scaffolds Update on Pest Management and Crop Development

FRUIT JOURNAL

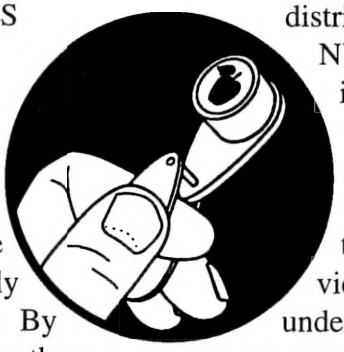
May 20, 1996 VOLUME 5 Geneva, NY

INSECTS

INSECT BITES

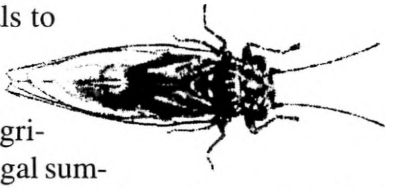
PSYLLA THRILLS

(Art Agnello, Entomology, Geneva)



❖❖ The pear psylla is a "flush feeder", meaning that the nymphs feed and develop primarily on the newer, more tender growth. By midway through the growing season, the majority of leaves are hardened off and psylla development then may be limited primarily to the water sprouts. Once the nymph begins to feed, a honeydew drop forms over the insect; the psylla develops within this drop for the first few instars. Honeydew injury occurs when excess honeydew drips onto and congregates on lower leaves and fruit. The honeydew is a good medium for sooty mold growth. When it occurs on the fruit, it russets the skin and makes the fruit unsaleable. Ladybird beetles, lacewings, syrphids, snakeflies (Raphidiidae), and predatory bugs have been recorded feeding on the psylla. There are also two chalcid parasites of pear psylla in the U.S. However, to obtain commercially acceptable fruit in New York, pear psylla must be controlled with insecticides.

For psylla control, we have historically recommended an application of an effective insecticide when nymphs start to build to the level of 1–2 per leaf after petal fall. Repeated applications of a given material are often necessary. In the most recent past, the pyrethroids and Mitac have been the most widely used materials in our area. During the past 4 years, we have additionally been able to use Agri-Mek under Section 18 exemptions, and it is once again available this year, although as a Special Local Need use (you need to fill out the forms available through your distributor and send them with $30 to the NYS Pear Growers Association to use it). This chemical is absorbed into the leaf tissue and kills the psylla when it feeds; its mode of action is also different from the other contact toxicants. In field trials, it has provided 4–6 weeks or more of protection under normal growing conditions. However, current guidelines call for it to be applied within the first 1–2 weeks after petal fall, which means that the effectiveness of a single application may not carry through the entire season. This derives from our experience in 1991 when we believe unseasonably hot temperatures in May and June were responsible for hardening off the foliage prematurely and preventing adequate absorption of the material into the leaves. However, growers have asked whether it can be used at a later date if this unusual hot weather doesn't occur, presumably to get as much mileage as possible out of the single application.



We set up trials to compare the effectiveness of single sprays of Agri-Mek (20 oz plus 1 gal summer oil/acre) applied at different intervals after petal fall: 15, 30, and 45 days, compared with a Mitac 50 WP standard. A summary of the results: all treatment timings of a single post-petal fall Agri-Mek spray were equally effective in initially maintaining psylla populations on fruit clusters and foliar terminals until mid-August. However, the longer the application was withheld, the greater was *the early summer* buildup on foliar terminals and the damage these populations caused. Although somewhat un-

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sightly, this damage did not affect the fruit quality, and the populations were ultimately prevented from expanding onto the fruit surface. Also, the growing conditions at the end of August emphasized the potential for late-season population increases, after Agri-Mek's period of effective control (even in the latest-sprayed plots), and a final pesticide intervention was ultimately required to prevent sootiness of the fruit. Under the cold, wet spring conditions we have had this year, a later application stands a better chance of giving effective control, because the excess rainfall first of all reduced the opportunity for psylla to fly, mate and lay eggs, and we have seen below-average egg numbers in many orchards so far. Also, it's left the foliage particularly succulent, so that depending on the weather conditions during the next few weeks, it should remain relatively absorptive to later Agri-Mek sprays. Nonetheless, our trials demonstrated that no one approach eliminates the need for a watchful eye on the trees until the fruit is in the packinghouse.❖❖

BORING ADVICE

(Art Agnello and Dave Kain, Entomology, Geneva)

Lesser Peachtree Borer

Remember to get your trunk and scaffold sprays on peaches and cherries during the first week of June if borers are a problem in your blocks. This pest increases the severity of Cytospora canker infections in peaches and is often found within the canker; by feeding in the callous tissues, it interferes with the tree's natural defenses against the disease. Infestations can be determined by the presence of the insect's frass, which resembles sawdust, in the gum exuded from the wound. In peaches, you can use Lorsban, Thiodan, Asana, Ambush, Pounce, or Penncap-M for this application. In cherries, use Lorsban 4E, Asana, Ambush 25WP or Pounce as a trunk spray ONLY; do not spray the fruit.

Roundheaded Appletree Borer

There has been a recent increase in complaints about damage by this once-serious pest, so a brief review of the information we have about it might be in order here. The roundheaded appletree borer, *Saperda candida* F., is a cerambycid beetle that attacks young, healthy trees, unlike many other longhorn beetles that are attracted to weak or diseased trees. Warren Johnson, in his "Insects That Feed on Trees and Shrubs", writes of its having been a very serious problem for apple producers in the northeastern U.S. during the mid-1880s. Next to the codling moth, it was the worst enemy of the apple tree. However, current pest management programs have generally relegated it to a rather minor status among most apple growers, except for homeowners and newer or smaller operations. This insect is also a pest of hawthorn, mountain ash, quince, shadbush, cotoneaster, and flowering crabapple.

The adult is an attractive light brown beetle, approximately 5/8-inch long, and olive brown with longitudinal white stripes. It emerges in N.Y. in June, and is active at night, normally hiding by day. The larva is a pale yellow grub, 1 inch long, and deeply divided between segments, with a dark brown head and blackish mandibles. Eggs are laid mainly from late June through July in

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scaffolds

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the bark near soil level. Two weeks are required to hatch, after which the larvae bore into the sapwood, and create tunnels throughout the lower trunk area. This insect takes 2–3 years to develop, and is closest to the surface during first and last few months of its life.

Because of its concealed habit and long life cycle, control of this borer is problematic and can be rather labor-intensive. The following protocol should be followed to ensure the best success in eliminating this pest:

• May: Ring the bottom 12–24" of trunks with oviposition barriers made of a) wire mosquito netting or hardware cloth, or b) several layers of newspapers. Barriers should be loose except at the bottom (cover them with earth) and top (tie with a cord). You can mound the earth up 12" around the base of the barriers, although in some cases this encourages greater vole damage. Remove barriers at the end of the season (October).

• Late May through July: Apply a deterrent wash above the barriers on uninfested trunk using a paintbrush, consisting of an alkaline mixture of soap (e.g., M-Pede insecticidal soap @ 2.5 oz/gallon water) plus caustic potash (lye) mixed to the consistency of thick paint. Apply every 2–4 weeks, depending on rainfall, to deter egg-laying on the trunk. Alternatively, a 60:40 mixture of white latex paint and water painted on the base of trees will help repel egg-laying, and also makes it easier to find oviposition wounds and larval castings.

• June 15 and July 1 (1st & 2nd cover sprays, 800–1030 degree days [from March 1, base 50° F]): Spray foliage with multi-purpose orchard spray containing endosulfan (Thiodan) or chlorpyrifos (Lorsban), methoxychlor, or diazinon to reduce the adult population. Repeat sprays the last 10 days of July (1500–1800 degree days) to kill newly hatched borers.

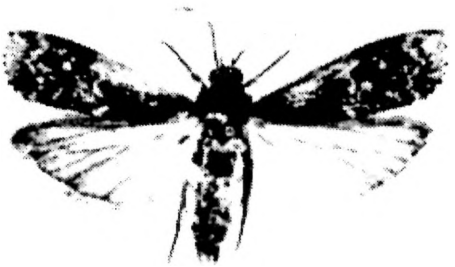
• Mid- to late Sept: Check trunks above barriers for evidence of small larvae working just beneath the surface. Paint on PDB (para-dichlorobenzene moth flakes) in cottonseed oil (saturated solution) wherever castings are found protruding from the bark.

• Late summer to mid-Sept: Check bark for small pinholes with sawdust exuding from them. Kill larvae with an awl or wire or knife (use caution so as not to damage tree) OR inject a mixture with a grease gun of: a) PDB + cottonseed oil (saturated solution), or b) 1.5% rotenone extract in ethyl alcohol.

If trees are girdled, you might try applying bridge grafts (1–2 per tree) to help them overcome the injury. Keep the bases of trees weed-free to encourage birds (mainly downy woodpeckers) and other natural enemies to control the beetles. If possible, destroy wild hosts within 300 yards (wild apple seedlings, hawthorn, shadbush, mountain ash). If a tree is injured beyond recovery, it should be taken out and burned before the following spring to prevent borers inside from completing their life cycle.

American Plum Borer

Eggs of this moth are deposited in cracks in the bark of cherry,peach and plum trees and hatch in a few days. Larvae feed along the edge of exposed cambium, beneath loose bark. The larvae can't bore into the cambium unless a wound of some sort is present. Tree shakers cause vertical splitting of cherry tree bark which provides ideal entryways for this pest. Because most of the tart cherries in New York are mechanically harvested, APB has become the major borer pest of tart cherry in the Lake



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Ontario fruit growing region. These susceptible trees are not only damaged by APB, but likely serve as reservoirs from which other susceptible crops (such as peaches infected with canker diseases) may be infested.

In Michigan, directed trunk sprays are recommended in cherries at petal fall, when first generation adults are emerging. Flight phenology in New York is similar. Adults begin to emerge during bloom and the flight peaks around petal fall or a shortly thereafter. Lorsban 4E used for lesser peachtree borers in late May or early June will provide control against any APB that may be present. This spray is reported to give season-long control of APB and the sesiid borers in Michigan, but later applications are thought to be less effective in controlling damage. Research continues in Western New York this season to determine whether the same is true here.❖❖

FIELD NOTES

SCAB

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

❖❖ Two more scab infection periods, each with >24 hours wetting, occurred May 16–19 in the Hudson Valley, bringing the total number of Mills infection periods for this year to nine.

Apple growers should be monitoring orchards very carefully for early signs of primary scab infections, especially in orchards where there is any question of missed infection periods or inadequate spray coverage. If scab lesions are detected, the best approach for shutting down a potential epidemic is to make two applications of captan plus an SI fungicide with 7–9 days between the two sprays. The SI fungicide will help to reduce production of viable spores in the primary lesions and the captan will help to protect developing fruitlets from secondary infections. In "bail-out" treatments, captan is more effective than mancozeb.

In last week's report, I indicated that we found severe cluster-leaf scab in a recently abandoned orchard. More detailed observations made after last week's issue went to press showed that the incidence of scab lesions on cluster leaves could not be correlated with presence or absence of retained petioles. In fact, we could find no evidence of scab spores or lesions on any of the retained petioles when these were examined microscopically. The severe infections we noted apparently resulted from ascosporic inoculum from leaves on the orchard floor.

On Friday, May 17, we noted active scab lesions on flower petals of Delicious and McIntosh trees in the aforementioned abandoned orchard. Scab lesions on petals are rare because the petals usually drop before scab symptoms can develop, but the prolonged bloom period this year allowed lesions to appear on petals. ❖❖

FUNGICIDE FACTS

(Dave Rosenberger)

DISEASES

POTENTIAL FOR PHYTOTOXICITY WITH CAPTAN

❖❖ Captan can be phytotoxic to tender foliage if it is absorbed into the developing leaves. Last Wednesday, we applied captan to young trees that had been exposed to light frosts on Monday and Tuesday nights. On Sunday, temperatures reached 90°F. On Monday morning, many of the young leaves in the treated orchard were showing blackened leaf margins, black necrotic spots, downward cupping, and slight yellowing. I am fairly certain that the injury resulted from captan applied to very succulent and frost-injured foliage. I have seen similar symptoms on peaches in other years when captan was applied after an extended period of cloudy, cool weather. Phytotoxicity is increased if additional spreaders are included in the tank mix. With the cool, wet growing conditions we have experienced this spring, trees may

be more susceptible to captan phytotoxicity than in most years. Affected trees usually recover quickly and the damage "disappears" as new terminal leaves emerge.

ADJUSTING FUNGICIDE PROGRAMS TO CONTROL BLACK ROT FRUIT DECAY

Black rot fruit decay was a serious problem in some New York apple orchards in 1995. Most black rot fruit decay originated from spores produced in dead fruitlets that were retained in the tree after chemical thinning. The dying fruitlets provided ideal infection sites for the black rot fungus during late May and early June. The infected retained fruitlets then produced spores that initiated lenticel infections on other growing fruit.

The critical periods for controlling black rot in NY are between the first and third cover sprays when the dying retained fruitlets are susceptible to infection, and during the preharvest interval after the last fungicide spray when maturing fruit become increasingly susceptible to infection. Where black rot was not controlled last year, infected fruitlet mummies from the previous year may provide inoculum through much of the summer. In these orchards, protectant fungicides may be needed at 2–3 wk intervals from early June through mid-August.

Benlate, Topsin M, and captan are the only apple fungicides that can effectively control black rot during periods of peak fruit susceptibility. Rubigan and Nova are ineffective. Mancozeb and ziram at 1.5 to 2 lbs/100 gallons (dilute basis) are only moderately effective (OK when inoculum levels are low). Black rot frequently is not controlled when mancozeb and ziram are used at rates of 1 lb or less per 100 gallons.

In orchards that had black rot problems in 1995, either Topsin M or captan should be included in all sprays from petal fall through mid-summer. Benlate is also effective. However, Benlate applied within 40 days of petal fall may contribute to development of scarf skin, a fruit finish disorder that reduces the "shine" on apples and makes the skin look dull or cloudy. Scarf skin is especially common on Stayman, Law Rome, and Gala.

Using captan alone in early cover sprays will provide good control of black rot, but it will not adequately control cedar rust or mildew infections on the developing terminal leaves. Captan used alone is also rather weak against sooty blotch and flyspeck, although it will provide adequate control under light to moderate pressure if applied every 10–14 days.

The combination of Benlate+captan will provide the best control of black rot and other summer diseases through the 30–50-day interval between the last spray and harvest. Fruit left unprotected during the critical period prior to harvest can develop lenticel infections if inoculum is present and there are warm (60–75°F) wetting periods.

The best fungicide programs will be ineffective if other orchard management practices result in poor spray coverage or inappropriate fungicide application rates. Thus, black rot can be effectively controlled only if trees are pruned annually to allow proper spray coverage, if sprayers are properly calibrated, if nozzles are correctly aligned to allow coverage on fruit on low drooping limbs, and if travel speed during spraying is adjusted to ensure an adequate air stream for moving the fungicide spray to the centers of the tree canopies. ❖❖

PHENOLOGIES

Geneva:
Apple (McIntosh) - bloom
Sweet cherry (Windsor) - early petal fall
Tart cherry (Montmorency) - bloom
Pear - bloom
Peach - bloom
Plum (Darrow) - bloom
Highland:
Apple (McIntosh) - petal fall
Apple (Empire) - 3 days post-petal fall
Pear (Bartlett) - 3 days post-petal fall

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva NY

	5/13	5/16	5/20
Green fruitworm	0.3	0	0
Redbanded leafroller	1.9	0.8	6.2
Spotted tentiform leafminer	276	76	641
Oriental fruit moth	0	0	3.6
Lesser appleworm	0	0.3*	9.0
Codling moth	0	0	0
San Jose scale	0	0	0
American plum borer	0	0	0.1*
Lesser peachtree borrer (cherry)	0	0	0
Lesser peachtree borrer (peach)	0	0	0

HVL, Highland NY

	5/6	5/13	5/20
Green fruitworm	0	0.1	0
Redbanded leafroller	8.1	0.9	1.0
Spotted tentiform leafminer	15.6	16.4	4.7
Oriental fruit moth	4.4	4.5	1.0
Lesser appleworm	-	0	0.1*
Codling moth	-	0	0.1*
Fruittree leafroller	-	0	0
Tufted apple budmoth	-	0	0

*=1st catch

(Dick Straub, Peter Jentsch)

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1- 5/20):	379	192
(Highland 1/1-5/20):	649	340

Coming Events:	**Ranges:**	
Apple grain aphid nymphs present	137-496	67-251
American plum borer 1st catch	194-567	55-294
Green fruitworm flight subsiding	170-448	75-251
Redbanded leafroller 1st flight peak	180-455	65-221
STLM 1st flight peak	180-439	65-217
Obliquebanded leafroller larvae active	149-388	54-201
Oriental fruit moth 1st flight peak	259-606	96-298
European red mite egg hatch	157-358	74-208
San Jose scale 1st catch	189-74	69-385
White apple leafhopper nymphs present	236-708	123-404
McIntosh at bloom	310-439	130-225

PEST FOCUS

Geneva: **Lesser appleworm** 1st catch 5/16. **American plum borer** 1st catch in Wayne Co. 5/17, Geneva 5/20.
Highland: 1st **plum curculio** scars

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.

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