

## DISEASE PROBLEMS IN WALNUTS ATTRIBUTED TO UNUSUAL WEATHER

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Early in the 20<sup>th</sup> century many acres of land were devoted to walnut production here in Washington, especially east of the Cascade Mountains. Today, the walnut industry in Washington has almost disappeared due, in part, to overwhelming competition from commercial walnut operations in California. Another key factor to the demise of our walnut industry was the early fall and late spring freezes that occur once every 20 years. The late-season freeze that we had back in October is a prime example of why walnuts are no longer commercially viable in the Yakima Valley.

In the spring and early summer, our Master Gardener Clinics throughout the Yakima Valley are swamped with phone calls and with dying walnut leaf samples. These calls come from homeowners concerned with the symptoms of tree decline that they see in their backyard Persian (or English) walnut trees. I suspect that we are dealing with at least two different diseases—walnut blight and walnut blotch (anthracnose.) Samples sent to a laboratory in Spokane revealed yet another disease, called sirococcus canker, that may be to blame for this walnut tree decline. The occurrence and frequency of these walnut diseases can be attributed to tree stress caused by that October freeze we had before our walnut trees dropped their leaves. This unusually early fall freeze clearly affected area walnut trees and left them more vulnerable to tree diseases than normal.

Both walnut blight and walnut blotch are spread from tree to tree in spring during prolonged rainy weather during the bloom season and that is exactly how our spring played out this year. Walnut blight is a bacterial disease that survives the winter in

dormant buds and in twig lesions. In the spring, the bacteria is carried from opening buds and oozing lesions by rain and wind. Infected leaves become distorted and develop reddish-brown spots. Black depressed lesions will form on infected twigs, catkins, and on the husk of nuts. The walnut husk can develop slimy spots and the kernels within infected nuts may shrivel by harvest. “Franquette” is the principle walnut variety grown in Washington and is highly susceptible to walnut blight. Two varieties out of Oregon, “Howe” and “Spurgeon” are reported to be much more tolerant to walnut blight.

Walnut blotch, or anthracnose, is a fungal disease that overwinters in walnut debris and in twig lesions. Raking and destroying fallen leaves and nuts in the fall and the spring can reduce the incidence of this disease on the backyard tree. Like walnut blight, this disease affects leaves, twigs and nuts. Infected leaves develop reddish-brown to grayish-brown spots. Sunken grayish lesions with reddish-brown margins form on twigs. Walnut husks develop sunken necrotic spots and the nuts do not develop properly. The symptoms of walnut blotch are quite similar to blight, but can be distinguished if you are fortunate enough to find minute but numerous dark fruiting bodies of the fungus in the leaf lesions. Premature leaf and nut drop are associated with walnut blotch. During wet springs, this disease can cause trees to lose nearly all their leaves by late July. One walnut variety, “Adams”, while tolerant to walnut blight, is most susceptible to walnut blotch.

Control of both walnut blight and walnut blotch are similar. When practical, homeowners need to prune out and destroy infected tissues and twigs as soon as possible. Summer is a good time to do this as the

infected tissues are most visible and the hot weather will prevent disease spread. Winter pruning to remove infected twigs is effective too. Around the time the catkins begin to enlarge, homeowners should consider an application of copper fungicides in the spring (check the fungicide label for appropriate rates.) In Oregon, homeowners and commercial growers may apply up to three sprays between early prebloom to early postbloom to prevent the spread of walnut blight. Here in Washington, at least one copper fungicide application is recommended next spring for those walnut trees showing serious disease symptoms. Our normally dry spring weather will help clear up these problems with walnut blight, blotch and canker in future seasons. And hopefully, we are not due for another October freeze for another twenty years!