RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

FRUIT EDITION $1.50 JULY 28, 1998

INSIDE

Maximize Your Brown Rot Control

Norman Lalancette, Ph.D., Tree Fruit Pathology

There are currently no fungicides registered for postharvest application to control brown rot. Thus, proper preharvest disease management during the 14-21 day ripening period before harvest is critical for limiting postharvest disease development.

In most cases, a total of two to three fungicide sprays are applied at 7- to 10-day intervals before harvest. Although all three sprays, along with the initial inoculum level and frequency of wetting periods determine the degree of infection, the final spray has the greatest impact on postharvest brown rot control.

Here are some "Do's and Don'ts" concerning the last preharvest fungicide spray:

(1) Don't use captan. The surface residue which provides fungicidal control will be eroded when the fruit pass through the hydrocooler, thereby reducing efficacy during storage and packing. Captan, however, is useful for one of the first two preharvest sprays as a mechanism for resistance management, given light infection pressure.

(2) Don't use benzimidazole-captan mixtures. Again, the captan residue will be eroded, leaving behind the systemic benzimidazole (Benlate or Topsin-M) in the fruit. At first this outcome sounds OK, but resistant strains may be present and all control lost. Also, the benzimidazole is used at a reduced rate in the mixture, so it's solo efficacy is limited. Finally, Benlate has a 3-day PHI, which limits closeness of the final spray to harvest.

(3) Don't use Nova, as this fungicide is not as effective against fruit rot as the other sterol inhibiting (SI) fungicides. Nova is best used for blossom blight and rusty spot/powdery mildew control earlier in the season.

(4) Do apply the SI fungicides Indar, Orbit, or Elite. Indar has long residual activity at low rates, Orbit is absorbed quickly into the fruit, and Elite has good broad-spectrum fruit rot activity. At its higher rate, Elite will control Rhizopus and gray mold rots, as well as brown rot. Also, being systemic, Orbit and Elite are less prone to hydrocooler wash-off.

(5) Do apply the final preharvest spray as close to harvest as possible. The three SI fungicides mentioned above all have 0 PHI's. Indar and Elite have REI's of 12 hours, while Orbit's REI is 24 hours.

(6) Do use a spreader-sticker when applying Indar to assure

SEE BROWN ROT ON PAGE 2

Leaf Analysis: Nutritional Guideline for Fertilizers

The following timely article was reprinted from Penn State Fruit Times Newsletter, Vol. 17, No. 11, July 14, 1998

The objective of any fruit grower is to maximize yield at a minimum of expense. In order to have top yields the trees must be maintained in a healthy state. A healthy tree is free from insects and diseases and has a balance between good vegetative vigor and reproductive growth. Many growers think that fruit trees only need nitrogen to satisfy the plant. When trees are a little weak or showing poor growth their solution is to dump some nitrogen on the trees. However, plants actually need 16 different nutrients for proper growth and fruiting. Carbon, hydrogen, oxygen, nitrogen and potassium are needed in the greatest amounts. Calcium, magnesium, and phosphorus are needed in slightly less amounts and boron, copper, manganese, zinc, iron, molybdenum and sulfur are needed in the smallest quantities.

Environmental as well as physical factors can influence uptake of these elements. Factors such as temperature, relative humidity, light intensity, soil pH, soil type, and soil moisture all impact nutrient uptake. The quantity of uptake depends upon the size of the crop and the type of fruit. While there are established optimum concentrations for all the nutrients in a plant, too much of a nutrient in most cases can be just as bad as too little. Often excesses can actually induce deficiency of other elements due to competition.

Correcting nutrient deficiencies often cannot be done very quickly. The nutrients must be dissolved in the soil solution, moved to the plant roots, and taken up into the plant. With nitrogen, for example, a complex change of nitrogen to a form that can be absorbed by plants must occur. Applications of phosphorus fertilizers often take time to show results because phosphorus is readily absorbed in the soil and made unavailable to the plants. Movement down through the soil to where the roots are located can take time as well.

All these factors make it important to follow the nutrient status of your trees on some regular basis. Leaf analysis is a useful tool in charting your orchard's nutritional status. Leaf analysis gives a better representation of orchard nutrition status than soil tests because a representative sample is easier to obtain. Leaf tests also allow you to determine what the trees are actually absorbing.

Mid-July to mid-August is the time in the growing season to collect leaf samples for tree fruit. At this time of year the nutrient levels are the most stable within the plant. Through years of testing, we also have established reference values for leaves collected at this time of year. We can compare your results to determine if everything is in order.

There are a few steps you should follow when collecting leaf samples:

1. Sample each variety separately. Trees should be the same age and preferably on the same rootstock.

2. Select leaves midway on the shoot of current season's growth. Avoid obviously damaged or distorted leaves. (Unless you sample those leaves to determine specifically if they have a nutritional problem.)

3. Collect sample as long as possible when walking through a block from which you are collecting leaves. Avoid collecting samples from trees on the outside rows of a block.

5. Whatever service you use, make sure you completely fill out the informational card that is to accompany the sample.

In order for leaf analysis to be of value, you must establish a regular pattern of sampling your orchards. A three year rotation will allow you to chart changes that occur over time and help prevent major swings in nutritional levels of your trees. Once you obtain your results, you need to adjust your fertilizer practices to achieve a balanced fertility program that maximizes plant health.

Submitted by Jerome L. Frecon, Agricultural Agent ❑

Brown Rot from page 1

uniform coverage. Indar has some systemic movement but is mainly a protectant and therefore subject to wash-off. However, unlike captan, Indar is effective at very low concentrations, so control is better after the hydrocooler.

(7) Don't spray alternate middles, as 100% fruit coverage is critical just prior to harvesting.

(8) Do spray as high a volume as feasible, again to achieve maximum coverage. A volume of 100 gpa is a good compromise between concentrate and dilute applications.

(9) Do consider spraying between harvest pickings if an extended period of time (> 7 days) has past since the last spray. Of course, follow label application and re-entry interval restrictions.

(10) Do tell pickers to avoid handling rotted, sporulating fruit. If a worker's hands become contaminated with spores, many fruit subsequently handled will be inoculated. ❑

Fruit Prices and Movement

Jerome L. Frecon, Agricultural Agent

The demand for peaches on July 27th is moderate with the market steady according to the *Fruit and Vegetable Market News, Federal State Market News Service of the United States Department of Agriculture.* Prices have generally been good with some recent downward adjustments in the market the last few days. Prices range from $6.00 per 1/2 bushel box of 2 1/4 inch and up yellow fleshed peaches to as high as $14.00 for 2 3/4 inch and up yellow fleshed peaches. As in recent years large fruit is in greater demand and brings a better price. Prices for nectarines and white fleshed peaches are slightly higher. All prices quoted are from the point of first sale on or off the farm. This is why prices are always shown as a range. In spite of being two weeks earlier in New Jersey, prices historically seem to bottom out at the tail end of Redhaven and into Loring season. This is generally because supplies from the west and southeast are usually quite heavy during this time period. However, tracking movement from major areas seems to contradict this theory in 1998.

The following is movement in 10,000 pound units as of July 27th 1998:

Shipping area	**'98 movement to date**	**'97 movement to date**	**Total 1997 movement**
New Jersey			
Peaches	963	148	3963
Nectarines	77	0	232
California (San Joaquin Valley District)			
Peaches	23397	33022	47317
Nectarines	22146	35347	49566
South Carolina			
Peaches	2460	5455	7044
Appalachia			
Peaches	374	2	1917
Nectarines	27	0	221
Georgia (July 20th is most recent data)			
Peaches	2256	6021	NA

What do these figures tell us to date? New Jersey and Appalachia are significantly early. My estimate is still two weeks. If our crop, according to the USDA, is 5250 units then we have already shipped almost 20%. Last year we had shipped 4% as of this date.

While we received reports from South Carolina and Georgia that their crop was also early, it is either not early, or it is significantly lighter that 1997's crop. Both states have shipped 50 to 60% less as of this date than they did in 1997. Shipments were so light from Georgia this week, no data was available.

The big question mark is California. According to information received early in the season California harvest was running about 10 days late. The figures show that California is currently shipping about 44% less as of this date than they did last year. It is safe to say that a significant volume of California fruit will be shipped during the month of August. What impact this has on New Jersey is an unanswered question. I believe they will not have the volume of peaches and nectarines they had in 1997 but it is difficult to estimate.

Strawberry Plasticulture

Pete Probasco, Salem County Agricultural Agent

Strawberry tips need to be ordered this month if you want to plant after Labor Day in September. Growers in the South Jersey area should have their strawberries planted on plastic the week of September 7th. North Jersey should plant earlier. A two week delay in planting can result in 5,000 less pounds/acre the following spring.

We finished our research study on bed height and saw a marked increase in yields when beds were increased to 8 inches. It didn't seem to matter if you used clear or black plastic on strawberries. The highest yields of 23,256 lbs./A occurred on eight inch high beds of black plastic. All our plots were planted on 5 1/2 foot centers of 5 foot plastic with the plants spaced 12 inches down the row and the rows 18 inches apart. This extra spacing between the rows not only improves fruit size but also decreases the gray mold since the plants dry out faster after a rain. Growers should make plans now for the coming year so the plant orders can be ready for August shipment. We will need more early berries like Sweet Charlie and Seneca in the future to meet the demand. Chandler and Camarosa are later and may yield more per acre. ❑

There has been some recent press about the low prices blueberry growers have been receiving. Many growers received prices below the cost of production in 1998. Like peaches, blueberries were being harvested about 2 weeks earlier than normal. There is more blueberry acreage and shipment information from New Jersey. As of July 27th, New Jersey blueberry shippers already shipped 2760 10,000 pound units compared to 2212 units in 1997. This represents a 20% increase in fresh shipments over 1997, with an even greater increase at the end of the season (not including the amount of berries diverted to the processing market). ❑

Fruit IPM

Dean Polk, Agricultural Agent

Peach

Thrips: Much of our early thrips activity has subsided, however some activity is still being observed on preharvest fruit. Postharvest field samples are showing 1 to 3+% damage from late season silvering. Earlier recommendations of Lannate for preharvest control should still be followed if thrips are a problem.

Oriental Fruit Moth: Many OFM were in the pupal stage as of late last week, with adults starting to emerge. Adults continue to emerge as trap counts increase for the next generation. If growers have been stretching sprays, insecticide treatments should be applied this week on late varieties.

European Red Mite (ERM): Mites continue to be problematic in many blocks (over 30 mites/leaf in Atlantic Co. and over 40 mites/leaf in Gloucester Co.). While the Apollo label calls for 2 to 8 oz/A, traditional 4 oz rates have not been satisfactory at some locations. Remember that Apollo has a 21 day PHI. Therefore, if blocks still have high mite populations after a 4 oz application, use of additional applications and/or higher rates is only justified if the crop will be harvested by the third week of August or later.

Tufted Apple Budmoth (TABM): The first of 4 alternate middle sprays for the second generation are due in southern counties by early this week and again late next week. Lannate or Lannate based spray combinations are suggested, applied at close to 100 gpa. Experience has shown that pyrethroids also do an excellent job and with fewer applications. However, if mites continue to be a problem, use of pyrethroids may make the problem worse.

Bacterial Spot: Late infections are just now starting to show up as spots and the start of broken skin on fruit being harvested. These infections occurred about 3+ weeks ago. Copper sprays should be continued on the latest varieties only. Because bacterial spot takes 3 weeks to become visible on the fruit, sprays do not need to be applied within the last 3 weeks before picking.

Rhizopus Rot: Harvest samples are showing 1-2% rhizopus rot. Since this is also a postharvest disease, measures should be taken to control rhizopus if it is a problem or potential problem. Elite has been shown to have good activity against rhizopus in Rutgers tests. While the label rate is 4 to 8 oz/A, a 6 oz rate should be used for both brown rot and rhizopus control. Allisan (Botran) has a post harvest label, and may be applied on the packing line.

Apple

Tufted Apple Budmoth (TABM): See the peach section for the timing of standard OP and Carbamate insecticides. Any growers wishing to use Confirm should observe the following:

The time to apply Confirm insecticide for the summer generation of tufted apple budmoth is rapidly approaching. Confirm should be applied at 20-30% egg hatch (2350-2450 degree days after biofix) followed by a second application at 60-70% egg hatch (2670-2740 degree days)

As of July 26, tufted apple budmoth is at 2210 degree days from biofix for the Bridgeton, Hammonton and Hardingville monitoring sites. Weather projections indicate the time for the first Confirm application will be from 7/30-8/3. The section 18 Confirm label limits applications to Atlantic, Burlington, Camden, Cumberland, Gloucester and Salem counties. The use rate range for Confirm 2F Insecticide is 12-18 ounces of product. The higher rate is recommended for apples grown for fresh fruit or large trees or in orchards with heavy TABM pressure.

Spotted Tentiform Leafminer (STLM): Some blocks have very high mine counts (in leaves). Continued sprays that target the high trap counts of adults are not justified, especially since the count of new sap feeding miners has decreased over the last week.

Codling Moth (CM): While second generation treatments have already been applied, trap counts have increased this past week at a number of locations. This increased flight is well over our 5 moth per trap treat-

See IPM on page 5

Degree Day Accumulations Since Biofix and Spray Targets

July 27

Insect	Hammonton	Bridgeton	Hardingville	CreamRidge	Princeton	Oldwick	Pittstown	Hackettstown
OFM	Done	Done	Done	Done	Done	Done	Done	Done
TABM	2243	2231	2263	2123	2104	2068	1854	1734
CM	1742	1777	1791	1698	1667	1631	——	1420

Spray Targets:

OFM 200 & 400 DD_{45} after biofix (1st generation).

TABM 490, 625, 763, 898 DD_{45} after biofix (1st generation). 2228, 2415, 2605, 2795 DD_{45} after biofix (2nd generation).

CM 250 DD_{50} after biofix plus 14 days later (1st generation). 1250-1300 DD_{50} after biofix plus 14 days later (2nd generation).

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ment threshold on some farms. Treatments are suggested on a 7 day alternate middle program of full cover (10-14 day) if counts are high. Remember to check spray penetration and sprayer calibration, especially on large thick trees. Increased pest pressure can be aggravated by poor spray coverage, which permits pests to build up in trees and yield heavier populations near the end of the season.

Disease Control: Wetting periods producing scab and fire blight infections are predicted to occur in southern counties starting Thursday through the weekend. Wetting periods are expected in northern counties on Thursday and Friday.

Blueberry

Aphids: Aphids continue their presence in many fields. About 75% of our samples showed aphid activity, with just over 6% of shoots being infested per sample site. Thus, while aphids are present on most farms, infestation levels are fairly low. Two exceptions were noted with up to 50% shoot infestation levels.

Blueberry Maggot: Adult flies continue to be captured, although average trap catch has decreased over the last week. Pest pressure is still potentially high, since traps in abandoned fields continue to show over 150 flies per trap.

Disease Levels: Field samples have shown 43% of all samples with some level of anthracnose and 21% of all samples with some level of alternaria.

Trap Captures

Tree Fruit – South Jersey

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-P	LPTB	PTB
5-Jun	0.20	875	58.49	5.51	0.25	8.75	84.20	55.87	2.62
12-Jun	6.80	850	59.83	2.83	0.08	5.31	67.72	62.29	1.13
19-Jun	12.20	931	27.52	1.77	0.24	7.64	36.90	44.50	1.68
26-Jun	27.80	1054	38.62	1.96	0.28	11.81	52.12	54.37	7.70
3-Jul	19.60	943	25.26	1.52	0.05	8.55	30.91	40.69	8.57
10-Jul	4.28	782.48	10.14	1.33	0.03	6.18	12.58	26.81	2.62
17-Jul	1.20	771.58	15.85	3.55	0.16	8.45	33.79	23.02	2.84
24-Jul	2.80	974.89	15.56	4.31	0.43	17.16	23.06	16.21	3.05

Tree Fruit – North Jersey

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-P	LPTB	PTB
5-Jun	0.30	658	42.30	10.09		8.49	33.14	53.26	0.00
12-Jun	0.61	429	23.05	2.65		1.87	21.15	2.53	0.00
19-Jun	5.71	1210	27.15	4.75		4.65	22.48	25.88	0.27
26-Jun	21.54	1162	20.07	7.38		8.59	17.41	38.72	2.04
3-Jul	36.41	844	15.20	4.98	0.10	8.05	13.81	25.11	3.77
10-Jul	20.19	649	3.31	1.79	0.32	4.66	4.91	23.88	5.03
17-Jul	9.35	569.54	2.63	1.81	0.11	3.32	1.26	20.29	2.36
24-Jul	7.89	840.20	2.08	4.14	2.75	8.74	2.00	22.22	3.21

Blueberry - Atlantic Co.

WEEK END:	RBLR	OBLR	CBFW	SNLH	BBM/HIGH	BBM/LOW
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
6/26	36.04	1.34	0.04	0.004	0.67	0.30
7/3	20.79	1.0	0.03	0.02	0.34	0.22
7/10	7.4	0.42	0	0	0.33	0.15
7/17	2.79	1.88	0	0.01	0.25	0.12
7/24	13.13	1.87	0	0.01	0.76	0.56

Blueberry - Burlington Co.

WEEK END:	RBLR	OBLR	CBFW	SNLH	BBM/HIGH	BBM/LOW
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
6/26	40.78	4.19	0.56	0.5	0.2	0.17
7/3	23.61	1.31	0.44	0.06	0.35	0.06
7/10	6.6	0.2	0	0.03	0.5	0.12
7/17	2	0.28	0.06	0.06	0.47	0.18
7/24	1.06	2.44	0.22	0.02	0.14	0.06

Meeting Calendar

August 4, 1998 - Deer Fencing Installation Seminar, Rutgers Snyder Research Farm, Pittstown, NJ. Call Snyder Farm at (908) 730-9419, ext. 11 to register.

August 5, 1998 - Deer Fencing Installation Seminar, Rutgers Agricultural Research & Development Center, Bridgeton, NJ. To register, call Rutgers Snyder Research Farm at (9087) 730-9419, ext. 11.

August 18, 1998, 6:30 p.m. - Direct Marketing Twilight Meeting, Monmouth County, Atlantic Farms, 1506 Atlantic Avenue, Wall Township (Rt. 524), NJ 08736. Contact Ramu Govindasamy at (732) 932-9171 ext. 25.

New Jersey Peach Festival

Jerome L. Frecon, Agricultural Agent

Over 100 entries were entered in the Commercial Peach Pack Competition in 1998. Since our season continues to run weeks early, most growers in southern New Jersey had peaches.

Over 20,000 people saw the exhibition of peaches on display at the 3 1/2 day event n Mullica Hill. In addition to the displays in the main peach tent, other educational exhibits on display included: peach promotional literature on peach research program; extension fruit program; peach varieties and testing; integrated pest management on peaches; and a general farming display and a large supermarket display of the best peach varieties.

Peach cobbler and peach ice cream were sold in the main display tent where a growers' reception was held. An antique peach truck and the New Jersey Peach Truck were also on display.

One of the major events of the Festival is the Peach Queen Contest. The 1998 Peach Queen was Nicole Golas of Wenonah. A peach parade was held on Sunday morning for children under 5 years of age. A little Miss Peach Blossom and Little Master Peach Blossom were selected.

Many of you donated 25 or more boxes of peaches and nectarines that were sold to the public in the peach sales tent. A wide variety of peach clothing and peach crafts were also sold in the tent. Literature on where to by New Jersey Peaches after the Festival were given out at the sales tent.

All proceeds of the Festival are used to promote New Jersey Peaches under the director of the New Jersey Peach Promotion Council.

J. Richard Mood, of Mullica Hill, was the winner of the Governor's Cup for his 2 1/4 inch in diameter and up box of Topaz peaches, displayed under the Jersey Fruit label and selected at the Eastern ProPak Packing House. This box also had the highest score in the exhibit at 96 points. This was higher than the hand-selected boxes in the Select Category. The winners are as follows:

Commercial Category - Boxes of peaches selected at random by me or a designee

1. 1st Place - 2 1/4 inch in diameter - J Richard Moods Farm Market and Orchard, Mullica Hill. (Best of Category)
2nd Place - 2 1/4 inch in diameter - Lucy Grasso Farms, Mullica Hill, NJ
3rd Place - 2 1/4 inch in diameter - Holtzhauser Farms (Jersey Fruit) Mullica Hill, NJ
2. 1st Place - 2 1/2 inch in diameter - JerZee Orchards, Glassboro, NJ
2nd Place - 2 1/2 inch in diameter - Holtzhauser Farms (Jersey Fruit) Mullica Hill, NJ
3rd Place - 2 1/2 inch in diameter - Donio Farms (Top Crop) Hammonton, NJ
3. 1st Place - 2 3/4 inch in diameter - Holtzhauser Farms (Jersey Fruit) Mullica Hill, NJ
2nd Place - 2 3/4 inch in diameter - JerZee Orchards, Glassboro, NJ
3rd Place - 2 3/4 inch in diameter - Wm. Schober Sons, Monroeville, NJ

Select Category - Boxes of peaches in this category represent hand-selected fruit for the exhibit.

1. 2 1/4 inch in diameter - Select
1st Place - A. L. Gaventa & Sons (Jersey Fruit) Swedesboro, N.J. (Best of category)
2nd Place - JerZee Orchards, Glassboro, N.J.
3rd Place - Donio Farms (Top Crop) Hammonton, N.J.

2. 2 1/2 inch in diameter peaches
1st Place - Fred Smith Orchards, Sewell, NJ
2nd Place - Zee Orchards, Glassboro, NJ
3rd Place - JerZee Orchards, Glassboro, NJ

3. 2 3/4 inch in diameter peaches
1st Place - Holtzhauser Farms (Jersey Fruit) Mullica Hill, NJ
2nd Place - JerZee Orchards, Glassboro, NJ
3rd Place - Donio Farms (Top Crop) Hammonton, NJ

Specialty Peaches Category - This category represents white fleshed peaches and nectarines plus the largest peaches. Fruit could be hand-selected or commercially packed

1. Nectarines
1st Place - Zee Orchards, Glassboro, NJ
2nd Place - JerZee Orchards, Glassboro, NJ
3rd Place - DeCou Hilltop Orchards (Jersey Fruit) Shiloh, NJ

2. White Fleshed Peaches
1st Place - Summit City Farms (Jersey Fruit) Glassboro, NJ (Best of Category)
2nd Place - Circle M Farms, Mullica Hill, NJ
3rd Place - Damminger Farms, Richwood, NJ

3. Largest Peach
1st Place - Tri Star Farms, Blue Anchor, NJ
2nd Place - J. Richard Mood's Orchards, Mullica Hill, NJ
3rd Place - Mt. Pleasant Orchards, Richwood, NJ

Update On Rovral Label

Norman Lalancette, Ph.D., Tree Fruit Pathology

The "Pre- and Postharvest Handling of Peaches" article in last week's Fruit Edition of the Plant & Pest Advisory Newsletter (21 July) incorrectly states that Rovral has a 7-day preharvest interval for peach. The current label for peach allows Rovral application "up to but not after petal fall", with a maximum of three applications per season. Thus, on peach, Rovral is limited to blossom blight, shot-hole, and scab control.

In contrast, Rovral can still be applied up to 7-days before harvest on apricots, cherries, nectarines, plums, and prunes. On these crops, a maximum of four applications per season is allowed.

The other dicarboximide fungicide labeled on stone fruit, Ronilan, can still be applied preharvest to peach, as well as nectarines, apricots, and cherries. However, only one application at this time is allowed and must be applied no later than 14-days of harvest. Thus, Ronilan is limited to the first preharvest application. ❑

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