

# LOW-SPRAY AND ORGANIC **PLUM PRODUCTION**

## **CURRENT TOPIC**

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Plums, apricots, cherries, peaches, and nectarines (fuzzless peaches) are all stone fruits (Prunus spp.) and share most of the same diseases and pests. Almost every peach pest is also a plum pest, so most of the pest and disease information in ATTRA's Organic and Low-Spray Peach Production publication is applicable to plums as well. The present document, therefore, will be limited to problems and considerations peculiar to plums. Organic fertilization and weed control techniques are covered in ATTRA's Overview of Organic Fruit Production.

Much of the basic information on tree fruit production will be the same whether the grower uses low-spray, organic, or conventional pest and fertility management. For instance, variety choices must be made with cold-hardiness and chilling requirements in mind. Also, pruning and training should be approximately the same for both kinds of culture. Since this type of information is readily available through conventional sources, it will not be touched on here. Local Cooperative Extension offices or State Extension Horticulture Specialists may be able to provide general plum culture information. You may also wish to consult one of the many books that are available on commercial fruit production. Enclosed are an article from National Gardening and a chapter from the book *Ecological Fruit Production in the North,* both of which discuss basic plum culture.

#### Plum Pox Scare

Plum pox is a viral disorder that affects members of the genus *Prunus*. It is considered the most devastating disease of stone fruits in Europe, infecting over 100 million trees there. Late in 1999, plum pox was identified in North America for the first time in a small number of orchards in Adams County, Pennsylvania. The virus can be vectored only by aphids or through asexual propagation (grafting, budding, cuttings, etc.), and it is generally accepted that the virus entered the U.S. via illegally transported propagation material. Natural transmission via aphids is very slow (probably less than a quarter mile per year). Because of the localized nature of this infection and the slow natural transmission rate, the USDA and Penn State University personnel think that eradication efforts will be successful in eliminating this pocket of PPV in the United States.

Again, because of the nature of the spread of this disease, you're not likely to see it. Still, because of the economic importance of this disease, it pays to be wary. Below are some of the symptoms on plum foliage and fruit. Please note that many of these symptoms could be confused with those caused by other diseases; therefore, rather than relying on this written description, please go to the following Penn State website designed to help orchardists identify this disease and distinguish it from other diseases: <a href="http://ppvbooklet.cas.psu.edu/">http://ppvbooklet.cas.psu.edu/</a>.

Leaves: speckled pattern, blotches, ring spots, necrotic areas, and uniform distribution of these symptoms. Fruit: deformities, ring spots, necrotic spotting, speckled pattern, and blotches.





As the authors of *Ecological Fruit Production in the North* say, "Plums are affected by a variety of bizarre and somewhat disgusting diseases" (1). Black knot, bacterial spot, leaf scald, and plum pocket can all cause serious damage to the tree. Brown rot is the major disease of the fruit, and it can claim the entire harvest in a wet year if precautions are not taken. Regular sprays of wettable sulfur and the sanitation program outlined below are probably a must for any commercial venture (2):

- Encourage air movement with site selection and open pruning.
- Prune out all dead wood and cankers and destroy them.
- Remove mummies the shriveled, rotted fruit from last season.
- Thin fruits so that they don't touch.
- Remove and destroy infected fruit promptly.
- Apply wettable sulfur every 10 to 14 days from petal fall until harvest. Spray more often during wet seasons. Sprays may not be needed in dry seasons if the other steps are followed.

On an encouraging note, there is progress being made in research on controlling brown rot organically. USDA researcher Dr. Michael Glenn (personal communication, July 2001) says that his preliminary research indicates that brown rot can be controlled with regular, protective sprays of Surround™ (a specific kaolin clay formulation registered as organic) mixed with sulfur and lime-sulfur. This research will probably be finalized and made public before July 2002.

More on brown rot is presented in ATTRA's Organic and Low-Spray Peach Production publication.

Black knot, another fungal disease, produces distorted, gall-like growths on branches. Trees should be checked several times throughout the season, and the knots pruned out by making cuts 3 to 4 inches below the knot. Pruners should be sterilized between cuts by dipping them in a 10% bleach or Lysol® solution. A single lime-sulfur spray before budswell (same material and timing as for peach leaf curl) will reduce black knot problems and also control plum pockets.

There is some varietal resistance to most of the various diseases. However, there is no known resistance to leaf scald among the European plums. Moreover, there is no biological or chemical control for this bacterial disease. Luckily, leaf scald is largely restricted to the southeastern U.S., and there is resistance to leaf scald in certain Japanese, American, and Japanese-American hybrids.

Researchers at Auburn University are focusing on detecting and incorporating disease resistance as part of their Japanese plum breeding program. For instance, they have found that 'AU-Producer', 'Morris', 'Explorer', and 'AU-Cherry' are all highly tolerant of leaf scald (3). 'AU-Rosa', one of the more recent releases from the Auburn program, is resistant to leaf scald, bacterial canker, bacterial spot, and black knot (4). The enclosed article titled "Plum Crazy" has an excellent discussion of plum varieties, including their relative disease resistance.

In the eastern half of the U.S., plums share with apples and peaches one very important insect pest, the plum curculio. Without proper control, this pest can damage a large percentage of the crop. Wounds from curculio feeding also function as entry sites for the brown rot organism.

Currently, the best organic control for the control of plum curculio is Surround, the kaolin clay product mentioned above. Although not acceptable for growers who have to meet organic standards, two sprays of Imidan® (a synthetic pesticide), one at petal fall and one 10 to 14 days later, usually provide excellent control. Other control strategies (including potential organic controls) are discussed in the *Organic and Low-Spray Peach Production* publication, as are other arthropod pests of plum, including oriental fruit moth, aphids, mites, and trunk borers.

### **References:**

- 1) Hall-Beyer, Bart and Jean Richard. 1983. Ecological Fruit Production in the North. Jean Richard Publishing Co., Trois-Rivieres, Quebec, Canada. p. 84.
- 2) Olcott-Reid, Brenda. 1987. A wealth of plums: Part two. Organic Gardening. February. p. 92.
- 3) Tangsukkasemsan, B., J.D. Norton, and G.E. Boyhan. 1995. The occurrence of plum leaf scald on plum cultivars in Alabama. HortScience. June. p. 437.
- 4) Anon. 1995. Variety spotlight. American Fruit Grower. April. p. 10.

#### **Enclosures:**

Olcott-Reid, Brenda. 1988. Plum crazy. National Gardening. July. p. 25-31, 59.

Hall-Beyer, Bart and Jean Richard. 1983. Ecological Fruit Production in the North. Jean Richard Publishing Co., Trois-Rivieres, Quebec, Canada. p. 81–90.