



# Newsletter Extension

## Fruit ICM News

Volume 5, No. 31  
August 23, 2001

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## Calendar

**September 18-20: Farm Science Review - Pesticide credit can be earned at 2001 Farm Science Review!** For more information, contact the Pesticide Education Program, OSU Extension, at 1-614- 292-4070 or visit the website at <http://www.ag.ohio-state.edu/~pested>

## Oriental Fruit Moth As An Apple Pest

*Source: Celeste Welty, OSU Extension Entomologist*

The article below from Pennsylvania provides good information about managing Oriental fruit moth (OFM) in apples. For growers who are not familiar with this problem, the following information will provide an introduction.

When a pinkish-white worm up to one-half inch long is found in the core of an apple, it is usually easy to diagnose it as the codling moth, which is our key pest of apples. However, it can also be the Oriental

fruit moth, which looks very similar. In several major fruit producing states like Pennsylvania and New Jersey, there have been increasing problems with Oriental fruit moth infesting apples during the last few years. Like many fruit pest concerns, this problem does not seem to be as serious here in Ohio as it is in more intensive fruit production areas.

Oriental fruit moth is a long-time key pest of peaches. It is similar to codling moth in that it bores into the fruit and does not feed on leaves. It differs from codling moth in that it has more generations per year. Codling moth in Ohio has 2 generations per year and sometimes a partial third generation. Oriental fruit moth has 3 or 4 generations per year, including a first generation of larvae in the spring that can bore into shoots because fruit is not yet present.

There are various opinions about why Oriental fruit moth is becoming a pest in apples. Some people think it is due to resistance to insecticides, with Oriental fruit moth more prone to resistance than codling moth; if this is true, then Imidan or Guthion might still control codling moth but not Oriental fruit moth. Others think that it is due to reduced spray programs that target codling moth and miss the optimal times for controlling Oriental fruit moth, or use of newer less-harsh insecticides that are not lethal to Oriental fruit moth.

To determine which species of worm is found in an apple, you need to take a close look at its rear end. If there is a brown anal comb just inside the tip of the abdomen, then it is Oriental fruit moth. If there is no anal comb, then it is codling moth.

Ohio growers need to be aware of the potential problem and let us know if it is suspected at some locations. If the percentage of fruit culled due to worm damage is higher than expected, then a grower should check which species are infesting the apples. One relatively easy way to collect the larvae is to put culled apples in a burlap bag and hang it in a protected area in the packing house or barn, with a collecting container underneath the bag. When the larvae finish their development, usually within a few weeks after harvest, the larvae drop out of the fruit and will be caught in the collecting container. These can then be examined with a magnifier to check for the anal comb.

## OFM Update

*Source: Fruit Times Newsletter Vol. 20, No. 14*

As peaches/nectarines are harvested, OFM moths will rapidly move from these blocks to adjacent apple blocks. If OFM populations are already established in apple, they will continue to develop and cause additional injury. At this time of the year, OFM eggs are laid directly on the apple. Once the larva hatches from the egg, it can quickly penetrate the fruit in a matter of 24 hours or less. Once the larva burrows inside the fruit, it is no longer possible to kill the larva with an insecticide. This is why it is so important to maintain a residue of an effective insecticide. In orchards with high OFM pressure, higher rates of insecticides should be used: Azinphos-methyl 50W at 1.5-2.0 lb/A, Imidan 70W at 3.0-4.0 lb/A, Lannate 90SP at 0.75-1.0 lb/A, Asana at 8-12 fl oz/A, or Danitol at 16-21 fl oz/A. As growers make their decision on what materials to use for the last few applications of the season, they should check their records against the label for the seasonal amount of insecticide they can apply. It would also be very wise to make your insecticide applications as *complete* sprays. Insecticides applied using the alternate row middle technique are only effective if the interval does not extend beyond 7 days. Please check the label of the product you choose for the most current days to harvest limitation.

## Post Harvest Borer Applications

*Source: Fruit Times Newsletter Vol. 20, No. 14*

The flight and hatch of the second generation of lesser peach tree borer is underway in most orchards. The lesser peach tree borer is the larva that infests cytospora cankers on the scaffold limbs, while the peach tree borer, our other most important borer on peaches, is the larva that bores into the tree trunk near the soil line. Many growers commonly wait until after harvest to treat for both LPTB and PTB so they do not have to worry about pre-harvest intervals for various insecticides. This is not the ideal time to treat for either species. However, if growers use a high pressure hand gun to apply this treatment, they can still control both species fairly well. Both insecticides, chlorpyrifos 4E and Thiodan, are effective when applied at this time. For the best control it is necessary to thoroughly wet all bark areas from ground level to the scaffold limbs. If Lorsban 4E will be used for this spray, it is recommended to use 1.5 to 3 qts per 100 gals of water, but minimize the contact of spray mixture with the foliage as much as possible. Please see page 22 of the *Ohio Commercial Tree Fruit Spray Guide, 2001*.

## Apple Russeting

*Source: Compendium of Apple and Pear Diseases, The American Phytopathological Society*

Russeting has been observed on some Golden varieties in north-central Ohio orchards. The following discussion relates causes for this disorder.

Russet is observed when cork forms on the outer surface of fruit, often in a net-like pattern. It has been associated with certain environmental conditions (e.g., high humidity, rain or dew on the fruit, and frost), abnormal growth of the epidermal cells, damage from harsh chemicals, improper nutrition, or infection by *Pseudomonas* bacteria. The fruit seems to be susceptible between bloom and 30 days after petal fall, which coincides with the visible development of the cuticle (the outer layer of cells that protects the true skin) on the fruit. If the fruit cuticle is physically damaged during or shortly after bloom, or if the underlying epidermal cells divide too rapidly (physiological russet), causing the cuticle to rupture, an active cork cambium is initiated in the lower epidermal region, and cork develops. After their initial formation, the cork cells push outward, the cuticle is sloughed off, and cork eventually becomes the dominant protective layer in that region of the fruit.

Susceptibility varies among cultivars and individual sports. Golden Delicious and Cox's Orange Pippin are examples of apple cultivars prone to russeting. Individual sports of Golden Delicious show marked differences in susceptibility, with spur types generally being more susceptible than regular types. Frost during bloom may induce russeting. Spray-induced russet often occurs only on the exposed side of the apples, whereas physiological russet may occur uniformly over the entire surface.

Russet is often caused by several factors and is, therefore, difficult to control. Weather-induced or physiological russet (induced within 30 days of bloom), caused by high humidity, rain or dew, high temperature, or improper nutrition (i.e., high nitrogen), is probably the principal form of the disorder, followed by russet caused by toxic sprays.

Russet can be controlled by selecting genetically superior cultivars and sports when establishing new orchards, avoiding spray chemicals that induce the disorder (wetable powders are safer than emulsifiable concentrates), using a cultural program favoring good nutrition (nitrogen not excessive and phosphorus adequate), pruning properly to encourage fast drying, and not applying chemicals during periods when weather favors russet (slow drying conditions, high humidity, and temperatures greater than 32C). Application of the hormone gibberellic acid has reduced russet in some fruits.

## Forecasts for Smaller Apple Crop

Source: <http://fruitgrowersnews.com>

National production of apples will be down 15% from last year, according to a recent forecast from the U.S. Apple Association (USApple). The 2001 forecast for apples came in at 215 million bushels, based on results of discussions at last week's USApple Apple Crop Outlook and Marketing Conference in Chicago. This compares to last year's production of 253.5 million bushels. The forecast is also 10% lower than USDA's forecast for the 2001 crop of 228.9 million bushels.

With a loss of 20,000 acres, weather calamities, and an off-production year, the state of Washington is expected to come in at 113 million bushels, compared to USDA's forecast of 116.7 million bushels. USApple's forecast for Washington is 20% lower than last year's production of 140.5 million bushels. USApple estimates that over 130 million bushels will be sold as fresh market apples nationally.

Pennsylvania should overtake California as the fourth largest apple producing state, based on USApple forecasts. California is expected to produce 6.4 million bushels, 59% less than 2000 and 61% less than the USDA forecast of 16.6 million bushels for 2001. Pennsylvania is forecast at 11.5 million bushels, up 2% from last year, according to USApple. New York and Michigan are expected to be up in production this year -New York up 3% with a 24.5 million bushel crop and Michigan up 19% with a crop of 24.1million bushels, according to USApple. Total production in the East is expected to be down 4%, up 15% in the Midwest and down 24% in the West, according to USApple.

### U. S. Apple Production (1000 42-lb. units)

State or Region	2000	2001 USDA Forecast	USDA % Change from 2000	USApple 2001 Forecast	2001 USApple vs USDA	USApple % Change from 2000
New York	23,690	25,000	+6%	24,500	-2%	+3%
Pennsylvania	11,310	10,595	-6%	11,500	+9%	+2%
Virginia	8,333	8,095	-3%	7,800	-4%	-6%
North Carolina	4,524	2,381	-47%	2,000	-16%	-56%
West Virginia	2,143	2,738	+28%	2,738	no change	+28%
New Jersey	1,190	1,310	+10%	1,310	no change	+10%
<b>Total East</b>	<b>57,262</b>	<b>55,448</b>	<b>-3%</b>	<b>55,113</b>	<b>-1%</b>	<b>-4%</b>
Michigan	20,238	23,095	+14%	24,100	+4%	+19%

Ohio	2,452	2,429	-1%	2,429	no change	-1%
Wisconsin	1,690	1,690	no change	1,600	-5%	-5%
Indiana	1,071	1,262	+18%	1,262	no change	+18%
Illinois	1,000	1,357	+36%	1,357	no change	+36%
Missouri	905	976	+8%	800	-18%	-12%
<b>Total Midwest</b>	<b>28,683</b>	<b>32,252</b>	<b>+12%</b>	<b>32,956</b>	<b>+2%</b>	<b>+15%</b>
<b>East &amp; Midwest</b>	<b>85,945</b>	<b>87,700</b>	<b>+2%</b>	<b>88,069</b>	<b>no change</b>	<b>+2%</b>
Washington	140,476	116,667	-17%	113,000	-3%	-20%
California	15,476	16,571	+7%	6,400	-61%	-59%
Oregon	3,976	3,561	-10%	3,571	no change	-10%
Idaho	3,333	2,857	-14%	2,857	no change	-14%
Arizona	2,262	405	-82%	100	-75%	-96%
Utah	1,167	548	-53%	500	-9%	-57%
<b>Total West</b>	<b>167,595</b>	<b>141,238</b>	<b>-16%</b>	<b>127,047</b>	<b>-10%</b>	<b>-24%</b>
<b>Total U.S.</b>	<b>253,540</b>	<b>228,938</b>	<b>-10%</b>	<b>215,116</b>	<b>-6%</b>	<b>-15%</b>

## Sink Your Teeth into the 2001 Ohio Apple Crop

Source: John Wargowsky, Promotions Coordinator of Ohio Apple Marketing Program, 1-614-249-2424 or [growohio@ofbf.org](mailto:growohio@ofbf.org), website: <http://www.ohioapples.org>

"The heat of August may seem unbearable at times, but it builds high sugar levels in apples and lays the groundwork for a fantastic fall crop that you can really sink your teeth into," said Licking County apple grower, Andy Lynd.

Apple quality looks very good with adequate fruit size, according to Dave Ferree, professor of Horticulture and Crop Science at the Ohio Agricultural Research and Development Center. "Maturity appears to be close to the average and not early as it has been the past two years," Ferree continued.

Consumers can expect a great quality fruit with consistent sizing, according to Dave Gress, general manager of Fruit Growers Marketing Association, a marketing cooperative for Ohio apple growers. "We should expect an apple crop of slightly over two million bushels, about average for Ohio," Gress said. "Ohio apple consumers will enjoy outstanding flavor," Gress added.

The Ohio Apple Marketing Program, approximately 150 commercial apple growers that work together to promote Ohio apples and apple products, is pleased to premiere a new web site, <http://www.ohioapples.org>.

The Ohio Apple Marketing Program is sponsoring the "I Love Ohio Apples Recipe Contest." Anyone

may enter the competition using his or her best Ohio apple recipe in the categories of breakfast/brunch, main dishes, snacks, or desserts. The first prize in each category is an Empire Red Kitchenaid hand mixer and The Country Kitchen Cookbook. Second prize winners in each category receive \$50, while third prize winners in each category receive \$25. Recipes must be postmarked by September 15, 2001. Visit <http://www.ohioapples.org> for complete contest information.

According to the U.S. Apple Association, apples are a rich source of health-promoting phytonutrients, including flavonoids, which are powerful antioxidants. Apples are also one of the best dietary sources of the bone-healthy, energy boosting mineral boron.

## New Ohio Fruit Marketing Website

<http://www.ohioapples.org>

The Ohio Apple Marketing Program has a handy new web site. Consumers can access an alphabetical directory of Ohio orchards or can click on a state map to locate growers in the area of their choice.

This site also provides a listing of Ohio apple varieties and suggests the best uses (eating, salads, baking, etc.) for each. A useful chart can be easily reproduced for free distribution to your apple customers. A number of delicious-looking recipes are available on the web site, and nutrition and health benefits are discussed.

Learn about the Johnny Appleseed story and find a listing of Ohio festivals and events featuring apples. Teachers and children will find interesting web links and fun print-and-use activities.

Crop estimates, apple facts, handling tips, and other useful information is also available for apple growers, apple marketers, and the media.

## Fruit Observations & Trap Reports

Insect Key	
AM:	apple maggot
CM:	codling moth
ESBM:	eye-spotted budmoth
LAW:	lesser apple worm
LPTB:	lesser peachtree borer
OBLR:	obliquebanded leafroller
OFM:	oriental fruit moth
PTB:	peachtree borer
RBLR:	redbanded leafroller
SJS:	San Jose scale
STLM:	spotted tentiform leafminer
TABM:	tufted apple budmoth
VLR:	variegated leafroller

**Waterman Lab, Columbus, Dr. Celeste Welty, OSU Extension Entomologist**

*Traps used: STLM = Wing trap, SJS = Pherocon V, Codling Moth = mean of 3 MultiPher® traps, Others = MultiPher*

**Apple:** 8/15 to 8/22

STLM: 45 (up from 14)  
RBLR: 20 (down from 31)  
CM (mean of 3 traps): 7.0 (up from 3.0)  
SJS: 0 (down from 4)  
OFM: 0 (unchanged)  
DWB: 0 (unchanged)  
TABM: 1 (unchanged)  
VLR: 2 (up from 1)  
OBLR: 0 (unchanged)  
AM(sum of 3 traps): 2 (up from 1)

**Peach:** 8/15 to 8/22

OFM: 1 (down from 4)  
LPTB: 2 (down from 9)  
PTB: 2 (down from 8)

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**Site: East District; Erie & Lorain Counties**

Source: Jim Mutchler, IPM Scout

*Traps Used: STLM=wing traps, SJS=Pherocon-V, Others=MultiPher®*

**Apple:** 8/15 to 8/21

STLM: 335 (down from 385)  
CM: 2.9 (down from 3.6)  
SJS: 0.0 (unchanged)  
OBLR: 1.7 (down from 3.3)  
RBLR: 6.5 (down from 8.0)  
AM: 4.5 (up from 2.0)

**Peach:** 8/15 to 8/21

OFM: 2.7 (down from 3.3)  
LPTB: 26.3 (up from 18.0)  
PTB: 7.0 (up from 4.7)  
RBLR: 9.0 (down from 28.0)

**Other pests** include two spotted spider mites, white apple leafhopper, Japanese beetle, wooly apple aphid, spot

**Beneficials include:** lacewings everywhere (all stages), predatory mites, lady beetles, *Stethorus punctum*.

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**Site: West District; Huron, Ottawa, & Sandusky**

Source: Gene Horner, IPM Scout

Traps Used: *STLM*=wing traps, *SJS*=Pherocon-V, *PC* = circle traps, *Others*=MultiPher® traps

**Apple:** 8/15 to 8/21

STLM: 15 (down from 16)  
CM: 0.4 (down from 0.9)  
SJS: 2.4 (up from 1.7)  
OBLR: 0 (down from 3)  
RBLR: 16.3 (up from 14.0)  
AM: 7.0 (up from 4.5)  
PC: 0.0 (unchanged)

**Peach:** 8/15 to 8/21

OFM: 2.2 (up from 1.6)  
LPTB: 13.8 (down from 17.6)  
PTB: 0.8 (down from 2.0)  
RBLR: 18.6 (unchanged)  
TPB: 0.0 (down from 0.3)

**Other pests** include green apple aphid, Japanese beetle, potato leafhopper, oriental fruit moth flagging, lilac borer, green peach aphid, apple rust mite

**Beneficials include:** predatory mites, green lacewings (all stages), brown lacewings, banded thrips, lady beetles, *Stethorus punctum*

## Phenology

Coming Events	Range of Degree Day Accumulations	
	Base 43° F	Base 50° F
Peachtree borer flight subsiding	2230-3255	1497-2309
Redbanded leafroller 3 <sup>rd</sup> flight begins	2389-3113	1722-2209
Apple maggot flight subsides	2764-3656	1904-2573
Lesser peachtree borer flight subsiding	2782-3474	1796-2513
Codling moth 2 <sup>nd</sup> flight subsides	2518-3693	1705-2635
Obliquebanded leafroller 2 <sup>nd</sup> flight subsides	2809-3656	1930-2573
Oriental fruit moth 3 <sup>rd</sup> flight subsides	2987-3522	2018-2377
Redbanded leafroller 3 <sup>rd</sup> flight subsides	3103-3466	2013-2402
Spotted tentiform leafminer 3 <sup>rd</sup> flight subsides	3235-3471	2228-2472

Thanks to *Scaffolds Fruit Journal* (Art Agnello)



## Degree Day Accumulations for Selected Ohio Sites January 1, 2001 to Date Indicated

	Reported Degree Day Accumulations				Normal Degree Day Accumulations		Forecasted Degree Day Accumulations August 29	
	August 15		August 22		August 22			
Location	Base 45° F	Base 50° F	Base 45° F	Base 50° F	Base 45° F	Base 50° F	Base 45° F	Base 50° F
Akron - Canton	2648	2015	2813	2145	2806	2127	2997	2294
Cincinnati	3181	2484	3359	2626	3535	2768	3564	2796
Cleveland	2687	2064	2857	2198	2752	2088	3039	2345
Columbus	3171	2492	3357	2643	3102	2389	3560	2810
Dayton	3025	2362	3198	2500	3179	2465	3395	2662
Mansfield	2637	2007	2796	2131	2781	2107	2965	2265
Norwalk	2662	2043	2833	2179	2742	2083	3002	2313
Piketon	3117	2413	3298	2559	3451	2686	3486	2712
Toledo	2774	2146	2937	2273	2737	2082	3113	2414
Wooster	2712	2078	2878	2209	2644	1978	3050	2346
Youngstown	2536	1908	2695	2032	2588	1932	2871	2174

## Ohio Drought Conditions

Conditions in Ohio as of July 28, 2001 according to Long Term Palmer Drought Severity Index

Source: [http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/palmer.gif](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif)(1) or <http://enso.unl.edu/monitor/monitor.html>(2)

Region	(1) Category of Drought August 18	(2) Category of Drought August 21
Northwest Ohio	Near Normal	Abnormally Dry
Northeast Ohio	Severe	Drought-Moderate
Northeast Hills	Severe	Abnormally Dry
Central Hills	Moderate	Abnormally Dry
North Central	Moderate	Abnormally Dry

Rest of State

Near Normal

Normal

## Terminal Market Wholesale Fruit Prices

	Chicago	Detroit	Pittsburgh
<b>Apples</b> , ctns 12 3-lb filmbags U.S. Fancy Early McIntosh		<b>MI</b> 2 ½" min 12.00	
U.S. Fancy Paula Red		<b>MI</b> 2 ½" min 12.00	<b>MI</b> 2 ½" min 10-12.00
U.S. Fancy Jersey Mac			<b>NY</b> 2 ½" min 14-15.50
<b>Blueberries</b> , 12 1-pt cups	<b>MI</b> 18.50-19.00	<b>MI</b> 15.00-16.00	<b>MI</b> 15.00-16.00
<b>Peaches</b> , 25 lb cartons, no grade marks, various yellow flesh varieties	<b>IL</b> 2 ½" up 10-11.00 2 ¼" up 10-11.00 <b>NJ</b> 2 ¾" up 11-13.00 2 ¼" up 10-11.00		
<b>Peaches</b> , ½ bu ctns, U.S. ExOne, various yellow flesh varieties		<b>MI</b> 2 ¾" up 13-13.50 <b>MI</b> 2 ½" up 12.50-13.50	
<b>Peaches</b> , ½ bu ctns, U.S. One, various yellow flesh varieties		<b>MI</b> 2 ½" up 10-12.00, best 14.00	
<b>Peaches</b> , ½ bu ctns, no grade marks, various yellow varieties		<b>NJ</b> 2 ½" up 11-12.00 2 ¼" min 8.00	
<b>Peaches</b> , ½ bu ctns, U.S. Fcy Loring			<b>PA</b> 2 ½" up 9.50-10.00 2 ¼" up 5.00-6.00
<b>Peaches</b> , 25 lb ctns, unclassified, various yellow flesh varieties			<b>WV</b> 2 ½" min 11.50
<b>Peaches</b> , 38 lb ctns, unclassified, various yellow flesh varieties			<b>NJ</b> 2 ½" min 8.00-9.00

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