RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

FRUIT EDITION $1.50 JULY 3, 2007

A sweet cherry with bacterial canker. Photo by Win Cowgill.

INSIDE

Prune Cherries Right after Harvest

Win Cowgill, Agricultural Agent

Pruning sweet and tart cherries right after harvest helps prevent *Bacterial canker*, a serious bacterial disease of cherry in New Jersey, and all other regions where the climate is humid.

We learned from the Europeans that the first line of control for this disease is to *prune* immediately following harvest. Avoiding dormant pruning lessens the chance of infection in the pruning wounds. On infected branches, *leave stubs* of 6-8", this will prevent the canker from entering the trunk and scaffolds. The canker will not move down the stub. See the other control measures outlined below.

Bacterial canker or bacterial gummosis of sweet cherry is caused by several *Pseudomonas* bacterium. This disease infects flower buds and spurs. It can completely kill new spurs and leaves and then move into the trunk on cherry. This is especially problematic with our new Gisela Dwarf cherries as losing a scaffold or getting infection into the trunk will limit production as the tree rapidly declines.

This spring I observed a number of sweet cherry trees on Gisela stock that were infected last fall and collapsed this May after some heat and stress.

In our humid climate in New Jersey the cankers can continue to develop in lateral branches and the central leader. In some cases the cankers have grown to girdle and kill two-year wood. I have observed central leader dieback as a result. In older wood the canker looks very much like a fire blight canker in apple. In most cases the canker begins to ooze a brown to amber exudate. It appears that under our humid conditions this disease is very hard to control and can be devastating if control measures and the proper horticultural practices are not followed.

The source of inoculum may come from wild cherry trees in our hedgerows, Black Cherry, *Prunus serotina* may be one source of inoculum for the *Pseudomonas* during wind and rainstorms in the spring and summer months. Removal may be beneficial.

Overall, the best information on this disease is from a fact sheet from Ontario Canada written by W.R. Allen "Bacterial Canker of Sweet Cherry" NO. 88-0886. You can find it at:

SEE BACTERIAL CANKER OF CHERRY ON PAGE 2

English as a Second Language for New Jersey Farm Employees

The New Jersey Farm Productivity Enhancement Training Program announces another course offering for New Jersey's agricultural community. Most New Jersey farm owners employ workers who have a critical need to improve their English speaking skills.

This grant-funded class will present the basics of spoken "American" English to Spanish-speaking farm employees. The course is comprised of six (6) four-hour sessions (8:30 am - 12:30 pm) and will be held at the Cumberland County office of Rutgers Cooperative Extension in Millville, N.J. Course dates are September 11, 18, 25 and October 2, 9, and 16, 2007.

Program topics are tailored for workers in agricultural and farm-related industries. The vocabulary and phrases introduced are agricultural and will include interpersonal, day-to-day job-related communication in English. The course assumes that attendees have little or no knowledge of English and will introduce basic expressions, sounds, pronunciation and sentence structure.

Registration fee is $35 for the entire six days of training (24 hours total), course materials and breakfast at each session. To receive a Rutgers University certificate of completion participants must attend all six sessions.

For further information please contact Keith Wilson at (732) 932-9271 (ext. 617) or via e-mail at kwilson@cook.rutgers.edu.

If you'd prefer to register by mail or fax, simply download the registration form at: http://www.cookce.rutgers.edu/brochures/intros/farm.html. ❑

Bacterial Canker of Cherry from page 1

http://www.omafra.gov.on.ca/english/crops/facts/88-086.htm. It has good color plates and lists control measures, however, it appears that under our humid conditions this disease is very hard to control and can be devastating. This bacterial disease is most troublesome in young plantings where it can cause losses of up to ten percent of the trees. On mature trees it can reduce yields from 10–50%.

Control

Cankers get started mainly in the fall after most of the leaves have fallen and the trees are beginning to go dormant. The only effective way to control this disease is to reduce the number of bacteria before the trees enter their susceptible period; avoid large, dormant pruning cuts; and use summer pruning to minimize the impact of the disease. The bacteria that start these cankers are found on the surfaces of mature leaves and other green tissues, and *do not* come from existing cankers.

First, *only prune* in the summer immediately following harvest.

Second, the only successful control we have found is repeated applications of the old Bordeaux mixture in September, October, and November and repeated again in the spring. Bordeaux Mix consists of Hydrated lime and Copper Sulphate. The rates and methods of mixing are important. We began our sprays the first week in September. Note, however that sprays of Bordeaux applied to green leaves must be *saftened* with vegetable oil to avoid burning the foliage. Four additional sprays 14 days apart will be applied. Bordeaux mix will also be applied in the spring with several applications before bud break.

It would be my recommendation that in all cherry blocks a program of Bordeaux Mix applications should be made this September. Careful observation and scouting of older blocks should be done now to determine if this bacterial disease is present and control warranted. It is my observation to date that if any Bacterial Canker is observed in sweet cherry I would plan a spray program of Bordeaux mixture.

Other Coppers

In a research trial at the Rutgers Snyder Farm, *Champ Flowable* copper was also evaluated against Bordeaux mix for phytotoxicity on cherry. The oil equally saftened Champ as it did Bordeaux.

For additional information please do not hesitate to contact me at Cowgill@aesop.rutgers.edu or 908-788-1339.

Fact sheets on Bacterial Canker

There are numerous fact sheets online for Bacterial Canker; many include color photographs for reference. Below are the listings for several:

Ontario Canada written by W.R. Allen "Bacterial Canker of Sweet Cherry" NO. 88-0886.
at http://www.omafra.gov.on.ca/english/crops/facts/88-086.htm
West Virginia University
http://www.caf.wvu.edu/kearneysville/disease_descriptions/bactcank.html
Comparison of healthy trees vs. diseased trees:
http://www.caf.wvu.edu/kearneysville/disease_descriptions/disease_images/fig129c.jpg
University of California
http://www.ipm.ucdavis.edu/PMG/r105101511.html ❑

Fruit IPM

Dean Polk, Fruit IPM Agent and David Schmitt, Eugene Rizio, and Atanas Atanassov, Ph.D., Program Associates, Tree Fruit IPM

Peach

✔ **Tarnished Plant Bug (TPB) and Other Catfacing Insects:** Stinkbugs are being found in beating tray samples in only a few blocks. Overall catfacing pressure is very low on most farms.

✔ **Anthracnose:** This disease is not a regular problem, but has been seen during the past few years on Harrow Beauty, Sugar Giant, White Lady, and Klondike. It is the same disease that causes anthracnose on blueberries and bitter rot on apples. Captan and Ziram are two of the most effective anthracnose materials used on tree fruit. Gem and Pristine are slightly more effective and have shorter PHI's (than for Ziram). Since the mid-summer period just prior to ripening can be a critical period for anthracnose infection, keeping an effective material in the spray tank is recommended for at least the sensitive varieties.

✔ **Thrips:** Adult thrips were found in most weedy groundcovers and were feeding in several Easternglo blocks last week. Spintor is the most effective material for quick knockdown of thrips populations. Spintor has a 1 day PHI for nectarine and a 14 day PHI for peach. In past years thrips have been troublesome on highly colored peach varieties from early July through mid-August.

✔ **June Beetles; Japanese Beetles:** June beetles and Japanese beetles are now flying. These insects can be troublesome on ripening fruit and usually peak around Redhaven season. Sevin is the most commonly recommended material and is effective even at low rates. Since Sevin does not have a long residual and beetles may emerge over a prolonged period, re-applications may be needed as additional blocks start to ripen and attract beetles.

✔ **European Red Mites (ERM):** The first indications of mite infestation this season were seen in one orchard last week. Populations were just beginning to build and predacious mites were already present. If beneficials are present in your orchard avoid pyrethroid use. The use of Topsin should also be avoided if predacious mites are present. There are three species of predacious mites commonly found on tree fruit in the northeast: Z.mali; T. pyri and N. fallacis. N. Fallacis and T. Pyri appear almost identical. These can often be found feeding on ERM and other phytophagous mites and can be easily seen with a hand lens. A good reference for identifying these beneficials can be found at: http://www.ces.ncsu.edu/fletcher/programs/apple/entomology/insects-mites/NFfact.html

✔ **Oriental Fruit Moth (OFM):** The second brood is about 96% hatched in southern counties, and about 40% in northern counties. Degree day spray timings are past in all areas except in northern counties for the second application, see below:

OFM Treatment Timings – 2nd Generation, 2 Sprays/Generation		
	Application and Insecticide Type	
County Area	**Standard Insecticides**	**Intrepid**
Southern	1st trt past, 2nd trt past	1st trt past, 2nd trt past
Central	1st trt past, 2nd trt past	1st trt past, 2nd trt past
Northern	1st trt past, 2nd trt 7/6-8	1st trt past, 2nd trt 7/4-6

Apple

✔ **Codling Moth (CM):** The time to treat for codling moth will be on or about 7/9 in southern counties, and around mid July in northern counties. If using Intrepid, applications need to go on 1-2 days earlier than if using standard materials. Do not use trap counts as a guide for this second generation degree day timed spray. Treatments should be completed at the optimum timing with the correct rate and volume. After 2 complete CM treatments have been applied, then trap counts can be used as a guide to help determine the need for supplemental applications. Use the following chart to time applications:

Codling Moth 2nd Brood Timing		
	Application and Insecticide Type	
County Area	**Standard Insecticides – Avaunt, Neonicotinoids, Carbamates, OP's, Pyrethroids**	**IGR's - Esteem, Intrepid, Rimon**
Southern	1st trt 7/9-10	1st trt 7/6-7
Central	1st trt 7/10-11	1st trt 7/6-7
Northern	1st trt 7/15-17	1st trt 7/11-13

✔ **Summer Diseases – Sooty Blotch and Fly Speck, Rots:** The potential for rot diseases, including anthracnose/bitter rot, increases when the amount of dead wood tissue increases in the orchard. Since this is a year when fire blight is common, these rot diseases can colonize dead fire blight wood and build up inoculum for the following year. Removal of blighted limbs and shoots will reduce the disease pressure, especially for the following year. This is best done in late July when tree growth has slowed. A good program for rots is suggested. Captan + Topsin-M, or Sovran, or Pristine are among the best rot control materials. See the *Tree Fruit Production Guide* for a complete listing.

SEE IPM ON PAGE 4

IPM FROM PAGE 3

Scouting Calendar

The following table is intended as an aid for orchard scouting. It should *not* be used to time pesticide applications. Median dates for pest events and crop phenology are displayed. These dates are compiled from observations made over the past 5-10 years in Gloucester County. Events in northern New Jersey should occur 7-10 days later.

Pest Event or Growth Stage	Approximate Date	2007 Observed Date
CM 2nd generation 1250 DD target	July 15 +/- 10 days	Not yet observed
SJS Crawlers-second generation	July 21 +/- 05 days	Not yet observed

Blueberry

✔ **Aphids:** There has not been much change since the last newsletter. About 67% of samples show some level of aphids and about 1/3 of samples are above the 10% infestation level.

✔ **Oriental Beetle:** Activity continues to increase. Remember to make applications of Admire before the middle of the month if possible.

✔ **Leafrollers and Other Leps:** Live larvae numbers remain very low throughout all sampled fields. About 6% of shoot samples were positive for larvae and all levels are under threshold. Fruit cluster samples have not been positive for worms and or worm shelters.

✔ **Blueberry Leafminer:** About 8% of our samples have been positive for late instar larval "tents" or "teepees", and all levels have been very low where present. Some of the tents have been opened to find dead larvae and/or an empty shelter. Thus, the number of tents or teepees present is not a true indicator of the actual insect population.

✔ **Cranberry Fruitworm and Fruit Injury:** Injury levels seen in the field have been somewhat lower than the previous week. About 8% of samples have been positive and only 2% have been over the 1% injury level. While this is to be expected since fruit is being quickly harvested, it also suggests that growers can expect to see little to no further injury for the duration of this season.

Trap Counts

Tree Fruit Southern Counties

Week End	STLM	TABM-A	CM	AM	OFM-A	DWB	OFM-P	TABM-P	LPTB	PTB
6/2	14	25	3		3	25	2	34	80	
6/9	398	34	4		0	15	1	39	60	
6/16	1062	27	3		1	25	5	34	68	0
6/23	1297	13	4		4	22	3	14	62	0
6/30	1040	9	1		2	53	3	7	95	1

Tree Fruit Northern Counties

Week End	STLM	TABM-A	CM	AM	DWB	OFM-P	TABM-P	LPTB	PTB
6/2	65.6	18.1	7.7		27.0	4.3	23.5	30.8	0.0
6/9	125.9	30	3.1		14.5	2.9	27.8	30.9	0.5
6/16	711.9	25.0	1.9		2.5	1.6	28.0	16.9	0.6
6/23	597.8	17.0	1.1		1.7	6.9	18.5	14.8	0.6
6/30	408.3	11.3	0.4		0.2	7.8	9.3	18.5	1.9

Blueberry

Atlantic County

Week End	CBFW	RBLR	OBLR	SNLH	OR BEET	BBM
6/2	1.89	0.09	12.09	0.00		0.00
6/9	0.57	22.68	25.78	0.09		0.00
6/16	0.73	63.34	18.54	0.24	48.05	0.01
6/23	0.45	60.43	13.54	0.27	427.61	0.05
6/30	0.12	34.33	5.50	0.80	804.55	0.06

Burlington County

Week End	CBFW	RBLR	OBLR	SNLH	OR BEET	BBM
6/2	0.98	0.00	12.20	0.00		0.00
6/9	0.84	0.08	27.00	5.27		0.06
6/16	1.42	7.92	26.86	6.91	54.00	0.16
6/23	0.61	19.50	7.86	4.29	359.44	0.38
6/30	0.10	16.68	2.25	2.25	838.00	0.05

Food Safety Series: Disinfecting Materials

Wesley Kline, Ph.D., Agricultural Agent

At the New Jersey Vegetable Conference, Dr. Steven Sargent (University of Florida) discussed disinfecting materials for produce in the packing shed. Following is a summary of that presentation.

The best method to eliminate human pathogens on produce is to prevent contamination. Washing/disinfecting methods are not always 100% effective. At the present time, no mitigation method will totally eliminate pathogens once they have contaminated a food product without adversely affecting produce quality and freshness.

There are several major classes of chemical sanitizers: halogens (chlorine and iodine), acid sanitizers, hydrogen peroxide and ozone. The ideal disinfector should have a wide range or scope, rapid kill, stability, tolerant to broad rage of conditions, readily solubilized with some detergency, low in toxicity, environmentally compatible and inexpensive.

Chlorine is the most common chemical that has been used for a long time. The benefits of chlorination include: relatively inexpensive, can effectively reduce pathogens in dump tanks, hydro coolers, etc., reduces the transfer of decay organisms to healthy fruit and can kill some existing pathogens on fruit surfaces. The effectiveness of chlorine depends on the water pH, chlorine concentration, contact time, content of organic matter in the water, water temperature and type/growth stage of the pathogen. The pH should be maintained between 6.5 and 7.5. The concentration will depend on the product being disinfected, but is generally used in the 50 to 200 ppm range with 1-2 minute contact time. However, as the organic matter increases in the water the chlorine concentration decreases. The solution pH and chlorine content should be checked on an hourly basis even if an automated system is used.

Chlorine dioxide is one alternative to chlorine. It is highly reactive, less pH sensitive, less corrosive and more environmentally friendly than chlorine. However, there may be toxicity issues, it is light and temperature sensitive, is not approved for all applications and is more costly than chlorine.

Iodophors (iodine + surfactant) is broad spectrum, less irritating than chlorine, has low toxicity, effective at a wide pH range (2-8), less corrosive than chlorine, stable with a long shelf life and has a visual color. However, it will stain porous plastics, is more expensive than chlorine and has an odor.

Peroxy compounds (hydrogen peroxide and peroxy acids) such as Tsunami and StorOx have low foam, are effective at a wide temperature range, leave no residue, are generally non-corrosive, relatively tolerant to organic soil, environmentally friendly, have broad spectrum activity, broad pH range (up to 7.5), and active against biofilms. Peroxy compounds are corrosive to soft metals, have an odor at concentrated solutions, can be an irritant at concentrated solutions and have varied activity against fungi.

Ozone is a more powerful bacteriocide/virucidal than chlorine and has broad spectrum activity. It is pH and temperature sensitive, sensitive to organic and inorganic compounds and corrosive. There may be toxicity and safety issues in addition to being more costly than chlorine. ❑

Calendar of Events

July 12, 2007 - Penn State University Fruit Research and Extension Center Grower Field Day, Penn State Fruit Research and Extension Center, 290 University Drive, Biglerville, Pennsylvania. Noon to 5:00 p.m. Cost is $15.00 . Contact Dr. Greg Krawczyck at 717-677-6116. Registration required and forms available at: http://frec.cas.psu.edu/.

July 26, 27, 28, 29, 2007 New Jersey Peach Festival, Gloucester County 4-H Fairgrounds, Rt. 77 (South), Mullica Hill, N.J. Grower reception on Friday evening July 27 at 7:00 p.m. Information available at: http://gloucester.rce.rutgers.edu/fairfest/ or by contacting 856-307-6450.

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