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THE OHIO STATE UNIVERSITY Newsletter Extension

Fruit ICM News

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In This Issue:

Calendar

June 30: Ohio Fruit Growers Society Summer Tour, OARDC Horticulture Unit 2, Wooster. Registration begins at 7:00 a.m., program runs 8 a.m. to 3 p.m.. Registration fee.

Two orchard tours, one focusing on horticultural aspects of fruit production and the second on diseases and insects, will be offered concurrently beginning at 8 a.m. "Both tours will showcase current research projects underway in support of the Ohio fruit industry," said Diane Miller, a researcher with OARDC's Department of Horticulture and Crop Science. "Each tour will run approximately one hour, and registrants are encouraged to attend both." Ohio Department of Agriculture Pesticide Applicator Recertification Credit will be available for the disease and insect tour.

Horticulture Tour
The horticulture tour will consist of six informational stops:

- NC-140 cooperative fruit rootstock evaluations in Ohio by Dr. Stephen Myers, chairman of the Department of Horticulture and Crop Science
- NE-183 apple variety evaluations in Ohio by Dr. Diane Miller
- Weed control in young fruit plantings by Dr. Doug Doohan, OARDC weed specialist.
- Use of windbreaks for orchard screening and reducing spray drift by Steve Davis, Ohio Department of Natural Resources
- Grape research at OARDC by viticulturist Dr. Imed Dami
- Primocane-fruiting blackberries by Dr. Joe Scheerens, OARDC small-fruit specialist

Disease & Insect Tour
The disease and insect tour will feature six informational stops:

- New developments in fungicides for fruit disease control by OARDC plant pathologist Dr. Mike Ellis
- Organic strawberry production involving composts, pest density, consumer taste panels, and economics by Dr. Joe Kovach, OARDC integrated pest management specialist
- Impact of Asian lady beetle on grape and wine production in Ohio by Roger Williams, OARDC entomologist
- Reducing spray drift and improving pest management by Richard C. Derksen, U.S. Department of Agriculture expert based on the Wooster campus
- Insecticide and pheromone options for managing oriental fruit moth in peaches and codling moth in apples by OARDC entomologist Dr. Celeste Welty
- Encouraging honey bee populations impacted by diseases, nest site destruction, and pesticides by Dr. Jim Tew, OARDC beekeeping specialist.
- Pesticide applicator recertification credit is one hour in commercial category 2B or one hour in private category 3A (vegetables) or 4 (fruit).

The orchard tours will be followed by lunch, which participants can purchase at the site between 11 a.m. and 1 p.m. The OFGS business meeting begins at 1 p.m. under the tent. Other specialists will be available in the tent area to assist you on a one-on-one basis, providing:

- A plant pest diagnostic clinic, where you can bring samples and have Nancy Taylor, OSU Extension plant pathologist, diagnose your plant problems
- Fruit on the Web, a demonstration on how to access fruit informational web sites by Ted Gastier, OSU Extension
- An orchard weather monitoring equipment demonstration by Ron Becker, OSU Extension.
- A cider regulation update providing the latest information for the 2004 autumn cider season by Chuck Kirchner, Ohio Department of Agriculture.

The summer tour also will present more than 30 exhibitors who support the fruit industry. Interaction with these exhibitors will allow participants to discuss products and learn about technologies available to grow and market better fruit. Ohio State's Fruit Team members will be available to answer questions and will have a variety of extension publications on fruit-crop production and management available for purchase.

Following the tour, attendees are invited for a wagon tour of Secrest Arboretum on the OARDC campus. The arboretum tour will be from 2-3:30 p.m., and wagons will load at the Fisher Auditorium parking lot. Secrest has beautiful collections of crabapples, arborvitae, azaleas, and rhododendrons, along with the Garden of Roses of Legend and Romance. To learn more, visit web address www.secrest.osu.edu.

Registration opens at 7 a.m. and the registration fee is $15 individual/$20 family for OFGS members. Individual and family fees increase by $5 for non-OFGS members. The OARDC Unit 2 Research Farm is located on Oil City Road (T-92), southeast of Wooster off U.S. Route 250.

For those interested in arriving the night before, a block of rooms has been set aside at the Best Western Wooster Plaza, 243 East Liberty, Wooster. The OFGS overnight room rate is $59.50 plus 12.75 percent tax, and the reservation deadline for this rate is June 10. The Best Western toll free phone number is 866-264-2057, local phone number is 330-264-7750 and their fax is 330-262-5840.

For more information about the OFGS tour, contact Tom Sachs at 614-246-8292, tsachs@ofbf.org, or Diane Miller at 330-263-3824, miller.87@osu.edu.

Managing Fire Blight After Bloom

Source: Dave Rosenberger & Bill Turechek, Plant Pathology, Highland and Geneva, Scaffolds Fruit Journal, May 24, 2004

Fire blight remains one of the most destructive and difficult-to-control diseases of apples and pears. Young high-density apple plantings are especially at risk because they often contain vigorously growing, blight-susceptible cultivars growing on highly susceptible rootstocks. Under high risk conditions, the recommended applications of copper at green tip and streptomycin during bloom may not provide complete protection against fire blight. When blight becomes established in young orchards, large numbers of trees can be killed within a single season. The objective of post-bloom fire blight management is to minimize shoot blight and the development of cankers that serve as next year's inoculum source.

The first step for minimizing shoot blight damage involves pruning out infected limbs as soon as symptoms are detected and before extensive necrosis develops. Failure to do so increases the likelihood that blight will continue to spread both to adjacent trees and into the rootstocks of affected trees (rootstock blight). Pruning out infections in mature trees may not be practical, but mature trees with a full crop will set terminal shoot buds earlier than young trees. When trees set terminal buds, blight stops spreading, both between trees and within the affected trees.

In order to remove strikes before cankers extend too far into the tree, trees must be examined at least two or three times weekly until the epidemic begins to slow. In sections where trees are severely affected, it may be more cost-effective to immediately remove entire trees, especially if trees are a susceptible cultivar like Gala. Pulling out badly affected trees will allow blight removal crews to focus their efforts on trees that can be salvaged.

Occasionally we see orchards where no streptomycin was applied and blossom blight infections are so abundant as to make selective removal of infected limbs impractical. When this occurs with mature apple trees, it is often best to just walk away from the orchard and allow the disease to take its course, then remove cankers and dead wood during winter pruning. An exception would be cases where blighted older orchards are adjacent to younger blocks of highly susceptible cultivars. In that case, the older trees should be pruned or removed to minimize spread into the young orchard. With pears and young apple trees, infections should always be pruned out, even if that means removing nearly all of the tree canopy.

When pruning out fire blight strikes, cuts should be made at least 12 inches below symptoms. The effectiveness of sterilizing pruning shears between cuts is debatable, and is often not done due to the impracticality. The late Dr. Paul Steiner has shown that disinfecting pruning tools is a waste of time because minute cankers often form on the ends of cuts even when pruning shears are disinfected. Instead of wasting time disinfecting pruning tools, Paul recommended making all cuts into at least 2-year-old wood where bacteria will be less able to multiply. Also, leave "ugly stubs" by cutting branches between nodes and at least several inches away from the central leader. Small cankers that form on these stubs can then be removed during winter pruning, whereas a canker that forms at a flush cut on the central leader will be missed during winter pruning.

In the ideal world, blight removal would only be done in dry weather. If rain is predicted during the period of pruning, one must weigh the risks of spreading blight by pruning in wet weather versus the

risks of giving the epidemic a full week, or even a two- or three-day head start. With highly susceptible cultivars like Gala, it is probably best to remove blight as quickly as possible, even if that means that some removal would be done in less than ideal weather.

In orchards with fire blight, growers should implement management practices that promote early cessation of tree growth. In a year with only light to moderate rainfall, withholding irrigation and delaying orchard mowing (so that the ground cover competes with trees for water) can help to shut down tree growth. No additional nitrogen fertilizers should be applied in orchards with active fire blight. Allowing trees to carry a heavier-than-normal crop can also help to slow vegetative growth and reduce further spread of fire blight.

Streptomycin sprays should NOT be applied during summer because summer applications will result in rapid development of streptomycin-resistant strains of the blight pathogen. The only exception is that streptomycin should be applied immediately after any hailstorm if there is active blight in the orchard (i.e., orchards where blight was present this year and terminal shoots are still growing). Apogee, a plant growth regulator, can help to decrease the severity of shoot blight if the first Apogee application is made during bloom, but Apogee applications are ineffective for blight control if the first spray is applied only after the first blight symptoms appear. Copper applications during summer have not proven effective and may cause unacceptable fruit russetting.

Hand thinning or bud pinching while blight is active in the orchard should be avoided until after terminal bud set. Delaying hand thinning may result in some loss of fruit size, but risks of spreading blight outweigh the benefits of early hand-thinning. At least one grower has demonstrated that pinching buds as part of tree training for the vertical axe system is a great way to spread blight. Even though we no longer recommend disinfecting pruning tools between cuts, one can still spread blight on one's fingers while pinching buds (and presumably while hand-thinning). Pinching is done to succulent shoot tips that are highly susceptible to blight, whereas cuts made to remove blight are made in wood that is at least two years old.

Trauma events (hail, high winds) can put any orchard block at risk because varieties that are considered relatively resistant to blossom blight and shoot blight can develop severe blight if inoculum is blown in from adjacent susceptible varieties. If a trauma event occurs when trees are actively growing, streptomycin should be applied as soon as possible (within 4 hours is best) after the trauma so as to limit the incidence of trauma blight. After midsummer, when trees have hardened off for the season, streptomycin protection following trauma events may be unnecessary because trees are fairly resistant to fire blight after tree growth stops for the season. Applications of streptomycin may not be possible after midsummer anyway because of the days-to-harvest limitations on the label.

Apogee (Prohexadione Calcium) has demonstrated potential for managing shoot blight infection in experimental trials conducted in New York, Michigan, and Virginia when Apogee applications were initiated at bloom or petal fall. Apogee works by "shutting down" the growth of a tree and, therefore, is used primarily to control overly vigorous trees and reduce the need for seasonal pruning. Apogee has value in fire blight management because when trees stop growing, they become relatively resistant to new blight infections and further expansion of established infections is arrested. Thus, Apogee can significantly reduce secondary spread of fire blight (i.e., shoot blight infections) in orchards where streptomycin sprays failed to provide 100% control of blossom blight.

The problem with using Apogee to control shoot blight is that the first application of Apogee must be made before the effectiveness of streptomycin blossom sprays can be evaluated. Research trials in both the Hudson Valley and Geneva have shown that if the first Apogee application is delayed until blossom blight symptoms appear, then Apogee will have almost no benefit for controlling fire blight. Apogee has

no effect on shoot growth or fire blight for at least 10 days after application, so it acts too slowly to be of value as a rescue treatment for orchards with blight symptoms.

In mature orchards where trees have already filled their spaces, the decision whether or not to use Apogee can be based on a combination of its potential value as a vegetative growth inhibitor and as a supplement to fire blight control. In young orchards where trees have not yet filled their spaces, the decision is much more complex. Using Apogee for fire blight control in young orchards will increase the number of years required for trees to fill their spaces and for the orchard to reach the break-even point. Because of this, the benefit of Apogee applications for fire blight control in young orchards may often be negated by the loss of productivity.

Remembering Ron Prokopy

Source: Scaffolds Fruit Journal, May 24, 2004 and http://www.umass.edu/loop/people/articles/3592.php

Leaving aside for a moment all of the other 'musts' of this season, we would recommend a pause here to commemorate the life of University of Massachusetts Entomology professor Ronald J. Prokopy, 68, of Conway, who died May 14. Ron was a colleague, teacher, and friend of the fruit industry. Always a source of startling inquisitiveness and ingenuous encouragement, Ron enlightened even as he challenged us to constantly think and re-think our assumptions about fruit insects and the part they played in the natural world that consumed his professional life.

An optimist who motivated, inspired, amused, and at times exasperated those he came in contact with, he was an individualist whose memory will provide numerous stories and a high standard of professionalism as a continuing influence on his peers. We're sure that, although he will be missed for many reasons, Ron would regret having to depart this world with so much yet left to do.

Since joining the faculty in 1975, Ron was actively engaged in teaching, research, and extension services related to fruit tree production. He was a founder of the concept of Integrated Pest Management as an ecological means of controlling insect pests on small fruit, especially apples. Ron was internationally recognized for his work in insect behavior and ecological control. He traveled widely to collaborate on projects in Europe, Asia, Central America, and Hawaii. His honors included Guggenheim and Fulbright fellowships, the Distinguished Research Award from the Massachusetts Agricultural Experiment Station in 1983, and the J.E. Buzzart Memorial Award from the Entomological Society of America in 1984. Also in 1983, he was named Wooster School Alumni of the Year. He also received the Chancellor's Medal in 1985 as a Chancellor's Lecture Series speaker and in 1998, was one of the first recipients of the Distinguished Academic Outreach Award.

He leaves his wife, Linda, of Conway; a son, Joshua; daughter-in-law, Linda, and granddaughter of Indianapolis; and a son, Max, of Northfield. There was an open service on Saturday, May 22 at 1 p.m. in the Prokopy family's home apple orchard, 1230 Main Poland Road, Conway. A potluck dinner with celebratory storytelling about his life followed.

Memorial contributions, in lieu of flowers, may be made to: Mass Fruit Growers Assoc., Horticultural Research Fund, P.O. Box 9632, N. Amherst, MA 01059.

Stopping the Spread of Apple Scab

Source: Facts for Fancy Fruits, Purdue Department of Horticulture, May 21, 2004 with additional

background information from The Midwest Tree Fruit Pest Management Handbook

About 9 to 17 days are required from the time of infection by apple scab until the appearance of the olive-green, velvety scab lesions. Within the lesions, secondary spores (conidia) are produced throughout the summer months - by the billions! It isn't a pretty picture!

Conidia are spread by splashing rain and by wind. Germination and infection by conidia occur under about the same conditions as for ascospores. Additional conidia are produced all season long from established scab lesions. Although fruit become more resistant as they mature, secondary infection of fruit can occur in the fall but not show up until several weeks in storage. Scab can also develop on leaves, especially their lower surfaces, after harvest. This late-season scab may be from new infections, from infections that occurred several weeks earlier, or a combination of the two. In any case, late-season scab on leaves means that disease pressure will be high the following spring even though scab was managed during the growing season.

Monitoring for Scab

All growers should start checking NOW for the first symptoms of scab. Losses from scab often occur when conidia, formed in primary infections, infect young, developing fruit. Therefore, orchard blocks should be monitored for scab lesions starting at petal fall and continuing through first cover. Examine both surfaces of spur leaves and fruit.

If scab is detected, the safest recommendation is to apply an SI *at the full recommended rate* plus a protectant through second cover to suppress further development of lesions and to protect susceptible fruit. In orchards where dodine has not been used extensively, and therefore resistance to dodine is unlikely, this fungicide may help "burn out" existing lesions. However, dodine applied after bloom can cause russeting.

The recommended SI fungicides are Nova, Procure, or Rubigan to minimize additional leaf infections in combination with a FULL rate of Captan to provide optimum control of fruit scab. However, with the introduction of the new strobilurin fungicides (Sovran and Flint) growers have a new alternative for keeping scab in check. Among the primary strengths of the strobies are their ability to suppress the formation of secondary spores and their ability to provide excellent control of fruit scab. Remember that fruit are at their maximum stage of susceptibility from pink until about 3-4 weeks after petal fall. And as always, we strongly suggest no more that 3 sprays of any strobilurin fungicide. We want these fungicides to last!

Ohio Berries - Delicious and Nutritious

Source: Tom Sachs, Ohio Fruit Growers Society Executive Director

It's too good to be true! Ohio's spring and summer berry crops are delicious and present an opportunity for consumers to indulge themselves from May to September in guilt-free consumption of strawberries, blueberries, raspberries and blackberries. Strawberries are just now becoming available statewide.

Warm weather, sunshine, and plenty of rain is producing an excellent strawberry crop and is now on hand at most farm and farmers markets. For those seeking more adventure, there are plenty of pick-your-own strawberry producers offering an opportunity for consumers to get out into the fresh air and harvest to their heart's content.

As strawberry harvest winds down in late June, blueberry and raspberry harvest ramps up to satisfy those fresh berry cravings. Ohio growers have been planting more berry acres with many different delicious varieties and have extended their availability until the fall frost. Berries have a relatively short shelf life, so plan on making plenty of re-supply trips to your local farm market or pick-your-own producer. Red and black raspberries and blueberries share the spotlight with tasty blackberries in late July, August, and early September. For those looking for even more variety, gooseberries (late June, early July) and purple and yellow raspberries will also be available in more limited quantities, so check with your local grower about possible harvest times.

Now here's the "too good to be true" part. Even as a delicious addition to your summer diet, berries have been credited with some great cancer-fighting properties, especially esophageal and colon cancer. They are densely packed with a rich blend of antioxidants that can do wonders to improve health and contain calcium, vitamins A, C, E and folic acid. Berries also are high in fiber and may also reduce the build-up of so-called bad cholesterol, which contributes to heart disease and stroke.

According to the Produce For Better Health Foundation's 5 A Day Program, eating 5 or more servings of colorful fruits and vegetables a day is part of an important plan for healthier living. Further support comes from Ohio State University's Gary Stoner as a leading proponent of consuming berries as a protective food, especially of the esophagus and colon.

So how can you find a local farm market or pick-your-own producer? The Ohio Fruit Growers Society and the Ohio Vegetable and Potato Growers Association both have grower directories on their web sites to steer people in the right direction. They are http://www.ohiofruit.org and http://www.ohiovegetables.org. Another source for market locations is at the Ohio Direct Agriculture Marketing Association web site at http://www.farmtomarkets.com. Finally, the Ohio Department of Agriculture has its Farmers Market Directory at http://www.ohioproud.org.

It's true that berries are a great addition to your summer diet and there should be a plentiful supply, so check out your local berry producer and make it a regular stop in your weekly routine. Enjoy Ohio berries!

Degree Day Accumulations for Ohio Sites May 26, 2004

Ohio Location	**Degree Day Accumulations Base 50**	
	Actual	**Normal***
Akron-Canton	523	390
Cincinnati	722	616
Cleveland	501	371
Columbus	683	501
Dayton	653	574
Kingsville	456	295
Mansfield	519	382
Norwalk	532	351
Piketon	733	532
Toledo	493	365

Wooster	568	359
Youngstown	499	350

Pest Phenology

Coming Events	**Degree Day Accum. Base 50F**
Peachtree borer 1st catch	299 - 988
Codling moth 1st flight peak	307 - 824
Oriental fruit moth 1st flight subsides	442 - 1026
San Jose scale 1st generation crawlers present	569 - 784
Apple maggot 1st catch	629 - 1297
Redbanded leafroller 2nd flight begins	656 - 1381
Codling moth 1st flight subsides	673 - 1412
Oriental fruit moth 2nd flight begins	772 - 1215

Thanks to *Scaffolds Fruit Journal* (Art Agnello)

Fire Blight Report for Erie County

Source: Ted Gastier, OSU Extension Educator, Huron County from old-style leaf-wetness monitor and Spectrum Technologies software

May 10-12, 15, 17, 19-23: High infection risk whether or not fire blight was present in the area in the last 2 years (unless a spray application had been made).

WeatherTracker® Apple Scab Report

Source: Ted Gastier, OSU Extension Educator, Huron County and cooperating growers

Level of Infections Reported Listed by Ohio Counties

Date	**Light Infection**	**Medium Infection**	**Heavy Infection**
5/15		Holmes Wayne	Columbiana Erie Sandusky
5/16		Geauga Lorain	Columbiana Erie Sandusky
5/17	Sandusky		
5/18	Erie Sandusky		Columbiana Geauga Holmes
5/19	Lorain	Erie Sandusky	Columbiana Geauga

		Wayne	Holmes
5/20	Columbiana		
5/21	Erie Holmes	Lorain	Geauga
5/22		Erie Holmes Lorain Wayne	Geauga

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

Site: Waterman Lab, Columbus
Dr. Celeste Welty, OSU Extension Entomologist

Apple: 5/19 to 5/26/04	
Redbanded leafroller	0 same as last wk
Spotted tentiform leafminer	742 up from 0
San Jose scale	0 same as last wk
Codling moth	29.3 down from 35.7
Lesser appleworm	76 down from 77
Tufted apple budmoth	1 down from 5
Variegated leafroller	3 up from 0
Obliquebanded leafroller	5 up from 1

Site: Medina, Wayne, and Holmes Counties

Ron Becker, IPM Program Assistant

Apple: 5/19 to 5/25/04	
Redbanded leafroller	Holmes: 2.5 up from 1.5
	Wayne: 0 down from 2
	Medina: 2.5 same as last week
Spotted tentiform leafminer	Holmes: 50 up from 27.5
	Wayne: 1 down from 42
	Medina: 0 down from 1.2
Oriental fruit moth	Holmes: 0 same as last wk.
	Wayne: 0 down from 2
	Medina: 0 down from 2
Codling Moth	Holmes: 4.3 up from 1
	Wayne: 23.6 up from 9
	Medina: 4.9 up from 1.5
Lesser appleworm	Wayne: 60 up from 20

Orchards in southern Wayne County applied their 1st insecticides on 5/25 for codling moth at 270 DD following the biofix. Northern Wayne County & southern Medina County just established biofix on 5/25. Plum curculio damage was found in apples, as were white apple leafhopper and aphids. Scab is readily seen on the leaves. Strawberries showed an increase in spittle bug on the plants, and slug and sap beetles on ripening fruit.

Site: West District; Huron, Ottawa, Richland, and Sandusky Counties
Lowell Kreager, IPM Scout/Technician

Apple 5/18 to 5/25/04	
Codling moth	3.8 down from 4.6
Lesser appleworm	16.5 up from 4.6
Oriental fruit moth	0.6 down from 7.7
Redbanded leafroller	0.6 down from 10.1
Spotted tentiform leafminer	472 up from 367
Peach 5/18 to 5/25/04	
Lesser peachtree borer	5.8 up from 1.0
Oriental fruit moth	0.6 first report
Peachtree borer	1.8 first report
Redbanded leafroller	0.0 down from 59.2

Beneficials include lacewings and native lady beetles

Site: East District; Erie and Lorain Counties

Jim Mutchler, IPM Scout/Technician

Apple 5/18 to 5/25/04	
Codling moth	5.2 up from 0.4
Oriental fruit moth	3.4 down from 9.1
Redbanded leafroller	0.1 down from 5.8
Spotted tentiform leafminer	68 down from 600
Peach 5/18 to 5/25/04	
Lesser peachtree borer	13.5 first report
Oriental fruit moth	1.0 same as last week
Peachtree boree	0.0 first report
Redbanded leafroller	0.0 down from 3.8

Beneficials include native lady beetles

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| Back |