

# 11. Honeysuckle Leaf Blight

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Honeysuckle has been commonly used in windbreak and landscape plantings in the northern Great Plains. Demand for hardy shrub species is high, but production of honeysuckle is hampered by frequent epidemics of honeysuckle leaf blight and other pests. This blight is caused by *Insolibasidium deformans*. This pathogen is listed as *Herpobasidium deformans* in papers published before 1984.

## Hosts and Distribution

Most species and varieties of native and introduced honeysuckle are hosts of *I. deformans*. Amur honeysuckle has shown some resistance to the pathogen in a nursery in Iowa. The disease is widespread in north-

eastern and northcentral U.S., and occurs in North Dakota, South Dakota, Nebraska, Minnesota, Iowa, Wisconsin, Michigan, Indiana, Ohio, Pennsylvania, New York, Massachusetts, Connecticut, and Rhode Island.

## Symptoms and Signs

This disease appears in the spring on newly emerging leaves. The first symptom is a yellowing of infected veinlets and of leaf tissues bounded by veinlets. These tissues become tan to brown and finally necrotic and dry, with brown areas involving an entire leaf or a large portion of it (fig. 11-1). The leaves are often rolled and twisted (fig. 11-2) and drop prematurely. The first sign of the pathogen is a thin, white layer of basidia and



Figure 11-1. Lower surfaces of honeysuckle leaves infected with *Insolibasidium deformans* and showing tan to brown necrotic areas involving large portions of leaves.



Figure 11-2. Honeysuckle seedlings infected with *I. deformans* show curled, rolled, and discolored leaves.



Figure 11-3. Honeysuckle seedling infected with powdery mildew fungus.

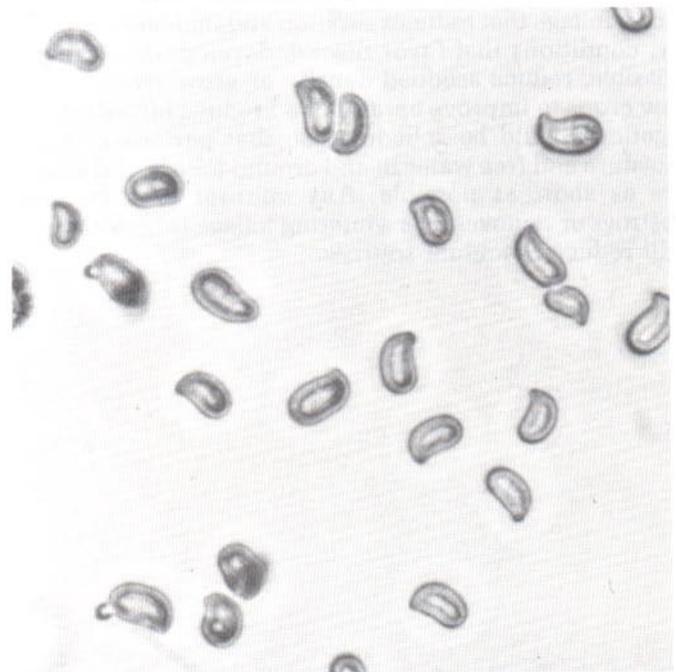


Figure 11-4 Honeysuckle leaf with numerous black fruiting bodies of powdery mildew fungus on upper surface.

basidiospores on the lower leaf surface, often followed by a white powdery mass of conidia. Powdery mildew fungus can be distinguished from *I. deformans* by white powdery mildew mycelia and black fruiting bodies that develop principally on the upper surface of nonrolled leaves in late summer (figs. 11-3, 11-4).

Two spore stages may be found on diseased leaf tissues. Mature basidiospores arise from curved, transversely septate basidia emerging through stomates from hyphae in the leaves. Basidiospores are hyaline, uninucleate, cylindrical with rounded ends except for an apiculus at the attached end, and measure 9-13 by 5-7.5  $\mu\text{m}$  (average 10.9 by 6.6  $\mu\text{m}$ ) (fig. 11-5). They have been found commonly throughout the growing season in nursery beds containing infected stock. Conidia frequently develop in or near the area of basidial formation on the lower leaf surface. They occur less commonly than basidiospores and are difficult to find. Conidia are 8-17  $\mu\text{m}$  in diameter, globose, hyaline, warty, binucleate, and form three pairs to a cluster (fig. 11-6). The outer pairs are usually the only spores to germinate. The function of conidia is unknown; they are presumably resting spores.

Figure 11-5. Basidiospores of *I. deformans*.



## Disease Cycle

*I. deformans* overwinters as mycelium or basidiospores in dead leaves. Basidiospores serve as primary inoculum for infection of developing leaves of the first foliage flush, and also for secondary infections during the remainder of the year. Infection of leaves is intensified when the temperature is 59° to 64° F, the relative humidity is near or at 100 percent in sustained periods for at least 2 days, and leaves are less than 20 days old. Below-normal temperatures and high humidity in August and September enhance disease development, which results in premature loss of foliage and growth reduction.

## Damage

Epidemics have increased in frequency in central and northern Great Plains nurseries since 1960. When blight is severe, most seedlings in nursery beds become infected and defoliate prematurely (fig. 11-7). Severe defoliation results in stem dieback and reduced growth, and stock may have to be retained in the nursery an additional year. Fifty percent or more of plantable seedlings have been lost in at least one northern Great Plains nursery even after seedlings were held for an additional year. Such losses also disrupt planned nursery stock inventories because seedbeds are used for an additional year.

No information is available on extent of damage to honeysuckle in windbreak and landscape plantings.

## Control (Cultural)

Honeysuckles in landscape, windbreak, and nursery plantings may become infected; thus they should not be used in nursery windbreaks or in other plantings on nursery grounds because they may be a source of *I. deformans* inoculum for nursery seedlings.

Seedlings grown at high densities in seedbeds develop dense foliage that reduces aeration and increases humidity, conditions that favor disease development. Where possible, reduce seedbed density or grow seedlings as row crops to improve aeration and reduce humidity. Irrigation should be scheduled so that periods of high moisture and free water in and around foliage and stems are as short as possible. Any cultural practice that destroys or removes overwintering foliage from seedbeds will reduce inoculum sources.

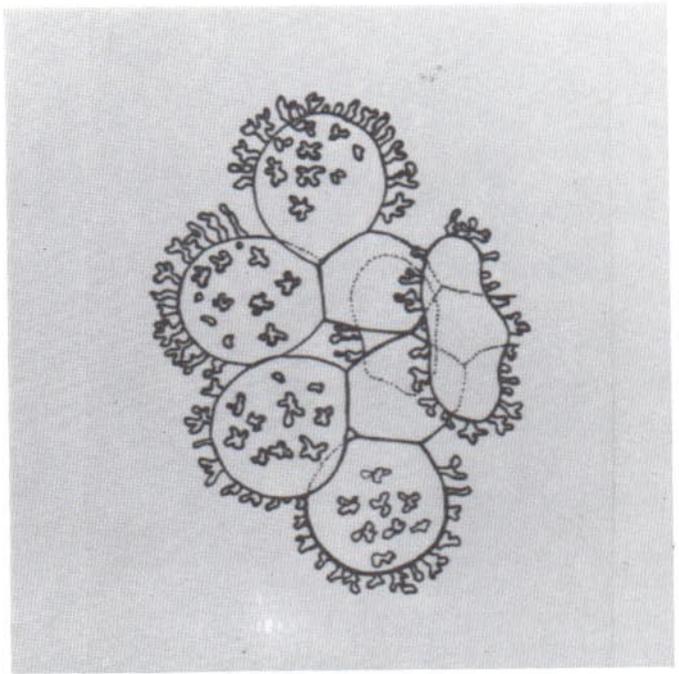


Figure 11-6. A cluster of three pairs of *I. deformans* conidia.

## Control (Chemical)

A regular protective spray program will minimize the risk of disease damage. Seedlings need protection during the entire growing season because basidiospores are dispersed throughout the period. Protectant fungicides must be applied frequently to protect newly developing susceptible foliage. Mancozeb (Fore<sup>R</sup> turf and ornamental fungicide) is registered for control of *I. deformans* on honeysuckle. Use 1.5 pounds per 100 gallons of water in full coverage spray to point of runoff. Begin spraying when seedlings are leafed-out and apply at 7- to 10-day intervals throughout the season. Chlorothalonil (Daconil 2787<sup>R</sup>), applied at 2 quarts per 100 gallons of water per acre gave best control of *I. deformans* on tatarian honeysuckle among seven fungicides tested in an Iowa nursery in 1984. Fungicides used for control of *I. deformans* in nurseries may be effective for control of this pathogen in windbreaks and landscapes.



Figure 11-7. Nursery beds containing 2-year-old honeysuckle seedlings infected with *I. deformans*.

#### Selected References

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