Specific Common Diseases

Bacterial Blight and Brown Stem *(Pseudomonas cichorii)*

**Symptoms:** While bacterial blight often occurs in the seedbeds, it occasionally causes extensive damage in the field. Bacterial blight leaf lesions may be easily confused with those caused by *Cercospora*, but characteristically bacterial blight lesions are smaller, more angular (frequently being delineated by the veins), have a deeper reddish-brown color, and have a water-soaked appearance. Additionally, chlorosis does not develop as rapidly with bacterial blight and lesion margins are much more defined than those incited by *Cercospora*, the cause of early blight. Brown stem is characterized by elongated, water-soaked lesions on the petiole. The discoloration is more evident on the inside of the petiole close to the crown, but streaks may occur anywhere along the petiole. Vascular bundles appear healthy, yet are surrounded by diseased pith. On plants cut for whole stalks, brown stem may render the entire plant unmarketable, resulting in substantial yield losses where incidence is heavy. See Plant Pathology Fact Sheet PP-8.

*Cultural Controls:* Control of bacterial blight is difficult. The disease is favored by warm, wet conditions. In seedbeds, mechanical transmission can be minimized by trimming when foliage is dry. Do not apply foliar nitrogen during warm, wet periods which are favorable for blight and avoid over-fertilization with soil-applied nitrogen. Minimizing mechanical contact with the plants once set in the field may also prove helpful. Use seepage irrigation rather than overhead irrigation.

*Chemical Control:* Fixed copper sprays remain the mainstay of chemical management of bacterial blight. See PPP-6.

Cucumber Mosaic (*Cucumber mosaic virus*)

**Symptoms:** *Cucumber mosaic virus* (CMV) causes a mosaic and mottling of foliage (light green and dark green areas intermingled on the leaf). CMV may also cause stalk pitting. Severe plant stunting may result from infection.

*Cultural Controls:* Weeds can harbor the virus as well as the aphid vector, therefore proper weed management in and around seedbeds and fields is essential. The dayflower weeds, *Commelina spp.*, are frequent CMV weed hosts in Florida.
Damping-off (*Rhizoctonia* spp., *Pythium* spp., *Fusarium* spp., and *Sclerotinia* spp.)

**Symptoms:** Seedlings may damp-off at random or in rapidly enlarging circular areas in the seedbeds. In the latter case, lesions may be observed well up the petioles as well as at the soil line. Entire plantings may be lost unless adequate control measures are practiced.

**Cultural Controls:** Damping-off is favored by excessive soil moisture. Avoid over-saturation of seedbeds and do not transplant obviously diseased plants to the field. Transplants should be grown in sterilized soil or fumigated soil. Use raised beds.

Early Blight (*Cercospora apii*)

**Symptoms:** Early blight is the most serious fungal disease of celery in Florida. It starts as small circular spots on the leaves or petioles. These rapidly enlarge and may encompass the entire leaflet and even the stalk. Petiole lesions are more elongated than circular due to the heavy veination. Under humid conditions, lesions may take on a gray appearance due to the presence of spores on the leaf surface. Large chlorotic areas often surround the circular lesions.

**Cultural Controls:** Celery varieties with demonstrated resistance to early blight should be planted, particularly during periods that are most favorable (warm and humid). Early Belle and June Belle are two varieties with good early blight resistance. Florida 683 and 2-14 are most susceptible and should not be planted except for the cooler months. See Plant Pathology Fact Sheet PP-8.

**Chemical Control:** Fungicides should be applied at the first sign of disease incidence. Broad spectrum protectants (chlorothalonil) should be applied in sufficient volume to obtain thorough coverage. Sterol inhibitor and strobilurin fungicides, exhibiting some systemic properties, should be applied in a program with a broad-spectrum protectant to minimize the risk of fungicide insensitivity developing. See PPP-6.

Late Blight (*Septoria apiicola*)

**Symptoms:** Late blight is typically of minor importance but outbreaks do occasionally occur. The chief diagnostic feature of late blight is the occurrence of small black fungal fruiting bodies (pycnidia) near the center of the circular brown lesions. These black specks may be observed with the naked eye or under low magnification. See Plant Pathology Fact Sheet PP-8.

**Cultural Controls:** Late blight spores are rain-splash disseminated. Therefore, the disease is promoted by extended rainy periods, particularly during cool to moderate temperatures. The pathogen is capable of surviving on seed for periods of up to 2 years, but no longer. Therefore, the most economical control is to plant seed that is three-years-old or older. Movement of equipment and personnel through dew-laden fields infested with late blight should also be minimized as this also spreads the pathogen.

**Chemical Control:** The same fungicides used to control early blight may be used to manage late blight. See PPP-6.

Pink Rot (*Sclerotinia sclerotiorum*)

**Symptoms:** This fungal disease is characterized by a sudden wilting and collapse of the plants in the field. A soft watery decay of tissues near the soil line usually is present. Rotting tissues often take on a pinkish cast and black fungal resting bodies (sclerotia) develop within the cottony white mycelium covering the rotting mass. Sclerotia are variable in size from 1/8 to 1/2 inch and are usually somewhat irregular in shape.

**Cultural Controls:** Where possible, flooding of celery fields during the summertime in Florida is extremely effective in controlling this disease. Flood the soil completely, partially, or intermittently for a 6-week period. If flooding is not possible, turn the soil 6-8 inches deep to bury the sclerotia and old plant debris. Crop rotation with a crop not susceptible to the pathogen (i.e. corn) may be useful, however, sclerotia may survive for years in the soil.
**Chemical Control:** Fungicides should be first applied at the first sign of disease. Broad spectrum protectants (chlorothalonil) should be applied in sufficient volume to obtain thorough coverage. Sterol inhibitor and strobilurin fungicides, exhibiting some systemic properties, should be applied in a program with a broad spectrum protectant to minimize the risk of fungicide insensitivity development in the fungus. See PPP-6.

**Red Root (Fusarium sp.)**

**Symptoms:** Red to brownish bands on the roots and death of root tips characterize this disease. Red root is primarily a seedbed problem but occasionally severe field problems may arise.

**Cultural Controls:** Fumigation of seedbeds usually gives initial control of redroot. Avoid recontamination of seedbeds by not stepping onto the bed after fumigation. The judicious use of fertilizer and water often allows plants to make a nearly complete recovery.

**Rhizoctonia Stalk Rot (Rhizoctonia solani)**

**Symptoms:** Stalk rot is characterized by sunken, orange to brown brick-red lesions on the stalks, particularly at the base of plants. Severe infection may necessitate extreme trimming of affected petioles from infected plants.

**Cultural Controls:** Transplants should be raised in fumigated beds to provide disease-free planting material. Care should be taken not to set transplants excessively deep, as this increases exposure of the susceptible lower petiole and crown area to the fungal pathogen. Use raised beds in field.

**Chemical Control:** Fungicides directed toward the base of the plant and adjacent soil may aid in the control of stalk rot. See PPP-6.

**Celery Mosaic (Celery mosaic virus; formerly Western Celery Mosaic Virus)**

**Symptoms:** This virus causes mosaic or mottling of foliage, similar to cucumber mosaic virus. Severe leaf distortion and twisting as well as general plant stunting are additional symptoms of this viral disease. Aphids and leaf miners are common vectors of this virus and may they may transmit the virus to celery after feeding on infected volunteer celery or other umbelliferous weed hosts.

**Cultural Controls:** Eradicate potential weed reservoirs around seedbeds and celery fields. Mockinshopweed is susceptible as are other umbelliferous weeds. Have a celery-free period during the year.