

Virus transmitted

Disease of Cotton

found in fields in desert valleys

Leaf-crumple, a virus disease of cotton—first observed about 1948 in the Coachella Valley—has been found in the Imperial, Borrego, Mexicali, and Yuma valleys and in the Gila Valley up to a point well east of the town of Roll, Arizona. However, neither the leaf-crumple virus nor its insect vector has been seen in the San Joaquin Valley.

Leaves of infected cotton plants look warty when seen from the top, because of the upward swelling of thin leaf tissue between the leaf veins. The flower petals show a similar puckering. Some of the bolls on infected plants are lopsided. Seedling cotton plants infected in the early summer are badly stunted.

Leaf-crumple virus is transmitted by the sweetpotato whitefly—*Bemisia tabaci* (Genn.), also called *Bemisia inconspicua* (Quaint.). Young sweetpotato whiteflies are clear, flat and shield-shaped, and are securely attached to the leaf on which they are feeding. Adults are tiny winged moth-shaped insects. Their bodies are yellow and their wings pure white. On the Colorado Desert the sweetpotato whitefly is usually only one of two whiteflies breeding on cotton. The young of the other whitefly—*Trialeurodes abutilonea* (Haldeman)—are oval and thick. The adults have blue-gray spots on the wings. Usually high populations of whitefly on desert cotton are composed mostly of *T. abutilonea*. Sometimes the sweetpotato whitefly amounts to less than 1% of the whitefly population.

To transmit the leaf-crumple virus, the sweetpotato whitefly adult must feed for



Symptoms of leaf-crumple in cotton leaves.

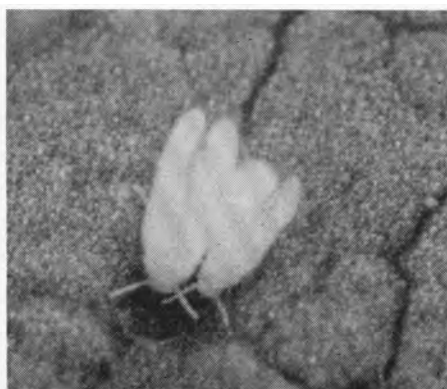
more than four hours on a diseased plant, then move to a healthy plant and feed for more than one hour on it. A single infective whitefly is able to infect a cotton plant. The sweetpotato whitefly can not become infective before it becomes adult. Once an adult whitefly becomes infective it remains so as long as it lives. The sweet-

ton, even though some suspicious symptoms have appeared in okra and hollyhock test plants. In the field, the leaf-crumple virus goes through the winter in stub or abandoned cotton, since once a plant is infected it remains diseased as long as it lives. It is quite certain that the virus is not carried in seed from diseased cotton plants. Seedling cotton plants are always free from leaf-crumple infection until the virus is carried to them by infective sweetpotato whiteflies. Diseased stub or abandoned cotton plants seem to be about the only plants that carry leaf-crumple virus through the winter. Adult sweetpotato whiteflies do not live that long. The amount of leaf-crumple infection in a field can be reduced by destroying infected plants and reseeding the cotton.

Immature sweetpotato whiteflies.



Adult sweetpotato whiteflies.



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