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

THE OHIO STATE UNIVERSITY Extension

Newsletter

Volume 3, No. 24
July 8, 1999

In This Issue:

Calendar

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. Walking tour, discussion, and fruit pies at Moreland Fruit Farm near Wooster. $5.00 registration fee. For more information contact Mike Pullins at (614) 249-24424.

July 27: Southern Ohio Vineyard and Winery Tour, starts at 2:00 p.m. at Painter Fork Vineyard, Bethel (Clermont Co.), continues at Kinkead Ridge Vineyard, Ripley (Brown Co.), then on to Moyer's Vineyard, Manchester (Adams Co.). Concludes with dinner at Moyer's Restaurant. Dinner reservations required by July 21. Please call Moyer's Restaurant (937) 549-2957. For more info contact Maurus Brown at OARDC (330) 263-3681.

August 5: Young Grower Tour, northwest Ohio. Designed for, but not limited to, producers and their spouses age 40 and under. The tour will showcase the innovative growing techniques of northwestern Ohio fruit and vegetable growers. Board buses beginning at 8:00 a.m. at the OARDC Vegetable Crops Branch, 2 miles south of Fremont. Stops will include the Antesberger Farm, Knipp Farms, Hirzel Canning Company (where barbecue chicken and brat lunch will be served), Northern Ohio Pickle Company, Bench's Greenhouse, Rimelspach Produce Company. Buses return to OARDC-Fremont at approximately 4:30 p.m., where dinner will be served. Cost is only $10 per person. Call OFGS or OVPGA at (614) 249-2424.

OFGS Summer Tour

Thank you, Rich and Betty Eshleman and Dennis Wasserman, for hosting the 152nd Ohio Fruit Growers Society Summer Tour. We really appreciated your efforts in providing well-groomed orchards, attractive display and meeting areas, and delicious sweet cherries.

Peaches Are Here!!!

Growers in north central Ohio have started harvesting delicious clingstone peaches.

Drought Conditions Persist

Sources: http://www.nws.noaa.gov/oh/hic/current/drought/

Although some recent rains have relieved moisture stress in localized areas**,** many of the state's fruit crops are being affected by dry weather. The National Weather Service has concluded that moderate to severe meteorological drought conditions will continue across much of Ohio.

The determination for drought conditions is based on the Palmer Drought Severity Index. The Palmer Index is used to measure the effects of prolonged dry or wet conditions, and reflects the general long term status of soil moisture. The categories for drought are:

Near Normal (-1.0 to -1.9)
Moderate (-2.0 to -2.9)
Severe (-3.0 to -3.9)
Extreme (-4.0 or less)

Conditions in Ohio as of July 3, 1999

Region	**Category of Drought**
NW Ohio	Moderate
WCentral Ohio	Moderate
SW Ohio	Moderate
SCentral Ohio	Severe
Central Ohio	Moderate
NCentral Ohio	Moderate
NE Ohio	Severe
Central Hills	Severe
NE Hills	Severe
SE Ohio	Severe

Managing Summer Diseases of Apple In Dry Weather

Source: Dr. Dave Rosenberger, ***Dept. of Plant Pathology, Cornell University, Scaffolds Fruit Journal, June 28, 1999***

http://www.nysaes.cornell.edu/ent/scaffolds/

Controlling apple diseases in wet years can be frustrating, but disease control in dry years is perhaps more complex. In wet years like 1998, everyone knows that continual fungicide protection is essential. In a dry year like 1999, anxieties arise because of the unknowns involved in NOT spraying.

In dry years, midsummer (late June - early July) is a good time for apple growers to save on fungicides. Apple scab is now inactive, even in orchards where scab appeared on leaves in late May. Lesions that appeared in May have probably received two fungicide cover sprays by now. The fungicides, hot weather, and the aging process of existing lesions have reduced production of viable conidia in existing lesions. Trees have (or soon will) set terminal buds, thereby terminating the production of susceptible new tissue for scab infection. Fruit have now reached a size where they are more resistant to scab than they are during the first 30 days after petal fall. Some of the scab on leaves could re-activate if we encounter a multi-day period of cool and wet weather, especially during late August or September. However, scab is of little concern given our current dry weather patterns. Even a few showers during midsummer (which would be welcome) will not reactivate scab enough to cause problems.

Sooty blotch and flyspeck are the two diseases that generally require regular sprays during summer, but these diseases are also inactive during late June and July in dry years. Most of the inoculum for sooty blotch and flyspeck comes from wild hosts in orchard perimeters. Ascospores of the flyspeck fungus mature shortly after bloom. Visible symptoms appear on fruit only after fruit have been wet for a cumulative total of approximately 270 hours following infection.

Release of ascospores by the flyspeck fungus peaks about 10 days after petal fall. However, only a few ascospores land on apple fruit, and most of these are killed by fungicides used to control apple scab. Although ascospores do not play much of a role in commercial orchards, they are important because they initiate secondary infections in the border areas. The secondary infections produce conidia in wild hosts (presumably after about 270 hours of accumulated wetting). These conidia are blown into apple orchards and cause the infections on apple fruit that appear during late summer, after another 270 hours of accumulated wetting from the time of infection.

Summer fungicides for controlling flyspeck are not needed from the end of the scab season until the time when 270 hours of wetting have accumulated counting from 10 days after petal fall. At that point, flyspeck conidia will become available in the orchard perimeter and will begin blowing into the orchard.

In dry years, a single fungicide application in late July sometimes provides adequate control of flyspeck. Depending on a single application is risky, however, because effectiveness of a single spray depends on achieving perfect spray coverage. A safer approach, even in dry years, is to use a minimum of two summer fungicide applications with one timed for mid- to late July, and the second about three weeks later in early to mid-August. These sprays will also help to prevent lenticel infection of fruit by the black rot fungus. A slightly earlier timing may be advisable in orchards where poor pruning and/or an exceptionally heavy crop load will make it impossible to get good spray coverage by mid-August. If August is exceptionally wet, an additional late-August application may be needed in orchards where a lot of primary scab lesions (May infections) are present in the orchard. More conservative application schedules are also advised for those "hot spots" where flyspeck is a perennial problem.

As explained below, the July-August applications should include Benlate or Topsin M (in combination with captan or ziram) to maximize both eradicant and residual activity against flyspeck. In dry years,

however, Benlate should be avoided before mid-July. If a sudden heavy rain breaks the drought, fruit will size very rapidly. Rapid growth following drought stress often causes "lenticel splitting". Lenticels that "split" appear as enlarged and roughened lenticels on fruit at harvest. Benlate sometimes increases the severity of this phenomenon. The interaction between Benlate and lenticel splitting is probably related to Benlate applications made during June, but later applications may also be involved.

Captan and ziram do not have any eradicant activity against flyspeck, and therefore must be applied before the conidia cause infections, i.e., before 270 hours of wetting have accumulated. The benzimidazole fungicides (Benlate and Topsin M) provide about 100 wetting hours of eradicant activity against flyspeck. As a result, development of flyspeck on fruit can be arrested if Benlate or Topsin M is applied sometime between 270 and 370 hours of accumulated wetting counting from 10 days after petal fall.

Captan and ziram provide good control of flyspeck if they are applied on a 14-day interval. Shorter intervals may be needed to compensate for wash-off by rains. Benlate, Topsin M, and the combination of ziram plus sulfur (1 lb. of each per 100 gal) provide excellent residual protection that will control flyspeck for about 30 days or through three to four inches of rain during summer. Benlate, Topsin M, and the ziram-sulfur combination generally provide adequate control of flyspeck during the preharvest interval if applied within 45 days of harvest. The ziram-sulfur combination provides excellent residual activity against flyspeck, but it does not provide any eradicant activity and therefore must be in place before the first flyspeck conidia arrive in the orchard. Combinations involving Benlate or Topsin M will provide better control of black rot than ziram-sulfur.

How to Avoid Spotted Fruit

Source: Dr. Dave Rosenberger, Dept. of Plant Pathology, Cornell University, Scaffolds Fruit Journal, June 28, 1999

http://wwwnysaes.cornell.edu/ent/scaffolds/

For fruit growers in the northeast, pesticides are indispensable tools for controlling diseases, mites, insects, and weeds. Unfortunately, misapplied pesticides sometimes cause more damage (phytotoxicity) to the crop than would have been caused by the pests that were the target of the pesticide applications. Sometimes the causes of phytotoxicity are obvious, but in other cases the causes of the injury can be difficult to determine. An example of the latter occurred on Empire fruit in 1998.

During August and September of 1998, fruit spotting developed on Empire fruit in numerous orchards throughout the northeast. Affected fruit developed tan lesions on the sides and calyx ends of fruit. In some cases, blackened lenticels were also present, especially on the exterior of the tree canopy where fruit were most directly exposed to sprays. The injury was most severe in orchards where pesticides were applied as fairly dilute sprays (full dilute to 2X concentration). The tan lesions were especially evident where spray residue had accumulated and dripped from the lowest surface of the fruit following pesticide applications, but it was not limited to drip points. The injury occurred almost exclusively on Empire. Other varieties in adjacent rows were either unaffected or showed only minor spotting that would have escaped detection on the packing line. By contrast, some blocks of Empire were so severely affected that more than 20% of fruit were out of grade.

After extensive investigating during early September of 1998, we determined that in almost all cases, the injury seemed to be associated with captan sprays. Severity of the injury was not related to the formulation of captan (50W, 80W, or 4L). However, injury was most severe where captan was applied with foliar nutrients (especially calcium sprays) or with adjuvants that caused increased absorption of

captan. Applications made at night or under slow drying conditions seemed to further increase the severity of the injury. Growers who applied captan without calcium generally had no fruit spotting.

The unusual cloudy and wet weather conditions that prevailed during the first half of the 1998 growing season may have contributed to the captan-related phytotoxicity that developed on Empire fruit. Fruit growing under stress-free conditions early in the season may have had a thinner cuticle and may have therefore been more susceptible to spray injury. We know, however, that the injury problem on Empire is more than a single-season phenomenon because similar injury had been noted for several years in western New York orchards where captan and calcium sprays were routinely applied to Empire.

Based on our experiences with phytotoxicity to Empire fruit, we recommend that growers use special care when applying summer sprays to Empire orchards. Current captan labels warn against applying captan with products that will result in increased absorption of the captan into plant tissue. That is a nebulous warning that is difficult to interpret. When multiple pesticides, nutrients, and spray additives are mixed in a spray tank, who knows if the final solution will have properties that "result in increased absorption" of captan? Obviously, it is not feasible to make separate trips through the orchard with each product that must be applied, but fruit burn caused by pesticide/nutrient sprays can also be very costly.

All we can say at this point is that combining captan and calcium in the same tank may cause phytotoxic spotting on Empire fruit. The risks are increased if the spray solution collects in drops on the bottom of fruit or if sprays are made under slow-drying conditions. We do not know if risks are dependent on the formulation of calcium that is used in foliar sprays. The role of other spray adjuvants is also unclear, but adjuvants that may contribute to increased absorption of captan sprays should be avoided.

Foliar Analysis

Source: Fertilizing Fruit Crops, Garth Cahoon, OSU Extension Bulletin #458.

Now through August 15th is the perfect time to have a leaf analysis done. Chemical analysis of plant foliage is an important tool for establishing and maintaining a proper fertilizer program in fruit planting. To be of greatest value, make foliar analysis on an annual basis. Based on the analysis, adjustments can be made, generally in the following year's program. However, for elements other than nitrogen, corrections can usually be made during the current year. Nutrient element levels in the plant will vary according to the fertilizers applied, soil pH, soil moisture level, soil and air temperatures, rainfall, the load of fruit on the plants, and the time of sampling.

Foliar analysis is the process whereby leaves are dried, ground, and chemically analyzed for their nutrient content. Nitrogen, phosphorus, potassium, calcium, magnesium, manganese, iron, copper, zinc, and boron are the elements measured in a normal test. Unlike soil tests, which only show what is in the ground, a leaf analysis shows what the trees have actually absorbed. Soil tests typically do not give accurate measurements of nitrogen or the minor elements.

Samples should be collected now because the nutrient levels in fruit trees are the most stable at this time. Earlier in the season, trees are actively growing and transporting nutrients up into the leaves; later in the season, senescence is beginning and nutrients are being transported out of leaves. To avoid contamination, samples should be collected as long as possible after a cover spray or just before a cover spray.

Prior to taking samples, survey the orchard for uniformity. Trees selected for an individual sample should be similar in age, size, condition, vigor, leaf color, variety, and growth. Avoid areas where

differences exist unless you plant to take samples for comparative purposes. Do not sample trees which are insect infested, diseased, physically injured, or have other obvious abnormalities not related to nutrition.

For a representative sample, pick leaves at the mid-point of the current season's terminal growth. This would be located about midway on the tree or chest high on large trees. For young, small, or dwarf trees select a representative height of the majority of the foliage. Walk diagonally across the block and pick 2 to 4 leaves from each alternate tree on the left and right of the sampler. If the orchard consists of rows of several cultivars, select leaves by walking in an "S" shaped pattern down the rows. Remove leaves with a downward pull so that the petioles remain attached. DO NOT MIX CULTIVARS.

Foliar analyses can be of value in diagnosing the cause or causes of abnormalities in plant growth or fruit development. For this, only a single analysis properly taken may be needed. In other instances, a series of analyses may be necessary to arrive at a proper explanation. Paired comparisons, one from normal and one from the abnormal condition, are frequently helpful. Thus, foliar analyses, particularly if they are made over a period of years, can indicate an approaching deficiency of a nutrient element before the plant shows any visible symptoms. It is also possible to learn when an element may be increasing in the plant towards a level that will reduce fruit quality or bring about some other undesirable effect. When these conditions are known, steps can be taken to alter the fertilizer program and cultural practices that influence the uptake of elements from the soil solution.

Grower use of foliar analysis is aimed at helping the grower reach optimum or maximum production within the limits of good nutrition. Using foliar analyses only when nutritional problems are suspected will be helpful but will not yield the greatest benefit.

With the closing of our lab in Wooster, two alternatives are available to Ohio Fruit Growers. Michigan State University will provide interpretation of results and computerized fertilizer recommendations for fruit trees, grapes, strawberries, blueberries, and raspberries. The cost is $20. (MSU Fruit Tissue form is attached.) The other alternative for small fruit has been suggested by Dr. Richard Funt. Leaf samples may be sent to Penn State and receive computer printouts of recommendations that have been prepared by an Ohio State specialist. For more details contact Dr. Richard Funt at (614) 292-8327.

Pest Notes From the Waterman Farm

Source: Dr. Celeste Welty, OSU Extension Entomologist

European red mite populations are low at many orchards but are building to above-threshold levels at others. The mid-summer threshold is 5 mites per leaf. Some two-spotted spider mites have been found in one of our apple research blocks, which is not surprising in a hot, dry year like this. If a miticide is needed on peaches, the options available are Apollo, Carzol,and Vendex. On apples, Apollo is a new optioin this year. Other options on apple are pyramite, Carzol, Vendex, Kelthane, and Vydate. In many orchards the old miticides Vendex and Kelthane are not working very well if they were used frequently in the past. One of the main factors to consider in choosing a miticide is the effect on predatory mites. If you have predatory mites helping to keep European red mite suppressed, then choose a miticide that is not highly toxic to predators. Apollo does not harm predatory mites. Pyramite, Carzol, Vendex, and Kelthane are moderately toxic to predators and their use at the high end of their rate ranges should be avoided. Vydate is highly toxic to predatory mites. Apollo should be used only if not used earlier this year. Apollo kills eggs and newly hatched larvae, but does not kill larger nymphs or adults. Apollo has a 14 day PHI on peaches and a 45-day PHI on apples. Carzol has a 21-day PHI on peaches and a 7-day PHI on apples. Pyramite has a 25-day PHI on apples.

Spotted tentiform leafminer in central Ohio is now having its third flight of the year, and mines are reported to be above threshold in some orchards. Leafminer is harder to control now than earlier in the year because all life stages are present, whereas earlier in the year most of the population was in the same stage at the same time, thus easier to target with insecticides. We have two IPM-compatible insecticide options for leafminer control in mid-summer: Provado, which has been registered since 1995, and SpinTor, which was just registered last year. Agri-Mek is not a good choice at this time of year because the leaves have hardened off and the product would not be absorbed well. Both Provado and SpinTor are most effective at killing just-hatched leafminers in the early sap-feeding stage. Provado is used at 2 oz/100 gallons (equal to concentrate rate of 4 to 6 oz/A for most orchards). SpinTor is used at 1-1.5 fl. oz/100 gallons, or 4-6 oz/A. The manufacturer suggests using SpinTor as a single application at 5 oz/A, or at 4 oz/A for multiple applications; the single application gives good control of the first summer generation, but might not do well in mid-summer due to the spread in life stages. Residual efficacy with SpinTor is increased by addition of a suffactant; a 0.25 % penetrating nonionic surfactant, or 0.125% silicone/crop oil blend, or 0.08% v/v silicone wetter are recommended by the manufacturer.

Insect Control for Raspberries & Blueberries

Source: 1999 Ohio Commercial Small Fruit and Grape Spray Guide, Extension Bulletin 506B2

Control of Japanese beetles and picnic (sap) beetles during harvest is a challenge.

Raspberries: Keep berries off the ground and ripe berries picked. Establish bait buckets containing overripe fruit between the berry planting and nearby wooded areas. Empty bait buckets on a regular basis. Few insecticides are registered for sap beetle control, and during picking harvest restrictions practically rule out their use.

The following are labeled for Japanese beetle control and have one or fewer days PHI: Malathion, Cythion, Pyrellin EC.

Blueberries: For control of Japanese beetles feeding on fruit, Sevin is labeled and effective, but may not be applied within 7 days of harvest. Imidan is moderately effective and may be used until 3 days of harvest. Imidan is restricted to 2 applications per season. Pyrellin (pyrethrins plus rotenone) will provide short-term control and may be used until the day of harvest. Malathion: harvest restrictions, use limitations, or restricted entry intervals vary by crop, crop use, rate, or fomulation. See product label for details.

Chlorine Revisited

Source: Richard C. Funt, The Ohio State University and Dr. David S. Ross, University of Maryland

Note: Additional information (underlined text) has been added to this article, which is a repeat from last week's newsletter. This was done to help clarify the starting point for chlorine injection.

Chlorine can be injected into a micro-irrigation system as either a treatment or prevention of a clogging problem. Slimy bacteria grow on the interior walls of the hose and emitter. Small clay particles in the water provide nutrients to the bacteria and increase the growth and size of the slime. Chlorine is a biocide that can kill bacteria and at high rates can kill plants. Chlorine can be purchased as a powder, liquid, or gas.

When chlorine is injected into water, the pH of the water can reduce its effectiveness. For effective chlorine treatment, alkaline water should be acidified to a pH of 6.5. This must be done at two different injection ports because mixing acid to lower pH and liquid chlorine in the same tank will produce toxic chlorine gas. Acids and chlorine should never be stored together.

Always add chlorine supplies to water. Chlorine injection combined with pesticides may reduce the effectiveness of the pesticides.

If chlorine is showing 0.5 to 1.0 parts per million (ppm) at the end of the line it is active in the entire system. If you have chlorine bleach at 5% active chlorine, then 2.6 fluid ounces of household bleach per 1,000 gallons yields approximately 1 ppm chlorine. Generally, the initial amount should be 5 ppm, depending on water temperature and pH for it to be 1 ppm at the end of the line. The initial amount of chlorine depends on the amount of algae or iron present and can vary over a season. Try 5 ppm initially and increase the amount to get the residual chlorine at the end of the system. With iron usage, continuous injection may be needed to keep iron from the walls and emitter in the lines. In most cases, injection once per week or once per month may keep algae under control, but iron becomes a hard solid and may require injection every time the system is used.

Residual chlorine is easy to measure with swimming pool test kits. It is the best way for measuring chlorine in micro-irrigation. Low levels of chlorine should not harm plants or plant roots. High levels of chlorine (above 100 to 200 ppm) can cause plant injury and death.

Fruit Observations

Insect Key

AM: Apple maggot
CM: Codling moth
DWB: Dogwood borer
LPTB: Lesser peachtree borer
OBLR: Oblique banded leafroller
OFM: Oriental fruit moth
PC: Plum curculio
PTB: Peachtree borer
RBLR: Redbanded leafroller
SJS: San Jose scale
STLM: Spotted tentiform leafminer
TABM: Tufted apple budmoth
VLR: Variegated leafroller

Source: Dr.Celeste Welty, OSU Extension Entomologist

Apple: 7/1 - 7/7

RBLR: 10 (up from 9)
STLM: 2665 (up from 434)
SJS: 181 (down from 218)
CM (mean of 3 traps): 3.7 (up from 3.0)
AM: 0 (unchanged)
TABM: 0 (unchanged)
VLR: 0 (down from 3)
OBLR: 0 (unchanged)

Peaches:

OFM: 11 (down from 12)
LPTB: 3 (up from 1)
PTB: 5 (down from 6)

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

Apple: 6/30 - 7/6

RBLR: 26.0 (up from 17.6)
STLM: 900 (up from 813)
SJS: 0 (unchanged)
CM: 1.0 (up from 0.8)
OBLR: 21.5 (up from 13.5)
VLR: 1.0 (down from 1.5)
AM: 0.1 (unchanged)

Peach:

OFM: 9.0 (down from 20.8)
RBLR: 16.8 (up from 27.8)
LPTB: 47.3 (up from 42.5)
PTB: 3.8 (up from 2.0)

Other pest activity: green apple aphid, wooly apple aphid, white apple leafhopper, Japanese beetle; occasional fire blight.

Beneficials at work: Lacewings everywhere, orange maggot, *Stethorus* and other lady beetles, predator mites.

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

Apple: 6/30 - 7/6

RBLR: 43.0 (down from 52.3)
STLM: 803 (up from 415)
SJS: 0 (unchanged)
CM: 0.4 (down from 1.2)
OBLR: 3.0
VLR: 0.5
AM: 0

Peach:

OFM: 9.0 (up from 3.0)
RBLR: 78.5 (up from 57.5)
LPTB: 5.0 (down from 10.5)
PTB: 4.0 (down from 43.5)

Other pest activity: Green apple aphid, white apple leafhopper, potato leafhopper, two-spotted spider

mite, Japanese beetle

Beneficials at work: Lacewings everywhere, banded thrips, predator mites, parasitic wasps

Ohio Apple Scab, Fire Blight, and Sooty Blotch Activity- SkyBit Products

Central District

Apple Scab: July 1-3, 6, 7 possible infection & damage; July 4, 5 active but no infection

Based on Forecasts; July 8, 9, 12 - 14 active but no infection

July 10, 11 possible infection and damage

Fire Blight: July 1-7 possible infection and damage

Based on Forecasts; July 8 - 9 not active; July 10 -14 possible infection and damage

Sooty Blotch: July 1-7 active but no infection

Based on Forecasts; July 8 - 14, active but no infection

Eastern Highlands

Apple Scab: July 1, 4, 5 active but no infection; July 2, 3, 6, 7 possible infection & damage

Based on Forecasts; July 8, 9, 12 - 14 active but no infection

July 10, 11 possible infection and damage

Fire Blight: July 1-4, 6, 7 possible infection and damage; July 5 not active

Based on Forecasts; July 8 - 9 not active;

July 10, 11, 14 possible infection and damage

July 12 - 13 active but no infection

Sooty Blotch: July 1-7 active but no infection

Based on Forecasts; July 8 - 14, active but no infection

Northeast District

Apple Scab: July 1, 2, 6, 7 possible infection & damage; July 3 - 5 active but no infection

Based on Forecasts; July 8, 9, 12 - 14 active but no infection

July 10, 11 possible infection and damage

Fire Blight: July 1, 2, 6, 7 possible infection and damage; July 3 - 5 not active

Based on Forecasts; July 8 - 9 not active;

July 10 - 11, 14 possible infection and damage

July 12 - 13 active but no infection

Sooty Blotch: July 1-7 active but no infection

Based on Forecasts; July 8 - 14, active but no infection

<u>North Central District</u>

Apple Scab: July 1- 2, 6 - 7, possible infection & damage; July 3 - 5 active but no infection;

July 7 not active

Based on Forecasts; July 8, 9, 12 - 14 active but no infection

July 10 - 11 possible infection and damage

Fire Blight: July 1 - 2, 6 - 7 possible infection and damage; July 3 - 5 not active

Based on Forecasts; July 8 - 9 not active

July 10 - 11, 13 - 14 possible infection and damage

July 12 active but no infection

Sooty Blotch: July 1-7 active but no infection

Based on Forecasts; July 8 - 14 active but no infection

<u>West District</u>

Apple Scab: July 1- 2 possible infection & damage; July 3 - 7 active but no infection

Based on Forecasts; July 8 - 9, 12 - 14 active but no infection

July 10 - 11 possible infection and damage

Fire Blight: July 1-3, 6 possible infection and damage; July 4 - 5, 7 not active

Based on Forecasts; July 8 - 9 not active

July 10 - 11, 14 possible infection and damage

July 12 - 13 active but no infection

Sooty Blotch: July 1-7 active but no infection

Based on Forecasts; July 8 - 14, active but no infection

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

	Actual DD Accumulations July 7, 1999		Forecasted Degree Day Accumulations July 14, 1999			
Location	**Base 43 F**	**Base 50 F**	**Base 43 F**	**Normal**	**Base 50 F**	**Norr**
Akron - Canton	1939	1262	2135	1975	1409	127
Cincinnati	2320	1546	2553	2568	1730	174
Cleveland	1941	1274	2132	1921	1416	124
Columbus	2353	1609	2563	2217	1770	147
Dayton	2201	1482	2417	2270	1650	152
Elyria	2059	1395	2248	2034	1535	133
Fremont	1853	1223	2064	1963	1385	129
Mansfield	1916	1244	2111	1952	1390	126
Norwalk	1952	1295	2141	1914	1435	124
Toledo	1985	1326	2197	1908	1489	124
Wooster	1982	1298	2172	1866	1439	118
Youngstown	1786	1141	1968	1814	1274	115

Phenology

	Range of Degree Day Accumulations	
Coming Events	**Base 43 F**	**Base 50 F**
Codling moth 2nd flight begins	1355-2302	864-1549
San Jose scale 2nd flight begins	1449-	893-1407

	1995	
STLM 2nd generation tissue feeders present	1504-2086	952-1201
Apple maggot 1st oviposition (fruit punctures)	1566-2200	1001-1575
Codling moth 2nd flight peak	1587-3103	1061-2212
San Jose scale 2nd flight peak	1934-2591	1271-1874
Apple maggot flight peak	2033-2688	1387-1804
Obliquebanded leafroller 2nd flight begins	2124-3040	1412-2076
Oriental fruit moth 3rd flight begins	2172-2956	1553-2013

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.

All educational programs conducted by Ohio State University Extension are available to clientele on a nondiscriminatory basis without regard to race, color, creed, religion, sexual orientation, national origin, gender, age, disability or Vietnam-era veteran status.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Keith L. Smith, Director, Ohio State University Extension.

TDD # 1 (800) 589-8292 (Ohio only) or (614) 292-1868

| Back |