Thrips & Botrytis Newsletter 2018
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Research Update:
Greenhouse weather stations: A promising new tool for Botrytis management

Researchers at Clemson University are evaluating new methods to improve Botrytis management practices. One approach is to assess the risk of infection in two rose greenhouses using daily spore counts and climate data. Spore counts vary and increase dramatically during certain production practices, but in general there are always spores in the greenhouse that can infect the crop. The assessment of risk is a bit more complicated and will require more detailed work outlined below in steps 1 to 3.

Step 1: Develop a model to predict the environmental conditions under which Botrytis spores will germinate and grow on rose tissues. Below is an example that demonstrates the effect of leaf wetness duration (\( h \)) and temperature on the infection risk of Botrytis on strawberries.

![Graph showing the effect of leaf wetness duration and temperature on Botrytis infection risk](image)

Botrytis infection risk (%) calculated considering continuous leaf wetness and temperature

Step 2. Collect environmental data in a rose greenhouse with a weather station (left). Leaf wetness sensors (right) measure the number of consecutive hours that the leaves are wet.

![Weather station at rose production greenhouse](image)  
![Leaf wetness sensor](image)
Step 3: Environmental data from a rose greenhouse (left) is processed in a computer (right). Using the risk assessment model, the computer makes a daily estimate of the disease pressure (bottom).
Current directions:

1. We are developing a Botrytis risk assessment model specifically for cut flower roses to be used in Step 1.
2. In addition, over this past year we determined spore counts in rose greenhouses to be used for risk assessment. The image below shows one of our spore traps. Our data will be compared to actual disease incidence data obtained by the producer when roses are placed in humid chambers and data from the daily scouting for Botrytis incidence in the roses and the rose canopy.

Potential outcome
Once disease risk can be accurately predicted, then strategies can be developed and tested to improve the timing of fungicide applications to improve efficacy and perhaps even reduce the number of sprays.