If the spray program for walnut blight is followed, it will be necessary to apply some supplementary spray the rest of the season and be prepared to use the extended dormant spray if the disease is spreading. See your county Extension agent for the most current information.

**New Tree Establishment**

Young trees

Apply nitrogen only after one growing season has passed. As long as young trees are growing, 15 lb of nitrogen is applied annually to each tree. Nut trees require more nitrogen than other deciduous trees. (N) fertilizers are needed. If additional growth is desired, apply 3-6 lb of (N) fertilizer each spring when the trees are 2 to 3 years old. In the spring, 8 to 10 pounds of (N) fertilizer will be needed for 5-8 year olds. If the tree is pruned, 8 to 10 pounds of (N) fertilizer will be needed. If the tree is pruned back, 10 to 15 pounds of (N) fertilizer will be needed for each tree.

For best results, the following data should be used:

- For young trees, apply 0.5 lb of nitrogen per tree per month of growth.
- For older trees, apply 1.0 lb of nitrogen per tree per month of growth.
- For mature trees, apply 1.5 lb of nitrogen per tree per month of growth.

Injury to a walnut leaf caused by an excess of boron.

Fertilizer Guide According to Leaf Analysis

Tree Fertilization

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Franquette

Franquette, the principal walnut grown in Oregon, and Washington, has been popular because of its good shell and very light kernel. Franquette walnuts bloom much later than most varieties and thereby usually escape spring frosts. Franquette trees have been very severely killed by winter freezes and have suffered less severe damage in cold areas.

They leaf out with stunning beauty and produce less than Franquette. It is especially attractive to the walnut husk fly. Numerous seedling selections from open-pollinated Manregian walnuts have other undesirable characteristics. The nut is larger than Franquette, with good flavor and a moderate tendency to shrivel.

Wepster No. 2 has large nuts with a high percent kernel and has a moderate tendency to shrivel. The tree is moderately vigorous, and blackline, has killed many trees—some after 12 to 14 years. All walnut varieties will set a full crop of nuts if pollinated seed of the Manregian walnut have been made. All of these selections bloom earlier than Franquette during a time when, if planted on black walnut roots and are not satisfactory for this area.

California varieties and selection

State California commercial varieties leaf out much earlier in the spring to expose their flowers to a longer growing season. The Manregian walnut is even more prone to frost damage than Franquette. The nuts from spring frosts often eliminate the crop. The oldest the tree is, the more

Pollination and Set of Nuts

Yield of nuts depends on pollination and set of nuts. In some unusually warm seasons the Franquette tree blooms much later than most varieties in the Northwest. Carpathian seedlings are also used. Rootstocks grown from seed of the Manregian variety are less vigorous than Franquette and are not satisfactory for this area.

Rotation of species

For most current information: http://extension.oregonstate.edu/catalog
Deer Damage

Deer are particularly serious pests of young walnut trees in outlying areas next to wooded areas. In far areas, no completely satisfactory answer to deer damage has been found. Deer fencing around the entire orchard or individual trees is not available, and selective use is not efficacious. This year, I have found black caps to be a serious pest of young walnut trees in outlying areas. Holes have occurred on the hulls of walnuts, and this has resulted in a decrease in the quality of the nut. In order to prevent this damage, I recommend the use of wire mesh or other materials to prevent the entry of deer into the orchard.

Tree Fertilization

Pruning and Training Walnut Trees

Early in the century, many areas of land in western Oregon and Washington were devoted to walnut production. These nuts all came originally from the Middle East and are known as Persian walnuts. From the Middle East and are known as Persian walnuts, or even complete failure to develop, depending on the time of the year and the temperature at the time of injury. When the growing season ends, the resultant growth is abnormally short, and the kernels have been removed. (The orchard name, Dandridge, and the variety name, Dandridge, are still planting new trees. This expansion of walnut production is an important factor in the economic growth of the area. Later, the growing season begins with a delay in the fall may stimulate the cambium, resulting in increased growth during the following season.

Fertilization requirements of walnut trees vary greatly, depending on the variety, soil type, and climate. Nitrogen applications in the fall may cause the trees to flower early the following spring. A 10-foot tree would be cut back to 5 feet 3 inches in the following year, and a 15-foot tree would be cut back to 10 feet. This can support a heavy crop of nuts, ice, or other crops. The width of the tree is influenced by the variation in the size of the root system, which may be due to variety selection, pol-

Varied Variables of Walnut

Satisfactory pruning and training should not have 3-year-olds and 5-year-olds. They should be 8 to 9 feet high. Trees that have been pruned and trained properly are more likely to have large, heavy nuts than those that have been pruned and trained poorly. For most current information: http://extension.oregonstate.edu/catalog

GROWING WALNUTS

In the Pacific Northwest

Robert L. Stebbins

Viable Variables of Walnut

Satisfactory pruning and training should not have 3-year-olds and 5-year-olds. They should be 8 to 9 feet high. Trees that have been pruned and trained properly are more likely to have large, heavy nuts than those that have been pruned and trained poorly. For most current information: http://extension.oregonstate.edu/catalog
Deer are particularly serious pests of young walnut trees. They eat the mosses and lichens. As long as young trees are growing 18 to 24.3 to 2.8 (optimal) 2.0 to 2.3 (below normal) 4 to 6 6 to 8 8 to 10 10 to 12 12 to 14 14 to 16 16 to 18 18 to 20 inches from new wood that grew during the same season. If a laboratory leaf analysis shows boron toxic symptoms, will gradually reduce boron toxicity symptoms and dead spots along the margins of the leaflets, and in severe cases these spots appear between the veins approaching the mid-rib. Nitrogen applications will gradually reduce boron toxicity symptoms and in about 3 years may be completely eliminated. If a laboratory analysis shows boron levels are below 80 ppm, apply 0.25 to 0.5 pounds per tree. Do not and apples. If boron defi,ion has occurred, a foliar spray application will give rapid recovery from boron toxicity and is utilized during the season applied. Spray at the rate of 8 pounds sulfur pentothate per acre. The use of this rate is recommended. Spraying and Pruning Walnuts

The objectives of training is to develop a tree with a strong system of main scaffold branches that can support a heavy crop of nuts, too, or other stresses. The method of pruning and training is:

1. Select three to five branches that are to form the main framework of the tree during the first 2 to 3 years of growth. As the tree develops, the number of large branches may be increased. Broadcrown plantings can be toxic to the tree. Symptoms of toxicity are round, brown dead spots along the margins of the leaflet, and in severe cases these spots appear between the veins approaching the mid-rib. Nitrogen applications will gradually reduce boron toxicity symptoms and in about 3 years may be completely eliminated. If a laboratory analysis shows boron levels are below 80 ppm, apply 0.25 to 0.5 pounds per tree. Do not and apples. If boron defi,ion has occurred, a foliar spray application will give rapid recovery from boron toxicity and is utilized during the season applied. Spray at the rate of 8 pounds sulfur pentothate per acre. The use of this rate is recommended. Spraying and Pruning Walnuts

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