

SHIPPING STRESSING YOU OUT?

On the road to healthy plants: Protect plants against the pests you can see and the stresses you can't.



Dr. Emma Lookabaugh
Technical Specialist
at BASF - Southeast

BASF plant health experts discuss managing the stresses of shipping for ornamental crops, from color to trees.



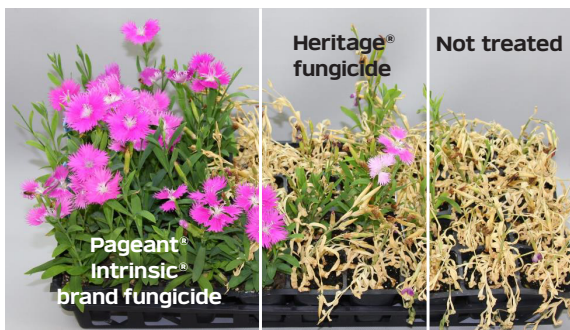
Jen Browning
Technical Specialist at
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Emma: From propagation to finishing, a lot of effort goes into protecting plants from pests like pathogens, insects and mites, and even weeds — but what about some of those “unseen” factors that can make or break a crop? We are talking about plant stress here, and it can come into the picture at any stage in the production cycle.

Jen: One of the things that stresses growers out is picking orders and staging them on the docks for loading, and then finding insects or eggs in the canopy. A trip to the customer in a warm truck is stressful enough, but it also helps accumulate degree days more quickly. When the truck is opened on the other end of the shipment, there's an infestation in full swing. If the plants also became droughty during transport, that can lead to a shipment rejection or decline on the shelf. Stressed plants mean stressed growers.

Emma: Never let down your guard. You don't want to make it to the finish line only to lose the crop in the back of an 18-wheeler somewhere between the loading dock and market shelves. Before you load up the carts and lock the hatch, give those plants one last parting gift: hit them with a shot of Intrinsic. For over a decade, BASF has been an industry pioneer with our Intrinsic® brand fungicides: Pageant® Intrinsic brand fungicide, Empress® Intrinsic brand fungicide and Orkestra® Intrinsic brand fungicide. These products, powered by the active ingredient pyraclostrobin, offer superior plant protection through a combination of broad-spectrum disease control and plant health benefits in the form of increased growth efficiency and increased tolerance to stress.

Jen: Let's face it: the things we do shipping plants are inherently stressful. We might wrap them in paper or plastic or box them up. We might rack them up and then wrap the racks, packing them tightly into a shipping container. When we shipped trees and shrubs at the nursery I worked at, we built out the inside of the container with wooden supports to hold up the trunks and canopies so they arrived intact and pristine — each specimen was packed tightly, partly for fuel efficiency and partly to protect the cargo from the bumps of the road. That meant higher temps, little to no air movement, and lots of ethylene production.



Plant quality trials

(Images on the left) Treatments applied three days before drought stress event. Water was withheld until plants reached near permanent wilting point before watering resumed.



Image on the right shows increased shelf life compared to untreated plants.

Emma: Poor air circulation, high humidity, and tightly packed plants – man that sounds like the perfect environment for pathogens like Botrytis to run wild. Botrytis spores can be ubiquitous in production and packing areas. Any plant material or organic debris left behind on carts and equipment can serve as a source of inoculum. Senescing flowers and damaged plant material are ground zero – but under favorable conditions it doesn't matter where it started, the pathogen can quickly proliferate and wreak havoc. Make sure foliage is dry before packing to limit leaf wetness. Also, pay careful attention during summer shipping because temperature differentials from indoors to outside on a loading dock can be extreme and lead to condensation build up in packing materials. Apply a protective fungicide prior to shipping to prevent new infections and limit disease spread.

Jen: At least weeds have the decency to either be present or not when you pick and pack an order; they are a problem that doesn't tend to get worse in the hours after plants leave the nursery. When it comes to insects and shipping stress, one thing that can help during the cool months is an oil application prior to shipping. Ultra-Pure Oil horticultural insecticide, miticide and fungicide from BASF controls all life stages of insects and mites including eggs, controls powdery mildew, and shines leaves to removes water spots or spray residues. During the summer months, you could instead choose to make a systemic or insect growth regulator (IGR) application to protect plants after they leave the nursery. We know that two pests in particular can overwhelm plants under a stress setback like prolonged drought or heat stress: spider mites and whiteflies. If you're shipping a common host of either of these pests, applying a product to control them at their destination can protect plant quality at the customer's dock. You can't always control how fast they open the boxes or water thirsty plants, but you can keep pests from adding to the credit sheet in the meantime.

Emma: Unfortunately, once those plants leave the greenhouse or nursery, we have little control over how they are treated. Not only do we have to worry about temperature extremes – leaving the plants sitting on a freezing loading dock can quickly result in irreversible damage – but once they hit market shelves, they can get a little neglected (i.e., missed watering). Intrinsic brand fungicides provide proven plant health benefits in the form of better crop resilience to external stresses like heat, cold and drought stress. Apply Pageant Intrinsic brand fungicide prior to shipping so plants are better able to withstand stress on the road.



Geranium cold tolerance trial

Pageant Intrinsic treated geraniums were sprayed at 12 oz/100 gal three days before cold stress and compared to untreated, cold-stressed geraniums. Both are shown at three days after acclimation.

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That's it for this edition of Roots to Road with BASF! 