

*Vegetable Crop Specialists***VEGETARIAN**

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MR. COUNTY AGENT:

You have been exposed to several summaries of the VIRUS situation on vegetables in Florida. However, since it involves new terminology we felt you may appreciate some further assistance in the form of a newsletter.

We will not attempt to present a complete picture of every possible virus-like condition; however, we do feel this will add to your knowledge and be of use as ammunition in answer to the many vegetable grower inquiries on this subject. Confusion can result from trying to identify viruses in the field, even by people supposedly familiar with them.

We've relied heavily on Dr. C. W. Anderson, virologist here at the Main Station, and Dr. J. N. Simons at the Everglades Station, Belle Glade. Dr. M. K. Corbett recently joined the Main Station staff in this field. Much, but not all, of the following information has been based on Florida work. Note further details in 1954 Florida State Horticultural Society Proceedings.

RECENT PROMINENCE...but here for a long time.

Evidence suggests some known viruses (and probably many still undescribed) present before development of agriculture in state; some probably endemic (look it up) in Florida; others introduced by man or arose in very recent times. Disorders attributed to viruses known in Florida at least as early as late teens and early 20's. However, other records and studies had to await development of science of virology and recognition of importance of virus diseases. Causal viruses in many cases still unknown.

WHAT'S KNOWN ABOUT THOSE WE DEFINITELY HAVE IN FLORIDA?...briefly.

Cucumber mosaic virus: at least two strains; apparently numerous substrains; spread by aphids; does not occur in soil; rarely or never seed-borne in commercial crops; causes important losses in cucumber, pepper, celery, Easter lily, and probably tomato and melon; important sources include Commelina, Easter lily and gladiolus.

Watermelon mosaic virus: spread by aphids; attacks cucumber, squash, melon, watermelon, citron, wild cucumber and angora gourd; infected none outside cucumber family; did not infect wild mock cucumber; sole known source wild cucumber; probably occurs throughout Florida; symptoms in watermelon sometimes mild and overlooked.

Muskmelon mosaic virus: seed-borne; attacks melon and wild cucumber in Florida, cucumber elsewhere; indicated not spread by aphids and not now economic problem here; not known to infect plants outside cucurbit family.

Aster ringspot virus: attacks pepper, china aster, pansy and nightshade; sources and insect vectors unknown; not now considered important but infects wide range plants; might be damaging in future.

Tobacco mosaic virus: attacks tobacco, tomato and pepper mostly; certain strains common on plantains and occasionally reported various solanaceous plants

and others; man spreads; tobacco products important sources; various insects possible but doubtful vectors; tobacco refuse, volunteer or old tobacco plants, weeds, and possibly tomato and pepper seed may occasionally be sources; may persist in plant refuse for several months.

Tobacco etch virus: attacks tobacco, tomato and pepper mostly, also certain solanaceous weeds (including Jimson weed), and legume Cassia tora; spread by aphids; living plants considered source; Cassia does not overwinter virus in North Central Florida.

Potato virus Y: aphid-borne; resembles tobacco etch; attacks potato, tobacco, tomato, pepper, henbane and various solanaceous weeds; potato considered important source but weeds additional danger; importance in state not well-known but severe disease of tomato in some cases and some trouble on tobacco; may prove less important to Central Florida pepper than etch and tobacco mosaic.

Tobacco ringspot virus: common in gladiolus; insect vectors only known experimentally; seed-borne in several hosts including tobacco, petunia and soybean; attacks tobacco, eggplant, bean, soybean, cucumber, melon, watermelon, sweet clover, and others; infected seed, wild plants and vegetatively propagated plants are sources.

Lettuce mosaic virus: common and can be damaging; seed-borne; spread by aphids; causes systemic diseases in Composite and Legume families; lettuce seed main source but reported from few other plants.

MANY OTHER VIRUSES ARE RECOGNIZED....there will be more.

For example, common bean mosaic, cowpea mosaic, sweet potato internal cork, and potato X occur in Florida; infected seed common sources of first two, sweet potato and potato tubers sources of last two; cowpea virus attacks some *Crotalaria* and *Desmodium* sp. but their importance as weed sources is unclear. Many others could be listed as having been reported or studied.

YES, SEVERAL MAY ATTACK SAME CROP....double trouble.

For example melon is attacked by cucumber mosaic, watermelon mosaic and muskmelon mosaic in Florida; cowpea is attacked by a cucumber mosaic virus strain and by a cowpea mosaic. A given weed host may harbor several viruses....

CONTROL....a big question.

You can see why from the above and we hope this short presentation will assist you in helping the grower and others to understand. A great deal of research needed, as in other phases of virus work....however,

1. Resistant varieties may offer some control as others are developed; used as a means to control common bean mosaic on bean (nearly all varieties) and tobacco mosaic in pepper (Yolo Wonder).

Yet, must remember a variety resistant to one virus may be susceptible to another, and resistant varieties must be adapted to Florida.

2. Weed control may be promising for some viruses but must learn more about many weed hosts; determine whether practical and economical control can be achieved in this way, chemical possibilities, etc.

3. Other methods that may prove useful in certain cases are maintenance of healthy seed stock, insect vector control, and sanitation.

No one method will control all viruses. Remember that methods to control virus primarily spread by man, such as tobacco mosaic, will not necessarily control aphid-borne virus of same crops. Healthy seed stock will not control if weeds are infected, or if neighbor uses diseased material. Aphid control may be particularly ineffective if large migrant flights are responsible for spread of the virus.

The main point to remember is that a single method is not necessarily the answer, and that an apparent failure may result from an attack by a different virus from the one considered, or from other factors which do not indicate that the method actually failed to control or is useless against the virus in question.

Several things are necessary to get virus spread in a crop:

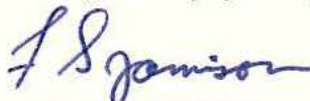
1. Virus must be present, whether in crop or weeds.
2. Vector must be around and moving from infected source to new host.
3. Susceptible crop must be available.

Breaking this down at any point will stop the cycle.

NO, IT'S NOT A ONE-MAN SHOW....many concerned.

Although we've used words of workers mentioned herein, you should realize about every plant pathologist in the State is or has been closely concerned with virus diseases in the various vegetable areas.

Very truly yours,



F. S. JAMISON
Vegetable Crop Specialist

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