



WALNUT NOTES

Releasing Walnut in Natural Stands

Black walnut trees generally grow singly or in clumps in natural stands. To make the most of their potential value, you'll need to give these trees some "elbow room" from nearby trees and vegetation that compete with them for moisture, nutrients, and growing space. For individual trees in natural stands, release is the most important and worthwhile silvicultural treatment you can apply.

When to Release

Some type of release may be needed in these three cases:

1. Young trees growing in forest openings. Release by controlling weeds (see Note 2.05: Weed Control). Cut or kill any brush or other small trees that overtop the walnuts. If there are many young trees in the opening, so that the area will be managed for walnut, enlarge the opening to at least one-half acre to provide enough light.
2. Vines growing around individual trees. Several types of vines may be present, but wild grapes are the most damaging. The vines can deform the trees and kill them if left alone. Release by severing the vines and treating the cut ends carefully with a herbicide.
3. Trees of all sizes that are competing with other trees for light, moisture, and nutrients. In this situation, release and thinning have the same purpose; but release focuses on an individual tree's need for growing space rather than on the stand of trees.

A walnut tree will grow much more slowly in diameter if it's crowded. You can estimate how seriously crowded an individual tree is by comparing the tree's actual crown width with its potential crown width. An easy way to approximate potential crown width in the field is by estimating (or measuring) the d.b.h., doubling it, and adding 5. Or, use this equation:

$$\text{Crown width (feet)} = 1.993 \text{ d.b.h. (inches)} + 4.873.$$

Once you've determined the potential crown width, the next step is to estimate (or measure) the actual crown width. Then express the two widths as a ratio (Actual Crown Width/Predicted Crown Width). For example, a 10-inch-diameter tree might have an actual crown width of 19.8 feet and a predicted crown width of 24.8 feet. The crown width ratio would be 0.8, and the crown area would be 84 percent as large as if the tree were free to grow (table 1). More importantly, the tree's diameter growth would be about 25 percent less than if it were free to grow.

Table 1.-Estimating the effects of crowding

Crown width ratio	Maximum crown area -----Percent -----	Potential growth
1 .00	100	100
.95	90	95
.90	81	90
.85	72	84
.80	64	75
.75	56	66
.70	49	53
.65	42	38
.60	36	19
.55	30	0

Although walnut trees are very sensitive to crowding, they respond well to release from crowding. If all the walnuts in a stand are about the same age, the largest trees and those with the largest crowns will respond best. Release is best done when the trees are still young and before they have been crowded too long.

For release, forest trees are often separated into four crown classes: *dominant* (with crowns in the uppermost layers of the canopy), *codominant* (with crowns in the upper canopy, but less free to grow than dominant trees), *intermediate* (with crowns slightly below the upper canopy, but receiving some light from above), and *suppressed* (with crowns below the upper canopy and completely shaded). Even though walnut trees of many sizes, ages, and degrees of crowding have responded well to release, the best candidates for this treatment are from the dominant, codominant, and intermediate classes.

To be effective, release should increase the growing space available to the tree on at least three sides. As a general rule, there should be at least 10 feet between the walnut crown and any adjacent tree crowns after release. Additional treatments will be required periodically as the walnut crown grows out into available space.

Felix Ponder, Jr. and Richard C. Schlesinger