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PEACH LEAF CURL

Peach leaf curl is a world-wide disease and one of most common diseases in commercial and residential orchards in Connecticut. This disease attacks peach, nectarine, and related ornamental species and causes early defoliation when the weather is conducive with periods of rains and high humidity in early spring. Severe early defoliation can weaken tree vitality, and the weakened tree is more susceptible to winter injury and opportunistic diseases. The disease is potentially devastating to both crop yield and tree longevity.

SYMPTOMS AND DIAGNOSTICS

Peach leaf curl mainly attack leaves. The initial symptom is distorted leaves with red or pink coloration (Figure 1), which is very noticeable even at a distance. As infection progresses, abnormal multiplication of plant cells at the margin of infected leaves results in puckered and thickened appearance (Figure 2). In moist conditions, gray or white powdery appearance may be seen on the surface of distorted leaves as a result of the production of fungal spores (Figure 2). Diseased leaves turn yellow or brown and drop in the early growth stages. Fruit and twigs rarely get infected. When they are infected, fruits tend to drop early and twigs are swollen and stunted.

DISEASE CYCLE AND DEVELOPMENT

Peach leaf curl is caused by a fungus, *Taphrina deformans*. The fungus forms two types of spores, ascospore and blastospore, in

Figure 1. Distorted leaves with reddish and pink coloration

Figure 2. Thickened and puckered leaves with light gray appearance (arrow) on the surface of infected leaf tissues

the life cycle. The pathogen survives on twigs and buds as saprophytic budding blastospores. In the early spring, blastospores germinate and directly form germ tubes, which infect swelling leaf buds. Primary infection occurs only once a year from the time the buds begin to swell until the first leaves fully emerge in early spring. Only juvenile plant tissues are susceptible to the infection. As leaf tissues mature, they become resistant to the disease. On infected leaves, the fungus forms ascospores (light gray mold) that can be dispersed by wind. After germination, ascospores produce blastospores that can reproduce themselves by budding during the season. Blastospores are disseminated through water splash and remain dormant on buds and twigs until the following spring. Spore germination requires at least 12 hours of highly moist conditions and temperatures between 50° and 70°F. Cool and wet spring weather conditions can result in prolonged bud opening and severe infections. Fungal spores can remain inactive for several years on peach trees until conditions are favorable for disease development. This explains why peach leaf curl can periodically cause severe defoliation even though it was not noticed in the previous growing season.

MANAGEMENT

Resistant variety: Some peach cultivars are tolerant or resistant to peach leaf curl, but no peach varieties are immune to the disease. 'Redhaven' and its derivatives are more resistant than 'Redskin' and its derivatives.

Cultural practice: If the disease is severe in the spring, apply extra nitrogen fertilizers, water trees accordingly during dry periods, and thin fruit to compensate for the loss of young leaves. Cover the ground under the dripline with mulch to retain soil moist and control weeds.

Fungicide application: Peach leaf curl can be managed by a single dormant application with registered fungicides. Fungicide application is most effective when trees are dormant, in the fall after leaves fall or in the spring before buds swell. Applying fungicides after bud break or symptom development is not effective to control peach leaf curl. Fungicides that are registered for peach leaf curl include liquid lime-sulfur, chlorothalonil, and copper products. Follow the label instructions for all pesticides used.

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