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Peach Leaf Curl—Diagnosis and Disease Management in Idaho

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Contents

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Introduction

PEACH LEAF CURL IS A WIDESPREAD disease in commercial and home orchards, as well as ornamental landscape trees. It is caused by the fungus *Taphrina deformans*. The disease primarily affects peach, nectarine, and almond trees plus apricot trees on occasion. It may infect the blossoms, fruit, leaves, and shoots of host plants that are susceptible to the fungus when the environment is favorable.

The disease destroys leaves, causes cracking or corks in fruit in rare cases, and in young trees causes its death if the tree is severely infected and left untreated. Peach leaf curl is a monocyclic fungal plant pathogen, meaning only one infection cycle occurs each year during the early spring or summer (May/June) in Idaho. Optimum ambient temperatures below 60°F, high humidity, and prolonged precipitation or irrigation events (>12.5 hours) are required for infection in host trees. The pathogen only moves via mechanical means, including splashing water, wind, and potentially pollinating insects during bloom periods in early spring. Disease development ceases when the weather turns dry and warmer, typically with prolonged periods above 80°F ambient temperatures.

Symptoms

Early infections of peach leaf curl cause symptomatic distorted red or pink foliage on young leaves typically near the margin or apex of the leaf, but sometimes near the midvein (Figure 1). Infected leaves or shoots may also show **chlorosis** (yellowing) near the infection point (Figure 2). As the infection progresses the distortion of the leaf gets worse, turning a rust color and eventually a light green to whitish appearance with major leaf distortion. The leaf also becomes much thicker and leathery to the touch (Figures 3–6). Diseased leaves typically fall from the tree rapidly, which leads to excess defoliation, since the tree expends a lot of energy to refoliate in the weeks to come, resulting in a loss of overall tree vigor.

Figure 1. Early infection of peach leaf curl on a peach tree. Note the red, distorted foliage near the edge (margin) of the leaf (red-colored distortion may also be pink).

Figure 2. Peach leaf curl infection. Note the chlorosis (yellowing) around the infection.

Figure 3. A peach leaf curl–infected peach leaf, showing the rust-colored tip and edge (apex and margin).

Figure 4. Highly infected and progressed peach leaf curl infection. Note the light green, whitish coloration and extreme curling.

Spores of peach leaf curl may remain inactive for several years on the host tree and symptoms may develop sporadically from year to year, depending upon climactic conditions. Diagnosing peach leaf curl is typically based on visual symptoms, timing, and the host.

Management and Control Options

Choosing resistant tree varieties is highly recommended for the landscape or home orchard and is the best choice for preventing peach leaf curl disease. Resistant peach tree varieties include 'Oregon Curl Free,' 'Betty,' 'Frost,' 'Indian Free,' 'Avalon Pride,' 'Mary Jane,' 'Black Boy,' 'Muir,' and 'Q-1-8.' Proper fruit tree–pruning practices allow adequate air flow through the tree canopy, which prevents environmental conditions conducive to fungal infection and subsequent disease. Immediately remove infected peach leaf curl leaves, shoots, or fruit from the tree and dispose of them properly (garbage) to limit the fungi's presence and abundance. If symptoms and disease are prevalent throughout the host tree, applying extra nitrogen fertilizers, appropriate watering, and fruit thinning

Figure 5. Even more progressed peach leaf curl infection. Note the white coloration and extreme curling.

Figure 6. Highly infected peach leaf curl leaves.

can help compensate for the loss of young leaves in early spring. Applying a mulch layer (3”–4” in depth) around the tree may help retain moisture in the soil, hence reducing canopy humidity conducive to the fungus. Mulching also helps to prohibit the germination of weed species.

Fungicide applications exist for home orchards and commercial production Lime sulfur fungicides (active ingredient—calcium polysulfide) are prohibited for use or application in the residential landscape/orchard (home use). Those for peach leaf curl are most effective during fall leaf drop and during early bud swell prior to bud break. Fungicides that are listed for control of this disease include numerous copper-based products, Bordeaux mixture, lime sulfur, and chlorothalonil. These fungicides are a preventive management option; use them only if peach leaf curl has been prevalent in previous years. Management options are not effective after bud break or if symptoms are present or developing in the host tree. Please read, understand, and follow all label instructions for pesticides you apply, paying special attention to the location, rate, and application methods, if warranted.

ALWAYS read and follow the instructions printed on the pesticide label. The pesticide recommendations in this UI publication do not substitute for instructions on the label. Pesticide laws and labels change frequently and may have changed since this publication was written. Some pesticides may have been withdrawn or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless the specific plant, animal, or other application site is specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

Trade Names—To simplify information, trade names may have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

Groundwater—To protect groundwater, when there is a choice of pesticides, the applicator should use the product least likely to leach.

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