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The Plant Doctor

Tobacco Mosaic Virus

Tobacco mosaic virus is the oldest identified plant virus. It was first recognized because of how easily it infects plants, its noticeable symptoms, and its persistence. It is not as common in Mississippi as other plant viruses, such as tomato spotted wilt virus that causes blackening and ring spots on many plants, or the mosaic viruses that mottle the leaves of cucurbit and blackeyed pea crops.

The tobacco mosaic virus attacks plants in the families that include tomato, pepper, eggplant, tobacco, spinach, petunia, and marigold. Many modern vegetable varieties have been developed to resist this virus.

Symptoms vary somewhat with the strain of the virus. Infected plants are usually mottled, stunted, and sometimes distorted. On tomato, the virus frequently causes light and dark green mottled areas on the leaves. The dark green areas tend to be thicker than the lighter portions of the leaf. Young growth is usually stunted, with distorted leaves curling down. Some strains produce a mottling, streaking, and death of the fruits.

The virus moves to new plants by grafting, in seed coats from the infected mother plant, and by contact with infected plants or plant sap. Cultivation, pinching, or picking easily spread the virus from infected to healthy plants.

Tobacco products commonly contain the virus. Thus people who use tobacco products should throughly wash their hands with detergent soap before handling plant material.

Sometimes whole milk can be an effective rinse (see http://www.apsnet.org/education/feature/TMV/Images/tmv31.htm). Milk sprayed onto plants may protect them from infection for up to 10 days. You should spray before transplanting in situations where you can not prevent workers from using tobacco. Spray transplants until runoff with one pound of dried milk in a gallon of water immediately before transplanting.

The virus is very persistent on bench tops and other materials. It can be infective as long as eight years on bench tops and 50 years in dried plant material. Cleaning a growing operation after infection with this virus or its relative, tomato mosaic virus, requires patience and attention to detail.

You should clean and disinfect benches, equipment, and disposal areas with products that contain quatanary ammonias, such as Hi-Yield's Cosan 20 or Green Shield. You may also use a 10 percent bleach solution, but it corrodes metal.

As with all viruses, you can not save the plant once it is infected. First bag infected plants, then remove them from the operation and destroy them. You should control perennial weeds such as horsenettle and jimsonweed, which may act as hosts.

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