

Ohio Fruit ICM News

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July 17, Twilight Tour at Lynd Fruit Farm. 7PM 9303 Morse Road Pataskala, OH
Sponsored by the Direct Agricultural Marketing Association and OSU Extension-Licking
County. For more information contact Howard Siegrist at 740.670-5315.

July 18, OSU Field Crops Day, Northwest Agricultural Research Center, Custar. Contact
Matt Davis at (419) 257-2060 or davis.1095@osu.edu for more information.

July 20, Crop, Soil & Water Field Night, OSU South Centers Piketon. Registration
begins at 5:45 PM. OSU Extension Educators will present sun safety information and
use the Dermascan for screening prior to the program. Dinner provided. For more
information contact Rafiq Islam islam.27@osu.edu or phone (740)-289-2071 ext. 147.

Aug. 1 UK Horticultural Research Farm Twilight Tour, Horticultural Research Farm,
Lexington, KY. Contact John Strang 859-257-5685; e-mail: jstrang@uky.edu

August 22-23, North American Strawberry Growers Association Summer Tour, Portland
Maine. For more information, <http://www.nasga.org/>

Aug. 30-Sept.1 North American Fruit, Explorers (NAFEX) and SFF Annual Meeting, Holiday Inn North, Lexington, KY. Contact John Strang 859-257-5685; e-mail: jstrang@uky.edu

September 19-21, Farm Science Review, Molly Caren Agricultural Center, London. <http://fsr.osu.edu/>

September 21, Grape and Pawpaw Field Day KSU Research Farm, Mills Lane, Frankfort, KY. For more information contact Kirk Pomper at 502-597-5942

November 9-11, Southeast Strawberry Expo, Sunset Beach, NC (near Wilmington). Farm tour, intensive workshops on Strawberry Plasticulture ABCs and High Tunnel Production, tradeshow, many educational sessions on production and marketing. For more information, contact the NC Strawberry Association, 919-542-3687 or ncstrawberry@mindspring.com

December 5-7, Great Lakes Fruit, Vegetable and Farm Market EXPO. DeVos Place, Grand Rapids, Mich., www.glexpo.com.

January 7-9, 2007, Wisconsin Fresh Fruit and Vegetable Conference, Olympia Resort and Conference Center, Oconomowoc, www.wisconsinfreshproduce.org

Jan. 8-9, 2007, Kentucky Fruit and Vegetable Conference and Trade Show, Holiday Inn North, Lexington, KY. Contact John Strang 859-257-5685; e-mail jstrang@uky.edu

February 9-12, 2007, North American Strawberry Growers Association Strawberry Symposium. Ventura, California. There will be two days of research presentations, poster sessions and special events planned over the weekend of February 10-11. An all-day bus tour of the nearby 12,000 acre Oxnard Strawberry District is planned on Monday. A banquet on Sunday evening will honor the remarkable strawberry breeding careers of Dr. Royce Bringham and Dr. Gene Galletta. More program details (abstract deadlines, keynote speakers, etc.) and opportunities for industry, organization and agency sponsorship will be announced on the NASGA website <http://www.nasga.org/>.

Comments from the Editor

I have been having a few computer problems and wasn't able to create a PDF. After our technology expert gets me back on track we will post the PDF on our web site. I did not report GDD for Columbus because I realized that there must be a problem with the site. There hasn't been any reported accumulation in a week. I haven't gone back to see when the problem first developed.

Kentucky Fruit Crop News by John Strang (Kentucky Fruit Facts, July 2006)

Peach, early apple, thornless blackberry, raspberry and blueberry harvest are progressing nicely. We are looking at bumper crops for most growers. The few blueberry growers that

I have talked with indicate that sales have been strong. There have been a number of instances where blackberry fruit have not filled out completely. I suspect that this is a pollination or anthracnose problem in most cases, due to the relatively rainy spring, since a number of growers have reported this. The early July rain storms were needed and appreciated by many growers.

Fire blight is apparent in many orchards and potato leafhoppers have left their mark on many apple trees. Japanese beetles are going strong in the western end of the state and in pockets in other parts. Pay attention to the pre-harvest intervals when spraying for Japanese beetles as these vary between crops.

July 15 to August 15 is the time to take tissue samples from tree fruit and grapes. Tissue analysis is an excellent way to determine where your crop(s) sit nutritionally and enable you to rectify deficiencies before they become apparent.

SW Michigan Fruit Report by Mark Longstroth, SW Michigan District Extension Educator (source: email update July 11, 2006)

Tree fruit

Apricots are being harvested.

Peach fruit are coloring. Queencrest was harvested last week. Harbinger and PF1 are being harvested.

The second generation of oriental fruit moth is emerging. Trap numbers are up sharply this week. Egg hatch of the second generation of OFM should begin this week. Biofix in Northern Berrien County for the second generation was probably about July 7 at 1540 GDD base 45. First egg hatch in Southern Berrien County for the second generation was probably about June 29 at 1330 GDD base 45. The dry weather is helping thrips. Peach orchards near mowed fields should be protected from tarnished plant bug.

Sweet cherry harvest is winding down. Brown rot was reported in several areas, but no severe outbreaks were reported.

Tart cherry harvest is in full swing. Growers need to protect against cherry leaf spot after harvest.

Plums are coloring.

Apple fruit are about 2 inches in diameter. Oriental fruit moth trap catches are up signaling the beginning of the second generation. Codling moth trap catches are down and the first generation flight should be over. We expect the second generation to emerge this week, and egg hatch to begin at about another 1250 GDD past Biofix about 1578 GDD base 50. Obliquebanded leafroller egg hatch

continues. OBLR Biofix was June 12 at 1150 GDD base 42 and egg hatch should end 1000 GDD after Biofix (2150 GDD). European red mites populations have exploded in some orchards and bronzing can be seen. Five to seven mites per leaf is the treatment threshold for European red mite in July. Apple maggot has been trapped in Southern Berrien County. Fungicides to reduce sooty blotch and flyspeck should be included in cover sprays. Leaf drop due to scab is common in unsprayed orchards. Fire blight shoot strike symptoms are reported to be less in orchards treated with Provado. Shoot strike is when the bacteria are carried from infected shoots to healthy shoots by leafhoppers.

Pear fruit are attacked by second-generation codling moth.

Small fruit

Blueberry harvest continues with Duke and other early varieties. Anthracnose fruit rot is the main disease concern now. Alternaria fruit rot is more a disease of over ripe fruit. Cane collapse due to phomopsis is common. Japanese beetles are out. Cherry fruitworm and cranberry fruitworm larvae are damaging the fruit.

Blueberry maggot flies are scarce. Rain or irrigation should bring these flies out. Growers should be scouting for leaf rollers and tussock moth larvae.

In Grapes are at or past berry touch. Grape berry moth larvae are feeding in the clusters. Grape leafhoppers are scarce. Phomopsis leaf lesions are common in most plantings. Black rot and downy mildew are appearing. Grape scouting reports can be found at the MSU Grape recourses page at www.grapes.msu.edu.

Strawberry renovation has been completed in most fields. Potato leafhopper burn was common in many fields. Be prepared to treat for this pest to prevent stunting of the new growth.

Raspberry harvest is underway. Growers should be scouting for Japanese beetles. Monitor pre harvest intervals (PHI) for fungicide and insecticide sprays.

Cranberry bloom continues.

Brambles - Diseases May Cause Poor Fruit Set and Sterility by John Hartman, U.K. Extension Plant Pathologist (source: Kentucky Fruit Facts, July 2006)

Samples of bramble fruits (red and black raspberries and blackberries) with poor or no fruit set are appearing in the Plant Disease Diagnostic Laboratory this month. Sterility symptoms being observed include no fruit set, small, misshapen berries, and small and crumbly fruits.

Potential causes of sterility in brambles:

*Anthracnose disease. Fungi causing anthracnose diseases were active during cool, moist periods this spring. Infections of flowers during bloom could result in damaged fruit or

no fruit set. The new canes emerging this spring may also begin to show anthracnose lesions and cankers.

*Virus diseases. A number of viruses affect raspberry and blackberry fruit production. Some cause sterility problems.

*Raspberry Mosaic Virus causes small, crumbly berries. Leaves may have mosaic symptoms consisting of light green to dark green or yellow to green mottling and blistering of leaves. The plants show a progressive stunting of growth and poor yield.

*Raspberry Leaf Curl Virus reduces fruit production and fruits may be small, crumbly, and seedy. Infected leaves are rounded, downward curled, and have a dark green greasy appearance.

*Tobacco Streak Virus also reduces fruit production. Leaves are deformed with yellow blotches.

*Tomato Ring Spot Virus causes small, crumbly fruit. Leaves may show pale yellow rings and plants are stunted.

*Lack of bee activity may result in a crumbly berry condition. Normally, raspberry flowers have 100-125 pistils. Typically, 75-85 drupelets will develop. When pollination is incomplete and fewer drupelets develop, the berry will often crumble when it's picked.

*Crumbly berry and poor fruit set can also be caused by drought, low soil fertility, insect damage, winter damage, hereditary abnormalities, variations in male and female sterility, deep cultivation and nematode infestations.

Managing sterility in brambles:

*Determine the cause and extent of the problem. Care must be taken to insure that the symptoms of sterility are not confused with cultural problems. If a bramble planting blooms and sets fruit well one season and then the planting has a poor crop the next season, suspect disease or insect injury to the berry cluster stems or poor pollination.

*Virus problems spread in the planting more gradually from year to year. Virus-infected plants may also show leaf symptoms. If these plants are also showing sterility symptoms, drastic action may be needed. Sterility problems related to virus infections can destroy a planting. Growers will not want to take any chances.

*Remove and burn plants that fail to set fruit, and dig up roots to prevent new shoots from appearing.

*Avoid replanting in the spot for several years afterward. Plant only state-certified plants that were from fruitful stock from reputable nurseries.

*Eliminate nearby wild brambles.

*Maintain good weed control.

*Provide a sunny and open environment for growing blackberries and raspberries.

*Apply fungicides as needed to control anthracnose disease.

With A Little Help from Your Friends by Art Agnello (source: SCAFFOLDS Fruit Journal, Volume 15, No. 17)

There are many insects present in apple orchards that provide a benefit to growers by feeding on pest species. It is important that growers and orchard managers be able to recognize these natural enemies, so that they are not mistaken for pests. The best way to conserve beneficial insects is to spray only when necessary, and to use materials that are less toxic to them (see Tables 5 & 12, pp. 66 and 74 of the Recommends). This brief review, taken from IPM Tree-Fruit Fact Sheet No. 18 (available online at: <http://www.nysipm.cornell.edu/factsheets/treefruit/pests/ben/ben.asp>), covers the major beneficial insects that are likely to be seen in N.Y. orchards, concentrating on the most commonly seen life stages. Factsheet No. 23, "Predatory Mites" (online: <http://www.nysipm.cornell.edu/factsheets/treefruit/pests/pm/pm.asp>), reviews mites that are important predators of leaf-feeding mites.

CECIDOMYIID LARVAE (*Aphidoletes aphidimyza*)

These gall midge flies (Family Cecidomyiidae) are aphid predators, and overwinter as larvae or pupae in a cocoon. Adults emerge from this cocoon, mate, and females lay eggs among aphid colonies. The adults are delicate, resembling mosquitoes, and are not likely to be seen. The eggs are very small (about 0.3 mm or 1/85 in. long) and orange. They hatch into small, brightly colored, orange larvae that can be found eating aphids on the leaf surface. These predacious larvae are present from mid-June throughout the summer. There are 3-6 generations per year. In addition to aphids, they also feed on soft-bodied scales and mealybugs.

SYRPHID FLY LARVAE (Family Syrphidae)

The Family Syrphidae contains the "hover flies", so named because of the adults' flying behavior. They are brightly colored with yellow and black stripes, resembling bees. Syrphids overwinter as pupae in the soil. In the spring, the adults emerge, mate, and lay single, long whitish eggs on foliage or bark, from early spring through midsummer, usually among aphid colonies. One female lays several eggs. After hatching, the larvae feed on aphids by piercing their bodies and sucking the fluids, leaving shriveled, blackened aphid cadavers. These predacious larvae are shaped cylindrically and taper toward the head. There are 5-7 generations per year. Syrphid larvae feed on aphids, and may also feed on scales and caterpillars.

LADYBIRD BEETLES (Family Coccinellidae)

o *Stethorus punctum*: This ladybird beetle is an important predator of European red mite in parts of the northeast, particularly in Pennsylvania, and has been observed

intermittently in the Hudson Valley of N.Y., and occasionally in western N.Y. *Stethorus* overwinters as an adult in the "litter" and ground cover under trees, or in nearby protected places. The adults are rounded, oval, uniformly shiny black, and are about 1.3-1.5 mm (1/16 in.) long. Eggs are laid mostly on the undersides of the leaves, near the primary veins, at a density of 1-10 per leaf. They are small and pale white, and about 0.3-0.4 mm (1/85 in.) long. Eggs turn black just prior to hatching. The larva is gray to blackish with numerous hairs, but becomes reddish as it matures, starting on the edges and completing the change just prior to pupation. There are 3 generations per year in south-central Pennsylvania, with peak periods of larval activity in mid-May, mid-June and mid-August. The pupa is uniformly black, small and flattened, and is attached to the leaf.

o Other Ladybird Beetles: Ladybird beetles are very efficient predators of aphids, scales and mites. Adults are generally hemisphere-shaped, and brightly colored or black, ranging in size from 0.8 to over 8 mm (0.03-0.3 in.). They overwinter in sheltered places and become active in the spring. Eggs are laid on the undersides of leaves, usually near aphid colonies, and are typically yellow, spindle-shaped, and stand on end. Females may lay hundreds of eggs. The larvae have well-developed legs and resemble miniature alligators, and are brightly colored, usually black with yellow. The pupal case can often be seen attached to a leaf or branch. There are usually 1-2 generations per year. One notable species that is evident now is *Coccinella septempunctata*, the seven-spotted lady beetle, often referred to as C-7. This insect, which is large and reddish-orange with seven distinct black spots, was intentionally released into N.Y. state beginning in 1977, and has become established as an efficient predator in most parts of the state.

LACEWINGS (Family Chrysopidae)

Adult lacewings are green or brown insects with net-like, delicate wings, long antennae, and prominent eyes. The larvae are narrowly oval with two sickle-shaped mouthparts, which are used to pierce the prey and extract fluids. Often the larvae are covered with "trash", which is actually the bodies of their prey and other debris. Lacewings overwinter as larvae in cocoons, inside bark cracks or in leaves on the ground. In the spring, adults become active and lay eggs on the trunks and branches. These whitish eggs are laid singly and can be seen connected to the leaf by a long, threadlike "stem". Lacewings feed on aphids, leafhoppers, scales, mites, and eggs of Lepidoptera (butterflies and moths).

TRUE BUGS (Order Hemiptera)

There are many species of "true bugs" (Order Hemiptera) such as tarnished plant bug, that feed on plants, but a number of them are also predators of pest species. The ones most likely to be seen are "assassin bugs" or reduviids (Family Reduviidae), and "damsel bugs" or nabids (Family Nabidae). These types of predators typically have front legs that are efficient at grasping and holding their prey.

PARASITOIDS

Parasitoids are insects that feed on or in the tissue of other insects, consuming all or most of their host and eventually killing it. They are typically small wasps (Order Hymenoptera; e.g., families Ichneumonidae, Braconidae, Chalcididae), or flies (Order

Diptera; e.g., family Tachinidae). Although the adult flies or wasps may be seen occasionally in an orchard, it is much more common to observe the eggs, larvae, or pupae in or on the parasitized pest insect. Eggs may be laid directly on a host such as the obliquebanded leafroller, or near the host, such as in the mine of a spotted tentiform leafminer. After the parasitoid consumes the pest, it is not unusual to find the parasitized larvae or eggs of a moth host, or aphids that have been parasitized ("mummies"). Exit holes can be seen where the parasitoid adult has emerged from the aphid mummy.

GENERALIST PREDATORS

There is a diversity of other beneficial species to be found in apple orchards, most of which are rarely seen, but whose feeding habits make them valuable additions to any crop system. The use of more selective pesticides helps to maintain their numbers and contributes to the level of natural control attainable in commercial fruit plantings.

Among these beneficials are:

- o Spiders (Order Araneida): All spiders are predaceous and feed mainly on insects. The prey is usually killed by the poison injected into it by the spider's bite. Different spiders capture their prey in different ways; crab spiders (Thomisidae and Philodromidae) and jumping spiders (Salticidae) forage for and pounce on their prey -- the crab spiders lie in wait for their prey on flowers -- and web-building spiders (e.g., Araneidae, Theridiidae, and Dictynidae) capture their prey in nets or webs.

- o Ants (Family Formicidae): The feeding habits of ants are rather varied. Some are carnivorous, feeding on other animals or insects (living or dead), some feed on plants, some on fungi, and many feed on sap, nectar, honeydew, and similar substances. Research done in Washington has shown certain species (Formica spp.) of ants to be effective predators of pear psylla.

- o Earwigs (Family Forficulidae): Although these insects may sometimes attack fruit and vegetable crops, those found in apple orchards are probably more likely to be scavengers that feed on a variety of small insects.

Growing Degree Days Across Ohio - Data through July 12 from OSU Phenology Garden Network (not all locations) [OSU Phenology Garden Network](#)

OSU South Centers Piketon	1640
Wilmington	1527
Chillicothe	1522
Athens	1504
Xenia	1422
Marietta	1408
Findlay	1400
Washington Court House	1394
Toledo	1377
Wooster	1334
Canton	1325
Norwalk	1318
Mansfield	1315
Shinrock	1301
Stow	1284

Canfield	1280
Cortland	1223
Willoughby	1215
Mt. Sterling	1205
Kingsville	1161
Coshocton	975
Delaware	795
Newark	725
Columbus	***

Coming Events -Art Agnello SCAFFOLDS Fruit Journal, Volume 15, No. 17

COMING EVENTS Ranges (Normal +/- Std Dev):	43F	50F
American plum borer 2nd flight begins	1411-1893	1020-1232
Apple maggot first oviposition punctures	1528-2078	1021-1495
Codling moth 1st flight subsides	1296-1946	808-1252
Codling moth 2nd flight begins	1555-2283	999-1529
Comstock mealybug 1st flight peak	1505-1731	931-1143
Lesser appleworm 2nd flight begins	1365-1979	889-1305
Obliquebanded leafroller 1st flight subsides	1618-2130	1038-1434
Oriental fruit moth 2nd flight peak	1378-2086	865-1415
Redbanded leafroller 2nd flight peak	1524-2018	965-1353
Spotted tentiform leafminer 2nd flight peak	1377-1841	861-1217
STLM 2nd generation tissue feeders present	1378-2035	913-1182

Fruit Observations and Trap Reports

Trap reports for Columbus are posted at least once per week on the internet at <http://bugs.osu.edu/welty/tree-traps.html>

Site: Waterman Lab Apple Orchards, Columbus

Dates: 6/29/06 to 7/5/06

Pests:	Redbanded leafroller:	28 (down from 43 last week)
	Spotted tentiform leafminer:	109 (down from 249 last week)
	San José scale:	20 (up from 0 last week)
	Codling moth (mean of 3):	2 (down from 5.3 last week)
	Lesser appleworm:	5 (down from 7 last week)
	Tufted apple budmoth:	3 (up from 2 last week)
	Variegated leafroller:	0 (down from 1 last week)
	Obliquebanded leafroller:	0 (same as last week)
	Apple maggot (mean of 3):	.3 (down from .7 last week)

Site: Waterman Lab Apple Orchards, Columbus

Dates: 7/6/06 to 7/12/06

Pests:	Redbanded leafroller:	8 (down 28 last week)
	Spotted tentiform leafminer:	411 (up from 109 last week)
	San José scale:	47 (up from 20 last week)
	Codling moth (mean of 3):	3 (up from 2 last week)
	Lesser appleworm:	10 (up from 5 last week)
	Tufted apple budmoth:	2 (down from 3 last week)

Variegated leafroller: 1 (up from 0 last week)
Obliquebanded leafroller: 2 (up from 0 last week)
Apple maggot (mean of 3): 0 (down from .3 last week)

North Central Tree Fruit IPM Program

Report Prepared By Zachary Rinkes - Erie County Extension Educator

Jim Mutchler - East District IPM Scout (Erie and Lorain Counties)

Dates - 7/10/06 and 7/11/06

Apples

Redbanded leafroller - 6.3 (down from 21)
Oriental Fruit Moth - 2.6 (up from 2)
San Jose Scale - 0 (same as last week)
Codling Moth (mean of 3) - 1.3 (down from 3.9)
Apple Maggot (sum of 3) - 0.5 (up from 0.1)

Peaches

Redbanded leafroller - 4.0 (down from 5.7)
Oriental Fruit Moth - 1.7 (up from 1.3)
Lesser peachtree borer - 12.3 (down from 15.3)
Peachtree borer - 8.3 (up from 4.7)

Ted Gastier - West District IPM Scout (Sandusky, Ottawa and Richland Counties)

Date - 7/10/06

Apples

Spotted tentiform leafminer - 846 (up from 533)
Redbanded leafroller - 29 (up from 15)
Oriental Fruit Moth - 14 (up from 3)
San Jose Scale - 0 (same as last week)
Codling Moth (mean of 3) - 0.4 (up from 0.2)
Lesser appleworm - 11 (up from 5.1)
Apple maggot (sum of 3) - 0 (same as last week)

Peaches

Redbanded leafroller - 37.6 (up from 24.8)
Oriental Fruit Moth - 1.2 (up from 0)
Lesser peachtree borer - 8.7 (up from 8.0)
Peachtree borer - 3.0 (up from 1.0)

NOTE: Disclaimer - This publication may contain pesticide recommendations that are subject to change at any time. These recommendations are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. Due to constantly changing labels and product registrations, some of the recommendations given in this writing may no longer be legal by the time you read them. If any information in these recommendations disagrees with the label, the recommendation must be disregarded. No endorsement is intended for products mentioned, nor is criticism meant for products not mentioned. The author and Ohio State University Extension assume no liability resulting from the use of these recommendations.

Ohio Poison Control Number

(800) 222-1222
TDD # is (614) 228-2272