

# PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

JULY 2, 1996



## INSIDE

Brown Rot.....	1
Ca Sprays for Apple Production .....	2
Peach Pack Competition .....	2
Blueberry Insect Management Update .....	3
Benlate in U-Pick .....	3
California Peaches and Nectarines .....	4
Weekly Weather Summary ...	5
Fruit IPM .....	6

## Brown Rot: Importance of Inoculum Level

Norman Lalancette, Ph.D., Tree Fruit Pathology

Early peach varieties, such as Harbinger or Springcrest, have begun or will soon begin to ripen. As we approach late July and into August, a continual parade of other peach and nectarine cultivars will follow suit.

Of course, this ripening process means "get ready for harvest." But initiation of ripening also indicates it's time to start spraying for fruit infection caused by the brown rot pathogen, *Monilinia fructicola*.

### ◆ Factors Influencing Fruit Rot

But wait ... don't just begin your usual brown rot spray program ... you know, the one you've used each year! Break the habit and think *quantitatively* about the three factors that influence the severity of fruit rot: inoculum level, susceptibility (in relation to fruit maturation), and environmental favorableness.

All three factors must occur simultaneously for infection to occur. But to what degree is each factor favorable for infection? If all three are highly favorable, the spray program should surely be different than if none are favorable! Of course, this statement only applies if you're interested in *optimizing* your spray program; obtaining the best disease control for the least amount of expense.

We should not only ask "what's out there," but also *how much* is out there. In essence, this outlook is what IPM is all about ... providing real-time scouting feedback to optimize pest management. So whether you're in the IPM program or not, it's worth spending the time to think quantitatively about these three factors.

### ◆ Inoculum Sources

Inoculum for infection, which consists of fungal spores called conidia, must come from previously diseased tissue. The brown rot fungus must first infect and colonize the plant tissue before it can sporulate. In the case of brown rot, major sources of this inoculum are infected blossoms, infected twig and branch cankers, and treeborne mummies.

In general, immature green fruit seldom become infected and are therefore not considered major sources of inoculum for the upcoming crop. Sometimes, however, if immature fruit were not pollinated or were injured by frost, they may wither on the tree and become infected and covered with conidia. Likewise, immature green fruit dropped on

SEE INOCULUM ON PAGE 5

## Calcium Sprays for Apple Production

*Win Cowgill, Hunterdon County Agricultural Agent and Bill Tietjen, Warren County Agricultural Agent*

Calcium is a key element in apple production for producing high quality fruit. Bitter pit, cork spot and senescent breakdown are common apple disorders that are associated with low levels of calcium in the fruit. Specific cultivars are more susceptible such as Jonagold, Braeburn, Enterprise and Cortland.

Maintaining a high level of calcium in the soil through the use of high calcium limestone or gypsum is essential. Calcium sprays are secondary but are essential for some cultivars. Annual leaf and soil analysis should be utilized to track the nutritional status of the orchard.

Despite considerable research, the type of calcium and rate of application are subject of debate. However, information exists from our neighboring states, specifically Pennsylvania and Massachusetts. Calcium chloride (78% CaCl<sub>2</sub>) is the cheapest material to use. Actual calcium rates of 14-20 lbs per acre are suggested. The high rate we are utilizing in North Jersey is 2.3 CaCl<sub>2</sub> lbs. per 100 gallons, dilute equivalent basis, in each cover spray. Beginning in June, calcium chloride should be added in each cover spray on apple cultivars sensitive to corking or bitter pit, or scheduled every 2 weeks. Sprays should continue up to harvest with the last two sprays at 2 and 4 weeks before harvest. The rate can be increased to 3-4 lbs CaCl<sub>2</sub>/100 gallons in these two sprays.

Calcium rates and application timing should be made specific to your site, soil conditions and Cultivar mix.

Calcium research on the disease resistant cultivar Enterprise will continue at the Rutgers Snyder Research and Extension Farm. We are looking at several rates of calcium chloride to maximize fruit quality of this promising variety. □

## Commercial Peach Pack Competition

*Jerome L. Frecon, Gloucester County Agricultural Agent*

Each year the New Jersey Peach Promotion Council, in conjunction with the New Jersey Peach Festival Association sponsors a festival to promote peaches and educate people about the peach industry. This year "the Festival" will be held on July 25th, 26th, and 27th at the Mullica Hill 4-H Fairgrounds on Route 77 near Mullica Hill, New Jersey in conjunction with the Gloucester County 4-H Fair.

Southern New Jersey Peach growers/shippers will receive a separate letter informing them about the festival. If you do not receive this letter please contact my office and we will mail you information about the festival.

Part of the festival's educational exhibit is the Grower/Shipper Pack Competition. The rules of this competition have been changed slightly to encourage more participation. We need more grower/ shippers participating to promote peaches.

The changes include 4 categories of competition: Commercial, Select, Specialty and Largest. Only the winner of the Commercial Category will be eligible for the Governors Cup symbolic of the best box of peaches packed by a grower/shipper. We are emphasizing this because it truly represents how a grower/shipper packages his peaches for the wholesale market. Each winner in a category will get a \$50.00 gift certificate at one of four popular restaurants in southern New Jersey. Packs in the Commercial, Select and Specialty can be either 1/2 bushel (22 to 25 pounds) or the 3/4 bushel category (38 to 40 pounds).

The Select Category will consist of yellow fleshed peaches in both packs hand selected and packed for the festival. In both categories three classes of peaches will be judged; a 2 3/4 inch and up, a 2 1/2 inch and up, and a 2 1/4 inch and up. Each class winners receive a 1st, 2nd, 3rd place ribbon and plaque.

The Specialty Category will consist of two classes: white fleshed peaches and nectarines-white or yellow fleshed. Both can either be in a 1/4 bushel pack (12-14 pounds) or a 1/2 bushel pack (22-25 pounds). First, 2nd and 3rd place ribbons and plaques will be awarded in each class.

The final category will be the Largest Peach. This category will consist of only one class in which a 1st, 2nd and 3rd place ribbon and plaque will be given.

All peaches in the Commercial Category will be picked up by myself or a designated representative no earlier than 24 hours before the judging on Thursday, June 25th at 4 p.m. All other packs for the categories can be picked up at the same time or delivered to the festival judging tent. All fruit will be judged by inspectors from the New Jersey Department of Agriculture - Jersey Fresh Quality Grading Program. □

# Blueberry Insect Management Update

Sridhar Polavarapu, Ph.D., Entomology and IPM

✓ **Blueberry maggot (BBM):** Adult catches have remained very low in all monitored commercial fields in Burlington and Atlantic Counties. However, trap catches are increasing in the abandoned fields in Burlington County. Adults emerging from abandoned sites may move into commercial fields throughout July and early August. To completely protect fruit from BBM infestations, insecticide treatments are required at 10 day intervals beginning the first week of July through harvest. The egg laying period of this insect is well underway now. The choice of insecticides depends on levels of infestations of other pests. If leafrollers are also a concern, you may apply Imidan 50WP or Lannate LV for maggot control. If scarab beetles, especially Japanese beetles and Asiatic garden beetles are present in significant numbers, then use Sevin 50WP or Sevin 4F for BBM control. Insecticides such as Guthion or Diazinon will also provide effective control of BBM, but they have longer Pre-harvest intervals (7 days) than either Malathion (1 day) or Sevin (0 day), or Imidan and Lannate (3 days).

✓ **Redbanded leafroller (RBLR):** Pheromone trap catches have been higher this year than in previous years in both Atlantic and Burlington Counties. In most locations we are either very close to the peak or have just passed the peak. Eggs will begin to hatch this week onwards. Fields should be monitored very closely for larvae, especially near the field edge. RBLR larvae in this generation can feed on leaves as well as fruit.

✓ **Scarab beetles:** Adults of **Asiatic garden beetles (AGB)** and **Japanese beetles (JB)** have been seen feeding on fruit and foliage in a few Atlantic County fields. Unlike the adults of Oriental beetle, adults of these two species can cause severe damage to fruit and foliage.

The adults of AGB are dull chestnut brown and about 1/2 inch long. Adults are most abundant between late June to early August. Adults lay eggs in clusters of 10-15 eggs, close to the soil surface mostly in uncultivated weedy areas. Each female deposits up to 60 eggs. Eggs hatch in about 10 days and grubs pass through 3 instars by October. Egg laying and hatching occurs over a 4-6 week period in July and early August. The AGB has a 1-year life-cycle in New Jersey.

Insecticide treatments targeting beetles may provide some control of adults and also reduce subsequent grub populations. The adults hide in the ground during the day and mostly feed during late evening hours. Growers who have a serious problem with beetles should apply Sevin 50WP at 3 lb/acre or Sevin 4F at 3-4 pt/acre for adult control. Insecticides should be applied during late evening hours to coincide with adult activity. This application will also provide control of other scarab beetle species and blueberry maggot. Currently, there are no soil insecticides registered for controlling the grub stage.

Pheromone trap catches of **Oriental beetles (OB)** have been very high around the Hammonton, Indian Mills and Pemberton areas. Trap catches in several locations in Burlington County are as high as 1100 beetles per trap per week, suggesting that OB is no longer a problem only in Atlantic County. Since these traps are baited with the sex pheromone of OB, only male beetles are attracted to the traps. Trap catches are expected to reach a peak in the following 5-7 days. Insecticides targeting the beetle stage may not be very effective because of the long window of adult emergence and lack of feeding in the adult stage. □

# Benlate in U-Pick - Your Choice

*Reprinted from Healthy Fruit, a University of Massachusetts publication Vol. 4, No. 11, prepared by Jennifer Mason, Dan Cooley, Ron Prokopy and Wes Autio from data collected by New England Fruit Consultants, Polaris Orchard Management and the UMass Apple IPM Program*

An alert reader from New Hampshire recently asked me about restrictions for Benlate use in "Pick-Your-Own" plantings. I had to confess that during my winter studies of fungicide labels, I hadn't seen anything unusual in the Benlate section. Revisiting the label, I noticed at the end of the paragraph immediately under "General Information" the following statement:

"Use only in commercial or farm plantings. Not for use in home plantings nor once any commercial crop is turned into 'U-Pick,' 'Pick Your Own' or similar operation."

The key words here are "once any commercial crop is turned into U-Pick." The intent of DuPont was to eliminate applications after the general public entered a field to pick crops. Apples may be grown from the outset with the intent of having the public harvest them, and still legally be sprayed with Benlate. Benlate may be used up to 14 days before the public is to enter the planting. The 14-day preharvest interval must be observed, of course, but other than that Benlate may be used in blocks which you intend to harvest using "Pick-Your-Own."

Incidentally, for other fruit, such as strawberries or peaches, the days to harvest restrictions differ from that in apples. Strawberries have only a 1-day preharvest restriction, and peaches have 3 days. □

# California Peaches and Nectarines

*Jerome L. Frecon, Gloucester County Agricultural Agent*

I'm always impressed with the vastness of California's fruit industry, and the health, vigor, and productivity of their stone fruit orchards. I just returned from a few days of visiting fruit orchards, nurseries and packing houses in the San Joaquin Valley. While official estimates from the California Tree Fruit Agreement call for a bigger than 1995 crop of peaches and nectarines, some grower/shippers felt these estimates were too high. I saw a few big blocks that didn't have a lot of fruit due to the lack of chilling (less than 400 hours around Modesto).

This lack of chilling has greatly effected the availability of peach and nectarine trees on Lovell rootstock (and Halford). Some nurseries have no trees on Lovell and are sold out of most peaches and nectarines for 1996/97. This will definitely have an impact on the availability of trees for New Jersey growers who buy from nurseries growing trees in California. Even blocks with seedlings that did germinate were not budded because they were too far apart.

Approximately 4,000,000 almond trees were planted this spring which equates to about 35 to 40 thousand acres. The current strong demand for almonds impacts rootstock availability for peaches and nectarines. While I didn't have figures on other stone fruit for 1995/96 the California Tree Fruit Agreement lists plantings for 1994/95 at 451,100 nectarine trees, 326,800 freestone peaches, and 109,000 plums. Plum plantings were probably up in 1995/96.

The top ten nectarine varieties in order of importance were: Spring Bright, Rose Diamond, Ruby Diamond, Fire Pearl, Summer Bright, Summer Fire, June Pearl, Diamond Ray, Honey Kist. All of these varieties came from private breeding programs. Most have clingstone, very firm flesh, and superior storage and handling characteristics. Fire Pearl, Bright Pearl, and June Pearl have white flesh. A white nectarine called Artic Rose was being harvested and packed in one packing house we visited. It has exceptionally good sub acid flavor. Most of the growers planting white flesh nectarines want fruit with this sub acid and low acid flavor because it is preferred in the Far Eastern countries where white fleshed fruit brings a premium price. Artic Rose has always been rated low in my test block because of lack of size and the heavy speckling it gets on the skin which gets worse as the tree get older. Size is also a problem in California but because of the light fruit set size was good but speckling or "sugar spots" or "bumps" was severe. One large packer told me I was

wrong in rating fruit lower with these marks or spots because their presence is equated with sugar and preferred by the buyers in Taiwan. Two varieties destined to replace Artic Rose are Artic Sweet and Artic Jay because of their outstanding size and skin color. They do have less sugar spotting or bumps. Zaiger 44RB123, soon to be named, looks like an excellent choice also. Artic Glo, a beautiful nectarine in California, has lost favor because of the high acid flavor.

The top ten peach varieties planted in California 1994/95 in order of importance are: Fay Elberta; Fairtime, September Snow, Earlitreat, Snow Giant, Ryan Sun, Crimson Lady, O'Henry, August Lady, and Autumn Flame. Fairtime, Fay Elberta and O'Henry are fairly old varieties, and all of the top ten varieties except Earlitreat and Crimson Lady are fairly late after July 25 in California. Two varieties, September Snow and Snow Giant, are white fleshed. According to two of the largest nurseries, white fleshed peach tree plantings leveled off in 1995/96 because there are so many in the ground that have not yielded fruit yet.

It remains to be seen if prices will stay as strong particularly in the export market, however most growers and packers I talked to feel white peaches will continue to be a significant part of the peach and nectarine market and will garner more shelf space and create more consumption of peaches. Consumers in the US have to get used to the range of low acid to sub acid sweet flavors. Some of the exciting new varieties observed are exceptionally beautiful and can only help the peach industry.

There are many new varieties to choose from that have the high acid aromatic flavor many consumers are used to in white peaches.

I was pleased to see in a number of food stores that white fleshed peaches and nectarines were prominently and equally displayed with yellow fleshed peaches and nectarines. Ralph's, a large chain in Los Angeles, had two sizes of yellow and white peaches and one size each of white and yellow nectarines. All of the fruit had PLU stickers. However, I did see stores with less than six space slots that had no PLU stickers. (More white peaches and packing next week.) □

# Weather Summary for the Week Ending 7/1/96

Keith Arnesen, Agricultural Meteorologist

Temperatures averaged below normal. Extremes were 90 degrees at Seabrook on the 26th and 46 degrees at Newton on the 27th. Weekly rainfall averaged 1.37 inches North, 1.33 inches Central, and 1.30 inches South. The heaviest 24 hour total was 1.94 inches at Downstown on the 30th to July 1st. Estimated soil moisture, in percent of field capacity, this past week averaged 83 percent North, 77 percent Central and 61 percent South. Four inch soil temperatures averaged 67 degrees North, 66 degrees Central and 71 degrees South.

The following table contains meteorological information since the start of the growing season March first. The table is updated each Monday.

Weather Summary For The Week Ending 8 Am Monday 7/ 1/96										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.77	16.03	.64	82	51	67.	-3	862	-28	89
CANOE BROOK	2.15	20.52	4.01	84	51	69.	-2	1071	211	100
CHARLOTTEBURG	1.16	19.32	2.60	80	49	66.	-2	890	215	85
FLEMINGTON	1.78	21.46	5.67	85	50	67.	-4	992	101	100
LONG VALLEY	1.48	17.00	.11	80	50	66.	-3	885	147	97
NEWTON	.89	18.01	2.93	80	46	66.	-3	876	120	83
FREEHOLD	1.82	15.88	.40	87	51	70.	-2	1036	51	100
LONG BRANCH	.78	13.91	-1.60	87	55	70.	-2	986	72	77
NEW BRUNSWICK	.70	17.98	2.87	86	53	69.	-5	1040	-8	85
PEMBERTON	1.74	19.84	4.83	87	52	71.	-1	1242	223	100
TOMS RIVER				*** MISSING ***						
TRENTON	1.60	25.90	11.80	84	52	69.	-5	1069	-28	100
BRIDGETON				*** MISSING ***						
CAPE MAY CRT HOUSE	1.05	16.80	3.13	86	57	69.	-3	1063	71	83
DOWNSTOWN	2.04	15.49	1.55	87	52	69.	-4	1152	38	100
GLASSBORO	1.70	18.65	3.55	86	58	72.	-1	1228	135	100
HAMMONTON	1.14	15.56	.84	89	53	70.	-4	1171	84	88
POMONA	.69	15.90	2.57	88	53	69.	-3	1085	88	72
SEABROOK	1.20	18.21	4.78	90	56	72.	-1	1190	69	85
ATLANTIC CITY MARINA				*** MISSING ***						
WOODSTOWN	1.28	17.43	2.31	89	53	71.	NA	1228	NA	NA

INOCULUM FROM PAGE 1

the orchard floor during thinning may also become infected.

## ◆ Inoculum Level

Since conidia must come from previously diseased tissue, it should be evident that the amount of each of these inoculum sources was dependent on prior disease management activities. If brown rot was effectively managed last season, there should be less mummies. If blossom blight was effectively managed this past spring, then fewer blighted blossoms and twigs should be present in the orchard. And with fewer infected blossoms, there will be less opportunity for the fungus to invade twigs and branches, causing cankers.

So, if significant fruit rot occurred during the previ-

ous season, or if significant blossom blight occurred during the current season, then the inoculum level is most likely "high." But how high is high? How do we estimate the amount of brown rot inoculum in the orchard? After all, if we're going to adjust the spray program according to the combined effect of the three factors, we need to determine their level or degree of severity.

The first step in determining the inoculum level is to be able to properly identify the blighted blossoms, cankers, and mummies. In the next issue of P&PA, I'll present some information to help in this identification process. □

# Fruit IPM

Week Ending 7/05/96

Dean Polk, IPM Agent - Fruit

## ◆ Apple

✓ **Spotted tentiform leafminer (STLM):** Trap catches have peaked. Sap feeding larvae that have already hatched remain below treatment levels on most farms in southern counties. Sap feeding miners are just starting to appear in northern counties. We are using a treatment level between .5 to 1 mine per leaf (total of 1st and 2nd brood mines) for this time of year. Only 1 farm has been seen where the population has reached this level. Recommended materials are only effective if used when adults are laying eggs and sap feeding mines are present. Insecticides are not effective when used against the older tissue feeding larvae. The most effective materials include Vydate @2.5 to 3 pt/A, Lannate @1.5 pt/A, or Provado @5 to 6 oz/A. All of these materials also have leafhopper and aphid activity, and all have the potential to disrupt mite predator populations and flare mites. Lannate also controls codling moth and leafrollers.

✓ **Tufted apple budmoth (TABM):** Adult trap captures have decreased on most farms. Only a few locations show trap counts in excess of 50 to 60 moths per trap. Most insecticide treatments for the first generation are over. If well controlled, we should see very few larvae as they mature during July. Treatments during July are generally not needed, since little oviposition and hatch occurs during that month. However, this activity will start for the second brood in very late July and early August. Second brood sprays will be targeted for that time period.

✓ **Codling moth (CM):** Codling moth trap levels are below the threshold of 5 moths per trap in most southern locations. Trap counts are higher in northern counties with a number of locations with trap levels above treatment levels.

✓ **European red mites (ERM):** The small black lady beetle mite predator *Stethorus punctum* has increased in more locations in both southern and northern counties. Control has been virtually complete in several blocks in Gloucester County. This is a critical period for mite control and predator build-up. Applications of Lannate or Asana (and high rates of Carzol and Vydate) will disrupt predator increase and lead to larger mite populations. Use of these materials is strongly discouraged when predators are present or before mites have crashed for the season.

✓ **Apple maggot (AM):** Apple maggot flies are being caught in extremely low numbers in southern and northern counties. While we are on the southern end of its range and AM is usually not a problem, it deserves to be watched, especially in northern counties. There are often periods during July when general pest pressure is so

light that insecticide may not be needed. However this is often the period of greatest AM activity. Determining the need for AM sprays can be done with the help of sticky traps. We use a sticky red sphere accompanied with a synthetic apple volatile. Treatments are suggested when trap captures exceed 5 accumulated flies per trap in a 7 to 10 day period if insecticide has not been applied.

## ◆ Peach

✓ **Oriental fruit moth (OFM):** The second OFM flight is peaking. Trap counts are less than 6 to 8 males per trap at many locations, but are higher on some farms, especially the Richwood area in Gloucester County. No flags have been seen on any bearing trees in commercial plantings.

✓ **Tufted apple budmoth (TABM):** Please see apple section above.

✓ **Bacterial spot:** The levels of both foliar and fruit infection have increased since last week. Infections are present in Autumn glo, Rio, Jerseyqueen, Loring, Redskin, Redcrest, Cresthaven, Redhaven, and several varieties of nectarines. Because the disease is easily found some growers have wondered about how effective our limited materials are. Remember that the weather conditions have been very favorable for disease development. Copper sprays are not systemic (but Mycoshield is). Frequent rains not only wash off freshly applied material, but cause new infections when coppers are not re-applied. While many growers have abandoned Mycoshield due to costs, some researchers feel that it is better resistance management to alternate both copper and antibiotic materials if possible. Treatments should continue until 3 to 4 weeks pre harvest. Use the maximum amounts of Tennocop (8 oz/A) where possible with decreased spray intervals. Concentrate applications will demand lower amounts of Tennocop (5 to 6 oz/A).

✓ **Brown rot:** From 1 to 1.5% brown rot is present on some farms on early varieties (Candor, Springold). Additional infections were seen this week in later varieties on pygmy fruit that had not yet dropped. Infections from these small fruit had also led to the formation of brown rot cankers in the wood which was gumming and sporulating. The combined incidence of low levels of brown rot and bacterial spot incidence in the same block is setting up the conditions for even higher disease incidence during final swell. Sulfur no longer has a place in situations such as this one. Please see last week's newsletter for other suggestions.

## ◆ Blueberry

✓ **Leafroller larvae:** While **redbanded leafroller** trap captures have remained high, they have decreased some since last week. A small amount of feeding from young larvae was seen this past week in low areas of bushes in protected areas. No economic problems are present. While most common insecticides control RBLR, the best control can often be attained if applications are made from the ground. **Obliquebanded leafroller (OBLR)** trap

counts have peaked. No larvae have been seen in the commercial fields that are scouted.

✓ **Sharpnosed leafhopper:** Adult trap captures are at similar levels as found last week. This is in line with what we expected to see based on last week's counts. Growers who are concerned with stunt disease should be treating this generation at the present time.

✓ **Blueberry Maggot:** While maggot fly adults continue to be captured, numbers are so low in commercial fields that decisions to apply insecticide specifically for BBM are marginal in many cases. We are monitoring 13 commercial farms, of which 8 farms had 0 maggot adults, and 5 farms had less than 1 fly per trap.

✓ **Oriental Beetle:** In a cooperative project with Sridhar Polavarapu we are using a new pheromone to survey for oriental beetle populations. Of the several white grub species present in blueberries, this has been the most common. Trap counts have ranged from 1 per trap in a field in Burlington County, to 1500 per trap in Atlantic County.

◆ **Insect Trap Captures**

Week Ending	5/24	5/31	6/7	6/14	6/21	6/28
<b>Tree Fruit - Southern Counties</b>						
RBLR	1.8	0.5	0.5	0.5	26.8	54.8
STLM	276	76.6	283.1	1005	1876	1734
TABM-A	21.5	29.0	76.3	75.7	59.4	37.4
CM	7.5	6.3	1.4	1.6	4.3	1.4
AM	—	—	—	—	1.0	0.0
OFM	11.9	10.7	2.7	4.5	8.4	8.0
TABM-P	48.7	70.1	78.9	68.5	46.3	30.0
LPTB	96.3	67.1	44.7	72.9	102.2	55.1
PTB	2.0	0.02	0.2	2.3	3.5	7.0

**Tree Fruit - Northern Counties**

RBLR	17.5	4.0	3.1	0.0	9.8	25.5
STLM	119	43.9	13.1	352.5	1085	932
TABM-A	3.3	10.5	12.6	26.5	32.2	25.5
CM	6.1	8.4	8.0	7.2	11.5	7.5
AM	—	—	—	—	—	.04
OFM	7.8	4.8	6.4	3.9	9.5	6.3
TABM-P	0.4	15.2	2.2	18.2	52.0	3.7
LPTB	12.4	13.3	28.4	105.8	74.8	30.4
PTB	1.9	3.2	7.0	17.0	13.2	16.3

**Blueberry - Atlantic County**

RBLR	8.6	0	0.2	27.3	178	141
OBLR	0.4	1.6	13.3	22.8	31.0	15.0
CBFW	0.5	1.5	2.4	0.7	1.2	0.02
SNLH	—	—	0.9	3.8	2.3	2.1
BBM	—	—	—	—	0.2	0.16
OB	—	—	—	—	403	831

**Burlington County**

RBLR	0.7	0.3	0.0	0.1	41.5	96
OBLR	0.1	0.6	10.3	34.1	46.5	21.4
CBFW	0.6	2.6	21.9	12.7	2.9	0.8
SNLH	—	—	0.5	2.9	7.9	7.5
BBM	—	—	—	—	0.0	0.11
OB	—	—	—	—	—	509

**Abandoned Fields (both counties)**

RBLR	0.8	0.0	0.0	3.0	38.3	70.0
OBLR	0.0	0.5	3.0	14.3	59.0	34.5
CBFW	0.0	0.3	1.5	1.0	1.7	0.0
SNLH	—	—	12	15.0	53.2	38.5
BBM	—	—	—	—	0.0	3.2

Insect key: RBLR = redbanded leafroller, STLM = spotted tentiform leafminer, TABM = tufted apple bud moth, CM = codling moth, AM = apple maggot, OFM = oriental fruit moth, LPTB = lesser peachtree borer, PTB = peachtree borer, OBLR = oblique banded leafroller, CBFW = cranberry fruitworm, SNLH = sharpnosed leafhopper, BBM = blueberry maggot, OB = oriental beetle.

Insect Degree Day Accumulations as of 6/30							
Insect	Site & County						
	Biofix Date plus Degree Days Since Biofix						
	Bridgeton Cumb.	Hammonton. Cam.	Hardingville Glou.	Richwood Glou.	Princeton Mercer	Oldwick Hunt.	Morristown Morris
OFM <sub>45</sub>	4/20 hit 200 on 5/2 hit 400 on 5/19	4/5 hit 200 on 4/27 hit 400 on 5/13	4/19 hit 200 on 5/1 hit 400 on 5/18	4/17 hit 200 on 5/1 hit 400 on 5/18	4/19 hit 200 on 5/3 hit 400 on 5/19-20	4/22 hit 200 on 5/9 hit 400 on 5/22	4/24 hit 200 on 5/14 hit 400 on 5/24
TABM <sub>45</sub>	5/4 - 1241 hit 490 on 6/4 hit 625 on 6/9 hit 763 on 6/14 hit 898 on 6/18	5/3 - 1246 hit 490 on 6/3 hit 625 on 6/9 hit 763 on 6/14 hit 898 on 6/18	5/2 - 1268 hit 490 on 6/2 hit 625 on 6/8 hit 763 on 6/13 hit 898 on 6/17	5/2 - 1270 hit 490 on 6/3 hit 625 on 6/8 hit 763 on 6/13 hit 898 on 6/17	5/13 - 1102 hit 490 on 6/9 hit 625 on 6/13 hit 763 on 6/18 hit 898 on 6/23	5/20 - 987 hit 490 on 6/12 hit 625 on 6/16 hit 763 on 6/22 hit 898 on 6/27	5/23 - 873 hit 490 on 6/15 hit 625 on 6/20 hit 763 on 6/26 hit 898 on 7/1
CM <sub>50</sub>	5/8 - 932 hit 250 on 5/28	5/8 - 927 hit 250 on 5/28	5/8 - 935 hit 250 on 5/28	5/8 - 936 hit 250 on 5/28	5/11 - 893 hit 250 on 5/31	5/20 - 778 hit 250 on 6/7	5/20 - 756 hit 250 on 6/7

All reported accumulations based on Skybit Inc. data with some ground verification. OFM base = 45, max = 90, TABM base = 45, max = 91, CM base = 50, max = 88.

Spray targets based on: OFM: 200 °D after biofix and again 200 °D later (first generation only)  
 TABM: (A.M. sprays) 490, 625, 763, 898 - 1st gen. and 2228, 2415, 2605, 2795 °D after biofix - 2nd gen.  
 CM: 250 °D after biofix and again 2 - 3 weeks later; 2nd generation at 1250 - 1300 °D after biofix + another spray 14 to 21 days later.

Rutgers Cooperative Extension - NJAES  
U.S. DEPARTMENT OF AGRICULTURE  
Rutgers - The State University of New Jersey  
P.O. Box 231  
Cook College  
New Brunswick, N.J. 08903-0231

## PLANT & PEST ADVISORY

### FRUIT EDITION - CONTRIBUTORS

#### RCE Specialists

Robert Belding, Ph.D., Pomology  
Joseph A. Fiola, Ph.D., Small Fruit & Viticulture  
Norman Lalancette, Ph.D., Plant Pathology  
Bradley A. Majek, Ph.D., Weed Science  
Peter Oudemans, Ph.D., Plant Pathology  
Sridhar Polavarapu, Ph.D., Entomology  
Peter W. Shearer, Ph.D., Entomology  
Craig A. Storlie, Ph.D. Agricultural Engineering

#### NJAES/Cook College

Joseph Goffreda, Ph.D., Breeding  
Edward Durner, Ph.D., Plant Physiology  
RCE County Agricultural Agents and Program Associates  
Gloucester, Jerome L. Frecon (609-863-0110)  
Hunterdon, Winfred P. Cowgill, Jr. (908-788-1338)  
Morris, Peter J. Nitzsche (201-285-8300)  
Warren, William H. Tietjen (908-475-6505)  
Cream Ridge, Dean Polk (609-758-7311)  
    Ken Petersen, Program Associate (908-788-1338)  
    Gene Rizio, Program Associate (609-784-1001)  
    David Schmitt, Program Associate (609-863-0110)

#### Newsletter Production

Jack Rabin, Assistant Director, NJAES  
Cindy Rovins, Editor and Designer

**Rutgers Cooperative Extension provides information and educational services to all people without regard to sex, race, color, national origin, disability or handicap or age. Rutgers Cooperative Extension is an Equal Opportunity Employer.**

**Pesticide User Responsibility:** Use pesticides safely and follow instructions on labels. The user is responsible for the proper use of pesticides, residues on crops, storage and disposal, as well as damages caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact Rutgers Cooperative Extension of your County.

**Use of Trade Names:** Trade names are used in this publication with the understanding that no discrimination is intended and no endorsement is implied. In some instances the compound may be sold under different trade names, which may vary as to label clearances.