



AVRDC - The World Vegetable Center

Fact Sheet

Pepper Diseases

Cucumber Mosaic Virus

Aphid-Transmitted Cucumovirus

Found worldwide

Symptoms

Symptoms vary widely. One of the most common expressions is a severely stunted, nonproductive plant that has dull light green foliage with a leathery appearance but not distinctive foliar markings.

In some cases the leaves become narrow and no longer expand, while in other cases, small necrotic specks or ring spots with oak leaf patterns develop. Sometimes a necrotic line develops across the leaf. Affected leaves may drop prematurely. Older plants that are infected may show foliar mottling or no symptoms on foliage or fruit.



Fruit may be wrinkled, bumpy, pale to yellowish green in color, sometimes with sunken lesions. On some varieties lines or ring spots may develop.

Conditions for Disease Development

Cucumber mosaic virus (CMV) is not transmitted through pepper seed. CMV can be mechanically transmitted but because it is not as stable as TMV, workers handling infected pepper plants do not as readily transmit it.

More than 80 species of aphids including the green

How to Identify Cucumber Mosaic Virus



Stunted, pale plant with no distinctive leaf markings



Chlorotic leaves



Chlorotic and necrotic ringspots and lines on foliage and fruits

peach aphid, *Myzus persicae*, are a vector of CMV; weeds are hosts for the virus as well as for the aphid vectors. The large number of aphid vector species and natural host reservoirs accounts for the high incidence of CMV in field plants.

Aphid vectors can acquire and transmit the virus after feeding for only one minute, but the ability to transmit it declines quickly. Pepper is not a preferred host of the green peach aphid, which normally prefers to feed on cucurbits and other plants. Most epidemics occur when aphids feed early in the season on weeds that may be symptomless but serve as reservoirs for the primary virus inoculum, and then later the virus-bearing aphids colonize the pepper plants.

Control

Pepper varieties resistant to some strains of CMV exist. Check with your extension agent for resistant varieties that are available in your region.

Current control measures for CMV are mainly preventive due to the wide host range of the virus and the numerous aphid vectors. Vegetable seedlings, other than pepper, derived from CMV-infected seeds can also serve as potential primary sources of virus. The use of virus-free seeds together with the eradication of virus reservoirs such as volunteer plants and nearby weeds can be effective in controlling CMV.

Grow seedlings in a structure or seedbed protected with netting of mesh size of 32 or greater to prevent aphids from entering. Discard any seedlings or young plants that show virus symptoms. Do not touch other seedlings while discarding them. Avoid touching or handling plants prior to setting them in the field. Dip hands in milk while handling plants. 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 aphid vectors.

Disinfect tools, stakes, and equipment before moving from diseased areas to healthy areas. Hands and tools may be washed with soap or milk. Work in diseased areas last, after working in unaffected parts of a field.

Insecticide sprays that are not fast-acting may not be that effective because the aphids move to other nearby unsprayed plants when disturbed.

If feasible, plant either very early or very late in the season to avoid exposing young plants to high or migratory aphid populations. Prevent aphids from reaching the pepper crop by covering the planted area with fine 32-mesh nylon net.

Other less effective measures include: planting barrier crops that are not susceptible to CMV such as corn, applying sticky traps, or covering the ground with an aphid deterrent material like aluminum foil strips. Another control strategy is to grow trap crops nearby that attract aphids and then spray these plants with a contact insecticide to destroy the aphid populations. Also, spray the pepper crop with mineral oil to delay virus spread in the field by interfering with aphid transmission of the virus.

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