

## Survival and Dispersal

The fungus spends the winter in infected plant debris in or on the soil where it can survive at least one and perhaps several years. It can also be seed borne. New spores are produced the following season. The spores are transported by water, wind, insects, other animals including man, and machinery. Once the initial infections have occurred, they become the most important source of new spore production and are responsible for rapid disease spread.

## Control

1. Use only clean seed saved from disease-free plants.
2. Remove and destroy crop residue at the end of the season. Where this is not practical, plow residue into the soil to promote breakdown by soil microorganisms and to physically remove the spore source from the soil surface.
3. Practice crop rotation to non-susceptible crops (3 years). Be sure to control volunteers and susceptible weeds.
4. Promote good air circulation by proper spacing of plants.
5. Orient rows in the direction of prevailing winds, avoid shaded areas, and avoid wind barriers.
6. Irrigate early in the day to promote rapid drying of foliage.
7. Healthy plants with adequate nutrition are less susceptible to the disease.
8. Minimize plant injury and the spread of spores by controlling insect feeding.
9. Hand picking diseased foliage may slow the rate of disease spread but should not be relied on for control. Do not work in a wet garden.
10. Use resistant or tolerant varieties.
11. The preventative fungicide chlorothalonil (Bravo) used on a seven to ten day schedule gives effective control.

Fungicides for Early Blight Control		
Fungicide	Typical Application Interval	Examples of Trade Names
azoxystrobin, pyraclostrobin	7 to 14 days	Quadris, Amistar, Cabrio EG
Bacillus subtilis	5 to 7 days	Seranade (Organic)
chlorothalonil	7 to 14 days	Daconil, Bravo, Echo, Fungonil and others
copper products	7 to 14 days	Bordeaux Mixture, Kocide, Tenn-Cop, Liqui-cop, Basicop, Camelot

hydrogen dioxide	Commercial only, see label	Oxidate (Organic)
mancozeb and maneb	7 to 14 days	Dithane, Penncozebe, Manex, Mancozeb, Maneb
potassium bicarbonate	5-14 days as needed	Armcarb 100, Firststep
ziram	7 to 14 days	Ziram