WALNUT NOTES

Nut production

Managing walnut trees for both nuts and timber might bring in extra profits, but there's a hitch. Maximizing timber yield conflicts with maximizing nut yields. So, to produce both, growers need to compromise on spacing, thinning, pruning, and managing ground covers.

Spacing

Initial tree spacing for nuts and timber should be 15 to 20 feet square. Planting at the closer spacing of 10- to 12-feet square recommended for timber requires a thinning before you can adequately assess the nut production of individual trees. The crown competition factor (CCF) determines when to thin (see Note 3.03: First Thinning and 3.04: Second Thinning). Significant competition among trees begins with CCF's between 80 and 100; therefore, a CCF between 70 and 90 is usually recommended for nut and timber production.

Pruning

Nut production requires open-grown trees with large crowns; therefore, most growers prune walnut to produce one high-quality veneer log. Begin pruning side branches when the trees are 5 to 10 feet tall; continue pruning off a few additional branches annually until at least 9 feet of clear stemwood is obtained. The clear stem length should never exceed 50 percent of the total tree height. Excessive pruning reduces tree growth, increases internal wood defects, and results in epicormic sprouts.

After a 9-foot clear stem has been produced, continue spot pruning to create a scaffold branching system. Walnut tends to produce a whorl of branches at the base of each year's terminal growth. Within each whorl, select two or three branches that have the widest stem-to-branch angle, are evenly spaced about the central bole, and have branch bark ridges without included bark (see Note 3.01: Corrective Pruning and 3.02: Lateral Pruning). A strong scaffold branching system above the clear bole will mean fewer broken branches and higher nut yields in the long run.

Managing Ground Cover

The amount and type of ground cover can significantly affect walnut growth and nut yields. Cover crops will delay a tree's bud burst and flowering, allowing more of the flowers to escape damage from late spring frosts. Legume cover crops are usually recommended because they can provide part or all of the nitrogen walnut trees need. Do not plant grass cover crops; they are too competitive and can produce chemicals that inhibit walnut growth.

Tending the Trees

Walnut trees should begin producing nuts regularly on a good site when they are 8 to 10 years old or 15 to 25 feet tall. Nut yield tables for plantation-grown trees are not yet available. Many black walnut trees may bear only irregularly or during alternate years, but you can select those trees that regularly bear when you thin the plantation. One way to record nut production each year is by spraying a spot of paint on each tree with a nut crop. Use a different color each year. When thinning the plantation, you can then rapidly evaluate each tree both for its stem size and quality and for its nut production.

Several cultural factors can influence flower production, fruit set, and fruit maturation. Because female flowers are formed within the dormant buds when the current year's nuts are rapidly enlarging and filling, the immature flowers must compete with the nuts for carbohydrates produced by the leaves. Cultural practices such as fertilization or thinning that increase the leaf surface area or sunlight striking the leaves should increase the number of new flowers formed in the buds. To provide the nitrogen needed for good fruit set, walnut plantations should be fertilized according to their cropping potential. For every 100 pounds of freshly husked nuts harvested, approximately 15 pounds of nitrogen must be added either through nitrogen-based fertilizers or legume cover crops.

Moisture stress, especially during July and August when the nuts are rapidly enlarging and filling, will drastically reduce nut production and quality. Be sure that your trees get the moisture they need (see Note 2.08: Irrigation).

Handling the Nuts

Walnut trees generally drop their fruit in four phases:

1. shortly after flowering, because of natural pollination failures.
2. summer, in response to damage by the walnut curculio.
3. late summer, when incompletely filled nuts fall because of foliar diseases or moisture stress.
4. early autumn, mature nuts fall to the ground.

A bushel of freshly collected nuts weighs about 48 pounds and contains about 375 nuts. To keep the nuts from overheating and losing kernel quality, spread freshly collected nuts out in shallow piles until husked. Wear rubber gloves when handling nuts because the hulls contain chemicals that can irritate and blister the skin. Husked nuts can be stored in open mesh bags and allowed to air dry. Nuts to be used for seed must be kept moist and prepared for stratification (see Note 2.03: Direct Seeding). Nuts are usually purchased on a green hulled weight basis by local agri-business firms who are supplied with walnut hullers by walnut processors. After husking, about one-third of a bushel of nuts weighing 18 pounds will remain.

Evaluating the Nuts

When managing a plantation for nuts and timber, you should evaluate the nuts from some of your best trees. Trees that consistently produce nuts with more than 4 grams of kernel, kernel percentages higher than 20 percent with more than 50 percent of kernel extracted as quarters, and fewer than 20 percent blind nuts are worth further evaluation and possible propagation as new cultivars for timber and nut production.

J. W. Van Sambeek