

## Beat Out Botrytis

By Gay Smith

**B**OTRYTIS, ARGUABLY THE NO. 1 DISEASE CUT-flower handlers encounter, attacks at any stage of a flower's life cycle, from production all the way down to the consumer. In this article, the first in a five-part series on flower and plant quality, I'll outline methods to avoid and control Botrytis outbreaks.

### The Basics: What You Must Know

Botrytis is an air-borne fungus that attacks live and dead tissues, including the bloom, stem and foliage. On roses, Botrytis infection usually starts like a small raised blister on petals. As the spores germinate, they develop into a beige blotch and, left unchecked, they eventually resemble bread mold, rendering blooms unsaleable.

There are several species of the fungus that can cause blights; the most common is *Botrytis cinerea*. The bad news is it's inevitable that Botrytis spores are present everywhere in your shop. The good news is that with proper care, you can still avoid infection.

Botrytis needs humidity to take off — a warm sun, good air movement or dry environment inhibits its spread. Cool (60°F), rainy weather encourages Botrytis infection in the greenhouse or field because the spores need at least four hours of continuous moisture to germinate. That required moisture can be as inoffensive as a micro layer of condensation on petals or as obvious as water dripping onto the face of flowers as blooms are pulled from display buckets.

Although sensitivity to infection varies by flower type and variety, some experts consider gerberas the poster child for Botrytis infection. If the flowers don't have adequate air flow to keep (evaporate condensation or drips) them dry, the dense petal layers in the "eye" of the flower or the cardboard shipping tray does not allow moisture to evaporate readily from the flowers. If Botrytis spores are present, they start to attack petals and the immature stem cells immediately underneath the bloom.

Remember, the micro-film of condensation that develops on flowers when gerbera trays are taken from the cooler is

sufficient for infection to start, and the plastic cups and straws grower use to avoid mechanical damage during transport magnify moisture retention. So retailers should (carefully) remove these upon arrival.

### Proactive Steps to Crack Down on Botrytis

The most important preventative measure to fend off Botrytis is to **keep flowers dry**. Spores exist everywhere, but by maintaining steady temperatures you avoid condensation from developing when temperatures fluctuate between 34°F and 50°F.

Once boxes are pre-cooled, **keep temperature constant**, between 34°F and 38°F (except tropicals), during transit and when you receive them. If bunches arrive with excessive condensation inside sleeves, there's a good chance the flowers have experienced temperature variations. Ask your supplier to include a temperature recorder in the box so you can **track temperature** from the time your shipment leaves the source until it arrives at your shop.

Respect the cold chain. When your wholesaler drops off your order, **unload packages into your cooler immediately**. Enforce a shop rule so flowers don't sit out of water on design tables all day while orders are completed, and never leave flowers dry and in room temperature during lunch breaks.

When processing cold flowers, mix solutions with cold water — less condensation occurs when **cold flowers go into cold solutions**. And when processing bunches, avoid cramming buckets too tight. It's important to **allow plenty of air flow** so condensation can evaporate.

It is critical to **develop regular, frequent schedules for sanitizing buckets** work tables, tools, aprons, choppers, cooler shelves and floors. Tools and tables should be sanitized at least twice a day. Wash and sanitize buckets every time you empty them, and don't forget to sanitize trash cans and broom bristles, too. Because this fungi attacks dead and living tissues, remember to **sweep out green bits** that get stuck under design tables and in cooler corners.

When business is brisk, handling can get sloppy. Dropping or carelessly turning boxes, and brushing against blooms as you go through the cooler damages tissues, which makes for an active site for Botrytis to start. **Careful handling** helps reduce infection.

A final note: **Keep sensitive flower types out of high-drip areas**. When you spot an infected flower, remove the infected part or pull entire bloom and dispose into trash can. Don't toss on Botrytis-laden petals onto the floor to sweep up later, because then you'll walk the spores all over your shop. Empty trash cans regularly. 🌿

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### Info To Go

#### Grapes of Wrath

Oenophiles, unite: Find out why the wine industry has a love-hate relationship with Botrytis. Click on the Info to Go logo on [www.safnow.org](http://www.safnow.org). Or call SAF's Fast Fax, (888) 723-2000 and request document #940.

— G.S.