

Growers Meeting About Watermelon Vine Decline

Southwest Florida Research & Education Center (SWREC)

Immokalee, Florida

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(Notes by Felicia Parks)

Dr. Scott Adkins-Virologist, USDA, Ft. Pierce, FL

Dr. Adkins described the recent discovery revealing that a virus is the cause of the Watermelon vine decline disease that has caused watermelon losses in Florida. This virus was originally discovered on a squash plant during a survey of cucurbit viruses. In squash the virus turns the veins yellow. Other hosts include cantaloupe and cucumbers with mild symptoms from which they will recover. The name proposed for this new virus is Squash vein yellowing virus (SqVYV). SqVYV is in the genus *Ipomovirus* in the family *Potyviridae*. Unlike other members of its genus, SqVYV is whitefly-transmitted. About half of the whiteflies transmit the virus quickly in the lab. Dr. Adkins discussed potential virus reservoirs. These include weeds, such as *Melothria* and *Momardica*, surrounding fields. Research showed that SqVYV was capable of causing vine decline and the fruit necrosis symptom in field and greenhouse watermelons. Inoculated watermelon seedlings die within 1 week of inoculation in the lab. In the field, the plants die after the fruits size up. SqVYV virus particles were recovered from the symptomatic melons thus completing the story of pathogenesis.

Dr. Phil Stansley, University of Florida - Whitefly Management for Vine Decline

Vine Decline first showed up in 2003 until 2006. It has cost watermelon growers in FL 25 million dollars. Dr. Stansley described the results of the Fall trials at Immokalee, which showed conclusively that the whitefly is the vector of the watermelon vine decline.

Questions that still require answers from research:

- Other than Silverleaf Whitefly, what other types of whiteflies might transmit the virus.
- Do mixed infections mask the virus symptoms?
- Is infection occurring early and lying 'dormant' until the plants set fruit?
- When do you time the Admire applications and how much do they help?
- Are there any early symptoms that are now going unnoticed? Eg., Leaf margins become necrotic first and the main veins stay green after the secondary veins go down.
- The Fall trial pesticides were Oberon -2x, Endosulfan -2x, and Admire at planting.
- What is the recommended whitefly threshold? Best to use a conservative number.
- We have no information on primary and secondary spread at this time. We do not advise roguing infected plants.