

## Don't Fail this Fall

A. R. Chase

Chase Horticultural Research, Inc.

As fall approaches, there are several diseases that you should be treating preventatively. Like other seasons, some pathogens prefer the conditions of fall while others are a problem because of the timing of a particular crop. Black root rot on pansy is a special problem in the warmer states where the fall-winter crop must be planted during the heat of late summer. *Pythium* on poinsettias is a problem during the fall because that is when we grow poinsettias. On the other hand, powdery mildew and rust find conditions of fall very favorable and outbreaks abound.

### Black Root Rot on Pansy

Black root rot (BRR) is caused by *Thielaviopsis basicola* and is most troublesome on pansy but occurs on salvia, petunia and vinca as well. A couple of years ago, we also saw a serious outbreak of BRR on poinsettias too. Be sure to check roots on these plants and send them to a lab for identification if you are unsure of the cause.

It has long been held that keeping the potting medium pH below 8 and above 4.5 minimizes disease—an overall suggestion of 5.5-6 seems to be best for pansy production without BRR. Production of cool season crops (like pansy) in the late summer is a recipe for plant stress and leads to outbreaks of BRR some seasons. Reusing plug trays has become an economic necessity in some operations making the potential for contamination with BRR a serious concern. Research has shown that cleaning trays and benches can best be accomplished with 10% sodium hypochlorite (bleach) in combination with a detergent and scrubbing. ZeroTol was effective when sprayed onto plug trays at 2.5 oz/gal and GreenShield was effective when used as a 10 minute dip at 1 tbsp/gal.



Figure 1. Black root rot on pansy

Fungicide control trials continue to be reported every few years with mixed results for fludioxinil (Medallion), azoxystrobin (Heritage) and triflumizole (Terraguard). The only product that works consistently from researcher to researcher and one year to the next is thiophanate methyl (3336) used on a 14 day interval as a 16 oz/100 gal drench. A comparison of thiophanate methyl fungicides at the low and high label rates showed similar results for 3336, Fungo Flo, Fungo WSB and Banrot. The lower rate of each fungicide failed to give adequate control while the higher rates tested provided the best control.

### **Powdery Mildew and Rust**

I wrote about spring diseases a few short months ago and now that it is fall I need to remind everyone that fall is the right time for powdery mildew and rust - AGAIN. Days are still warm but nights are starting to cool down. Condensation may occur overnight and both rust and powdery mildew fungi leap into action. Watch roses, gerber daisy, hydrangea, verbena, Salvia, Scabiosa and many other bedding plants and perennials for powdery mildew. It is also time for rust diseases, especially those on woody ornamentals to appear. Some of these fungi have been living on the host all summer just waiting for conditions to favor them again.



Figure 2. Powdery mildew on hydrangea.

Since last spring we have run a few more trials using wetting agents alone (for powdery mildew) or in combination with a fungicide (rust). We found that Capsil provided some control of gerber daisy powdery mildew when used at 4 oz/100 gal but failed to give any control at 1 oz/100 gal. On Hypericum rust, use of Sync (16 oz/100 gal) with Heritage (4 oz/100 gal) gave excellent results, while use of Heritage alone was ineffective. In addition, you can use sterol inhibitors (Eagle, Strike and Terraguard) and watch for some products in this group (Trinity from BASF) for both powdery mildew and rust. Strobilurins (like Compass O, Heritage and Insignia) are very good for rust and powdery mildew as well and should be rotated with a sterol inhibitor for best results. While it is often possible to stop an outbreak of powdery mildew it is critical to prevent rust diseases. Think preventatively!

### Pythium Root Rot on Poinsettia and Other Ornamentals

Poinsettias have become part of many growers fall production and are scheduled for the narrow marketing window. The most common disease of these plants in the fall is Pythium root rot. If the cuttings make it through rooting without a Rhizoctonia stem rot or Erwinia blight outbreak, they can sometimes develop Pythium root rot later in their life. Symptoms include wilt even when the potting medium is wet, slow growth, poor color (especially yellow lower leaves), and weakened stems and of course root rot. Roots appear gray or water-soaked and disintegrate easily when handled. They often show the classic “Pythium” characteristics of retaining their central core while losing the outer cortex of the roots.



Figure 3. Pythium root rot on poinsettia.

Due to the critical timing of this crop it usually pays to apply fungicides preventatively. Etridiazole (Banrot, Terrazole or Truban) is used in some portions of the country while in others Subdue MAXX or Aliette is the prevention of choice. In still others, RootShield or PlantShield (*Trichoderma harzianum*) is used exclusively with excellent results. Poinsettia is one of the most responsive crops to the biological protection afforded by *Trichoderma*.

Be sure to rotate between fungicides to prevent development of resistance. Experience with etridiazole for the past 30+ years has shown no resistance in *Pythium* populations. In contrast, some *Pythium* populations have become resistant to mefenoxam (Subdue MAXX). If you have relied on Subdue MAXX alone and are not happy with results, you may have a resistant *Pythium*. Using more will not overcome most mefenoxam resistance. Lab tests can confirm this situation. Finally, phosphonates (phos

acid alternatives) including Aliette show varying degrees of success for Pythium root rot on many plants.

It is important to remember to watch other crops too. The change from summer to fall inevitably results in over-watered or drought stressed plants. It is hard to water appropriately for weather that changes frequently and unpredictably. Plants that are pot-bound are especially sensitive since they have maximized their growth in their containers and really have little buffer to withstand water extremes. Now is the time to train new employees concerning the water needs of each crop.

### **Late Fall Botrytis Stem Rot**

One of the last things to consider in poinsettia production is late season Botrytis stem rot. I often hear about losses due to Rhizoctonia stem rot during the final month of poinsettia production. When I have checked these plants I nearly always find Botrytis stem rot. At this point in the production, the lower temperatures make Rhizoctonia stem rot unlikely and Botrytis stem rot common. Although, producers routinely apply fungicides for Botrytis blight on bracts and petioles they do not realize that some cultivars are very sensitive to stem rot caused by the same fungus, *B. cinerea*. It can be very hard if not impossible to apply a Botrytis fungicide to a crop that has reached final spacing and the canopy has closed in. I usually recommend a final spray of Decree (16 oz/100 gal), Medallion (4 oz/100 gal) or Chipco 26019 (16 oz/100 gal) directed to the stem base BEFORE the canopy closes. This can help keep losses due to Botrytis stem rot at a minimum.

### **Cyclamen Anthracnose**

Late last summer and throughout the fall we saw an outbreak of Cyclamen anthracnose. *Glomerella (Colletotrichum)* appeared in many parts of the country from Florida to Texas to California. Although the disease occurs in Europe rather routinely, it has not been widespread in the states for the past 30 years. Spots appear on leaves and rapidly enlarge up to ½ inch wide. They are sunken, brown to black and sometimes coalesce to form large blighted areas. In one of our trials, the flowers were also infected resulting in their complete collapse. We decided to do some chemical control trials over the winter and found that a variety of products are very effective in preventing this disease. Excellent control was seen with Clevis (2 lb/100 gal) and Pentathlon (24 oz/100 gal). Rhapsody (1%), Daconil Ultrex (1.4 lb/100 gal) and Chipco 26019 (1 lb/100 gal) also gave a high degree of flower anthracnose. No significant control was seen with Terraguard (8 oz/100 gal).

In another trial optimal control was seen with Daconil Ultrex (1.4 lb/100 gal), however the flower damage and residue were extreme. Heritage was also excellent in preventing anthracnose on Cyclamen at 2 or 4 oz/100 gal with or without Capsil added. Palladium is a combination of the active ingredient in Medallion (fludioxinil) and cyprodinil that is currently under development. In this trial, it gave very good to excellent control as the rate was increased from 2 to 6 oz/100 gal. Finally, Medallion alone at 4 oz/100 gal gave very good control but it was not as effective as Heritage or Palladium in this trial.



Figure 4. Anthracnose on cyclamen.

Now that we have some information on controlling Cyclamen anthracnose we will probably not see it again for years!

### **Conclusions**

It is very hard to watch out for all diseases on the vast array of ornamentals commonly grown. If you can learn which diseases are common at certain times of the year, it will minimize the possibilities. Some diseases are better to prevent while others can be cured in many cases. For crops that have a critical window for marketing like poinsettia, prevention is the best approach.