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Battling botrytis

FEATURES - PEST CONTROL

Steps growers can take in ensuring a season free of gray mold

LAURA ALLEN | December 11, 2012



You've probably seen it before. You know what it is. And even if you're fortunate enough to have never experienced it in your operations, you're aware that it's a disease likely to show up in greenhouses. We're talking about botrytis, also known as gray mold.

But chances are you have experienced it in your greenhouse. Kathie Kalmowitz, a technical specialist of BASF Professional Turf & Ornamentals, says it's one of the more common diseases, thanks to the favorable conditions a greenhouse provides. Botrytis — an airborne disease — prefers high humidity and moisture, something greenhouses usually run into in the spring and fall.

"Warm days and cool night temperatures can cause condensation or dew to form on the plant surface. Four hours of exposure to these moist conditions is all you need for spores to germinate and cause infection," says Nancy Rechigl, technical field manager of ornamentals for Syngenta.

It might even be more common depending on the location of your operations. Greenhouses located in northern parts will probably run into more problems with botrytis than those located in the deep south, especially when the seasons are changing and the temperature stays warm during the day, but falls come nighttime.

Because the disease is airborne, it travels easily, and it can affect any part of the plant — such as the flowers or stems — as well as healthy or damaged tissue. With all these factors combined, it's not hard to imagine how botrytis can become an issue.

Fortunately, there are some steps growers can take in preventing the fuzzy gray growths from popping up in the first place.

Manage the environment

A greenhouse's environment is a proven hot bed for botrytis, so controlling the environment is key in prevention of this disease. Since moisture plays a big factor, growers need to be cognizant of their watering practices, and keep their relative humidity in check.

"They certainly should be watering, if possible, in the morning hours so things can go into the late afternoon and into the evening dry, and that will help," Kalmowitz says.

Rechigl recommends keeping the relative humidity below 85 percent, and irrigating in the morning is one way of helping achieve that. She also suggests using drip irrigation to help minimize the extra moisture on the leaf surface, as well as giving plants proper spacing to allow for better air movement. She added that growers can also heat up the greenhouse to dry it out, and then vent it to clear out the humid air.

"The main thing is relative humidity," she says. "If the leaf is wet for four hours and the spores germinate, but then it dries out quickly, it'll actually stop the infection."

Clean the greenhouse

"Botrytis can always be found in production facilities," Rechigl says.

Since that's the case, focusing on sanitation and having a good management system will make a difference in catching the disease and preventing spores from spreading. Kalmowitz says that in a typical greenhouse that is kept clean, the most common symptom you would probably find is the bottom leaf that is falling off or has turned a little yellow. Of course you may come across an older leaf that has the spores colonized, with the tell-tale gray, fuzzy growth on it. Once symptoms like these are spotted, it's important to remove them from the greenhouse, and to do so in a manner that won't allow the spores to spread.

"Picking up all of the old litter in the greenhouse is the first and foremost way of making sure you get the inoculums at a minimal, and you're not transferring within your own system," she says.

This means that old leaves and spent blooms — which Kalmowitz says are a magnet for botrytis — not only need discarded, but need to be concealed so their spores don't circulate.

"It's important to bag the infected debris or the plant parts," Rechigl says. "Bag it up, and close the bag or container that you're disposing these plants in before you move it throughout the greenhouse because these spores will travel very easily through air movement."

Rechigl also says that cleaning up the greenhouse area between crops is important in preventing botrytis.

"Botrytis will colonize plant debris left on the benches," she says. "So it's important to remove the remaining plants out of the production area when you're done shipping and clean the benches really well."

Thinking through all of the steps it takes to keep an area sanitized is what will help in having a good management system in place. Kalmowitz says she recently read an article on a basil crop being infected with botrytis, something that doesn't normally occur. As it turns out, the greenhouse had annual baskets growing above the basil crop and the spent blooms were falling onto the basil and transferring the disease.

"Unfortunately, because [growers] do maximize space these days, the overhead baskets can be a source, or inoculate, that we don't normally see," she says. "You just have to be aware of that."

But in general, she says she doesn't receive many calls on botrytis because growers are able to keep it under control.

"Just very common-sense, down-to-earth sanitation will go a long way in keeping botrytis to a low minimal in your greenhouse," she says. "You have to make sure that you have a very sound practice in place with how your workers keep things clean."



Botrytis can affect any part of a plant, including healthy or damaged tissue.

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Botrytis gray mold sporulation. Photo courtesy of Syngenta

Susceptible plants

WHILE ANY PLANT may have a botrytis infection, some crops are more susceptible to the disease than others. Kathie Kalmowitz, technical specialist for BASF Professional Turf & Ornamentals, says that poinsettias, impatiens and geraniums are more susceptible to it. In fact, geraniums are so susceptible that she suggests using them as a benchmark to see if botrytis spores are present in

Implement fungicides

Sometimes cultural practices are not enough and an outbreak may occur, or an operation is looking for an added protection from the disease. In either case, a fungicide program can be introduced.

Rechcigl recommends choosing a fungicide that offers broad-spectrum protection on a 14-day interval if a grower is looking to use it preventively. If it needs to be used as a curative, she recommends using that application on a seven-day interval.

Both Kalmowitz and Rechcigl mention chlorothalonil as an effective active ingredient for combating botrytis, and they both warn the possibility of resistance from overuse of any chemical. But in general, introducing fungicides to aid in prevention or work as a curative is an option.

"There shouldn't be an excuse to have a lot of crop loss because there's some good products out there," Kalmowitz says. "They're all different classes of chemistry."



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the greenhouse.

"That way, if all of a sudden I see my geranium in my bench coming down with a lot of botrytis, then I would know that I really need to get a cover spray out," she says. "Even if you're keeping everything else in your operation pretty darn clean, it just means that you have spores present and you have some conditions there that are allowing the disease to develop. And you see it on the geraniums so easily."

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