

## *Greenhouse Disinfectants – Ensuring Clean Tools for Propagation*

### **PRINCIPAL INVESTIGATORS:**

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### **PROJECT OBJECTIVES:**

- 1) Establish a system for rigorously testing disinfectants for efficacy against important greenhouse pathogens;
- 2) Identify disinfectant treatments that provide effective control of the mechanically transmitted pathogen, *Tobacco mosaic virus* (TMV) on *Petunia x hybrida* (petunia); and
- 3) Screen disinfectants against other pathogen types.

### **ACCOMPLISHMENTS:**

- 1) A two-tiered system consisting of a preliminary disinfectant screen followed by replicated trials to test disinfectants against TMV, one of the most important viral greenhouse pathogens, was established in two geographically disparate locations (Florida and Ohio).
- 2) Effective products for disinfecting TMV-contaminated tools during vegetative propagation and other cultural manipulations were identified. Treatment of TMV-contaminated tools with a 20 percent (wt/vol) solution of nonfat dry milk (NFDM) plus 0.1 percent Tween-20 or a 1:10 dilution of household bleach (0.6 percent sodium hypochlorite) completely eliminated TMV transmission to petunias. Treatment of contaminated tools with 1 percent (wt/vol) Virkon S or 20 percent NFDM also significantly reduced the incidence of infected petunias. Other treatments identified in preliminary screens are candidates for ongoing screening that simulates contamination during the process of taking cuttings.

### **TECHNOLOGY TRANSFER/IMPACT:**

The TMV-petunia system is an ideal model system to study greenhouse sanitation in an herbaceous crop both because of its economic importance and the difficulty of eradication. Results highlight the importance of symptomatic and latent infections of vegetatively propagated crops like petunias, and the need for viable sanitation treatments. Results to date have been presented at seven regional grower meetings and five national meetings, including the OFA Short Course and the APS annual meeting. Two trade journal articles, two abstracts, and one student thesis have been published, and one refereed scientific journal article is in press at Plant Disease.

### **ADDITIONAL FUNDING/EXTERNAL SUPPORT:**

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**COLLABORATORS:**

Amanda Hayes (undergraduate student researcher), Mike Tiffany, Margery Daughtrey, Darryl Thomas, Mike Klopmeier, Petra de Rooij, Ann Chase, John Bambara, Bob Starnes, Fred Ceballos, Dennis Crum, Deke Jackson, John Gaydos, and P. Allen Hammer.