



# Newsletter Extension

## Fruit ICM News

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## Calendar

**June 20: International Dwarf Fruit Tree Association Summer Tour.** The International Dwarf Fruit Tree Association announces its summer tour for 2004 will be headquartered in La Crosse, Wisconsin. The annual summer tour will be held June 21 and 22, with a preparatory discussion on Sunday evening, June 20. The emphasis for the 2004 tour is 'Honeycrisp', an explosively crisp apple that has attracted a huge customer following in an extremely short period of time. Details on the IDFTA 'Honeycrisp' tour in Wisconsin and Minnesota are available at: <http://www.idfta.org>.

**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. For more information, contact Tom Sachs at 614-246-8292, [tsachs@ofbf.org](mailto:tsachs@ofbf.org), or Diane Miller at 330-263-3824, [miller.87@osu.edu](mailto:miller.87@osu.edu).

## Two Excellent Strawberry Herbicides - Spartan and Stinger

*Source: Richard C. Funt, Ohio State University Horticulturalist*

The Ohio Fruit Team has requested, and the USEPA has granted, a Section 18 to the Ohio Department of Agriculture for the use of Spartan 4F Herbicide for strawberries for the 2004 season. The Team is appreciative of the support from the FMC Corporation and for the USEPA and their communication to US Food and Drug Administration and Director of Health in Ohio. This is the fourth year this request

has been accepted through Ohio State and Ohio Department of Agriculture. Growers are advised to keep an Ohio label in their position and understand all safety precautions to plants and humans and to ground water contamination.

The Ohio Fruit Team requested in May 2003, and the USEPA and Ohio Department of Agriculture granted a Special Local Needs (SLN) registration for Stinger (Clopyralid) herbicide for use on strawberry for a five-year period. Stinger herbicide was tested in Ohio as a very effective herbicide for Canadian thistle, dandelion, and white clover either before harvest, after harvest, and late September. When applied at 4 to 8 oz/acre and with good coverage, Stinger can reduce the presence of Canadian thistle, particularly before flowers become mature in strawberry fields. High rates will generally be more effective in the reduction of weeds in the following year. In OSU trials Stinger did not show any plant vigor or yield reduction. In Canada certain strawberry cultivars and rates have shown damage to strawberry plants and yield.

Ohio growers need to obtain, read, and keep an SLN label on hand. Stinger does maintain a high residual in the soil for 12 to 18 months. Replanting strawberry soils where Stinger has been applied may cause certain broadleaf crops, such as vegetables, to show reduced growth and yield.

## Lesser Appleworm

*Sources: The Pennsylvania Tree Fruit Production Guide and Common Tree Fruit Pests by A.H. Howitt*

Unexplained apple fruit damage has prompted Dr. Celeste Welty and others to hang pheromone traps to monitor lesser appleworm adult populations in several Ohio orchards. Following are brief descriptions of the pest, its life cycle, and feeding habits.

The lesser appleworm, *Grapholitha prunivora* (Walsh), is a minor pest of apple. The adult is small (3/16 inch) and dark-colored. When the moth is at rest, a gold band becomes evident across its back. The white-to-yellowish eggs are laid singly on leaves and fruit. First generation larvae appear in early June and immediately search for food. The larvae are shallow feeders, producing a blotchy mine below the skin that is rarely deeper than 1/4 inch. When it matures, the larva bores to the outside of the fruit and drops to the ground. The fully mature larva has a pinkish skin; however, this is not a distinguishing characteristic, because both codling moth and Oriental fruit moth larvae can be pink.

Most first generation larvae mature by late July, with pupation occurring inside silken cocoons spun in sheltered places on the bark or the fruit. The adults begin emerging the first week in August, and second generation larvae are found in fruit from mid-August through early October. When fully grown, these larvae seek sites for overwintering as mature larvae in cocoons.

The lesser appleworm larva can be distinguished from that of the codling moth by its feeding habits. The codling moth larva feeds through the fruit skin and burrows toward the core, leaving dark brown castings at the entrance hole. The lesser appleworm does not leave a definite entrance hole.

Though the calyx end is the preferred entry point, entrance through the side is very common. The lesser appleworm can cause twig injury on apples similar to that caused by the Oriental fruit moth on peaches. This damage occurs early in the season when the terminal parts of rapidly growing apple twigs are succulent. The larvae enter from the terminal and consume the central parts of twigs as they work their way down the shoot for 3 to 6 inches. Twigs infested by larvae will exhibit wilted leaves, which later die and turn a conspicuous brown.

The lesser appleworm is a native pest whose original hosts were crabapple, wild rose, and hawthorn. The presence of these wild hosts in a fruit tree area can be a source of infestations. The larvae have been found feeding on apples, prunes, plums, cherries, apricots, pears, and peaches.

Howitt lists the following for control: "Spray applications should be directed at the adults before they lay their eggs and also at the newly hatched larvae before they enter the fruit. Timing of sprays is of great importance, and pheromone trapping of males is helpful. Codling moth sprays will control the lesser appleworm because both species emerge at the same time."

An image of apple fruit damage is available at: <http://tfpg.cas.psu.edu/part2/part22br.htm> (Click on "shallow mines under the skin").

## Fly Speck and Sooty Blotch

*Source: Dr. Mike Ellis, Integrated Pest Management (IPM) Disease Management Guidelines for Apples in Ohio*

Weather conditions present this late spring may be encouraging development of fly speck and sooty blotch. Both diseases are favored by temperatures between 65 and 80F and by very high humidity (greater than 90% relative humidity for sooty blotch and greater than 95% relative humidity for fly speck.) Conditions such as these are most frequent when nighttime temperatures remain above 65 to 70F during the summer, or during extended warm, rainy periods. Sooty blotch and fly speck symptoms can develop within 14 days from infection under ideal conditions, but symptom development is arrested by high temperatures and low relative humidity.

Thus the period between infection and symptom development ranges from 25 to more than 60 days.  
**Sooty blotch and fly speck infections not yet visible at harvest can develop during cold storage.**

Enough wetness hours have now accumulated in many parts of Ohio since petal fall to expect flyspeck infection. Control materials listed in the *2004 Commercial Tree Fruit Spray Guide* (including Rate per Acre) are:

Captan 50 WP 6 lb

**OR** Thiram 65 WP 6 lb

**OR** Ziram 76 DF 6 - 8 lb

**OR** Benlate 50 WP 8 - 12 oz **or**

Topsin-M 70 WSB 1 - 1.5 oz

*plus*

Captan 50 WP 4 lb **or**

Ziram 76 DF 6 - 8 lb

**OR** Sovran 50 WG 4 - 6.4 oz

**OR** Flint 50 WG 2 - 2.5 oz

**Note:** The strobilurin fungicides Sovran and Flint are very effective for control of sooty blotch and

flyspeck. Benlate & Topsin-M are also highly effective for preservation of sooty blotch and flyspeck. However, excessive use of Benlate and/or Topsin-M may result in a buildup of resistant strains of the apple scab fungus and/or increased mite injury due to the adverse effect of these fungicides on predatory mites.

## **Oriental Fruit Moth Update**

*Source: Adapted from PSU Fruit Times, Volume 23, Number 9, June 15, 2004*

The second generation of the Oriental fruit moth is about ready to start, or in some cases has already started in apple and peach orchards. Control of this pest remains one of our highest and most difficult tasks for the rest of this season. It is very important that in orchards with high OFM pressure, the first (and maybe the only) insecticide application for the control of this second OFM generation should be applied based on the actual situation in the block, as determined by pheromone traps.

- If trap captures exceed 10 moths per trap per week, apply an insecticide within 7 days.
- If moth captures continue above 10 moths per trap per week, apply a second application within 10-14 days of the first application.

The following rates are recommended: azinphos-methyl 50W at 1.25 to 1.5 lb/acre, Imidan 70W at 1.75 to 3.0 lb/acre or Avaunt at 6oz/acre. Assail and Calypso are also quite active OFM control materials, and can be used at 2.5-3.4 oz/acre and 4-6.0 oz/acre, respectively. The addition of a 0.5-1.0% summer oil to either product will aid in the control of internal feeding larvae.

## **Applications of Insecticides for Control of Borers During the Summer**

*Source: Adapted from PSU Fruit Times, Volume 23, Number 9, June 15, 2004*

While the lesser peach tree borer has been flying in peach and nectarine orchards for some time, the peachtree borer is expected to start its flight soon.

The peachtree borer, which feeds on the trunk of the trees at the ground level, may pose a significant risk, particularly to young peach and nectarine plantings. Despite widespread usage of mating disruption materials (hand applied and sprayable pheromones) for borer control on peaches, it is still important to discuss the various options for conventional borer control with insecticides. In case growers are not using mating disruption or want to bring down a large population of borers quickly, the following recommendations should be followed. Trunk sprays of Asana XL (2 to 4 fl oz per 100 gal, 14 day PHI), Thionex (1.5 lb of 50W or 1.5 qt of 3E per 100 gal, 21 to 30 day PHI), or Lorsban 4E (1.5 to 3 quarts per 100 gal, 14 day PHI) during the summer can give excellent control of both species. Lorsban 4E may only be applied once per year and must not contact the fruit. Two applications of the other products may be necessary to cover the flight period.

If only one application of insecticide for borer control is anticipated, the best timing is between mid and late July. If two applications are planned, the first should be applied around July 15 and the second around August 10. The treatment should be applied as a coarse, low-pressure spray, wetting all bark areas from the ground level to the scaffold limbs.

A post-harvest application may be necessary on early-maturing cultivars. Pheromone mating disruption

products are available for control of both borer species, but it is too late to apply them for this season, unless the Isomate P formulation will be used just for peach tree borer control. They should be placed immediately.

On apples, another wood boring pest, the dogwood borer (DWB) feeds inside burr knots, which usually develop on the exposed area above the ground portion of clonal rootstocks. Among the more popular rootstocks, only the MM 111 shows a lower infestation level. Reddish frass on the surface of a burr knot is a visible sign of active infestation by this pest. Cultural controls include planting deeper or avoiding rootstock exposure by making a wide mound of soil up to the graft union to prevent access to the burr knots. Dogwood borer insecticide applications should also be considered at this time. This year's reinfestation can be prevented by a handgun application of Lorsban 50 WP or Lorsban 4E to the trunk at the peak flight of moths to kill larvae just after they hatch.

Generally, it is not difficult to monitor the various wood borers. Highly defined feeding areas with visible injuries make it relatively easy to find the larvae. Also, sex pheromone traps are available for monitoring adult flight during the summer. What is difficult about this group is assessing the efficacy of the control practice. The effect of this year's treatment will not be visible until next season.

## **Cleanliness is Next to Food Safety**

*Source: Shari L. Plimpton, Ph.D., Food Safety Educator - Ohio Specialty Crops via John Warglowski, Mid American Ag and Hort Services (MAAHS)*

Cleanliness is next to food safety and minimizing your risks. I can't think of any topic where this is more appropriate than when it is applied to worker sanitation and hygiene. If this sounds serious, it is. Of all the Good Agricultural Practices (GAPs) you need to monitor, this one ranks up there with water quality as a most likely source of fresh produce contamination.

Workers are often the last people to touch fresh produce before it reaches the consumer. Anything a worker touches can be transferred to the surface of produce and eventually to the consumer. Workers can carry disease, come in contact with microorganisms via diseased produce or dirty surfaces, or carry non-food grade chemicals on their hands or clothing. For these simple reasons, growers need to be concerned about the health, hygienic practices, and training of workers, both in the field and in the packinghouse.

Your attitude toward worker health and hygiene makes all the difference. Growers, supervisors, and foremen need to set the example. Start off with hand washing. Expect and encourage thorough hand washing after using toilet facilities, eating, smoking, and any other activity that brings hands in contact with potential contaminants.

Thorough hand washing ideally means using warm water, liquid soap from a dispenser, a full 20 seconds of rubbing your hands together, and single use towels. Mechanically working the soap into your hands, including cleaning around nails, wrists, and in between fingers for 20 seconds will reduce infection by 35 to 50 percent, and gastrointestinal illness by 80 percent.

If you haven't already heard, 20 seconds can be counted off by singing "Happy Birthday to You" twice through, or by singing the alphabet song. Singing out loud is recommended only for those who have nice voices, and/or are particularly immune to snickering, ridicule, and horrified stares.

Another way growers influence workers' hygienic practices is by providing clean, well-maintained toilet

facilities for workers. Inadequate facilities - or worse - poorly maintained facilities significantly increase your risk for produce contamination. Failure to provide adequate and clean facilities also sends the wrong message to workers about your commitment to food safety.

Worker education is a critical part of reducing the risk for produce contamination. Encourage workers to report health problems, and have alternative work available for those who are sick and could come in contact with produce in the field. Some workers will be tempted to hide their illnesses if they know they will lose a day's pay. Also, provide bandages, clean gloves, hairnets, and aprons when appropriate.

In the packinghouse, cleaning and sanitation are critical to reducing the risk of contamination. Taking the time to train workers regarding their own hygiene should be accompanied by training them on maintaining sanitary surfaces and performing proper cleaning and sanitation of packing lines when the line is done for the day.

By all means impress upon workers the importance of maintaining the cleanliness of conveyor belts, packing surfaces, tables, carts, and any other surface the produce may contact. Everybody in the packinghouse should be thinking of those surfaces as they would the plates on their tables. Not too many of us would use a bowl for apples or strawberries that had contained dirty bolts, gloves, or towels without washing it first. Packing line surfaces shouldn't be used to store those things, nor for sitting or standing.

I've said it before and I will say it again; training and education are our most powerful tools for preventing contamination from workers. Training doesn't have to be expensive or complicated, either. Growers who have attended GAPs training sessions or have had on-farm consultations have enough information to take a half-hour to share this information with workers. Documenting the names of the workers you have trained also demonstrates your commitment to food safety.

Worker training videos and DVDs are available for Ohio growers via the Ohio Specialty Crop Food Safety, being cooperatively managed by Mid American Ag and Hort Services (MAAHS), the Center for Innovative Food Technology, and Ohio State University Extension ABE Center in partnership with the United States Department of Agriculture's Risk Management Agency. Supervisory emphasis on sanitary worker practices and the use of posters as reminders help to reinforce food safety training. Posters about proper hand washing and using field facilities are also available for Ohio growers by contacting MAAHS.

Ohio growers can get help with worker training and the development of a food safety program by contacting MAAHS by phone 614-246-8286, fax 614-246-8686, email at [maahs@ofbf.org](mailto:maahs@ofbf.org), or visit <http://www.midamservices.org> and click on Projects."

## **Taste Test: Ohio Berries Tops**

*Source: Sandy Kuhn, OSU Extension, written by Candace Pollock, OSU News and Media Relations, Section of Communications and Technology*

Sweeter, fresher, juicier - so makes the mark of a good strawberry and, according to Ohio consumers, Ohio-grown berries top the competition in fitting the bill. In a consumer taste test held recently during the "Ohio Proud Spring Fling Farmers Market Event" in Columbus, Ohio, over 400 participants overwhelmingly chose fresh-grown Ohio strawberries over the store-bought California varieties.

"The goal was to see if, in a blind taste test, consumers would choose what we believe in Ohio to be the

better tasting, fresher berry," said Sandy Kuhn, berry coordinator with Ohio State University's South Centers at Piketon. Kuhn provided over 70 pounds of fresh berries for the survey. Consumers were given a ballot and asked to mark their choice of "A" or "B" as to which berry they preferred and why. Some of the comments received on Ohio berries included "Much tastier," "Not as tart," "Sweeter," "Sweet and juicy," "Fresher," and "Tastes better." Kuhn noted that some of the consumers who chose the California berries provided such reasons as "Tarter," "Firmer," "Other berry is too sweet," and "Tastes like what I get at the grocery store."

A lot of these reasons are quite contrary to what we promote in Ohio strawberries. "Ohio strawberries can be allowed to ripen on the plant to give them their full sweetness and flavor as opposed to California and Florida strawberries, which need to be picked early so they can be shipped and not perish during either the shipping, warehousing, or retailing stages," explained Kuhn. "Fruit is a highly perishable product, so the riper it is the more perishable it is. Ohio strawberries do have a good shelf life, but not as good as those from Florida and the West Coast due to the picking times."

The Ohio Proud Spring Fling is an Ohio Department of Agriculture Marketing Program designed to support Ohio agricultural companies and products raised, grown, or processed in Ohio. Over 20 companies participated in this year's event, held at Easton Town Center May 22-23.

## Degree Day Accumulations for Ohio Sites June 16, 2004

Ohio Location	Degree Day Accumulations Base 50	
	Actual	Normal*
Akron-Canton	838	729
Cincinnati	1156	1050
Cleveland	841	708
Columbus	1105	893
Dayton	1062	1009
Kingsville	766	599
Mansfield	847	719
Norwalk	893	688
Piketon	1164	926
Toledo	854	713
Wooster	918	685
Youngstown	792	661

## 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: West District; Huron, Ottawa, Richland, and Sandusky Counties**

Lowell Kreager, IPM Scout/Technician

<b>Apple:</b> 6/8 to 6/15/04	
Codling moth	3.0 up from 2.4
Lesser appleworm	10.3 up from 6.5
Oriental fruit moth	0.0 down from 0.3
Redbanded leafroller	14.0 up from 0.4
San Jose scale	0.0 same as last wk
Spotted tentiform leafminer	518 up from 449
<b>Peach</b> 6/8 to 6/15/04	
Lesser peachtree borer	10.0 up from 1.3
Oriental fruit moth	1.5 up from 0.7
Peachtree borer	0.0 down from 0.2
Redbanded leafroller	18.8 up from 0.0

Beneficials include native lady beetles, multicolored Asian lady beetles and spiders. Other observations include dogwood borers.



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

Jim Mutchler, IPM Scout/Technician

<b>Apple 6/8 to 6/15/04</b>	
Codling moth	4.4 up from 3.1
Lesser appleworm	19.6 up from 18.3
Oriental fruit moth	1.6 up from 0.4
Redbanded leafroller	5.9 up from 0.0
San Jose scale	0.0 same as last week
Spotted tentiform leafminer	263 up from 201
<b>Peach 6/8 to 6/15/04</b>	
Lesser peachtree borer	21.7 up from 8.0
Oriental fruit moth	3.7 up from 0.0
Peachtree borer	1.3 up from 0.0
Redbanded leafroller	3.7 up from 0.0

Beneficials include native lady beetles, lacewings, and banded thrips.

Other observations include apple scab, fire blight, plum curculio strikes, codling moth damage, green apple aphid, and white apple leafhopper.

## Pest Phenology

<b>Coming Events</b>	<b>Degree Day Accum. Base 50F</b>
Apple maggot 1 <sup>st</sup> catch	749 - 1033
Oriental fruit moth 2 <sup>nd</sup> flight begins	784 - 1022

*Thanks to Art Agnello, Cornell Entomologist*

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