Winter Injury and Cool Temperatures Create Ideal Conditions for Botrytis in Strawberries*

Dr. Frank Louws, Extension Plant Pathologist, North Carolina State University

**Reprinted from the Southern Region Small Fruit Consortium Plasticulture Advisory March 2005, Vol. 6, No. 8*

Winter injury has left many dead leaves that will serve as a major source of Botrytis spores in the early spring season. Likewise, a number of plantings recently experienced freeze injury to emerged blooms. These dead flowers can become infected with Botrytis; the pathogen can grow down the peduncle and into the upper crown tissue to cause a Botrytis crown rot (Figure 1). Once in the upper crown, the pathogen can move from tissue to tissue and rot off many petioles and flower clusters, even getting into the fleshy portion of the crown in severe cases.

Large plants, cool wet weather, and no control measures favor crown rot. A number of farms have recently observed crown rot problems appearing.

Other farms are concerned about the impact Botrytis may have on developing fruit. Most instances of Botrytis fruit rot start during the bloom phase so management programs during bloom are critical - especially during cool wet seasons. Several of these farms have removed dead and dying leaves from the tops of the beds. This practice can be very helpful, especially on farms that do not use fungicides. Removal of dead leaf material is almost always helpful but can be costly. The economic returns for leaf removal has not been determined but many growers find that leaf removal can be part of a program that includes hand weeding and lifting plants from under the black plastic during the same field pass. Most of our production area is well past the optimum time for hand removal of dead and dying leaves. Recent questions have centered on the use of fungicides.

The fungicides of choice to manage the crown rot phase are those with systemic activity. Thus, SwitchTM, RovralTM and possibly PristineTM should offer good suppression of crown rot. SwitchTM is a combination product of two chemicals - a systemic and a protectant and should offer good control of Botrytis crown rot. There remains a restriction that a crop for which SwitchTM is not registered cannot be grown for 12 months after the last application (see label for registered crops). RovralTM is also a systemic fungicide with superior eradicant activity. Growers are allowed one use per season and it may not be applied "after first fruiting flower". Thus, if the flowers have been frost killed, Rovral may be used (this restriction is primarily based on crop residue concerns). From our research, we know 5-12% of the Botrytis population may be resistant to this class of fungicides, therefore, tank mixtures of Rovral with Captan for broad spectrum control are recommended. Pristine also offers excellent Botrytis control and is partially systemic. This is a premixed product that offers Botrytis and anthracnose control. Growers, who have a concern with anthracnose, may wish to save strobilurin applications for early bloom sprays. Only 4 (Abound, Quadris) to 5 (Cabrio, Pristine) applications of a strobilurin are allowed per season. To date (and very thankfully), we have not recorded concerns with anthracnose in any of our major suppliers of plants.

After and application is made for the crown rot phase, growers should implement a fungicide scheduling program as previous published in other communications and in the North Carolina Agricultural Chemicals Manual Table 7-15.

Figure 1: Left- Botrytis has colonized the lower leaf petiole tissues creating brown lesions that girdle the petiole. After incubation, this tissue produces many spores borne on grape-like clusters (insert of microscope image). Right - a plant with advanced crown rot. Many of the petioles have been damaged but the internal crown tissue has not. This plant could recover but the yield potential is decreased substantially.

Originally printed in Virginia Vegetable, Small Fruit and Specialty Crops – March-April 2005.