

# CORN DISEASES I

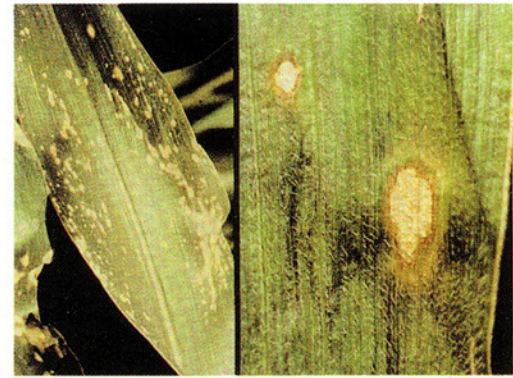
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1. Stewart's bacterial wilt, L, leaf blight; C, seedling stalk rot; R, flea beetle



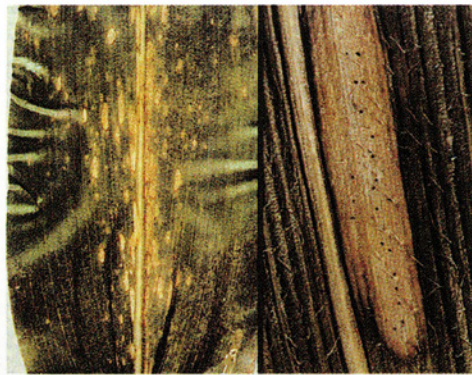
2. Goss' wilt. L, leaf and R, stalk symptoms



3. Holcus leaf spot



4. Eyespot



5. Yellow leaf blight. L, leaf spots; R, lesion with pycnidia



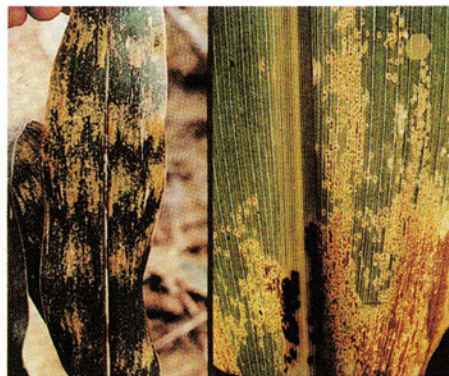
6. Southern leaf blight



7. Northern leaf blight



8. Helminthosporium leaf spot (blight) and ear rot



9. Physoderma brown spot



10. Zonate leaf spot



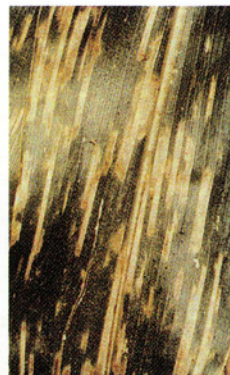
11. Sorghum downy mildew



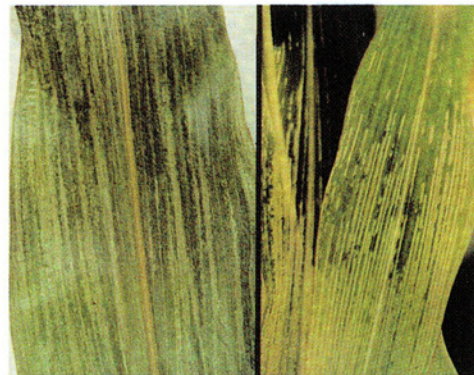
12. Crazy top



13. Common rust



14. Gray leaf spot



15. Corn viruses. L, wheat streak mosaic; R, maize dwarf mosaic



16. Genetic leaf spot





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1. **Stewart's Bacterial Wilt**, caused by the bacterium *Erwinia stewartii*, is most severe following mild winters. Long, pale green to yellow or tan streaks with wavy margins form in the leaves. The streaks soon turn dry and brown, starting at feeding scratches made by the corn flea beetle (*Chaetocnema pulicaria*). Dark brown cavities may form in the lower stalk pith. Infected plants sometimes produce premature, bleached and dead tassels. The bacterium overwinters in the corn flea beetle.

2. **Goss' Wilt**, caused by the bacterium *Corynebacterium nebraskense*, occurs in Nebraska and areas of bordering states. Water-soaked streaks, parallel to the leaf veins, occur on the leaves. Dark, angular, water-soaked spots (freckles) form next to the leaf veins. The fibrovascular bundles in systemically-infected stalks are discolored. Affected plants may be stunted. Plants can be infected, wilt and die at any stage. The bacterium overwinters in corn debris near the soil surface and in seed.

3. **Holcus Leaf Spot**, caused by the bacterium *Pseudomonas syringae*, appears as round-to-elliptical spots, up to 1 cm in diameter, on the lower leaves. The dark green and water-soaked spots dry to a creamy-white to tan with a brown or reddish margin; some are surrounded by a yellowish halo. The bacterium survives in corn, grass and sorghum debris.

4. **Eyespot**, caused by the fungus *Kabatiella zea* (perfect stage, *Aureobasidium zeae*), occurs in the northern USA during cool wet weather. Numerous, round-to-oval spots, up to ½ cm in diameter, with a tan-to-cream center, brown to purple margin, and surrounded by a yellowish halo, form on the leaves. The upper leaves may wither and die prematurely, late in the season. The fungus overwinters in corn debris on or near the soil surface.

5. **Yellow Leaf Blight**, caused by the fungus *Phyllosticta maydis* (perfect stage, *Mycosphaerella zea-maydis*), is most prevalent in northern areas of the USA after extended cool, moist weather. Rectangular to oval, yellow-to-tan spots, often surrounded by a red and purple margin and a broad yellowish area, form on the leaves. Black specks (pycnidia) form in older lesions. If severe early, the lower leaves turn yellow, wither and die. The fungus overwinters in corn, foxtail, and Sudangrass debris on the soil surface.

6. **Southern Corn Leaf Blight**, caused by the fungus *Helminthosporium maydis* (perfect stage, *Cochliobolus heterotrophus*), is most prevalent in about the southern half of the USA following warm, moist weather. Leaf lesions are tan with buff-to-brown borders, elongated between the veins, generally parallel-sided, and up to 1 by 3 cm. Two races of the fungus exist, Race O and Race T, which devastated the corn crop in much of the USA during 1970, but has been practically eliminated by planting resistant hybrids. The fungus survives on corn refuse on or close to the soil surface.

7. **Northern Corn Leaf Blight**, caused by the fungus *Helminthosporium turcicum* (perfect stage *Trichometasphaeria turcica*), is most prevalent in the northern half of the USA following warm, moist weather and heavy dews. Long, elliptical, grayish-green and tan lesions on the leaves may be up to 4 by 15 cm. They usually appear first on the lower leaves. When severe, a plant may turn grayish-green and die early. The fungus overwinters on corn debris.

8. **Helminthosporium Leaf Spot (Blight)**, caused by the fungus *Helminthosporium carbonum* (perfect stage, *Cochliobolus carbonum*), appears as round-to-oval or linear tan spots up to 1 by 3 cm. The lesions sometimes develop concentric zones and brown margins. Leaf sheaths, husks and ears are also infected by certain races. The fungus overwinters in corn debris.

9. **Physoderma Brown Spot**, caused by the fungus *Physoderma maydis*, occurs chiefly in the Southeastern states following hot, moist weather. Very small, round to oblong yellowish spots often occur in

bands on leaves, sheaths and stalks below the ear. The yellowish lesions turn chocolate- to reddish-brown and may merge to form angular or irregular blotches. Infected stalks may break at the nodes. The fungus overwinters in corn debris and soil.

10. **Zonate Leaf Spot**, caused by the fungus *Gloeocercospora sorghi*, is found mostly in the Gulf states. Lesions, which occur mainly on older leaves, are reddish-brown, water-soaked, and may enlarge up to 2.5 to 5 cm in diameter. Aging lesions develop a targetlike pattern. Other hosts include sorghum, Sudangrass, Johnsongrass, and sugarcane. The fungus overwinters in crop debris.

11. **Sorghum Downy Mildew**, caused by the fungus *Peronosclerospora (Sclerospora) sorghi*, is found as far north as extreme southern Indiana and Illinois where it is more important on sorghum and sorghum-Sudangrass hybrids. Plants are often stunted and yellowish, sometimes with chlorotic to white-striped leaves. A whitish downy growth may appear on either leaf surface in damp weather. Barrenness and poor ear fill accompany severe infection. The fungus survives in the soil and is spread by sowing infected seed.

12. **Crazy Top**, caused by the widespread soil-borne fungus *Sclerophthora (Sclerospora) macrospora*, infests plants when the soil is water-logged sometime before the seedlings are 10 to 15 cm tall. The tassel is partially or completely replaced by a plummy mass of small leaves. Diseased plants may be quite stunted and tiller excessively with lighter green, often narrow, straplike, and leathery leaves. Ear shoots may be numerous, elongated, leafy, and barren. The fungus survives the refuse of many grasses and in soil.

13. **Common Rust**, caused by the fungus *Puccinia sorghi*, often appears after silking following warm, moist weather. Small, round to elongate, golden- to cinnamon-brown pustules form on both leaf surfaces and other above ground plant parts. The pustules turn chocolate-brown to black as the plant matures. When severe, the leaves may turn yellow, wither and die early. The fungus overwinters on living plants in southern states and spreads northward by wind-borne spores.

14. **Gray Leaf Spot**, caused by the fungi *Cercospora zea-maydis* and *C. sorghi* var. *maydis*, occurs in warm-to-hot humid areas, especially where minimum tillage is practiced. Long, narrow, parallel-sided, tan or gray-to-tan or yellow spots, up to ½ by 2 to 5 cm, may merge forming large gray blotches with irregular margins that kill the leaves. The fungus overwinters in corn debris on or near the soil surface.

15. **Corn Viruses. A. Wheat Streak Mosaic Virus**, transmitted by feeding of the wheat curl mite (*Aceria tulipae*), infects many grasses including wheat and corn. If severe, corn plants may be stunted and yellowed. Small, oval to elliptical yellowish spots and streaks form on young leaves. The streaks elongate and develop parallel to the veins. Severely affected plants form small ears with a poor seed set. The virus and its mite vector require living cereal, grass or corn plants to survive. **B. Maize Dwarf Mosaic**, caused by several strains of the sugarcane mosaic virus, is transmitted by the feeding of over 20 species of aphids. Angular, light and dark green mottling on young leaves develops into narrow, light-green or yellowish streaks along the veins. Early-infected plants are stunted and yellowish-green with a poor seed set. Plants infected after silking time may appear nearly normal. The virus infects over 200 species of wild and cultivated grasses. Johnsongrass is the only important overwintering host in most of the USA.

16. **Genetic Leaf Spot** is one of many white-to-yellow flecks, spots and streaks that develop on corn leaves; not necessarily uniformly on a plant. Often only a few scattered plants in a field are affected.

For chemical control suggestions, a listing of resistant varieties, and other control measures, consult the Extension Plant Pathologist at your land-grant university, or your county extension office.