

## Hardwood Lumber Supply Chain: Current Status and Market Opportunities

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### ABSTRACT

The membership of the Appalachian Hardwood Manufacturers Association was surveyed in 2005 to determine the current status of large Appalachian sawmills. The primary focus was to assess the impacts of globalization on primary manufacturing, but attention was also paid to general issues affecting the hardwood lumber supply chain—from concerns over forest health and log supply to the products and services being demanded by secondary manufacturers.

The study results suggested that globalization issues ranked among the more important concerns of sawmill managers. Over 90 percent of respondents indicated that they were working harder to develop relationships with their customers as a result of globalization, and 75 percent indicated that they were now more aggressive in searching for new markets. Respondents indicated that export and flooring markets had picked up some of the volume loss associated with declining domestic furniture manufacturing, but these markets (particularly flooring) were perceived to be vulnerable to imports. Lumber sorting was considered an important area for capital investment for responding firms in the coming years as this was related to the need to provide customers with higher value products and services. In support of the need to provide key customers with desired products/services and more value, study findings identified the need to provide employee training including communications and marketing, in addition to technology development including lumber sorting and decision-support tools. Going forward, it will become increasingly important for sawmills to provide their customers with “more than just lumber”—examples are provided that highlight opportunities to enhance competitiveness through the supply chain.

### Introduction

Temperate hardwood markets are increasingly becoming global in scope (Hardwood Review Weekly 2003), while at the same time domestic U.S. demand from furniture and other secondary wood products' manufacturers is declining (Schuler and Buehlmann 2003). From 1999 to 2003, U.S. hardwood lumber production declined, due in part to globalization (Luppold 2006). Actually, over this period, demand for hardwood lumber by the U.S. furniture manufacturing industry declined by 38 percent (Hardwood Market Report 2005), a decline only partially made up for in other segments of the hardwood lumber market (kitchen cabinets, flooring). Also, those markets have different sets of expectations for hardwood lumber than does the furniture manufacturing sector.

Globalization is only one of the many issues faced by hardwood sawmill managers today. Rising energy and stumpage costs, log and logger availability, and economic conditions are some of the more pressing items in need of their attention. However, many of those issues are in some way driven or at least interconnected with increasing globalization. For example, with the decline in domestic furniture manufacture due to imports, hardwood lumber markets that rely on new home construction and remodeling (e.g., flooring, cabinets) have become more important, thus housing starts are of greater interest.

Maintaining a viable, prosperous forest products industry requires a holistic approach to industry competitiveness. Thus, this research to better understand the impacts of globalization on the hardwood lumber manufacturing industry was

part of a series of studies relating to the value-added wood products chain, ranging from the forest to the consumer. Gaining a better understanding of the dynamics occurring due to globalization will help hardwood lumber managers in making better operational, tactical and strategic decisions and thus benefit the industry and forest owners.

### Methodology

The membership of the Appalachian Hardwood Manufacturers, Inc. (AHMI), a trade association, consists of 53 sawmills in the Appalachian region (as defined by Luppold and Bumgardner 2007). This region is responsible for over 55 percent of the hardwood lumber produced in the eastern U.S. (USDC Bureau of Census 2005).

Fourteen companies received test questionnaires in July 2005, while the bulk mailing was done in August 2005. Nonrespondents received a second questionnaire in September 2005. Thirty-two usable responses were received (60 percent response rate), with 41 percent being filled out by CEOs, Presidents or Owners, 22 percent by General Managers, and the remainder by Vice Presidents or Sales Managers.

Respondents were located in WV, NC, VA, KY, NY, PA, OH, TN and GA. More than half of the respondents operated multiple facilities and almost 70 percent were solely producing hardwood lumber, while the remainder also produced value-added wood products (e.g., components, flooring, moldings, millwork). Responding firms generally were large; 41 percent of the respondents produced more than 15 MMBF annually and the average responding company had approximately 170 employees.

### Results and Discussion

A wide range of topics are of concern to the managers/owners of the Appalachian hardwood lumber manufacturers, ranging from transportation availability and cost issues, hardwood stumpage affordability, market losses in the U.S. (decline of furniture industry and other hardwood consuming industries), foreign competition, to the availability of loggers. Interestingly, the export of logs does not rank

high on the list of critical issues to the managers of the industry, although it would appear to be reflected in the worries about stumpage affordability, especially as foreign log buyers tend to pay high prices for good quality logs.

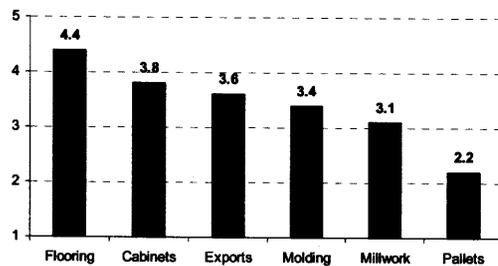
When asked about the most likely issues being of greatest concern to them in three years time, the managers chose competition from foreign lumber suppliers in export markets, loss of domestic markets other than furniture, and affordability of hardwood stumpage/logs. Table 1 displays a ranking of issues of concerns to the hardwood lumber manufacturers.

**Table 1** Mean responses to level of concern over several issues affecting the hardwood supply chain (1=not a concern to 5=a major concern)\*

Supply chain issues	Score
Lumber transportation availability/costs	4.4
Affordability of hardwood stumpage/logs	4.2
Loss of domestic furniture mfrs. as customers	4.2
Competition from foreign lumber suppliers in export markets	4.0
Loss of domestic markets other than furniture	4.0
Availability of loggers	4.0
Competition in domestic markets from imported lumber	3.7
Possible changes in the number of new housing starts	3.6
Possible changes in consumer spending on remodeling	3.5
Customer expectations for "extras"	3.2
Hardwood timber quality	3.2
Forest health issues	3.2

\* Four issues with scores below 3.0 (the scale mid-point) are excluded from the table.

Given the market losses experienced by the U.S. wooden furniture sector, it was interesting to see how optimistic hardwood lumber manufacturers are about the fate of other industry sectors buying their product. Unfortunately, the managers surveyed see their customers as somewhat vulnerable to a variety of imported finished products. Flooring was viewed as the most vulnerable, followed by cabinets, exports, molding, millwork and pallets. Figure 1 shows the mean responses to the perceived vulnerability of secondary markets to imported finished products.



**Figure 1** Mean responses to perceived vulnerability of secondary markets to imported finished products (1=not vulnerable to 5=very vulnerable)

Hardwood lumber manufacturers thus are concerned about issues throughout their value chain, from the availability of their raw material at reasonable prices to the prospects of many of their most important customers, especially after the harsh experience with the U.S. wooden household furniture industry. When asked about the industry's response to the threat of decreasing domestic demand for their product, the most prominent action mentioned (over 90 percent of respondents) was that they work harder to develop relationships with their customers. Other frequently mentioned responses included a more aggressive search for new markets, investments in equipment, more customization of their product (sorting in length, width, color), among other things. Table 2 shows a list of actions undertaken to respond to the existing market threats.

**Table 2** Proportion of respondents taking various actions to deal with globalization in hardwood markets\*

Actions	Percent
We work harder to develop relationships with customers	90.6
We are more aggressive in our search for new markets	75.0
We have invested in new equipment	71.9
We provide more sorting services for length	62.5
We provide more sorting services for width	62.5
We provide more sorting services for color	53.1
We sell a higher proportion of our production to export markets	53.1
We are more flexible in our delivery schedules	46.9
We have shortened our lead times	46.9
We have developed new grading criteria for specific customers	43.8
We have hired or contracted with sales reps located overseas	40.6

\* Four actions with percentages below 30 are excluded from the table.

Cost reduction and customization to customer specification are the two main focus areas of investments of the companies surveyed. Cost reduction focuses on higher product recovery, decreasing fixed cost through higher productivity, and/or using IT to assist in sales and marketing. Customization focus on enhancing sorting capabilities and capacities and/or increasing the ability to produce components. Few companies indicated that they have made no substantial investment over the last 3 years. Table 3 gives the mean responses to questions regarding capital investment of hardwood lumber companies.

**Table 3** Mean responses to impacts of globalization on capital investments (1=disagree to 5=strongly agree)

Investment focus	Score
Improving grade yield from logs	4.3
Reducing the costs of production	4.2
Improving productivity (e.g., output per employee)	4.1
Expanding services to customers (e.g., sorting)	4.0
Increasing through-put (e.g., production per shift)	3.9
Information systems for sales and marketing	2.9
Vertical integration (e.g., producing components)	2.6
We have made no substantial investments in the last 3 years	1.4

### *Increased competition as opportunity*

While capital investments are not a panacea, they often are necessary to achieve the level of quality, productivity and customization that distinguishes successful firms from the rest. With the increase of low-cost products from overseas, end-users have come to expect ever-better quality and service at similar prices from their domestic suppliers. Thus, the secondary wood products' industry is looking for hardwood lumber suppliers who can deliver the quality required by their customers at a reasonable price.

Premiums are paid in the market for hardwood lumber that is sorted for:

- guaranteed MC
- size
- color
- character-marks
- combinations of the above.

Some customers expect even more value-added customization, such as:

- glued-up panels
- components
- shaping, turning, carving
- matching.

As the above list indicates, today's hardwood supplier has many options to differentiate his product on the market. By cooperating with secondary wood products' producers, who ultimately have to manufacture a product that the consumers desire and for which they are willing to pay the necessary price, hardwood lumber manufacturers can differentiate their offering and by so doing move away from the commodity markets. Unless one is the lowest price producer, being a commodity producer has never been a winning proposition. With today's increased customer expectations, hardwood suppliers should be able to find profitable market niches despite the decline in portions of the domestic secondary industry. However, serving such niches might require new approaches to production and distribution.

### **Conclusions**

Large hardwood sawmills are clearly feeling the effects of globalization, although the associated

changes it brings are rivaled by other concerns related to resource availability/costs and changing housing markets. The list of sawmillers' major concerns, spanning forests to secondary markets, highlights the need to consider the entire hardwood supply chain when considering competitive strategies. It appears that the industry is pursuing a combination of production technology (e.g., sorting), communication (e.g., customer relationships), and marketing (e.g., searching for new markets) tactics to compete in the current environment.

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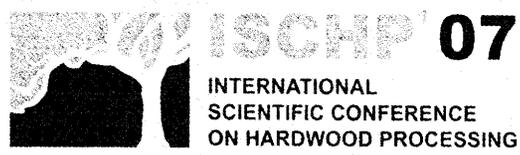
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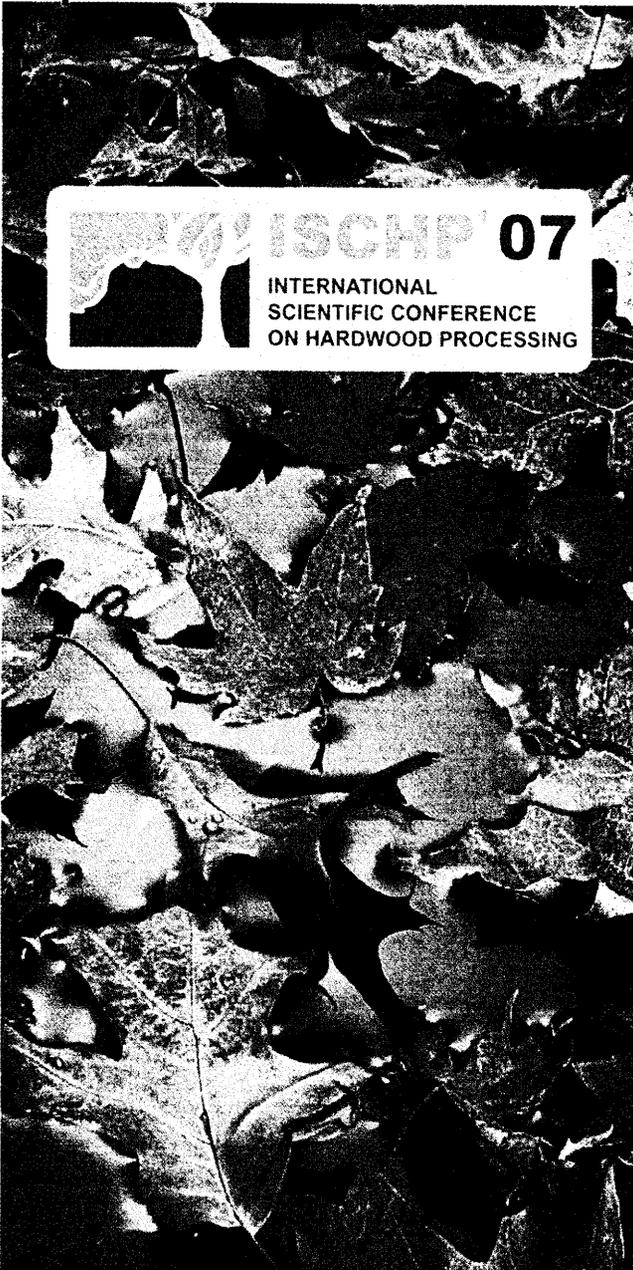
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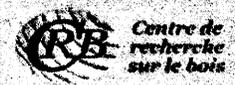


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