



NECROTIC LEAF BLOTCH OF APPLE

Necrotic leaf blotch of apple is a common disorder in all orchards in Illinois, but occurs mainly only on Golden Delicious trees and Prime Golds and Nugget are also affected. The cause of the necrotic leaf blotch is not known. Its occurrence is related to air temperature, light intensity, and soil moisture. A hormonal imbalance may be involved because symptoms are enhanced by gibberellins and reduced by abscisic acid. The disorder occurs worldwide. Seedlings out of Golden Delicious vary in susceptibility.



Figure 1. Golden Delicious leaves with necrotic leaf blotch; early symptom development.

Symptoms

Necrotic leaf blotch is characterized by the development of necrotic blotches or irregular areas of dead tissue in mature leaves (Figure 1). Midshoot leaves are most often affected (Figure 2). Blotches are limited by the leaf veins and vary greatly in size. Affected leaves begin to turn yellow after about 4 days and abscise a few days later (Figure 3). Some green leaves with necrotic leaf blotch are also lost by abscission.

Two distinctive characteristics of Necrotic leaf blotch are that the symptoms develop suddenly, almost overnight, and in waves, generally from June through August. The disorder tends to be more common and severe later in the summer, however, and usually appears when a cool, rainy period is followed by hot summer weather. Some orchards or trees within an orchard may show little or no defoliation, while other orchards or trees reach 50 percent defoliation or more.



Figure 2. Golden Delicious leaves with necrotic leaf blotch; advanced symptom development.

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Amelioration

Although it appears that necrotic leaf blotch is not caused by a fungus, bacterium or certain air pollutants, the disorder is reduced where the dithiocarbamate fungicides ziram or thiram are used in the summer spray program. Foliar applications of zinc oxide also have been effective in reducing the severity of the disorder.



Figure 3. Golden Delicious leaves with necrotic leaf blotch. Early symptom development is shown in top row; greatly advanced in bottom row.