

# Sugar Beet Plantings

## As Reservoirs for Cucumber Mosaic Virus They Can Endanger Other Crops

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Comparatively severe outbreaks of western cucumber mosaic (hereafter designated WCUM) in Arizona sugar beets emphasize the possible importance of this crop as a reservoir for the virus. Sugar beets are known to be susceptible to other viruses including Curly top and Virus Yellows.

### Potential WCUM Virus

Recent Arizona studies have shown that sugar beets are invaded by strains of WCUM capable of infecting vegetable crops and other plants. At least one strain of WCUM isolated at this station from a Salt River Valley sugar beet planting causes severe mosaic in cantaloups, tomatoes, eggplants and other vegetables. Also, a strain of the virus has been isolated from certain weeds as well as from such forage crops as alfalfa.

In Arizona WCUM has been isolated from alfalfa plantings as far as three miles from sugar beet plants. It is highly probable that infected weeds were present in the intervening areas between the sugar beets and the alfalfa.

### How to Recognize Attack

Among the reactions (symptoms) displayed by strains of WCUM in sugar beets in the field are severe mottling due to yellow leaf surface areas intermixed with green ones and mottling on the leaf stems. Sometimes the yellowed areas are very brilliant. Often dark green, blister-like, puffed areas appear on infected leaf surfaces.

Still another symptom consists of round, green or yellow, spot-like areas. Severely infected sugar beet plants are generally stunted and even bushy in appearance. In cantaloups, yellow mottle and leaf distortions occur as a result of attack by WCUM.

There is evidence to indicate that in Arizona WCUM in cantaloups and honeydew melons is accompanied simultaneously by still another virus—tobacco ring-spot. In such cases leaf death occurs, in addition to the other symptoms just described.

Fortunately for the alfalfa grower, symptoms of WCUM attack are not severe. Attacks by the virus do not result in appreciable reduction in yields of either hay or seed. In non-hardy, rapid recovering Arizona alfalfas thus far examined, WCUM causes a light clearing of the veins of the leaflets in addition to leaflet puckering. All of the symptoms in alfalfa appear to be of a mild nature. However, alfalfa plants, being perennial, act as reservoirs for the virus.

### Ground Cherry is Carrier

Many weeds also serve as sources for WCUM. The host range in Arizona for the virus is imperfectly known at present. A severe strain of the virus was isolated from the ground cherry by University of Arizona plant scientists in 1954. Recently another isolation was derived from an unidentified weed collected in Oak Creek Canyon.

### How is WCUM Spread?

In the field, WCUM is spread by different species of plant lice (aphids). No information has been accumulated as to the species of aphids involved in the spread of the virus in Arizona. In other areas there are several species of aphids capable of transmitting WCUM, some known to exist in Arizona. In greenhouse trials at Tucson, an unidentified species of aphid caused infections in cantaloup when fed on WCUM-infected sugar beet leaves for an hour previous to a 10-minute feeding on healthy cantaloup plants. The feedings were carried out under reduced light intensity.

Mechanical transmissions with juices from infected sugar beet plants caused infections in cantaloups, eggplants, tomatoes, tobacco and globe amaranth. The

latter two species are used chiefly to carry virus cultures for additional studies. Mechanical transmissions were obtained only with difficulty.

### Can Control be Effected?

As with many other viruses, no direct means of control for WCUM are known. Good cultural practices in such crops as sugar beets and vegetables can lessen damage from the virus. Such practices involve:

(1) **Periodic eradication of weeds both within the crop and in nearby areas.**

(2) **Planting of susceptible crops in fields separated by some distance, so that no two crops likely to attack are growing in adjacent areas.**

(3) **Planned crop rotation, both in individual fields year after year and in general crop areas, to reduce the possibilities of virus buildup in crops and weeds.**

(4) **Since many ornamental plants, such as petunias and others, are susceptible to WCUM, see that the ranch-house yard plantings are not adjacent to WCUM-susceptible vegetable and field crops.**



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Sat., 10:30 a.m.—KCLF, Clifton

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Mon. thru Sat., 5:55 a.m.—  
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