



**Bacterial leaf spot (*Xanthomonas campestris v. vesicatoria*)**  
Prevented and cured by Kanguard 940™



Bacterial leaf spot symptoms on tomato seedlings



Bacterial leaf spot symptoms

This bacterium causes diseases on a wide range of plants and affect all above ground parts. Brown, circular spots may appear water-soaked during rainy periods. Spots on leaves may coalesce and may be confused with early blight, grey leaf spot or target spot and is surrounded by a prominent halo with no concentric rings visible. Fruit lesions resembles a slightly raised blister which becomes more like a scab with age. Seed and plant debris may be volunteers.

High humidity and temperatures of 24°C to 30°C induce disease and symptom development. Wind, water, insects and humans spread this bacterium through wounds, stomata, insect punctures and other mechanical means. Unhygienic pruning methods or other practices that may cause fresh wounds will offer direct penetration opportunities. Disposal of crop residue is of utmost importance. Eliminate potential volunteers. Sterilize between crop rotations. *Xanthomonas campestris pv. Vesicatoria* could be effectively controlled with bactericides.

**Bacterial canker (*Clavibacter michiganensis*)**

Prevented and cured by Kanguard 940™



Bacterial canker symptoms on tomatoes



Bacterial canker symptoms on tomatoes

*Clavibacter michiganensis*' occurrence is sporadic, but can be devastating. Symptoms include wilting and secondary symptoms like marginal leaf necrosis, due to obstruction of the vascular tissue. Inocula for this disease survives unfavourable conditions in soil in plant debris, weed hosts, volunteer plants, contaminated wooden stakes and seed. Splashing water, contaminated equipment, and workers will cause secondary spread.

Secondary dissemination often results only in foliar symptoms, bird's-eye fruit spots. Hygiene is the key in controlling a bacterial infection. Sterilise scissors and wash the clothes of workers every day. Restrict the movement of possible contaminated workers through tunnels and wash hands between rows when harvesting. Bactericides will be effective in order to limit available inoculum on plant material, as well as a general sanitation of applicable risk or contamination areas.

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