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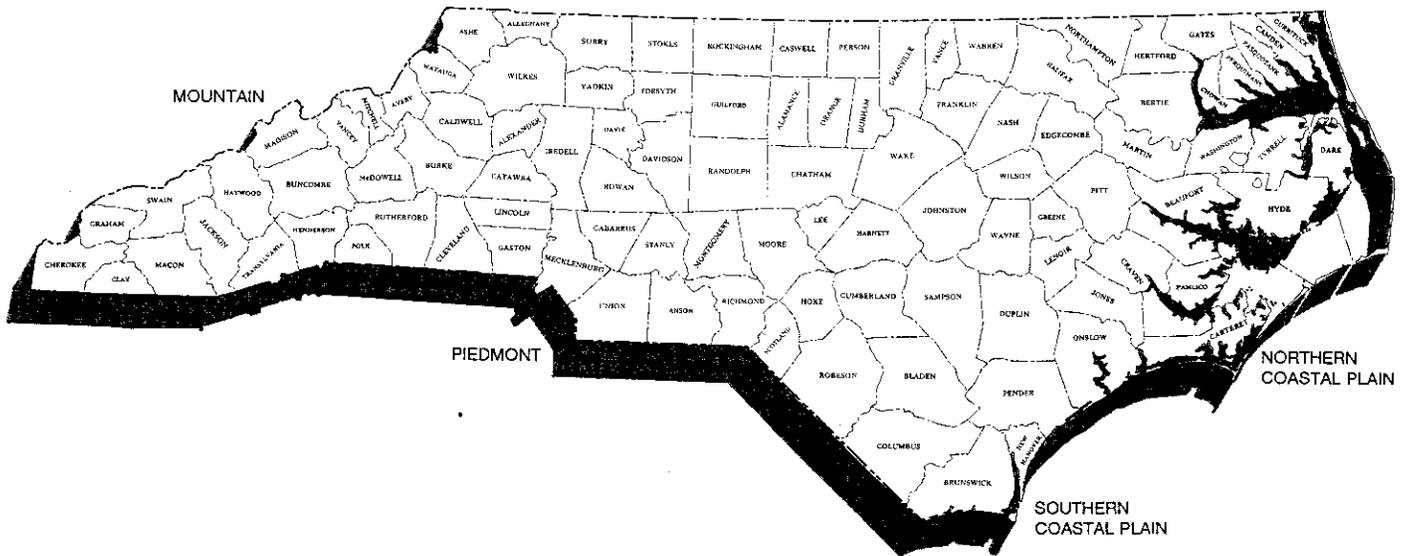
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North Carolina's Timber Industry: An Assessment of Timber Product Output and Use, 1992

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Foreword

This report contains the findings of a 1992 canvass of all primary wood-using plants in North Carolina and presents changes in product output and residue use since 1990. It complements the Forest Inventory and Analysis periodic inventory of volume and removals from the State's timberland. The canvass was conducted to determine the amount and source of wood receipts and annual timber product drain by county in 1992 and to determine interstate and cross-regional movement of industrial roundwood. Only primary wood-using mills were canvassed. Primary mills are those that process roundwood in log or bolt form or as chipped roundwood. Examples of industrial roundwood products are saw logs, pulpwood, veneer logs, poles, and logs used for composite board products. Mills producing products from residues generated at primary and secondary processors were not canvassed. Trees chipped in the woods were included in the estimate of timber drain only if they were delivered to a primary domestic manufacturer.

A 100-percent canvass of all wood-processors in North Carolina was conducted in 1993 for 1992. Out-of-State mills known to be using logs or bolts harvested from North Carolina timberland were also contacted. Each mill was canvassed by mail or through personal contact at plant locations. Telephone contacts followed mailed questionnaire responses when

additional information or clarification of response was necessary. In the event of a nonresponse, data collected in previous surveys were updated by current data collected for mills of similar size, product type, and location. Surveys for all timber products other than pulpwood began in 1964 and are currently conducted every 2 years.

Pulpwood production data were taken from an annual canvass of all southeastern pulpmills, conducted annually in cooperation with the American Pulpwood Association. Medium density fiberboard, insulating board, and hardboard plants were included in this survey.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the North Carolina Department of Environment, Health, and Natural Resources, Division of Forest Resources in collecting mill data and to forest industry and mill managers for providing timber products information. The information in this report is based on responses from 97 percent of mills operating in 1992: 8 pulpmills, 29 veneer mills, 4 composite panel mills, 7 of the 10 mills manufacturing other industrial products, and 298 of the 306 sawmills. They accounted for 99 percent of the 1992 mill receipts.

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Output of Industrial Timber Products

In economic importance, timber production and the wood products industry ranks third in North Carolina behind textiles and equipment manufacturing. According to the N.C. Forestry Association, a partnership of conservation and forestry interests, the forest industry provided jobs to 136,000 employees and had an annual payroll of \$2.8 billion. In addition, the value of products shipped amounted to \$13.1 billion. Between 1990 and 1992, the combined output of industrial roundwood timber products and plant byproducts increased 2 percent to 1.1 billion cubic feet. Timber product output (TPO) from roundwood was up 35 million cubic feet to 799 million cubic feet. Output from plant byproducts declined 15 million cubic feet to 275 million cubic feet, but still accounted for 26 percent of total output (table 1). Output of softwood roundwood products increased 7 percent to 526 million cubic feet, two-thirds of North Carolina's total. Hardwood roundwood production remained stable at 273 million cubic feet.

Pulpwood and saw logs were the principal roundwood products in 1992. Combined output for these two

products amounted to 698 million cubic feet, 88 percent of the State's total roundwood output.

Saw Logs

Saw-log production in North Carolina accounted for 44 percent of the State's total roundwood products output in 1992. Since 1990, combined output of softwood and hardwood saw-log production was up 7 percent and totaled 349 million cubic feet, or nearly 2 billion board feet. This production is equivalent to the volume of lumber needed to construct about 200,000 single-family homes. Output of softwood saw logs increased 11 percent since 1990 and totaled 249 million cubic feet (1.4 billion board feet). In contrast, hardwood saw-log production was down 3 percent to 100 million cubic feet (0.6 billion board feet). Hardwoods accounted for about 29 percent of the saw-log production in 1992. This level of production has remained relatively stable since 1964 (fig. 1). Southern yellow pine accounted for 95 percent of the softwood saw logs harvested in the State in 1992, while hard hardwoods (mostly oaks) made up almost two-thirds of the hardwood saw-log output.

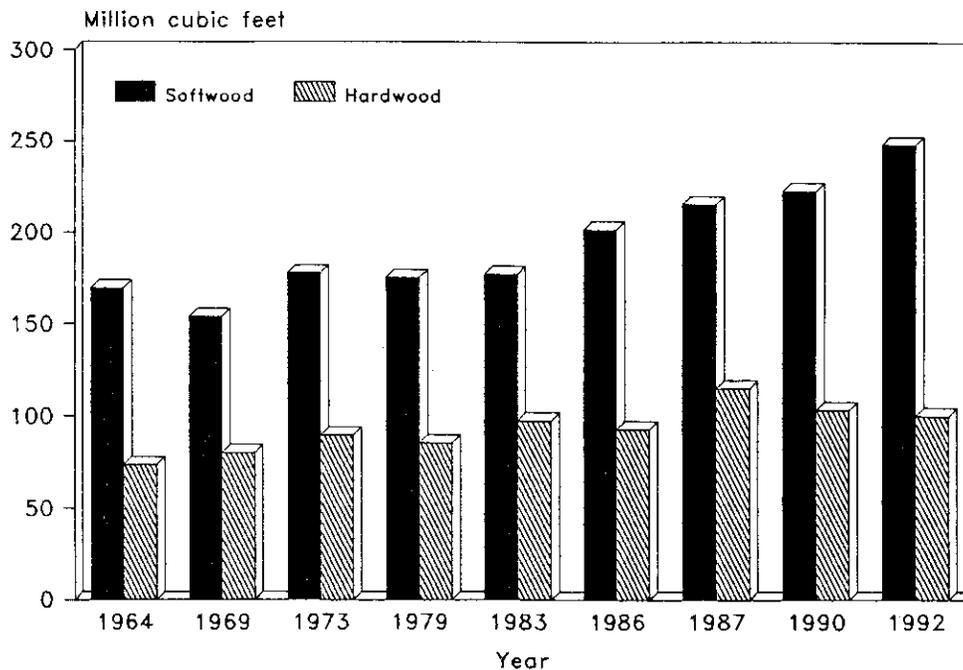


Figure 1—Roundwood saw-log production, by species group and year.

Pulpwood

Pulpwood production was almost equal to saw logs in roundwood production. Output of pulpwood (including chipped roundwood) increased from 331 million cubic feet (4.3 million cords) in 1990 to 349 million cubic feet (4.7 million cords) in 1992 (Davenport 1992). Pulpwood production accounted for 44 percent of the State's total roundwood output. Both softwood and hardwood output increased between 1990 and 1992. Softwood output increased by 6 percent to 215 million cubic feet, while hardwood output was up 5 percent to 134 million cubic feet. Hardwood has continued to provide a larger share of total pulpwood production in North Carolina (fig. 2). In 1964, hardwood accounted for 26 percent of the State's pulpwood production, compared with the peak of 43 percent in 1986 and 38 percent in 1992. Softwoods accounted for 62 percent of North Carolina's pulpwood production in 1992, about the same as in 1990.

Veneer Logs

Output of veneer logs in 1992 totaled 63 million cubic feet, an 11-percent decline since 1990. Veneer production accounted for about 8 percent of the State's total roundwood TPO in 1992. Softwoods continued to dominate the veneer industry in North Carolina, with pine plywood the principal product. Output of softwood veneer logs declined 7 percent to 41 million cubic feet (236 million board feet). In 1964, softwood veneer production was practically nonexistent in North Carolina, amounting to less than 1 million cubic feet or about 3 percent of total veneer production. By 1986, however, softwood veneer production had peaked at nearly 60 million cubic feet and accounted for more than three-fourths of the veneer production (fig. 3). In 1992, softwoods accounted for about two-thirds of the State's veneer production, 3 percent more than in 1990. Output of hardwood veneer logs dropped 17 percent to 22 million cubic feet (136 million board feet). Southern yellow pine accounted for most of the softwood roundwood harvested for veneer, while soft hardwoods (mostly yellow-poplar and sweetgum) accounted for 87 percent of the hardwood roundwood harvested for veneer.

Composite Panels

Between 1990 and 1992, roundwood harvested from North Carolina's forests for composite panels increased 3 percent and totaled more than 35 million cubic feet. More than two-thirds of this volume was used in the production of oriented strand board (OSB) in North

Carolina mills and made up 4 percent of the State's total roundwood TPO volume in 1992. Softwood output was down 2 percent to 18 million cubic feet and accounted for half of the composite panel production. Hardwood production increased 8 percent to more than 17 million cubic feet. Yellow pine accounted for all of the softwood volume used in composite panels.

Other Industrial Products

Roundwood harvested for other industrial uses such as poles, posts, mulch, firewood, and all other industrial products totaled 3.5 million cubic feet in 1992, a 67-percent increase since 1990. This large increase reflects a boost in production of poles in the State. Between 1990 and 1992, pole production increased from 1.8 to 3.1 million cubic feet. Softwoods made up most of the other industrial product volume. Roundwood used for other industrial products accounted for less than 1 percent of North Carolina's total TPO in 1992.

Number of Mills and Receipts

Total receipts at North Carolina mills, which include roundwood harvested and retained in the State and roundwood imported from other States, declined nearly 2 percent to 737 million cubic feet (table 2). At the same time, the number of primary roundwood-using plants in North Carolina declined from 366 in 1990 to 357 in 1992, a 3-percent decline (table 3). This continues a general downward trend since 1979.

Sawmills. North Carolina had a net loss of two sawmills between 1990 and 1992. However, this small decline does not account for many changes in the industry over the past 2 years: the startup of 25 sawmills with combined receipts of almost 75 million board feet and the closing of 27 sawmills with total receipts of 89 million board feet. Over the same period, total saw-log receipts increased 24 million cubic feet to 351 million cubic feet, a 7-percent increase since 1990. In 1992, sawmill receipts accounted for 48 percent of total receipts. Softwood saw-log receipts was up nearly 13 percent to 248 million cubic feet, while those of hardwoods declined 4 percent to 103 million cubic feet. Yellow pine accounted for 94 percent of the State's total softwood saw-log receipts. For the 306 mills currently operating, 7 out of 10 mills had receipts of less than 5 million board feet and accounted for 15 percent of total receipts. While only 18 percent of the mills had receipts greater than 10 million board feet, these mills accounted for 72 percent of total receipts (table 4).

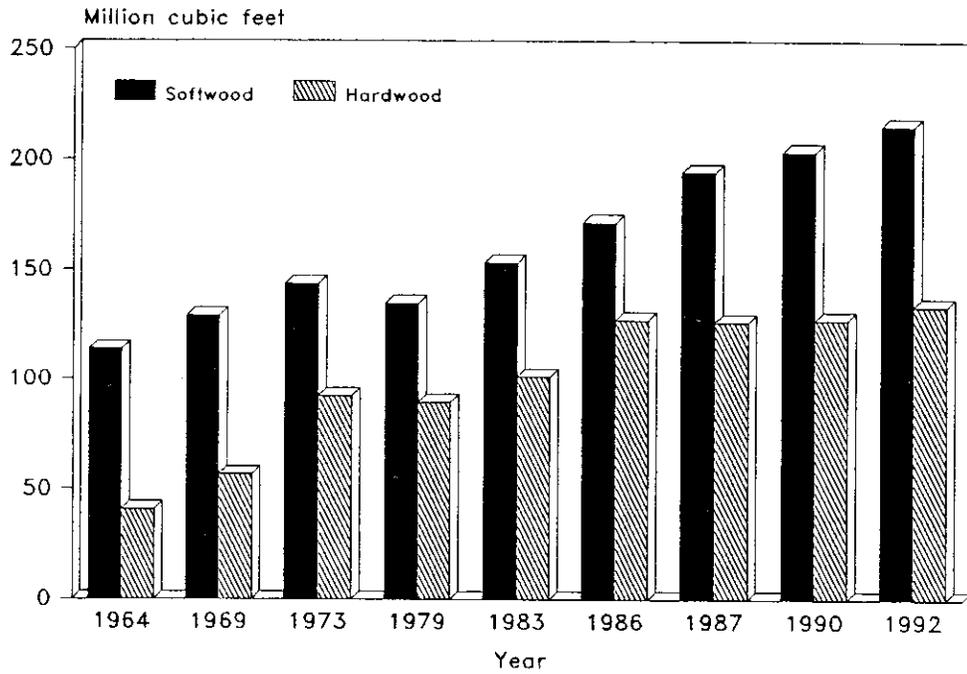


Figure 2—Roundwood pulpwood production, by species group and year.

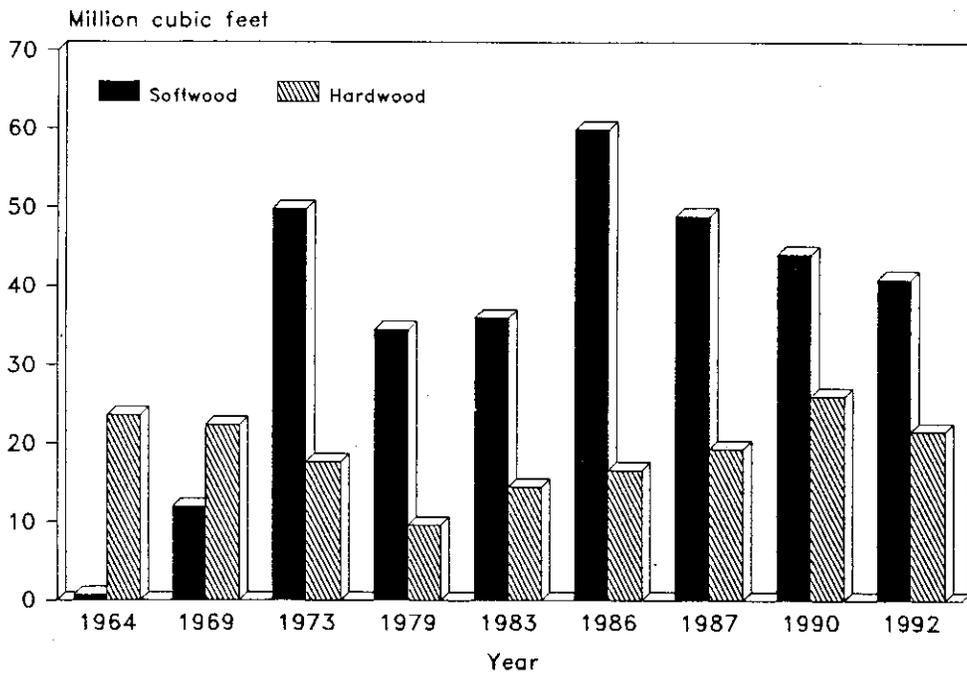


Figure 3—Roundwood veneer-log production, by species group and year.

Pulpmills. Eight pulpmills were operating and receiving roundwood in 1992, the same as in 1990. The State's total pulpwood receipts were down by 7 percent to 289 million cubic feet, while the 24-hour pulping capacity for these mills increased from 8,130 tons to 8,398 tons (Vissage and Miller 1992; Miller 1994). Both softwood and hardwood pulpwood receipts declined between 1990 and 1992. Softwood receipts were down 7 percent to 189 million cubic feet, while hardwood receipts declined 7 percent to 100 million cubic feet. Softwoods accounted for nearly two-thirds of the pulpwood receipts. Receipts of round pulpwood in 1992 accounted for 39 percent of total receipts for all mills (table 5).

Veneer Mills. The number of veneer mills operating in North Carolina dropped from 32 to 29 between 1990 and 1992. At the same time, veneer receipts across the State dropped 12 million cubic feet, or about 15 percent, to 67 million cubic feet. Both softwood and hardwood receipts declined in 1992. Receipts of softwood veneer logs declined 11 percent to 42 million cubic feet, while hardwood veneer receipts dropped 20 percent to 25 million cubic feet. Most of the softwood veneer-log receipts were southern yellow pine used to manufacture plywood. Soft hardwoods (yellow-poplar and sweetgum) made up the bulk of hardwood veneer receipts, with 62 percent of total hardwood receipts used in the manufacture of plywood. Veneer accounted for 9 percent of North Carolina's total receipts for all products.

Composite Panels Mills. Four composite panel mills were operating in North Carolina in 1992, one less than in 1990. Total receipts for these mills were 27 million cubic feet, or 4 percent of the State's total receipts. Softwood receipts for composite panels totaled 15 million cubic feet and hardwood receipts totaled 12 million cubic feet. Softwoods accounted for 57 percent of the composite panel receipts.

Other Industrial Mills. The number of plants producing other industrial products declined from 13 to 10 since 1990. At the same time, receipts at the remaining mills totaled 2.5 million cubic feet, up nearly 0.5 million cubic feet since 1990. Current facilities include three pole mills, four post mills, two log home manufacturers, and one firewood processor.

Roundwood Movement

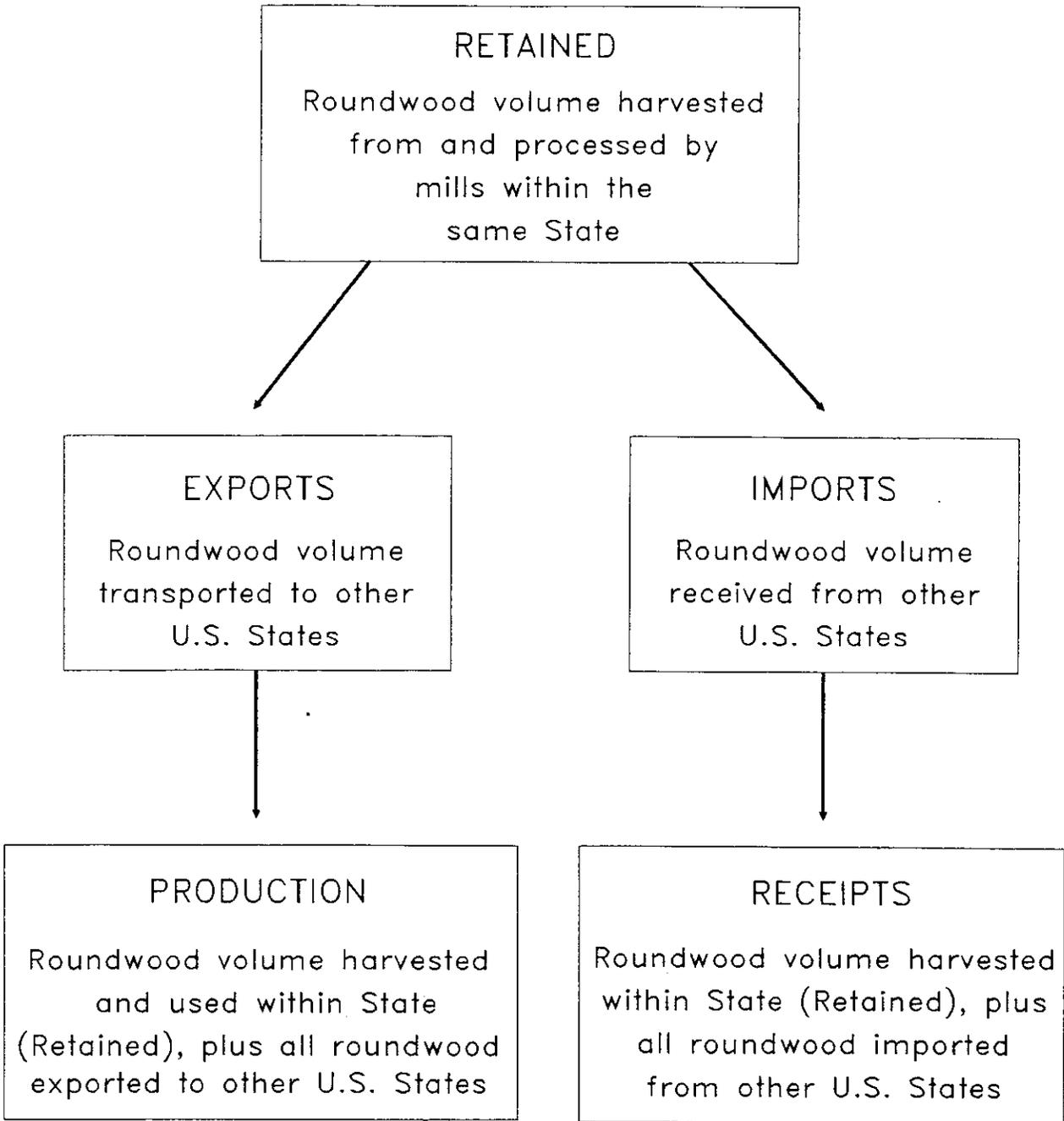
Note: To follow the logic of this section, the reader must understand that certain terms--namely, production, retained, export, import, and receipts--have specialized meanings and relationships unique to the Forest Inventory and Analysis Units across the country dealing with timber products output (fig. 4).

North Carolina continues to be a net exporter of industrial roundwood. In 1992, the State retained 642 million cubic feet, or 80 percent of its production (table 6). In comparison, about 87 percent of the production was retained for processing within the State in 1990. Imports from other States totaled 95 million cubic feet, a 9-percent increase from 1990. Exports to mills outside North Carolina amounted to 157 million cubic feet, up 52 percent. Exports of all softwood products exceeded imports by 29 million cubic feet, while hardwood exports were more than double hardwood imported into the State.

The volume of whole trees cut or trees chipped in the woods and delivered to chip facilities for export overseas is not included in the estimate of export volume or roundwood production. Most of this volume is hardwood chips destined for wood fiber companies in Japan, Korea, and Taiwan. The result is an underestimate of hardwood volume produced or exported from North Carolina. The volume of hardwood chips exported from Southern U.S. ports in 1992 was more than 3.0 million green metric tons, or about 89 million cubic feet (West 1993), compared with 1 million green metric tons in 1990 (Colquitt 1991). Dealers active in the export market have indicated that roundwood from North Carolina contributed at least 300,000 green metric tons (8.5 million cubic feet) to the 1992 total, equivalent to about 1 percent of total hardwood production.

Roundwood pulpwood accounted for 71 percent of total known exports as well as 55 percent of total imports (table 7). Round pulpwood exports amounted to 112 million cubic feet, or 60 million cubic feet more than was imported. Saw logs accounted for the next largest share, 16 percent, of the import total and accounted for 28 percent of the export total.

Saw Logs. North Carolina retained 93 percent of its saw-log production for domestic manufacture (table 8), about the same proportion reported in 1990. However, the State remains a net importer of saw logs by a slim margin. About 27 million cubic feet of saw logs were imported, with softwoods making up more than two-thirds of the imports. North Carolina mills received saw logs from Virginia (61 percent),



Production = Retained + Exports

Receipts = Retained + Imports

Figure 4—Movement of roundwood exports and imports within the United States.

South Carolina (29 percent), Georgia (7 percent), and Tennessee (3 percent). Saw-log exports of 25 million cubic feet were divided among Virginia (60 percent) and South Carolina (40 percent). Softwoods accounted for three-fourths of the saw-log exports.

Veneer Logs. North Carolina retained 88 percent of its veneer-log production for processing at domestic veneer mills (table 9). Imports amounted to more than 12 million cubic feet, while exports totaled 7 million cubic feet, making the State a net importer of roundwood veneer logs. Sources of the imports were South Carolina (61 percent), Virginia (24 percent), Tennessee and Kentucky (4 percent each), Maryland (3 percent), Georgia and West Virginia (2 percent each), and a negligible portion coming from Maine, New York, Ohio, and Vermont. Veneer exports went to Virginia (54 percent), South Carolina (43 percent), and Georgia (3 percent). Softwoods accounted for 81 percent of the export volume.

Pulpwood. North Carolina retained 68 percent of the roundwood cut for pulpwood for processing at domestic pulpmills (table 10). Exports of 112 million cubic feet exceeded imports more than two-fold, making the State a net exporter of pulpwood. Exports went to South Carolina (70 percent), Virginia (29 percent), and Tennessee (1 percent). Imports of 52 million cubic feet came primarily from South Carolina (57 percent), Virginia (26 percent), Tennessee (10 percent), Georgia (7 percent), and a negligible amount from Kentucky.

Composite Panels. Almost 68 percent of the roundwood production harvested for composite panels was retained for processing at North Carolina composite panel mills (table 11). Exports of 11 million cubic feet were more than three times the amount imported into the State. All of the roundwood exported for composite panel production went to Virginia. Imports amounting to more than 3 million cubic feet came entirely from Virginia.

Other Industrial. North Carolina was also a net exporter of roundwood used for other industrial products (table 12). Seventy percent of the roundwood harvested for other industrial products was retained for processing within the State. All of the 84,000 cubic feet imported was softwood and came from South Carolina. Most of the 1 million cubic feet exported out of State was also softwood and went to South Carolina (74 percent), Virginia (24 percent), and Florida (2 percent).

Plant Byproducts

In 1992, processing of primary products in North Carolina mills generated nearly 279 million cubic feet of wood and bark residues (table 13). Coarse residues from all primary products amounted to 115 million cubic feet, while bark volume totaled 73 million cubic feet. Collectively, sawdust and shavings made up 32 percent of total residues, or 91 million cubic feet. Of the mill residues generated, 69 percent was from the processing of softwoods and 31 percent from hardwoods. About 99 percent of the residues generated, both softwood and hardwood, became products or industrial fuel (table 14). More than 90 million cubic feet, or 78 percent of the coarse residues, were used for fiber products, while 9 million cubic feet were used for industrial fuel. The remainder was used for composite panels, sawn products, particleboard, and other miscellaneous products. Most of the bark was used for industrial fuel or other miscellaneous products. More than 60 percent of the sawdust and shavings was used for industrial fuel, 14 percent was used in the manufacture of particleboard, 24 percent for other miscellaneous products, and 2 percent was not used for a product.

Saw Logs. In 1992, sawmills generated more than 206 million cubic feet of mill residues accounting for 74 percent of the total residues produced. About 91 percent of the 95 million cubic feet of coarse residues from saw logs was used for fiber products, particleboard, or composite panels. Bark and sawdust generated amounted to 92 million cubic feet and were used mostly for industrial fuel and miscellaneous products. Shavings from dressed lumber totaled 19 million cubic feet. Forty-seven percent of the shavings was used for miscellaneous uses such as mulch or animal bedding.

Veneer Logs. Veneer mills generated more than 31 million cubic feet of residues in 1992, 11 percent of the State's total primary mill residue volume. Nearly 45 percent of the 19 million cubic feet of coarse veneer residues was veneer cores, which were sawn into framing studs or landscape timbers. The slabs from these cores, along with other coarse residues, were chipped for use in fiber products. Sawdust and bark, totaling 13 million cubic feet, were used mostly for industrial fuel.

Pulpwood and Composite Panels. Bark was the only residue associated with roundwood pulpwood or composite panel mills. Bark volumes reported from the eight pulpmills and four composite panel mills in North Carolina totaled 37 million cubic feet. Most was used for fuel by the same mills that produced it. Bark from roundwood pulpwood and composite panel production accounted for 51 percent of the total bark volume at all primary mills.

Other Industrial. Residues of all types from other industrial products totaled 4 million cubic feet, 1 percent of North Carolina's total mill residue volume. Coarse residues of nearly 1 million cubic feet were used mainly for industrial fuel. Sawdust and bark, totaling 3 million cubic feet, were used mostly for industrial fuel and miscellaneous uses.

Regional Trends

Between 1990 and 1992, total output of industrial roundwood products increased in all but the Mountain Region of North Carolina; the Southern Coastal Plain Region had the largest increase, 13 percent. Output for all softwood products increased substantially in all regions except the Mountain Region, while output of all hardwood products was down in the Northern Coastal Plain as well as the Mountain Region. Changes in output varied considerably by product and by region; however, softwood accounted for 60 percent or more of industrial roundwood products in all regions except the Mountain Region, where hardwood accounted for 58 percent of total output.

Southern Coastal Plain Region

Roundwood output from the 21 counties of the Southern Coastal Plain Region totaled 255 million cubic feet in 1992, a 13-percent increase since 1990 (table 15). Both softwood and hardwood output totals increased for the region; softwood output was up nearly 15 percent, and hardwood production was up 10 percent. Softwood and hardwood veneer and softwood used for composite panels were the only products to show a decline in production in this region. Output of softwood veneer dropped 11 percent to 23 million cubic feet, and hardwood veneer dropped 3 percent to 8 million cubic feet. Seventy-three percent of the total roundwood TPO was softwood; the largest proportion of any region in North Carolina.

Pulpwood is still the leading product in the Southern Coastal Plain Region. Pulpwood production of 121 million cubic feet accounted for 48 percent of the region's total TPO and for 35 percent of the State's total roundwood pulpwood output. The 93 million cubic feet of saw logs accounted for 36 percent of the region's total roundwood output; this figure represents 27 percent of the State's total saw-log output. Even though total veneer production was down 3 million cubic feet, half of the veneer logs harvested in North Carolina during 1992 came from the Southern Coastal Plain Region.

Sixty-nine percent of the State's other industrial products came from this region as well. Of the 21 counties in this area, 3 had production greater than 20 million cubic feet, 11 had production between 10 and 20 million cubic feet, 4 had production between 5 and 10 million cubic feet, and only 3 had production less than 5 million cubic feet (table 16). The Southern Coastal Plain Region had 49 primary wood-using plants operating during 1992, 1 more than in 1990: 2 pulpmills, 35 sawmills, 7 veneer or plywood mills, 1 OSB mill, 3 pole, and 1 post mill (fig. 5). These mills processed 32 percent of the State's total roundwood output.

Northern Coastal Plain Region

Roundwood output from the 23 counties of the Northern Coastal Plain Region totaled 259 million cubic feet in 1992, a 1-percent increase since 1990 (table 17). A 5-percent decline in hardwood output was totally offset by a 4-percent increase in softwood production. Softwood and hardwood veneer, hardwood pulpwood, and hardwood used for composite panels showed a decline in production in this region. Output of softwood veneer dropped 16 percent to 13 million cubic feet, and hardwood veneer dropped 19 percent to 6 million cubic feet. Seventy percent of the total roundwood TPO was softwood.

Pulpwood is also the leading product in the Northern Coastal Plain Region, which produces more pulpwood than any other region of the State. Pulpwood production of 129 million cubic feet accounted for half of the region's total TPO and for 37 percent of the State's total roundwood pulpwood output. Saw-log production for both softwoods and hardwoods was up nearly 11 percent to 103 million cubic feet. This figure represents 40 percent of the region's total roundwood output and 29 percent of the State's total saw-log output. Thirty percent of the veneer logs harvested in North Carolina during 1992 came from the Northern Coastal Plain Region; however, only 11 percent of the State's other industrial products came from this region. Of the 23 counties in this area, 2 had production greater than 20 million cubic feet, 8 had production between 10 and 20 million cubic feet, 10 had production between 5 and 10 million cubic feet, and only 3 had production less than 5 million cubic feet (table 18). The Northern Coastal Plain Region had 53 primary wood-using plants operating during 1992, 4 less than in 1990: 4 pulpmills, 41 sawmills, 7 veneer or plywood mills, 1 composite panel. These mills processed 32 percent of the State's total roundwood output.

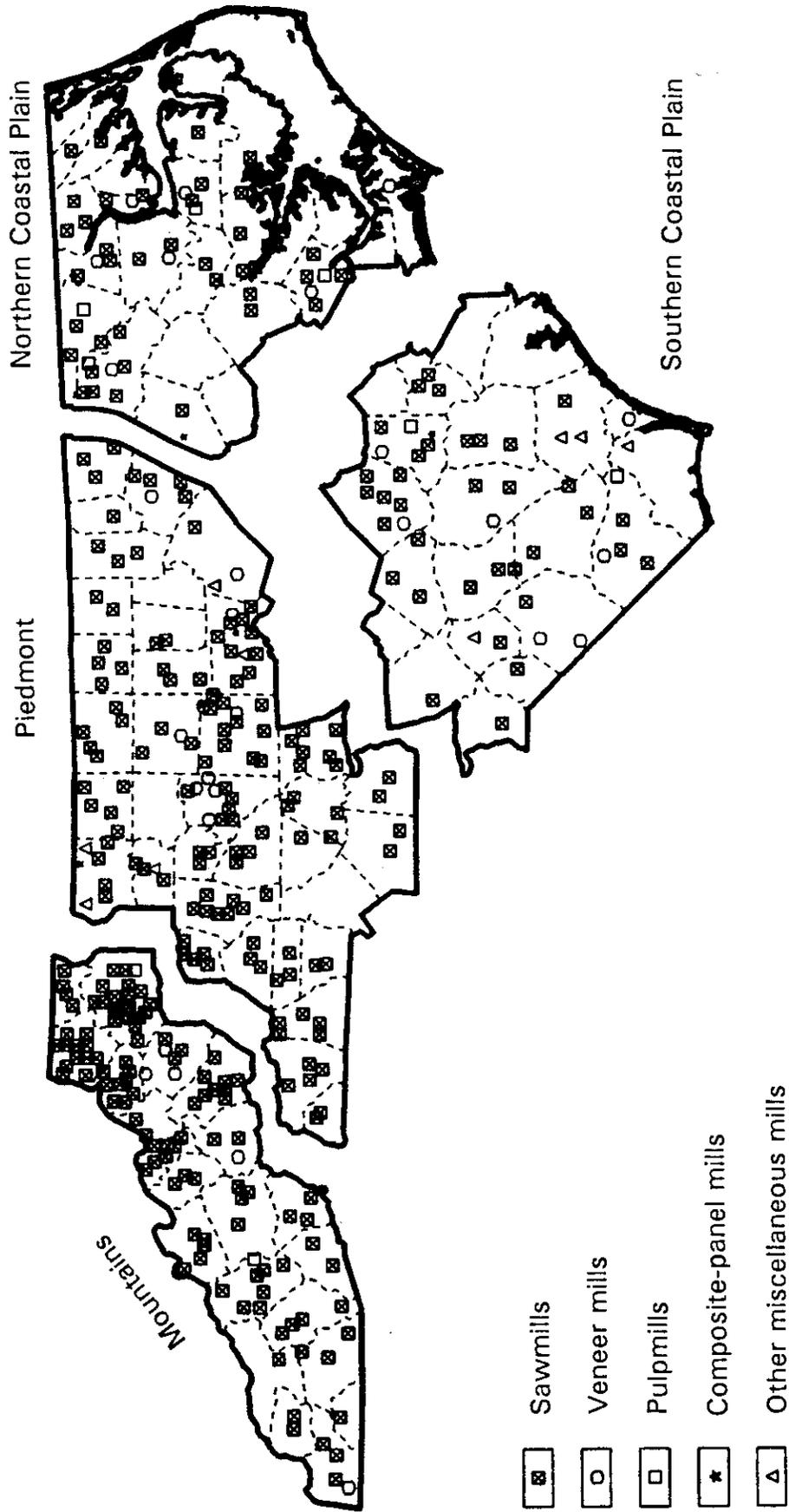


Figure 5—Primary wood-using mills by regions.

Piedmont Region

In 1992, more than 208 million cubic feet of roundwood were produced in the 35 counties making up the Piedmont Region of North Carolina. This total reflects an increase of nearly 7 percent between 1990 and 1992 (table 19). The region ranks a close third in the State in the production of roundwood products, with 26 percent of the total output. Softwood production increased 8 percent, and accounted for 61 percent of the total roundwood output. Hardwood output for all products increased 6 percent, with the largest increases in pulpwood and composite panel production.

Saw-log production of 116 million cubic feet accounted for 56 percent of the total roundwood production for this area. The Piedmont Region was the only region where saw-log production far exceeded pulpwood production. Production of pulpwood was up by 14 percent and accounted for 30 percent of the region's total roundwood output. This region produced 33 percent of the State's saw logs, 15 percent of the veneer logs, 18 percent of the pulpwood, 54 percent of the composite panel production, and 18 percent of the roundwood used for other industrial products. Six counties in the 35-county area had production greater than 10 million cubic feet, 10 counties had production between 5 and 10 million cubic feet, and 19 counties had production less than 5 million cubic feet (table 20). The Piedmont Region had 141 primary wood-using plants operating in 1992, 10 less than in 1990: 124 sawmills, 10 veneer or plywood plants, 2 composite panel mills, 3 post mills, 1 log home manufacturer, and 1 other miscellaneous mill.

Mountain Region

In 1992, roundwood output from the 21 counties of the Mountain Region declined 12 percent to 77 million cubic feet (table 21). The region produced 10 percent of the State's total roundwood TPO. Softwood production was down 12 percent to 32 million cubic feet and accounted for 42 percent of the total roundwood output. Total hardwood output was down 12 percent to 45 million cubic feet, with declines recorded for all products except hardwood pulpwood.

Saw-log production dropped 14 percent to 38 million cubic feet but still accounted for 49 percent of the total roundwood production for this area. Production of

pulpwood declined 8 percent to 35 million cubic feet and accounted for 46 percent of the region's total roundwood output. This region produced 11 percent of the State's saw logs, 10 percent of the pulpwood, 5 percent of the veneer logs, 4 percent of the composite panel production, and only 2 percent of the other industrial production. One county in the 21-county area had production greater than 10 million cubic feet, 4 counties had production between 5 and 10 million cubic feet, and 16 counties had production less than 5 million cubic feet (table 22). The Mountain Region had 114 primary wood-using plants operating in 1992, 4 more than in 1990: 106 sawmills, 5 veneer or plywood plant, 2 pulpmills, and 1 log home manufacturer.

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Definitions

Board feet. Unit of measure applied to roundwood. It relates to lumber that is 1 foot long, 1 foot wide, and 1 inch thick (or its equivalent).

Composite panels. Consists of structural panels (oriented strand board or waferboard), particleboard (industrial underlayment, thin panelboard).

Consumption. The quantity of a commodity, such as pulpwood, utilized.

Drain. The volume of roundwood removed from any geographic area where timber is grown.

Exports. The volume of roundwood utilized by mills outside the State where timber was cut.

Industrial roundwood products. Any primary use of the main stem of a tree, such as saw logs, poles, pilings, veneer logs, pulpwood, posts, or cooperage logs.

Industrial fuelwood. A roundwood product, with or without bark, used to generate energy at a manufacturing facility such as a wood-using mill.

Imports. The volume of roundwood delivered to a mill or group of mills in a specific State but harvested from outside that particular area.

Plant residues. Wood material generated in the production of timber products at primary manufacturing plants.

Coarse residues. Suitable for chipping such as slabs, edgings, trim, veneer cores, and ends.

Fine residues. Not suitable for chipping such as sawdust, shavings, and veneer clippings.

Log. A primary forest product harvested in long, primarily 8-foot lengths.

Primary wood-using plants. Industries that receive roundwood or chips from roundwood for the manufacture of products such as veneer, pulp, and lumber.

Production. The total volume of roundwood harvested from land within the specified State, regardless of where consumed. Production is the sum of timber harvested and used within the State, plus all roundwood exported to other U.S. States.

Pulpwood. A roundwood product that will be reduced to individual wood fibers by chemical or mechanical means. The fibers are used to make a broad generic group of pulp products that includes paper products as well as chipboard, fiberboard, insulating board, and paperboard.

Receipts. The quantity or volume of industrial roundwood received at a mill or by a group of mills in a State, regardless of the geographic source. Volume of roundwood receipts is equal to the volume of roundwood retained in a State plus roundwood imported from other U.S. States.

Retained. Roundwood volume harvested from and processed by mills within the same State.

Roundwood. Logs, bolts, or other round sections cut from trees for industrial manufacture or consumer use.

Roundwood chipped. Any timber cut primarily for industrial manufacture, delivered to non-pulpmills, chipped, and then sold to pulpmills for use as fiber. Includes tops, jump sections, and whole trees.

Roundwood product drain. That portion of total drain used for a product.

Saw log. A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods.

Standard cord. A unit measure applied to roundwood, usually bolts or split wood. It relates to a stack of wood 4 feet high, 4 feet wide, and 8 feet long—encompassing 128 cubic feet of wood, bark, and air space. In North Carolina this usually translates to 75.2 cubic feet of solid wood for pulpwood, since pulpwood is more uniform.

Timber products output. Roundwood production in an area's forests (equals roundwood product drain).

Timber removals. The merchantable volume of trees removed from the timberland inventory by harvesting, cultural operations such as stand improvement, land clearing, or changes in land use.

Veneer log. Logs to be used in the production of plywood, finished panels, or veneer sheets, both rotary cut and sliced.

Conversion Factors*

Saw Logs

Softwood 0.18018 cubic foot = 1 board foot
 5.55 board feet = 1 cubic foot

Hardwood 0.16556 cubic foot = 1 board foot
 6.04 board feet = 1 cubic foot

Veneer Logs

Softwood 0.17391 cubic foot = 1 board foot
 5.75 board feet = 1 cubic foot

Hardwood 0.15873 cubic foot = 1 board foot
 6.30 board feet = 1 cubic foot

Pulpwood^b

Softwood 72.5 cubic feet/cord
Hardwood 76.6 cubic feet/cord

* Conversion factors vary with stem size (d.b.h.) and species. The factors shown are for trees of average diameters removed in North Carolina during the latest survey period.

^b Cubic feet of solid wood per cord.

Table 1 -- Output of industrial products, by product, and species group, North Carolina, 1990 and 1992

Product and species group	Year		Change	Percent change
	1990	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	223,254	248,599	+25,345	+11.4
Hardwood	103,440	100,322	-3,118	-3.0
Total	326,694	348,921	+22,227	+6.8
Veneer logs				
Softwood	44,100	40,990	-3,110	-7.1
Hardwood	26,038	21,531	-4,507	-17.3
Total	70,138	62,521	-7,617	-10.9
Pulpwood*				
Softwood	203,651	215,327	+11,676	+5.7
Hardwood	127,084	133,500	+6,416	+5.1
Total	330,735	348,827	+18,092	+5.5
Composite panels				
Softwood	18,159	17,784	-375	-2.1
Hardwood	16,362	17,665	+1,303	+8.0
Total	34,521	35,449	+928	+2.7
Other industrial				
Softwood	2,047	3,453	+1,406	+68.7
Hardwood	37	32	-5	-13.5
Total	2,084	3,485	+1,401	+67.2
All industrial				
Softwood	491,211	526,153	+34,942	+7.1
Hardwood	272,961	273,050	+89	--
Total	764,172	799,203	+35,031	+4.6
Byproduct output				
Softwood	199,395	189,598	-9,797	-4.9
Hardwood	90,564	85,192	-5,372	-5.9
Total	289,959	274,790	-15,169	-5.2
Total output				
Softwood	690,606	715,751	+25,145	+3.6
Hardwood	363,525	358,242	-5,283	-1.5
Total	1,054,131	1,073,993	+19,862	+1.9

-- = negligible.

* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (11,760,000 cubic feet in 1990 and 13,410,000 cubic feet in 1992).

Table 2--Roundwood receipts, by product and species group, North Carolina, 1990 and 1992

Product and species group	Year		Change	Percent change
	1990	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	219,862	247,890	+28,028	+12.7
Hardwood	107,206	102,956	-4,250	-4.0
Total	327,068	350,846	+23,778	+7.3
Veneer logs				
Softwood	47,406	42,014	-5,392	-11.4
Hardwood	31,654	25,256	-6,398	-20.2
Total	79,060	67,270	-11,790	-14.9
Pulpwood*				
Softwood	203,630	188,890	-14,740	-7.2
Hardwood	107,469	100,295	-7,174	-6.7
Total	311,099	289,185	-21,914	-7.0
Composite panels				
Softwood	15,926	15,364	-562	-3.5
Hardwood	13,017	11,827	-1,190	-9.1
Total	28,943	27,191	-1,752	-6.1
Other industrial				
Softwood	2,014	2,505	+491	+24.4
Hardwood	37	32	-5	-13.5
Total	2,051	2,537	+486	+23.7
All industrial				
Softwood	488,838	496,663	+7,825	+1.6
Hardwood	259,383	240,366	-19,017	-7.3
Total	748,221	737,029	-11,192	-1.5

* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (12,949,000 cubic feet in 1990 and 12,564,000 cubic feet in 1992).

Table 3--Number of primary wood-using plants, by industry, North Carolina, 1973-1992

Industry	Year							
	1973	1976	1979	1983	1986	1987	1990	1992
Sawmills	355	403	478	429	336	362	308	306
Veneer mills	36	32	31	33	32	31	32	29
Pulpmills	8	8	8	8	8	8	8	8
Composite panel mills	0	0	0	0	4	4	5	4
Other mills	11	9	13	14	15	17	13	10
All plants	410	452	530	484	395	422	366	357

Table 4--Roundwood receipts, by sawmill size, North Carolina, 1990 and 1992

Sawmill size class ^a (million board feet)	1990			1992		
	Number of mills	Thousand board feet	Percent of volume	Number of mills	Thousand board feet	Percent of volume
< 1.0	99	35,377	2	111	35,607	2
1.0 - 4.99	111	268,921	14	103	269,532	13
5.0 - 9.99	49	333,339	17	38	258,154	13
10.0 - 49.99	42	771,744	40	45	775,223	39
> 50	7	511,654	27	9	656,296	33
Total	308	1,921,035	100	306	1,994,812	100

^a Based on volume received as opposed to actual capacity.

Table 5-- Roundwood receipts, by species and type of mill, North Carolina, 1992

Species	All mills	Type of mill						
		Sawmills	Pine plywood	Veneer mills		OSB and panels ^a	Pulpmills ^b	Other mills
				Pine veneer	Other veneer			
<i>Thousand cubic feet</i>								
Softwood								
Yellow pine	293,904	234,051	41,960	24	15,364	NA	2,505	
Other softwood	13,869	13,839	0	30	0	NA	0	
Unclassified	188,890	0	0	0	0	188,890	0	
Total softwoods	496,663	247,890	41,960	54	15,364	188,890	2,505	
Hardwood								
Soft hardwoods	70,653	38,456	15,775	6,651	9,771	NA	0	
Hard hardwoods	69,418	64,500	0	2,830	2,056	NA	32	
Unclassified	100,295	0	0	0	0	100,295	0	
Total hardwoods	240,366	102,956	15,775	9,481	11,827	100,295	32	
All species	737,029	350,846	57,735	9,535	27,191	289,185	2,537	

NA = not applicable.

^a OSB = oriented strand board.

^b Only collected by softwood and hardwood and includes roundwood chipped.

Table 6—Industrial roundwood movement, by year and species group, North Carolina, 1990 and 1992

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>Thousand cubic feet</i>					
SOFTWOOD					
1990	491,211	61,249	429,962	58,876	488,838
1992	526,153	97,036	429,117	67,546	496,663
HARDWOOD					
1990	272,961	41,825	231,136	28,247	259,383
1992	273,050	59,889	213,161	27,205	240,366
ALL SPECIES					
1990	764,172	103,074	661,098	87,123	748,221
1992	799,203	156,925	642,278	94,751	737,029

Table 7 -- Industrial roundwood movement, by product and species group, North Carolina, 1992

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
Saw logs					
Softwood	248,599	18,820	229,779	18,111	247,890
Hardwood	100,322	6,137	94,185	8,771	102,956
Total	348,921	24,957	323,964	26,882	350,846
Veneer logs					
Softwood	40,990	5,900	35,090	6,924	42,014
Hardwood	21,531	1,417	20,114	5,142	25,256
Total	62,521	7,317	55,204	12,066	67,270
Pulpwood*					
Softwood	215,327	67,266	148,061	40,829	188,890
Hardwood	133,500	44,867	88,633	11,662	100,295
Total	348,827	112,133	236,694	52,491	289,185
Composite panels					
Softwood	17,784	4,018	13,766	1,598	15,364
Hardwood	17,665	7,468	10,197	1,630	11,827
Total	35,449	11,486	23,963	3,228	27,191
Other industrial					
Softwood	3,453	1,032	2,421	84	2,505
Hardwood	32	0	32	0	32
Total	3,485	1,032	2,453	84	2,537
All products					
Softwood	526,153	97,036	429,117	67,546	496,663
Hardwood	273,050	59,889	213,161	27,205	240,366
Total	799,203	156,925	642,278	94,751	737,029

* includes roundwood chipped.

Table 8--Saw-log volume, by destination, source, and species group, North Carolina, 1992

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
North Carolina (retained)	323,964	229,779	94,185
Exports to:			
Florida	56	56	0
South Carolina	9,916	7,641	2,275
Virginia	14,985	11,123	3,862
Total	24,957	18,820	6,137
Imports from:			
Georgia	1,759	602	1,157
South Carolina	7,720	5,950	1,770
Tennessee	895	80	815
Virginia	16,508	11,479	5,029
Total	26,882	18,111	8,771

Table 9--Veneer volume, by destination, source, and species group, North Carolina, 1992

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
North Carolina (retained)	55,204	35,090	20,114
Exports to:			
Georgia	198	0	198
South Carolina	3,126	2,396	730
Virginia	3,993	3,504	489
Total	7,317	5,900	1,417
Imports from:			
Georgia	213	0	213
Kentucky	456	0	456
Maine	20	0	20
Maryland	395	0	395
New York	20	0	20
Ohio	10	0	10
South Carolina	7,308	6,924	384
Tennessee	489	0	489
Vermont	20	0	20
Virginia	2,942	0	2,942
West Virginia	193	0	193
Total	12,066	6,924	5,142

**Table 10—Pulpwood volume, by destination, source, and species group,
North Carolina, 1992^a**

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
North Carolina (retained)	236,694	148,061	88,633
Exports to:			
South Carolina	78,567	56,881	21,686
Tennessee	1,062	986	76
Virginia	32,504	9,399	23,105
Total	112,133	67,266	44,867
Imports from:			
Georgia	3,725	2,145	1,580
Kentucky	10	0	10
South Carolina	29,700	24,284	5,416
Tennessee	5,105	1,823	3,282
Virginia	13,951	12,577	1,374
Total	52,491	40,829	11,662

^a Includes roundwood chipped that was delivered to non-pulpmills and then chipped and sold to pulpmills.

Table 11--Composite panel volume, by destination, source, and species group, North Carolina, 1992

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
North Carolina (retained)	23,963	13,766	10,197
Exports to:			
Virginia	11,486	4,018	7,468
Imports from:			
Virginia	3,228	1,598	1,630

Table 12--Other industrial volume, by destination, source, and species group, North Carolina, 1992^a

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
North Carolina (retained)	2,453	2,421	32
Exports to:			
Florida	19	19	0
South Carolina	763	763	0
Virginia	250	250	0
Total	1,032	1,032	0
Imports from:			
South Carolina	84	84	0

^a Includes poles, posts, mulch, firewood, log homes, charcoal, and all other industrial mills.

Table 13--Primary mill residue volume, by roundwood type, species group, and residue type, North Carolina, 1992

Roundwood type and species group	Residue type				
	All types	Bark	Coarse	Sawdust	Shavings
<i>Thousand cubic feet</i>					
Saw logs					
Softwood	142,848	16,534	64,243	43,711	18,360
Hardwood	63,201	10,662	31,207	20,690	642
Total	206,049	27,196	95,450	64,401	19,002
Veneer logs					
Softwood	22,074	2,917	14,324	4,833	0
Hardwood	9,365	2,733	4,374	2,258	0
Total	31,439	5,650	18,698	7,091	0
Pulpwood					
Softwood	19,433	19,433	0	0	0
Hardwood	12,430	12,430	0	0	0
Total	31,863	31,863	0	0	0
Composite panels					
Softwood	2,557	2,557	0	0	0
Hardwood	2,657	2,657	0	0	0
Total	5,214	5,214	0	0	0
Other industrial^a					
Softwood	4,015	3,330	685	0	0
Hardwood	18	4	10	4	0
Total	4,033	3,334	695	4	0
Total					
Softwood	190,927	44,771	79,252	48,544	18,360
Hardwood	87,671	28,486	35,591	22,952	642
Total	278,598	73,257	114,843	71,496	19,002

^a Includes poles, pilings, posts, and other industrial products.

Table 14--Disposal of residue at primary wood--using plants, by product, species group, and type of residue, North Carolina, 1990 and 1992

Product and species group	All types											
	1990		1992		Bark		Coarse		Sawdust		Shavings	
	1990	1992	1990	1992	1990	1992	1990	1992	1990	1992	1990	1992
	<i>Thousand cubic feet</i>											
Fiber products												
Softwood	72,509	65,976	0	39	72,484	65,937	25	0	0	0	0	0
Hardwood	24,954	25,328	0	1,176	24,890	24,152	64	0	0	0	0	0
Total	97,463	91,304	0	1,215	97,374	90,089	89	0	0	0	0	0
Particleboard												
Softwood	10,114	12,443	0	0	1,175	1,468	5,078	6,189	3,861	4,786		
Hardwood	4,719	4,665	0	17	3,106	3,201	1,304	1,256	309	191		
Total	14,833	17,108	0	17	4,281	4,669	6,382	7,445	4,170	4,977		
Composite panels												
Softwood	582	25	0	0	582	25	0	0	0	0	0	0
Hardwood	744	988	0	0	744	904	0	84	0	0	0	0
Total	1,326	1,013	0	0	1,326	929	0	84	0	0	0	0
Sawn products												
Softwood	8,100	7,442	0	0	8,100	7,442	0	0	0	0	0	0
Hardwood	2,949	921	0	0	2,949	921	0	0	0	0	0	0
Total	11,049	8,363	0	0	11,049	8,363	0	0	0	0	0	0
Fuel												
Softwood	79,363	70,537	34,832	31,019	5,757	3,376	33,469	31,200	5,305	4,942		
Hardwood	49,158	44,475	23,307	20,196	6,415	5,710	18,919	18,359	517	210		
Total	128,521	115,012	58,139	51,215	12,172	9,086	52,388	49,559	5,822	5,152		
Miscellaneous												
Softwood	28,727	33,175	9,277	13,396	376	586	9,957	10,562	9,117	8,631		
Hardwood	8,040	8,815	4,476	6,193	142	282	3,188	2,099	234	241		
Total	36,767	41,990	13,753	19,589	518	868	13,145	12,661	9,351	8,872		
Not used												
Softwood	2,915	1,329	1,365	317	578	418	971	593	1	1		
Hardwood	2,426	2,479	1,010	904	662	421	754	1,154	0	0		
Total	5,341	3,808	2,375	1,221	1,240	839	1,725	1,747	1	1		
All products												
Softwood	202,310	190,927	45,474	44,771	89,052	79,252	49,500	48,544	18,284	18,360		
Hardwood	92,990	87,671	28,793	28,486	38,908	35,591	24,229	22,952	1,060	642		
Total	295,300	278,598	74,267	73,257	127,960	114,843	73,729	71,496	19,344	19,002		

Table 15--Roundwood timber products output, by product and species group, Southern Coastal Plain of North Carolina, 1990 and 1992

Product and species group	Year		Change	Percent change
	1990	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	64,756	76,546	+11,790	+18.2
Hardwood	12,784	16,173	+3,389	+26.5
Total	77,540	92,719	+15,179	+19.6
Veneer logs				
Softwood	25,836	23,074	-2,762	-10.7
Hardwood	8,473	8,215	-258	-3.0
Total	34,309	31,289	-3,020	-8.8
Pulpwood*				
Softwood	65,370	79,448	+14,078	+21.5
Hardwood	38,889	41,305	+2,416	+6.2
Total	104,259	120,753	+16,494	+15.8
Composite panels				
Softwood	5,202	4,841	-361	-6.9
Hardwood	2,162	2,631	+469	+21.7
Total	7,364	7,472	+108	+1.5
Other industrial				
Softwood	1,531	2,417	+886	+57.9
Hardwood	0	0	0	--
Total	1,531	2,417	+886	+57.9
All industrial				
Softwood	162,695	186,326	+23,631	+14.5
Hardwood	62,308	68,324	+6,016	+9.7
Total	225,003	254,650	+29,647	+13.2

-- = negligible.

* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (4,987,000 cubic feet in 1990 and 5,600,000 cubic feet in 1992).

Table 16 -- Roundwood timber products output, by county, product and species group, Southern Coastal Plain of North Carolina, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood*		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	<i>Thousand cubic feet</i>											
Bladen	15,383	5,188	7,717	1,645	2,705	197	42	32	4,724	3,314	195	0
Brunswick	9,704	2,182	2,342	324	515	80	0	0	6,670	1,728	177	0
Columbus	23,708	6,073	11,436	771	2,404	302	0	0	9,609	5,000	259	0
Cumberland	7,266	2,316	2,490	621	1,028	272	459	130	3,266	1,293	23	0
Duplin	9,968	5,172	3,635	1,172	1,539	804	511	390	4,137	2,806	146	0
Greene	3,791	2,303	1,733	283	1,119	589	340	260	599	1,171	0	0
Harnett	6,349	1,623	2,444	709	949	620	465	97	2,413	197	78	0
Hoke	2,046	416	571	137	0	63	48	0	1,177	216	250	0
Johnston	7,696	5,403	3,576	1,733	1,911	1,582	474	325	1,668	1,763	67	0
Jones	7,222	3,255	3,262	68	600	284	170	130	3,190	2,773	0	0
Lee	2,995	1,455	1,364	514	318	255	385	0	787	686	141	0
Lenoir	6,320	3,782	2,294	1,130	1,370	555	425	325	2,231	1,772	0	0
Moore	10,699	4,024	5,172	1,243	1,113	263	192	0	3,986	2,518	236	0
New Hanover	3,653	664	456	0	0	68	0	0	3,051	596	146	0
Onslow	8,522	2,777	3,235	207	432	271	85	65	4,624	2,234	146	0
Pender	16,582	4,230	5,381	524	1,243	318	127	97	9,657	3,291	174	0
Richmond	8,618	1,629	4,892	834	0	0	48	0	3,605	795	73	0
Robeson	11,780	4,555	3,588	993	1,717	305	0	0	6,310	3,257	165	0
Sampson	10,755	4,809	4,959	931	1,370	569	474	325	3,952	2,984	0	0
Scotland	5,334	1,339	1,607	455	858	83	0	0	2,728	801	141	0
Wayne	7,935	5,179	4,392	1,879	1,883	735	596	455	1,064	2,110	0	0
All counties	186,326	68,324	76,546	16,173	23,074	8,215	4,841	2,631	79,448	41,305	2,417	0

* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulp mills (5,600,000 cubic feet in 1992).

Table 17--Roundwood timber products output, by product and species group, Northern Coastal Plain of North Carolina, 1990 and 1992

Product and species group	Year		Change	Percent change
	1990	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	73,612	81,326	+7,714	+10.5
Hardwood	19,342	21,368	+2,026	+10.5
Total	92,954	102,694	+9,740	+10.5
Veneer logs				
Softwood	15,064	12,689	-2,375	-15.8
Hardwood	7,590	6,114	-1,476	-19.4
Total	22,654	18,803	-3,851	-17.0
Pulpwood*				
Softwood	82,309	82,936	+627	+0.8
Hardwood	50,017	46,205	-3,812	-7.6
Total	132,326	129,141	-3,185	-2.4
Composite panels				
Softwood	2,883	3,290	+407	+14.1
Hardwood	5,081	4,372	-709	-14.0
Total	7,964	7,662	-302	-3.8
Other industrial				
Softwood	115	361	+246	+213.9
Hardwood	0	0	0	--
Total	115	361	+246	+213.9
All industrial				
Softwood	173,983	180,602	+6,619	+3.8
Hardwood	82,030	78,059	-3,971	-4.8
Total	256,013	258,661	+2,648	+1.0

-- = negligible.

* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (2,965,000 cubic feet in 1990 and 3,487,000 cubic feet in 1992).

Table 18 -- Roundwood timber products output, by county, product and species group, Northern Coastal Plain of North Carolina, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood ^a		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	<i>Thousand cubic feet</i>											
Beaufort	29,389	6,402	11,074	2,166	1,316	249	0	0	16,999	3,987	0	0
Bertie	12,533	7,261	4,972	1,325	961	547	442	431	6,134	4,958	24	0
Camden	1,873	611	1,027	30	87	44	0	0	759	537	0	0
Carteret	4,733	368	2,516	3	87	111	0	0	1,984	254	146	0
Chowan	3,720	2,865	2,234	577	87	238	0	0	1,399	2,050	0	0
Craven	11,325	3,153	4,998	444	222	296	42	32	6,063	2,381	0	0
Currituck	1,566	801	870	18	87	79	0	0	609	704	0	0
Dare	444	8	328	0	87	0	0	0	29	8	0	0
Edgecombe	5,150	3,008	2,552	802	823	222	127	176	1,648	1,808	0	0
Gates	8,703	4,003	4,883	766	434	183	442	431	2,917	2,623	27	0
Halifax	16,578	10,893	7,043	2,989	1,397	417	643	1,340	7,473	6,147	22	0
Hertford	7,787	3,627	4,271	956	434	192	442	431	2,607	2,048	33	0
Hyde	5,355	2,085	1,807	1,177	877	198	0	0	2,671	710	0	0
Marlin	12,318	2,520	4,380	1,213	883	284	0	0	7,055	1,023	0	0
Nash	5,097	5,576	2,641	1,752	886	870	127	573	1,443	2,381	0	0
Northampton	8,907	7,806	4,763	1,843	781	180	643	626	2,693	5,157	27	0
Pamlico	3,806	2,486	2,161	684	87	118	0	0	1,558	1,684	0	0
Pasquotank	3,854	1,230	2,810	43	175	147	0	0	869	1,040	0	0
Perquimans	4,740	1,383	3,060	343	87	210	0	0	1,593	830	0	0
Pitt	11,879	4,973	3,585	1,624	1,039	521	170	130	7,052	2,698	33	0
Tyrrell	7,549	1,346	2,415	373	438	122	0	0	4,696	851	0	0
Washington	8,109	1,828	3,893	754	526	226	0	0	3,663	848	27	0
Wilson	5,187	3,826	3,043	1,486	888	660	212	202	1,022	1,478	22	0
All counties	180,602	78,059	81,326	21,368	12,689	6,114	3,290	4,372	82,936	46,205	361	0

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulp mills (3,487,000 cubic feet in 1992).

Table 19—Roundwood timber products output, by product and species group, Piedmont of North Carolina, 1990 and 1992

Product and species group	Year		Change	Percent change
	1990	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	71,416	76,484	+5,068	+7.1
Hardwood	41,148	39,290	-1,858	-4.5
Total	112,564	115,774	+3,210	+2.9
Veneer logs				
Softwood	2,872	5,187	+2,315	+80.6
Hardwood	6,338	4,415	-1,923	-30.3
Total	9,210	9,602	+392	+4.3
Pulpwood^a				
Softwood	34,184	35,761	+1,577	+4.6
Hardwood	21,519	27,824	+6,305	+29.3
Total	55,703	63,585	+7,882	+14.2
Composite panels				
Softwood	8,726	8,715	-11	-0.1
Hardwood	8,584	10,294	+1,710	+19.9
Total	17,310	19,009	+1,699	+9.8
Other industrial				
Softwood	382	606	+224	+58.6
Hardwood	32	32	0	--
Total	414	638	+224	+54.1
All industrial				
Softwood	117,580	126,753	+9,173	+7.8
Hardwood	77,621	81,855	+4,234	+5.5
Total	195,201	208,608	+13,407	+6.9

-- = negligible.

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (3,441,000 cubic feet in 1990 and 4,238,000 cubic feet in 1992).

Table 20 -- Roundwood timber products output, by county, product and species group, Piedmont of North Carolina, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood ^a		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	Thousand cubic feet											
Alamance	2,574	731	993	603	1	18	1,220	76	360	34	0	0
Alexander	3,094	1,869	2,477	1,233	0	56	188	230	429	350	0	0
Anson	16,103	1,773	10,325	620	958	283	0	0	4,570	870	250	0
Cabarrus	1,159	843	567	795	0	0	62	15	530	33	0	0
Caswell	1,191	4,391	942	1,477	0	0	48	1,776	201	1,138	0	0
Catawba	2,125	999	1,584	609	0	56	0	0	539	334	0	0
Chatham	8,407	4,516	6,291	3,651	478	271	289	0	1,248	594	0	0
Cleveland	3,674	919	536	368	790	174	0	0	2,348	377	0	0
Davidson	1,157	1,973	615	1,694	0	186	62	46	480	47	0	0
Davie	719	1,376	595	1,087	0	46	62	46	62	197	0	0
Durham	2,553	185	1,994	87	63	93	385	0	111	5	0	0
Forsyth	701	851	556	718	0	7	125	92	18	34	0	0
Franklin	8,966	4,050	5,297	1,140	506	376	490	1,224	2,673	1,310	0	0
Gaston	969	324	431	267	0	56	0	0	538	1	0	0
Granville	6,602	1,813	5,062	743	0	140	337	476	1,203	454	0	0
Guilford	1,415	1,681	598	927	63	225	551	191	203	338	0	0
Iredell	3,498	2,250	2,042	1,596	0	56	251	46	1,200	552	0	0
Lincoln	2,485	967	674	112	0	56	125	46	1,686	753	0	0
Mecklenburg	969	495	474	401	0	56	0	0	495	38	0	0
Montgomery	11,350	4,005	8,727	2,602	0	0	111	38	2,439	1,365	0	0
Orange	1,487	705	1,091	388	95	236	144	0	157	81	0	0
Person	3,395	2,474	2,470	1,151	0	0	96	158	829	1,165	0	0
Polk	1,168	1,136	107	513	0	56	0	0	1,061	567	0	0
Randolph	2,489	3,976	2,092	3,691	0	158	111	38	286	89	0	0
Rockingham	636	5,249	448	1,974	0	136	188	2,030	0	1,109	0	0
Rowan	1,439	1,622	972	1,282	0	133	62	0	405	207	0	0
Rutherford	4,551	3,184	993	784	647	209	62	0	2,849	2,191	0	0
Stanly	1,882	521	1,202	399	0	0	62	38	618	84	0	0
Stokes	2,186	3,723	1,430	1,974	0	0	691	468	65	1,281	0	0
Surry	2,752	3,001	1,564	1,514	0	56	879	757	238	674	0	0
Union	3,025	4,632	1,680	355	0	0	0	0	1,345	4,277	0	0
Vance	4,454	2,031	2,444	326	347	140	490	946	1,173	603	0	16
Wake	6,943	6,034	3,366	910	631	751	851	176	2,095	4,197	0	0
Warren	9,800	6,544	5,358	2,740	608	329	522	1,143	3,279	2,316	0	16
Yadkin	835	1,012	487	559	0	56	251	238	28	159	0	0
All counties	126,753	81,855	76,484	39,290	5,187	4,415	8,715	10,294	35,761	27,824	250	32

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulp mills (4,238,000 cubic feet in 1992).

Table 21 – Roundwood timber products output, by product and species group, Mountains of North Carolina, 1990 and 1992

Product and species group	Year		Change	Percent change
	1990	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	13,470	14,243	+773	+5.7
Hardwood	30,166	23,491	-6,675	-22.1
Total	43,636	37,734	-5,902	-13.5
Veneer logs				
Softwood	328	40	-288	-87.8
Hardwood	3,637	2,787	-850	-23.4
Total	3,965	2,827	-1,138	-28.7
Pulpwood*				
Softwood	21,788	17,182	-4,606	-21.1
Hardwood	16,659	18,166	+1,507	+9.1
Total	38,447	35,348	-3,099	-8.1
Composite panels				
Softwood	1,348	938	-410	-30.4
Hardwood	535	368	-167	-31.2
Total	1,883	1,306	-577	-30.6
Other industrial				
Softwood	19	69	+50	+263.2
Hardwood	5	0	-5	--
Total	24	69	+45	+187.5
All industrial				
Softwood	36,953	32,472	-4,481	-12.1
Hardwood	51,002	44,812	-6,190	-12.1
Total	87,955	77,284	-10,671	-12.1

-- = negligible.

* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (367,000 cubic feet in 1990 and 85,000 cubic feet in 1992).

Table 22 -- Roundwood timber products output, by county, product and species group, Mountains of North Carolina, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood [#]		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	<i>Thousand cubic feet</i>											
Allegheny	1,224	607	1,150	536	0	0	62	53	12	18	0	0
Ashe	958	1,053	879	949	17	56	62	0	0	48	0	0
Avery	356	660	105	226	23	178	0	0	228	256	0	0
Burcombe	3,079	3,657	328	925	0	126	0	0	2,751	2,606	0	0
Burke	5,013	4,313	2,204	1,458	0	229	251	46	2,558	2,560	0	0
Caldwell	2,382	3,347	1,212	1,381	0	431	125	46	1,045	1,489	0	0
Cherokee	1,272	1,363	86	386	0	298	0	0	1,186	679	0	0
Clay	270	425	39	36	0	96	0	0	231	293	0	0
Graham	452	1,337	186	824	0	113	0	0	266	400	0	0
Haywood	2,958	3,899	244	926	0	227	0	0	2,714	2,746	0	0
Henderson	492	594	220	128	0	153	0	0	272	313	0	0
Jackson	1,611	2,333	88	1,335	0	181	0	0	1,523	817	0	0
McDowell	1,387	2,303	237	905	0	113	62	0	1,088	1,285	0	0
Macon	1,036	1,890	262	1,047	0	96	0	0	774	747	0	0
Madison	1,334	3,227	631	2,209	0	113	0	0	703	905	0	0
Mitchell	742	822	514	497	0	113	0	0	228	212	0	0
Swain	722	1,321	23	666	0	0	0	0	699	655	0	0
Transylvania	389	1,783	156	1,249	0	96	0	0	233	438	0	0
Watauga	167	411	105	266	0	56	62	38	0	51	0	0
Wilkes	6,183	8,263	5,357	6,605	0	56	314	185	443	1,417	69	0
Yancey	445	1,204	217	937	0	56	0	0	228	211	0	0
All counties	32,472	44,812	14,243	23,491	40	2,787	988	368	17,182	18,166	69	0

[#] Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulp mills (85,000 cubic feet in 1992).



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Johnson, Tony G. 1994. North Carolina's timber industry: an assessment of timber product output and use, 1992. Resour. Bull. SE-146. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 30 pp.

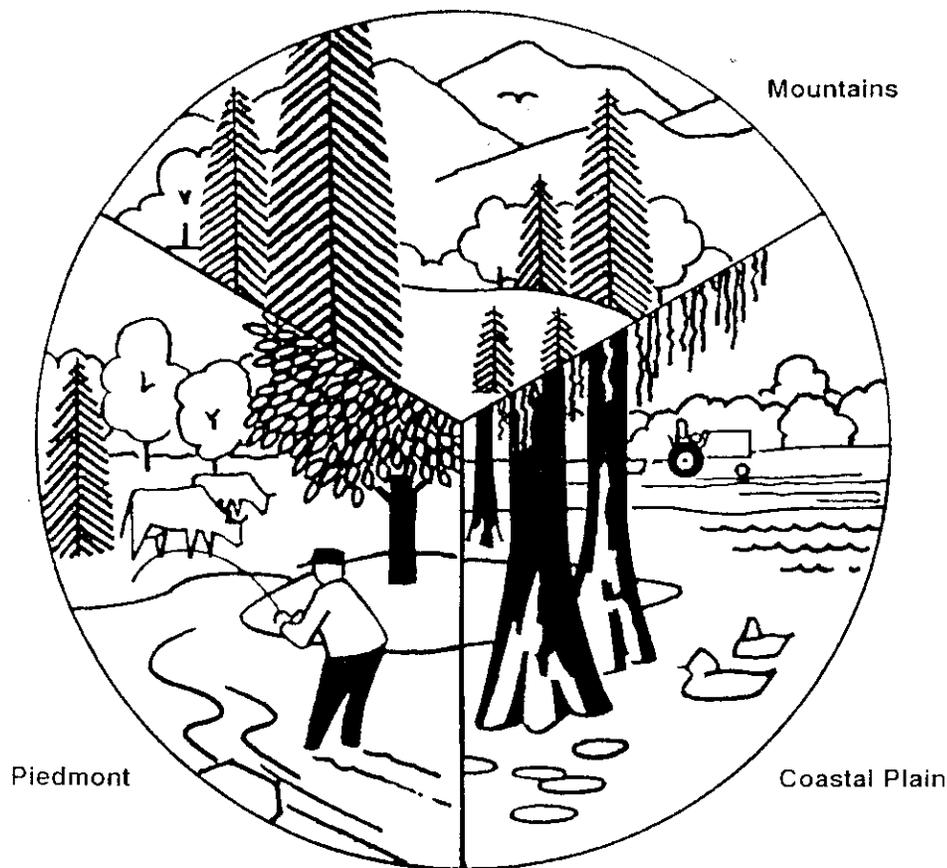
In 1992, volume of roundwood products removed from North Carolina's forest totaled 700 million cubic feet—5 percent more than in 1990. Mill byproducts generated from primary manufacturers declined 6 percent to 279 million cubic feet. Almost all of the plant residues were used, mostly for fuel and fiber products. Saw logs and pulpwood were tied for the leading roundwood product at 349 million cubic; veneer logs were third with 63 million cubic feet. The number of primary processing plants declined from 366 in 1990 to 357 in 1992. Total receipts declined 2 percent to 737 million cubic feet.

KEYWORDS: Roundwood, residues, pulpwood, saw logs, veneer logs, wood movement.

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KEYWORDS: Roundwood, residues, pulpwood, saw logs, veneer logs, wood movement.



Southeastern Forest Experiment Station

Established 1921

The Southeastern Forest Experiment Station, headquartered in Asheville, North Carolina, is one of the eight regional Experiment Stations, and the Forest Products Laboratory, that make up the Forest Service research organization.

RESEARCH MISSION:

To acquire the knowledge, develop the technology, and disseminate the research findings required to manage the Southeast's forest resources in ways that satisfy demands of goods and services while maintaining a quality environment.

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