

# PLANT & PEST ADVISORY

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## Research Update: Summer Pruning And Apple Flyspeck

*Dr. Norman Lalancette, Specialist in Tree Fruit Pathology*

**D**isease management on apple is heavily dependent on fungicides. As with any crop, growers can reduce this dependency by selecting varieties that are partially or fully resistant. However, resistance is available for only a handful of the many different diseases that affect apple. Consequently, growers still must spray for the "other" diseases. For example, control of the summer diseases is still required for the apple scab resistant cultivars.

With all the emphasis on fungicides and plant disease resistance, we often forget that the environment plays a critical role in determining disease severity. "Well," you say, "I can't do anything about the environment!" Not true! Growers constantly manipulate the environment each time they prune a tree. In this case, I'm referring to the microclimate within the tree canopy.

### Apple Flyspeck

A recent article was published by Dr. Daniel Cooley, *et al.* at the University of Massachusetts on summer pruning as a method for reducing flyspeck disease (Plant Diseases 81:1123-1126). In this study, trees were pruned using standard summer pruning recommendations (see Fruit Notes 56(1):27-28). In general, this procedure involved removing smaller (less than 1" diameter) upright branches, such as watersprouts, and those branches shading more productive branches. Pruned and non-pruned trees were either sprayed or not sprayed with fungicides.

Results showed that summer pruning alone, without fungicides, reduced the incidence of flyspeck by about 50% during both years the study was conducted at university

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orchards. In 1991, the percent of fruit with flyspeck colonies was significantly reduced from 18.0% to 9.4%, while in 1992 it was reduced from 64.2% to 35.3%. Furthermore, the percent reduction from Extra Fancy to a lower grade was decreased. In 1991 and 1992, non-pruned trees had 12.1% and 20.2% grade reduction, respectively. However, in the same two years, summer-pruned trees had only 3.3% and 4.7% grade reduction, respectively.

When summer pruning was integrated with fungicide applications in commercial orchards, a smaller but significant additional reduction was observed. In 1992, flyspeck incidence was significantly reduced from 7.5% on non-pruned trees to 5.3% on summer-pruned trees, while in 1993 it was reduced from 5.8% to 3.1%. A small, but significant increase in grade was also observed.

### Microclimatic Change

The flyspeck fungus requires very high relative humidity (RH) for spore germination, spore production, and colonization of the fruit surface. Consequently, in addition to disease observations, the investigators also recorded data on the canopy microclimate.

Results showed that summer pruning reduced the number of hours of RH > 95% in the canopy by 63%. Also, the evaporative potential, monitored separately, was observed to be greater in pruned trees. Furthermore, summer pruning improved airblast spray deposition in the upper two-thirds of the tree canopy. At 11.5 feet height, spray coverage was significantly increased from 27% to 42%.

### The Macroclimate

A similar study conducted in North Carolina orchards did not replicate the results observed in Massachusetts. One possible explanation may be that the climate of southeastern U.S. is too humid to allow for microclimatic modification via pruning. This may explain why flyspeck is endemic in the Southeast, while sporadic in the Northeast.

In NJ, our climate is partly Northeastern in the northern half of the state, while mid-Atlantic in

the southern, coastal half. So, assuming the above explanation is valid, northern growers would tend to benefit more frequently from summer pruning than those in the South. Of course, the horticultural reason for pruning - to accelerate and improve fruit coloration - must also be considered. Ultimately, as with any management decision, the economic benefit of improved fruit quality must be weighed against the cost of the pruning and any side effects. □

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## Peach Variety & Crop Update in Southern New Jersey

Jerome L. Frecon, Agricultural Agent

Peach harvest is underway with the picking of Flamin Fury I, Candor and Derby, both yellow fleshed peaches, on June 22. This date is 12-14 days earlier than normal, the result of a bloom completed 14 days earlier than usual. Fruit size is good, but fairly characteristic. Flamin Fury I is small, Derby and Candor are small-to-medium. The latter two varieties have quite a few split pits, as do many of the test varieties now ripening.

Other early varieties ripening now are Valley Fire, Flamin Fury 5B, Suzi Q, Harlinger, Snowflake (white), Starlite (white), plus some numbered selections. Garnet Beauty and Sentry should be ready next week. Fruit size is good on most varieties. Bacterial spot infections are normal on fruit. Spotting is not as bad as in 1997. Finish is not as good on some varieties as it has been in the past. Most blemishes are related to low temperatures, rain, moisture and cracking during cell division, and green peach aphid.

Fruit prices are now \$12 to \$14 per 1/2 bushel box according to the Southeastern Peach Report from USDA Market News.

From California, peaches are arriving later than normal. Shelf life does not appear as good as in the past for California peaches sold in Philadelphia retail stores. Volume from California is not as heavy as normal at this time, according to truck unloads in eastern cities. □

# Summer Pear Psylla Control

Peter W. Shearer, Specialist in Tree Fruit Entomology

The abundance of pear psylla infesting pear trees in your orchard is a reflection of early season control measures. Growers that applied pre-bloom oil sprays plus a pyrethroid or endosulfan spray or two followed by an early application of Agrimek + oil should have psylla under control.

However, sometimes pear psylla get out of hand and then it's a battle to control them. The best timing to control summer pear psylla is to apply sprays when the majority of the psylla are in the young nymph stage. Young psylla nymphs can be readily controlled with one of several insecticides, including amitraz (Mitac 50WP), endosulfan (Endosulfan, Thiodan, Phaser), imidacloprid (Provado 1.6F), or pyridaben (Pyramite 60WP). Follow the label and consider using high-end rates if psylla are really bad. Also, choose wettable powder formulations over emulsifiable concentrates where possible to decrease risk of marking fruit. It is too late to use Agrimek (its best used shortly after petal fall) and the pyrethroids (Asana, Ambush, Pounce), while

effective against various stages of pear psylla, often promote mite buildup so they should be considered as a last resort.

The worst scenario is when there are lots of psylla in all life stages. The 5<sup>th</sup> instar, or hard-shell stage, is the most difficult stage to control. If a majority of pear psylla nymphs are in the hard shell stage, wait for them to emerge as adults then hit them with an insecticide. Endosulfan is probably the best bet at this time because it kills adults and young nymphs. Spraying summer psylla adults is a last-gasp, desperate measure. Remember, it's best to target sprays against young pear psylla nymphs, so don't let them get to the hard shell stage if you can avoid it.

Soap-like compounds such as M-Pede are also effective if applied against young nymphs but may require 2-3 sprays per generation. Beware, though, that soaps and soap-like sprays can russet fruit and cause spray rings when used in dilute sprays. This poses a dilemma because when you are fighting a summer pear psylla outbreak, dilute sprays work better than concentrate sprays.

If pear psylla have gotten out of control, remember this; and next year get those pre-bloom sprays on in time. □

## Fruit Meeting Calendar

**June 29-30, 1998** - International Dwarf Fruit Tree Association Summer (Peach & Apple Tour of Virginia). Pre-registration is required. Contact Charles Ax at 717-837-1551 before May 15 to register. Details are available from Jerry Frecon at 609-863-0110.

**June 30, 1998** - Twilight Fruit, Vegetable and Flower Meeting, Demarest Farms, Hillsdale, NJ. Call Joel Flagler of Rutgers Cooperative Extension of Bergen County at (201) 599-6167 for information or directions, or call Demarest Farm at (201) 666-0472.

**July 23 through July 26, 1998** - New Jersey Peach Festival at the Gloucester County 4-H Fair, 4-H Fairgrounds, Mullica Hill, NJ. Contact Chris Smith at 609-881-1411 or Marsha Gaventa at 609-467-8028.

**August 18, 1998**, 6:30 p.m. - Direct Marketing Twilight Meeting, Monmouth County, Atlantic Farms, 1506 Atlantic Avenue, Wall Township (Rt. 524), NJ 08736

Located in suburbia, John Tobia and family have carved out a wonderful market, serving consumers with Jersey produce, plants, farm entertainment and agriculture education tours. A steadily growing wholesale produce business serving restaurants and other marketers has been established, further diversifying the operation. For further information, please contact Ramu Govindasamy at (732) 932-9171 ext. 25.

# Fruit IPM

Dean Polk, Agricultural Agent

## Peach

### ✓ Tarnished Plant Bug (TPB) and Other Catfacing

**Insects:** Sweep samples indicate continued low pressure, overall. Isolated sites with heavy, tall weeds show significantly higher populations. Some areas in the Camden and Atlantic County area showed that up to 10% of our samples had new catfacing injury. Under low catfacing pressure, and no OFM pressure, insecticide applications can often be stretched or skipped.

✓ **Oriental Fruit Moth:** Trap catch has increased slightly since last week, but activity remains low, overall (trap counts below 6-8 moths per trap).

✓ **European Red Mite (ERM):** Mite populations have been easily controlled on most farms. Some farms still have populations at over 10 mites per leaf. While there is no real threshold for ERM in peaches, farm labor for thinning and picking may not be tolerant of ERM populations. Apollo has been the most reliable material during the heat of the summer. Be aware that this material has a 21 day PHI and takes a few days to show results.

✓ **Brown Rot:** The first brown rot fruit infections were seen last week in southern counties on Derby and Candor. The incidence of split pits is very high on these early varieties which leads to an increased incidence of brown rot. Recent and ongoing humid conditions accompanied by heavy thunderstorms have increased the likelihood of seeing brown rot. Growers are advised to start using pre-harvest brown rot fungicides 2 to 3 weeks before harvest. Under the present conditions, 3 weeks would be more appropriate. The objective is to get 2 full sprays or 4 alternate middle applications of pre-harvest fungicides on before picking. When using repeated SI sprays, try to combine with another material such as Captan when possible.

✓ **Bacterial Spot:** The precipitation periods of last week gave us several new bacterial spot infections. Some growers indicated that they were trying to stretch sprays since they had

labor in the orchards for thinning. Copper sprays cannot be stretched, especially during periods of rain and bacterial spot infections.

## Apple

✓ **Apple/Spirea Aphid Complex:** Aphid populations have declined some over the past week, with several growers using insecticides to bring populations down. Vydate, when used for leafminer control against sap-feeding larvae, also gave aphid control. Thiodan applied @ 3 lb/A gave aphid control. Thiodan also suppresses spotted, tentiform, leafminer adult populations. See last newsletter and the Tree Fruit Production Guide for other materials for aphid management.

✓ **Spotted Tentiform Leafminer (STLM):** Adult counts increased this past week. This is close to the peak of the second generation flight. Now many eggs are being laid. New sap-feeding miners (larvae) are usually seen near the peak, with most appearing shortly after the peak is reached. Insecticides targeted for STLM are effective on the younger, sap-feeding stage, which is visible only from the bottom of the leaf. After the mines become visible from the top of the leaf surface, they are tissue-feeders, and are much more difficult to control. Insecticides may also suppress adult populations. STLM populations should be controlled if there is an average of .5 to 1 mine per leaf and the majority of the mines are in the sap-feeding stage.

✓ **Tufted Apple Budmoth (TABM):** No first generation injury has been noted as of this date. Insecticide sprays for this pest are not due again for several weeks.

✓ **General Precipitation and Infection Conditions:** Predicted periods of precipitation and thunderstorms are likely to bring additional Fire Blight infections to many South Jersey orchards for the remainder of the week though 6/28. The most likely infection periods in northern counties may fall around 6/26.

## Pear

✓ **Pear Psylla:** Populations are very high on a number of farms. Various pesticides have given control or suppression of nymph populations, but adults continue to appear on several farms.

SEE IPM ON PAGE 5

### Degree Day Accumulations Since Biofix and Spray Targets

Insect	June 23							
	Hammonton	Bridgeton	Hardingville	CreamRidge	Princeton	Oldwick	Pittstown	Hackettstown
OFM	Done	Done	Done	Done	Done	Done	Done	Done
TABM	1180	1157	193	1076	1068	1047	863	779
CM	858	882	902	828	808	786	—	640
Spray Targets:								
OFM	200 & 400 DD <sub>45</sub> after biofix (1 <sup>st</sup> generation).							
TABM	490, 625, 763, 898 DD <sub>45</sub> after biofix (1 <sup>st</sup> generation). 2228, 2415, 2605, 2795 DD <sub>45</sub> after biofix (2 <sup>nd</sup> generation).							
CM	250 DD <sub>50</sub> after biofix plus 14 days later (1 <sup>st</sup> generation). 1250-1300 DD <sub>50</sub> after biofix plus 14 days later (2 <sup>nd</sup> generation).							

We found as many as 200 adults per 25 beating tray samples on one farm. Thiodan (3 lb) has controlled low nymph levels but only suppressed higher levels. Provado and Mitac have also worked. Please see the accompanying article on Summer Pear Psylla Control by Peter Shearer.

### Blueberry

✓ **Aphids:** Aphids are present in 90% of all samples taken. Average infestation level was about 8.8-9% of shoots infested last week. We've had several comments from growers who did not see numbers similar to what the IPM scouts reported. Therefore, I should make one note about the sampling procedure we are using: Aphids are found on the tender green tissue of actively growing shoots and terminals. Our sampling is heavily biased to include those parts of the plant which are most likely to have aphid populations. On some bushes, this means that most of the sample is taken from the lower shoots, no more than 12 to 18 inches high. On other bushes, it may mean that some top shoots are included in the sample as long as they are

tender and actively growing. Since the aphids are disease vectors, actual numbers are only relative. We want as few of them as possible.

✓ **Sharpnosed Leafhopper (SNLH):** SNLH adults were captured on 5 farms in Atlantic County, and continued to be captured on 7 farms in Burlington County.

✓ **Cranberry Fruitworm (CBFW):** Larvae are present in 9% of our samples. The actual level of injured fruit is low, with the highest level being about 1.5% of fruit infested on one farm in Burlington County. Most of these will likely not be present at harvest.

✓ **Other Leps:** Trap counts of Redbanded Leafrollers increased over the last week. This is the second of 3 adult flights. The flight peak usually falls during the last week of June to the first week of July, when most eggs are laid. Leafroller larval activity was seen in about 4% of samples taken. None of the samples showed populations above treatment levels.

✓ **Blueberry Maggot (BBM):** Adult flies continue to be found at low levels on commercial farms. As of last week, no farms averaged more than .3 flies per trap. As a contrast, traps in our abandoned fields are picking up as many as 213 flies per trap per week.

### Trap Captures

#### Tree Fruit – South Jersey

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-PLPTB	PTB
1-May	0.75	1057	1.38	2.23		15.43	7.08	
8-May	0.33	953	19.58	5.31		14.54	23.58	
15-May	0.20	108	23.44	6.59		8.05	23.58	
22-May	0.80	119	41.20	5.39		8.57	59.55	52.83
29-May	0.00	315	65.25	8.51	0.00	13.33	78.76	63.74
5-Jun	0.20	875	58.49	5.51	0.25	8.75	84.20	55.87
12-Jun	6.80	850	59.83	2.83	0.08	5.31	67.72	62.29
19-Jun	12.20	931	27.52	1.77	0.24	7.64	36.90	44.50

#### Tree Fruit – North Jersey

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-PLPTB	PTB
1-May	23.53	803	0.11	0.11		11.27	0.04	0.00
8-May	14.02	346	0.91	1.56		7.04	0.63	2.00
15-May	3.20	79	2.66	1.69		2.46	1.98	5.72
22-May	1.64	71	11.87	7.52		11.94	11.07	46.47
29-May	0.41	203	24.67	10.11		9.64	26.25	51.39
5-Jun	0.30	658	42.30	10.09		8.49	33.14	53.26
12-Jun	0.61	429	23.05	2.65		1.87	21.15	2.53
19 Jun	5.71	1210	27.15	4.75		4.65	22.48	25.88

#### Blueberry - Atlantic Co.

WEEK END:	RBLR	OBLR	CBFW	SNLH	BBM/HIGH	BBM/LOW
5/1	6.4	0.08				
5/8	2.2	0	0.2			
5/15	0.04	0.05	0.57			
5/22	0	4.05	0.61			
5/29	0.29	11.15	1.28			
6/5	12.4	7.5	0.53	0	0	0.04
6/12	26.25	2.025	0.41	0	0.06	0.01
6/19	44.98	1.47	0.30	0.25	0.02	0.01

#### Blueberry - Burlington Co.

WEEK END:	RBLR	OBLR	CBFW	SNLH	BBM/HIGH	BBM/LOW
5/1	2.5	0				
5/8	1.1	0.05	0			
5/15	1.06	0.06	0.00			
5/22	0	0.5	0.22			
5/29	0.1	13.3	8.8	0.08		
6/5	0.89	12.17	1.61	0.47	0	0
6/12	5.44	11.38	2.17	0.67	0	0.03
6/19	21.67	10.31	3.83	0.61	0.07	0.11

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