Georgia Extension Vegetable News

The University of Georgia

Cooperative Extension Service

College of Agriculture and Environmental Sciences / P.O. Box 1209, Tifton, GA 31793

Volume 1, No. 6 July 2001

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Mosaic Viruses of Cucurbits

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Fall cucurbit production is always a more of a challenge than the spring due to diseases. Virus diseases particularly cause serious losses in the fall every year.

Cucurbit viruses in Georgia are primarily caused by four viruses. These are watermelon mosaic virus II (WMVII), zucchini yellow mosaic virus (ZYMV), cucumber mosaic virus (CMV), and papaya ringspot virus (PRSV). These viruses are primarily transmitted by aphids in a non-persistent manner. This non-persistent transmission usually takes only a few seconds to acquire from and transmit to plants. The aphid populations tend to build up during the summer which translates to higher virus transmission the later you get in the summer. These aphids can travel long distances to initially transmit viruses to fields in Georgia. Once in a field, aphids can move from plant to plant and spread viruses within the field through secondary spread.

Primary inoculum for these viruses can come from naturally occurring weed hosts, abandoned cucurbit fields, nearby cucurbit fields, or volunteer cucurbits. It is believed that most transmission comes from nearby sources because the retention time of these viruses is very short (minutes or hours), some retention times have been documented at 20 - 30 hours. Seed transmission is not thought to play a major role in the cucurbit mosaic disease complex as seed transmission has only been consistently documented in CMV and that was in weed hosts and cowpea.

Once a plant is inoculated with one of these viruses, the virus particles can travel systemically throughout the plant. Variations in temperature, light, crop variety, viral strains, host vigor, viral concentration, and mixed viral infections can all have an effect on symptom expression. Symptoms usually show up anywhere from 3 days to 2 weeks following infection. Infected plants may appear asymptomatic because the incubation period for the virus may not have been completed or the symptoms may be masked by certain environmental conditions. Sometimes symptoms may show up on one part of a plant and not the other (i.e. symptomatic fruit on a plant with asymptomatic foliage). No one can rely on symptoms alone to identify specific viruses and lab testing is required to accurately identify viruses. The cucurbit compendium will have complete descriptions of virus symptoms.

The use of resistant varieties is the best control method for cucurbit viruses. These varieties have either traditional "host" resistance or "pathogen-derived transgenic" resistance. Another type of resistance that is actually more like tolerance is a masking of viral symptoms through the use of a precocious yellow gene in squash. Most of the virus resistance is in squash. Of these type of resistance, the transgenic is the most expensiveso far as seed are concerned. Cultural disease control practices such as destroying abandoned cucurbit fields, weed hosts and volunteer cucurbits all cut down on available virus

inoculum. Avoiding late plantings of squash can also reduce losses to viruses. Insecticidal sprays alone are not effective in controlling viruses. Stylet oil sprays can reduce the spread of aphid-transmitted viruses. These oil sprays must be applied when foliage is first available to aphids, at or above 400 psi, and on a 3 - 4 day schedule to be totally effective. If any of these are omitted in the oil program, virus control is greatly compromised. Reflective mulches that are bright and shiny have shown promise in other states.

Trifluralin for Processing Greens

Stanley Culpepper
Extension Weed Scientist - UGA

Unfortunately, most trifluralin (Treflan HFP, Trilin, others) labels are confusing, often leaving readers wondering if they are using the herbicide as intended. Recent clarification of the Treflan HFP label has confirmed that the product can be used on turnip greens, collard greens, kale, and mustard greens ONLY when grown for processing. Thus, Treflan HFP may not be used on these crops when grown for fresh greens.

Growers producing these greens for fresh market are extremely limited in weed control. Options include Prefar and Poast for collards, kale, and mustard as well as Dacthal for collards, kale, mustard greens, and turnips (greens and roots).

Hopefully, through cooperative efforts of the University of Georgia, IR-4, and the EPA, new herbicide tools will be developed quickly for producers.

Extension Vegetable Team Changes

David Langston
Extension Plant Pathologist - UGA

The month of June saw some changes in our UGA extension vegetable team.

First, Dr. David Adams retired on June 29th. Dr. Adams had been the extension vegetable entomologist for several years and his service to the Georgia vegetable industry has been invaluable. He will be sorely missed by all. His position is to be filled as soon as possible and the entomology department is currently taking applications and has set the application deadline as September 20th. This position is critical to commercial vegetable production in the state and the person that is hired will have a steep learning curve and some big shoes to fill.

Secondly, Dr,. Greg Fonsah joined our team on June 1st. He is originally from Cameroon and has applied experience in vegetable marketing and economics. He worked for Delmonte Fresh Produce for 11 years before going with Lapanday Food company in Malcati, Philippines where he worked as an ag. management consultant. His first assignment with this company was to work with Aloha Farms in Hawaii to improve their profitability with bananas. Dr. Fonsah will be a great asset to the growing vegetable industry in Georgia.

Tifton Plant Disease Clinic

Jason Brock
Plant Disease Diagnostician - UGA

The following is a summary of the commercial vegetable samples diagnosed since the June newsletter.

Cantaloupe:	Alternaria Leaf Blight (2)
	No Disease
	Unknown (2)
Collard:	Unknown leaf spot
Eggplant:	Phomopsis Blight
Lima Bean:	Anthracnose
Onion:	Botrytis Neck Rot (3)
	Bacterial Rot (Pseudomonas)
	Sour Skin
Pepper:	Anthracnose
	Pythium Root Rot
	Insect injury
	Unknown (2)
	No disease (2)
Southern Pea:	Anthracnose
Sweet Potato:	No disease
Tomato:	Environmental/Physical injury
Watermelon:	Anthracnose (4)
	Fruit Blotch
	Gummy Stem Blight (3)
	Phytophthora Fruit and Crown Rot
	Powdery Mildew
	Chemical Phytotoxicity
	TDTD (2)
	Unknown
	Possible Yellow Vine Disease

Georgia Extension Vegetable News
Volume 1, No.6. July 2001
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The Georgia Extension Vegetable News is published bimonthly for Jan-Feb, Sept-Oct, and Nov-Dec and monthly March-Aug. This newsletter is also available on the World Wide Web at www.cpes.peachnet.edu/veg or www.ugaveg.org.