

# Disease Prevention in Your Poinsettia Crop

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As the spring bedding plant rush comes to close, you may not want to hear that poinsettia season is just around the corner. Many growers already have received their shipment of stock plants, and others are making plans for ordering and receiving either rooted or non-rooted cuttings for Christmas.

As with many other greenhouse crops, disease control in poinsettia production is especially important. Last year in Georgia, many growers had problems with their poinsettia crop. From the University of Georgia Plant Disease Clinic records, the most common disease problems on poinsettias in 1995 were *Pythium* and *Rhizoctonia* root rots and *Rhizopus* stem, leaf, and flower blight. Other pathogens that may become problems include *Botrytis* and the bacterium, *Erwinia*. These pathogens can originate from greenhouse surroundings and other infected plant material, as well as poinsettia stock plants and shipped cuttings.

Check all stock plants and cuttings for signs of possible infection before cuttings are taken or shipped cuttings are potted in your greenhouse. This may not be as easy as it sounds; early signs of infection are often difficult to detect. Shipped cuttings may arrive as either non-rooted, to be stuck by the grower, or rooted in rootcubes or rockwool blocks, in which case a sampling of the cuttings should be removed from the rooting medium and examined for possible signs of disease.

The most common pathogen associated with root disease in potted plants is *Pythium* spp. Symptoms of *Pythium* root rot include a brownish discoloration of root tips and a softening of the root cortex, often caus-

ing the cortex to slough-off. The rot also may progress up the stem. Unrooted cuttings may have a dark, softened stem canker at the base. *Pythium* disease development is favored by wet soil and high soluble salts. Infected cuttings grown in this environment will most likely die.

*Rhizoctonia* root rot also is a common disease of potted plants. Poinsettias are most susceptible to *Rhizoctonia solani* just before or soon after rooting. Stems infected with *Rhizoctonia* darken at the soil line and dark lesions may develop on roots. Leaves in contact with the rooting medium also may become infected with *Rhizoctonia*. This disease is favored by soils that are evenly moist and warm.

Poinsettias may show symptoms of *Rhizopus* infection during propagation or soon after potting. *Rhizopus stolonifer* can cause a dark, greasy-looking stem rot that extends four inches or more from the base of the stem. Potted poinsettias may wilt and collapse soon after infection. Leaves and flowers also may be blighted. *Rhizopus* is commonly known as a bread or storage mold. Under humid conditions, webs of white to gray mycelium with black fruiting bodies (sporangia) develop on infected tissue. Cuttings are very susceptible to this disease since the cutting wound is an entry point for *Rhizopus*. This disease is generally associated with periods of plant stress.

The pathogen *Botrytis cinerea* can be found in every greenhouse. It causes symptoms ranging from spots and blights of leaves and flowers to stem cankers and damping-off. Wounded or senescent tissue is most susceptible to infection. Infected tissue is often covered with a gray, fuzzy sporulation ("gray mold") under humid conditions. Poinsettias are susceptible to *Botrytis* at all stages of production. Cuttings may rot during propagation because the cutting wound and wounds from stripping lower leaves off cuttings are entry points for *Botrytis* infection.

Soft rot caused by *Erwinia* spp. also affects poinsettias. Cuttings are most susceptible to infection, and a dark softened rot often develops at the base of the cutting. Vascular discoloration also is common. Plants may completely collapse from *Erwinia* infection. Cuttings should not be taken from plants infected with *Erwinia* (or any other disease). Since this disease is caused by a bacterium, cutting tools should be disinfected regularly between cuts.

For those growers producing their own stock plants,

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it is essential that stock plants remain free of disease and insect pests. Sanitation in and around the stock plant and propagation areas is essential and must begin before cuttings are taken from the plants. Remove diseased stock plants, since these may spread disease-causing organisms to other plants in the area. Infected stock plants are a major source of contamination in propagating cuttings.

Follow sanitary practices at every step in poinsettia production. Remove cuttings with a clean, sterile sharp knife or other cutting tool. Disinfect hands and cutting tools frequently by submerging into hospital disinfectant or 10 percent bleach solution (1 part bleach from the bottle and 9 parts water). Change these solutions, especially the bleach, frequently. The chlorine in bleach volatilizes and loses its disinfectant effect within 30 minutes if left in an open container. After removal from stock plants, place the cuttings into sterile containers for transit to propagation areas or for shipment.

To ensure successful rooting of cuttings, several conditions must be met. Firstly, the cuttings need adequate moisture to avoid any moisture stress once removed from the stock plant. Usually, this is provided by misting the plants. This environment, however, is very conducive to *Pythium*, *Rhizopus*, *Botrytis*, and *Erwinia* disease development. Secondly, the rooting medium should be maintained at 22-24°C (72-75°F) during rooting. Warm soil temperatures favor *Rhizoctonia* infection and temperatures above 24°C stimulate bacterial growth favoring *Erwinia* infection. Finally, the plants and area must be completely free of disease.

Since many pathogens are actually favored by the same conditions necessary for rooting cuttings, the elimination of pathogens prior to propagating is extremely important.

Use sanitation programs to eliminate disease organisms and potential for spread before the presence of disease is detected. Remove all diseased plants, soil and plant debris from tools, floors and benches, and remove weeds from both inside and outside the greenhouse. Keep all hose ends off the floor. Disinfect hands, tools, pots, and other equipment before touching plants or moving around the greenhouse. Never re-use potting mixes. Always use new, sterile soil or soil-less mixes.

Fungicides also are a component of disease control, but they should never be solely relied on. Disease control is a whole management package that includes complete sanitation, clean plants and growing media, a favorable environment for plant growth, and, lastly, chemicals for both insects and diseases. Only a limited number of fungicides are labeled for use on poinsettias, and no pesticide sprays are recommended on blooming poinsettias. It is the grower's responsibility to read and follow all pesticide label directions and precautions before using the product. Consult your county Extension agent for specific fungicide recommendations.

As a result of the problem Georgia growers had last year with their poinsettia crop, I would like to evaluate poinsettia production this year, starting with the receipt of poinsettia cuttings and stock plants. If you had problems with your crop last year, please contact me or your county agent, so we can schedule your production time to sample and evaluate your crop for disease potential. Your assistance in this project is appreciated.

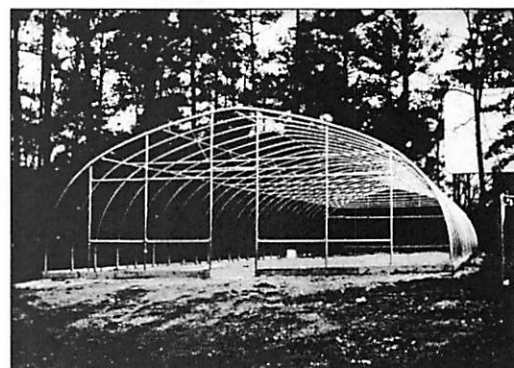


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