

GROWING WOOD FOR QUALITY: THE GREAT LAKES REGION'S COMPARATIVE ADVANTAGE

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ABSTRACT.—The premise of this paper is that the Great Lakes region's comparative advantage is in growing quality wood in a quality forest setting. Further, I conjecture that management aimed at quality improvement can achieve measurable results in yields and dollars at least as fast as management aimed simply at tons. In any event, land managers must be held accountable for quality renewal and not allowed to use improved technology as an excuse for high-grading. Managers should be setting "stretch goals" for quality in the annual cut as well as in the growing inventory.

Improving forest productivity for timber is an important social goal. We traditionally think of "productivity" in terms of volumes—cords or tons of wood. Most of the presentations at this meeting take this approach. Yet, in many presentations, various aspects of quality have come to the fore. Today, I hope to challenge your thinking with the following proposition: that the comparative advantage of the Great Lakes region lies in growing wood for quality in a context of a quality forest environment. For the present, I must offer a general argument for this proposition. A goodly number of fine points, complexities, and uncertainties must be left to one side. How to bring about higher value growth varies from situation to situation, but there is really no secret to it.

COMPARATIVE ADVANTAGE

In any industrial endeavor, it is always preferable to command an absolute advantage in costs over rivals. Yet, survival strategies do exist for those who are not the absolute low-cost producer.

The Great Lakes region has a very large absolute disadvantage in growing wood fiber (table 1). This position is based on natural and economic realities that are difficult to change. An important dimension of advantage is not captured in mere comparisons of growth rates, and that is differences in delivered wood cost. On this dimension as well, tropical regions also hold significant advantages.

The Great Lakes region is not competitive in commodities. This is clear from its product mix, its relatively slow growth in forest production, and its changing patterns of production by grades. Industries that at one time came here for water power, low-cost wood, and proximity to large markets have matured and are easing away from commodities to varying degrees. Name the commodity—

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Table 1.—*Region's enormous absolute disadvantage in growing tons*

	Green tons
Great Lakes Region	2-4 Tons/yr
Georgia	4-6
Brazil	12+
Indonesia	12+

Also, unit costs are lower elsewhere

studs, market pulp, OSB—and you see a product for which the region is a net importer or is losing share. The old, small mills are both a cause and a result of this condition. The region's rising wood costs, a boon for forest landowners, are accelerating the region's loss of competitiveness in commodities.

QUALITY: AN ELUSIVE CONCEPT

Quality at first glance seems straightforward, but it is not. In fact, quality is highly dependent on end use and application. It is not simply a matter of log size, knottiness, knot size, color uniformity, grain pattern, though it may involve all of those. Rare traits like Birdseye may command staggering prices. Quality specifications are very different for different end uses (table 2). There are few species that might find their way into every application shown in table 2.

Table 2.—Quality is product, and end-use dependent

STRUCTURAL LUMBER
INDUSTRIAL GRADES
APPEARANCE GRADES
PULP AND PAPER
VENEERS

QUALITY IS A MOVING TARGET

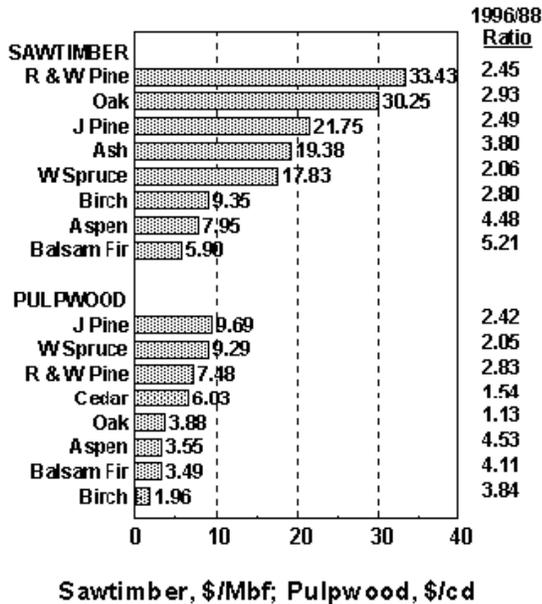
Lake States forests have displayed such stunning success in *volume* renewal that there has been little focus on quality renewal. And technology has regularly adapted to declining log sizes and grades, so that we now make a 2x3 from a 4 inch log, and can make a structural board (OSB) from crooked aspen bolts. By using thin veneers over MDF, we can make a piece of furniture with significant advantages over solid hardwoods. A single hardwood log now makes a much larger number of tables or cabinets in this way than it would when sawn into lumber.

The ability of technology to adapt in these ways brought us great benefit, but it enables us to ignore the fact that landowners who have managed for grade and size have far outperformed those who have successively high-graded their land. Those owners also have more options today.

The Great Lakes region has a diversity of valuable species with good market recognition worldwide. It has the infrastructure and location to succeed in growing for quality.

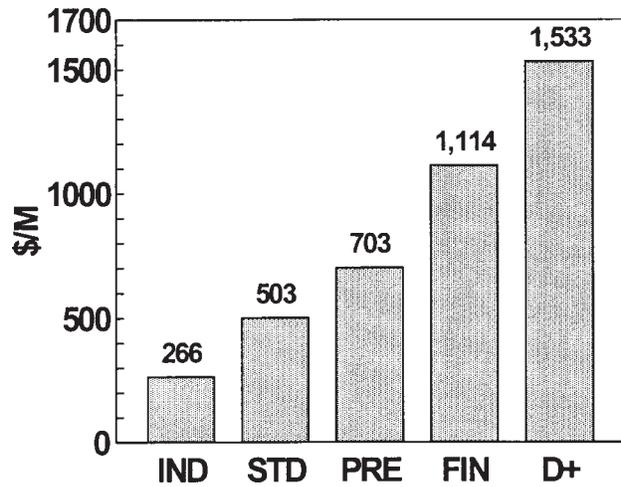
FINANCIAL PAYBACK FOR QUALITY

Market prices tell us how much more valuable veneer logs are than saw logs, than pallet logs, than pulp (fig. 1). They also give clues as to values of different species. Yet,



Source: Minnesota Dept. of Natural Resources, The Market Place, Spring 1997, p. 2

Figure 1.—Minnesota stumpage, public lands, 1988 ranking and change 1988-1996.



Source: EQ&C, Oct. 23, 1998

Figure 2.—1x6 KD white pine lumber prices, FOB mills, Northeast U.S.

in the volatile markets of the 1990's, it is hard to see clear guidance for making assumptions about the future. A few examples will illustrate the point; for other species, results may well differ. For white pine, for example, there is a huge difference—a factor of 5—between the topmost and lowest grades (fig. 2). Yet, the spreads between grades have varied widely just within the 1990's (fig. 3), and it is hard to guess what we should assume as "normal" for evaluating future management treatments. For SPF, premiums for the wider items have been especially volatile, and have been at all-time lows this fall (fig. 4). Loss of markets to I-joists is one reason, and temporary factors such as loss of Asian markets for West Coast softwoods are another. Again, making assumptions about the future is a chancy business.

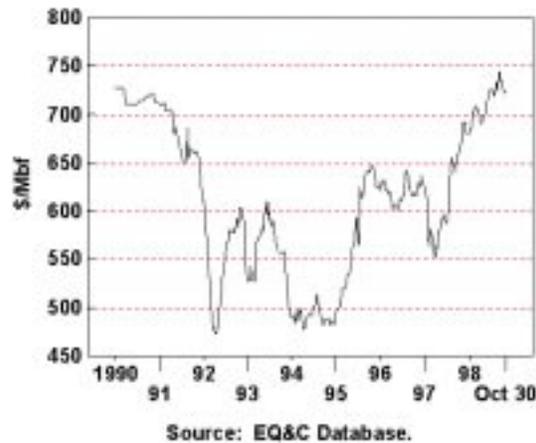


Figure 3.—Eastern white pine, 1x12 Finish minus 1x12 Standard.

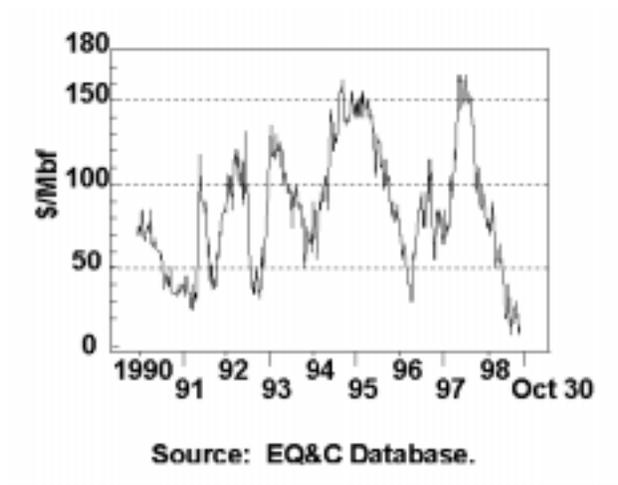


Figure 4.—SPF dry 2x10 r/l minus 2x4 r/l del. Boston, January 1990 to present.

Now we hardly have a choice between growing logs that will yield 100% C Select versus logs yielding 100% Industrial. The issue is the mix. Our cultural treatments can change the mix, most readily by simply getting the “Industrial” logs out of the stand as swiftly as possible. The rewards to shifting the mix are significant. For example, assuming a typical grade mix from a white pine sawmill gives a weighted lumber value of \$534/Mbf. If we upgrade that mix by shifting just 15% from the lowest to higher grades, we boost the value to \$619—a 16% increase (table 3). Ignoring overrun and chips for the moment, this is a 16% increase in revenue per acre, each and every year, starting immediately!

Another interesting example for white pine is how width premium may vary by grade. In fall 1998, it seems that Standard boards displayed essentially no premium for wider widths. Yet, D Selects displayed a premium of \$500/M, or perhaps 4%, for 12 inch over 4 inch. So it

Table 3.—Effect of shift in grade, eastern white pine lumber yields

	\$/Mbf*	%of lumber volume	
		Low	High
Industrial	266	30.0	20.0
Standard	503	50.0	45.0
Premium	703	10.0	20.0
Finish	1,114	5.0	7.5
Dselect	1,533	5.0	7.5
		100.0	100.0
Value of Mix		\$534.00	\$619.00

*Price of 1x6

makes no sense to grow “Standard” trees bigger, while it may make quite a lot of sense to grow a “D Select” tree bigger.

Clearly, these illustrations using lumber prices are artificial—we’d rather have actual log prices—but they should stimulate some thought. Very likely, relationships like these are very different for other species and end uses.

Physical limits are arriving. For Minnesota, for example, the state is quite close to its calculated AAC (fig. 6). Obviously, one role for productivity improvement is to move the AAC line in figure 5 upward, and to offset reductions in that line due to subdivisions, land allocations to nontimber uses, and ecosystem management practices. But moving that line upward will be costly and takes time. But growing for *value* will enable Minnesota’s forests to produce more value, jobs, and tax revenues for a long time, even if the *volume* produced increases only slowly.

ENVIRONMENT AS ASPECT OF QUALITY

On the margins of the Great Lakes Forest are some very large cities whose residents are very interested in what happens in the woods up here. Scientists are telling us that deference to concepts loosely termed “ecosystem management” (table 4) is desirable. The urbanites seem to agree—at least those who are expressing their opinions. Comment and debate on these points is for another conference. But I believe it will be found that in areas where ecosystem management goals receive high emphasis, growing wood for value will often be a very attractive

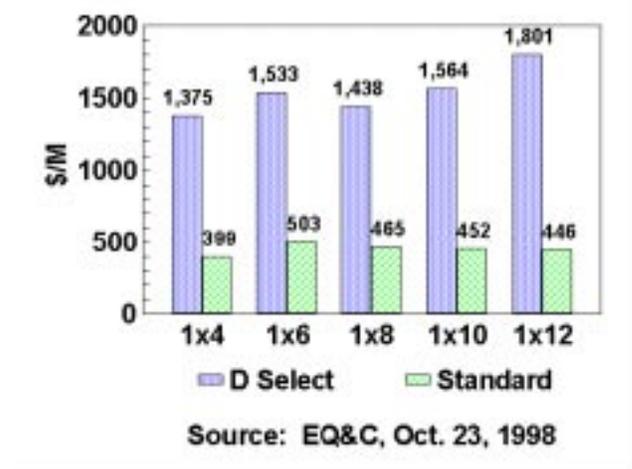
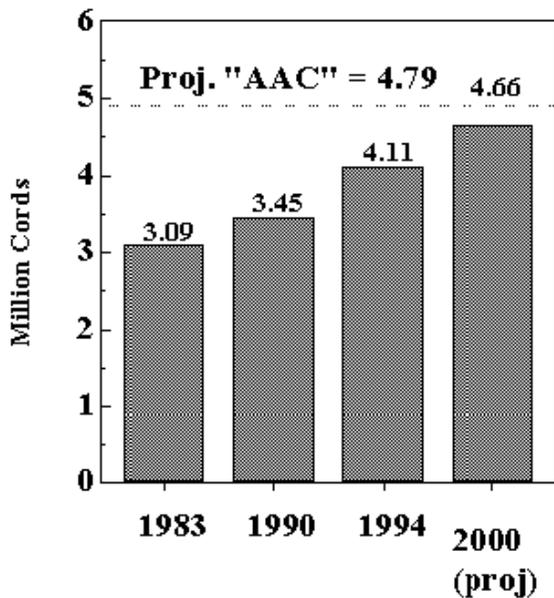


Figure 5.—KD white pine lumber prices by width, FOB mills, Northeast U.S.



Source: Minn. DNR, Dept. of Forestry, 1995.

Note: Proj. AAC is very close to FIA 1997-89 net annual growth, and below 1989 current annual growth.

Figure 6.—Minnesota Harvests, AAC, and Projected.

management regime. Extended rotations and quality management are not the same thing, but they may often go together. When looking at the age and size class distributions in Lake States forests (figs. 7 and 8), it is difficult to deny that an increase in mature age classes and in larger trees would be desirable on a number of grounds. Growing for quality could produce such benefits almost as a byproduct.

A MIX OF MANAGEMENT REGIMES

Managing for quality is not an either-or, black and white matter. It may be a greater or lesser degree of emphasis between stands, over time, or even between species in a

Table 4.—Ecosystem management context

RETAIN MATURE STANDS
 RETAIN MIXTURES
 LARGE TREES
 MAINTAIN CANOPY
 AESTHETICS
 DOWN WOODY DEBRIS—A TITHE TO NATURE
 WATERWAYS—BUFFERS
 —EXTENDED ROTATION/QUALITY MANAGEMENT SUITED TO THESE AREAS

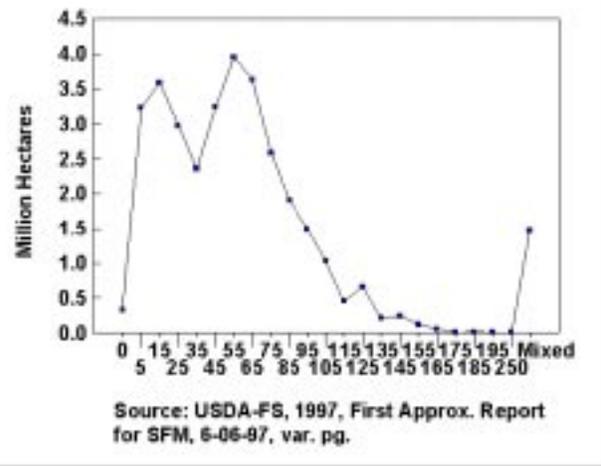


Figure 7.—Area of forest land in the North Central Region by age class, 1992.

stand. There is room in the landscape for the short-rotation energy plantation, the intensively managed pulpwood forest, and the multi-aged mixture managed for high-quality trees. The issue is one of *balance*. Current stand conditions, soils, markets, and access may all constrain the ability to grow for quality; stands of sprout origin, or woods repeatedly high-graded, may offer little to start with. There may be species, types, or soils where quality management just won't pay.

In any case, strong fiber markets, for pulp or for energy, are essential to a quality strategy. In fact, most landowners embarking on a quality strategy will have to increase their cut of low-grade wood, and will probably need to reduce their cut in higher grades. Yes, we'll still have to give the logger a few logs to keep him interested, but we'll just need to be more careful about it.

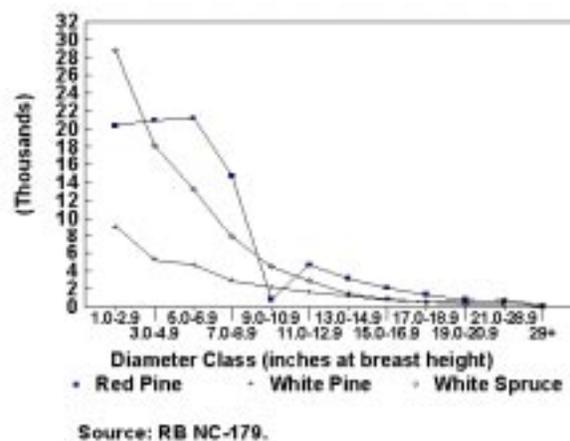


Figure 8.—All live trees on timberland by species group and diameter class, Minnesota, 1990, selected softwoods.

DISADVANTAGES AND RISKS

Growing for quality, like other strategies, poses disadvantages and risks. There are risks to doing nothing, and there are risks to high-investment, intensive fiber farming regimes as well. These include:

- the usual risks of damage to regeneration and residual trees caused by multiple entries;
- the higher logging costs of low-volume entries;
- low revenues due to low-grade removals;
- undesirable understories creeping in as stands are opened up;
- the higher dollar values exposed to loss to wind, disease, ice, or insects;
- higher risks of regulation;
- the risk that competitors will start doing it too; and
- finally, it will take more people and a new attitude toward the business.

A number of issues are often raised:

“Won’t they make everything from particleboard in 10 years?”

Clearly a dramatic shift is occurring toward reconstituted and engineered products. But, in my opinion, strong markets will persist for high-grade solid wood. If anything, papermakers will be even more demanding. The risk of glutting markets with high-quality wood seems remote to me. I don’t think fingerjointing will ever put growers of quality wood out of business. Obviously, the markets won’t take 50 billion board feet per year of D Select. But they can and do take billions. Are we growing enough now? I doubt it.

At times, I am tempted to think that this question is raised as an unconscious way to justify past and continued high-grading. From that perspective, it is unacceptable.

Price premiums for high grade will decline

A variant of the above concern is often ventured. This is the prediction that price premiums paid for high-grade logs will decline, due to competition from engineered products. We have seen that recent experience does not give very clear indications on this. Some managers may choose to analyze treatments using very conservative assumptions on this. But I’d guess that the price premiums between product classes or log grades could shrink a good deal before landowners are better off growing pulpwood only. This is true if only because of the strong influence of piece size on logging and manufacturing costs.

“The treatments cost too much”

There are some treatments needed to grow for quality that probably cost too much. But there are many that cost very little. We have many cost-effective opportunities before us. We can put off the costly ones and still be very busy for many years.

The markets for wood are now here to enable us to manage for quality for the first time ever!

“We can’t get paid for the value improvements”

This is often true. But it may be our own fault. If we continue to market our logs woods-run, as a commodity sold by the ton, this will be true. We will be able to get well paid, but will need to do business differently.

This has been the classic objection to pruning. But foresters can work deals with mills to split the gains from pruned logs, and both parties can win. In the markets of tomorrow, the aggressive innovators will get paid for value added to wood.

QUALITY AND REVENUE

Growing for quality has to be managed according to a system providing for “continuous improvement.” Such a system must track consistent parameters for quality and must track financial performance as well. Safeguards must be in place to ensure that short-term revenues are not being gained by liquidating quality trees and stands without replacing them. In the 1960’s, hotshot managers would come into an ailing railroad, miraculously turning it around to profitability. Their picture made the cover of Business Week. Before long, though, the speed limits were 35 mph, derailments were increasing, service deteriorating, and morale destroyed. Turned out, the higher profits were just obtained by slashing maintenance, and letting the capital stock deteriorate. Forests can be mined just as can railroads. Have any landowners carefully tracked quality renewal on their own lands? Has anyone done so for the region as a whole?

The region’s stunning increases in growing-stock and sawtimber volumes may have reduced interest in this question in the past.

A CONJECTURE

I would like to offer a conjecture. While giving due consideration to improving volume productivity, we should carefully test this conjecture:

Management can increase *quality, or dollar yields,*

at least as fast and cost effectively as *tonnage yields*.

For suitable soils and stand conditions, we ought to design silviculture to produce tons of fiber as a *byproduct* of growing quality wood, instead of quality logs as a byproduct of growing tons. Such a change of viewpoint could enrich silviculture in many ways. In fact, in many instances we will find that this is not a zero-sum proposition, but that growing for quality and volume often go together.

IN CLOSING

The premise of this paper is that the Great Lakes region's comparative advantage is in growing quality wood in a quality forest setting. Further, I conjecture that management aimed at quality improvement can achieve measurable results in yields and dollars at least as fast as management aimed simply at tons. In any event, land managers must be held accountable for quality renewal and not allowed to use improved technology as an excuse for high-grading. Managers should be setting "stretch goals" for quality in the annual cut as well as in the growing inventory.

Implementing this view is a matter of changing the balance, and is not workable everywhere. It will take changes in approach, equipment, management systems, stumpage and log marketing, and staffing.

An appealing aspect of this concept is that it will enable us to restore a high standard of craftsmanship to silvicultural practice by setting high goals for results. We will have more and more stands we'll be proud to show the public. We'll have better results for landowners, and a more secure future for the region's wood-using industry.

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