



Newsletter Extension

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Calendar

June 30: 1999 Ohio Fruit Growers Society Annual Summer Tour, Eshleman Fruit Farm, near the intersection of U.S. 20 and St. Rte. 101, Clyde, OH. Tour wagons begin rolling at 8:00 a.m., lunch is at noon, and annual business meeting begins at 1:00 p.m.

July 21 & 22: Small Fruit Tour, Wooster/Mt. Hope area. Pre-tour gathering begins Wednesday evening at Maurer Farms near Wooster. Included will be demonstrations of weed and disease control, strawberry renovation, drip irrigation, and raspberry plots. Dinner is compliments of the Maurers. Thursday morning the group begins its self-guided, self-driven tour at Farmers' Produce Auction in Mt. Hope. Lunch is on your own. Demonstrations at OARDC in Wooster round out the afternoon, and the day ends at Moreland Fruit Farm near Wooster with a walking tour, discussion, and fruit pies. \$5.00 registration fee. For more information contact Mike Pullins at (614) 249-24424.

August 5: Young Grower Tour, northwest Ohio. Designed for, but not limited to, producers and their spouses age 40 and under. More information will follow.

Scab Infection Update

Source: Dr. Mike Ellis, Dept. of Plant Pathology, OARDC

Due to dry weather, we have not had many scab infection periods in the last couple of weeks. This is a reminder that water (rain) is required for ascospore release from the overwintering dead leaves on the ground. Thus, ascospores are still out there and are ready to be released in the next rain. Usually scab inoculum is gone by around first cover, and the threat of primary scab is over. **This year this is not the case.** We need to maintain a good program for scab control into early summer, or until we have had sufficient rain to discharge all remaining ascospores.

It is not possible to say when the risk of primary scab infection is over under conditions such as these. At least we should be thinking about scab in the early cover sprays. Keep the rate of protectant fungicides, such as captan, ziram, and thiram at the high end of the rate range and do not extend the spray interval more than 14 days. For the first couple of cover sprays, it may be a good idea to stay on a 10-day schedule.

Decision Time for Provado

Source: Dr. Celeste Welty, OSU Extension Entomologist, and Midwest Tree Fruit Pest Management Handbook.

Provado is a 1.6 lb/gal. flowable formulation and is registered for post-bloom control of leafminers, San Jose scale, leafhoppers, and aphids. Indications are that Provado does not affect beneficial insects severely in apples, but is highly toxic to honeybees, so sprays must be applied after petal fall and should not drift onto flowering weeds.

If you are considering the use of Provado, it should be applied as soon as pollination is complete. Dr. Celeste Welty has previously advised us to apply Provado for **spotted tentiform leafminer (STLM)** control as early in petal-fall stage as possible. Provado's control activity on first-generation larvae at hatching decreases rapidly after petal-fall.

Provado can also be effective for early season management of **white apple leafhopper (WALH)**. The nymphs begin hatching at tight cluster and begin feeding on the underside of apple leaves. The presence of leafhopper nymphs, their cast skins, and the white feeding marks (stippling) on leaves will indicate the need for control. Early season control at petal-fall can help reduce the number of nymphs that will mature to adults in June. The eggs that these adults lay on apple leaves become the nymphs of the next generation.

The second generation is responsible for spotting and streaking on the fruit caused by the accumulation of leafhopper excrement. Once dried, it is difficult to remove. WALH has a great propensity for quickly developing resistance to chemical applications. The insects are present on the underside of leaves, so thorough coverage is essential.

Provado is also labeled for **aphid control**. The following discussion about aphids was derived from *Insects Pests of Farm, Garden, and Orchard* by Ralph H. Davidson and William F. Lyon. Three species of aphids are usually found on apple and related hosts every year, sometimes in destructive numbers. They are known as the green apple aphid (GAA), *Aphis pomi* Degeer, the rosy apple aphid (RAA), *Dysaphis plantaginea* (Passerini), and the apple grain aphid, *Rhopalosiphum fitchii* (Sanderson). Both foliage and fruits are injured by the piercing/sucking nymphs and adults. Damage is indicated by curled, twisted, stunted leaves, especially the tender terminal growth of new shoots. Fruit damage is indicated by stunted, malformed clusters later in the season. RAA is considered the most destructive species, with

GAA an occasional problem in some orchards.

All three species have very similar life cycles. Winter is passed in the egg stage on twigs, usually around buds or in crevices in the bark. Eggs begin hatching in the spring just as buds are in the green-tip stage. Newly hatched nymphs are all wingless females and when fully grown are called stem mothers. These parthenogenetic females give birth to young, with repeated generations occurring about every two weeks. Early in the summer winged forms are produced and migrate to new host plants of the same species or to plants of a different species. These alternative hosts are often called the secondary hosts. RAA may remain on apple throughout the summer, but they usually migrate to narrow-leaf plantain; apple grain aphids remain on apple a shorter period and migrate to grains and grasses, usually before they have done any damage to apple; AGG is usually a permanent resident of apple and related trees.

Natural Enemies of Aphids

Source: Midwest Biological Control News, April 1996

It's amazing that there are any aphids at all in the world, because they are so heavily attacked by natural enemies. Most aphids are attacked by one or more species of tiny parasitic wasp. More commonly recognized are the predators, including bugs such as damsel bugs and minute pirate bugs; beetles of many types, including many species of lady beetles; green lacewings; and the larvae of several types of hover flies. The predatory midge *Aphidoletes*, in a small family of flies called aphid flies because of their predatory habits, is not only naturally important, but is also commercially available. Even dragonflies, which are aerial predators, take large numbers of aphids during flight. In addition to these and many other types of predators, there are many aphid-pathogenic fungi that are capable of devastating aphid populations during periods of warm, moist weather. In making aphid-management decisions, it is helpful to be able to recognize the activities of natural enemies of aphids.

Oriental Fruit Moth

The Oriental fruit moth (OFM), *Grapholitha molesta* (Busck), native to China, was introduced into the United States around 1913 from Japan on infested nursery stock. It was first discovered in Washington, D.C. in 1916 from which it has spread to all peach-growing regions of the U.S., southern Canada, and northern Mexico.

Peach and quince are the common hosts, but occasionally apple, pear, plum, and other fruits are attacked. This is especially true if infested peach trees are growing nearby. We can expect three generations (flights) per year in this part of the country.

The adult OFM is a small grayish moth closely related to codling moth. It is similar in shape but somewhat smaller. The wings seem to be made of alternate light and dark lines, giving the moth a salt-and-pepper appearance.

OFM larvae hibernate in silken cocoons in crevices of trees, in ground cover, or on other nearby objects. Pupation takes place in late March through April, and moths begin emerging about the time of peach bloom. Peak emergence usually occurs later in May according to catch reports of previous years from New York and Michigan. Eggs laid by this 1st generation are deposited on the foliage, primarily on

upper leaf surfaces of terminal growth.

The newly hatched larvae are white, with a black head capsule. Mature larvae are dirty white to pink in color, with a reddish brown head capsule. The first generation larvae feed almost entirely on the growing shoots of peach, reaching maturity by mid-June.

To feed, the larvae enter the terminal at the base of a young leaf and tunnel toward the base of the shoot. Infested terminals wilt and die back to the margin of feeding, and are commonly called "strikes" or "flagged shoots". Continued feeding often causes axillary buds to grow when the terminal shoot is killed, causing the tree to have a bushy appearance.

Some second generation larvae may attack the fruit, but as long as succulent shoot tips are available, most larvae feed in the twigs. Most of the injury to peach fruit is done by the third generation in our fruit growing region. This injury can be of two distinct types. One is caused by feeding on, or entrance into small fruit. This occurs when larvae abandon hardened twigs for half-grown fruit. As the fruit grows, gum exudes from the wounded area. This gum turns dark, and a black blotch appears on the peach at harvest time.

The other type of fruit injury leaves only a very small, inconspicuous entrance hole near the stem. A newly hatched larva can work its way into nearly ripe peaches without injuring the skin. Once inside the fruit, the larvae often feed around the pit, leaving sawdust-like frass in this area.

An interesting description of OFM research work done in an unsprayed apple orchard in New York is contained in the book *Tortricid Fauna of Apple in New York*. When OFM feeds on apple fruit (not unusual if peaches are growing nearby), populations appear to be limited by the presence of codling moth larvae. Entomologists P.J. Chapman and S.E. Lienk suggest that OFM larvae may be destroyed through cannibalism in the same manner that the smaller or weaker codling moth larvae are. They note that "it is well known that regardless of how many codling moth larvae enter a fruit, usually one survives to complete development."

Cornell's Oriental Fruit Moth Fact Sheet reports that "more than 130 species of parasitoids have been reported attacking OFM; however, parasitism probably plays a very minor role in OFM control in today's commercial orchards because of the sensitivity of many parasitoids to commonly used insecticides."

Some Thoughts on the Season

Source: Dr. Dave Feree, Professor of Horticulture & Crop Science, OARDC

According to long-term records, May 5 is average apple bloom, and this year was exactly on time.

We have had an ideal spring for fruit set: warm, sunny days, good bee activity, and strong bloom in most blocks. This may be the year that, if in doubt, use the higher rate of chemical thinner. Recent work on thinning indicates that temperature of application, time and the couple days after application may be as important for consistency in results as fruit size. After petal fall, be looking for a good temperature window and make the application even if the largest fruit may be on the small side. Other recent studies have shown that naphthalene acetic acid (NAA) may reduce set and promote return bloom, but often does not result in the desired increase in fruit size. We have been more successful in combination sprays

with Sevin than using NAA alone. Normally the rate of NAA is cut in half if combined with either a spreader or Sevin. If the fruit get past 15 mm diameter, NAA often causes "pygmies" that remain on the tree. With fruit this size, Sevin is about the only material that can provide some thinning, but generally not enough to do the entire job.

Young trees - If you got your trees planted early this year or have 2-year trees this is a critical time to walk the rows and consider the following:

- Rub off all shoots below 18 inches on the trunk of both peach and apple.
- Rub off strong competition shoots with the leader or clothespin them.
- With peaches, rub off strong upright shoots in the center that you know will be removed in pruning in the dormant season.
- Check the weed control--young trees need a good start without competition.
- If you have a supported dwarf system, make sure the tree is secured to the support post.

We are very dry at Wooster. Keeping the row middles mowed to conserve moisture might be wise if the season remains drier than normal.

Organophosphate Preliminary Risk Assessments

Source: http://www.gowanco.com/FQPA_current.htm

EPA is in the process of releasing the preliminary risk assessments for all the organophosphates. You can check the status of any of the organophosphates on EPA's website <http://www.epa.gov/oppsrrd1/op/>. EPA is seeking comments on these products. The website can give you the specific timelines for commenting on specific products. It is important that users of these products provide comments to EPA because others will be commenting on why these products should not be allowed to remain on the market. That perspective needs a reality check - are the products important to agriculture or public health? If so, why? What would be the impact of the loss of uses? This information is important for EPA to know and consider as they make decisions. Right now time is of the essence. Many different groups are in the process of generating critical data regarding use of products. We must insist on realism in the risk assessment process. EPA must be basing decisions on real rather than theoretical risk.

Coalitions - The Implementation Working Group (IWG) is a broad-based coalition of affected stakeholders working on issues related to FQPA implementation. IWG has representation from growers, commodity groups, food processors, registrants, non-ag users, public health, chemical manufacturers, and others who use pesticides. IWG has drafted the "Road Map", a science-based, workable framework for implementing the FQPA. The Road Map addresses all of the critical science policies addressed by the Tolerance Reassessment Advisory Committee (TRAC).

Two New Bills Introduced - On March 25, 1999, Representative La Hood introduced a bill HR 1334 "The FQPA Implementation Act of 1999". This bill requires EPA to do a public impact assessment on proposed actions and also requires or allows the development of additional data before so modifying, revoking, or suspending a tolerance.

On April 28th, a second bill was introduced, "The Regulatory Fairness and Openness Act of 1999" (HR1592). This bill was introduced by Representative Pombo of California. There were 22 cosponsors - 11 Democrats and 11 Republicans. Representative Gary Condit of California was a cosponsor. This bill will provide direction to the EPA on how to fully implement the FQPA in accordance with the original intent of Congress. You can see a copy of this bill, background information, and a current list of co-sponsors, click [HR 1592 Bill Summary and Status](#).

- Lessen the likelihood that effective pesticide products used by growers and other pest control users will be removed from the market unnecessarily,
- Provide for the smooth transition from provision of the prior law to the provisions of FQPA, which require new science policies and more pesticide use and exposure data,
- Provide for a transparent and predictable regulatory process, based on reliable data and sound science, for the review of pesticide food tolerances, and
- Establish a permanent Pesticide Advisory Committee to provide advice to the EPA and USDA on the regulation and registration of pesticides.

For additional information, please contact Cindy Baker at cbaker@gowanco.com.

Strawberry Bud Weevil or Clipper

Source: Sonia Schloeman, Small Fruit IPM Message, Umass

Clipper monitoring can be started as soon as the flower clusters are visible in the crowns of the plant. First check rows nearest woods or hedgerows by gently pulling apart the flower clusters and looking within for the weevil. As the clusters expand, begin to look for clipped buds. Check the field at least once a week. Or more often if you can. Sample from ten locations in the field. If you have never had clipper before, hold off spraying until you find a clipped bud for every 2 feet of row or in half the sample locations. If you found clipper in your planting last year, a spray application should be made as soon as you see any clipper in the field or find clipped buds. A follow-up spray is recommended 7-10 days after the first spray. You may only need to spray border rows if you find they have not moved far into the field.

Pollination Requirements for Blueberry Varieties

Source: The Blueberry Bulletin, via Massachusetts Berry Notes, May 1999

Blueberries vary in their capacity to attract bees. Because of this, different varieties require greater or fewer numbers of bees in order to pollinate to an acceptable level.

Very Attractive to Bees: 1 hive / 2 acres

Rancocas
June

Rubel
GN-87

Moderately Attractive: 1 hive / acre

Weymouth
Bluetta
Blueray
Pemberton
Darrow
Bluecrop*

Poorly Attractive: 2 hives / acre

Stanley
Concord
Berkely
Coville
1316-A
Elliot
Jersey*
Earliblue*

* Efficiency of pollination poor, add 1/2 hive more per acre

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:	Variiegated leafroller

Site: Waterman Farm, Columbus

Source: Dr. Celeste Welty, OSU Extension Entomologist

Apple: 5/5 - 5/12

RBLR: 0 (down from 1)
STLM: 12 (down from 77)
SJS: 29 (down from 1400)
CM (mean of 3 traps): 4.0 (up from 1.3)

Peach:

OFM: 3 (same)
LPTB: 1 (up from 0)

Site: East District; Erie & Lorain Counties

Source: Jim Mutchler, IPM Scout

Apple: 5/5 - 5/11

RBLR: 10.9 (up from 8.5)
STLM: 714 (up from 671)

Peach:

OFM: 22.3 (up from 4.0)
RBLR: 12.0 (down from 15.8)

Site: West District; Huron, Ottawa, & Sandusky Counties

Source: Gene Horner, IPM Scout

Apple: 5/5 - 5/11

RBLR: 16.0 (up from 6.7)
STLM: 612 (up from 553)

Peach:

OFM: 2.0 (up from 1.0)
RBLR: 17.0 (down from 23.0)

Site: Wayne County

Source: Ron Becker, Program Assistant, Agriculture & IPM, OSU Extension

Apple: 5/5 - 5/12

RBLR: 4.4
STLM: 13.9
CM: 1.8
OBLR: 0

Peach:

OFM: 43
LPTB: 1

Site: Piketon Research Center, Pike County

Source: Brad Bergefurd, Ag Extension Agent, Piketon

Lack of rain is a main concern for fruit growers in southern Ohio. Strawberries are being irrigated as well as new fruit tree plantings where irrigation is available. No major disease or insect outbreaks that I have heard or seen. There is good fruit set on most varieties. Maturity and growth stages seem to be about 8 to 10 days ahead or normal. Hope for some rain!

Ohio Apple Scab and Fire Blight Watch - SkyBit Products

May	Central		North Central		Eastern Highlands		North East		West	
	apple scab	fire blight	apple scab	fire blight	apple scab	fire blight	apple scab	fire blight	apple scab	fire blight
1	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
2	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
3	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
4	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
5	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
6	a,ni	pi	a,ni	na	a,ni	na	a,ni	na	a,ni	na
7	a,ni	a,ni	a,ni	na	pi	a,ni	a,ni	na	a,ni	na
8	pi	a,ni	pi	a,ni	pi	pi	pi	a,ni	pi	a,ni
9	pi	a,ni	pi	a,ni	pi	a,ni	pi	a,ni	pi	a,ni
10	a,ni	a,ni	a,ni	na	a,ni	a,ni	a,ni	a,ni	a,ni	na
11	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
12	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	a,ni
13	pi	pi	a,ni	na	a,ni	na	,ni	na	a,ni	na
14	pi	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
15	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
16	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
17	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
18	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na

19	a,ni	pi	a,ni	na	a,ni	na	a,ni	na	a,ni	na
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na = not active; a,ni = active but no infection; pi = possible infection & damage

**Degree Day Accumulations for Selected Ohio Sites
January 1, 1999 to date indicated**

Location	Actual DD Accumulations May 12, 1999		Forecasted Degree Day Accumulations May 19, 1999			
	Base 43° F	Base 50° F	Base 43° F	Normal	Base 50° F	Normal
Akron - Canton	522	248	675	641	352	327
Cincinnati	756	374	928	978	497	540
Cleveland	513	240	655	607	333	308
Columbus	718	366	882	772	481	410
Dayton	648	314	807	785	424	422
Elyria	542	269	686	651	365	338
Fremont	463	222	609	591	320	303
Mansfield	537	260	698	626	371	318
Norwalk	497	232	642	588	328	300
Toledo	498	231	647	576	331	293
Wooster	569	277	724	592	383	292
Youngstown	475	222	620	572	318	285

Phenology

Coming Events	Range of Degree Day Accumulations	
	Base 43° F	Base 50° F
Lesser peachtree borer 1 st catch	224-	110-553

	946	
White apple leafhopper nymphs present	236-708	123-404
Codling moth 1 st catch	273-805	141-491
Spotted tentiform leafminer sap feeders present	295-628	130-325
Plum curculio oviposition	-	232-348
European red mite 1 st summer eggs	448-559	235-320
Spotted tentiform leafminer 1 st flight subsides	489-978	270-636

Thanks to Scaffolds Fruit Journal (Art Agnello)

The Ohio Fruit ICM News is edited by:

Ted W. Gastier
 Extension Agent, Agriculture
 Tree Fruit Team Coordinator
 Ohio State University Extension Huron County
 180 Milan Avenue
 Norwalk, OH 44857
 Phone: (419)668-8210
 FAX: (419)663-4233
 E-mail: gastier.1@osu.edu

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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