CLEMSON COOPERATIVE EXTENSION

http://www.clemson.edu/extension/hgic

HGIC 2204 1-888-656-9988

HOME & GARDEN INFORMATION CENTER

Sweet Corn Diseases

Sweet corn is seldom seriously damaged by diseases in the home garden. Reduce many of the potential disease problems by following proper cultural practices including:

- Using commercially grown certified and treated seed to improve stands.
- Planting varieties recommended for South Carolina (see HGIC 1308, *Sweet Corn*).
- Planting corn when the soil temperature is above 55 °F to reduce most seedling rots.
- Keeping the garden free of nearby weeds, which can harbor viruses.
- Removing smutted corn ears promptly from the stalks and garden area.

Removing corn plant debris after harvest to reduce diseases caused by rusts and corn smut. Remember, preventing corn diseases in the garden is very important, since the rapid growth of sweet corn makes it very difficult to spray adequately with chemicals. More information on how to grow corn is available in the fact sheet HGIC 1308, *Sweet Corn*.

Corn Smut

This disease is easy to find in the garden. Large, fleshy, brownish galls (swellings) containing a black sooty mass of spores develop on leaves, stems, ears or tassels. Young immature galls are white or grayish white. A fungus, *Ustilago maydis*, causes this disease which occurs throughout the Southeast, especially when temperatures are high (79 to 100 °F) and moisture is abundant.

Prevention & Treatment: Pick off and destroy infected ears and galls while they are immature and have not yet released spores. Remove galls carefully, since spores can readily blow to nearby plants, causing more disease. Corn smut overwinters on plant debris in the soil, so do not put infected crop residues back into the soil. The most susceptible plants are those grown in soils high in nitrogen. No chemical controls are available.

Rust

Rust occurs in most home gardens on corn but is seldom a serious problem. It is caused by various species of the fungus *Puccinia* and causes raised, brick red spots primarily on upper leaf surfaces. Plant corn early, and avoid letting plants get under stress from drought. Rust develops best when temperatures are cool (60 to 70 ºF) and humid.

Seed Rots & Seedling Disease

Poor stands of corn can result from various species of fungi, including *Pythium, Fusarium, Diplodia* and *Penicillium*, which affect seed germination and seedling development. In cold soils that have a temperature less than 55 ºF seeds can decay and seedlings may die before they reach the soil surface. In cool, wet soils seed germination and seedling development slows down, increasing the length of time exposed to fungi in the soil. Low-quality seed also produces seedlings that are weak and survive poorly, especially in cold soils. In warmer soils, seedlings may emerge, but have rotted roots and stems at the ground line.

Prevention & Treatment: Control of these problems is obtained by using high-quality seed that has been treated with protective fungicides. Seeds will be pink to indicate they have been treated. Sweet corn should be planted on a raised bed, after the soil temperature is above 55 ºF.

Virus Diseases

In South Carolina there are two main viruses that are a problem on corn, *Maize dwarf mosaic virus*

(MDMV) and *Maize chlorotic dwarf virus* (MCDV). Symptoms of these virus diseases can easily be mistaken for other growth problems such as nutrient deficiencies. The upper leaves of MDMV-infected plants show pale green blotches or mottling. MCDV-infected leaves often have a pale green streaking of the upper leaves, and often these leaves turn a reddish color. Both virus diseases generally cause plant stunting. The viruses survive the winter on many perennial grasses, especially Johnsongrass. In the spring, insects transmit the virus to young corn plants.

Prevention & Treatment: Control grassy weeds near corn plantings (Johnsongrass). Corn planted at the appropriate time, and not too late in the season, is often damaged less by viruses. There is no chemical control available.

Root & Stalk Rots

Root and stalk rots are among the most destructive corn diseases. They are caused by various species of fungi, including *Fusarium*, *Diplodia*, *Pythium* and *Macrophomina*. Infected corn stalks fall over (lodging) and losses result from unharvested ears and poor ear development on infected plants. Some of these disease-causing organisms enter through the roots and move up into the stalk, while others enter the stalk directly at the nodes. Insect damage can increase infection by wounding the plant and allowing fungi to enter.

Prevention & Treatment: Plant in well-drained areas, because stalk rots are most severe in poorly drained soil and where poor air movement slows drying. Do not exceed recommended plant densities. Keep soil fertility balanced based on soil tests. All insect controls should be carefully followed as described in HGIC 2205, *Insect Pests of Sweet Corn*.

Southern Corn Leaf Blight

This disease is caused by the fungus *Helminthosporium maydis*. Symptoms occur as leaf spots or cob rots and are fairly easy to recognize on plants. Spots on the leaves are tan to light brown and occur first on the lower leaves of the plant. Spots often enlarge and increase in number and can cause severe leaf blighting. On the ear the fungus causes oblong, bleached spots which penetrate through the shuck layers and finally into the ear.

Prevention & Treatment: Rotate corn with nongrass-type plants in the garden. Turn under corn debris soon after harvest to promote rapid decay and destroy overwintering fungi.

Stewart's Wilt (Bacterial Wilt)

This disease causes death of seedlings and wilting of mature plants. Long rectangular streaks, up to an inch wide, appear on the leaves, which later turn brown and die. A brown cavity is often formed inside of the stalk at ground level. It is caused by a bacterium, *Erwinia stewartii*, which survives the winter in flea beetles. Healthy plants become infected when the beetles begin feeding on them.

Prevention & Treatment: There is no effective chemical control available for this disease. Remove and destroy all infected plants immediately. Controlling the insects that spread the disease can reduce disease levels. More information is available in HGIC 2205, *Insect Pests of Sweet Corn*.

Nematodes

Nematodes are microscopic roundworms that live in the soil and can feed on corn roots. They can damage the root system to the point where it cannot properly absorb water and nutrients. Above-ground symptoms include stunting and nutrient deficiencies. Below the soil surface, affected roots appear stubby, swollen, and often have an absence of small feeder roots. Nematode damage can only be confirmed by having your soil analyzed. Samples can be submitted to your local county Extension office for determination of the type and degree of infestation.

Prevention & Treatment: An effective nematode control program should include crop rotation, sanitation and solarization. More information about controlling nematodes in the home garden is available in HGIC 2216, *Root-Knot Nematodes in the Vegetable Garden*.

Prepared by Nancy Doubrava, HGIC Information Specialist, and James H. Blake, Extension Plant Pathologist, Clemson University. (New 05/99.)