



AVRDC - The World Vegetable Center

Fact Sheet

Pepper Diseases

Pepper Mild Mottle Virus

Mechanically Transmitted Tobamovirus

Found worldwide



Symptoms

Foliar symptoms of pepper mild mottle mosaic virus (PMMV) consist of mottling and yellow/green mosaic, while fruit may be small, malformed and mottled, with sunken or raised necrotic spots. Yield loss is considerable when young plants become infected.

Conditions for Disease Development

PMMV is not transmitted by insects. It can be seed-borne, consequently, the seedlings can be infected by mechanical contamination from their seed coats during

transplanting or other cultural procedures. This is a primary source of infection.

The virus is quite stable and highly infectious and is easily spread from plant to plant during normal crop maintenance. Also, the virus can persist in the previous crop in infected pepper debris such as leaves, stems or roots in soil for several months.

Control

Resistance to PMMV is available in some varieties. Consult with your extension agent for recommendations.

How to Identify Pepper Mild Mottle Virus



Leaves develop a mild systemic mosaic and at times show crinkling; fruit develop severe symptoms such as distortion, rings, lines and necrotic spots

Use seed from healthy plants. If seed is suspected of infection with PMMV then do the following: soak seeds in 10% trisodium phosphate (TSP) for 2.5 hr while stirring the seeds in the solution. Change the TSP once after 30 min. Rinse seeds thoroughly in tap water after the treatment to remove residues of TSP and spread seeds out to dry. The above procedure will significantly reduce levels of PMMV in external and internal portions of the pepper seed. Do not re-contaminate seed by placing them in used containers.

Use a 1-year rotation to avoid continuous pepper cultivation. Keep production area and seedbeds free of volunteer peppers that can serve as over-wintering hosts for the virus.

If growing seedlings and transplants in a greenhouse, then use steam-pasteurized soil in which plant debris has been allowed to thoroughly decompose since PMMV may be protected in thick pieces of root and stem refuse.

Avoid touching or handling pepper plants prior to setting them in the field. Remove diseased pepper seedlings that show mild mottle or mosaic symptoms on the foliage. Remove one or two plants adjacent to those plants that show symptoms. Do not touch other seedlings while discarding them. Dip hands in milk while handling plants every 5 minutes (more often if different lots of plants are handled). Rubber gloves will protect hands. Do not clip or damage young seedlings since this increases the possibility of mechanical transmission of the virus from contaminated tools or hands.

Remove diseased plants from the field as soon as virus symptoms are noticed. This will reduce the spread of the virus by direct contact between plants. Work in diseased portions of fields last, after working in healthy portions of fields. Cultural practices should be used that minimize contact with plants by workers and equipment or tools.

Disinfect tools, stakes, and equipment before moving from diseased areas to healthy areas. This can be done by: 1) soaking 10 minutes in a 1:10 dilution of a 5.25% sodium hypochlorite, do not rinse; or 2) by washing (enough to clean) in detergent at the concentrations recommended for washing clothes or dishes. Keep all solutions fresh.

Hands and tools may be washed with soap or milk. Work in diseased areas after working in unaffected parts of a field. Wash clothing that comes into contact with ToMV/TMV-infected plants with hot water and a detergent.

For more information on the production of pepper and other vegetables, go to <www.avrdc.org>.