



Newsletter Extension

Fruit ICM News

Volume 4, No. 22
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Calendar

July 25: Fruit Production Twilight Farm Meeting, Highwater Orchard, 2010 Lundys Lane, 8 mi. north of Granville, 5 PM till dark. Tom Harrison, ODA & Mike Ellis, OARDC will discuss status & risk management of the Plum Pox Virus in peaches. Bayer Corporation will supply a light supper and will highlight their products for fruit and pumpkin crop protection. From 7-9 PM participants will tour the farm and share ideas with Dr. Mac Reidel, OSU Plant Pathologist (reducing late summer disease pressure in pumpkins), Dr. Dick Funt (minimizing mistakes in small fruit irrigation), and Dr. Mike Ellis (managing disease in fruit crops in late summer and post harvest). Sponsored by OSU Extension, Licking County. Call for more information (740) 349-6900. Note: St. Rte. 661 north of Granville is closed; use an alternate route.

July 27: Apogee Twilight Meeting, in Wooster at OARDC Hort Unit 2, at 6 PM. Apogee is a new growth regulator that not only reduces growth, but also reduces the degree of fire blight infection. See the effect of this material on young Fuji and Golden Delicious trees. BASF will provide a lunch followed by a tour of the plots. In addition, there will be an opportunity to see the relative sensitivity to fire blight of a number of promising new apple cultivars. This will be an excellent opportunity to see first-hand the effects of this new management tool under a severe natural fire blight infection.

July 27-28: Ohio Berry Tour, Central Ohio. Learn more about growing & marketing berries. This drive yourself tour begins on Thursday at 2:30 pm at Rhoads Farm Market on SR 56 east of Circleville. Then head northwest to Circle S Farms located west of Grove City on London-Groveport Road. The

tour offers dinner at Circle S Farm on Thursday evening, along with discussions with Dr. Dick Funt and Dr. Mike Ellis of OSU. Friday's tour begins at 9:00 AM at Schacht Farm Market on Shannon Road in Canal Winchester, and also includes stops at Doran's Farm Market on Babbitt Road outside of New Albany and Jacquemine Farms on Hyland-Croy Road near Plain City. Cost of the tour is \$15 per person including dinner Thursday evening. For those not participating in the dinner meeting, the cost is \$5 per person. Contact Berry Coordinator Sandy Kuhn at (800) 297-2027 or jwargows@ofbf.org for more information.

Woolly Apple Aphid (continued)

Sources: Ohio State University Extension HYG-2208-94, Celeste Welty, Entomologist, Janet Murphy, Graduate Research Associate. <http://ohioline.ag.ohio-state.edu/hyg-fact/2000/2208.html>

Cultural Control

Resistant varieties must be used to prevent underground infestations, as woolly apple aphid infestations on rootstocks cannot be controlled by insecticides. The Malling-Merton (MM) rootstock series provides resistance to woolly apple aphid attack. Some apple varieties such as Northern Spy are resistant to this pest.

Removal of suckers at the base of trees will create conditions that discourage development of woolly apple aphid populations in early-spring. Summer pruning of water sprouts also contributes to woolly apple aphid suppression.

Monitoring

Pruning cuts and water sprouts should be examined in late-spring and every few weeks throughout the summer for the presence of new colonies of woolly apple aphid. Specific action thresholds have not yet been developed.

Chemical Control

An insecticide can be applied if woolly apple aphid is detected at damaging levels on above-ground parts of trees. Insecticides are most effective if applied when the aphid is in the active crawler stage and is just moving up into the tree. This may occur in late-spring or not until mid-summer. Thorough coverage of the canopy is needed for insecticide to be effective. Because of the aphids' waxy covering, high volume application is needed to get thorough spray coverage. A second application may be needed two weeks after the first if aphids continue to be detected.

Insecticides used to control woolly apple aphid in commercial orchards are dimethoate (Cygon), endosulfan (Thiodan), or chlorpyrifos (Lorsban).

Plant Tissue Analysis for Michigan Fruit Crops

Source: Bill Shane, SW Mich. Res. & Ext. Ctr.

The most accurate measure of the nutritional health of most of our tree fruits is the concentration of nutrients in the plant tissue or foliage. Years of research have demonstrated that the fertilizer needs of an established fruit tree are best determined by tissue analysis.

July and early August is the best time to do leaf analysis. The Horticulture Department at MSU has offered a leaf analysis service to fruit growers since 1953. It is easy to take advantage of this service.

To collect a sample, select about 100 leaves that are fully expanded and are from the middle of this season's growth. Do not sample spur leaves or leaves damaged by insects, diseases, wind or machinery. Remove the leaves by pulling downward toward the base of the shoot so that the stem (petiole) remains on the leaf. The leaves should be collected from all sides of the tree.

It is typically more effective to sample one variety of fruit tree at a time. Place the leaves on a piece of newspaper for a few days to allow them to dry. Place the sample, along with the completed information form, in the sample bag.

Submit a check or money order made payable to "Michigan State University" with your samples. Cost of a leaf analysis for all of our major and many minor elements is \$20 per sample. Routine analyses give results for N, P, K, C, Mg, Cu, Fe, Mn, and Zn. Growers may request a total analysis, an N analysis only, or all elements except N.

Send to:

MSU Soil Testing Laboratory
A81 Plant and Soil Science Building
Michigan State University
East Lansing, MI 48824

Fruit crops for which recommendations are available include tree fruits, grapes, blueberries, raspberries, and strawberries. The Plant Tissue Analysis Information Sheet for submission is included in this newsletter.

MICHIGAN STATE UNIVERSITY SOIL & PLANT NUTRIENT LABORATORY

PLANT TISSUE ANALYSIS INFORMATION SHEET

FRUIT TISSUE

DATE: _____

GROWER NAME: _____

STREET ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

PLANT AGE: _____

COUNTY: _____

VARIETY: _____

GROWER SAMPLE IDENTIFICATION: _____
(FIVE CHARACTER LIMIT PLEASE)

FRUIT CROP: _____

Analysis desired:

_____ Complete analysis with N
_____ Complete without N
_____ N Alone

SEND TO:

MSU SOIL & PLANT NUTRIENT LAB
A81 PLANT & SOIL SCIENCES BLDG
EAST LANSING, MI 48824-1325

Results are sent to MSU Extension District Horticultural Agent to be interpreted and forwarded to the customer.

FOR LAB USE ONLY:

LABORATORY ID: **H** _____

PAID _____ Amount & CHK number _____

CHARGE _____ Client _____ County _____

K NUMBER: _____

Japanese Beetle: *Popillia japonica* (Order Coleoptera, Family Scarabaeidae)

Source: Midwest Tree Fruit Pest Management Handbook
http://www.ca.uky.edu/agc/pubs/id/id93/ch_1.htm

Damage:

The adult beetles feed on leaves of a wide variety of trees and shrubs. Adults feed on the upper surface of foliage, chewing tissue between the veins and leaving a lace-like skeleton of the leaf. They usually feed in groups, starting at the top of a plant and working downward. The beetles are most active on warm, sunny days and prefer plants that are in direct sunlight. A single beetle does not eat much; it is group feeding by many beetles that results in severe damage. Trees that have been severely injured appear to have been scorched by fire. Japanese beetles will also feed on fruits that have been damaged by other insects.

Appearance:

Adult Japanese beetles are 3/8-inch-long, metallic green beetles with copper-brown wing covers. A row of white tufts of hair project from under the wing covers on each side of the body.

Life Cycle and Habits:

Japanese beetles overwinter underground in the grub stage and pupate near the soil surface in the spring. Grubs spend 10 months in the soil, where they feed on roots of grasses, and can be serious pests of turf. Adults emerge from the ground and begin feeding on various plants in June. Activity is most intense over a 4- to 6-week period beginning in late June. By mid-July, numbers of beetles gradually diminish. Individual beetles live about 30 to 45 days. There is a single generation per year. Orchard trees that may be severely attacked include apple, cherry, black cherry, peach, and plum.

Monitoring and Thresholds:

There are few threshold guidelines relative to when apples need to be treated for Japanese beetles. However, the first Japanese beetle colonizers in the early summer will attract others into the orchard, so early control can reduce later infestations. Japanese beetle traps are available that lure both male and female beetles into the trap. This trap is so effective at attracting beetles that it can actually increase both the number of beetles in the vicinity of the trap and the damage they cause. Despite the bad reputation the trap has earned because of its super-attractiveness, the trap is still effectively used if it is placed at some distance away from the orchard.

Chemical Control:

Carbaryl is the most effective insecticide used in managing Japanese beetles. However, because carbaryl can greatly increase problems with European red mites, other insecticides are recommended to manage low to moderate Japanese beetle populations in apples. Repeated insecticide applications may be necessary at 7- to 10-day intervals to prevent reinfestation during the adult flight period or after heavy rains. Use of a spreader/sticker in the spray mix can increase the duration of effectiveness.

Ohio Farmer's Markets Directory

Source: <http://www.state.oh.us/agr/directoryforweb.PDF>

The Ohio Department of Agriculture has an extensive new seventy-eight page directory of Ohio farm markets listed on their web site.

Fruit Observations

Insect Key

AM: Apple maggot
CM: Codling moth
DWB: Dogwood borer
LPTB: Lesser peachtree borer
OBLR: Oblique banded leafroller
OFM: Oriental fruit moth
PC: Plum curculio
PTB: Peachtree borer
RBLR: Redbanded leafroller
SJS: San Jose scale
STLM: Spotted tentiform leafminer
TABM: Tufted apple budmoth
VLR: Variegated leafroller

Site: Waterman Lab, Columbus (7/13-7/19)

Source: Dr. Celeste Welty, OSU Extension Entomologist

Traps used: STLM=wing traps, SJS=Pherocon-V, Others=Multiplier-1® traps

Apple

RBLR: 6 (up from 0)
STLM: 636 (up from 459)
DWB: 1.5 (up from 1.0)
SJS: 0 (unchanged)
CM: 14.3 (up from 5.7)
OBLR: 0 (unchanged)
TABM: 0 (unchanged)
VLR: 1 (up from 0)
AM: 0 (unchanged)

Peach

OFM: 17 (down from 27)
LPTB: 2.0 (up from 1.5)
PTB: 7.5 (up from 6.5)

Orchard Observations: The second generation of codling moth is in the early stages, based on pheromone trap counts at Columbus that show an increase in adult codling moth in the past week. We can assume that eggs are being laid and young larvae will begin invading fruit within about 1 week.

Site: East District; Erie & Lorain Counties (7/13-7/19)

Source: Jim Mutchler, IPM Scout

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

Apple

RBLR: 0.4 (down from 4.4)
CM: 1.6 (up from 0.8)
SJS: 54.6 (down from 62.5)
AM: 0.1 (down from 0.8)

Peach

OFM: 11.3 (up from 8.3)
RBLR: 1.0 (down from 4.3)
LPTB: 7.3 (down from 19.3)
PTB: 10.7 (up from 7.3)

Other pests: blister spot, green apple aphid, Japanese beetle, oriental fruit moth strikes, fire blight, scab, powdery mildew

Beneficials at work: lacewing eggs, larvae, & adults, orange maggots, lady beetles, *Stethorus punctum*

Site: West District; Huron, Ottawa, & Sandusky (7/12-7/18)

Source: Gene Horner, IPM Scout

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

Apple

RBLR: 0.8 (down from 10.5)

SJS: 8.2 (up from 0)

CM: 0.4 (unchanged)

AM: 0

Peach

OFM: 8.8 (up from 7.8)

RBLR: 0 (down from 12.5)

LPTB: 12 (down from 18)

PTB: 3.3 (down from 4.8)

Other pests: green apple aphid, potato leafhopper, Japanese beetle, apple rust mite, Japanese beetle damage

Beneficials at work: Lacewing eggs & adults, banded thrips, lady beetles, *Stethorus punctum*, black hunter thrips

Site: Wayne County (7/14-7/20)

Source: Ron Becker, Extension Program Assistant

Traps used: STLM=Wing traps, PC=Circle trunk trap, Others=Multipher® traps

	Apple			
	North	South	East	West
RBLR:	0.67	0	1	0
STLM:	1133	137.5	32	125.8
CM:	0.78	2.83	0.3	10.75
PC:	0			0

	Peach		
	North	South	West
OFM:	1	54	51
LPTB:	0	3	0
PTB:	1	6	9.5

Orchard observations: Light aphid & red mite populations; leafminer damage & counts increasing.

Northern Ohio Apple Scab Activity - SkyBit Product

SkyBit based on observations: July 3, 4 10, 11, 14-17; possible infection & damage

Based on Forecasts: July 20-22; possible infection & damage

North Central Ohio Spectrum Technologies Orchard Monitors for Apple Scab

Spectrum Technologies Monitors and Software* Observations: July 4, 11, 15; Medium Infection
(Software* based on Modified Mills Chart)

Northern Ohio Fire Blight Activity - SkyBit Product

SkyBit based observations: July 3, 4, 9-11, 14-17; possible infection and damage

Based on Forecasts: July 20-22, 25-27; possible infection & damage

Northern Ohio Sooty Blotch - SkyBit Product

SkyBit based observations: July 4-19; possible infection and damage

Based on Forecasts: July 20-27; possible infection & damage

Degree Day Accumulations for Selected Ohio Sites January 1, 2000 to date indicated

Location	Actual DD Accumulations July 19, 2000		Forecasted Degree Day Accumulations July 26, 2000			
	Base 43° F	Base 50° F	Base 43° F	Normal	Base 50° F	Normal
Akron - Canton	2167	1363	2374	2326	1520	1545
Cincinnati	2686	1799	2924	2971	1987	2062
Cleveland	2185	1398	2391	2270	1554	1507
Columbus	2635	1762	2854	2589	1932	1757
Dayton	2571	1702	2796	2651	1877	1819
Mansfield	2175	1381	2381	2302	1537	1528
Norwalk	2262	1465	2467	2263	1620	1511
Toledo	2257	1442	2464	2259	1599	1510
Wooster	2277	1454	2474	2200	1601	1435
Youngstown	2090	1291	2284	2144	1435	1395

Phenology

Coming Events	Range of Degree Day Accumulations	
	Base 43 F	Base 50 F
Codling moth 2 nd flight peak	1587-3103	1061-2212
Oriental fruit moth 2 nd flight subsides	1806-2783	1164-1963
Redbanded leafroller 2 nd flight subsides	1927-3045	1291-2160
San Jose scale 2 nd flight peak	1934-2591	1271-1874
Spotted tentiform leafminer 3 rd flight begins	2215-2783	1558-2123

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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.

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TDD # 1 (800) 589-8292 (Ohio only) or (614) 292-1868

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Thanks to Scaffolds Fruit Journal (Art Agnello)