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

THE OHIO STATE UNIVERSITY Newsletter Extension

Fruit ICM News

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In This Issue:

Calendar

May 23: Plasticulture Strawberry Field Night, Southern State Community College, U.S. Rte. 62 North, Hillsboro, Ohio. For more information contact Brad Bergefurd at 740-289-3727 or bergefurd.1@osu.edu.

July 10: Ohio Fruit Growers Society Summer Tour, Hirsch Fruit Farm, Chillicothe, OH. For more info about the summer tour, call Tom Sachs at 614-249-2424.

July 23: Licking County Twilight Fruit School, Branstool Orchards. Contact Howard Siegrist at 740-349-6900 for more information.

Spartan 4F Herbicide Controls Groundsel in Strawberry, Ohio Section 18 for 2002

Source: Richard C. Funt, OSU 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 (EPA Reg. No. 279-3220) to control common groundsel in strawberries. Spartan 4F herbicide contains 39.6% sulfentrazone and is manufactured by FMC Corporation.

Growers can apply 4 to 8 fluid ounces of product but no more than 8 ounces of Spartan per acre/per application and a maximum of 12 fluid ounces per acre per year. A split application of Spartan 4F is recommended at renovation (June 20 to July 20, 2002) and dormancy from October 15 to December 15, 2002. Sulfentrazone is known to leach to soil ground water. **Do not** use on coarse soils as sand, which has less than 1% organic matter.

Spartan 4F herbicide should **not** be applied to green strawberry leaves. This herbicide can cause damage to leaves and should be used after leaves have been removed by mowing at renovation and within 48 hours of mowing before new leaves form. It should be used after three hard frosts (24 to 26 degrees F) in the fall after plants (leaves) are dormant. Spartan 4F herbicide has been tested in Ohio and has shown excellent results for common groundsel. Spartan 4F is a selective soil-applied herbicide for certain broadleaf weeds, grasses and sedges. The mode of action involves uptake by weed roots and shoots. It requires rainfall or irrigation (at 0.5 to 1.0 inches) to be activated or shallow incorporation within 7 to 10 days after application. Do not apply after December 15 or 105 days before harvest. Do not apply to saturated soils, or if heavy rainfall is predicted to occur within 24 hours following planned application. We appreciate the very supportive role of Mr. Howard Guscar, FMC representative. He can be reached at 937-667-5162 or mobile phone 937-830-7481.

Disease Update

Source: Bill Turechek, Plant Pathology, Geneva, Scaffolds Fruit Journal, May 13, 2002. (Editor's note: while the locations mentioned are in New York State, Ohio growers have experienced similar weather patterns).

Every season has its oddities. This year, the record heat that pushed many apple trees from half-inch green to pink in two days was followed, first by one or perhaps two damaging frost events, then by weeks of cool and rainy weather that resulted in an extended bloom period. Luckily, cool and wet weather is not particularly favorable for fire blight infection. However, prolonged wetting, despite the cool temperatures, is favorable for apple scab. And although growers attempted to spray ahead of the rains, the soggy soils or the windy days that filled the gaps between rainy periods prevented spraying or certainly adequate spray coverage. Under these conditions, one can't help but wonder whether apple scab (or perhaps fire blight) may be more severe this year than what we would normally expect under cooler conditions.

So at this point in the season we are faced with two possible scenarios: Managing disease as usual or managing disease in frost-injured blocks. Because it is too early to assess the true extent of injury related to frost, let's assume that both kinds of blocks are equally important for now and proceed with the

assumptions that we were unprotected for at least one of the past infection events and that new apple scab lesions **have developed** but are not obvious without scouting. That is, secondary spores are now causing infections.

To date, we had a significant scab infection on Thursday (May 9) with showers starting early in the morning across the region, and a total of 10-11 hours of leaf wetness west of Rochester and as few as 6 hours of wetness east of Rochester. Rain began again on Sunday morning and is expected to continue until Tuesday. The ascospore degree day maturity model is predicting that greater than 75% of the ascospores have matured in western NY, and nearly 100% have matured in the Hudson Valley. In spore trapping counts that I have been doing in Geneva, I have seen substantial releases for the rain event on Thursday and the one beginning Sunday morning (May 12). So let's assume that the primary scab season is not over, but also that secondary cycles of infection are as important as primary infections at this point in the season. That is, assume that ascospores and conidia from new infections are contributing equally to infections over the next week.

The forecast tells us that we should expect rain or showers for most of this week, perhaps with a break around Wednesday. If you applied Sovran or Flint or a combination of SI plus mancozeb on Tuesday (May 8), you were covered for the infections on Thursday and for the current infection event. If on Saturday you were able to apply a fungicide in anticipation of this week's weather, you are in good shape. If we get a break on Wednesday, Sovran (1.6 oz/100 gal) or Flint (0.8 oz/100 gal) should, without question, be applied. Either fungicide will offer some after-infection activity, provide an excellent level of protection during the anticipated rains expected after Wednesday, and are the best choice for protecting against fruit scab. Fire blight should not be a concern. The temperature has been too cold to allow the bacteria to develop to a high enough level to cause infection.

For peaches or cherries, the latest timing for Rovral application is petal fall on cherries, peaches, and apricots with 24 hours post infection activity. The last window for Bravo (or Echo) is shuck split, which is also recommended for black knot control in cherries and plums. Peaches at petal fall can be protected using captan through the wet conditions. The SI's (Indar, Orbit, Elite) are labeled for blossom blight but are best if saved for fruit rot phase of brown rot. On peaches, bacterial spot is also of great concern when we experience this much rain. In blocks that have a history of spot, I would recommend using Mycoshield 17W (0.75 lb/acre) beginning at shuck split and continuing on a 7-10-day schedule as long as the weather remains wet. In blocks with less pressure, a low labeled rate of copper (such as Kocide 101 (1.0 lb/acre) or Kocide 2000 (0.75 lb/acre) plus Ziram 76DF (3.0 lb/acre) is another option. However, phytotoxicity is always a concern when applying copper to actively growing tissues, especially when applied in hot weather (not likely) or under poor drying conditions.

Determining the End of the Primary Apple Scab Season

Source: Dave Rosenberger, Plant Pathology, Highland, Scaffolds Fruit Journal, May 13, 2002

Apple growers should not reduce fungicide coverage just because we are approaching the end of the ascospore discharge season. During the period between petal fall and the third cover spray, apple leaves and fruit remain highly susceptible to scab infections, and even "clean" orchards remain at risk for secondary scab infections. The remainder of this article explains methods for predicting the end of ascospore discharge, along with reasons for ignoring this seasonal milestone when planning fungicide strategies.

In New York State, two different methods have been used to assess apple scab ascospore maturity and discharge. The older method involves collecting leaf litter from beneath apple trees at regular intervals during spring, removing apple scab pseudothecia, and evaluating the contents of the pseudothecia under the microscope. In 1985, MacHardy and Gadoury published a degree-day model for predicting apple scab ascospore discharge. Determining ascospore maturity with the degree-day model is much easier and faster than making determinations via squash mounts.

The degree-day model uses the green tip stage of bud development as a starting point. In some years, environmental conditions prior to green tip cause scab pseudothecial development to be slightly advanced or slightly retarded as compared with the "average" development assumed by the degree-day model. In years when ascospore maturity at green tip is more advanced than normal, fungicide protection at green tip is essential for protecting the crop. In years when ascospore maturity at green tip is delayed, apple growers can omit one or two early sprays. The old method of assessing spore maturity via squash mounts can provide better information than the degree-day model for the first 7-10 days of the growing season. After that, the degree-day model provides acceptable estimates of spore maturity.

Pseudothecial squash mounts are actually much less reliable than the degree-day model for predicting the end of the primary scab season most years. Many researchers (Gadoury, MacHardy, Rosenberger) have noted that the number of ascospores usually drops to zero at or shortly after petal fall, despite the fact that squash mount counts may still show significant number of ascospores in leaf litter. Rotorod trapping data from Al Jones in Michigan also show that ascospore captures usually end near petal fall. Not surprisingly, the degree-day model usually shows that ascospore discharge terminates at or soon after petal fall.

Squash mount data nearly always shows ascospores remaining in leaf litter when the degree-day model indicates that no more discharge should be expected. Why do the two systems provide different data about the end of the scab season? First, some of the "late" ascospores are never discharged under field conditions, or they fail to become airborne. Second, squash mount data does not compensate for the disappearance of leaf litter during spring. Squash mount assessments after petal fall may indicate that the remaining leaf litter still contains 16% of the total ascospore load. However, if 75% of the leaf litter has disintegrated, the real proportion of the full-season spore load remaining would be only 4%. We do not have a reliable method for evaluating "average" leaf litter disappearance in commercial orchards, and leaf litter disappearance has never been incorporated into squash mount counts. As a result, squash mounts have always over-estimated ascospore dose after petal fall.

The degree-day model may underestimate the proportion of remaining ascospores after petal fall in years when extended periods of dry weather occur between green tip and petal fall arrest pseudocethecial development in leaves. (This was the case in 2001, but does not appear to be the case in 2002.) Pseudothecial development slows or stops when leaves become dry (brittle), but the degree-day model does not take leaf drying into account. In exceptionally dry years, the old squash mount method can be used along with tower discharge tests to determine if spores are still being discharged. In normal or wet years, the degree-day model will be more accurate than the late-season squash mounts.

The fact that the traditional squash mount assessments erroneously predicted an extended period of ascospore discharge might have benefitted apple growers. Growers have been trained to believe that a tight spray program (7-10-day spray intervals) is needed until all scab ascospores have been discharged and that there is little risk of scab infection after all ascospores are discharged. In reality, a tight spray schedule is usually needed for 2-3 weeks after petal fall, not because ascospores are discharged after petal fall, but rather because of the high risk posed by conidia during the period between petal fall and 3rd cover.

Just a few primary lesions that "escape" early sprays are sufficient to cause considerable damage if trees

are left unprotected after petal fall. It is impossible for a grower or an IPM scout to detect scab if the incidence is very low. As a result, orchards that are apparently "clean" at petal fall can still develop a lot of scab if they are not protected with fungicides. When this occurs, folks tend to blame the infections on "late primary scab", whereas in most cases these infections are actually secondary infections coming from undetected primary lesions somewhere in the tree. When squash mount data was routinely available, growers protected trees beyond petal fall on the premise that they were still controlling primary scab. That fungicide timing strategy was sound, even if the "science" behind the strategy was faulty. Today we know that the primary scab season usually terminates near petal fall, but that fungicide protection after petal fall is still essential for controlling scab.

The bottom line is that knowing the end of the ascospore discharge period is of little practical importance, except in very dry years when the end of ascospore discharge can sometimes be delayed well past petal fall. In normal and wet years, the ascospore supply will be depleted long before anyone can be certain of their success in controlling earlier primary infections. Therefore, fungicide coverage is nearly always needed through second cover to protect the highly susceptible fruitlets and new, rapidly expanding leaf tissue from potential secondary scab infections. The only exceptions might be blocks where frost damage has destroyed the crop and a low level of leaf scab will not pose any risk to fruit.

Editor's note: More information about ascospore maturity reports (and a description of "squash mounts" pertaining to a slide preparation method and not the vegetable) is available at http://www.nysaes.cornell.edu/pp/extension/tfabp/ascomat.shtml.

Powdery Mildew of Apple

Source: Paul Pecknold, Purdue Plant Pathologist

This fungus overwinters primarily in the terminal buds. Although the disease is present every year, it is more prevalent during years when weather is dry and the previous winter has been mild. Keep a close watch for the first symptoms of powdery mildew; especially on those inner, shaded water sprouts. Growers with mildew susceptible varieties, eg. Jonathan, Rome Beauty, Ida Red (my favorite disease apple), Cortland, etc. should be especially diligent in their mildew-watch. Apple fruit can become infected with mildew at pink.

Fruit infections become evident later in the season, as netlike russet lines on the fruit surface. The tight cluster, pink, bloom, petal fall, and first cover sprays are most critical for controlling mildew, but fungicide protection is needed until terminal buds are set. Your best mildewcides are the SI fungicides (Bayleton, Nova, Rubigan and Procure) and the new strobilurins, Sovran and Flint. Good old captan, Vangard, Polyram and mancozeb products do not provide adequate control of powdery mildew. I especially like the use of Sovran or Flint at first cover; not only do you get control of powdery mildew but you also get the added benefits of excellent control of fruit scab and an early start on prevention of sooty blotch and flyspeck.

Peach Scab

Source: Paul Pecknold, Purdue Plant Pathologist

Early shuck-split and shuck-fall sprays are critical for peach scab control. The first spray should be applied about one week after petal fall. Do not wait until the shucks have slipped to begin this program. Continue to spray on a 10-day interval until 40 days before harvest. See the *2002 Ohio Commercial Tree*

Fruit Spray Guide for further information. Suggested materials include Topsin-M plus Captan, or Captan, or wettable sulfur, or Ziram. Remember that Bravo can not be applied after shuck-split.

Fungicide Resistance Reminder

Source: Paul Pecknold, Purdue Plant Pathologist. Also see Ohio Fruit ICM News, Volume 6, Issue 9

For many of you, this will be the ninth or tenth year in which you have used sterol inhibiting (SI) fungicides (Bayleton, Nova, Procure and Rubigan). As reported previously, research out of Geneva, New York, indicates that in orchards where SI fungicides have been used for 7 to 8 years there is a significant increase in the potential for strains of the scab fungus resistant to SI fungicides to be present. So remember: Use full rates of the SI.

- Do not "cheat" on the rate, the coverage, or the spray intervals. Alternate row-middle spraying may spell disaster with the SIs. Using full rates is even more important with continued use and as the scab fungus becomes less sensitive.
- Mix the SIs with a non-related protectant (contact) as suggested in the *2002 Ohio Commercial Tree Fruit Spray Guide*.
- Note: the need for a non-related contact fungicide (to control any SI-resistant strains) becomes even more critical the longer SIs have been used in the orchard.

Important Grape Sprays

Source: Bruce Bordelon, Purdue Horticulturalist

Grapes have or will be starting to bloom in the state over the next two weeks, so growers must be aware that the next few fungicide applications are very important for controlling the major fruit pathogens. Disease pressure should be high because of wet weather. Early sprays generally contain an economical broad-spectrum material such as Mancozeb or Captan. The 10-inch shoot spray is probably the first one where black rot control is needed, so addition of one of the sterol inhibitors (Nova, Elite, Rubigan, etc.) is recommended, especially if black rot was a problem in the block last year. The immediate pre- bloom (or early bloom) and the first post bloom applications are the most important sprays for controlling the major grape diseases. Care should be taken to get thorough coverage of all foliage and developing fruit.

Slow the tractor speed, spray every row middle, increase volume, and use full label rates. This would be a good time to use one of the new strobilurin fungicides such as Abound or Sovran. On bunch rot susceptible varieties, addition of a botryocide such as Rovral, Vangard, or Elevate may be beneficial. For a complete discussion of grape pest management refer to the *Commercial Small Fruit and Grape Spray Guide* (http://www.hort.purdue.edu/hort/ext/sfg/) and the *Midwest Small Fruit Pest Management Handbook* http://www.ag.ohio-state.edu/~sfgnet/.

Crop Load Adjustment in Grapes

Source: Bruce Bordelon, Purdue Horticulturalist

Annual pruning of grapes is necessary to balance the amount of fruit production with the amount of vegetative growth to insure high yields of high quality fruit. Pruning severity is based on the strategy of "balanced pruning," which dictates the correct number of buds to retain, or "crop load," which determines the amount of fruit to retain based on the vine's pruning weight. Many growers prune vines lightly during the early spring to assure adequate bud number in case of damage by a late frost or freeze. Now that the danger of frost and freeze is over (we hope) and grape shoots are growing rapidly, growers can go back through the vineyard and adjust the crop load by removing shoots and clusters. New shoots are easily broken off by hand without the need for pruners.

Growers should pay close attention to the fruitfulness of shoots. Shoots from primary buds have full fruiting potential, whereas secondary buds and latent buds on older wood produce shoots with little or no fruiting potential, depending on cultivar. Ordinarily, all secondary shoots and shoots from older wood should be removed. However, on early budding varieties that may have suffered frost damage this year, the secondary shoots should probably be retained. Shoots should be spaced evenly along the trellis if possible and at a density of about six shoots per foot of row. Cluster thinning (removing one or more of the clusters on each shoot) done before bloom results in the least yield reduction because the remaining cluster(s) generally set more berries. However, on tight clustered cultivars, cluster thinning after bloom can result in looser, less rot-susceptible clusters.

Plum Curculio

Source: Rick Foster, Purdue Entomologist

Despite the continued cool weather, we have begun to catch plum curculios in interception traps on the tree trunks in Lafayette. If we could get a day without rain, I would be putting on my petal fall insecticide application now. Of course, we all know that Imidan and Guthion will provide excellent control of plum curculio, usually with a petal fall and first cover application. Over the past several years I have looked at a number of alternatives to the organophosphate insecticides. To summarize the results, I have rated each of the pesticides based on the results of my trials. To do so, I looked at the difference between the percentages of plum curculio damaged fruit in the untreated trees and the Imidan treated trees. If a tested insecticide provided less than 50% reduction in that difference, I rated it as poor. If between 51 and 75%, it was fair, between 76 and 90% it was good, between 91 and 95%, very good, and better than 95%, excellent. Remember that these results are only from my trials, and may not be indicative of the results you might get, but it's probably a pretty good measure. Listed below are the pesticides I have tested, how they were generally rated, and in parenthesis, the number of years the pesticide was rated. Obviously, the more years it was tested, the more reliable the results.

Summer oils - Fair (1 yr.)
Surround - Good (1 yr.)
SpinTor - Poor (3 yr.)
Avaunt - Poor (3 yr.)
Danitol - Good (1 yr.)
Fulfill - Poor (1 yr.)
Actara - Poor (1 yr.)

As you can see, at this point there are no reasonable alternatives to the OP insecticides (Imidan and Guthion) that will consistently provide the levels of plum curculio control necessary to produce marketable fruit. We will continue to look for alternatives.

Codling Moth

Source: Rick Foster, Purdue Entomologist

One way to improve your control of codling moths is by timing your sprays using pheromone trap catches and degree-days. This is especially important if you are using some of the insect growth regulators such as Confirm or Intrepid. The first thing you should determine is your biofix. Biofix is defined as the first sustained catch of moths, which we have established as when 5 moths have been caught in a pheromone trap. Knowing that the moths are flying allows us to predict when the eggs will hatch with more certainty than using calendar date or the stage of growth of the apple trees. The instructions for calculating degree-days follow.

- Find the high and low temperature (Fahrenheit) for the day.
- Add the high and low temperatures together and divide by 2 to get the average temperature for the day.
- Subtract 50 from the average daily temperature to get the day's degree-days. Codling moths don't develop below 50 F, so we are only interested in temperatures above their developmental threshold.
- Add the day's degree-days to the previous total to get the updated accumulated degree-days. (On the first day you will be adding to zero.)

When you have accumulated 250 degree-days, it is time to spray. The eggs will have developed to the point where they are almost ready to hatch, so if you put on a spray at this time, you will have the maximum amount of residue present to control the young larvae before they enter the fruit.

Using the same evaluation criteria as in the plum curculio article above, I have summarized the results of my trails looking for alternatives to the OPs for codling moth control.

Summer oils - Fair (1 yr.)
Surround - Poor (1 yr.)
SpinTor - Excellent (4 yr.)
Avaunt - Good (3 yr.)
Danitol - Very Good (2 yr.)
Confirm - Very Good (2 yr.)
Intrepid - Very Good (2 yr.)
Esteem - Very Good (3 yr.)

You can see that we have a lot more possibilities for control of codling moth than we do for plum curculio.

Grape Pest May Be Headed to Cluster's Last Stand

Source: Steve Leer from AgAnswers May 3, 2002 http://www.aganswers.net)

Two nematode species, one native to Ohio, have been found to successfully control grape root borer, an insect pest responsible for major economic losses to the grape industry. In fact, the entomopathogenic nematodes are such effective biological controls that a product may be available for grower use as early as next year. "Farmers really have no control methods for the grape root borer larva, and that is the most destructive phase of the insect," said Parwinder Grewal, an Ohio State University Extension entomologist with the Ohio Agricultural Research and Development Center. "We are very excited that there is a potential biological control that can be offered to farmers."

Research conducted by Grewal and associates Roger Williams and Dan Fickle found that the Ohio nematode Heterohabditis bacteriophora and the New Zealand strain Heterohabditis zealandica produced 92 percent and 86 percent control of grape root borer, respectively, in lab studies. The researchers duplicated field conditions in the greenhouse and found that the Ohio species produced 16 percent control upon applications of 15,000 juveniles per grape plant, while the New Zealand species produced as much as 93 percent control when 60,000 juveniles were applied per grape plant. Grewal believes the higher the number of nematodes per application, the more effective the control.

"We took the New Zealand strain into the field and applied 2 billion nematodes per acre, and tests showed over 70 percent control of the insect in a single application," Grewal said. "Nematodes are easy to come by and recycle very easily. A single host can produce 300,000 to 400,000 new nematodes, which can then move on to the next victim. So control would continue for quite some time after the first application." The beauty behind the species' effectiveness lies in its foraging behavior. The nematodes are known as "cruisers," so named for their habit of seeking out their hosts by following the chemical trails the insects leave behind. Once the nematodes find their hosts, they enter the blood stream through a variety of natural body openings, releasing bacteria that multiply and kill the host in three to four days. The nematodes then feed on the dead host, reproduce, and migrate in search of additional hosts.

"Over the last 20 years or so, scientists have tried to control the grape root borer with nematodes, but have done so unsuccessfully," Grewal said. "We then began discovering that different species have different kinds of foraging behavior, so one nematode species may not be as effective in controlling the pest as another." For example, "cruisers" exhibit different forage behaviors than "ambushers" (species that sit on the soil surface and wait for highly mobile hosts to pass by). "An ambusher released to kill an insect like the grape root borer, which tunnels its way into vine roots and remains hidden, is just a poor match," Grewal said.

The researchers re-evaluated 17 nematode species with "cruiser" behavior and found that the Ohio and New Zealand strains were the most effective against the grape root borer. The New Zealand species has been found in Florida, eliminating any restrictions required to commercialize the species. The grape root borer is a major pest of grapes in the eastern United States. Found in states south of Connecticut and east of Kansas, including Ohio, a single larva feeding on a root system can reduce a plant's yield by 50 percent. Two or three larvae within a root system can destroy an entire vine, affecting winter hardiness, fruit quality, and yield.

Effective control of the grape root borer is difficult. The adults, which fly onto plants beginning in June, can be controlled with insecticide applications. However, once the larvae hatch and reach the root system, external control is ineffective. That is where the entomopathogenic nematodes may provide the best control option, Grewal said. "Nematodes are already used in some food production, such as mushrooms and cranberries," he said. "Florida applies nematodes to 50,000 acres of oranges each year to help control the citrus root weevil. "The same thing can be applied to grapes. Grapes provide the next potentially big opportunity for the use of nematodes. They can replace systemic insecticides and increase food safety."

Ohio ranks eighth among U.S. states in grape production, sixth in wine production and fourth in the

number of wineries. According to the 2000 Ohio Agricultural Statistics annual report, Ohio harvested 2,000 acres of grapes. Yield per acre approached nearly 4 tons, with a production value of more than $2.5 million. Wine production is a $45 million annual industry in the state, with prominent wine areas located in the Lake Erie region, Ohio River Valley, and central Ohio.

Thoughts on Thinning

Source: Dave Ferree, OARDC Fruit Horticulturalist

The warm winter and very warm period in early spring, and now cool, rainy weather make this a difficult year to arrive at a thinning recommendation. However, I would share the following thoughts:

- Long term history indicates that the highest correlation with low apple yields are warm temperatures in January and February. If chill hour requirements during dormancy are satisfied, and ours were, as temperatures warm up, carbohydrate reserves are used up. Our winter was one of the warmest on record.
- The very warm early spring temperatures decreased the normal 3 week difference between northern and southern Ohio to a week.
- Cool, rainy, windy conditions around bloom resulted in a protracted bloom on most cultivars and bigger differences between cultivars than normal. For example, we have Arlet and Empire with 13 mm fruit size and Suncrisp with open flowers. This weather reduced bee flight and pollination; conditions for many cultivars were poor. Predictions are for a cool period for the next week.

Considerations:

a. Heavy clouds reduce set and cause thinning, according to studies in Virginia.

b. Cool rainy conditions affect leaf cuticle development so spray penetration should be increased.

c. Thinners work best at temperatures around 70F, and predictions are for lower temperatures in the 50F range where they don't work as well.

d. Set on spur Delicious at Wooster looks light due to poor pollination (many peticles yellow and dropping, with good fruit only 3-5mm in diameter.) e. Protracted bloom generally improves thinner performance.

- These conditions suggest to me that chemical thinning rates should be reduced to the low end of the scale. If set looks heavy and the largest fruit are 10 to 12mm diameter, cut some and evaluate seed count. If most have 8 to 10 good seeds, use a normal rate; if most have 3 to 5 seeds, reduce the rate. Fruit set will be higher on dwarf trees with low seed sets than trees on more vigorous rootstocks.
- Side note: We observed a couple of strikes of fire blight, and this is with 3 sprays of strep!

Food Quality Protection Act

Source: Rick Foster, Purdue Entomologist

By now most of you probably react to seeing the FQPA title by saying something to the effect, "Which pesticide did we lose now?" Well, the good news is that we haven't lost any new pesticides. The bad news is that in June the EPA issues its decisions of its cumulative risk assessment for the organophosphate insecticides. So far, they have looked at the risk associated with each insecticide separately. Now, they are looking at the cumulative risk of all the organophosphate insecticides. If you remember the concept of the "risk cup", you know that when the risks associated with the use of a product overflow the risk cup, then action is taken to reduce the risk so that it will fit into the cup. Some of the actions taken so far have included fewer applications, greater preharvest intervals, requiring use of enclosed cabs on sprayers, elimination of some uses, etc.

Because all the organophosphate insecticides have similar modes of action, the risk associated with all the OPs will be poured into the same cup. If the cup overflows (as it almost surely will), then actions will have to be taken to reduce the risk so that it fits in the cup. Which actions the manufacturers and EPA agree to or the EPA mandates is what is important to fruit growers. Specifically, most fruit growers will be concerned about further restrictions on the use of Imidan and Guthion. We will let you know as soon as we hear something. In addition, decisions regarding the future of dimethoate (Cygon) and endosulfan (Thiodan) will likely be made by August.

Pest Phenology

Coming Events	**Degree Day Accum. Base 50F**
Lesser peachtree borer 1st catch	110 - 553
White apple leafhopper present	123 - 404
Spotted tentiform leafminer sapfeeders present	130 - 325
1st codling moth catch	141 - 491
European red mite egg hatch complete	183 - 298
Plum curculio oviposition scars present	232 - 348
European red mite 1st summer eggs	235 - 320
San Jose scale 1st flight peak	229 - 449
Peachtree borer 1st catch	299 - 988

Thanks to *Scaffolds Fruit Journal* (Art Agnello)

SkyBit® Fire Blight Prediction for North-Central Ohio

Observed:

May 1, 2, 7,8 & 10, 13-15: active, but no infection

May 3-5, 10: not active

May 6,9,12: possible infection & damage

Predictions based on weather forecasts:
May 16: possible infection & damage

May 17-23: active but no infection

May 24-25: not active

Degree Day Accumulations for Ohio Sites May 15, 2002

Location	**Degree Day Accumulations Base 50F**	
	Actual	Normal
Akron-Canton	242	274
Cincinnati	423	462
Cleveland	242	258
Columbus	392	346
Dayton	350	357
Kingsville Grape Branch	204	206
Mansfield	239	263
Norwalk	217	249
Piketon	433	481
Toledo	259	242
Wooster	274	244
Youngstown	256	239

SkyBit® Apple Scab Prediction for North-Central Ohio

Observed:
May 1, 2, 6-9, 10, 11-15: possible infection & damage

May 3-5, 10: active, but no infection

Predictions based on weather forecasts:
May 16-18: possible infection & damage

May 19-23: active but no infection

Fruit Observations & Trap Reports

Insect Key
AM: apple maggot
CM: codling moth
ESBM: eye-spotted budmoth
LAW: lesser apple worm
LPTB: lesser peachtree borer
OBLR: obliquebanded leafroller
OFM: oriental fruit moth
PTB: peachtree borer
RBLR: redbanded leafroller
SJS: San Jose scale
STLM: spotted tentiform leafminer
TABM: tufted apple budmoth
VLR: variegated leafroller

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

Apple: 5/8 to 5/15
RBLR: 0 (same as last week)
STLM: 0 (down from 1)
CM (mean of 3 traps): 15.0 (up from 8.0)
TABM: 0 (same as last week)
SJS: 0 (same as last week)
VLR: 0 (first report)

Note: Biofix for codling moth in Columbus was Monday, May 6, 2002.

Peach: 5/8 to 5/15/02
OFM: 3 (down from 8 last week)
LPTB: 0 (down from 1 last week)

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

Apple: 5/8 to 5/15/02
STLM: 28
CM (mean of 3 traps): 0.5
RBLR: 7.5

Peach: 5/8 to 5/15/02
OFM: 0
LPTB: 0
PTB: 0

Wayne Co. Observations: Very little insect activity was observed in the orchards. No plum curculio activity or damage was noted. Beneficial insects observed were lady beetles and robber flies. Several heavy scab infection periods have occurred, but growers have been able to take advantage of breaks in the weather to make timely fungicide applications.

Despite the actions of growers of going through blackberry and black raspberry planting to rogue out plants infested with orange rust, we continue to find more infested plants each week.

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

Apple: 5/7 to 5/14/02
CM: 0.1 (first report)
STLM: 505 (down from 875)
SJS: 0 (first report)
OFM: 2.0 (down from 5.7)
RBLR: 2.7 (down from 7.6)

Peach: 5/7 to 5/14/02
OFM: 0.7 (down from 3.5)
RBLR: 2.3 (down from 8.0)

Beneficials present - native lady beetles

Site: West District:Huron, Ottawa, & Sandusky Co.
Source: Gene Horner, IPM Scout

Apple: 5/7 to 5/14/02
CM: 0 (first report)
STLM: 68 (up from 42.8)
OFM: 4.5 (down from 12.9)
RBLR: 2.3 (down from 10.5)

Peach: 5/7 to 5/14/02
OFM: 1.6 (down from 9.6)
RBLR: 1.5 (down from 8.0)

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

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