**Alternaria Alternata (Early Blight)**

  
  
This **fungal** blight infects ornamental plants, vegetables, fruit trees, and shade trees worldwide.

Blight is easily recognizable by the sudden death of all plant tissue including leaves, stems and flowers. Blight is typically caused by wet and humid conditions.

On tomatoes, potatoes, and peppers, it is called early blight. On leaves, **brown** to **black** spots form and enlarge, developing concentric rings. Heavily blighted leaves **dry** up and **die** as spots grow together. Lower leaves usually show symptoms first. Target like, sunken **spots** will develop on tomato branches and stems. Fruits and potato tubers also develop dark, sunken spots. Alternaria spores are carried by **air** currents and are common in *dust* and *air* everywhere. They are a common cause of hay fever allergies. Alternaria fungi overwinter on infected plant parts and debris, or in or on seeds.

Control this disease by planting resistant cultivars and growing your own transplants from disease-free seed. Apply ***Trichoderma******harzianum*** to the soil just before planting. Promote good air circulation. For early blight, apply potassium bicarbonate (baking soda) sprays starting 2 weeks before the time of year when symptoms would normally first appear. Dispose of infected plants and when possible, use a 3-year rotation.

Symptoms first appear on the lower, older leaves as small brown spots with concentric rings that form a “bull’s eye” pattern. As the disease matures, it spreads outward on the leaf surface causing it to turn yellow, wither and die. Eventually the stem, fruit and upper portion of the plant will become infected. Crops can be severely damaged.

Early blight overwinters on infected plant tissue and is spread by splashing rain, irrigation, insects and garden tools. The disease is also carried on tomato seeds and in potato tubers. In spite of its name, early blight can occur any time throughout the growing season. High temperatures (80-85˚F.) and wet, humid conditions promote its rapid spread. In many cases, poorly nourished or stressed plants are attacked.

### Treatment

1. Prune or stake plants to improve air circulation and reduce fungal problems.
2. Make sure to disinfect your pruning shears (one part bleach to 4 parts water) after each cut.
3. Keep the soil under plants clean and free of garden debris. Add a layer of organic compost to prevent the spores from splashing back up onto vegetation.
4. Drip irrigation and soaker hoses can be used to help keep the foliage dry.
5. For best control, apply copper-based fungicides early, two weeks before disease normally appears or when weather forecasts predict a long period of wet weather. Alternatively, begin treatment when disease first appears, and repeat every 7-10 days for as long as needed.
6. Containing copper and pyrethrins, Bonide® Garden Dust is a safe, one-step control for many insect attacks and fungal problems. For best results, cover both the tops and undersides of leaves with a thin uniform film or dust. Depending on foliage density, 10 oz will cover 625 sq ft. Repeat applications every 7-10 days, as needed.
7. SERENADE Garden is a broad spectrum, preventative bio-fungicide recommended for the control or suppression of many important plant diseases. For best results, treat prior to foliar disease development or at the first sign of infection. Repeat at 7-day intervals or as needed.
8. Remove and destroy all garden debris after harvest and practice crop rotation the following year.
9. Burn or bag infected plant parts. Do NOT compost.

**Anthracnose**

  
Anthracnose, or bird's-eye spot, is a fungal disease. Anthracnose is caused by fungi in the genus Colletotrichum, a common group of plant pathogens that are responsible for diseases on many plant species. **Infected** plants develop dark, water soaked lesions on stems, leaves or fruit. The centers of these lesions often become covered with pink, gelatinous masses of spores especially during moist, warm weather. Anthracnose can reduce a beautiful harvest into rotted waste in just a few days.

Bean anthracnose infects beans and other legumes. The symptoms are most obvious on the pods as **circular**, **black**, **sunken** spots that may ooze pink slime and develop red borders as they age.

To control, buy disease-free seed, rotate crops, turn under or hot-compost infected plants, and avoid touching plants when they are wet so you won't spread the disease.

The fungal disease overwinters in and on seeds, soil and garden debris. Cool wet weather promotes its development, and the optimum temperature for continued growth of the spores is between 75-85˚F. Moisture is required for development and germination of the fungus as well as for infection of the plant. It is spread by wind, rain, insects and garden tools.

### Treatment

1. Choose resistant plant varieties when possible and use western grown seeds which have not been exposed to the disease.
2. If this fungal problem is common, do NOT save your own seed from plantings.
3. To avoid spreading the disease, keep out of gardens when plants are wet and make sure to disinfect all garden tools (one part bleach to 4 parts water) after use.
4. Do not compost infected leaves, fruit or stems and thoroughly clean up garden areas in the fall, after harvest, to reduce over wintering sites for the fungal spores.
5. Safely treat most fungal and bacterial diseases with SERENADE Garden. This broad spectrum bio-fungicide uses a patented strain of Bacillus subtilis that is registered for organic use. Best of all, SERENADE is completely non-toxic to honey bees and beneficial insects.
6. Liquid copper sprays and sulfur powders should be applied weekly, starting when foliage begins to develop in the early spring and continuing throughout the growing season. Spray early in the day, and avoid applications during hot weather. Seeds may also be treated prior to planting.
7. Neem-Oil-Spray is an organic, multi-purpose fungicide/insecticide/miticide that kills eggs, larvae and adult stages of insects as well as prevents fungal attack on plants. Apply early, at the first sign of spring budding, every 7-14 days as a preventative measure or on a 7-day schedule until existing problems are eliminated.

**Leaf Spots(Bacterial Blight)**



Leaf spots are yellow or brown lesions (often look like burn marks) that take place on leaves. These are caused by pathogens, fungi, pesticide damage and insect feeding.

A vast number of fungi can cause spots on the leaves of plants. Most of them are of little consequence. A typical spot has a definite edge and often has a darker border. When lots of spots are present, they can grow together and become blight or a blotch.

Pathogen-caused leaf spot diseases, particularly those of stone fruit trees and such vegetables as tomato, pepper and lettuce are of two types, those caused by bacteria and those caused by fungus. Leaf spotting of either kind is generally similar in appearance and effect. Prevention and treatment of both kinds often involve the same practices.

### Symptoms

Infected plants have brown or black water-soaked spots on the foliage, sometimes with a yellow halo, usually uniform in size. The spots enlarge and will run together under wet conditions. Under dry conditions the spots have a speckled appearance. As spots become more numerous, entire leaves may yellow, wither and drop. Members of the Prunus family (stone fruits, including cherry, plum, almond, apricot and peach) are particularly susceptible to bacterial leaf spot. The fruit may appear spotted or have sunken brown areas. Bacterial leaf spot will also attack tomato and pepper crops in vegetable gardens.

Fungal leaf spot attacks lettuce and can also occur on brassicas and other vegetables including such as cabbage, cauliflower, Chinese cabbage, broccoli, Brussels sprouts, kohlrabi, kale, turnip and rutabaga. For more on vegetables susceptible to bacterial and fungal leaf spot, go here.

Bacterial leaf spot will also infect some annual and perennial flowering plants including geraniums, zinnias, purple cone flowers and black-eyed Susan. Fungal leaf spot will infect aspen and poplar trees. Leaf spot will also cause problems for strawberry plants.

Both types of leaf spot are most active when there is plenty of moisture and warm temperatures. During the summer months, especially if plants are watered by overhead sprinklers, sufficient moisture may be present for infection when the bacteria are splashed or blown on to leaves. Wind and rain transmit the bacteria to plants.

This disease overwinters in the soil around infected plants as well as on garden debris and seeds. It will also remain in the twig cankers, leaves, stems and fruit of infected trees.

### Control

1. When selecting fruit trees, choose resistant varieties if possible.
2. Keep the soil under the tree clean and rake up fallen fruit.
3. Use a thick layer of mulch to cover the soil after you have raked and cleaned it well. Mulch will reduce weeds and prevent the disease pathogen from splashing back up onto the leaves.
4. Prune or stake plants to improve air circulation. Make sure to disinfect your pruning equipment (one part bleach to 4 parts water) after each cut.
5. Leaf spot among vegetables is most often introduced through infected seed or transplants. Make sure your seeds and transplants are from leaf spot-free stock.

There is no cure for plants infected with bacterial leaf spot. Preventive, organic measures include:

* Spraying with a baking soda solution (a tablespoon of baking soda, 2 1/2 tablespoons of vegetable oil, a teaspoon of liquid soap, not detergent, to one gallon of water), or neem oil (do not use when pollinating insects including bees or other beneficial insects are present). Baking soda may burn some plant leaves. Spray only a few and then check for a reaction before applying applications every two weeks.
* Apply sulfur sprays or copper-based fungicides weekly at first sign of disease to prevent its spread. These organic fungicides will not kill leaf spot, but prevent the spores from germinating.
* Safely treat most fungal and bacterial diseases with SERENADE Garden. This broad spectrum bio-fungicide uses a patented strain of Bacillus subtilis that is registered for organic use. Best of all, SERENADE is completely non-toxic to honey bees and beneficial insects.
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