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

THE OHIO STATE UNIVERSITY Newsletter Extension

Volume 3, No. 17
May 20, 1999

In This Issue:

Calendar
Orange Rust of Black Raspberry and Blackberry
Scarf Skin on Apples
Azinphos-Methyl (Guthion) Technical Briefing and IWG
Fruit Observations
Optimal Spray Timing
Ohio Apple Scab and Fire Blight Watch - SkyBit Products
Degree Day Accumulations for Selected Ohio Sites January 1, 1999 to date indicated

Calendar

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

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

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

Orange Rust of Black Raspberry and Blackberry

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

Nineteen ninety-nine is the worst year for orange rust on black raspberry that I have seen in my 20 years at Ohio State. Some commercial plantings have over 50% of the plants infected this spring. Many of these plantings had very low levels of orange rust last year. I do not know the exact reason for this severe epidemic, but it is undoubtedly related to weather. Last year was the worst apple scab year in Ohio for 50 years. The long, rainy spring resulted in severe apple scab infections across the state. The

wet spring also favored infection by the orange rust fungus. The infections we are seeing this spring occurred last year in the spring and late summer-early fall.

In the spring, localized infections are caused on healthy leaves from the orange spores (aeciospores) that are produced on infected leaves. A second type of spore (teliospore) is produced during the summer (about 25 to 35 days after infection) in the localized lesions on the leaves. In late summer or early fall (when temperatures are lower) another type of spore (basidiospore) is produced from the teliospores, and these basidiospores infect buds near the base of the cane to cause systemic infections. The fungus overwinters in the infected cane as nycelium and symptoms appear on infected leaves the next spring. The fungus can also overwinter as teliospores on old, dead leaves. In the spring the teliospores germinate to produce basidiospores and can cause systemic infections in the spring. As you can see, the disease cycle of orange rust is complicated. For a more detailed description of the disease cycle (with a diagram) see OSUE Bulletin-861 Midwest Small Fruit Pest Management Handbook. http://ohioline.ag.ohio-state.edu/b861/b861_26.html

The only thing that can be done once the plant is infected is to remove the entire plant, roots and all, and destroy it. This should be done in early spring before the orange rust spores are released from infected leaves. If plantings have 25 to 50% (or more) of the plants infected, it is probably not worthwhile to try to remove all infected plants. In situations such as this, growers may choose to crop the field as long as they can (as long as it is economically feasible), then destroy the entire planting. Remember that orange rust only infects black raspberry and blackberry. It will not infect red or yellow raspberries, and will not infect any other crop you are growing. The real problem in maintaining a planting with infected plants is if you have a new planting or other planting of black raspberry or blackberry that are not highly infected. This applies to your neighbor as well. If you have plantings that you are trying to protect, you should do all you can to remove infected plants from the area. All of the inoculum to get this epidemic going had to come from some place. It most likely came from infected wild plants fairly nearby the planting. With all the favorable conditions for disease development we have had, you can bet the wild black raspberries and blackberries are full of orange rust as well. The point here is that removing infected wild brambles from near the planting has always been an important control recommendation. How near the planting? As far away as possible.

We never have had a fungicide registered for control of orange rust. Early this year I applied for a section 18 registration for the use of Nova fungicide for control of orange rust in Ohio. On May 17, I called EPA and was informed that it has not yet been approved, and they are still working on it. If and when we get the section 18, I will let growers know immediately. However, it is important to remember that **NO** fungicide will cure a plant once it has been infected. Therefore, the plants that are already infected can not be helped. Nova may be useful in protecting non-infected plants from getting infected. If growers would like to see a copy of the proposed section 18 label, contact Mike Ellis and I will send you a copy. Remember that this is a proposed label, and has not been approved as of this date. It is also important to remember that Nova fungicide will not be a "silver bullet" for orange rust control. It will not eliminate the disease and will have to be used in an integrated approach with cultural practices, such as constantly removing infected plants and removing infected wild hosts.

If you have questions about orange rust contact Mike Ellis at (330) 263- 3849.

Scarf Skin on Apples

Source: Dr. Dave Rosenberger, Plant Pathology, Highland, Cornell University, Scaffolds Fruit Journal

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

The dry conditions that prevail in parts of New York State could make this a bad year for scarf skin and other fruit finish disorders. Fruit finish problems often are more severe in drought years because apple fruit growth becomes a stop-and-go process. Slow growth during dry spells is often followed by very rapid fruit expansion when rains finally arrive. The rapid fruit growth following drought can contribute to scarf skin and split lenticels. Some fungicides can make the problems worse.

Scarf skin is a fruit finish disorder that makes the waxy surface of fruit appear milky or cloudy. Researchers in the Cumberland-Shenandoah region have also referred to this disorder as "opalescence". The disorder is particularly severe on Gala, Stayman, and Law Rome, but it can appear on nearly all cultivars in severe years. Scarf skin does not affect the internal quality of the fruit, but this disorder is important in a marketplace that places great emphasis on the physical appearance of fruit.

A description of the disorder and the origin of the term "scarf skin" dates back to the 1905 publication of *The Apples of New York* by Beach et al. They described scarf skin as "a dull or clouded appearance to the red skin as in Sweet Winesap' or Black Gilliflower'". Researchers have since shown that the disorder occurs when the epidermis and cuticle separate from the underlying tissue. The resulting air space beneath the waxy fruit surface disrupts light transmission and produces the milky or cloudy appearance. Unfortunately, we still do not understand what causes scarf skin to develop. Various researchers have noted that scarf skin is consistently more severe in some orchard blocks than in others. We also know that some cultivars are more susceptible than others and that the problem is more severe in some seasons than in others.

Scarf skin was studied by Dr. David Ferree, Dr. Mike Ellis, and coworkers in Ohio in the early 1980's. By bagging Rome Beauty fruit clusters in polyethylene bags at various times beginning at Petal Fall, they were able to demonstrate that scarf skin is initiated between Petal Fall and 60 days after Petal Fall. Fruit bagged for 60 days had no scarf skin. The greatest amount of scarf skin was initiated close to Petal Fall, and the severity of scarf skin from later exposures decreased gradually. Fruit protected for 40 days showed very little scarf skin. Severity of scarf skin was not affected by applications of Solubor, calcium chloride, or dimethoate, but it was reduced by applications of giberellic acid (GA 4+7).

Ferree et al. also showed that scarf skin was more severe on trees receiving a seasonal program of Benlate or Dikar fungicides than on trees sprayed with Polyram, dodine, captan, or mancozeb. However, these fungicides do not consistently cause a scarf skin problem. Other researchers have compared various fungicides for their impact on scarf skin and have found that, in some seasons and some orchards, Benlate and Dikar had no deleterious effects. Nevertheless, the work by Ferree and observations that I have made in New York both support the hypothesis that Benlate applied within 40 days of Petal Fall can contribute to development of scarf skin in some years. No other fungicide appears to stimulate scarf skin as frequently or as severely as does Benlate. The effect of Benlate is probably dependent on interactions with environmental, and possibly nutritional, conditions at critical periods in the development of the fruit.

The period of greatest mechanical stress at the surface of rapidly growing apple fruits occurs as fruit reach approximately one inch in diameter, and this period coincides with the period of high susceptibility to both scarf skin and russet. Any factors that contribute to stressing the fruit during this critical period may promote scarf skin development. Various researchers have shown that environmental conditions during the 40 days after bloom are important in determining the amount of scarf skin that will develop, but the exact weather conditions that contribute to scarf skin have not been defined. Ferree et al. suggest that climatic CHANGES that stress fruit during the critical period after Petal Fall may contribute to scarf skin. Thus, a period of cool, rainy weather followed by a hot, sunny, windy day might

constitute a stress that could cause the separation in cell layers that results in scarf skin. An application of Benlate during this critical time might decrease elasticity of the cells on the fruit surface and thereby contribute further to the problem, whereas Benlate applications under other conditions may have no adverse effects.

Given the current state of our knowledge (or lack thereof), we cannot provide recommendations that ensure scarf skin will not appear. We can only suggest that growers concerned about this problem avoid using Benlate during the 40 days after Petal Fall and, if possible, irrigate trees as needed to minimize water stress during this critical period of fruit development.

Azinphos-Methyl (Guthion) Technical Briefing and IWG

Source: Cindy Baker, Gowan Corporation

I attended the technical briefing today for Azinphos-methyl. There was not a lot of new information presented from the last TRAC meeting. The meeting was very well attended (approximately 100-150 people) and several commodity groups from the West were there. The meeting began with Steve Johnson, the Acting Deputy Administrator for the Office of Prevention, Pesticides and Toxic Substances and Keith Pitts, Special Assistant to the Office of the Deputy Secretary, USDA making opening remarks. Mr. Johnson explained that the tolerance reassessment process had evolved significantly. The goals of this process have been to understand the uses and risks associated with those uses. They are also interested in mitigation where risks are unacceptable. He said that the refined risk assessments are different from the preliminary risk assessments, but they still have risk concerns. He reiterated that America has the safest, most abundant food supply in the world, including fruits and vegetables. He said EPA does not believe it is necessary to take immediate action on Azinphos- methyl. Next Keith Pitts spoke about the risk assessment using a lot of USDA data -- residue, consumption, and use data. He stated that the current tolerances are not unsafe, but that there is still a need to use science-based data and develop alternatives. He said risk management may be needed, but data is still coming in. He also said we need to work with commodities to end reliance on OP and carbamate products. He concluded by saying that nothing in the Azinphos risk assessment should stop anyone from eating any one food. Next Lois Rossi and other members of EPA walked through the risk assessment process to date. The presentation was very similar to the one that was made at the last Tolerance Reassessment Advisory Committee (TRAC) meeting, except that EPA has received more reliable data on cherries, and now the Reference Dose (Rfd) for infants less than one year is 100% and for children 1-6 years is 130%. This is all based on EPA regulating at the 99.9 percentile. If EPA regulates at 99.84, all population groups are 100% and most are less. EPA has stated that apples, peaches, and pears are the main drivers in the risk assessment. There are 5 studies expected in the next few months which will provide EPA with more accurate data on apples. It is very likely that the percentages will drop even lower. EPA is currently conducting a sensitivity analysis of the 99.9 percentile to see if the values are representative of real consumption/residue patterns. Next EPA talked about drinking water and aggregate exposure. Chronic exposure is not of concern and acute exposure was not calculated because food currently uses up the 100%. There was then an opportunity for members of the audience to ask clarifying questions. Following the question and answer session, EPA presented the risk assessment for workers and environmental fate. The environmental fate assessment is not as far along as the other assessments, so there was not as much discussion regarding this issue. The worker assessment was not changed significantly from the last presentation at TRAC. This is an area where several questions need to be addressed. Can a more real (probabilistic) assessment be conducted? Are we using the appropriate data, etc.? It is interesting to point out that California did a very in-depth review of the Azinphos-methyl

worker exposure issues and reached very different conclusions. To end the meeting Al Jennings commented on risk mitigation. He led us through a flow chart where you start with an unacceptable risk and determine if it can mitigated: are there alternative use patterns, alternative products, etc.?

My gut feeling was that this meeting really went better than I anticipated. The reality is that in a short 9 months the risk picture has improved dramatically from the dietary side and looks to still be improving based on data that will be submitted in the next few months on apples. Additionally, many issues hinge on how EPA makes policy calls -- will they regulate at 99.9 or something less than 99.9? Remember 99.84 was as far as they needed to go on this chemical. It remains to be seen what, if anything, the environmentalists will do as a result of this briefing. Time will tell. The Environmental Working Group, National Resource Defense Council (NRDC) and Farm Workers were all represented at the meeting.

Following this briefing was an Implementation Working Group (IWG) meeting. We heard from the legislative committee on the IWG bill (HR1592), and we now have 59 cosponsors. Grassroots and grasstops activities are underway. The technical committee provided an update on the release of the critical science policies and the comments being submitted relating to them. It was suggested that we might schedule meetings with top EPA officials to discuss some of the key issues and reemphasize the principles laid out in "The Road Map". We also discussed the merits of a proposal from Mark Whalon that would identify critical crop/pest/product combinations. This topic will return to the steering committee. The next full meeting of the IWG is set for July 22nd from 10:00-2:00, and a steering committee meeting is set for June 24th from 10:00-12:00.

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

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

Apple: 5/12 - 5/19

RBLR: 0 (unchanged)
STLM: 1 (down from 12)
SJS: 0 (down from 29)

CM (mean of 3 traps): 4.7 (up from 4.0)
TABM: 7 (first week reporting)
VLR: 4 (first week reporting)
OBLR: 0 (first week reporting)

Peach:

OFM: 8 (up from 3)
LPTB: 1 (down from 2)

Scouting: European red mite population is almost entirely in summer egg stage; trees that have not had miticide treatment have about 6 eggs per leaf and 0.1 motile mites per leaf. White apple leafhopper population is now mostly in late nymph stages and below threshold of 1 nymph per leaf, although some leaves have as many as 8 nymphs. Leafminers have nearly finished their immature development, with the mines easily visible on top of leaf; leafminer density is quite low in our research block.

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

Apple: 5/12 - 5/18

RBLR: 2.3 (down from 10.9)
STLM: 548 (down from 714)
SJS: 1.9 (first week reporting)
OBLR: 2 (first week reporting)
VLR: 3 (first week reporting)

Peach:

OFM: 12.8 (down from 22.3)
RBLR: 7.3 (down from 12.0)

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

Apple: 5/12 - 5/18

RBLR: 1.4 (down from 16.0)
STLM: 229 (down from 612)
SJS: 1 (first week reporting)

Peach:

OFM: 3.0 (up from 2.0)
RBLR: 6.5 (down from 17.0)

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

Apple: 5/12 - 5/19

RBLR: 2.9 (down from 4.4)
STLM: 9.3 (down from 13.9)
CM: 14.6 (up from 1.8)
OBLR: 0 (unchanged)

Peach:

OFM: 42 (down from 43)
LPTB: 25 (up from 1)

Optimal Spray Timing

Codling moth: It is best to spray insecticide when most eggs are hatching, which can be predicted to occur about 250 degree-days (base 50 degrees F) after codling moths (adults) began to emerge and be caught in pheromone traps. In Columbus, moth flight began on May 5, and between May 5 and May 17 our degree-day accumulation (base 50 F) is 198 with about 20 degree-days added each day, thus the optimal spray timing is within the next few days. ***Northern Ohio's sustained flight began May 17th, which will be the biofix.***

San Jose scale: Optimal spray tiing is when crawlers emerge, which can be predicted to occur about 400 degree-days (base 51 degrees F) after adult male scales began to emerge and be caught in pheromone traps. In Columbus, scales began and ended their emergence around May 5, and between May 5 and May 17 our degree-day accumulation (base 51F) is 185, thus optimal spray timing for scale is still one to two weeks away.

Ohio Apple Scab and Fire Blight Watch - SkyBit Products

May	Central		North Central		Eastern Highlands		North East		West	
	apple scab	fire blight	apple scab	fire blight	apple scab	fire blight	apple scab	fire blight	apple scab	fire blight
1	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
2	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
3	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
4	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
5	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	na	a,ni	na
6	a,ni	pi	a,ni	na	a,ni	na	a,ni	na	a,ni	na
7	a,ni	a,ni	a,ni	na	pi	a,ni	a,ni	na	a,ni	na

8	pi	a,ni	pi	a,ni	pi	pi	pi	a,ni	pi	a,ni
9	pi	a,ni	pi	a,ni	pi	a,ni	pi	a,ni	pi	a,ni
10	a,ni	a,ni	a,ni	na	a,ni	a,ni	a,ni	a,ni	a,ni	na
11	a,ni	na	a,ni	na	a,ni	na	a,ni	na	a,ni	na
12	a,ni	na	a,ni	a,ni	a,ni	na	a,ni	na	a,ni	a,ni
13	pi	a,ni	pi	a,ni	pi	a,ni	a,ni	a,ni	a,ni	a,ni
14	pi	a,ni	pi	a,ni	pi	a,ni	pi	a,ni	a,ni	na
15	a,ni	na	a,ni	na	a,ni	na	a,ni	na	a,ni	na
16	a,ni	na	a,ni	na	a,ni	na	a,ni	na	a,ni	na
17	a,ni	na	a,ni	na	a,ni	na	a,ni	na	pi	pi
18	pi	pi	pi	pi	pi	pi	pi	pi	pi	pi
19	pi	a,ni	pi	pi	pi	pi	pi	a,ni	a,ni	na
Based on Forecasts:										
20	a,ni	na	a,ni	na	a,ni	na	a,ni	na	na	na
21	a,ni	na	a,ni	na	a,ni	na	a,ni	na	na	na
22	pi	pi	a,ni	na	a,ni	na	a,ni	na	na	na
23	pi	pi	pi	pi	a,ni	na	a,ni	na	pi	pi
24	pi	pi	pi	pi	pi	pi	pi	pi	pi	pi
25	pi	pi	pi	pi	pi	pi	pi	pi	pi	pi
26	a,ni	a,ni	a,ni	a,ni	pi	a,ni	pi	a,ni	a,ni	na

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 May 19, 1999		**Forecasted Degree Day Accumulations May 26, 1999**			
Location	**Base**	**Base 50° F**	**Base 43° F**	**Normal**	**Base 50°**	**Normal**

	43° F				**F**	
Akron - Canton	655	332	779	766	407	402
Cincinnati	911	480	1047	1141	567	649
Cleveland	648	326	767	726	693	378
Columbus	881	480	1016	914	566	499
Dayton	807	424	944	929	512	515
Elyria	693	372	820	781	449	416
Fremont	594	304	721	715	383	378
Mansfield	670	344	805	749	430	391
Norwalk	627	312	755	709	392	372
Toledo	644	316	764	698	399	365
Wooster	703	362	836	710	447	360
Youngstown	601	299	714	685	363	351

Phenology

	Range of Degree Day Accumulations	
Coming Events	**Base 43° F**	**Base 50° F**
Spotted tentiform leafminer sap feeders present	295-628	130-325
Plum curculio ovipositioin	-	232-348
European red mite 1st summer eggs	448-559	235-320
Spotted tentiform leafminer 1st flight subsides	489-978	270-636
Redbanded leafroller 1st flight subsides	518-	255-658

	1104	
Codling moth 1st flight peak	547-1346	307-824
San Jose scale 1st flight peak	581-761	308-449

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

| Back |