

Beyond The Nuts.....

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The information presented in this paper is based on the assumption that you have planted your walnut trees, are interested in harvesting nuts (to provide a modest, annual income) and eventually are interested in harvesting the trees and selling the wood. While the production of these two basic products (nuts and wood) from the same tree is quite possible and very common, there are also several potential pitfalls. Remember, tree growth and wood quality are controlled by three factors: genetics, age, and environment (this includes management). To a large degree, nut production is controlled by these same three factors! However, a good nut producing tree may have certain characteristics that may not make a high-quality walnut veneer tree! With that in mind, let us look at the probable impact of some common management practices on tree growth and wood quality. While there have been many examples of guidebooks discussing walnut stand management -- USDA General Technical Report NC-38 by Schlesinger and Funk (1977) as an example -- none of these discuss wood quality. In the Fourth Black Walnut Symposium, Phelps (1989) addressed the tree growth-wood quality relationship from the wood properties perspective.

Size -- Bigger logs bring higher prices assuming that stem quality is the same. As a guideline, sawlogs should be at least 8'6" feet long (the 6" is trim allowance) and 12 inches in diameter inside the bark (DIB) at the small end of the log. You may have a niche or specialty market for smaller logs but usually smaller logs are best suited for firewood. Typical veneer logs should be larger in diameter, at least 18 inches DIB. As a good guideline, the bottom or butt log of the tree usually contains the highest quality wood -- either lumber or veneer. There is a direct relationship between log grade and lumber grade.

Logs should be round, straight, and have as many defect-free faces as possible. "A face" is a quarter of the tree's circumference. Defects include cracks, knots, bird peck, fire damage, logging damage, etc. Top grade veneer logs will have four defect-free faces. The better sawlog grades should have two, adjacent defect-free faces. The higher in the stem the log is taken from, the more knots and branches and the lower the amount of heartwood. Sapwood and knots are not desirable characteristics in walnut!

Pruning -- As an example, the most desirable veneer logs would have a long clear bole, say 17 feet or more. However, veneer buyers may buy material that is only six feet or longer in certain circumstances. Assume you have planted these walnut trees on a 10' x 10' spacing. You have chosen the site well, you have used improved or selected planting stock, you've done the weed control, you've done everything imaginable to get the stand well-established. You notice that some of the trees are starting to have branches shooting off to the side, so you prune them back. How high are you going to prune? When is the best time to prune? How big a branch should I prune?

What most people overlook is the fact that pruning is actually a deliberate wounding of the tree! Even when the pruning is done following all the well-established guidelines for pruning, you've

wounded the tree. Depending on the tree itself, this wound may heal quickly, it may heal slowly, or -- worst case -- it may never heal.

The general recommendation that may be made is that pruning should be done at an early age and limited to small diameter branches (say less than 1" in diameter). Early pruning will allow the production of the maximum amount of clear wood. As to how many limbs to remove, there are no absolute rules. Limbs hold leaves which are the photosynthetic factories for growth. The more limbs (e.g. leaves) you remove, the more the impact on growth. No more than 25% of the crown area should be removed at a time. While limbs larger than 1" can obviously be removed, the wound's ability to heal in a timely fashion is questionable. Vigorous healthy trees will heal wounds faster than trees in poor health. Pruning height may be practically limited. You may want to prune high enough to allow passage for tractors, etc. through the stand.

Thinning -- Typically, thinning is thought of as removal of poorly formed trees, low vigor trees, diseased trees, etc. From a traditional forest management standpoint, thinning is either pre-commercial (i.e. the cut trees are left on the ground) or commercial (the removed trees are large enough for some type of product recovery). In either event, the result is increased water and nutrient availability for the crop trees. In some instances, there have been reports of increased levels of limb-related defects associated with heavily thinned hardwood stands.

In the 1940s, Benson Paul , a US Forest Service silviculturist, reported that open-grown black walnut had higher density than did forest-grown walnut. Open-grown was defined at that time as "trees growing singly or in small scattered groups in pastures and relatively open farm woodlots". This might be analogous to stand densities seen in many agroforestry configurations. Later Paul recommended that management practices producing conditions similar to those where open grown walnut occurs be followed.

In 1973, other scientists suggested that open grown walnut would tend to be forked and limby while forest grown walnut would have a straight, clear stem. According to them, the forest grown stems would have a dark colored heartwood with a narrow sapwood band while open grown trees would have lighter heartwood and wider sapwood rings.

One of the more desirable traits of walnut wood is its even texture. Some studies have suggested that faster-growing plantation trees had wider growth rings which in turn have wider latewood zones. This results in a reduction in vessel area in the cross-section which results in poorer wood texture. On the other hand, stand management favors a more uniform wood texture.