

scaffolds

Update on Pest Management
and Crop Development

F R U I T J O U R N A L

April 15, 1996

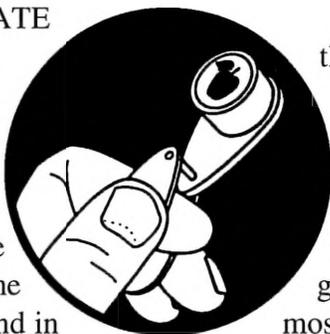
VOLUME 5

Geneva, NY

DISEASES

SCAB

APPLE SCAB UPDATE
(Dave Rosenberger,
Plant Pathology,
Highland)



❖❖ With cold weather prevailing for most of the week, ascospore maturity did not advance during the past week. A few spores were found in the tower shoot, but the mean count for the six observations that are made for a tower count was <1 spore per discharge spot on the test slide. We anticipate that commercially important scab spore discharges are unlikely until sometime after April 15.❖❖

APPLE SCAB ASCOSPORE MATURITY (D. Rosenberger)

Highland, NY

	Immature	Mature	Discharged	Tower shoot
4/10	92%	8%	0%	<1 spore

STRANGLE HOLD

PEACH
CONSTRICTION
DISEASE
(D. Rosenberger)

❖❖ Peach constriction canker, also known as *Fusicoccum* canker, is making a return appearance in New Jersey and southeastern New York. This disease was a serious problem in New Jersey in the 1950's, then virtually disappeared. In Italy, the disease caused severe tree decline and actually killed trees during the 1970's. Constriction canker reportedly has reappeared as a problem in New Jersey during the last several years. Last year we found one orchard on Long Island with considerable constriction canker.

Constriction canker is caused by the fungus *Phomopsis amygdali* (imperfect stage = *Fusicoccum amygdali*). Development of constriction canker is favored by high nitrogen levels and by unusually wet weather. Infections can occur throughout the growing season. The fungus grows most rapidly at 80–85°F, but most infections occur during spring and fall when peach trees are apparently more susceptible to infection. Infections appear as reddish-brown or pale brown elliptical lesions that form around infected buds or nodes. The lesions usually appear sunken (thus the name 'constriction canker'). Cankers frequently have alternating light brown and dark brown rings or zones. The cankers range from less than one inch to several inches in length. The fungus produces a toxin that contributes to wilting and flagging of terminal leaves distal to the infection site. In late summer, severely affected peach trees may have numerous dead terminals scattered around the crown. The fungus can also cause tan leaf spots and a fruit decay, but neither the leaf spot nor the fruit decay are very important.

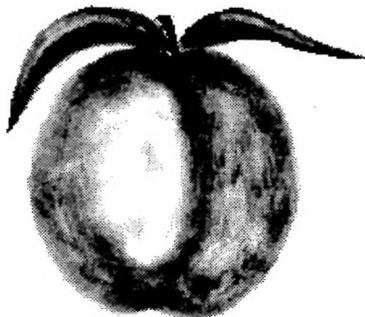
Why is constriction disease reappearing at this time? Most likely, recent changes in the way that we control brown rot on peaches have reduced our ability to control constriction canker. There is relatively little recent research on constriction canker, but I suspect that the SI fungicides (Funginex, Nova, Orbit, Indar, Elite) and the dicarboximide fungicides (Rovral, Ronilan) are ineffective against this disease. Effective fungicides reportedly include the benzimidazoles (Benlate, Topsin M), Bravo, and captan. Bordeaux spray or other fixed coppers can reduce

continued...

disease incidence when applied in late fall or just before bud break. Effectiveness of ferbam and ziram is unknown. The recent switch away from using benzimidazoles and captan to control brown rot may be the primary reason that constriction canker is reappearing as a problem.

In orchards where constriction canker has become severe, a fungicide should be applied prior to and during leaf fall to prevent infections that occur during cool and wet fall weather. (Use the label directions for peach leaf curl or *Coryneum* blight, two other diseases that are also controlled with autumn leaf-fall sprays). Bravo or copper sprays applied at bud break to control peach leaf curl will help suppress spring infections by *P. amygdali*, but these contact fungicides probably will not control fall infections in orchards where the fall sprays were omitted. I suspect that including Benlate or Topsin-M in one or two blossom blight sprays may also help to reduce the incidence of constriction canker. If constriction canker appears during summer and causes blighting of new twigs, I would also include Benlate or Topsin in preharvest brown-rot sprays along with one of the newer, more effective brown rot fungicides.

Reports from the 1950's suggest that several years may be required to "clean up" constriction canker in peach orchards where it has become established. Recommendations for cleaning up problem orchards include implementing a good fungicide program, pruning out infected limbs to reduce inoculum, keeping nitrogen levels at low to moderate levels, and praying for dry weather during late summer and fall so as to minimize the severity of autumn infections. ❖❖



PINK,
PINK,
PINK!

PINK SHOULD REMIND YOU OF ROSIES

(Art Agnello & Harvey Reissig, Entomology, Geneva)

❖❖ One of the loudest perennial complaints we hear about the early season pest management challenges is the difficulty of controlling rosy apple aphid (RAA). While a major component of this difficulty is the fact that we don't really have an ideal pink-stage aphicide to use against rosies, an unnecessary complication arises from the fact that many growers still expect to be able to take care of them at petal fall or shortly thereafter. Maybe we haven't been spelling it out strongly enough in the Recommends and past advisories, but unless you control them at pink, you will NOT be able to prevent fruit damage later on, no matter how many post-petal fall materials you dump on them. The toxins they inject are in there by the end of pink. Petal fall is too late! (Is that subtle enough?)

continued...

scaffolds

is published weekly from March to September by Cornell University—NYS Agricultural Experiment Station (Geneva) and Ithaca—with the assistance of Cornell Cooperative Extension. New York field reports welcomed. Send submissions by 3 pm Monday to:

scaffolds FRUIT JOURNAL

Dept. of Entomology

NYSAES, Barton Laboratory

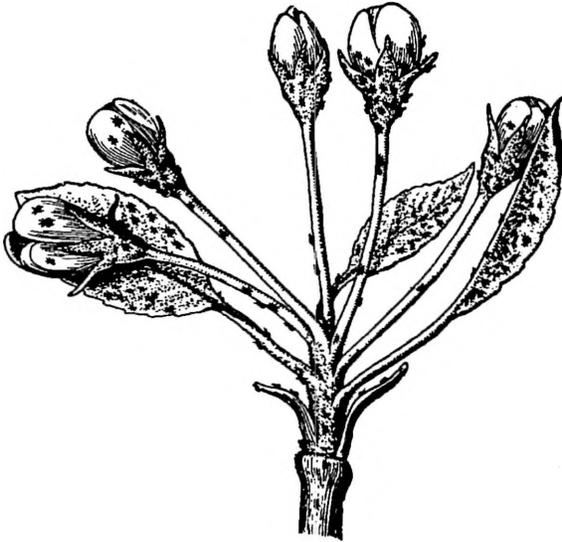
Geneva, NY 14456-0462

Phone: 315-787-2341 FAX: 315-787-2326

E-mail: ama4@cornell.edu

Editors: A. Agnello, D. Kain

This newsletter available on CENET, on the Tree Fruit News bulletin board under FRUIT and on the World Wide Web at:
<http://www.nysaes.cornell.edu/ent/scaffolds/>



Now, admittedly, if you apply something relatively effective at pink, they might still move back in sometime after fruit set and produce colonies on watersprouts, etc., which are unsightly and needful of further attention, but unless you have made a prebloom control effort (see above), you won't have done your best to prevent fruit deformities. Although RAA feeds mainly on apple foliage, causing leaf chlorosis and curling, its saliva is also translocated to nearby fruits, which become bunched, stunted, and malformed. RAA will attack all apple varieties, but varieties such as Cortland, Monroe, R.I. Greening, Ida Red, and Golden Delicious are particularly susceptible, and those in the McIntosh family are relatively tolerant. As with most aphids, this species has a complex life cycle, starting with black eggs that overwinter, together with those of green apple aphid and apple grain aphid, on twigs, in bud axils, and in bark crevices; eggs of the three species generally cannot be distinguished. The eggs develop into solitary, wingless "stem mothers", who then give birth to living young, most of whom are also wingless. RAA nymphs are visible beginning at about tight cluster but are most easily observed at the pink bud stage. The first adults appear around bloom.

Second-generation adults appear 2–3 weeks after petal fall. Some of these move to alternate hosts (such as narrowleaf plantain and dock) and the rest

remain in the orchard. In those orchards with an early summer RAA problem, you can find colonies amidst their leaf damage and honeydew particularly in younger, succulent foliage, such as on watersprouts inside the canopy. In some cases it may be advisable to apply a treatment against these infestations if there is a danger of "spillover" (of either aphids or honeydew) to fruit clusters, but any systemic damage to fruit size and shape caused by RAA feeding will have already been initiated by the pre-bloom populations, and can't be reversed at this time. The third generation develops by mid-July and also moves to alternate hosts. Generally they will remain on these plants as wingless forms until early fall, when black winged adults are produced, which migrate back to the apple trees to eventually produce the eggs present during the winter.

Our control recommendations for RAA cover the period from 1/2-inch green to the pink bud stage, using any of a number of materials: Thiodan, Lorsban, Lannate, Vydate, or Asana, listed roughly in order of increasing harm to beneficial mites. Recall also a recently instituted 2(ee) registration for Supracide 25WP (at 2 lb/A), which probably falls somewhere between Vydate and Asana in terms of its negative effects on predators. Pink applications of any of these products do a better job than an earlier spray. This is a result of the fact that, in those cases where aphid populations build up during early summer on vegetative growth inside the canopy, a pink spray will have done a more effective job of reducing populations than an earlier treatment at half-inch green. From the standpoint of management practicality, it is therefore easier and more natural to consider the need for aphid control at the time of the pink spray.

Because RAA populations are highly variable, it is important to assess their densities before making a treatment. In past surveys, approximately 50% of the orchards sampled have required treatment. If you are inspecting fruit clusters for STLM eggs at pink anyway, it is not much more trouble to note the

continued...

presence of RAA nymphs or damage at the same time. We recommend, however, that a few more clusters be checked for RAA than are required for STLM sampling. Try to select 10 from the interior canopy area of each of 10 trees distributed throughout the block. Also, you should try to inspect clusters that already appear damaged. RAA nymphs are of course present at pink, and large enough to see without difficulty, but they do occur on the same tree and in the midst of colonies of green apple aphids, which are not usually a problem until the summer.

To distinguish among the species, you can use leaf damage as a cue, as well as the insects' color. RAA nymphs are usually pinkish, sometimes varying to a light brown, slate gray, or greenish black, and the body is covered with a whitish mealy coating. Most importantly, they have pronounced cornicles ("tailpipes"), and long antennae (more than half the body length). Green apple aphid nymphs are clearly green, and without the whitish cast. Their cornicles are little more than buttons, and the antennae are clearly less than half of the body length. Also, aphids found inside curled or distorted leaves at pink are almost always Rosy Apple Aphids. If you find ONE infested cluster (1%, or stop as soon as you find one), we would advise including an RAA material in your pink spray; this threshold may be a little conservative for people who are skilled at finding the aphids.

To sum up, rosy apple aphid may be one of the more difficult insects about which to make a treatment decision at pink, but it's probably the most important one to worry about. What else is happening at pink (mites aside)? STLM is laying eggs, but most orchards don't suffer too greatly from 1st brood leafminer, and even if so, people don't like scouting for 1st brood STLM eggs at this time (sap-feeding mines at petal fall is easier). Leafrollers are out there, but only part of the population is active, so it's better to wait for petal fall to address this one as well. Tarnished plant bug is the only player left, and you're going to have to decide for yourself whether it's a major concern to you. We have seen few orchards where TPB control is warranted, simply

because the most effective treatment to use is a pyrethroid, which a) wipes out predator mites, and b) still rarely lowers TPB damage enough to be economically justified. If you elect an Asana spray at pink for plant bug, you'll take care of rosy apple aphid at the same time; if rosies are your primary concern, scout for them first, and use Lorsban or Thiodan if you find any.❖❖

IT'S FOR
REAL

THE OFFICIAL WORD

❖❖ We're still getting calls from people who need to be assured that what they're hearing is for real. So, to dispel all remaining doubts, the following is taken from The Great Lakes Fruit Growers News (4-5-96):

"UNIROYAL CANCELS REGISTRATION FOR OMITE

"The Uniroyal Chemical Corporation has voluntarily canceled several registrations for the miticide propargite (Omite). The action was taken to reduce dietary exposure, as requested by the Environmental Protection Agency, using EPA's current risk assessment model. The canceled registrations are on apples, peaches, apricots, plums, strawberries, cranberries, green beans, lima beans and figs. Uniroyal officials are convinced the product poses no dietary risk and are continuing to test its safety, under EPA-approved protocols. 'Even though our research showing propargite to be acceptable for use on these crops is very persuasive, it is not yet completed,' said John Westcott, Uniroyal's worldwide business director for insecticides. 'Uniroyal Chemical is acting now to assure consumers that their food supply is healthy and safe, while this research continues.' The International Apple Institute praised the action by

continued...

Uniroyal and the EPA. IAI has been encouraging the action be taken before the time when growers would apply the product to their 1996 crop. 'Our major objective has been to avoid an Alar-like situation in which consumers are unjustifiably made fearful of eating apples and apple products due to a federal agency's possible regulatory action,' said IAI President Ellen Terpstra. 'It was extremely important for EPA to get this message out.' Propargite was one of two miticides targeted earlier this year by EPA for revocation under the provisions of the Delaney clause, which bans residues of chemicals that are found to be carcinogenic to laboratory animals. The other miticide named was dicofol (Kelthane)."

This means that Omite will not be available for sale or USE this season. Unused product in growers' hands will probably be re-purchased, so don't attempt to use it up this season, or you'll be breaking the law. Now, as for the Delaney Clause concerns, the following comes from another Great Lakes Fruit Grower News article:

**"EPA PROPOSES FIRST ROUND OF
PESTICIDE REVOCATIONS**
(Matt McCallum)

"The United States Environmental Protection Agency has proposed revoking registrations on nine pesticide uses on its Delaney Clause hit list, including two fruit miticides. The agency recommended retaining 32 other tolerances. The registrations recommended for revocation are propargite (Omite) on apples and dicofol (Kelthane) on apples, grapes and plums. EPA proposes retaining the registration for dicofol on tomatoes and propargite on grapes. Other vegetable and fruit crop tolerances recommended for retention include captan (Captan or Othocide) on grapes and tomatoes, lindane on tomatoes, mancozeb (Dithane M-45 and 80W, Manex II 4F, Manzate 200 DF and Penncozeb 80W) on grapes, maneb (Manex 4F and Maneb 80W) on grapes, norflurazon (Solicam) on grapes, PCNB (Terraclor 75W) on tomatoes, permethrin (Ambush) on tomatoes and triadimefon (Bayleton 50 WP) on grapes.

'The EPA move is only a proposal to revoke the tolerances and does not take effect immediately', said Jim Aidala, associate assistant administrator of EPA's Office of Prevention, Pesticides and Toxic Substances. 'Nothing happens today. We will allow time for comments, examine them and publish the final rule. It should not affect pesticide use this year,' he said. 'This will also likely be challenged in court, and that litigation can go on for quite some time.' According to the EPA's report, the revocation will have little effect on growers with the exception of apple producers in Michigan, New York, Pennsylvania, the Carolinas and the Northwest. EPA anticipates removal of these uses to have little or no impact on the price or availability of food to the consumer or the grower, with the exception of apples. The other proposed revocations affect growers of oats, wheat, figs and sugarcane. After the courts ruled EPA had to enforce Delaney, the agency was mandated to make decisions on 80 formulations of 35 pesticides. The agency is slated to finish this decision-making process by April, 1997.

Another important issue is EPA's policy coordinating sections 408 and 409 of the Federal Food Drug and Cosmetics Act. Section 408 covers tolerances for raw agricultural commodities, while section 409 governs processed foods. If use of a pesticide would result in residues in the raw product needing a section 408 tolerance and residues in a processed food needing a section 409, the agency would not approve either tolerance if it could not approve both. 'When you go out there spraying, you don't know how much of your crop is going to processed or raw,' said Mr. Aidala. 'Our coordination policy is so farmers don't have to worry about that. We apply the processed standard to all of the crop so the farmer isn't left holding the bag if the standard is supposed to be tougher.' EPA's concerns for dicofol and propargite center on each substance's Section 409 tolerance for dried apple pomace, an animal feed. The chemicals concentrate in both wet and dry apple pomace, but only the wet is still considered to be a significant animal feed. In calculating the degree of concentration of dicofol on

continued...

the wet pomace, EPA determined it to exceed the tolerance of five parts per million.

EPA believes the concentration for propargite may exceed the tolerance on apples of three parts per million. New research indicates the tolerance on both miticides should be raised, according to EPA. It wants to raise the tolerance to seven parts per million on dicofol and 20 ppm on propargite. In addition, more new information has produced residue and dietary concerns about propargite, said Mr. Aidala. EPA estimates economic losses caused by a revocation of propargite to be most severe in New York and Michigan, where it is used on about half the apple acreage. Dicofol is used in the range of 3-9%. The most likely chemical alternatives are fenbutatin-oxide (Vendex), formetanate hydrochloride (Carzol) and oxythioquinox (Morestan), according to the agency. They are all more toxic than propargite and dicofol to some beneficial insects in some areas and show mixed results in efficacy tests for controlling pests compared with the two at-risk materials. 'The agency assumed a three percent yield loss due to substitution of the alternatives, resulting in a projected loss of nearly \$16 million annually to current users of propargite and dicofol. This may overstate potential yield losses because the data on the relative efficacy of these pesticides are mixed,' said the EPA summary of the proposed revocations.

The Delaney Clause was enacted in 1958 as part of the FFDCA. It prohibits use of substances known to cause cancer in humans or animals that concentrate in processed foods. When the law was passed, technology existed to detect pesticide residues only as small as parts per million. Now, residues can be detected down to parts per trillion. The clause first became a court issue in 1989, when EPA was petitioned to revoke several food additive regulations. EPA did revoke some of the regulations, but maintained others after determining that Delaney provided an exception for pesticide residues posing a negligible risk. Further court rulings denied EPA's position and said Delaney barred the establishment of a food additive regulation for pesticides which

'induce cancer' no matter how small the risk. Legislative remedies to the Delaney Clause are languishing in the U.S. House of Representatives and Senate. 'EPA supports modernization of food safety laws', said Mr. Aidala. 'However, such a change in an election year is unlikely.' ❖❖

SO WHAT CAN YOU DO?

"MITE CONTROL WITHOUT OMITE (excerpted from "Central NY Update", Regina Rieckenberg - Oswego, Onondaga, and Cayuga County)

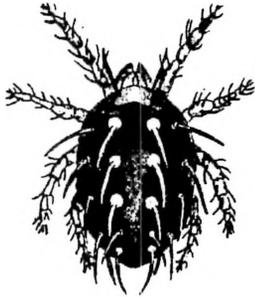
❖❖ "Without Omite as a summer miticide, it is extremely important to do a good job prebloom. Prebloom oil should go on at 1.5 gal/100 from 1/2"  green to tight cluster and at 1 gal/100 from tight cluster to pink. Remember to oil as dilute as possible, because the idea is to smother the eggs that are sitting in bark crevices. Once again, remember that oil is incompatible with sulfur and captan. It should also not go on with, or immediately following, a copper application since it can increase the possibility of copper phytotoxicity. (This is not the same as the 1 qt of oil per 100 gallons of finished copper solution. This small amount of oil should be used as a sticker with copper). Also remember that oil should not be applied 48 hours before or after a freeze.

On blocks that did not get a prebloom oil, there are three prebloom miticides to consider: Morestan, which has been around for a while, and Savey and Apollo, which are available for use for the first time this year. Morestan has no activity on eggs, and has a very short residual, so back to back sprays are needed. Morestan must go on *no later than pink*. Savey and Apollo are both ovicides, and Savey is also effective on the larvae. Remember that rates should NOT be shaved (3 oz/acre for Savey and at least 4 oz/acre of Apollo). Remember also that Savey can go on as late as pink, while Apollo must

continued...

go on no later than tight cluster. They will likely only provide season long control under IDEAL conditions.

Summer miticides: Remember that summer oils are an option. (More on this in a week or so.) As for contact miticides, without Omite, the options are Kelthane, Carzol and Vendex. In orchards where there is no resistance to Kelthane, this is a good option, but be aware that resistance exists. Carzol has no activity on eggs, so back to back sprays are required, AND it is very harsh on beneficials. Vendex is a third option, but not a very effective one, since mites that were resistant to Plictran (many populations) are cross-resistant to Vendex.”



MORE

AGRI-MEK UPDATE
(Art Agnello)

❖❖ The Pesticide Management and Education Program office in Ithaca has submitted the application to the New York DEC for the use of Agri-Mek to control pear psylla on pears as a Special Local Need, 24(c), registration, with the New York State Pear Growers Association acting as the third party registrant. Everything looks favorable for approval at this time, and we anticipate that this material will be registered and available for use by the target date of June 1 or so. Growers intending to use Agri-Mek will need to pay a \$30 use and membership fee to the NYSPGA and file the membership agreement and user disclaimer they provide. More to follow on details of the necessary paperwork on this label as it becomes available.❖❖

MEA
CULPA

SI FUNGICIDE RESISTANCE:
CLARIFICATIONS
(Wayne Wilcox,
Plant Pathology, Geneva)

❖❖ One way to find out if anybody reads your articles is to say something unclear, confusing, or ambiguous (not to mention, wrong) and wait for the calls. I get lots of calls. Specifically, there are two issues from last week's tome on apple scab resistance to SI fungicides that should be clarified:

1. The three NY orchards in which we find evidence for a shift in the scab population TOWARDS resistance were NOT chosen at random. Rather, these orchards were chosen because they have a history of scab control problems, and are representative of “problem” situations. These are the types of orchards where we would expect resistance problems to show up first. Think of them as an advance warning system, something like a canary in a mine shaft.

2. When I got to the part about suggesting that growers who had more scab than usual last year take a more conservative approach to control this coming season, I said, “The nice thing about scab is that you can clean it up in just one year”. The “clean up” reference was with respect to inoculum levels, i.e., good control this year means low primary inoculum next season. Obviously (to me, anyway), this does NOT mean that you can clean up resistance problems so easily. In fact, resistance to Benlate (and Topsin), dodine, and SIs is a very stable and persistent trait. Once you've got it, it will last a long, long time.❖❖

PHENOLOGIES

Geneva:
All - dormant
Highland:
Apple (McIntosh)- green tip
Pear(Bartlett) - swollen bud

PEST FOCUS

Geneva: **Green fruitworm** 1st catch

UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1 - 4/15):	61	18
(Highland 1/1 - 4/15):	165	51
Coming Events:	Ranges:	
Green fruitworm 1st catch	41-143	9-69
Pear psylla adults active	2-121	0-49
Pear psylla 1st oviposition	25-147	1-72
Redbanded leafroller 1st catch	32-480	5-251
Spotted tentiform leafminer 1st catch	73-433	17-251
McIntosh at green tip	24-161	4-74

INSECT TRAP CATCHES (Number/Trap/Day)

	Geneva NY			HVL, Highland NY		
	<u>4/8</u>	<u>4/11</u>	<u>4/15</u>		<u>4/8</u>	<u>4/15</u>
Green fruitworm	-	0	0.1*	Green fruitworm	0.4	0.2
Pear psylla	0	0	0	Pear psylla (eggs/bud)	0.5	1.0
Redbanded leafroller	-	0	0	Redbanded leafroller	0.2*	0.3
				Spotted tentiform leafminer	-	0

* = 1st catch (Dick Straub, Peter Jentsch)

NOTE: Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide.

scaffolds
 Dept. of Entomology
 NYS Agricultural Exp. Sta.
 Barton Laboratory
 Geneva, NY 14456-0462

ARTHUR AGNELLO
 ENTOMOL. OGY
 BARTON LAB

NYS AES