Ohio
Fruit ICM News

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Calendar

June 28: Ohio Fruit Growers Society Board Meeting, Burnham Orchards, Berlin Heights, OH, 6:30 to 8:00 p.m. Contact Tom Sachs at 614-246-8290 or e-mail Tsachs@ofbf.org or Kathy Lutz at 614-246-8292 or e-mail growohio@ofbf.org.

June 28: Ohio Apple Marketing Program Board Meeting, Burnham Orchards, Berlin Heights, OH, 8:00 to 9:30 p.m. Contact Tom Sachs at 614-246-8290 or e-mail Tsachs@ofbf.org or Kathy Lutz at 614-246-8292 or e-mail growohio@ofbf.org.

June 29: Ohio Fruit Growers Society Summer Tour, Burnham Orchards, Berlin Heights, OH, 8:00 a.m. to 3:00 p.m. Check out <http://www.ohiofruit.org/ofgs/> (click on 2005 Summer Tour). Burnham's website is <http://www.burnhamorchards.com>.

Codling Moth Control Options

Source: MSUE Fruit Crop Advisory Team Alert, Vol. 20, No. 7, May 24, 2005

Options for controlling CM once activity is underway include older insecticides like the organophosphate (OP) compounds Guthion and Imidan, and a number of pyrethroid insecticides. These materials are applied at a timing that primarily targets CM egg hatch, beginning at 250 GDD post biofix. Apple growers should be aware that resistance to the OP compounds has been detected in several Michigan orchards, most extensively in the Fruit Ridge and southwest production areas. The levels of resistance detected were high enough that heavy dependence on OP's for CM control would likely have failed to protect the crop from infestation.

Several new materials have become available for CM control, and growers are encouraged to include these new products in their CM management programs. Their use will not only improve CM control in orchards experiencing problems, but also will help delay or avoid the development of CM resistance to OP's in locations not yet experiencing control failures. One of the best CM resistance management strategies is to use pheromone-based mating disruption. Michigan apple growers have treated approximately 4,000 acres with CM pheromone over the past few weeks.

Among the newer insecticides for CM control registered over the past few years are the insect growth regulators Esteem, Rimon (previously Diamond), and Intrepid. Esteem and Rimon act by suppressing development within the egg, as well as larvae that consume it. Hatching of eggs laid by treated adults will also be inhibited.

Eggs are particularly susceptible to these products when laid on top of sprayed residue, thus sprays are timed earlier than most other CM control materials. Suggested timing for the first application is biofix plus 100 GDD -- usually close to petal-fall. At this timing, Rimon will provide good to excellent control of Oriental fruit moth (OFM), obliquebanded leafroller (OBLR) and spotted tentiform leafminer (STLM), while Esteem will be highly active on rosy apple aphid (RAA) and San Jose scale (SJS). This is the first season that Rimon has been available for commercial use. However, in trials conducted at the MSU Trevor Nichols Research Complex and at other University experiment stations, Rimon has provided control at least equivalent to the best standard material used by growers.

Intrepid provides good control of CM with a residual action of about 10-14 days. This product is an insect growth regulator that primarily affects CM larvae, but also has some activity on eggs, and has sublethal effects on adults. The best results have been achieved by taking advantage of the sublethal effects and applying the first spray at biofix plus 150-200 GDD. At this timing, Intrepid will also control OBLR larvae that are still present in orchards harboring high numbers of this troublesome pest. The addition of an agricultural adjuvant is recommended to improve initial spray deposition.

The neonicotinoids, Assail, Calypso, and Clutch are another group of compounds that have recently become available for CM control. Assail and Calypso will provide good control of CM with a residual action of 10-14 days. Proper timing and coverage is required to achieve control. The best results have generally been achieved when the first application is made prior to the start of egg hatch (ca. biofix plus 150-200 GDD).

Assail is labeled for CM control at the rate of 2.5-3.4 ounces per acre, but the high rate has shown better performance, especially for second generation CM. Application rates near the high end of the label rate are also recommended for Calypso, especially where CM densities are high or for prolonged control. Field trials have indicated that use of Assail in combination with pyrethroids or carbaryl can result in outbreaks of phytophagous mites.

Assail and Calypso are fairly broad-spectrum materials. In contrast to the insect growth regulators, the major secondary targets of these neonicotinoids are the sucking insects, specifically aphids and leafhoppers. The initial application of Assail or Calypso targeting first generation CM will also provide control of plum curculio (PC), OFM and STLM.

Clutch, a new neonicotinoid registered for use in pome fruits, is a broad-spectrum material targeting CM as well as aphids, leafhoppers, PC, STLM, OFM, and pear psylla. Trials conducted at the TNRC in 2004 showed Clutch to be most effective against CM applied
at the egg hatch timing of 250 GDD and at the high rate of 6-oz/ac rate. Significantly less control was achieved using a lower rate of 3 ounces per acre.

Avaunt, an oxidiazine insecticide registered in apples, is labeled for use on CM, leafhoppers, plum curculio, leafrollers, and Oriental fruit moth. Because of its excellent activity on plum curculio, early season applications in non-OP resistance areas should also show activity on codling moth.

Warrior is a newly registered pyrethroid that can provide good control of CM. Like other pyrethroid insecticides, it appears to be more effective in the spring than summer and has a broad activity spectrum. Pyrethroids are highly toxic to mite predators and should be used carefully to avoid outbreaks of phytophagous mites.

Finally, growers should not overlook including granulosis virus in their CM management program. This is a naturally occurring virus that goes by the scientific name of Cydia pomonella granulovirus (CpGV). Two CpGv products were available for use last year, Cyd-X and Virosoft. Our MSU on-farm trials and grower feedback indicated both performed well. A third product, Carpovirusine, should be available for this year. There are many options for incorporating virus into your CM control program.

Consult the June 1, 2004, article in the *Fruit CAT Alert* for a detailed discussion of CpGv and its use <http://www.ipm.msu.edu/CAT04_frt/F06-01-04.htm#3>. Our overall experience is that frequent application of a low rate of product is the best approach for using this biopesticide.

Post-Bloom Fungicides for Stone Fruits

Source: Dave Rosenberger, Plant Pathology, Highland, Scaffolds Fruit Journal, Volume 14, No. 10, May 23, 2005

Designing fungicide programs for stone fruits is especially difficult for diversified farms that include small acreages of different stone fruit crops. Many growers would like one fungicide program that could be applied to all of their stone fruits (apricots, sweet cherries, tart cherries, peaches, nectarines, plums/prunes). That is often impossible because of label restrictions, differential sensitivity of crops to injury by some fungicides, and variations in diseases that must be targeted on the various crops. The following article discusses considerations for selecting post-bloom fungicides for stone fruits in New York and other northeastern states.

Common Post-bloom Diseases

Brown rot infections can occur on green fruit after shuck split, especially on sweet cherry. Other stone fruits, though less susceptible to green fruit infections than cherries, sometimes develop green fruit infections in high inoculum blocks or in years with extended warm periods shortly after shuck split.

Black knot infections occur mostly during a 4 to 6-week period that begins just prior to bloom. Japanese plums and tart cherries are generally less susceptible to black knot than European prune-type plums, but they still need fungicide protection if grown where inoculum is present.

Cherry leaf spot can defoliate both sweet and tart cherries. Fungicide protection should begin at petal fall and continue through summer. Fungicide sprays may be needed at 7 to 14-day intervals during May, June, and early July, especially where inoculum is abundant. A postharvest spray is essential in wet years to prevent trees from defoliating prematurely.

Peach scab is only a sporadic problem in New York. One or two sprays beginning at shuck split usually suffice to control this disease.

Rusty spot on peach is a mildew disease caused by the same fungus that causes apple powdery mildew. One or two mildewcide sprays may be needed after shuck split to keep fruit from developing this disorder.

Fungicides and Their Limitations

Chlorothalonil (Bravo, Echo) is labeled on all stone fruits. It provides fair control of brown rot blossom blight, although brown rot is no longer listed on the Bravo label. Chlorothalonil is excellent against black knot, cherry leaf spot, and peach scab, but it cannot be applied after shuck split except in postharvest applications to control cherry leaf spot or autumn sprays to control peach leaf curl. The Bravo label specifies a minimum of 10 days between treatments, and both labels imply a maximum of three sprays during the bloom to shuck split period. A shuck split spray can provide extended control of brown rot (green fruit infections), black knot, cherry leaf spot, and peach scab due to the excellent retention and redistribution capabilities of this fungicide.

Captan is labeled on all stone fruits and provides good control of brown rot, black knot, cherry leaf spot, and peach scab. However, on some plum and cherry varieties, it can cause severe shot-holing or tattering of leaves, and it sometimes damages peach foliage when applied with a surfactant that enhances uptake into the plant tissue. Captan is an economical choice for brown rot control on peaches and nectarines during bloom, petal fall, shuck split, and first cover.

SI fungicides include Orbit, Elite, Indar, Nova, Procure, and Rubigan. Label restrictions and spectrum of diseases controlled by these fungicides vary greatly! Nova, Procure, and Rubigan are relatively ineffective against brown rot, whereas Orbit, Elite, and Indar are among the best brown rot fungicides.

All six of these fungicides have provided good to excellent control of cherry leaf spot and mildew diseases on stone fruits. However, fungicide resistance problems are emerging in other states. The SI fungicides are losing effectiveness against brown rot in some orchards in the southeastern United States and against cherry leaf spot in some orchards in Michigan. The SIs have never been very effective against black knot, and only Indar is labeled for peach scab. Specific considerations for the three products that control brown rot include the following:

- Orbit is labeled on all stone fruits, but a maximum of 5 applications per year are allowed when it is used at the labeled rate of 4 fl oz/A. The label contains additional restrictions on when those sprays may be applied.

- Elite is labeled only on cherries, peaches, and nectarines. The labeled maximum of 3 lb/A/season allows only six applications per season when applied at the maximum label rate.

- Indar is labeled on all stone fruits except plums/prunes. The label allows a maximum of eight applications per season and label wording allows considerable freedom on spray timing. Work by Wilcox showed that Indar is hard to beat for brown rot control on tart cherries, especially if applied with a spreader-sticker.

Strobilurin fungicides include Abound, Flint, and Pristine. All three products are labeled on all stone fruit crops. Abound is not recommended for stone fruit in NY because of its phytotoxicity to apples: Even a slight amount of drift or residue left in sprayers can severely damage fruit and leaves of susceptible apple cultivars.

Flint is very effective for controlling cherry leaf spot and provides an effective alternative to SI fungicides for leaf spot control during the interval after the last Bravo spray at shuck split and before SI sprays or brown rot sprays are initiated during the preharvest period. Flint is not very effective for brown rot, nor is it labeled for brown rot.

Pristine is actually a package mix of a strobilurin and another fungicide chemistry. It is very effective on brown rot, cherry leaf spot, and mildew diseases. Only two back-to-back applications are permitted, with a maximum of five applications per season. Where growers have different varieties of peaches or plums that mature over an 8-12 week period, Pristine should be used at least once or twice during the summer as part of a resistance management strategy for breaking up the string of SI fungicides that are otherwise applied to successive cultivars as they ripen.

Sulfur sprays can control rusty spot on peach and mildew on cherry, and sulfur provides good suppression of peach scab. However, sulfur can be phytotoxic to apricots, and most sulfur fungicides are therefore not labeled for apricots.

2005 Ohio Wine Competition Record Medals Awarded

Source: Dr. Imed Dami, OARDC The 2005 Ohio Wine Competition was successfully held on May 9-11, 2005 at OARDC in Wooster. Todd Steiner, the competition coordinator, reported 249 wines entered in the competition of which 17 received gold, 75 silver, and 72 bronze. The number of total and silver medals awarded is the highest in the past 3 years, another indication of the constant quality improvement of Ohio wines. We thank all participating wineries and we congratulate the winners. We are also grateful for the continuous financial support of OGIC to this annual event. More information on the wine competition and medal distribution is posted on our website: <http://www.oardc.ohio-state.edu/grapeweb/> (then click wine competition results.) For more information or questions, please call Todd Steiner at 330-263-3881 or e-mail: steiner.4@osu.edu.

Grape Disease Management: Phomopsis

Source: Dr. Joe Fiola, Specialist in Viticulture and Small Fruit, University of Maryland, via Dr. Imed Dami

- Phomopsis is the first disease on a grower's radar screen.
- Early control is the most important for controlling rachis infections, which is the most important source of economic injury. Rachis infections make clusters brittle and cause shelling of berries by harvest.
- Dead wood produces many more viable spores (perhaps 1000s as many) than lesions on live wood. Cutting out dead wood can therefore have a major impact on new infections. This is sometimes complicated, as the most severely damaged wood is the bottom of last year's shoot, the section you want to keep as the new spur.
- If you had a significant infection last year or if you have a variety that is sensitive or susceptible, early management is even more critical.
- Phomopsis has a rain-splashed pattern of infection. Therefore wood and canes below active lesions (on permanent or 2year wood) typically get heavier infections than green tissue above the active lesions in permanent wood. Especially critical in high cordon training and GDC and any of the vertically split canopies, i.e. Smart/Dyson and Scott Henry.

This disease can also affect the fruit in the late ripening season. Additional phomopsis information, including color pictures, is available at: <http://ohioline.osu.edu/hyg-fact/3000/3031.html>

Plasticulture Strawberry Report, May 19, 2005

Source: Brad Bergefurd, OSU Extension Educator, Horticulture

Plasticulture strawberry harvest of Bish, Sweet Charlie, and Chandler variety is increasing, the cool nighttime temperatures this week have slowed down ripening and harvest, but quality, sweetness, and berry size is great. Plants continue to remain in a reproductive state with the cool nighttime temperatures and continue to bloom and set fruit.

Degree Day Accumulations for Ohio Sites

May 25, 2005

Ohio Location	Degree Day Accumulations Base 50°	
	Actual	Normal
Akron-Canton	247	368
Cincinnati	524	598
Cleveland	221	346
Columbus	408	456
Dayton	356	471
Kingsville	151	291
Mansfield	238	358
Norwalk	231	338
Piketon	455	614
Toledo	255	334
Wooster	264	328
Youngstown	196	318

Pest Phenology

Coming Events	Degree Day Accum. Base 50°F
Lesser appleworm 1st flight peak	181 - 483
Plum curculio oviposition scars	232 - 348
European red mite summer egg present	235 - 320
Redbanded leafroller 1st flight subsides	255 - 716
Obliquebanded leafroller pupae present	330 - 509
Codling moth 1st flight peak	332 - 586
Obliquebanded leafroller 1st catch	392 - 681
Peachtree borer 1st catch	445 - 829
Spotted tentiform leafminer 2nd flight begins	449 - 880

Revised thanks to *Scaffolds Fruit Journal* (Art Agnello)

Fruit Observations and Trap Reports

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

Apple: 5/18 to 5/25/05		
Redbanded leafroller	0	same as last week
Spotted tentiform leafminer	0	down from 1
San José scale	0	same as last wk.
Codling moth (3 trap mean)	10.7	up from 8.0
Lesser appleworm	5	down from 6
Tufted apple budmoth	6	up from 0
Variegated leafroller	0	same as last wk.
Obliquebanded leafroller	0	same as last wk.

Note: Biofix for codling moth on 5/10/05

Site: Holmes, Medina, and Wayne Counties
Ron Becker, IPM Program Assistant

Codling moth	Southern Wayne Co.	
	9.1	up from 2.0
	Northern Wayne & Medina Co.	
	0.2	first catch
Lesser peachtree borer	Southern Wayne & Holmes Co.	
	0	
	Northern Wayne & Medina Co.	
	0	
Spotted tentiform leafminer	All traps averaged around 25 and were pulled.	

Notes: Insects observed while scouting include green peach aphid (winged, no clusters) and white apple leafhopper. Insecticides were applied at blossom drop for plum curculio, and so far no damage has been found on the fruit. Brambles with orange rust have been removed. One grower noted that the use of Nova as a protectant from orange rust seems to have reduced the number of plants that he has had to remove each year. Strawberries have light aphid and spittlebug.**Site: East District; Erie and Lorain Counties**
Jim Mutchler, IPM Scout/Technician

Apple: 5/17 to 5/24		
Codling moth (3 trap mean)	1.0	up from 0.2
Oriental fruit moth	12.4	down from 31.3
Redbanded leafroller	3.5	down from 7.6
San Jose scale	0.0	same as last wk.
Spotted tentiform leafminer	288	down from 568

Beneficials found: brown lacewings, native lady beetles
Note: Biofix for Oriental fruit moth on 5/8/05

Peach: 5/17 to 5/24		
Redbanded leafroller	9.8	up from 7.2
Oriental fruit moth	0.2	down from 5.0
Lesser peachtree borer	3.6	up from 0.2

Site: West District: Huron, Ottawa, Richland, and Sandusky Counties
Lowell Kreager, IPM Scout/Technician

Apple: 5/16 to 5/23		
Codling moth	0.3	down from 3.2
Oriental fruit moth	1.4	down 14.0
Redbanded leafroller	3.8	down from 5.5
San Jose scale	0.0	same as last week
Spotted tentiform leafminer	72	down from 233
Lesser appleworm	1.0	first report

Beneficials found: brown lacewing, native lady beetles
Note: Biofix for codling moth on 5/10/05

Peach: 5/16 to 5/23		
Redbanded leafroller	12.5	down from 54.0
Oriental fruit moth	14.5	up from 3.3
Lesser peachtree borer	0.0	same as last week
Peachtree borer	0	First report

Characteristics of Apple Scab Fungicides*

Source: <http://www.umass.edu/fruitadvisor/NEAPMG/87.pdf>

Fungicide and Rate Per100 Gallons Dilute	Protection	Retention	Re-Distribution	Hrs. Post-Infect. Activity	Pre-Symptom	Post-Symptom
Captan 50WP, 2 lbs.	VG	VG	G	18 to 24	none	none
Dithane M45, DF; 1.5 lb	VG	VG	G	18 to 24	none	none
Ferbam 76WP, 2 lbs.	G	G	G	none	none	none
Flint 50WG, 0.67 oz.	VG	E	G	72 to 96[2]	E	- - -
Maneb 75DF, 1.5 lbs.	VG	VG	G	18 to 24	none	none
Manzate, Penncozeb 80W, 75DF; 1.5 lbs.	VG	VG	G	18 to 24	none	none
Nova 40W, 2 ozs.	F	VG	P	72 - 96	E	F-G
Polyram 80DF, 1.5 lbs.	VG	VG	G	18 to 24	none	none
Procure 50WS, 4 ozs.	F	VG	P	72 - 96	E	F-G
Rubigan 1EC, 4 fl. ozs	F	VG	P	72 - 96	E	F-G
Sovran 50WG, 1.33 ozs.	VG	E	G	72 to 96[2]	E	- - -
Sulfur, 5 lbs. actual	F	F - G	F - G	none	none	none
Syllit 65WP[1], 1/2 lb.	VG	VG	G	18 to 24	E	F-G
Thiram 65WP, 2 lbs.	F - G	F - G	F	15 to 20	none	none
Topsin M 70WP[1],	G	G	P - F	18 to 24	E	F-G
Vangard 75WG, 1.25oz.	- - -	- - -	G	48	none	none
Ziram 76WDG, 1.5 lbs.	F - G	P - F	F - G	- - -	none	none
Key: P = poor, F = fair, G = good, VG = very good, E = excellent, --- = Unknown or does not apply						

1 – Not effective against resistant strains of the fungus.

2 - Post-infection activity may be reduced in orchards with resistance to sterol inhibitor fungicides.

Protection: Ability of a fungicide to kill or inactivate scab spores and prevent infection when the fungicide residue is present before an infection period occurs.

Retention: Ability to resist excessive wash-off by rain so that residue provides satisfactory scab protection.

Redistribution: Ability of a fungicide, which has been sprayed on leaves and fruit, to be washed by rains to unsprayed parts or to new growth developed after the spray was applied, thus providing protection against scab.

Post-Infection Activity (also called "Kickback")**:** Ability of a fungicide to kill or stop fungal growth and to prevent the establishment of scab lesions when applied within a given number of hours from the **beginning** of a scab infection period. The number of hours of post-infection activity given are accurate at average temperatures of 60°F and 50°F, respectively. At a lower average temperature, the period of post-infection activity for a fungicide may be longer than given in the table.

Pre-Symptom Activity: When applied beyond the time limit for Post-Infection activity, a fungicide with Pre-symptom activity will allow small yellowish-green scab lesions to develop, but will inhibit the production of secondary spores from those lesions. This will reduce the spread of secondary scab.

Post-Symptom Activity: Ability of a fungicide to prevent or inhibit the further production of secondary scab spores when applied to sporulating (active) lesions. Such applications do not kill the scab fungus, but merely suppress its development. The applications must be repeated to maintain this suppression. As with pre-symptom activity, reducing the number of secondary scab spores reduces the spread of secondary scab.

* **Adapted from:** *2002 Pest Management Guidelines for Commercial Tree-Fruit Production.* A.M. Agnello, A.J. Landis, W.W. Turchek, D.A. Rosenberger, T.L. Robinson, J.R. Schupp, L. Cheng, P.D. Curtis, D. Breth, and S.A. Hoying. Cornell Cooperative Extension.