

Growing Quality Wood from CRP Pines

Julian R. Beckwith, III¹ and Kim D. Coder²

Warnell School of Forest Resources, The University of Georgia

¹Associate Professor - Athens, GA. 30602

²Associate Professor - Athens, GA. 30602



The Entomology and Forest Resources
Digital Information Work Group

Introduction

All that can be seen of a growing tree is the outside, but the inside is what determines its value as raw material for wood products. A pine tree grows noticeably taller and bigger around each year, and it adds new branches and new needles. Under normal growing conditions, it also adds a new layer of wood along its entire length in the form of a continuous sheath under the bark. Annual overlapping sheaths are what form the main stem and the branches.

When a tree is cut down or a branch is cut off, the annual sheaths that were formed up to the point of the cut, appear as concentric rings. The number of these rings can tell the age of the stem or branch at that point. Variations in the width of sheaths and the shape and arrangement of their wood cells, determines the value of the wood for different products.

Pulpwood

Wood used to make paper and cardboard, is highly processed during manufacturing. First it is reduced to its component cells (individual fibers about 1/4 inch long and 1/1000 inch in diameter), and then reconstituted into large sheets.

Some pulping/papermaking treatments are more involved than others, requiring considerable

chemical as well as mechanical processing.

Since individual cells are the basic unit in the pulping process, the major factor determining the value of most pulpwood is the number of fibers, which translates into timber size and weight.

Certain chemical components of pulpwood go toward making better pulp/paper than others. Also, certain cell types and sizes improve quality of certain pulp/paper products. However, it has been said that a technician at a pulp/paper mill can do more to affect product quality with one-quarter turn of a valve, than all the timber management practices affecting wood characteristics. This means growing as much timber as fast and as heavy as possible should be the goal in pulpwood production.

Obviously, large volume and high weight go together. However, given a particular size of timber, higher weight can result from greater proportions of latewood, the tight, dense, last-formed wood in each sheath. Production of latewood is somewhat the result of the genetic makeup of each tree, but can be influenced by growing conditions. Availability of sufficient water and essential elements during the part of the growing season in which latewood is produced, will increase the amount formed.

There are various management practices that favor rapid volume and weight production in plantation pines. Planting spacing, weed

^{1,2}1998. Growing Quality Wood from CRP Pines. Georgia Cooperative Extension Service, College of Agricultural and Environmental Sciences, The University of Georgia, Athens, GA 30602 U. S. A.

1998. The Entomology and Forest Resources Digital Information Work Group, College of Agricultural and Environmental Sciences and Warnell School of Forest Resources, The University of Georgia, Tifton, Georgia 31793 U. S. A. BUGWOOD 98
<http://www.bugwood.caes.uga.edu/>

control, irrigation, fertilization and thinning all can encourage higher growth rate. It is wise to be sure that costs of these cultural practices can be recovered by appropriately higher prices for the timber. However, careful use of personal or out-of-season farm labor can often reduce costs to levels that make better fiscal sense.

Sawtimber

Construction lumber - The most common use for pine sawtimber is the manufacture of construction lumber. This takes the form of window headers, floor joists, roof trusses and wood decks in houses and commercial buildings where strength is important. High strength results when there are few knots and other natural interruptions to straight grain (the alignment of long cells). Good strength also is produced when high proportions of latewood make up each growth sheath. The higher the strength of a piece of lumber, the smaller the size necessary for a particular purpose, or the greater distance that can be bridged with a particular size.

Strength is not the only important feature of construction lumber. Uniformity plays a big role too. Wood can be grown very fast and still be strong, if it has large proportions of latewood, as indicated before. That is, timber with thick growth sheaths containing large latewood bands will have high strength. However, rings like that can result in large differences from one side to the other in a piece of lumber cut from. These differences cause big variations in strength and may even create uneven shrinkage as lumber dries, causing warping. Therefore, in construction lumber, slower growth is more desirable than fast, so long as the narrow rings contain proportions of latewood sufficient to produce satisfactory strength.

Appearance-grade lumber - It is obvious that

not all pine lumber is used for products in which strength is the main requirement. The appearance of lumber used for furniture, paneling and siding is more important than its strength. In some cases, natural features which reduce strength in construction lumber become characteristics which increase the value of appearance-grade lumber. Knots in “knotty pine”, and decay in “spalted lumber” are two such examples. Nevertheless, the quality of most lumber used for its appearance depends upon the amount and size of “clear” (knot-split-stain free) wood, that can be cut from such pieces. In some cases, wood “figure” (the appearance of ring features on lumber surfaces) is important too, even setting limits on growth rate. Therefore, many of the same quality characteristics of construction lumber apply to appearance-grade lumber also, but for different reasons.

Growing sawtimber - Sawtimber production requires an entirely different attitude on the part of a landowner than growing pulpwood. Slower growth means taking longer to produce timber of desirable size for harvest. Sawtimber also must be grown to larger sizes than pulpwood, since bigger logs are needed for sawing into lumber of commercial sizes. The need for fewer knots means growing trees with fewer branches along their lengths. Closer initial spacings, careful thinning and even regular pruning may be the intensive cultural practices necessary to produce sawtimber from CRP plantations. All this requires more time, more management effort, longer protection from insects, disease and fire, and exposes the timber investment to greater risks than pulpwood production. Consequently a greater financial return must be realized to be worth the extra effort and risks. That is one reason why sawtimber brings much higher stumpage prices than pulpwood.

Conclusions

The greater demand for non-timber uses on public land, regulatory constraints and past management practices (or lack of management), means supply of sawtimber may become scarce in the future. If so, differences in prices between pulpwood and sawtimber will increase. Such differences may provide financial incentives worth the extra time, effort and risks of modern timber management.