

Eggplant, Pepper, and Tomato

Late Blight of Tomato

Howard F. Schwartz

Identification and Life Cycle

Late blight is a disease of tomato and potato caused by the fungus *Phytophthora infestans*, and tends to be most damaging to potato. However, the disease can also be serious on tomato when conditions are cool and rainy. The pathogen survives between cropping seasons in association with volunteers, cull piles and gardens. Spores can then be blown by wind from these sources to new plants. When the weather is favorable, infection can move so rapidly that affected plants appear as though damaged by frost.

Plant Response and Damage

Late blight can be very devastating to all aboveground plant parts of tomato. Leaf lesions first appear on as irregular, water-soaked spots, which enlarge rapidly into pale green to brown lesions, and cover large areas of the leaf. In moist weather, the lower surface of leaves with lesions may be covered with a gray to white moldy growth. Infected foliage becomes brown, shrivels, and soon dies. Petioles and stems are affected in a similar manner, so the entire plant may die. Fruit lesions appear as dark, green, greasy spots, which may enlarge until the entire fruit is invaded. A thin layer of white fungal growth may cover the fruit lesions during moist weather. Decaying vines will have a foul odor.

Management Approaches

Biological Control

No effective biological control strategies have been developed for late blight.

Cultural Control

Plant materials serve as inoculum sources for nearby fields. Cultural controls include elimination of potato cull piles in the vicinity of tomato plantings and destroying volunteer potato plants.

Chemical Control

Fungicides can play a key role in the management of late blight in tomato, especially when the weather is favorable. Several late blight forecasting systems have been developed to help in the timing of fungicide sprays when inoculum is present and conditions threaten. Fungicides are most effective when used in combination with cultural control strategies.

Product List for Late Blight Tomato:

Pesticide	Product per acre	Application Frequency (days)	Remarks
Copper Fungicides			
Champ Dry Prill	1.33 lb	5-7 days	
Champ Formula 2	1.33 pt	5-7 days	
Copper-Count-N	4-6 pt	7 days	
Kocide 101	1.5-3 lbs	5-7 days	
Kocide DF	1.5-3 lbs	5-7 days	
Kocide 4.5LF	1-2 pts	5-7 days	
Kocide 3000	0.75-1.75 lb	5-10 days	
Kocide 6000	0.75-1.75 lb	5-10 days	
Chlorothalonil and Chlorothalonil Mixtures			
Bravo 720, Echo 720	1.5-3 pt	7-14 days	Do not graze or feed debris to livestock; 7 day PHI
Bravo Ultrex, Echo 90DF	1.7-2.2 lb	7-10 days	Maximum of 18.3 pounds per season; 0 day PHI
Bravo Weather Stik	1.5-3.0 pt	7-10 days	Maximum of 20 pints per season; 0 day PHI
Echo Zn	2-4 pt	7-10 days	Maximum of 3.6 gallons per season; 0 day PHI
Ridomil Gold/Bravo	2.0 lb	14 days	Maximum of three applications; 14 day PHI
EBDC, Copper/EBDC, and EBDC/Zoxamide			
Cuprofix MZ Disperss	1.75-4.75 lb	3-10 days	Maximum of 21 pounds per season; 5 day PHI
Dithane	1.5-2.0 lb	7-10 days	Maximum of 8.5 pounds per season; 5 day PHI; use a non-ionic surfactant to improve performance
Gavel	1.5-2.0 lb	7-10 days	Maximum of 4 (west of Rockies) to 8 (east of Rockies) applications; 5 days PHI
Maneb 75 DF	1.5-2.0 lb	7-10 days	Maximum of 8.5 pounds per

			season; 5 day PHI
Manex	1.2-1.6 qt	7-10 days	Maximum of 6.4 quarts per season; 5 day PHI
ManKocide	2.5-5.0 lb	7-10 days	Maximum of 42.6 pounds per season; 5 day PHI
Manzate Fl	1.2-1. qt	7-10 days	Maximum of 6.4 qts per season; 5 day PHI
Penncozeb 80W	0.75-2.0 lb	7-10 days	Maximum of 8.0 pounds per season; 5 day PHI.
Penncozeb 75DF	0.75-2.0 lb	7-10 days	Maximum of 8.5 pounds per season; 5 day PHI.
Strobilurin and Strobilurin Mixtures			
Cabrio	8-16 oz	7-14 days	Maximum of 6 applications or 96 oz per season; Do not make more than 2 applications before alternating with a fungicide with a different mode of action; 0 day PHI
Flint	4 oz	7-10 days	Maximum of 5 applications or 16 ounces per season; Rotate with fungicides with a different mode of action such as Maneb, Bravo, or copper-containing products; 3 day PHI
Quadris	6 oz	5-7 days	Maximum of 5 applications or 0.60 lb a.i.per season; Alternate Quadris with fungicides with different modes of action; 0 day PHI
Tanos	8 oz	5-7 days	Rotate and rotate with fungicides with a different mode of action such as chlorothalonil or mancozeb; Maximum of 72 ounces per season; 3 day PHI

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