



Newsletter Extension

Fruit ICM News

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Calendar

September 19-21: Farm Science Review, Ohio State University brings the top agricultural experts together in one place at the Molly Caren Agricultural Center west of Columbus near London, Ohio in Madison County. Twenty-one hundred acres showcase 600 commercial exhibitors and over 700 acres of field demonstrations. For more information call (800) 644-6377 or visit the Farm Science Review Homepage at <http://www.ag.ohio-state.edu/~ofsr/>

February 19 to March 4, 2001: New Zealand Fruit Tour, Dr. Peter Hirst, extension fruit specialist in Indiana, will be leading a 14-day tour to New Zealand from Feb. 19 to March 4, 2001. The cost of \$3000 includes all travel, all accommodations, all admissions, and over half of the meals. The only additional costs participants would face would be some meals, trip insurance (optional), and spending money. The strong US dollar and weak New Zealand dollar makes this a great time for you to go -- your dollar will go a long way there. For a brochure and registration form, or if you have any questions, call Peter Hirst at 765-494-1323 or e-mail him at <mailto:hirst@hort.purdue.edu>. So far about 20 people have signed up, but they still have room for a few more. They need your registration form and \$300 deposit by September 20th.

Bacterial Spot Problems This Year

Source: Scaffolds Fruit Journal, September 5, 2000 (William Turechek, Plant Pathology, Geneva, and Deb Breth, Lake Ontario Fruit Team)

Bacterial spot is a disease that affects virtually all stone fruits, but is particularly damaging to peaches, nectarines, and apricots. As indicated by the name, bacterial spot is caused by the bacterium

Xanthomonas arboricola (previously known as *Xanthomonas campestris* pv. *pruni*). Except for Long Island, the disease does not typically cause significant losses in New York. This year, however, incidence of bacterial spot has been reported in several stone fruit orchards in western New York and is impacting fruit sales. The disease is difficult to manage because 1) we grow susceptible varieties, 2) we have a limited number of effective pesticides, and 3) the effectiveness of any spray program is highly dependent upon appropriately-timed pesticide applications (explained below). Because it is unlikely that any new chemicals to battle this disease will be introduced in the near future, we must focus on cultural practices that reduce disease development and upon improving application timing. To do this requires an understanding of how disease develops in an orchard.

Bacterial spot affects the fruit, foliage, and young woody growth (twigs). On leaves, symptoms typically begin as small, light green-to-whitish spots, eventually turning dark purple-to-brown as lesions expand and age. Leaf veins restrict lesion expansion, causing them to take on an angular appearance. Within 1-2 weeks, lesions are walled off, turn necrotic, and the center of the lesion falls out, leaving the leaves with a shothole or tattered appearance.

Severe foliar infections result in leaf drop, which may significantly reduce tree vigor and winter hardiness. Bacteria from leaf infections may move into the current year's twig growth, leading to canker formation and providing an overwintering site for the bacteria. On fruit, the bacteria cause unsightly, dark-brown lesions and/or blemishes. Lesions often become sunken and the skin of the fruit cracks, causing deep pits that leave the fruit unmarketable.

The disease favors warm, wet weather and may be a problem particularly in orchards with a history of disease. Primary fruit and leaf infection occur as a result of frequent wetting events from full bloom to 4 weeks after shuck split. Along the lake in Niagara County, 35 days of rain totaling 13.4 inches was recorded during this time frame. Wind-driven rain or debris damage leaves and developing fruit, creating small wounds that the bacteria can enter, which can significantly influence the occurrence and severity of fruit and leaf infection and disease development. Disease does not develop under hot, dry conditions.

The most effective way to manage bacterial spot is to avoid planting varieties that are highly susceptible to this disease. Yet, this is not always practical when processors ask for certain varieties such as Babygold #5 and #7 that are susceptible to bacterial spot and, unfortunately, many popular peach, nectarine, and apricot varieties are susceptible to the disease. Maintaining proper fertility is essential, as excessive growth or poor nutrition both increase a tree's susceptibility. However, chemical control is typically necessary to manage disease.

The spray program outlined in Table 1 is the result of research conducted at North Carolina State University by David Ritchie and is suggested for use in orchards that have had a history of bacterial spot. The best results are obtained when chemicals are applied during the growth stages indicated. When possible, disease control is most effective when chemicals are applied within a 24-hour period prior to anticipated rainfall, but with a sufficient time period for pesticide to dry. In wet or rainy seasons, additional applications of Mycoshield may be needed on a 10 to 14-day schedule and can be applied up to 3 weeks before harvest. Unfortunately, Mycoshield is labeled for use only on peaches and nectarines.

Dr. Ritchie outlined a program of control in North Carolina including Kocide starting at dormant using higher rates, followed at 1-5% bud swell using reduced rates, pink to 5% bloom with even lower rates, and petal fall to 1% shuck split. At 75% shuck split to 1% shucks off, he recommends a choice between continued copper application or Mycoshield. If wet weather continues for the few weeks after shuck fall, continue Mycoshield applications on a 7 to 10-day interval. There are other copper formulations that have bacterial spot written on the label, but not all copper labels include control of bacterial spot. For

example, Kocide is not labeled for use on apricots for bacterial spot, only brown rot, and the label warns of possible fruit damage if applied after bloom! Most copper labels warn against the possibility of phytotoxic effects on leaves or fruit if applied later than pink. All copper formulations reduce the rates on the label after dormant stage when leaves and fruit are present. Other copper formulations labeled include Champ and C-O-C-S.

If bacterial spot has not been a problem in your orchard, a dormant application of copper is still recommended as a preventive spray. This application can be timed to coincide with your peach leaf curl spray. It is important to note that copper can cause significant phytotoxicity to stone fruits. Therefore, it is suggested that copper be applied beyond bud swell only in orchards with high disease pressure, using the recommended rates, and under conditions conducive for rapid drying of the foliage. Under these conditions, copper has not caused phytotoxicity or fruit damage on cultivars grown in North Carolina. If you are unsure of a variety's sensitivity to copper, test the formulation on a few leaves under typical drying conditions. There is no firsthand research in NY state on bacterial spot in peaches and nectarine; so, for now, we will have to try out control recommendations in other states where labeled materials are available. The key for next year's control program will depend on the weather conditions from bloom through June.

Consumer Facts About Produce

The Produce Marketing Association and the Produce for Better Health Foundation launched a new consumer website this week for 5 A Day Week. US Apple provided much of the apple information found on the site. Check it out at:

<http://www.aboutproduce.com>

Table 1. Spray program for managing bacterial spot in orchards with a history of the disease.

Growth Stage	Material
Dormant (prior to bud swell)	Kocide 101 4-6 lb/acre or Kocide DF 4-6 lb/acre or Kocide LF 10.0 pt/acre
1-5% bud swell	Kocide 101 4-6 lb/acre or Kocide DF 2.5 lb/acre or Kocide LF 5.0 pt/acre
Pink to 5% bloom	Kocide 101 1.5 lb/acre or Kocide DF 1.5 lb/acre or Kocide LF 3.3 pt/acre plus Ziram 76DF 3.0 lb/acre
Petal fall to 1% shuck split	Apply same as used in pink to 5% bloom

75% shuck split to 1% shuck off	Kocide 101 1.0 lb/acre or Kocide DF 1.0 lb/acre or Kocide LF 1.5 pt/acre plus Ziram 76 DF 3.0 lb/acre or Mycosshield 17W 0.75 lb/acre
7-10 days later	Mycosshield 17W 0.75 lb/acre
7-10 days later	Mycosshield 17W 0.50 lb/acre

Terminal Market Wholesale Fruit Prices

Chicago http://www.ams.usda.gov/mnreports/HX_FV010.txt			
Apples: market about steady	Pears	Peaches	Prune Plums
Cartons 12 3-lb filmbags Wisconsin US ExFancy Paula Red 2 1/2" min 8.00		25 lb cartons loose Michigan US One various yellow flesh varieties 2 3/4" min 18.00 2 1/2" min 16.00 2 1/4" up 12.50-13.00	30-lb cartons Michigan US One Stanley 1 1/4" min 9.00-9.50
Detroit http://www.ams.usda.gov/mnreports/DU_FV010.txt			
Apples: market about steady	Pears	Peaches	Prune Plums
Cartons 12 3-lb filmbags Michigan US Fancy Gala 2 1/2" min 12.00 Jonathan 2 1/2" min 12.50-13.00 Earligold 2 1/2" min 11.50-12.00 Early McIntosh 2 1/2" min 12.50-13.00 Gold Supreme 2 1/2" min 11.50-12.00 Paula Red 2 1/2" min 11.00-12.00 Bushel cartons loose Michigan US Fancy Gala 2 3/4" up 14.50-15.00 Ginger Gold 3" min 11.50-12.00		25 lb cartons New Jersey No Grade Marks various yellow flesh varieties 3" up 13.00-15.00 2 3/4" up 11.00-14.00 2 1/2" up 10.00-13.00	30-lb cartons Michigan US One Stanley 1 1/4" min too few sales to quote
Pittsburgh http://www.ams.usda.gov/mnreports/DU_FV010.txt			
Apples	Pears	Peaches	Prune Plums

	<u>38 lb cartons</u> NJ - No grade marks various yellow flesh varieties 2 1/2" up 15.00-17.00	<u>30 lb cartons</u> Michigan US One Stanley 1 1/4" min 9.50-10.50
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Information presented above and where trade names are used, they are supplied with the understanding that no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

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