

**VEGETABLE IPM RESEARCH AND DEVELOPMENT FINAL REPORT FOR 1997**

**Title:** Biological Control Measures to Reduce the Late Season Collapse of Melon

**Principal Investigator:** Thomas A. Zitter, Department of Plant Pathology, Ithaca, N.Y.

**Cooperators:** E. B. Nelson, Department of Plant Pathology, and A. Ranjarajan, Department of Fruit and Vegetable Science, with H. M. Munger, Department of Plant Breeding, Cornell University, and B. D. Bruton, USDA, Lane, OK 74555.

**Abstract:** Sudden wilt or late season collapse of melon is a major impediment to the commercial production of this crop in New York. The agent or agents responsible for the cause of sudden wilt has been the subject of research and speculation for nearly 60 years. An attempt was made in 1997 to establish if *Verticillium dahliae*, a ubiquitous soilborne pathogen, might be one of the biological factors responsible for sudden wilt. Isolates of *V. dahliae* recovered in 1996 from wilting cucurbits in New York suspected of having sudden wilt were identified as belonging to vegetative compatibility group (VCG) 4B. This VCG is commonly isolated from potato and cotton in other states and countries. Using these isolates, numerous attempts were made to infect melon seedlings of varying susceptibility to *V. dahliae* (Charentais, Persian, Galia, Honeyloupe, and Gold Star), but without success. Failure to reproduce wilting and the subsequent reisolation of the fungus in growth chamber studies prevented use from pursuing the main objective of testing the potential of composts and soilborne antagonists for their efficacy in protecting melon seedlings against *V. dahliae*. We were successful in producing microsclerotia for further studies. Microplots were established in the field with the melon variety Galia, and were selectively infected with a New York isolate of *V. dahliae*. Again, we were unsuccessful in recovering *V. dahliae* from any of the positive controls, and we were unable to produce wilted plants. Since that time, we have secured numerous isolates of *V. dahliae* from many hosts from around the US, and we are in the process of determining pathogenicity for melon in greenhouse studies.

For a printed copy of the entire report, please contact the NYS IPM office at:

IPM House  
630 W. North St.  
New York State Agricultural Experiment Station  
Geneva NY 14456  
315-878-2353