Hardwood Chips: Production, Consumption, and Exports

By

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Abstract

Hardwoods have played an increasing role in domestic and overseas pulp and paper manufacture during the past decade. Almost overnight, U.S. exports of hardwood chips became a multimillion-dollar business as Japan, the dominant importer of U.S. hardwood chips, sought to diversify its resource dependence. At the same time, increasing numbers of chip mills began operation in the U.S. South to meet domestic demand. The current role of hardwoods chips and hardwood chip mills in supplying pulp and paper manufacture is assessed by examining hardwood use in domestic pulp and paper manufacture, U.S. hardwood chip exports, and sources of raw material.

Domestic Production and Consumption

Hardwoods have played an increasing role in pulp and paper manufacture both in the United States and overseas. In this paper we assess the current role of hardwoods in wood chip production by examining hardwood and softwood use in domestic pulp and paper manufacture, U.S. hardwood chip exports, and sources of raw material used. The analysis focuses on what the Forest Resources Association (FRA), formally the American Pulpwood Association, identifies as the South Atlantic and South Central regions of the United States (hereafter referred to as SE). These regions are the source of the bulk of U.S. hardwood chip exports shipped from the United States through Atlantic and Gulf Coast ports. Information in this analysis is from FRA’s annual pulpwood statistical summary reports, the Southern Pulpwood Report (Johnson and Steppleton, 2000), and Timber Processing magazine.

Domestic Pulpwood Receipts

In 1998, U.S. domestic hardwood and softwood pulpwood receipts totaled 247.4 million green tons (MGT) according to the FRA. The SE region accounted for receipts of 183.4 MGT or more than 74% of the U.S. total. The current market share held by hardwoods in the SE is 33%. This is considerably more than the 25% share hardwoods held in 1980. The trend in hardwood/softwood shares in the SE mirrors that for the entire United States. From 1980 to 1998, growth in the SE outpaced the U.S. total receipts by domestic mills. Within the SE, receipts increased from 128 MGT in 1980 to 183 MGT in 1998 (43%). Nationally, receipts increased by about 25% during the same period.

Sources of hardwood pulpwood within the SE

In 1998, the major source of hardwood fiber to SE pulp mills was long wood (Fig. 1). Long wood made up nearly half of the reported hardwood pulpwood receipts. The next largest source was satellite chip mills at 26%. Chip mills have maintained their relative position in the supply equation while seeing the volume

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of their supply decline slightly from 16.3 MGT in 1993 to 15.6 MGT in 1998. Short wood fell from 10% of the pulpwood receipts in 1995 to 4% in 1998.

**Figure 1.** Type of hardwood pulpwood delivered to mills within the SE region (source: Forest Resources Association pulpwood statistics).

**Chip mills**

A review of the chip mill listing in *Timber Processing* magazine for July/August 1993 and similar listings in July/August 1999, points to a relatively stable picture with respect to the number of chip mills in operating within the SE region. There were 143 and 139 active chip mills in 1993 and 1999, respectively; of these, 127 and 123 processed a mix of hardwoods and softwoods, while 38 and 32 processed only hardwoods (Table 1). In both 1993 and 1999, there were 16 softwood only mills in operation within the SE. In fact, in eight of the 14 states listed in Table 1, the number of chip mills in operation declined from 1993 to 1999. In another two states, the number of chip mills remained constant.

Alabama led all states in the total number of chip mills in 1999 with 23. Georgia and North Carolina tied for second place with 18 mills each. However, North Carolina was a lone second if only mills producing at least some hardwood are considered. One-quarter of the mills in 1999 have been operating since 1993. Nearly 40% of the chip mills in operation in 1999 had been in operation 12 years or longer; two mills were listed as starting up in the 1940’s, while 16 others indicated start up prior to 1980. Conversely, about 37 mills in existence in 1993 ceased operation by 1999.

**Estimating chip mill production**

The *Timber Processing* listing includes the annual production of most chip mills along with an estimate of their hardwood/softwood composition. Table 2 provides both initial and adjusted estimates of production for all listings for states within the SE region. Adjusted production estimates account for those mills that did not report annual production. Although the number of operating chip mills changed little from 1993 to 1999, hardwood chip production increase by more than 5 MGT in 1999 compared to 1993. Unadjusted production estimates were up 16% and adjusted estimates were up 12%. Most chip mills report producing 200,000 to 400,000 MGT annually, though several are considerably larger.

**Global Hardwood Chip Trade**

In 1998, worldwide consumption of paper and board products totaled 299 million tons, an increase of 1% from 1997 (Pulp & Paper Int. 1999). Japan was the world’s third largest consumer of paper and board products (29,989,000 tons) and the second largest producer (29,888,000 tons) in 1998. The Japanese pulp and paper industry inherently relies on foreign raw material. In 1998, more than 80% of hardwood pulpwood used by the paper and board industry in Japan was imported, according to the Japan Paper Association. Japan has a virtual monopoly on U.S. hardwood chip exports; on average 95% of all such exports by weight and 94% by value went to Japan from 1993 to 1998.

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<th>% Change</th>
<th>1993</th>
<th>1999 Softwood only</th>
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a = All hardwood + all softwood + mixed mills; Nc = no change; * = division by zero

U.S. Hardwood Chip Exports

In 1998, the United States exported 3.57 million bone-dry metric tons (BDMT) of hardwood chips to Japan (Fig. 2). The total quantity of these exports increased by an average 11% a year between 1989 and 1998 and by 8% between 1993 and 1998. Shipments peaked in 1996 at 3.85 million BDMT. The Asian financial crisis (1996-98) adversely affected shipments of hardwood chips to Japan. From 1996 to 1998, the average annual decline in shipments was 3%.

Beginning in 1992, most hardwood chips were exported from the Gulf Coast rather than the West Coast. It took only 5 years (1988-92) for Japan to meet its goal of reducing its dependence on the Pacific Northwest (PNW) for hardwood chips. The quickness of this transformation can be attributed to many factors, including the northern spotted owl controversy that lead to decreased harvesting in the PNW and the increasing usage of the Tennessee-Tombigbee Waterway to transport chips to the Gulf Coast. Since 1993, the market share for the three regions has remained fairly stable -- East Coast (21%), Gulf Coast (57%), and West Coast (22%).

Since 1990, the district of Mobile, Alabama, has exported more hardwood chips on an annual basis than any other district in the United States.

In 1998, the hardwood chip exports to Japan totaled $312 million. The total value of these exports increased by an average of 10% annually between 1989 and 1998 and by 9% annually between 1993 and 1998. After peaking in 1996 ($344.9 million), exports declined by an average of 5% average annual decline from 1997 to 1998, again, because of the Asian financial crisis.
Japanese Hardwood Chip Imports

In 1998, Japan imported 10.6 million BDMT (Fig. 3) of hardwood chips valued at 203.4 billion yen. This represented an increase of 83% increase from 1989 and 29% from 1993. During the Asian financial crisis, hardwood chip imports increased by 1% annually. Long-term contractual obligations probably prevented imports from declining. In 1998, the average unit price for all hardwood chip imports was 19,000 yen/BDMT or $145 BDMT.

Japanese imports of hardwood chips from different regions of the world tell an interesting story. The single largest supplier of hardwood chips to Japan was Australia for 1993-95 and the United States for 1996-98 (Fig. 4). Since 1993, imports of U.S. hardwood chips increased until they peaked at 3.4 million BDMT in 1996. Imports declined in 1997 (3.2 million BDMT) and 1998 (3.0 million BDMT). U.S. hardwood chip imports were valued at 62.5 billion yen or $48 million in 1998, resulting in a unit price of 21,000 yen/BDMT or $160/BDMT.

Figure 3. Japanese hardwood chip imports, 1989-98 (source: Japanese Trade Association).

Figure 4. Five largest sources of Japanese hardwood chip imports, 1989-98 (source: Japan Trade Association).

Figure 2. U.S. hardwood chip exports by weight and region, 1989-98 (source: U.S. Department of Commerce export statistics.).
South Africa and South America have been consistent suppliers of hardwood chips to Japan. On average imports by weight from South Africa have increased by 13% annually since 1993. Chile has been supplying hardwood (eucalyptus) chips to Japan since 1989. Since 1995, Japan also has imported hardwood chips from Brazil, Ecuador, and Argentina. Within the Asian region, China has been the largest supplier of hardwood chips to Japan. In 1998, Japan imported 1.2 million BDMT of hardwood chips from the Asian region; 53% of these imports were from China. This percentage is expected to decline in the future because of China’s 1998 logging ban along major rivers in its central and northeastern regions. Indonesia’s market share of all Asian imports of hardwood chips declined from 36% in 1993 to 11% in 1998.

Conclusion

Evidence indicates that Japan’s recovery from the Asian financial crisis is occurring slowly. Likewise, Japanese import data suggest that the industry is continuing to diversify its sources of hardwood chips. This suggests that U.S. hardwood chip exports to Japan will remain constant or decline through the end of 2000. Although the United States is by far Japan’s largest supplier of hardwood chips, other regions of the world are expected to “chip” away at its market share, especially given the strength of the U.S. dollar.

References


