http://ipm.osu.edu/fruit/index.html

THE OHIO STATE UNIVERSITY Newsletter Extension

Fruit ICM News

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Calendar

June 20 & 21: Direct Marketing Summer Tour in NE Ohio and NW Pennsylvania, sponsored by Ohio Direct Ag. Marketing Association (DAMA), evening of June 20 and all day on June 21. **Tuesday, June 20**: 6:30 p.m. - Picnic dinner at Whitehouse Fruit Farm, 9249 State Route 62, 4 miles southwest of Canfield, phone (330) 533-4161; 7:30 p.m.- Tour of Whitehouse Fruit Farm. **Wednesday, June 21:** 6:00-7:00 a.m.- Continental breakfast at Whitehouse Fruit Farm; 7:00 a.m.- Bus leaves from Whitehouse Fruit Farm; 7:10 a.m.- Tour Haus Red Apple Orchard, Canfield; 8:45 a.m.- Tour Apple Castle Farm Market, New Wilmington, PA; 10:40 a.m.- Tour Soergel's Farm Market, Wexford, PA; 11:40 a.m.- Lunch at Soergel's; 1:30 p.m.- Tour Trax Farms, Finleyville, PA; 3:30 p.m.- Tour Janoski's Market and Greenhouse, Clinton, PA; 5:30 p.m.- Return to Whitehouse Fruit Farm. Cost is $50.00 per person, which includes bus travel, Tuesday evening picnic, Wednesday breakfast and Wednesday lunch. To register, contact Rob Leeds, OSU Extension, Delaware County at (740) 368-1925 or leeds.2@osu.edu.

June 28: Ohio Fruit Growers Society Summer Tour, Vogley Enterprises, East Sparta, Ohio, Stark County. Wagon tours start at 8:00 a.m. Dr. Dave Ferree will talk about Apogee, for fire blight and growth regulation. Diane Miller will discuss peach varieties and the Vogley's trickle irrigation system. A walking tour of the processing facilities follows, with Winston Bash (Director of Food Industry Center at OSU) reviewing sanitation and food safety. Exhibitors will sponsor lunch, and Ohio Fruit Growers business meeting starts at 1:00 p.m. Cost is $6 per person or $12 for the family. For registration, contact OFGS at (614) 249-2424 or growohio@ofbflorg so they can prepare the proper number of lunches.

July 27-28: Ohio Berry Tour, Central Ohio. Tour stops include Rhoads Farm Market (Circleville),

Circle S Farms (Grove City), Schacht Farm Market (Canal Winchester), Jacquemine Farms (Plain City), and Doran's Farm Market (New Albany). We will keep you posted as definite times are set and registration information becomes available. Contact Berry Coordinator Sandy Kuhn at (800) 297-2027 or kuhn.37@osu.edu for information needed before then.

August 3: OVPGA & Ohio Fruit Growers Society Young Grower Tour, in northeast Ohio, 8:30 a.m. to 7:30 p.m.. This bus tour provides a broad variety of fruit and vegetable operations that use different marketing strategies. Stops include: Farmers Produce Auction (Mt. Hope), Graf Growers (Akron), Hilgert's Berry Farm & Market (Mogadore), K.W. Zellers & Son (Hartville), and Hartville Kitchen (for dinner). Tour is designed for growers 40 years of age and younger, and others are welcome if interested. Contact John Wargowsky at (614) 249-2424 or jwargows@ofbf.org for more information.

Disease Management in Hail-Damaged Orchards

Source: *Dave Rosenberger Plant Pathology, Cornell University, Highland, dar22@cornell*

While this article is specific to a New York State weather event, Ohio is always subject to possible hail storms during the growing season. Mike Ellis believes it's important to be prepared.

A severe hail storm moved through the lower Hudson Valley on the evening of May 18th, leaving varying levels of damage in its wake. In orchards at the center of the storm path, hail damage to tree fruits was so severe that some growers will abandon the crop. Orchards on the edges of the storm path sustained varying degrees of damage. In general, late blooming apple varieties such as Delicious, Golden Delicious, and Rome sustained less damage than earlier varieties such as Mac and Empire. Late blooming cultivars apparently escaped some damage because they had not yet sized enough to provide a substantial target. The longer fruit stems on the later cultivars may also have allowed the fruitlets to deflect the hail impacts more than cultivars such as Empire that often have short stiff stems.

Pear blocks and high-risk apple blocks that were hit with hail should have been sprayed with streptomycin as soon as possible after the hail storm. Because of continuing rain and wind, most streptomycin applications were made 36 to 48 hours after the hail storm, rather than within 24 hours as is usually recommended. Most growers with apple orchards that were free of fire blight for at least two years opted not to apply streptomycin because they assumed that these orchards would be free of blight inoculum (a decision with which I concurred). Whether or not this was the correct decision should become evident within several weeks.

The risks of hail-induced trauma blight are presumably higher this year than they would be in most years because bloom-time weather was very favorable for fire blight. According to the MaryBlyt model, fire blight infections in the lower Hudson Valley could have occurred on May 6, 7, and 10, with "high risk" indicated for May 8, 9, 11, 14. (There was only a bit of rat-tail bloom left by the 14th.) The model indicated that the first symptoms of blossom blight and canker margin symptoms should have been present about two days before the hail storm. No one has reported visible fire blight symptoms at this time. However, the prediction that early symptoms may have been present at the time of the hail storm means that secondary inoculum for blight could have been present in orchards where blossom infections occurred. Growers should monitor orchards carefully for blight symptoms during the next two weeks. In hailed blocks where this year's crop will be abandoned, no more fungicide sprays should be necessary to protect foliage. The supply of apple scab ascospores has been depleted (1229 DD base 32°F.), and risks of further spread of apple scab are relatively small in orchards where trees were fully protected from

primary scab up to this point. Where the crop will be harvested, continued fungicide protection is warranted to ensure protection against flyspeck, black rot, and the risk (albeit a small risk) of secondary apple scab infections.

San Jose Scale

Source: Angus H. Howitt, Common Tree Fruit Pests, Michigan State University

The first adult catches of SJS have been observed in some orchards. San Jose scale was brought into California about 1870, on a shipment of ornamental plants from the Orient. By 1873, it had established itself as a serious pest in the San Jose Valley; hence, the name. It was also introduced into New Jersey in 1886, arriving on plum stock consigned to two nurseries. These two businesses shipped trees to all parts of the country, and by 1895 SJS had reached all parts of the U.S.

SJS has the distinction of being the first insect reported to develop resistance to pesticides. SJS's resistance to lime sulfur was reported in Washington State in 1908. Tremendous damage was done by this pest before controls were perfected.

Host plants include apple, pear, quince, plum, apricot, sweet cherries, currants, gooseberries, and many ornamental shrubs and trees. Osage orange is often heavily infested and is thought to serve as a reservoir for reinfestation.

SJS passes the winter in the partly grown nymphal stage under its scale coverings on host trees or shrubs. The insects remain dormant until the sap starts to flow in the spring. The nymphs pass through four instars, maturing into adults in late May. At this time the active males, which are tiny, oval, two-winged insects, come out from their scales to mate with the females. The females remain under their scales their entire lives.

After mating, the female scale produces **living** young (crawlers) at a rate of 9 or 10 per day. During a reproductive period of about 6 weeks, each female can produce 150 to 500 crawlers. Crawlers have six well-developed legs and two antennae and can crawl considerable distances during their first few hours of life. They will crawl about for a few hours until they find a place attractive to them. Then they will insert their slender, threadlike mouthparts through the bark and begin sucking sap. About three weeks later, they molt and shed their skins, losing their legs and antennae with the old skin.

The scales then become mere flattened, yellow sacs with waxy caps. They are attached to the bark by their sucking mouthparts. As the insect grows, wooly secretions given off from the body are mixed with a waxy material to continue the formation of the shell.

San Jose scale increases most rapidly in hot, dry weather. The descendants of a single female could number more than 300 million a year. Crawlers are spread by wind, on birds' feet, on workers' clothing, and on farm implements.

There are two generations per year. Because the females bear living young over so long a period, the broods overlap and all stages may be present on the trees throughout the growing season. In the summer, each generation is completed in five to seven weeks, depending on the weather. Natural enemies include parasitic wasps and ladybird beetles.

First generation crawlers, which usually begin to emerge four to six weeks after male flight, can be controlled with thorough coverage by an effective pesticide applied immediately after you see the first crawler. The spray should be specifically timed for the first and peak crawler activity, usually 7-10 days apart. We can expect crawler emergence 400 DD after the first catch; however, Dr. Celeste Welty is now studying climatological records to determine a more exact number for Ohio.

For images and further description of SJS:http://www.ento.vt.edu/Fruitfiles/SJS.html

Controlling Fabraea Leaf Spot on Pear and Quince

Source: Dave Rosenberger, Plant Pathology, Cornell University, Highland, dar22@cornell.edu

Fabraea leaf spot is a perennial threat to quince and Bosc pears. Other pear varieties can also get Fabraea, but Bosc is the most susceptible of the commonly grown varieties in New York. Epidemics of Fabraea leaf spot are usually initiated between petal fall and July first. This disease is one of the most "explosive" diseases of tree fruits. It often seems to appear almost overnight during late June or early July, but epidemics are actually initiated much earlier than that.

Epidemics usually occur as a result of primary infections that become established during the three to four weeks after petal fall. These primary infections appear as nondescript, round leaf spots that usually escape notice.

If fungicide protection is inadequate during June or early July, a few primary infections will provide the inoculum for a rapidly developing epidemic. Foliar symptoms can appear almost simultaneously on many leaves throughout much of the tree canopy during late June or early July.

Fabraea can build up more quickly than diseases like apple scab because scab is able to infect only newly formed leaves on growing terminals, whereas older leaves and fruit never become resistant to infection by Fabraea. Leaves and fruit on quince and pear trees remain susceptible to Fabraea leaf spot right up until harvest. Thus, when Fabraea leaf spot epidemics develop in early summer, all of the existing leaves can become infected in a short time if inoculum is present and trees are left unprotected.

To avoid Fabraea epidemics, quince and pear trees should be protected with fungicide from petal fall through July 4. These sprays will prevent the primary infections that subsequently produce the abundant conidia that cause the epidemics. If trees are protected with fungicides applied on a 14-21-day interval through July 4, then the chances for late-season development of Fabraea are minimized.

The mancozeb fungicides have been considered the most effective for controlling Fabraea, but their use is restricted by their 77-day preharvest interval. Until this year, ziram was the most commonly used fungicide for protecting pear orchards during summer. Now both Sovran and Flint are registered for use on all pome fruits, including pears and quince. Neither Sovran nor Flint have been evaluated for efficacy against Fabraea leaf spot, and Fabraea therefore is not included on either label. However, both Sovran and Flint should control Fabraea if they are used during summer for other diseases for which they are labeled.

Pears and quince should be protected from Fabraea during June, even in orchards where the crop has been lost to hail. Fabraea can cause premature defoliation, and trees that defoliate in early summer will fail to set fruit buds for next year. Furthermore, orchards that develop Fabraea this year will pose control

challenges for next year because of high inoculum carry-over.

Fruit Websites

Fruit Image Gallery for Insects & Diseases:
http://www.caf.wvu.edu/Kearneysville/

Virtual Orchard
http://virtualorchard.net/

Midwest Small Fruit & Grape Net:
http://www.ag.ohio-state.edu/~sfgnet

IPM in New York State:
http://www.nysaes.cornell.edu/ipmnet/ny/fruits/

Scaffold Fruit Journal:
http://www.nysaes.cornell.edu/ent/scaffolds/

University of Vermont Apple Orchard:
http://orchard.uvm.edu

Ohio Climatological Reports:
http://iwin.nws.noaa.gov/iwin/oh/climate.html

Illinois Fruit & Vegetable News:
http://www.aces.uiuc.edu/~ipm/news/fvnews.html

MSU Fruit Crop Advisory Team Alert:
http://www.msue.msu.edu/ipm/fruitCAT.htm

Ohio Commercial Small Fruit & Grape Spray Guide 2000:
http://www.hort.purdue.edu/hort/ext/sfg/

Midwest Small Fruit Pest Management Handbook:
http://ohioline.ag.ohio-state.edu/b861/index.html

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

Palmer Drought Index:
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif

Fruit Pathology Homepage - Penn State:
http://fpath.cas.psu.edu/

Brambles - Production, Management, & Marketing:

http://ohioline.ag.ohio-state.edu/b782/index.html

Facts for Fancy Fruit Newsletter - Purdue:
http://www.hort.purdue.edu/fff/fff.html

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 (5/11-5/17)
Source: Dr. Celeste Welty, OSU Extension Entomologist
Traps used: STLM=wing traps, SJS=Pherocom-V, Others=Multipher-1® traps

Apple	**Peach**
RBLR: 0 (unchanged)	OFM: 8 (down from 14)
STLM: 59 (up from 0)	LPTB: 4.0 (up from 0)
DWB: 1.5 (up from 0)	PTB: 0 (unchanged)
SJS: 0 (down from 4)	
CM: 22.0 (up from 12.3)	
OBLR: 0 (unchanged)	
TABM: 0 (unchanged)	
VLR: 0 (unchanged)	

Site: East District; Erie & Lorain Counties (5/11-5/17)
Source: Jim Mutchler, IPM Scout
Traps Used: STLM=wing traps, Others=Multipher® traps

Apple	**Peach**
RBLR: 0.1 (down from 2.2)	OFM: 3.3 (down from 7.33)

STLM: removed trap	RBLR: 0.3 (down from 1.3)
CM: 2.3 (down from 23.4)	LPTB: 11.0 (first report)
SJS: 0 (unchanged)	PTB: 12.7 (first report)

Other pests: plum curculio strikes, green apple aphid

Site: West District; Huron, Ottawa, & Sandusky (5/10-5/16)
Source: Gene Horner, IPM Scout
Traps Used: STLM=wing traps, Others=Multipher® traps

Apple	**Peach**
RBLR: 0.0 (down from 1.0)	OFM: 3.5 (down from 5.75)
SJS: 2.4 (down from 4.0)	RBLR: 0 (down from 0.8)
CM: 0.9 (down from 3.4)	LPTB: 14.8 (down from 36.0)
	PTB: 0.5 (down from 0.8)

Other pests: white apple leafhopper, green apple aphid, green peach aphid, lilac borer, two spotted spider mite

Beneficials at work: Banded thrips, predatory mites, brown lacewing

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Site: Wayne County (5/11-5/17)
Source: Ron Becker, Extension Program Assistant
Traps used: STLM=Wing traps, PC=Circle trunk trap, Others=Multipher® traps

	Apple			
	North	South	East	West
RBLR:	0.3	0.5	0	0
STLM:	7.3	0	0	1.5
CM:	0.4	1.33	0	30.08
PC:	0			0

	Peach		
	North	South	West
OFM:	0	7	3.5
LPTB:	0	5	3
LPTB:	0		

Orchard observations: *North:* Light red mite and white apple leafhopper, light-moderate aphid clusters. Pheromone has been used in the peach orchard to deter LPTB. This is being reflected in the trap catch (0). *South:* heavy curculio damage in one orchard. Light aphid and light russeting. *West:* heavy red mite in one block, light-moderate aphid and white apple leafhopper in the two of the others. Fire blight

very apparent in Jonathans.

Northern Ohio Apple Scab Activity - SkyBit Product

SkyBit based on observations:	May 1, 2, 5, 7, 8, 10, 13, 17-24; possible infection & damage
Based on Forecasts:	**May 27-29; possible infection & damage**

North Central Ohio Spectrum Technologies Orchard Monitors for Apple Scab
Spectrum Technologies Monitors and Software* Observations: May 1,2,10; Light Infections May 19, 23-24; Moderate Infections (Software* based on Modified Mills Chart)

Northern Ohio Fire Blight Activity - SkyBit Product

SkyBit based observations:	May 1, 4, 5, 7-10, 13, 18,19, 22-24; possible infection & damage
Based on Forecasts:	**May 27-29; possible infection & damage**

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

	Actual DD Accumulations May 24, 2000		Forecasted Degree Day Accumulations May 31, 2000			
Location	**Base 43° F**	**Base 50° F**	**Base 43° F**	**Normal**	**Base 50° F**	**Normal**
Akron - Canton	830	418	950	826	490	438
Cincinnati	1103	607	1259	1219	712	702
Cleveland	809	413	924	784	481	412
Columbus	1066	585	1202	982	671	542
Dayton	1033	555	1172	999	644	559
Mansfield	821	419	939	808	489	426
Norwalk	819	414	935	767	483	406
Toledo	837	414	954	756	483	399
Wooster	898	465	1011	766	531	393
Youngstown	800	396	909	740	459	382

Phenology

	Range of Degree Day Accumulations	
Coming Events	**Base 43° F**	**Base 50° F**
Cherry fruit fly 1st catch	650-1500	368-961
Black cherry fruit fly 1st catch	686-985	392-636
Lesser peachtree borer flight peak	733-2330	392-1526
Peachtree borer 1st catch	735-1321	299-988
Oriental fruit moth 1st flight subsides	781-1574	442-1026
Spotted tentiform leafminer 2nd flight begins	795-1379	449-880
Dogwood borer 1st catch	798-1182	456-718

Thanks to Scaffolds Fruit Journal (Art Agnello)

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