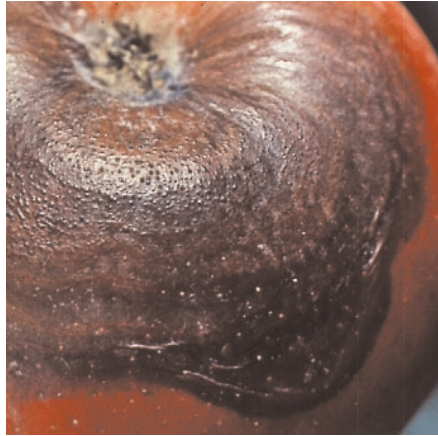


APPLE DISEASES

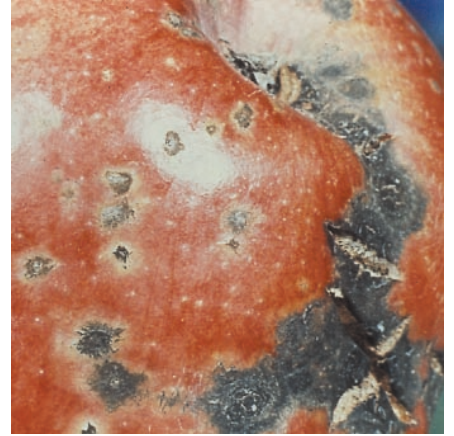
An Aid to Identification and Control



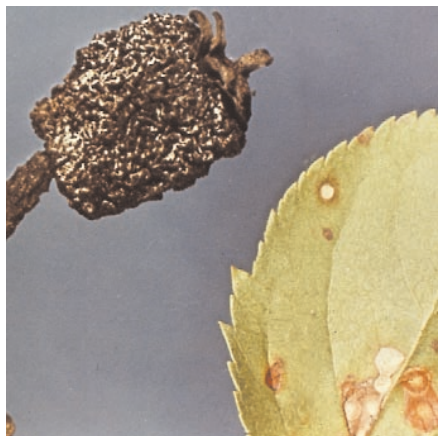
1. BLACK ROT ON FRUIT



2. BITTER ROT ON FRUIT



3. SCAB ON FRUIT



4. BLACK ROT ON MUMMY AND FROG-EYE STAGE ON LEAF



5. SOOTY BLOTCH AND FLYSPECK DAMAGE TO FRUIT



6. SCAB ON FRUIT AND LEAF



7. POWDERY MILDEW



8. CEDAR APPLE RUST



9. FIRE BLIGHT

Photo Description And Life History Information

1. Black Rot-caused by the fungus *Physalospora obtusa*.

Fruit infection often takes place through a wound or at the calyx end. Black rot differs from bitter rot in that black rot spots are not sunken, usually only one spot occurs on a fruit, the spot consists of alternating black and brown zones, and the fruiting structures of the fungus appear as black pimple-like bodies rather than as pink spore masses.

2. Bitter Rot-caused by the fungus *Glomerella cingulata*.

Damage, which occurs as a fruit rot in the summer, is very common in South Carolina, particularly on apple varieties that mature before the early selections of Red Delicious. One to several brown sunken spots usually develop on each fruit. The pink spore masses are a characteristic sign that develops as the spot enlarges. The fungus overwinters on many wild and cultivated plants.

3. Apple Scab-caused by the fungus *Venturia inaequalis*.

Infection can take place as soon as the first green tissue emerges from the bud. This disease continues to build up until early July. Again in the fall this disease may build up on the leaves, mostly on the underside. The fungus overwinters on the dead leaves. Infection takes place only during periods of rain that keeps the foliage wet for at least 9 hours.

4. Frog-eye Leaf Spot and Black Rot Mummy (the same as black rot)-caused by the fungus *Physalospora obtusa*.

Leaf infection can take place from the pre-pink stage through the summer months. Frog-eye can be distinguished from spray injury, as frog-eye spots will enlarge irregularly or become lobed.

The fungus overwinters on dead wood and on diseased fruit, called mummies. On dead twigs the fungus appears as numerous small pimples.

5. Sooty Blotch-caused by the fungus *Gloeodes pomigena* and **Flyspeck** caused by the fungus *Schizothyrium pomi*.

These two diseases are usually found together. They are very common in unsprayed orchards and also in those not properly pruned and thinned. The two fungi overwinter on numerous wild hosts. The only damage is due to the unattractive appear-

ance of the fruit. The fungi grow on the surface of the fruit, but are difficult to remove in the washing-brushing operations in the packing house.

6. Scab in young fruit and leaf. (See No.3 for details.)

7. Powdery Mildew-caused by the fungus *Podosphaera leucotricha*.

All live tissue of the apple tree including buds, blossoms, leaves, twigs, and young fruits are susceptible to powdery mildew. The fungus spreads rapidly from infected leaves to the tender twigs, which become stunted and shortened. After the buds develop, the terminal growth has a witch's-broom appearance.

Damage to fruits appears as brown lines on the fruit surface. Severe infections on the twigs and buds can cause numerous buds to be killed during the winter.

8. Cedar-Apple Rust-caused by the fungus *Gymnosporangium juniperi-virginianae*.

Infection on apple leaves and fruit is caused by spores borne by wind from infected cedars and occurs during rainy periods in the spring from pre-pink until 3-4 weeks after bloom. No further infection takes place on the apple. Infection on the cedar takes place during July and August. The fungus overwinters as galls on cedar. The fungus must alternate from cedar to apple each year.

9. Fire Blight-caused by the bacterium *Erwinia amylovora*.

Infection takes place during warm rainy periods in the spring. Open blooms are the most susceptible part of the tree, but infection can take place through young, tender leaves. Sudden wilting and drying up of twigs is characteristic of fire blight.

The bacteria overwinter in limb canker and possibly on bud scales. The bacteria can move down within a branch very rapidly during spring months. Severity of the disease depends on weather conditions, especially during the blooming period, and hence is not serious every year. Pears and crab apples are also very susceptible.

Note: Since controls change often, consult your county Extension agent or **Clemson University Extension** pathologists for specific details on controlling these pests.

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