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# EC72-1855 Apple Diseases

L. T. Palmer

Jack Riesselman

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# APPLE DISEASES

L. T. Palmer
Extension Plant Pathologist
Jack Riesselman
Extension Assistant Pathologist

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**1. BLACK ROT:** *Physalospora obtusa.* Common on many plants including alder, birch, bittersweet, catalpa, chestnut, currant, cotoneaster, hawthorn, quince, pear, maple and peach. Black rot of apple is commonly associated with an injury at the open calyx end of the fruit. Ordinarily only one spot occurs on a fruit. This spot is originally light brown but darkens with age. As the rotted area enlarges, a series of concentric dark bands are formed. Eventually the entire fruit may become shrunken and mummified. The black rot organism is also capable of producing cankers on the limbs of infected trees. These cankers, mummified fruit, and dead wood, provide overwintering reservoirs for the fungus. Applications of captan, zineb, or maneb starting at petal fall, help prevent infections. Sanitation is the primary control measure.

**2. BITTER ROT ON FRUIT:** *Glomerella cingulata.* This disease may attack apples and pears in seasons of high temperature and humidity. Bitter rot is one of the few diseases that affect uninjured fruit. It is a fairly firm rot that starts as a small circular light brown spot. One or many such areas may appear on the fruit. The spots enlarge rapidly, becoming darkened and eventually black. A saucer-shaped depression in the center is a distinctive characteristic. In advanced stages concentric rings form on the outside of the spot. The source of most infections are the broken limbs of trees. These limbs, if left untreated, may become infected with the bitter rot organism and result in a devastating outbreak of the disease. Sanitation, and thorough removal of deadwood and mummies is recommended.

**3 & 6. SCAB ON APPLE:** *Venturia inaequalis.* Scab is the most serious disease of apples in Nebraska. The organism responsible will attack the leaves, petioles and fruit. First infections generally occur in the early spring. They are easily recognized by the light brown to olive-colored spots appearing on leaves. Heavy outbreaks of scab may cause an early leaf drop, thus greatly weakening the tree. Early fruit infections will give the apples a scabby, deformed appearance. Late fruit infections will result in small scabs which can be removed by peeling. Sanitation is the initial step in controlling scab. Zineb, maneb, captan, folpet, glyodin or dodine will give good protection.

**4. FROGEYE LEAF SPOT:** *Physalospora obtusa.* The organism responsible for black rot of fruit also attacks the leaves causing a disease known as "frogeye leaf spot." Typical leaf infections are seen as many small purple specks. As these slowly enlarge they become irregular in shape. The margins retain their purple cast while the centers become brown or yellowish-brown. As the spots age small black "pimples" develop in the center. In some varieties such as Jonathan, a few spots per leaf may cause defoliation early in the season. To control this disease, follow the recommendations found under black rot of apples.

**5. SOOTY BLOTCH AND FLYSPECK ON APPLES:** *Gloeodes pomigena* and *Microthyriella rubi.* Normally sooty blotch and flyspeck appear together on the same fruit. Rarely is one disease seen without the other. Sooty blotch results in a smudged appearance on the mature fruits. Flyspeck, as the name suggests, resembles true flyspecks. Both diseases are superficial and can be removed by vigorously rubbing the surface. Normal spray schedules with recommended fungicides will prevent infections early in the growing season.

**7. APPLE POWDERY MILDEW:** *Podosphaera leucotricha.* All live tissue of the apple tree, including buds, blossoms, leaves, twigs and fruit are susceptible to powdery mildew. Infected leaves have a typical light gray coloration which resembles a velvet mat. Leaves exhibiting these symptoms become crinkled, curled, and stunted, and often die. Terminal twigs are often stunted while the laterial buds tend to be bunched together. The use of sulfur, Karathane, or folpet aids in control. Avoid the use of sulfur sprays at high temperatures.

**8. CEDAR APPLE RUST:** *Gymnosporangium juniperi-virginianae.* Cedar apple rust is one of our most common and destructive apple diseases. Rust occurs on apple leaves and fruits and occasionally infects twigs. Leaf infections usually appear in May as small, pale yellow spots on the upper leaf surface. As these spots enlarge an orange exudate appears in the center and somewhat later black dots are seen. Fruit lesions appear near the open calyx end. In both types of infection spore horns (finger-like projections) extrude from the lesions. The fungus is unusual in that two unrelated plants (cedar and apple) are needed to complete its life cycle. In the spring galls found on cedar trees produce spores which infect apple trees. Wind blown spores from the cedar tree may travel as far as one mile. The spores produced in the lesions on the apple tree then infect the cedar. Two years are necessary to complete this complex cycle. Control cedar-apple rust by following a strict fruit spray schedule. Avoid planting cedar trees near an orchard.

**9. FIRE BLIGHT:** *Erwinia amylovora.* Fire blight is one of the most serious diseases of apples in the midwest. It will also attack other plants including cotoneaster, crab apple, pear, quince, and spirea. Blossoms, twigs, leaves and fruits can all become infected. Common symptoms are a blighting of the blossoms and terminal growth of twigs. Infected blossoms suddenly wilt and soon turn a light to dark brown. On a severly infected tree, a high percentage of terminals will be blighted back 12-36 inches. In young trees, the bacteria may girdle the tree trunk and kill the tree. Another characteristic feature of this disease is the presence of mummified fruit on blighted branches. Fire blight is difficult to control, but it can be reduced with chemical spraying and sanitation. The most effective material is streptomycin sulfate. The first spray should be just before blossoms open. Repeat sprays at 4-day intervals during the blossoming season. Dormant pruning of infected branches will reduce the disease. After each branch is pruned, sterilize the knife. Plant resistant varieties whenever possible.

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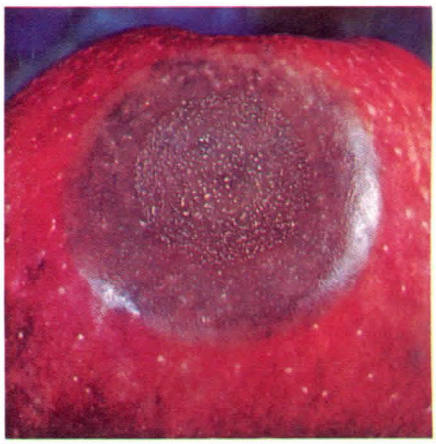
E. F. Frolik, Dean J. L. Adams, Director

# 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

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