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

THE OHIO STATE UNIVERSITY Newsletter Extension

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Calendar

June 22 & 23: North Central Horticultural Risk Management Workshop, Marriott Hotel, 305 E. Washington Center Road, Exit 112 off I-69, Fort Wayne, Indiana. The focus of this workshop is "managing the variations in profits and protecting business equity". Contact Ted Gastier for a registration form and additional information.

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. er Fruit School, Lynd's Fruit Farm, Western Licking County, 6:30 - 9:00 p.m. Agenda includes direct marketing, cultivars, & cultural practices. Resource people will be Dick Funt and Mike Ellis. For more information contact Howard Siegrist, (740) 349-6904.

July 21 & 22: Small Fruit Tour, Wooster/Mt. Hope area. Pre-tour gathering begins Wednesday evening at Maurer Farms near Wooster. Thursday morning the group begins its self-guided, self-driven tour at Farmers' Produce Auction in Mt. Hope. 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.

Strawberry Whitefly

Source: Midwest Small Fruit Pest Management Handbook

Reports have reached this office of tiny white insects flying in strawberry patches. Strawberry plants infested with whiteflies may show a large number of tiny white adults that move actively when plants are shaken, or they may show a large number of immobile scale-like immatures on the underside of leaves. Both immatures and adults suck on plant sap. They produce honeydew, a sticky substance that drips onto plants and serves as a substrate for growth of black sooty mold. They overwinter as eggs on the underside of leaves.

Bronzed Strawberries

Source: Dr. Celeste Welty, OSU Extension Entomologist

There are scattered reports of thrips damage on ripe strawberries in central and western Ohio. You might recall that we had a problem in 1994 that was widespread in midwestern strawberries, which was eventually diagnosed as damage by the eastern flower thrips. Thrips feed by rasping/sucking mouthparts. If thrips feed during bloom and fruit set, the result can be fruit that are dull or bronzed, leathery, and sometimes small and seedy. Thrips may also cause blemished seeds or achenes and uneven maturity of fruit. Berries can be marketable if thrips damage is light, but unmarketable when damage is severe. The thrips themselves are often gone by the time damage is noticed. The eastern flower thrips is a tiny slender cigar-shaped insect. Adults are yellowish brown, 1/16 inch long, and have narrow wings fringed with hairs. Nymphs are similar in shape but smaller and without wings. For more information, see pages 332-33 in the *Midwestern Small Fruit Pest Management Handbook* (OSU Extension Bulletin 861). http://ohioline.ag.ohio-state.edu/b861/index.html

You Might Have Mites

An opportunity to have fruit tree leaves checked for predatory mites or other small arthropods

Source: Dr. Celeste, OSU Extension Entomologist

Growers attending the OFGS summer tour on June 30th are invited to bring leaf samples to be examined under a microscope by an entomologist. A good sample size is 25 leaves. Predatory mites are found on the same type of leaves as their prey, the European red mite. At this time of year, mites are most likely on the middle leaves of fruit clusters, and least likely on new terminal shoots. It is best to put leaves in a paper bag, then put the paper bag in a plastic bag. Try to keep the samples relatively cool.

Azinphos-Methyl:
From Risk Assessment to Risk Mitigation

Source: William G. Smith, Senior Extension Associate, Pesticide Management Education

Program/Dept. of Entomology, Cornell University, NY

With its May 19 technical briefing on a revised risk assessment for this chemical, the EPA kicked off a public comment period through July 19 to take suggestions for risk management. Such comments could address how to manage dietary, occupational, or ecological risks on specific azinphos-methyl (Guthion) use sites across the United States or in particular geographic regions.

At the technical briefing, TPA's Steve Johnson, acting deputy assistant administrator of the Office of Prevention, Pesticides and Toxic Substances, said, "We do believe it is now time to move seriously into the next phase for this chemical, and look at ways to reduce exposure in an orderly, common sense way."

"Let me also say . . . our unequivocal advice is that consumers should continue to eat a healthy and balanced diet, which includes the recommended servings of fruits and vegetables. We do not believe, based on our pilot process, that it is necessary to take immediate action to address any of the risks from this chemical."

To obtain the revised risk assessment and related documents, go to http://www.epa.gov/pesticides/op/azm.htm Contact: Karen Angulo at (703) 308-8004 or angulo.karen@epa.gov.

Trauma Blight

Source: MARYBLYT 4.3, Paul W. Steiner & Gary W. Lightner, University of Maryland

We are entering the period of possible storm damage and trauma fire blight. The following discussion is from *MARYBLYT* 4.3 handbook.

The 6 to 8 week period after petal fall is a very important time for fire blight management decisions.

During this time:
1. blossom blight symptoms appear if infections occurred during bloom;
2. canker blight symptoms appear within the first 3 weeks after bloom in orchards with a history of fire blight;
3. The risk for shoot blight increases and continues until shoot growth ceases; and
4. severe storms (wind, hail) are more likely to contribute to trauma blight.

Control measures taken here will do much to limit the amount of disease in the current year and the amount of inoculum available for the next season. As bacterial populations in the orchard increase, the potential for shoot blight increases with the activity of sucking insects. This is also true for trauma blight incidents should severe weather occur. With the exception of late secondary flowering, *the focus of the control effort must now shift from preventing blossom blight to limiting the damage caused by canker blight and to reducing the potential for serious damage with shoot and trauma blight events.*

Antibiotic sprays after primary petal fall are specifically not recommended except where a significant amount of secondary flowering extends the period of risk for blossom infections. In any case, the number of antibiotic applications per season should not exceed four to reduce the potential for selecting resistant populations of the pathogen. This presents a problem where secondary flowering prolongs the

period of susceptibility to blossom blight. Streptomycin is ineffective as a protectant for shoot blight. In addition, because of the high potential for selecting resistant strains of the pathogen, streptomycin should *never* be used after symptoms of fire blight appear in the orchard.

Whether streptomycin should be used *after* severe weather damage (hail, high wind, late frost) is still a matter for debate. There is no data on its effectiveness or economic value under these conditions. Nevertheless, if this approach is taken, consider the following factors in making a treatment decision:

a. Susceptible cultivars are damaged;
b. The orchard has a history of fire blight;
c. The application can be made within the allowed pre-harvest interval for the crop;
d. The application can be made within 24 hours;
e. The value of the planting justifies the cost of the application.

Avoiding Problems with Water Soluble Packaging

Source: Gary Thornton, Fruit CAT, Michigan State University and Rick Cater, Gowen Chemical

Water-soluble packaging has greatly enhanced the convenience and safety of handling wettable powder pesticides. However, dissolving the packages can be affected by a few factors. To avoid problems, remember these considerations.

Boron (B) in the spray mixture turns the packages to a jelly that quickly plugs screens. If using boron in the spray, always *completely dissolve* soluble packages *prior to adding boron.*

If B was used in the prior tank, there will be some residue in the mixture left in the bottom of the tank. In the case of dilute to moderate concentrate mixtures, we generally do not see problems if not too much of the mixture is left in the bottom of the tank and if the tank is then at least 75 percent refilled with water prior to adding the soluble packaging. Problems are much more apt to occur when using high concentrate mixtures (resulting in more B remaining in the mixture in the bottom of the tank), when a larger amount of mixture is left in the tank, or when packages get added after refilling the tank only a little way. If any of these potential problems may occur, then either predissolve the packages prior to adding to the tank or rinse out the sprayer prior to refilling.

Other heavy metals are also reported by the manufacturers to cause problems for the packages. In practice, we have only seen the problem with boron, but still keep in mind that other heavy metals may also have an effect.

Packaging dissolves best in 6.0 to 6.5 pH water and more slowly in high pH water (it still dissolves, it just takes longer). If high pH water is being acidified, it may be desirable to acidify prior to adding water-soluble packaging. Packages also dissolve more slowly in cold water.

Preventing Problems with Heat Stress

Source: Michigan State Fruit CAT, submitted by Gary Thornton, MSU, and written by Sheldon R. Braun, M.D., Wayland N McKenzie, Ph.D., and Mary Andersen; University of Missouri

Farm workers have been reported to have more heat-related illnesses than any other occupation. Many health problems can be caused by too much heat. Among them are heat rash, heat cramps, fainting brought on by heat, heat exhaustion, and most deadly, heatstroke (also called sunstroke). The factors that contribute to these health problems are many, and people differ in how prone they may be.

Heat rash occurs when the sweat glands of the skin become clogged due to extreme sweating. Usually this looks like red "pimples" on skin that is kept sweaty. White "goosebumps" occur if the sweat glands below the skin are affected. The skin feels prickly. Heat rash disappears when the person is returned to cooler temperatures. Infection can occur if the problem is not corrected.

Heat cramps are caused by loss of salt and electrolytes (magnesium, potassium, calcium) during strenuous exercise in the heat. This is helped by replacing the lost salt and electrolytes, usually taken together with lots of water as well.

Fainting due to heat is caused by the same factors that cause other fainting. People most likely to faint in the heat are those unused to working in it.

Heat exhaustion is caused by excessive sweating. Nausea, giddiness, thirst, and headache are common symptoms of this problem. Body temperature may or may not be higher than normal. People vary widely in how much tolerance they have for heat, making it sometimes difficult to foresee this problem. Treatment includes cooling the victim and giving liquids. Take the victim to a cool place, resting in a head-low position. Keep the victim warm enough to avoid shock. Keep at rest. The victim should be watched for further problems.

Heatstroke is a life-threatening situation. Body temperature above 105°F, irritability, staggering, unconsciousness or convulsions, and lack of sweating are the common symptoms. Immediate efforts must be made to cool the victim to 103°F and move to a hospital immediately. Keep the head elevated. Heatstroke occurs when the body's central control mechanisms fail. Because of this general failure, the entire body can be damaged. The damage to blood-clotting, liver, and kidney functions can be especially severe. A survivor may have permanent damage to these organs, and may also be unable to bear heat as well as in the past.

Adapting to working in heat: Healthy people get used to working in a hot environment within two to three days. The complete change takes place within seven to ten days. *Similarly, after two to three days working at a moderate temperature, the adjustment is lost*. Adapting to heat is harder for those who are malnourished, elderly, children, overweight, diabetic, or have heart or circulatory problems. There is no difference between women and men in heat tolerance, when differences in body size are taken into account.

Because it is so hard to predict how a particular person may tolerate heat, the U.S. Department of Health and Human Services has made several recommendations, based on experience and known facts about heat stress. When working in a hot environment, thirst is not a strong enough urge to make a worker to drink enough water to replace up to one quart that may be lost per hour. Therefore, workers in hot environments must be encouraged to drink cool water or non-carbonated, low-sodium beverages about a cupful at a time every 15 to 20 minutes. Separate drinking containers help workers keep track of the amount they drink. Still, workers may be a little dehydrated after a work shift. They usually recover overnight.

The salt lost from sweat can be replaced by slightly increasing the use of table salt. Those not used to working in hot environments may need to increase their salt intake a little more than others, but this

need lasts only two to three days. Salt tablets *are not recommended.*

Potassium is unlikely to be depleted by anyone eating a healthy diet, due to the abundance of it in meat and fruits. A person taking diuretics, however, may have problems and may need medical supervision. Depletion of potassium can lead to heatstroke. A normal diet should satisfy the needs of workers in hot environments.

Alcohol reduces heat tolerance, and is a common factor in heatstroke. It should not be consumed just before or while working in heat. Many prescription drugs interfere with the body's ability to endure heat. Diuretics and antihistamines are common examples. Ask your doctor's advice if you are taking prescription drugs and working in a hot environment.

Generally, the body must work harder to maintain itself in hot weather. As a result, it is unreasonable to expect to accomplish as much on a very hot day as on a mild weather day. If you have predisposing factors for heat illnesses, be aware of them and take it easier. Be sure to keep an eye on others working with you, and be alert for headaches, nausea, staggering, dizziness, or other unusual behavior that may mean a heat illness.

If you have an infant to care for, remember that they become dehydrated easily. Likewise, children have more difficulty controlling their body temperature than mature adults, and should be encouraged to drink more in hot weather. Children should also be supervised more closely during hot weather, and watched for signs of heat illnesses.

Cherry Fruit Flies

Source: Midwest Tree Fruit Pest Management Handbook

http://www.ca.uky.edu/agc/pubs/id/id93/ch_1.htm

Damage: Cherry fruit fly maggots attack the fruit of sweet and sour cherries. Infested fruit often appear normal until the maggots are nearly fully grown. Damage appears as sunken, shriveled areas on the surface of the fruit. Fruit may be blemished by the egg-laying punctures made by the female near the bottom of the fruit.

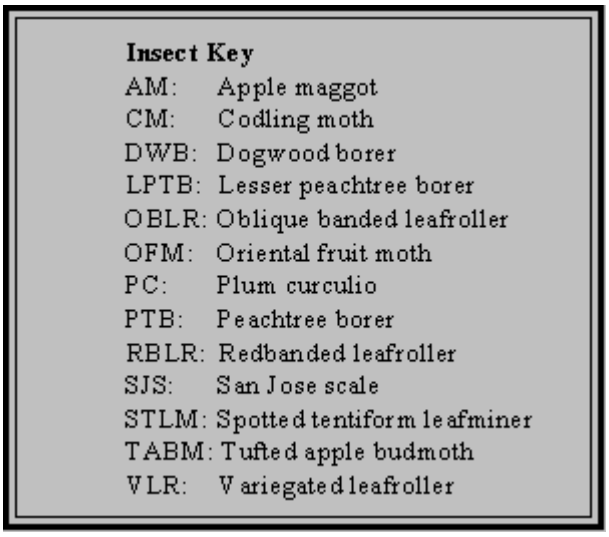
Appearance: The adults are black flies with yellow heads and are somewhat smaller than a house fly. Between the base of the wings is a white- or cream-colored dot. The dark markings on the wings are used to distinguish the species. The abdomen of the black cherry fruit fly is entirely black, while the cherry fruit fly is marked with a series of white crossbands.

Life History and Habits: Cherry fruit flies spend 10 months of the year in the soil beneath the trees. Adults emerge from late May to early July and lay their eggs on the fruit. The black cherry fruit fly generally begins to emerge about 10 to 14 days earlier than the cherry fruit fly. There are usually 10 days between the fly emergence and egg laying. The eggs hatch in about a week, and the maggots feed for about 2 weeks before exiting the fruit and dropping to the ground. They pupate 1 to 2 inches beneath the soil surface. There is only one generation of each fly.

Monitoring and Thresholds: Monitor cherry fruit flies with yellow sticky cards hung in the trees in late May. Examine the wing bands to distinguish the species.

Chemical Control: Sprays need to target the adults *before* egg laying begins. Adults should be controlled 5 to 6 days after they emerge.

Fruit Observations



Source: Dr.Celeste Welty, OSU Extension Entomologist

Apple: 6/2 - 6/9

RBLR: 31 (up from 0)
STLM: 2368 (up from 1625)
SJS: no report
CM (mean of 3 traps): 6.0 (down from 11.0)
TABM: 18 (down from 20)
VLR: 0 (down from 6)
OBLR: 1 (down from 7)

Peaches:

OFM: 12 (up from 9)
LPTB: 9 (up from 4)

Site: East District; Erie & Lorain Counties
Source: Jim Mutchler, IPM Scout

Apple: 6/2 - 6/8

RBLR: 0.2 (up from 0)
STLM: 390 (up from 345)
SJS: 0 (unchanged)
CM: 1.5 (down from 2.4)
OBLR: 0.3

VLR: 6.7

Peach:

OFM: 7.75 (down from 41.3)
RBLR: 0 (unchanged)
LPTB: 42.8
PTB: 0

Other pest activity: green apple aphid, rosy apple aphid, wooly apple aphid, white apple leafhopper, lilac borer, oak borer.

Beneficials at work: *Stethorus punctum*, predatory mites, orange maggot, lacewings (both brown & green), white maggot, other lady beetles, predatory wasps, and banded thrips.

Site: West District; Huron, Ottawa, & Sandusky Counties
Source: Gene Horner, IPM Scout

Apple: 6/2 - 6/8

RBLR: 0 (down from 0.1)
STLM: 288 (up from 87)
SJS: 0 (unchanged)
CM: 1.6

Peach:

OFM: 4.5 (down from 6)
RBLR: 0.5 (up from 0)
LPTB: 10
PTB: 0.5

Other pest activity: green apple aphid, two-spotted spider mite, lilac borer, white apple leafhopper.

Beneficials at work: Green lacewings, predatory mites, banded thrips, and predatory wasps.

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

Apple: 5/27 - 6/2

RBLR: 0 (down from 0.9)
STLM: 13 (up from 0)
CM: 2.9 (down from 4.5)
OBLR: 3.5 (up from 0)

Peach:

OFM: 14 (down from 20)
LPTB: 22 (down from 24)

White apple leafhopper and aphids are starting to increase in numbers, though not presently at threshold. Though periodical cicadas were in a woods close to one of our orchards, there has been no damage done to the apple trees. Fire blight is the main concern in apples now, with pruning out of infested branches taking place. Strawberry harvest is proceeding well with high quality fruit and few insect or disease problems.

Ohio Apple Scab and Fire Blight Watch - SkyBit Products

	Central		North Central		Eastern Highlands		North East		West	
Date	**apple scab**	**fire blight**	**apple scab**	**fire blight**	**apple scab**	**fire blight**	**apple scab**	**fire blight**	**apple scab**	**fire blight**
May 22	pi	pi	pi	pi	pi	pi	pi	pi	pi	pi
23	pi	pi	pi	pi	pi	pi	pi	pi	pi	pi
24	pi	pi	pi	pi	pi	a,ni	pi	pi	pi	a,ni
25	pi	a,ni	pi	a,ni	pi	a,ni	pi	a,ni	a,ni	na
26	a,ni	a,ni	a,ni	na	a,ni	a,ni	a,ni	na	a,ni	na
27	a,ni	na	a,ni	na	a,ni	a,ni	a,ni	na	a,ni	na
28	a,ni	na	a,ni	na	a,ni	na	a,ni	na	a,ni	na
29	a,ni	na	a,ni	na	a,ni	na	a,ni	na	a,ni	na
30	a,ni	na	a,ni	na	a,ni	a,ni	a,ni	na	a,ni	pi
31	pi	pi	pi	pi	a,ni	pi	pi	pi	pi	pi
June 1	pi	pi	pi	pi	pi	pi	pi	pi	pi	pi
2	pi	pi	pi	pi	pi	pi	pi	pi	pi	pi
3	a,ni	na	pi	a,ni	a,ni	a,ni	pi	pi	a,ni	na
4	a,ni	a,ni	a,ni	a,ni	a,ni	a,ni	pi	a,ni	a,ni	na
5	a,ni	na	a,ni	na	a,ni	na	a,ni	na	a,ni	na
6	a,ni	na	a,ni	na	a,ni	na	a,ni	na	a,ni	na
7	a,ni	na	a,ni	na	a,ni	na	a,ni	na	a,ni	na
8	a,ni	pi	a,ni	na	a,ni	na	a,ni	na	a,ni	na
9	a,ni	na	a,ni	na	a,ni	na	a,ni	na	a,ni	na

Based on forecasts										
June 10	**a,ni**	**na**	**a,ni**	**na**	**a,ni**	**na**	**a,ni**	**na**	**a,ni**	**na**
11	**a,ni**	**na**	**a,ni**	**na**	**a,ni**	**na**	**a,ni**	**na**	**a,ni**	**na**
12	**a,ni**	**na**	**pi**	**pi**	**pi**	**pi**	**pi**	**pi**	**pi**	**pi**
13	**pi**	**pi**	**pi**	**pi**	**pi**	**pi**	**pi**	**pi**	**pi**	**pi**
14	**pi**	**pi**	**a,ni**	**pi**	**a,ni**	**pi**	**a,ni**	**pi**	**a,ni**	**pi**
15	**a,ni**	**a,ni**	**a,ni**	**pi**	**a,ni**	**a,ni**	**a,ni**	**a,ni**	**a,ni**	**pi**
16	**a,ni**	**a,ni**	**a,ni**	**a,ni**	**a,ni**	**a,ni**	**a,ni**	**a,ni**	**a,ni**	**a,ni**

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

	Actual DD Accumulations June 9, 1999		**Forecasted Degree Day Accumulations June 16, 1999**			
Location	**Base 43° F**	**Base 50° F**	**Base 43° F**	**Normal**	**Base 50° F**	**Normal**
Akron - Canton	1129	648	1329	1199	799	706
Cincinnati	1431	853	1647	1660	1020	1039
Cleveland	1114	644	1317	1151	797	675
Columbus	1443	895	1656	1385	1059	840
Dayton	1333	811	1546	1415	975	870
Elyria	1207	738	1385	1230	875	737
Fremont	1032	598	1254	1162	771	696
Mansfield	1130	654	1334	1178	809	692
Norwalk	1122	661	1330	1140	820	675
Toledo	1159	696	1360	1129	848	668

Wooster	1183	695	1384	1123	847	645
Youngstown	1032	583	1227	1087	729	625

Phenology

	Range of Degree Day Accumulations	
Coming Events	**Base 43° F**	**Base 50° F**
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
Obliquebanded leafroller 1st flight peak catch	869-1548	506-987
Apple maggot 1st catch	1045-1671	629-1078
Redbanded leafroller 2nd flight begins	1096-2029	656-1381
Codling moth 1st flight subsides	1112-2118	673-1395

Thanks to Scaffolds Fruit Journal (Art Agnello)

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