Tomato Diseases

(Septoria Leaf Spot, Early Blight, Late Blight)

UW Extension Cooperative Extension


Septoria Leaf Spot


Early Blight


Late Blight

There are 3 main diseases that make growing tomatoes in Wisconsin a challenge. Until recently, only Septoria and Early Blight were problems, appearing almost every year to greater or lesser degree. Neither of these kill tomato plants outright and neither actually damage the tomatoes directly. The third disease, Late Blight, is a different story. It was reported in Wisconsin in 2009 for the first time in many years. It is present again in 2010 since mid-July. It spreads up to forty miles at a time and infected plants die in 7 - 10 days. Both tomatoes and potatoes are susceptible to this deadly disease.

It is important to distinguish between the milder diseases, Septoria and Early Blight, and the highly contagious and deadly late blight. Septoria and Early Blight can often be managed by providing the proper growing conditions. Pesticides can be used but are not required. Late Blight, on the other hand, must be controlled by using pesticides preventatively, before the disease appears.

Septoria Leaf Spot Disease (caused by the fungus *Septoria lycopersici*)
Symptoms first appear at the base of affected plants, where small (approximately 1/4 inch diameter spots appear on leaves and stems. These spots typically have a whitish center and a dark border. Eventually several spots on a leaf will merge leading to extensive destruction of leaf tissue. The entire leaf may turn brown and dry or yellow and fall off. Prevention includes rotating tomatoes to different parts of the garden on a 3 - 4 year cycle; selecting resistant varieties when possible; increasing plant spacing to improve air flow and reduce leaf moisture; avoiding wetting of the leaves when watering; reduced use of mulch around plants; removing and destroying leaves as they become infected; removal of all diseased plant parts at the end of each season. Chemical control is best when used before symptoms appear or as soon as possible after appearance. Products containing the synthetic fungicide chlorothalonil are effective. Organic gardeners may use copper containing fungicides. (Also see *Wisconsin Garden Facts* XHT1073)

Early Blight (caused by the fungus *Alternaria solani*)
Symptoms first appear at the base of affected plants, where roughly circular brown spots appear on leaves and stems. As spots enlarge, concentric rings appear giving a bull's-eye appearance. Often spots have a yellow halo. Multiple spots will merge leading to extensive destruction of leaf tissue. All lower leaves may drop off and death can eventually result. Prevention and chemical control is the same as for *Septoria Leaf Spot Disease* above. (Also see Wisconsin Garden Facts XHT1074)

Late Blight of Tomato & Potato (caused by the fungus *Phytophthora infestans*)
Symptoms on leaves of tomato or potato, it begins as pale-green or olive-green areas that quickly enlarge to become brown-black, water-soaked, and oily-looking. Stems can also exhibit dark-brown to black areas. If weather conditions are cool and wet, plants can die in 7 - 10 days. Tomatoes themselves develop large, often sunken, golden– to chocolate-brown, firm spots with distinct rings. Potatoes develop a reddish-brown discoloration under the skin which become sunken. Any of this tissue eventually develops a white-gray fuzzy appearance. Prevention includes destroying volunteer plants each year; using resistant varieties of tomato (see list on reverse side); not replanting previous year's tubers; destroying diseased plants and tubers (plants should be bagged and left in the sun for a few days before disposing of them in the trash. DO NOT COMPOST!). The spores do not survive on dead plants through Wisconsin winters but composted plants or tubers left in the ground after harvest may still have enough living tissue to keep the spores alive. Each year's infection either comes from improperly handled diseased plants locally or the spores blow in from other states 'leapfrogging' across the country from south to the eastern seaboard to the Midwest arriving in Wisconsin by mid– to late July.

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Chemical control is used only to prevent infection and must be started before disease symptoms appear. Infected plants cannot be cured. Start spraying with preventative fungicide products in early to mid-July when recommended by university plant disease specialists. Chlorothalonil is an effective synthetic fungicide. Organic gardeners can use copper-containing fungicides. Treatments should be made every 7 - 10 days or less when weather is cool and wet. Reapply after rain. The longer interval can be used when weather is hot and dry when the disease is less active. Copper products can damage plants if used when temperatures are very high or very low. (Also see Wisconsin Garden Facts XHT1195)

PLEASE NOTE: It is extremely important to read and follow all label directions to determine the dosage per treatment, the frequency of treatment, the total amount of the product that can be safely used in one season and the interval to allow between treatment and harvest. Since control will require weekly treatments throughout the season, this may exceed the labeled total usage. To avoid this, it is likely that 2 different active ingredients will need to be used during the season either by alternating each treatment or switching from one to the other when the limit for the first one is reached. This is not an option for organic gardeners who will most likely need to stop treatments before the end of the season. Excess copper application can cause soil toxicity as well as plant and human toxicity.

Tomato Varieties Resistant to Late Blight

Magic Mountain (very res.)	Pruden's Purple
Regal Plum (very resistant)	Regal Plum
Better Boy	Roma
Golden Sweet	Slava
Green Zebra	Stupice
Juliet	Sun Sugar
Legend	Wapsipinicon
Matt's Wild Cherry	Wisconsin 55

Entire row of plum tomatoes with dead foliage.

Brown, water-soaked lesion on surface of leaf.

Brown lesion with white pathogen sporulation on leaf underside

Brown and sporulating lesion on stem.

Brown, firm, lesions on 'Roma' tomato fruit.

Sporulating lesion on shoulders of a ripening fruit.

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