

Gray mold (*Botrytis cinerea*) is a consistent problem during poinsettia (*Euphorbia pulcherrima*) production. The pathogen is widespread in greenhouses and produces abundant conidia that spread easily in air currents. *Botrytis* is able to grow at a wide range of temperatures and can survive as a necrotroph on decaying plant parts. The pathogen produces large masses of gray spores that can be carried by air currents to neighboring plants in the greenhouse. The spores are produced on infected plants or on leaves on the greenhouse bench or floor. Often times, dead leaves that are covered by “spores” are actually *Botrytis*. Susceptible crops include poinsettia, geranium, carnation, chrysanthemum, rose, and many others. Flowers are an especially good nutrient source for the pathogen. If *Botrytis* is not controlled an epidemic can develop and cause significant losses.

#### Cultural Management for *Botrytis*

- Sanitation, use bleach (10%) or ethanol (70%) to sterilize tools
- Monitor cuttings regularly during misting and propagation
- Remove debris from the greenhouse
- Keep trash containers covered
- Limit overhead irrigation
- Reduce leaf wetness
- Used forced air under benches
- Heat the greenhouse and ventilate
- Space plants for air circulation

The initial symptoms of gray mold usually appear as a brown lesion on leaves or petals. Infections can start as small spots on the leaves and petals that increase in size

rapidly when conditions are favorable. As the pathogen progresses, the entire leaf and stem become covered with brown-gray



Infection of cyathia, showing gray sporulation (left). Extensive stem blight (right).

sporulation. A cloud of gray spores can often be observed from sporulating plant tissue. Mature plants are at high risk of infection, and bracts and cyathia are very susceptible. In some cases, *Botrytis* will infect the stems and crown causing the plant to wilt. Sporulation will appear on diseased stems when humidity is high. During transport and shipping of poinsettia, high humidity and temperature changes can cause condensation in the plastic protective sleeves leading to ideal conditions for the pathogen.



Fully expanded leaf with developing *Botrytis* lesion.

Environmental conditions are a major factor in the success of *Botrytis*. High relative humidity (>93%) is necessary for infection to occur. These humidity levels are observed in most greenhouses. Frequent misting during propagation provides an ideal environment for *Botrytis*, and this is a time when the need for fungicide application is heightened. Monitor new cuttings that are under mist so the pathogen does not become established. When temperatures are cool and moisture is high, the pathogen can spread rapidly. This can occur in the greenhouse when temperatures drop in the evening and there is high humidity. One way to control *Botrytis* is to keep the greenhouse dry and limit condensation. Improving air flow and using forced air can prevent periods of localized high humidity in the plant canopy.

Appropriate plant spacing and avoiding pooling water on flood floors is helpful in reducing high localized relative humidity around the plants.



Sleeved poinsettia with sporulating bract, infected during transport.

Fungicides are an important tool for managing gray mold. There are many fungicides currently labeled for *Botrytis*. Using fungicides will not prevent infection if disease pressure is very high. Rotating among FRAC groups is important to reduce the chances of fungal resistance, making the fungicide ineffective.

#### Fungicides effective against *Botrytis*

	Product	Active ingredient	FRAC code
Class A	Decree	Fenhexamid	17
	Mural	Azoxystrobin+Benzovindiflupyr	11/7
	Empress	Pyraclostrobin	11
	Astun	Isofetamid	7
	Postiva	Pydiflumetofen+Difenoconazole	3/7
	Pageant Intrinsic	Pyraclostrobin+Boscalid	11/7
Class A-	Daconil	Chlorothalonil	M5
	Broadform	Fluopyram+Trifloxystrobin	11/7
	Heritage	Azoxystrobin	11
	Palladium	Cyprodinil+Fludioxonil	9/12
	Orkestra	Fluxapyroxad+Pyraclostrobin	11/7
	Scala SC	Pyrimethanil	9
	3336	Thiophanate-methyl	1
Chipco 26019	Iprodione	2	

\*Test fungicides on a limited number of plants to ensure phytotoxicity does not develop.