4. The Growth Nature of Black Walnut?

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Chapter 1, "Why Grow Black Walnut?" told the good news about black walnut - now for the bad news. Most of the following problems arise from the shade intolerant nature of the species, and the contrary desires of the veneer market. The problems will be discussed here. Then the next several chapters will focus on how to overcome these problems.

Problem 1. Terminal Leader Failure:

I am not sure of the cause of this tendency, but I certainly understand the result. The terminal leaders of young black walnuts growing in full sun become stunted or wither, in some cases every year. The tree is thinking "Hey, I got it made! I don't need to be tall, I need to be wide and soak up all this sunshine and shade out the competition below." The terminal leader declines and a whorl of equal branches take over and divide leadership responsibilities. The result is a multi-stemmed and happy open grown tree – not at all what the veneer industry is looking for.

Figure 1. Repeated terminal leader failure in an open grown black walnut seedling. Four consecutive years of terminal failure can be seen. The lower two have been pruned, and are now just crooks.

There is an easy solution to this problem, **trainers**. There is a hard and inferior solution, **manual pruning**.

Problem 2. Poor vertical growth:

Black walnut growing in the open, where it is comfortable, does not get particularly tall. It is more interested in getting wide and collecting sunlight. When crowded on the sides, however, its interest changes to growing straight up.

Someone's response: "What do you mean Poor vertical growth rate? I get 3 feet per year!" Three feet per year is nice, but the side shaded black walnut at the right grew 11 feet one year. Dense threatening shade onto the shade-intolerant black walnut accelerates vertical growth. It has two choices, shoot straight up or die.

I really have an empty feeling about this effect. I know it happens and is a crucial step to making the skeleton of a top-quality veneer log. Understanding the effect is far from a science at present. Unraveling the nature of this effect is an ideal project for a forestry science program. Growers need an accurate model, relating growth and form based on shading, geometry, and timing. It would not take 100 years to establish. We could have solid data in 10 years.

HELP!

Figure 2. Shade Accelerated vertical growth. This is not a picture of the problem. It is a picture of the solution.

There is an easy solution to this problem, **trainers**. I cannot think of another solution.

Problem 3. Side Branch growth and persistence:

Of course, a tree has to have side branches, but we don't want side branches – at least, not on the lower part of the tree. If the tree must have them, we must get rid of them as soon as possible and leave no trace of their existence to be seen in the bark. This is difficult to accomplish with a pruning saw and labor.

Branches that reach the canopy survive and are essential to the tree. Side branches below the canopy are eventually abandoned in the low lighting level. They die and rot. They may be heavy and fall when the tree is disturbed, killing the logger. Such dead branches are known as "widow makers". How branches are naturally abandoned is the subject of chapter 7.

Figure 3. Training - The Wrong Way:

There is an easy solution to this problem, **trainers**. There is a hard and inferior solution, **manual pruning**.

Problem 4. Suppressed growth by sod-forming grasses:

Sod forming grasses are a serious problem for any tree species. The matt of grass roots gets first choice on nutrients and water coming from above. The tree's feeder roots just underneath get what's left. The problem is so destructive, that Johnson grass and tall fescue are often termed "toxic".

Figure 4. A stunted black walnut seedling being smothered by tall fescue. Not only are the stunted dwarfs small, the become extremely crooked.

We had about 30 acres of trees that looked like Figure 4. At a Walnut Council meeting at the University of Nebraska, we saw test plots showing how suppressing tall fescue could be. I came home and sprayed glyphosate out to the drip line of all the trees. The next summer they took off growing so fast that several broke off from the weight of new foliage.

There is an easy solution to this problem, **trainers**. There is an inferior solution, **herbicides**.

If we can overcome these four black walnut problems, we can get trees started with a tall, slender, clear stems. Such a start is the key to a quality end-product. Addressing these challenges and others is the objective of the remainder of this book. A practice will be described that avoids these problems at an early stage with minimum input.

Experimental forestry plots usually outlive the experimenters, but to judge the success of a certain silviculture practice, we don't need to wait for harvest time. Given a desirable starting skeleton we can shift gears and start packing on the most expensive wood possible. It is easy to visualize the end product.