average grower price for processing apples remained the same as in the previous season despite a 5-percent increase in processing production. Grower prices for apples used in the production of each of the processed product categories (canned, juice and cider, frozen, dried, and other) declined in 2003/04 from the previous season, except for frozen and dried.

In Michigan, where lower production is expected this season, the Michigan Processing Apple Growers Marketing Committee, part of a larger agricultural organization under the Michigan Farm Bureau, has reached an agreement

with several of the state's apple juice processors to set a minimum juice apple price of \$4.25 per hundredweight (1 hundredweight=100 pounds) for the 2004/05 season,

the same as the minimum average set in 2003/04. In Washington, processing prices as of late August were

running 10 to 25 percent lower compared with the same time last year, as reported by the Washington Grower's Clearing House, an organization representing many of

the state's fruit growers.

U.S. fresh apple exports from August 2003 through July 2004 posted a 14-percent decline from the previous season. More apples were sold to the European Union (EU) market last season. However, shipments were down significantly to Canada and Mexico, the top two markets for U.S. apples, as well as to many of the leading markets in East and Southeast Asia. A decline in domestic supplies during the 2003/04 season limited the quantity of U.S. fresh apples available to meet international demand, but other factors also came into play to force exports down last season. These included the high tariffs associated with a 1997 anti-dumping investigation on imports of U.S. Red and Golden Delicious apples to Mexico that continued to restrict exports to that market. Also the growing competition with China in the world fresh apple market, particularly in the United States' major markets in East and Southeast Asia, played a role.

The expected increased production in Washington brings more promise for the United States in meeting fresh apple export demand during 2004/05. Another small crop anticipated in the EU this year will

likely increase demand for U.S. apples again in that market. A more positive outlook on exports to Mexico would rely heavily on how the two countries -U.S. and

Mexico - could effectively resolve the 46.58 percent anti-dumping duty on U.S. Red and Golden Delicious apples. Also, a turnaround to the continued weakness in the Mexican peso relative to the U.S. dollar which have made imports of U.S. products to Mexico more expensive would make a difference.

Mostly supplied by Chile, New Zealand, and Canada, U.S. fresh apple imports rose 14 percent in 2003/04 from the previous season. Imports of apple juice and cider increased 11 percent. Most leading international suppliers of apple juice to the United States shipped reduced quantities during 2003/04, but China's shipments were up 90 percent. China is the largest supplier to the United States, accounting for more than half of total import volume

Apples: Total Production and Season-Average Price Received by Growers

2001-2003 and Indicated 2004 Production

State	Production (million pound)				Price (cents per pound)		
	2001	2002	2003	2004	2001	2002	2003
Washington	5,050	5,100	4,500	5,200	17.8	20.1	25.7
New York	1,000	680	990	1,050	11.9	17.7	15.1
Michigan	930	520	840	760	9.4	12.4	11.9
California	520	470	450	440	15.7	20.4	17.8
Pennsylvania	480	370	442	428	9.6	10.1	10.3
Virginia	310	250	270	260	10.6	10.4	9.6
Oregon	142	202	133	170	12.1	15.2	17.5

North Carolina	112	160	135	170	14.9	14.3	13.2
West Virginia	105	95	87	85	8.5	8.5	9.6
Ohio	86	70	90	89	23.6	26.8	27.4
Idaho	80	80	70	100	14.1	19.4	30.7
Wisconsin	62	58	68	62	29.3	34.9	33.4
New Jersey	55	35	40	40	16.2	17.6	14.6
Indiana	53	40	51	50	18.5	26.5	26.3
Maine	47	49	44	45	29.0	36.1	29.8
Illinois	44	43	53	56	23.7	35.9	29.1
Vermont	41	31	42	36	24.1	33.7	26.6
Maryland	41	32	40	34	15.5	14.3	15.7
Missouri	41	36	40	36	17.1	17.8	20.8
Massachusetts	39	33	43	41	32.4	38.6	34.6
New Hampshire	30	27	26	28	25.0	28.5	27.9
Utah	25	7	28	27	17.6	21.3	23.0
Minnesota	24	25	27	26	47.5	50.9	43.6
Colorado	23	21	22	24	20.8	18.4	18.5
Connecticut	21	12	22	20	32.2	41.2	37.1
United States*	9,423	8,524	8,613	9,366	15.8	18.9	20.9

* states included in totals but not listed = Arizona, Arkansas, Georgia, Iowa, Kansas, Kentucky, New Mexico, Rhode Island, South Carolina, and Tennessee.

Terminal Market Wholesale Fruit Prices - October 4, 2004

Source: Chicago <http://www.ams.usda.gov/mnreports/HX_FV010.txt>

Detroit <http://www.ams.usda.gov/mnreports/DU_FV010.txt>

Pittsburgh <http://www.ams.usda.gov/mnreports/PS_FV010.txt>

	Chicago	Detroit	Pittsburgh
Apples, cartons 12 3-lb film bags U.S. ExFcy (unless noted)	IL U.S. Fancy Jonathan 2 1/4" up 14.00 MI U.S. Fancy Golden Delicious 2 1/4" min 12.50 Red Delicious 2 1/4" min	MI Empire 2 1/2 min 11.50-13.50 Gala 2 1/2" min 12.00-16.50 G. Delic 2 1/2" min 12.00-14.50 Jonamac 2 1/2" min 13.00-13.50 Jonathan 2 1/2" min 13.00-14.50 McIntosh 2 1/2" min 12.00-14.50 R. Delic 2 1/2" min 12.00-14.50 NY U.S. Fancy McIntosh 2 1/2" min	PA U.S. One Empire 2 1/4" min 13.75 Gala 2 1/4" min 15.50 G. Delic. 2 1/4" min 15.25 Jonathan 2 1/4" min 13.75 Jonagold 2 1/4" min 13.75 R. Delic. 2 1/4" min 15.25

	12.50	12.00 MI U.S. Fancy Empire 2½" up 11.50-12.00 Gala 2¼" min 11.50-12.00 G. Delic. 2¼" min 10.50-11.00 McIntosh 2½" min 12.00 2¼" up 10.50-11.00 R. Delic. 2¼" min 10.50-11.00	
Apples , cartons tray pack, U.S. ExFcy (unless noted)		NY U.S. Fancy Honeycrisp 64s, 72s, 80s, 88s, & 100s 30.00	NY Gala 100s 22.00 McIntosh 2½" up 15.00 U.S. Fancy McIntosh 125s 11.00- 15.00 PA Gala 64s, 88s, 100s 19.00-20.00 WV Comb ExFcy- Fcy G. Delic. & R. Delic. 88s 17.25, 125s & 138s 15.75
Apples , cartons cell pack U.S. ExFcy (unless noted)	NY McIntosh 80s 24.00, 96s 22.00, 100s 13- 13.50, 120s 12.00	NY U.S. ExFcy Empire 80s 19 McIntosh 80s 20.00 100s 21.00 Cortland 80s 20.00	NY McIntosh 100s 21.00 Fancy McIntosh 80s, 100s 13.00- 15.00
Apples , bushel cartons loose U.S. Fancy (unless noted)	IL Red Del. 14.00	MI U.S. ExFcy Gala 2¾" up 15 Empire 2¾" up 12, 3" min 15 G. Delicious 2¾" up 14-15.00 3" min 14.00 McIntosh 2¾" up 14-15.00, 3" min 15.00 R. Delicious 3" min 14.00 U.S. Fcy Gala 2½" 12.00 McIntosh 2¾"	PA No grade or size marks Empire 12.50 Gala 12.50 G. Delic. & R. Delic 12.50 Jonathan 12.50

		up	12.00	
Blueberries, 12 4.4-oz cups/lids	MI 24.00-28.00	MI med 22.00-24.00		MI medium 23.00
Blueberries, 12 6-oz cups/lids		MI med 22.50-24.00		
Blueberries, 12 1-pt cups/lids	MI 34.50			
Grapes, cartons 12 1-pt cont/lid	MI Concord med 16.00-18.00	MI U.S. One Concord med 18.00		NY Concord 12.00
Prune Plums, 30 lb cartons	Chicago - MI Bluefire	1 1/4" up	12-12.50	

The intent of listing terminal market prices is to provide information available in the public domain. It is not intended for price setting, only to assist growers in evaluating the value of their crops. Producers need to remember that the prices listed are gross; consideration must be given to other marketing costs, i.e. commission, handling charge, gate fees, and possible lumper fees.

Preliminary Monthly Climatological Data for Selected Ohio Location

September 2004

Weather Station Location	Monthly Precipitation	Normal Monthly Precipitation	Year-to-Date Precipitation	Normal Year-to-Date Precipitation	Average High	Normal High	Average Low	Normal Low	Mean Temp.	Normal Mean
Akron-Canton	5.57	3.43	39.34	29.92	74.7	72.8	54.5	53.1	64.6	62.9
Cincinnati	1.53	2.82	34.23	32.90	79.0	78.0	58.0	56.8	68.5	67.4
Cleveland	3.22	3.77	29.34	29.45	75.3	72.3	56.3	54.3	65.8	63.3
Columbus	2.98	2.92	38.47	30.07	78.0	77.1	58.0	55.9	68.0	66.5
Dayton	0.61	2.65	34.56	30.48	77.6	75.6	55.5	54.6	66.6	65.1
Fremont	0.47	3.14	24.15	26.96	78.1	75.3	49.4	52.1	63.7	63.7
Kingsville	4.51	4.70	41.60	28.90	75.5	72.9	55.8	53.5	65.6	63.2
Mansfield	2.92	3.44	35.80	33.53	74.7	73.0	54.3	52.1	64.5	62.5
Norwalk	1.75	3.16	30.30	27.75	78.6	74.1	53.6	52.3	66.1	63.2
Piketon	1.54*	3.10	21.10*	33.40	80.1	75.5	56.7	54.9	68.4	65.2
Toledo	1.43	2.84	21.76	25.44	78.4	74.0	54.0	52.9	66.2	63.4
Wooster	3.37	3.24	39.11	28.39	77.9	75.5	53.1	51.4	65.5	63.5
Youngstown	6.67	3.89	37.12	29.53	74.4	72.1	52.5	50.9	63.5	61.5

Temperatures in degrees F, Precipitation in inches

* subject to revision

Table Created by Ted W. Gastier, OSU Extension from National Weather Service, OARDC & Local Data

The Ohio Fruit ICM News is edited by:

Ted W. Gastier
Extension Agent, Agriculture
Tree Fruit Team Coordinator
Ohio State University Extension Huron County
180 Milan Avenue
Norwalk, OH 44857
Phone: (419)668-8210
FAX: (419)663-4233
E-mail: gastier.1@osu.edu

Information presented above and where trade names are used, they are supplied with the understanding that no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

Copyright © The Ohio State University 2004

All educational programs conducted by Ohio State University Extension are available to clientele on a nondiscriminatory basis without regard to race, color, creed, religion, sexual orientation, national origin, gender, age, disability or Vietnam-era veteran status.

Keith L. Smith, Associate Vice President for Ag. Adm. and Director, OSU Extension.

TDD No. 800-589-8292 (Ohio only) or 614-292-1868

[Back](#)