

Geranium Diseases

Identification and Control in Landscapes and Indoor Settings

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Geraniums (genus *Pelargonium* and *Geranium*) continue to be some of the most popular plants in Georgia landscapes, home gardens and indoor settings. Geraniums display vivacious and showy leaves with clusters of vibrantly colored flowers.

Their reliable and long-lasting flowers are well suited for formal beds and for nonstop color in hanging baskets and window boxes and as ground covers. Geraniums show great variation in leaf, flower and growth characteristics. They may vary in height from 6 inches to several feet, depending on the variety and the care given to the plants. Many types are available. Some geraniums for landscapes and home and garden use include:

Common Garden Geraniums (*Pelargonium X hortorum*) usually have distinct leaf markings. They include selections with tri-colored leaves, silver leaves, leaves with white markings, and fancy-leaved geraniums. Flower colors are usually pink, red and/or white.

Ivy-Leafed Geraniums (*P. peltatum* or *Pelargonium X domesticum*) are trailing in habit and have leaves that resemble ivy leaves. They are commonly used in hanging baskets and window boxes.

Scented-Leafed Geraniums (*Geranium* spp.) are prized for their leaf aroma. Scents include lemon, rose, peppermint, nutmeg and others. Many have deeply lobed leaves.

Geranium Diseases

Botrytis Blight

SYMPTOMS

Symptoms can develop at any stage and on any plant part. (Figures 2 and 3, page 2) Under conditions of high moisture and humidity, infected plant tissues and debris develop the diagnostic gray, fuzzy growth characteristic of the fungus *Botrytis cinerea*. The symptoms on leaves vary from distinct spots or lesions to large dead areas, often with concentric rings. V-shaped lesions can also develop. Lesions often occur when spent flower petals fall onto the leaves. Symptoms on stems appear at the base of plants as light- to dark-brown lesions. These lesions grow until they rot the



Figure 1. Geranium flowers. Photo: Alfredo Martinez

entire stem. Plants can develop brown lesions after cuttings are taken. Flowers can turn brown and drop prematurely during periods of high moisture and relative humidity. Senescing flowers are covered with a gray, fuzzy mass.

CONTROL

1. Practice good sanitation by pulling weeds and removing plant debris.
2. Use soil amendments to produce a well-drained soil.
3. Use disease-free plants.
4. Avoid overhead irrigation and water early in the day, no later than 11 a.m.
5. Use adequate plant spacing to promote good air circulation.
6. Remove diseased plants and plant parts. Remove old flowers and senescing leaves.
7. Chemical control: fungicides are available. Consult the current *Georgia Pest Management Handbook*, available at your county extension office.

Root Rot by Pythium or Rhizoctonia

SYMPTOMS

Root and stem rots cause yellowing, stunting and wilting of the above-ground portions of the plant.



Figure 2. Geranium flowers showing Botrytis blight symptoms. Photo: Daren Muller.

Plants often have a noticeable brown to black lesion at the soil line, since the fungi attack and girdle the plant. Under wet, humid conditions, a gray or off-white webby growth can be seen on the infected plants. Rhizoctonia-caused root rots also include damping-off, and tissue or leaves that touch the infected soil will develop a brown cobweb growth; leaves will turn brown and rot. Roots may have distinct lesions; large parts of the root system are often decayed. Root lesions appear water-soaked, glassy, brown and shriveled.

CONTROL

1. Improve soil drainage, use soil amendments and avoid standing water. Water management is essential to control root rots.
2. Avoid heavy use of nitrogen fertilizer.
3. Use disease-free plants.
4. Remove diseased plants.
5. Apply fungicides as soil drenches. Consult the current *Georgia Pest Management Handbook*.

Bacterial Blight

(Bacterial Leaf Spot, Bacterial Stem Rot, or Bacterial Wilt)

SYMPTOMS

The disease is caused by the bacterial pathogen *Xanthomonas campestris* pv. *Pelargonii*. Symptoms on leaves include small distinct, water-soaked or brown and V-shaped spots first visible on the under-surfaces. Some leaves develop distinctly darkened veins and wilt at the leaf margins. When infection is systemic, the entire plant becomes flaccid, and branches wilt and die back. Stems blacken and shrivel into a dry rot. Infected young plants fail to root properly and slowly rot from the base upward. Stems become dull black-brown. Plants with systemic infection collapse and die. Systemically infected ivy geraniums don't wilt, but



Figure 3. Geranium leaves showing Botrytis blight symptoms. Photo: Daren Muller

they develop symptoms that can be confused with nutritional or insect problems. (Figure 4, page 3)

CONTROL

1. Sanitation: Pull weeds and remove plant debris.
2. Use soil amendments to produce well-drained soil.
3. Use disease-free plants.
4. Avoid overhead irrigation and water early in the day, no later than 11 a.m.
5. Avoid growing perennial geraniums (*Geranium* spp.) near *Pelargonium* spp.
6. Remove diseased plants as soon as possible.
7. Space plants to promote good air circulation.
8. Avoid unnecessary handling of plant material and wash hands frequently.
9. Chemical control is available but is rarely needed in landscape situations. Consult the current *Georgia Pest Management Handbook*.

Leaf Rust

SYMPTOMS

Leaf rust, caused by the fungal pathogen *Puccinia pelargonii-zonalis*, is characterized by small yellow spots on the upper surface of the leaf and rust-colored pustules that develop in the spots on the underside of the leaf. The pustules break open and release spores. Spores are often formed in a circular fashion around the original pustule. When infection is severe, leaves become yellow and drop prematurely. Pustules containing the rust-colored spores can be seen on stems, petioles and stipules. The disease is more common in greenhouse production, but it is a potentially important disease in the landscape. (Figure 5, page 3)

CONTROL

1. Practice good sanitation by pulling weeds and removing plant debris; use amendments to create a well-drained soil.



Figure 4. Bacterial Leaf Spot symptoms.
Photo: Alfredo Martinez

2. Use disease-free plants.
3. Avoid overhead irrigation.
4. Remove diseased plants.
5. Apply fungicides as soil drenches. Consult the current *Georgia Pest Management Handbook* as reference.

Tomato Spotted Wilt and Impatiens Necrotic Spot Viruses

SYMPTOMS

Symptoms of these viruses are highly variable and include stunting, ringspots, and sunken purple-brown lesions on leaves, stems and petioles. The symptoms vary with plant age, physiological condition, level of infestation and timing.

CONTROL

1. Use disease-free, virus-indexed cuttings.
2. Destroy diseased plants.
3. Avoid unnecessary handling of plant material.
4. Pull and control weeds.
5. Pay attention to insect control to avoid spreading the disease. Monitoring and managing thrips is very important.

Alternaria and Cercospora Leaf Spots

SYMPTOMS

Alternaria leaf spots are small and blister-like, and appear on the undersides of older leaves. Mature spots become sunken and brown with diffuse yellow halos. If conditions remain suitable for disease development, the spots are apparent on upper leaf surfaces as well, and lesions show concentric rings. Chlorosis and defoliation occur when infection is severe.

Cercospora leaf spots appear as small, pale, sunken lesions that later turn gray and produce many spores.

This gives an appearance of dark, raised centers. Chlorosis may be seen close to the lesions, and defoliation also occurs when infection is severe.

CONTROL

1. Remove and discard infected leaves and plant litter.
2. Do not let the foliage stay wet very long.
3. Water before 11 a.m.
4. Thin annuals and prune perennials selectively to improve air circulation and increase light penetration.
5. Chemical control: Fungicides are available. Consult the *Georgia Pest Management Handbook*.

Abiotic Diseases — Oedema

Oedema is considered a water imbalance that develops during periods of cool, cloudy weather or when the soil is moist and warm and the air is moist and cool.

SYMPTOMS

First appears a chlorotic spots on the upper leaf surface. These develop into water-soaked blisters on the undersides of leaves that later become corky and rusty-brown. The entire leaf may turn yellow, die and drop off. Oedema can sometimes mimic bacterial blight. It is most serious on ivy geraniums.

CONTROL

1. Use a well-drained soil or potting medium.
2. Maintain proper nutrient levels (increased nitrogen and iron have been reported to reduce incidence of Oedema).
3. Avoid over-watering during cool, humid weather.
4. Reduce humidity and space plants to promote good air circulation.



Figure 5. Leaf rust symptoms. Photo: Alfredo Martinez

Learning *for* Life

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