Foliage plant diseases can cause severe losses under the right environmental conditions. However, here in Connecticut these conditions are not often satisfied with the result being that few plants are lost due to diseases. Also, bouquets should go to southern producers as very few foliage plant diseases have been shipped into the state.

The following is a brief description of some of the more common foliage plant diseases.

**Fungal Diseases Attacking Foliage**

1. *Alternaria Blight* (*Alternaria actinophylla*)
   - Susceptible plant: Schefflera
   - The disease appears as brown to black leaf spots usually circular at first but often enlarging to cover most of the leaf. A yellow halo is often seen around the margin of the spot and when severely infected, the affected leaves drop from the plant.

2. *Cephalosporium Leaf Spot* (*Cephalosporium cinnamomeum*)
   - Susceptible plants: Dieffenbachia, Nephthytis
   - Symptoms begin as small reddish-brown spots that usually have a yellow border. On Nephthytis, numerous lesions may be present on infected tissue and is often called "The Shotgun Fungus Disease."

**Spray Applications**

Sprays should be applied to the point of run-off. Both leaf surfaces, especially the lower side must be sprayed. Proper mixing of the insecticide by adequate mechanical agitation in the spray tank is necessary for the best results.

To obtain better coverage of the insecticides, a spreader-sticker or wetting agent should be added to the spray mixture. Read the container label and use the material at the concentration per 100 gallons of spray mixture recommended by the manufacturer. A rate per 1 gallon is also listed for small volume applications. If you are using a new spreader-sticker, be careful to evaluate it for any phytotoxic effects.

**Drench Applications**

Some of the systemic emulsifiable concentrates are effective when applied as drenches. Refer to the container label for correct dosage rates. Many growers apply systemics through the irrigation system. For best results, apply drenches toward the end of the irrigation period. Do not apply soil drenches to plants under water stress, or follow application with excessive amounts of water.

**Granular Applications (Temik)**

All granular materials should be applied in a manner to insure even distribution. Spreaders used to broadcast insecticides should not grind the granules or increase the amount of dust as this may generate potentially dangerous conditions to the applicator.

**Compatibility**

Spray tank mixtures of insecticides, miticides or fungicides may result in plant injury that does not occur from use of any one of the materials alone. Before materials are tank mixed, a compatibility chart should be consulted and the manufacturer's label studied carefully. Wettable powders should be mixed with powders, emulsifiable concentrates with other emulsifiable concentrates and mixes should be of compounds within the same class or preferably the same brand if possible.

**Phytotoxicity**

Phytotoxicity is generally characterized as damage to foliage usually exhibited as marginal burn, chlorosis or spotting. Distortion or abnormal growth is also a common symptom of plants injured by pesticides. Although any portion of the plant may be affected, the new growth is most likely to show damage.
This is a summary of the most recent information on pesticides effective on the major insects and related pests of tropical foliage crops grown commercially in Florida. Only the most widely used and most effective pesticides are listed in the accompanying tables.

**IMPORTANT NOTICE TO GROWERS:** The Federal Environmental Pest Control Act makes it unlawful to apply a pesticide in any manner except as stated on the container label. Read the entire label carefully for correct dosage rates, application directions and precautions concerning the pest on your crop and under your growing conditions.

Control of the major insects and mites may depend on understanding their life cycle. Most pests hatch from eggs; however, some such as aphids are born alive on the plant. Many pests cause damage to a crop during only one stage of their development, others during both immature and adult stages. Effective control measures depend on the stage present and the manner in which it causes damage. Most damage occurs while insects are feeding. They chew or lacerate the plant tissue (caterpillars, grasshoppers and beetles); suck the sap or plant juices through a slender beak (aphids, scales, mealybugs, whiteflies and mites); rasp or shred tissues to start sap flow (thrips). Chewing insects are more easily controlled by contact insecticides whereas sucking insects, mites and thrips can be controlled with either contact or systemic materials.

**Application of Insecticides**

Because cultural conditions are so varied in the foliage plant industry, no single pest control program can be suggested. Control of insects with chemicals is assured only when the correct material is applied in the correct manner to a susceptible stage of the pest.

Maintenance or so-called preventative sprays may be applied every 1 to 3 weeks, depending upon the pest, time of year and length of residue of a pesticide. An effective maintenance spray program should kill any initial invaders and prevent pest populations from developing. It is much easier to maintain pest-free plants than to eradicate established populations. If a preventative program is not used, it will be necessary to inspect plants closely at frequent intervals and apply control measures before pests reach damaging levels.

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3. **Cercospora Leaf Spot (Cercospora spp.)**

   **Susceptible plants:** Peperomia, Ficus, Schefflera and Cordyline

   On Ficus, minute, slightly raised, circular areas appear on the leaf undersurface. These are dark green and have a chlorotic margin. Infected leaves may turn yellow often with healthy green leaves above them. On Peperomia, infections appear initially as pinpoint swellings on the leaf undersurface which enlarge progressively into noticeable pimple-like growths, then to very prominent raised areas which appear dark green with a limited amount of necrotic tissue at the apex. On the upper leaf surface the infected areas may be seen as chlorotic (yellow) spots.

4. **Dactylaria Leaf Spot (Dactylaria humicola)**

   **Susceptible plants:** Philodendron oxyocardium (cordatum) and other Philodendrons

   Only young leaves are attacked and symptoms appear initially as pinpoint, water-soaked spots. Spots occur on both leaf surfaces but generally are more numerous on the lower. As the leaves mature, the spots enlarge slightly and become yellowish-green to yellow in color often with a brown water-soaked center. The most prominent symptom, however, is the collapsed scooped-out appearance of the infected area which is responsible for its being mistaken for thrip injury.

5. **Fusarium Leaf Spot (Fusarium moniliforme)**

   **Susceptible plants:** Dracaena, especially D. marginata; Pleomele and Sansevieria

   Infection only occurs down in the young growing point often resulting in its complete rot and collapse. Infection is facilitated and assisted in this area by
the water that collects there from rainfall or overhead irrigation. The leafspots in all three groups mentioned generally initiate as pinpoint, water-soaked spots that enlarge and usually take on a reddish color. Under conditions conducive to active disease development the cream-colored infective spores of the fungus may be seen within the infected areas.

6. Brown Leaf Spot (Leptospharia spp.)

   Susceptible plant: Dieffenbachia

   Spots may be very numerous on the affected leaves and appear yellowish to a more grayish-brown color. The spots may vary in size and may occur also on leaf midveins, petioles and the flower spathe. Often, severely affected leaves become chlorotic and die.

7. Rhizoctonia Foliar Blight (Rhizoctonia solani)

   Susceptible plants: Ferns, Syngonium, Philodendron, Schefflera seedlings

   Infection usually initiates within the center of the plant at the tips of the leaflets. Under wet, humid conditions the fungus spreads rapidly within and among plants causing a wet brown-black rot. Positive identification of the disease may be made by observing the prominent spider web-like reddish-brown threads of the pathogen that grow among and between the affected leaflets and fronds.

8. Phytophthora Leaf Spot (Phytophthora spp.)

   Susceptible plants: Philodendron oxycardium and Dieffenbachia

   Initially it appears as a water-soaked spot which may enlarge to encompass a good portion of the leaf. In later stages, it becomes brown and may change to tan in color.

HOW HIGH IS UP?

Planting high has advantages. It helps to reduce crown rot and hasten root development. Carnations, mums, snapdragons or any crop grown in propagating units or peat pots should be planted high in the bench (figure 1). Only about an inch of the propagating unit should be pressed into the soil. Remember to remove peat pot bottoms before planting.

Salts may accumulate on the unit when water does not strike it. In figure 1 the watering nozzles were placed inside the outer row of plants and salts accumulated on the block. In this instance it is fortunate that more mature plants, especially carnations, are tolerant of high salt levels. Planting high should improve growth.
2. Erwinia blight of foliage plants (Erwinia chrysanthemi) and Erwinia spp.

Susceptible plants: Philodendron, Nephthytis, Pothos, Aglaonema and others.

This pathogen causes a very rapid wet, mushy rot of leaves, stems and cuttings. Its speed of attack and the mushy, water-soaked appearance is a dead giveaway for this disease.

3. Bacterial leaf blight of Syngonium (Xanthomonas vitians)

Susceptible plants: Syngonium and Aglaonema

It is characterized by water-soaked lesions along the leaf margin which are initially dark green, gradually turning yellow to brown. The affected tissue eventually dies and appears papery thin. The lesions are often bordered by a bright yellow zone and white flakes of the dried bacterial cells are often visible on the lower surface of the leaf.

CONTROL: Bacterial diseases can be kept under control with weekly sprays of streptomycin.

This article was adapted from "Suggestions for the Control of Some Common Diseases of Foliage Plants" by J.F. Knauss, Agr. Res. Center, Apopka, Fla.
2. Sclerotium rolfsii

Susceptible plants: Schefflera seedlings and young plants, Philodendron oxycardium cuttings, Nephthytis seedlings and cuttings, Dracaena godseffiana cuttings, Peperomia cuttings and other plants.

This disease is generally called "Southern Blight" but is more commonly referred to as the disease caused by the "web fungus." It may be identified by the prominent, thick, white threads of the fungus usually found on the infected plants and the soil surrounding them. Usually tan to brown, mustard seed-size resistant structures (sclerotia) of the fungus are also present.

CONTROL: PCNB (Terraclor) drench

3. Pythium spp.

Susceptible plants: Philodendron, Aglaonema, Maranta, Dieffenbachia, Schefflera seedlings and young plants, and many others.

Damping-off of young seedlings may occur but most often this pathogen attacks propagative cuttings and roots of growing plants. The rot it produces on tissue other than roots is usually a wet brown to black collapse of infected tissue. In root infections, the color may vary from a water-soaked gray to brown to black. Occasionally only the root tips are affected but most often a wet rot occurs which results in the sluffing off of the covering of the root leaving only the thin inner core.

CONTROL: Dexon or Truban drench

4. Phytophthora spp.

Susceptible plants: Dieffenbachia, Peperomia, Zygocactus and others.

This pathogen is closely related to Pythium and causes disease under similar conditions. Phytophthora, however, often attacks mature plant stems whereas Pythium usually restricts its attack to more immature tissue such as roots and young seedlings. Attack of the plant tissue usually results in a rapid, wet rot that may vary from a normal water-soaked appearance to a brown or black in color.

CONTROL: Dexon or Truban or mancozeb (Dithane M-45) drench

BACTERIAL DISEASES ATTACKING LEAVES AND STEMS

1. Bacterial Leaf Spot and tipburn of Cordatum (Xanthomonas dieffenbachiae)

Susceptible plants: Philodendron oxycardium, Dieffenbachia

This disease is presently the most important foliar problem occurring in the foliage plant industry. It is characterized generally by a marginal yellowing of the leaf, occasionally with yellow spots or streaks within the interior of the leaf. As the disease progresses, the leaf turns yellow and drops from the stem.
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**CONTROLS:**

Alternate weekly sprayings of mancozeb (Dithane M-45), benomyl (Benlate) and daconil will control most of these pathogens. Use at rates recommended on the label.

Cultural practices are generally sufficient to control these diseases in northern greenhouses and interior landscapes. The low humidity generally keeps disease infection at a minimum.

**FUNGAL PATHOGENS ATTACKING STEMS AND ROOTS**


Susceptible plants: Schefflera seedlings and young plants, Philodendron oxycardium cuttings, Diefenbachia cuttings and young plants, Nephthytis seedlings and cuttings, *Scindapsus pictus* cuttings, *Philodendron selloum* seedlings, Hoya cuttings and young plants, Gynura "Purple Passion" cuttings and many others.

Wet and crowded plants, cuttings or seedlings are extremely susceptible to this pathogen. The disease should be suspected when rapid rot and collapse of leaves touching the soil surface occur or when plants fall over and show a distinct brown lesion right at the soil line. Seedlings attacked by this pathogen often will be matted together and will be difficult to pull apart. In most cases the prominent reddish-brown, spider web-like threads of the fungus may be observed either on the leaves or stems and often can be seen growing on the soil media.

CONTROL: PCNB (Terraclor) or benomyl (Benlate) drench