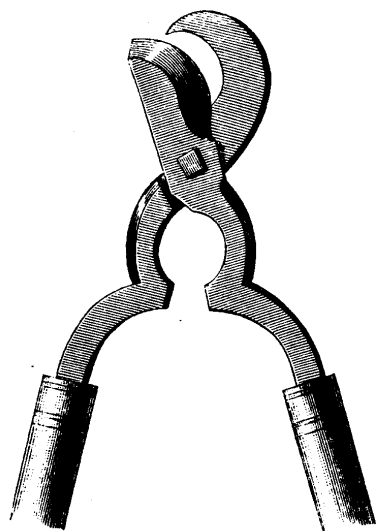


PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

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Critical Fire Blight Management

Norman Lalancette, Ph.D., Tree Fruit Pathology

Apple shoots killed by the **fire blight** pathogen *Erwinia amylovora* have been observed in a number of commercial orchards. Some of these cankers were the result of infection following recent hail injury, while others resulted from earlier blossom infections. Regardless of the mode of infection, it is absolutely critical that these shoots be removed from the orchard. They are the source of inoculum for additional fire blight infection and also serve as colonization sites for those fungi causing **bitter rot, black rot, and white rot.**

Blighted shoots on apple and pear can be identified by the characteristic shepherd's crook located at the end of the shoot. Leaves remain attached to the branches and are light-to-dark brown on apple and dark brown to black on pear. The leaf petioles and stems often turn dark purple to black. Bacterial ooze might be observed along the stems.

The best time to prune infected shoots is during dry weather so the wounds have time to dry out. Cut shoots at least 8" below the margin of the visible canker. All pruning tools must be disinfected between each and every cut using a 70% denatured alcohol solution or 10% solution of ordinary laundry chlorine bleach. The bleach is best, but because it is quite corrosive, all tools should be rinsed, dried, and oiled at the end of the day. Failure to disinfect tools between cuts could result in creating and spreading more canker in the orchard.

After pruning out blighted shoots, apple blocks should be sprayed with streptomycin (Agri-mycin 17) in conjunction with the next rain period. Sprays should preferably be applied just prior to the rain event, but no later than 24-hours afterward. Pear blocks should be treated similarly, applying either streptomycin or terramycin (Mycoshield). Note that terramycin injures some pears, especially Asian pears, so use this product with care. Application rates and procedures are listed in the *1999 NJ Commercial Tree Fruit Production Guide*; and, as always, follow label directions.

One final comment: spraying without pruning does not solve the problem! The antibiotics only prevent infection and will not affect the already blighted, colonized tissue. Prune out these shoots now and you'll not only reduce the infection potential this year, but also enjoy a healthier orchard in the next millennium. □

Sweet Cherries in North Jersey

Win Cowgill, Agricultural Agent and Jeremy Compton, Plant and Soils Science Technician

It looked like another early spring this year until the accumulation of heat units slowed through April and May. Bloom occurred close to normal. Above normal temperatures advanced sweet cherry maturity by one week.

At the Rutgers Snyder Research and Extension Farm we have established several trials of sweet cherry. The focus is to evaluate sweet cherries as an add-on crop for retail market oriented growers and PYO operations. To this end we are evaluating the new dwarfing cherry rootstocks under New Jersey conditions. We have combined the rootstock trials with both sweet and tart cherry cultivar plantings for evaluation under Northern New Jersey growing conditions.

Our sweet cherry harvest at the Rutgers Snyder Farm near Pittstown in Hunterdon County will be completed by the end of the week. We are into the fourth week of cherry harvest, with dark-fleshed varieties such as Hedelfingen, Lapins and Somerset. The light cultivar, Royal Anne/Napoleon will be harvested within the week.

For us this has been an excellent year for sweet cherries. The dry weather has allowed us to harvest the bulk of the crop with no fruit cracking, the bane of sweet cherry production. Good pollination weather and regular irrigation with drip have resulted in an excellent crop that has sized well for East Coast cherries.

The predominant Tart Cherry cultivar planted in the Northeast, Montmorency, will be maturing in approximately one week in Pittstown. We are evaluating several other tarts but they will not bear until 2000.

SEE CHERRIES ON PAGE 4

Oriental Fruit Moth Mating Disruption

Peter W. Shearer, Ph.D., Tree Fruit Entomology

Mating disruption of **Oriental fruit moth (OFM)** has been successfully used around the world in major peach production areas including New Jersey. The method used for mating disruption is to permeate the orchard with large quantities of synthetic female sex-pheromone to prevent or delay mating of target insects. The overall intent is to manage **OFM** while reducing or eliminating insecticide sprays.

There are several theories as to why mating disruption works. When an orchard is permeated with pheromone, male moths may have their central or peripheral nervous systems disrupted, thus negatively impacting behavior. Likewise, male **OFM** may follow the wrong scent trail by mistaking a synthetic pheromone plume for a female **OFM** plume. High concentrations of synthetic pheromone may also mask individual **OFM** pheromone plumes making it difficult for male **OFM** to find females.

One consistent occurrence in **OFM** mating disruption blocks is upon microscopic examination of trapped female **OFM** moths, it is revealed that frequently these females have mated and laid eggs. This is puzzling because the proper use of mating disruption prevents fruit damage. Several new studies may explain this discrepancy. These studies have demonstrated that delays in female mating leads to reductions in egg quantity and quality (the percentage that hatches). Essentially, if a female moth is too old when she first mates, her eggs won't hatch.

Regardless of the uncertainties of mating disruption mechanisms, mating disruption can work. The end product is clean fruit and reduced insecticide use. However, because insecticide sprays are no longer used against **OFM** in mating disruption blocks, other pests may flourish because the insecticides used against **OFM** are no longer being sprayed. Other pests to watch out for in mating disruption blocks includes **cat-facing insects**, **Obliquebanded** and **variegated leafrollers**, **tufted apple bud moth**, **Japanese** and **green June beetles**, and **scale insects**.

If **leafrollers** and **bud moth** get out of hand, they can be controlled with *Bacillus thuringensis* sprays. **Cat-facing** insects can be reduced with ground cover management, and **scales** can be treated during pre-bloom periods. However, **Japanese** and **green June beetle** control will be difficult if they are around when fruit start to ripen.

While the above pests can be problems in mating disruption blocks, it is possible that their natural enemies will become abundant as long as insecticides aren't being applied. If natural enemies do build up, then their levels should be factored into control decisions making the whole system rather complicated. Regardless, mating disruption of **OFM** is a way to reduce organophosphate insecticide use, which means less residue to be concerned with at harvest. □

Tree Fruit Perennial Weed Control

Bradley A. Majek, Ph.D., Weed Science

Established **perennial weeds** in orchards are easily evident now, when residual weed control programs have controlled the **annuals**. Control of **perennials** can be more difficult and may require special attention. Herbicide applications *must* be made at the right time of year to achieve control of the roots as well as the foliage of **perennial weeds**. Failure to apply herbicides at the right time often causes poor results. Weeds must be “actively growing” to move herbicides that are absorbed by the leaves into the roots. Do *not* treat during periods of heat, drought, or other severe stress that adversely affects growth.

Virginia Creeper can be controlled in late June to early July with 2,4-D. Before spraying, remove any **creeper** in the tree and carefully lay it in the row. Complete coverage is necessary for excellent control. Caution, 2,4-D can drift as fine spray particles or as a vapor and harm sensitive vegetable and ornamental crops in adjacent fields. Do *not* apply during periods of high wind to avoid spray drift. Do *not* apply when the temperature *or* the humidity is high and the air is dead calm to reduce the risk of vapor drift. Consult the *Commercial Tree Fruit Production Recommendations* for rates and additional information

Canada thistle can be controlled in June or early July, when in full bloom with Roundup Ultra or Touchdown 5. Broadcast 3.0 to 4.0 lb ai/a or spot treat by spraying to the point of runoff with a 2% solution in a knapsack sprayer. Treat before thistle sets seed and dies back later in July and August.

The most effective time to treat **Canada thistle** with Roundup Ultra or Touchdown is to spray fall regrowth in early October when new fall thistle growth is eight to ten inches tall, but before frost. Use the same rates recommended for the early summer treatment.

Goldenrod and white heath (wild) aster can be controlled in May or June after spring growth has reached ten to twelve inches. Broadcast Roundup Ultra or Touchdown at 2.0 to 4.0 lb ai/a or spot treat by spraying to the point of runoff with a 2% solution in a knapsack sprayer. Good coverage of the foliage is necessary for effective control. Adjust spray boom height or use a boom that leans over tall weeds at the proper height for spraying.

Poison ivy is more difficult to control than **Virginia Creeper**. The weed must be removed from the tree and kept on the ground prior to treatment. Apply Roundup Ultra or Touchdown at 4.0 lb ai/a in July or August after the weed has bloomed and has green fruit. **Poison ivy** flowers in late June or early July. Look for flowers and fruits on older mature plants that receive full or partial direct sunlight. Do *not* allow Roundup Ultra or Touchdown to contact foliage or young green bark on new fruit tree shoots. Treatments earlier in the season or after fall colors appear are less effective. □

Strawberry Weed Control

Bradley A. Majek, Ph.D., Weed Science

Apply Formula 40 seven days before mowing old leaf growth if most of the **broadleaf weeds** are taller than the crop, or tank-mix with the preemergence herbicides and apply immediately after mowing if most **broadleaf weeds** are below the crop canopy. Apply Devrinol, unless the full labeled rate for the year was applied in late fall or early spring, and Sinbar. Irrigate within 2 days if rainfall does not occur after application to make the preemergence herbicides available to the emerging weed seedlings. Delay irrigation for 12 hours if postemergence herbicide(s) are applied to allow time for penetration into the leaves, or weed control failure may result. Use care not to exceed the total recommended rate of any herbicide for an acre in one year. Consult the *Commercial Vegetable Production Recommendations* for rates and additional information. □

Fruit IPM

Dean Polk, Fruit IPM Agent

Peach

✓ **Oriental Fruit Moth (OFM):** Adult trap captures continue to increase as the second flight gets underway. Flagging from first brood larvae is common in many sprayed blocks. Fruit injury is also present in some blocks. While generally at low levels on the fruit, injury does seem to correlate to locations where resistance to organophosphates has been identified. Fruit injury also correlates with blocks that either had damage last year, or are adjacent to blocks that had damage. Where resistance is either known or suspected, growers should switch to alternative insecticides. Alternatives include Sevin, Lannate, Ambush, Pounce, and Asana (21 day PHI). If feeding signs are already present, then assume that the emerging population will create higher pressure than would normally occur. Therefore, alternate middle sprays should be either closed in to 3-4 days apart near peak flight, or full cover applications used in place of alternate middle sprays. This marks a significant turning point in our pest management programs, and means that certain growers will have to use alternatives to OP compounds sooner than we would like.

✓ **Catfacing Insects (Tarnished plant bugs, stink bugs):** Populations vary from farm to farm, but have produced some amount of new injury this past week. Insecticide is suggested if new injury counts reach close to 1% of the fruit. This is also the time of year when bleeding injury from cold temperatures during fruit set, or other physiological causes, result in a bleeding on the suture and internal gumming between the skin and the pit. In other words, not all fresh bleeding is from catfacing insects. If in doubt, cut the fruit at the point of gumming. If internal gumming exists, then don't blame the bugs.

✓ **Thrips:** While thrips can be found in the trees of some varieties, populations seem to be fairly low at this point. Only specific treatments for nectarines are suggested at this time.

✓ **Mites:** Mite populations have increased in many blocks over the last week, and so have populations of the mite predator, *Stethorus punctum*. Minute pirate bugs are also present. If mites are just starting to build and predators are present, then natural predation may very well take care of the mite population.

✓ **Rusty Spot:** No new infections were seen this past week. Therefore, treatments of Nova for this disease are no longer needed.

Apple

✓ **Tufted Apple Budmoth (TABM):** Trap counts of adult male moths are starting to decrease. We should have the end of the first flight in about 10 days

to 2 weeks. TABM treatments are still advised, since we are still seeing 1st and 2nd instar larvae.

✓ **Spotted Tentiform Leafminer (STLM):** Counts of sap feeding mines have increased slightly as adults continue to emerge and lay eggs. Counts on all farms have remained below 1 mine per leaf, and have not required treatment.

Blueberry

✓ **Aphids:** Aphid activity increased slightly since last week, but still remains at between 1 to 5% of terminals infested where present.

✓ **Plum Curculio:** Scouted injury from PC decreased some due to the picking of earlier harvesting, PC injured fruit. This is not particularly serious, since most infested fruit and larvae are blown out on the line.

✓ **Cranberry Fruitworm (CBFW):** Injury from CBFW has been seen in about 24% of samples, but at low rates of .5 to 1% of fruit clusters infested. Most injury has occurred along field edges near woods borders. All injured fruit and larvae have been blown out on the packing lines we observed.

✓ **Blueberry Maggot (BBM):** Maggot flies are being captured on commercial farms in both Burlington and Atlantic Counties. For those growers who are on a trapping program for Canadian exports, sprays should be applied within 5 days of trap capture to production areas where traps were positive.

✓ **Oriental Beetle:** The flight is very heavy at this time, but varies greatly depending on the geographic area being trapped. While some farms have very high trap counts, other farms have next to nothing. The use of Admire on a farm where almost no beetles are being trapped is obviously a waste of money. However, Admire use is strongly encouraged if beetles are present. We would encourage any grower to purchase and use these traps in order to make treatment decisions for Admire.

SEE INSECT TRAP CAPTURES ON PAGE 5

CHERRIES FROM PAGE 2

Approximate order of ripening for cultivars at the Snyder Farm

<u>Mid season:</u>	<u>Late season:</u>	<u>Very late season:</u>
Sam	Somerset	Regina
Ulster	Hedelfingen	
Stella	Lapins	
Royalton	Attika (Kordia)	
Summit	Royal Anne/Napoleon (light)	
	Montmorency (tart)	
	Galaxy (tart)	
	Lambert	

SEE CONCERNS ON PAGE 5

Insect Trap Captures

Tree Fruit - Southern Counties

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-P	LPTB	PTB
7-May	2.00	947	1.06	0.58		35.41	0.91	0.26	0
14-May	8.00	954	19.24	5.66		29.49	22.12	18.83	0
21-May	0.33	515	43.55	4.22		17.92	39.63	47.96	0
28-May	0.50	265	61.63	6.17		10.19	57.90	57.49	0
4-Jun	0.00	184	58.71	5.94		4.00	59.89	47.47	1.33
11-Jun	2.00	830	55.48	5.61		4.55	79.75	50.13	2.75
18-Jun	11.00	1458	62.94	5.79		5.37	87.58	50.17	5.33
25-Jun	20.67	1481	46.65	2.00	0.00	9.07	65.05	46.20	5.31

Tree Fruit - Northern Counties

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-P	LPTB	PTB
7-May	48.99	1062	0	0.30	0	32.51	0		
14-May	48.09	843	1.78	3.53	0	40.13	1.66		
21-May	23.51	381	6.83	3.18	0	15.90	8.47		
28-May	8.39	124	19.89	9.00	0	19.68	16.03		
4-Jun	1.64	82.39	27.05	8.92	0	24.23	30.22		
11-Jun	1.31	589	39.24	5.89	0	18.12	37.09	1.00	
18-Jun	17.50	997	54.56	5.03	0	11.05	44.57	0.44	1.54
25-Jun	36.20	974.81	33.65	2.27		6.47	24.92	0.11	1.08

Blueberries - Atlantic County

WEEK END:	RBLR	OBLR	CBFW	SNLH	BBM	OB
7-May	11.8					
14-May	20					
21-May	3.07	0.00	0.14			
28-May	4.86	4.91	0.69			
4-Jun	0.72	20.31	1.12			
11-Jun	45.79	16.93	1.50			
18-Jun	83.71	5.57	0.24	0.50	0.00	47.50
25-Jun	45.41	1.78	0.12	0.87	0.10	96.4

Burlington County

WEEK END:	RBLR	OBLR	CBFW	SNLH	BBM	OB
7-May	20.8					
14-May	20.5					
21-May	5.40	0.00	0.00			
28-May	0.33	3.00	1.25			
4-Jun	1.00	22.17	0.38			
11-Jun	6.30	16.33	3.56			
18-Jun	26.20	7.00	1.56	4.00	0.00	
25-Jun	26.40	3.71	0.33	0.89	0.03	255.3

Insect Key: RBLR-redbanded leafroller, STLM-spotted tentiform leafminer, TABM-tufted apple budmoth, CM-codling moth, LAW-lesser appleworm, AM-apple maggot, OFM-oriental fruit moth, LPTB-lesser peachtree borer, PTB-peachtree borer, OBLR-obliquebanded leafroller, CBFW-cranberry fruitworm, SNLH-sharpsnosed leafhopper, BBM-blueberry maggot, OB-oriental beetle.

CONCERNS FROM PAGE 4

Sweet Cherry Cultural Practices and Concerns

As soon as harvest is complete some cultural concerns for New Jersey cherries need to be addressed. One of the biggest obstacles to successful cherry production is the disease, Bacterial Canker. Last fall in the Plant and Pest Advisory, September 22, 1998 Vol.3 No. 25, we covered this disease in depth. That issue can be accessed online at <http://virtualorchard.net/rce/plantpest/default.html>

Bacterial Canker can be a serious bacterial disease of sweet cherry in New Jersey. **Bacterial Canker** or bacterial gummosis of sweet cherry is caused by a *Pseudomonas* bacterium. This disease infects flower buds and spurs. It can completely kill new spurs and leaves and then move into the trunk.

This topic will be covered in depth in a future issue of the Plant and Pest Advisory. However for now there are a couple of things to keep in mind. We plan on pruning our sweet cherry blocks immediately after harvest is complete. We do a complete pruning now and do no dormant pruning. We will also be applying a copper spray immediately after harvest to help reduce the bacterial inoculum. Champ Formula 2 is labeled for application on Cherry, post bloom at 1-2 pints per acre in 2-4 spray applications two weeks apart. We will also be pruning out any bacterial cankers observed. More on this later.

Finally, be sure to maintain good fungicide coverage for **Cherry Leaf Spot** control through the rest of the growing season. □

Rutgers Cooperative Extension - NJAES
U.S. DEPARTMENT OF AGRICULTURE
Rutgers - The State University of New Jersey
Plant & Pest Advisory
18 College Farm Road
Cook College
New Brunswick, N.J. 08901-8551

PLANT & PEST ADVISORY

FRUIT EDITION - CONTRIBUTORS

Rutgers Cooperative Extension Specialists

Robert Belding, Ph.D., Pomology
Joseph A. Fiola, Ph.D., Small Fruit & Viticulture
George Hamilton, Ph.D., Pest Management
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
Nicholi Vorsa, Ph.D., Breeding, Genetics and Culture

NJAES/Cook College

Joseph Goffreda, Ph.D., Breeding

Rutgers Cooperative Extension Agricultural Agents and Program Associates

Atlantic County, Gary C. Pavlis, Ph.D. (609-625-0056)
Gloucester County, Jerome L. Frecon (609-863-0110)
Hunterdon County, Winfred P. Cowgill, Jr. (908-788-1338)
Morris County, Peter J. Nitzsche (973-285-8300)
Warren County, William H. Tietjen (908-475-6505)
Fruit IPM, Dean Polk (609-758-7311)
Meredith Peters, Program Associate (908-788-1338)
Gene Rizio, Program Associate (609-566-2900)
David Schmitt, Program Associate (609-863-0110)

Newsletter Production

Jack Rabin, Assistant Director, NJAES
Cindy Rovins, Editor and Designer
Mary Ann Hughes, Assistant Editor

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