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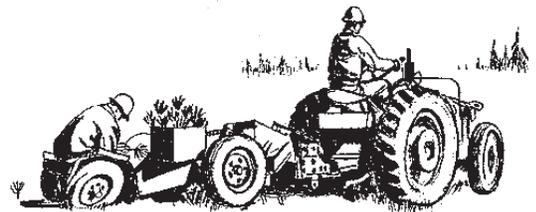
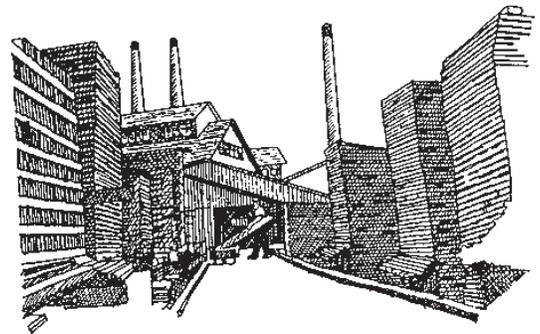
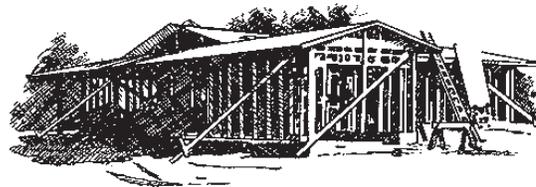


Southern  
Research Station

Resource Bulletin  
SRS-94

# North Carolina's Timber Industry— An Assessment of Timber Product Output and Use, 2001

Michael Howell and  
David R. Brown

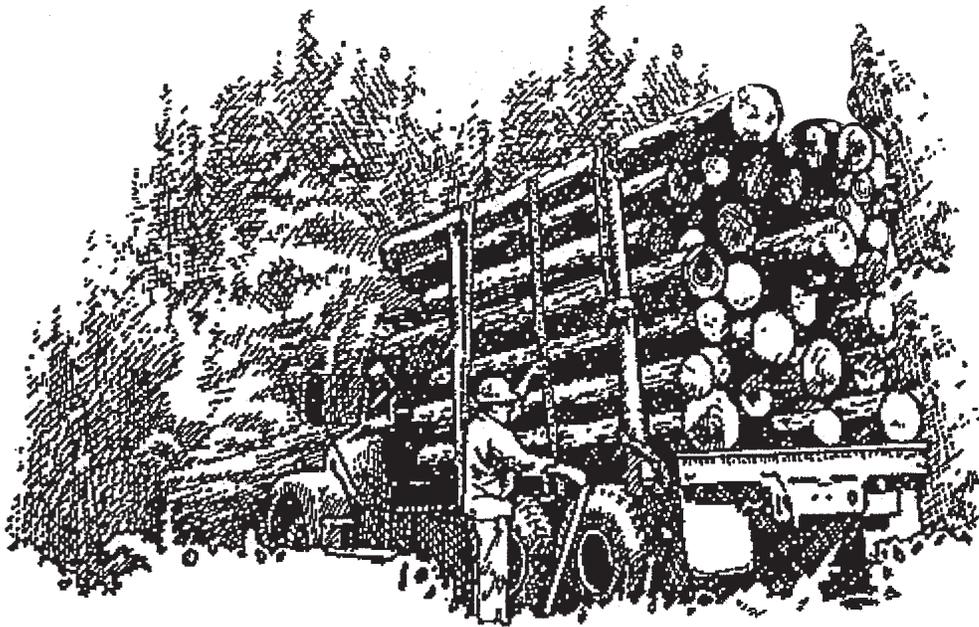


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## Foreword

This report contains the findings of a 2001 canvass of all primary wood-using plants in North Carolina, and presents changes in product output and residue use since 1999. 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 2001 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 certain wood processors in North Carolina was conducted in 2002 to obtain information for 2001. In addition, roundwood from out-of-State mills known to be using logs or bolts harvested from North Carolina timberland was incorporated into North Carolina production estimates. The mills were canvassed by mail or through personal contact at plant locations. Telephone contacts followed mailed questionnaire responses when

additional information or clarification of a response was necessary. In the event of a nonresponse, data collected in previous surveys were updated using current data collected for mills of similar size, product type, and location. Surveys for all timber products other than pulpwood began in 1961, and are currently conducted every 2 years.

Pulpwood production data were taken from an annual canvass of all southern pulpmills. Medium density fiberboard, insulating board, and hardboard plants were included in this survey.

## Acknowledgments

The authors thank Barry D. New for review and comments; Dumitru Salajanu for the maps; Anne Jenkins, Charlene Walker, and Lyn Thornhill for tables, graphs, and statistical checking; and Paul Smith, Diana Corbin, and Louise Wilde for editorial review, styling, and publication of this report.

The Southern Research Station gratefully acknowledges the cooperation and assistance provided by the North Carolina Department of Environment and Natural Resources, Division of Forest Resources in collecting mill data. Appreciation is also extended to forest industry and mill managers for providing timber products information.



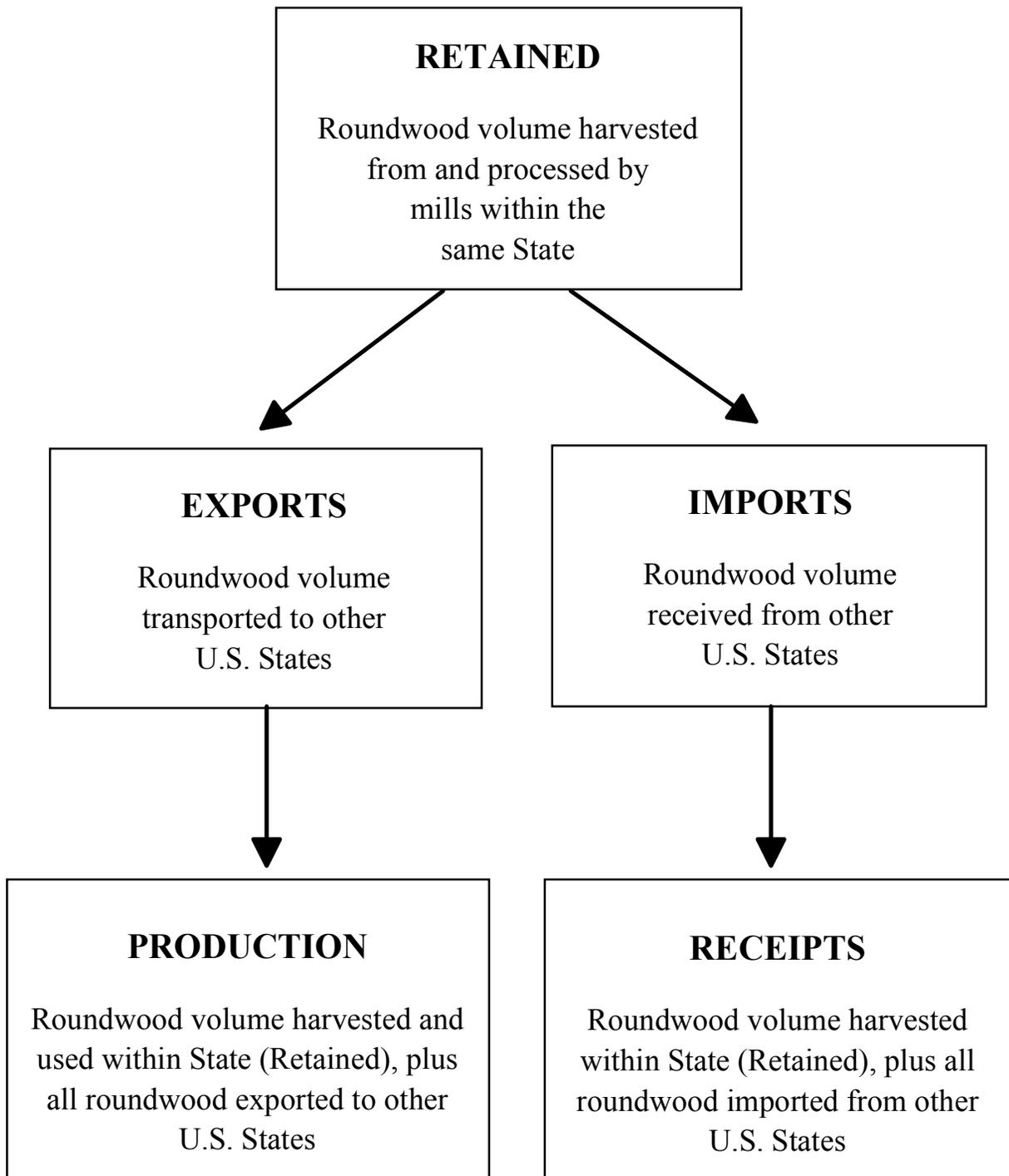


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<sup>a</sup> All tables in this report are available in Microsoft® Excel workbook files. Upon request, these files will be supplied on 3½-inch diskettes.

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**Production** = Retained + Exports

**Receipts** = Retained + Imports

Figure 1—Movement of roundwood exports and imports within the United States.

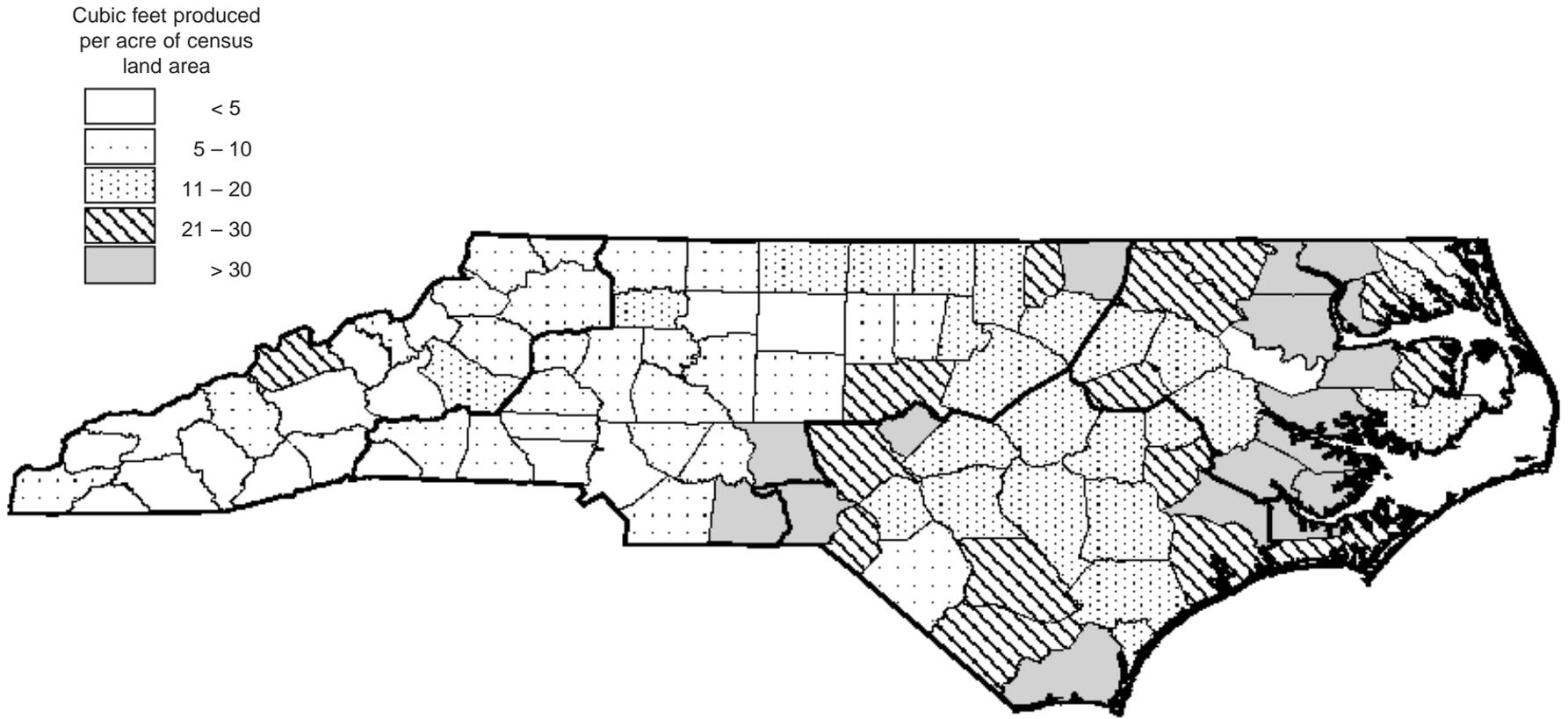


Figure 3—Intensity of roundwood softwood output for all industrial products in North Carolina by county, 2001.

Cubic feet produced  
per acre of census  
land area

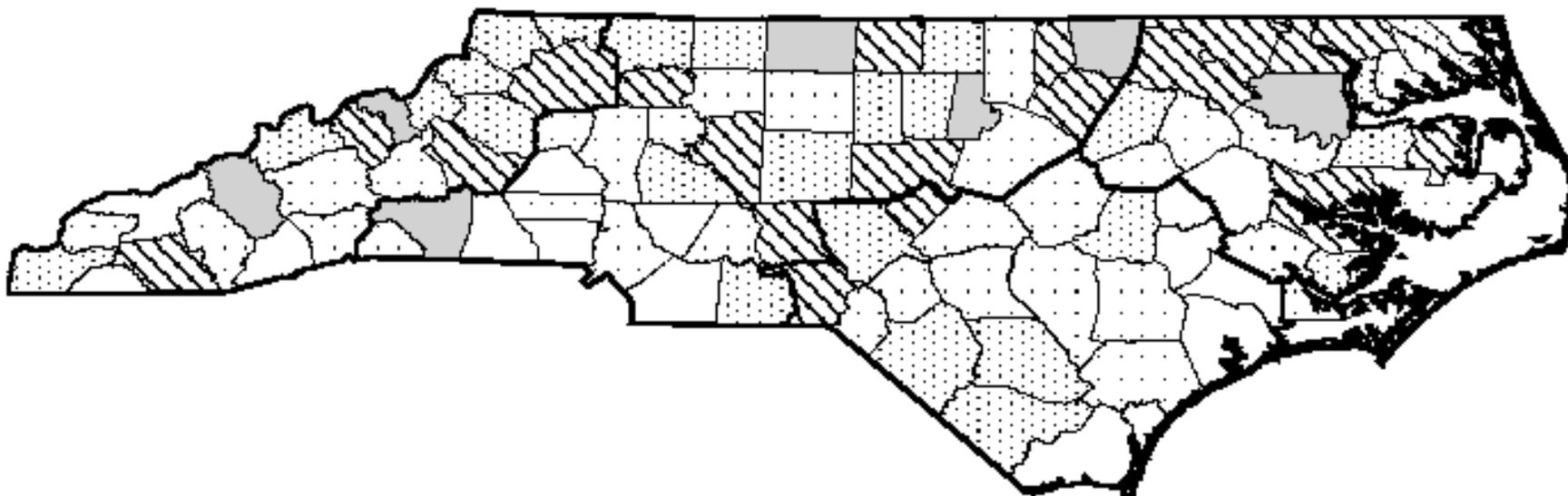
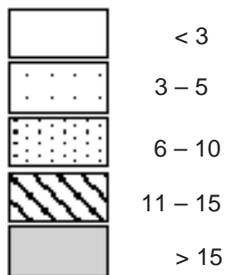


Figure 4—Intensity of roundwood hardwood output for all industrial products in North Carolina by county, 2001.

# North Carolina's Timber Industry— An Assessment of Timber Product Output and Use, 2001

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## Output of Industrial Timber Products

Note: Certain terms used in this report—retained, export, import, production, and receipts—have specialized meanings unique to the Forest Inventory and Analysis Units across the country that deal with timber products output (fig. 1).

### All Products

- Between 1999 and 2001, the combined industrial timber products output (TPO) from roundwood and plant byproducts declined 3 percent, from 1.10 to 1.07 billion cubic feet.
- TPO from roundwood was down 35 million cubic feet, or 4 percent, to 759 million cubic feet, while output of

plant byproducts was up 2.6 million cubic feet to 313 million cubic feet.

- Output of softwood roundwood products declined 4 percent to 512 million cubic feet, while output of hardwood roundwood products dropped 6 percent to 246 million cubic feet (fig. 2).
- Figures 3 and 4 display softwood and hardwood county-level intensity of roundwood production for all industrial products across North Carolina. The data are depicted in cubic feet produced per acre of census land area. Counties with the highest production intensity are depicted in the darker shades. For softwoods the darkest shade represents more than 30 cubic feet of production per acre, while for hardwoods the darkest shade represents more than 15 cubic feet per acre.

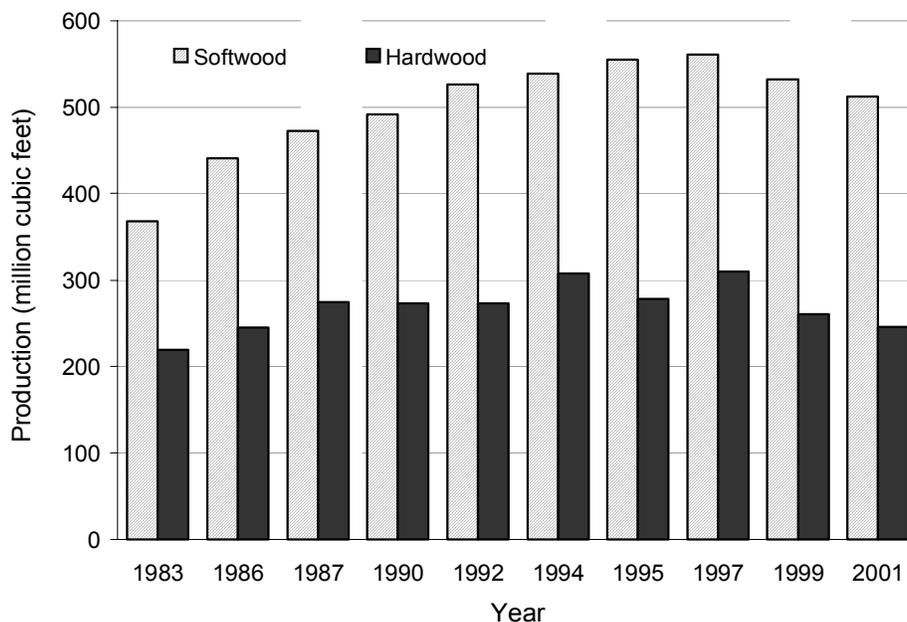


Figure 2—Roundwood production for all products by species group and year (see page 11 for references for individual years).

- Saw logs and pulpwood were the principal roundwood products in 2001. Combined output of these products totaled 668 million cubic feet and accounted for 88 percent of the State's total roundwood output (fig. 5).
- Total receipts at North Carolina mills, which included roundwood harvested and retained in the State as well as roundwood imported from other States, was down 47.5 million cubic feet to 722 million cubic feet. At the same time, the number of primary roundwood-using plants in North Carolina was down from 278 in 1999 to 249 in 2001.

### Saw Logs

- Saw logs accounted for 56 percent of the State's total roundwood products. Output of softwood saw logs was up 4 percent to 309 million cubic feet (1.71 billion board feet, International 1/4-inch rule), while output of hardwood saw logs declined 7 percent to 117 million cubic feet (704 million board feet, International 1/4-inch rule) (fig. 6).

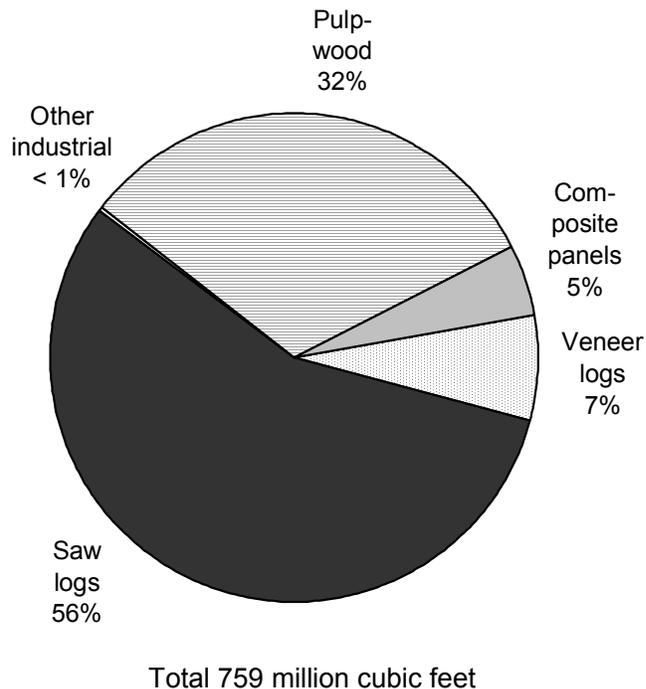


Figure 5—Roundwood production by type of product, 2001.

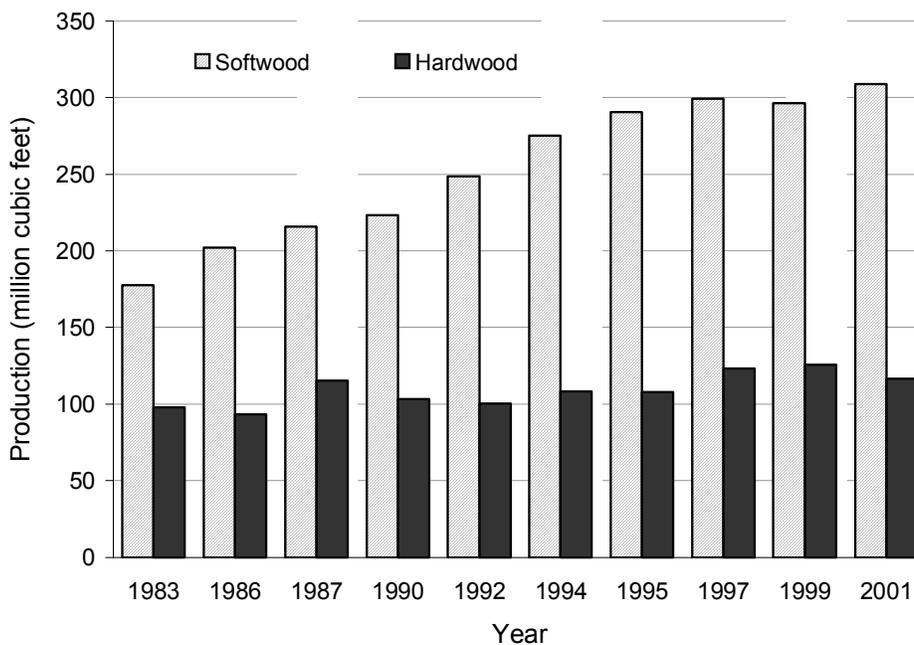


Figure 6—Roundwood pulpwood production by species group and year (see page 11 for references for individual years).

- In 2001, North Carolina had 215 sawmills, a net loss of 25 mills since 1999. Total saw-log receipts were up 5 million cubic feet to 430 million cubic feet. Softwood saw-log receipts were up 6 percent to 307 million cubic feet, while hardwood receipts declined 9 percent to 123 million cubic feet. Of the mills operating in 2001, 28 percent had receipts less than 1 million board feet, while 26 percent had receipts greater than 10 million board feet. Those 56 mills accounted for 83 percent of saw-log receipts.
- North Carolina retained 92 percent of its saw-log production for domestic manufacture, and saw-log imports exceeded exports by 4 million cubic feet in 2001.

### Pulpwood

- Pulpwood production, including chipped roundwood, declined 29 million cubic feet to 243 million cubic feet (3.3 million cords) and accounted for 32 percent of the State's total roundwood TPO. Softwood output was down 14 percent to 142 million cubic feet, while hardwood output declined 5 percent to 101 million cubic feet (fig. 7).

- Seven pulpmill facilities were operating and receiving roundwood in North Carolina in 2001, the same as in 1999. Total pulpwood receipts for these mills were down 53 million cubic feet to 191 million cubic feet, accounting for 27 percent of total receipts for all mills.
- Sixty-four percent of roundwood cut for pulpwood was retained for processing by North Carolina pulpmills. Roundwood pulpwood accounted for 66 percent of total known exports and 38 percent of total imports. Roundwood pulpwood exports amounted to 89 million cubic feet, while imports totaled 37 million cubic feet.

### Veneer Logs

- Output of veneer logs in 2001 totaled 53 million cubic feet and accounted for 7 percent of the State's total roundwood TPO volume. Softwood veneer production was down 18 percent to 34 million cubic feet (196 million board feet, International ¼-inch rule), while output of hardwood veneer logs remained unchanged at 19 million cubic feet (122 million board feet, International ¼-inch rule) (fig. 8).

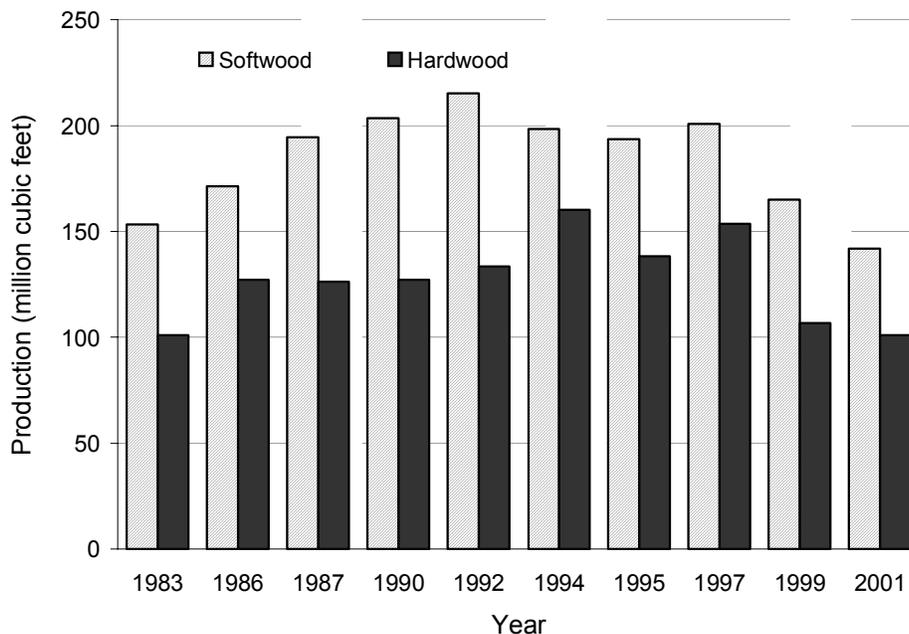


Figure 7—Roundwood saw-log production by species group and year (see page 11 for references for individual years).

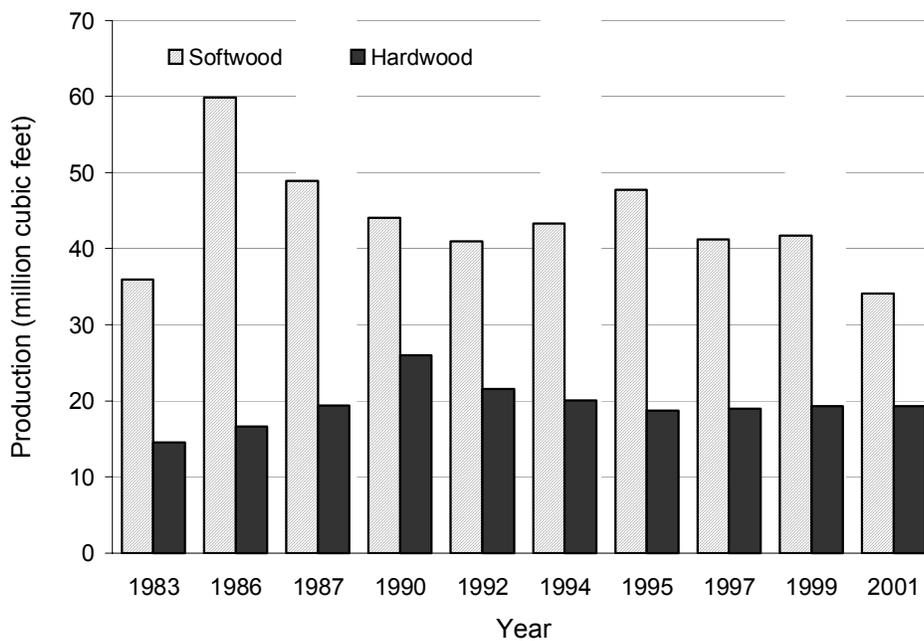


Figure 8—Roundwood veneer-log production by species group and year (see page 11 for references for individual years).

- The number of veneer mills operating in North Carolina declined from 24 in 1999 to 20 in 2001. Receipts of veneer logs declined 8 percent to 57 million cubic feet. Softwood veneer receipts were down 6.6 million cubic feet to 32 million cubic feet. Hardwood veneer receipts increased 8 percent to 25 million cubic feet.
- North Carolina retained 89 percent of its veneer-log production for processing at domestic veneer mills. Imports amounted to 9.0 million cubic feet, while exports totaled 5.6 million cubic feet, making the State a net importer of roundwood veneer logs.

### Composite Panels

- Roundwood harvested from North Carolina's forests for composite panels declined 1 percent and totaled 36 million cubic feet (487 thousand cords). Softwood output declined 3 percent to 27 million cubic feet, while hardwood output was up 4 percent to 9 million cubic feet (fig. 9).
- Three composite panel mills were operating in North Carolina in 2001, the same as in 1999. Total receipts for these mills increased 15 percent to 43 million cubic feet.

- Eighty-eight percent of the composite panel production was retained for processing by North Carolina mills. Imports amounted to 11.1 million cubic feet, while exports totaled 4.2 million cubic feet, making the State a net importer of roundwood used for composite panels.

### Other Industrial Products

- Roundwood harvested for other industrial uses, e.g., poles, posts, mulch, firewood, logs for log homes, and all other industrial products, totaled 1.0 million cubic feet, down 42 percent from 1999. Softwood made up 98 percent of the other industrial products volume.
- The number of plants producing other industrial products was four in 2001, the same as in 1999. Receipts of other industrial products totaled 893 thousand cubic feet.
- North Carolina was a net exporter of roundwood used for other industrial products; of the 180 thousand cubic feet exported, 88 percent was softwood whereas 100 percent of imports were softwood.

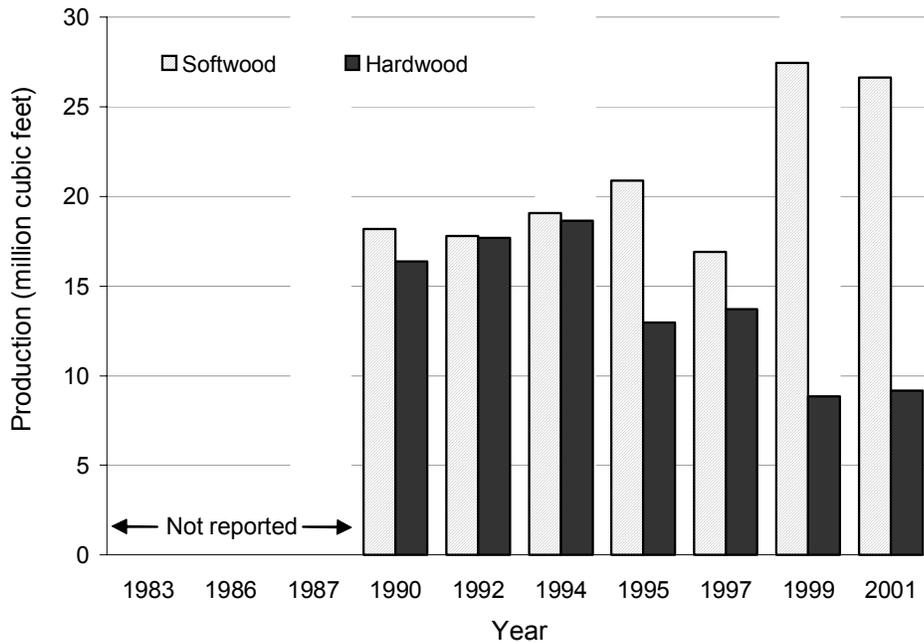


Figure 9—Roundwood production for composite panels by species group and year (see page 11 for references for individual years).

## Plant Byproducts

- In 2001, processing of primary products in North Carolina mills generated 313 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 131 million cubic feet, while bark volume totaled 67 million cubic feet. Sawdust and shavings made up 37 percent of total residues, or 117 million cubic feet (fig. 10).
- Less than 1 percent of the wood and bark residues were not used for a product, while 36 percent of the residues were used for industrial fuel (fig. 11). More than 117 million cubic feet, or 90 percent, of the coarse residues were used to manufacture fiber products. Most of the bark was used for industrial fuel or other miscellaneous products, while 79 percent of the sawdust and 2 percent of the shavings were used for industrial fuel. Shavings were used primarily for particleboard manufacture or miscellaneous uses such as bedding.
- The processing of saw logs by sawmills generated 258 million cubic feet of mill residues, or 82 percent of the total residues produced (fig. 12).

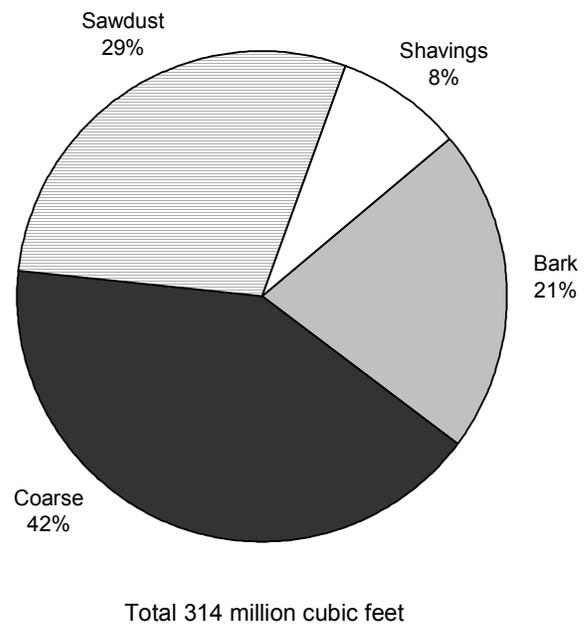


Figure 10—Primary mill residue by residue type, 2001.

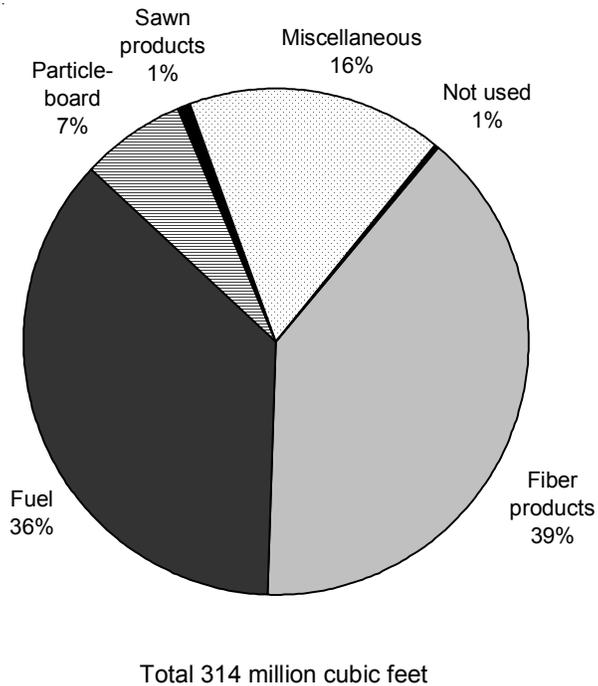


Figure 11—Disposal of residue by product, 2001.

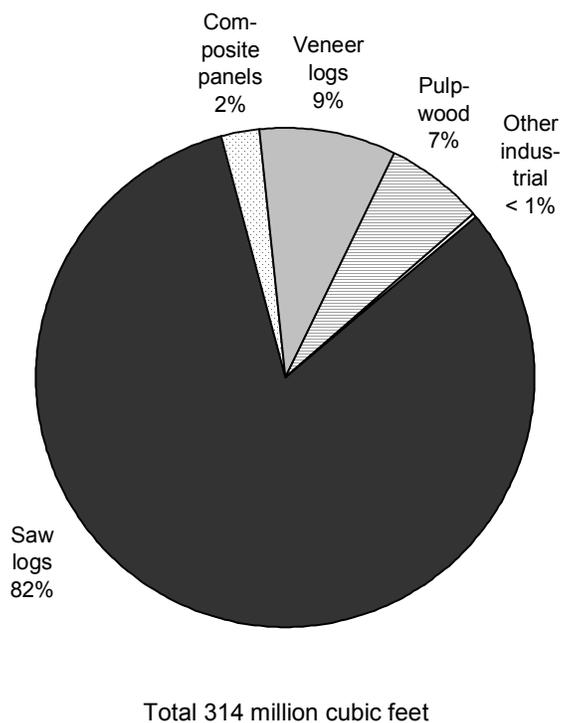


Figure 12—Primary mill residue produced by roundwood type, 2001.

## Regional Trends

- Output of industrial roundwood products declined in all regions, with the exception of the Northern Coastal Plain region of North Carolina. This region showed a 6-percent increase in product output. The Southern Coastal Plain and Piedmont regions had declines of 12 and 7 percent, respectively. The Mountain region had the smallest decline at less than 1 percent (fig. 13).

### Southern Coastal Plain Region

- Roundwood output from the Southern Coastal Plain region totaled 228 million cubic feet, down 12 percent. Softwood output declined 9 percent to 179 million cubic feet, while hardwood output was down 19 percent to 49 million cubic feet.
- Saw-log production of 107 million cubic feet accounted for 47 percent of the total roundwood output for the region. Pulpwood production of 83 million cubic feet accounted for 37 percent of the region's TPO and 34 percent of the State's roundwood pulpwood output.

- In the Southern Coastal Plain region, 35 primary wood-using plants were operating during 2001: 28 sawmills, 5 veneer or plywood mills, 1 pulpmill, and 1 composite panel mill. These mills processed 30 percent of the State's total roundwood output.

### Northern Coastal Plain Region

- The Northern Coastal Plain region had a 6-percent increase in roundwood output. Production was up from 219 million cubic feet in 1999 to 232 million cubic feet in 2001.
- Saw-log production of 129 million cubic feet accounted for 55 percent of the region's total roundwood output and 30 percent of the State's total saw-log output. Production of pulpwood was up 2 percent to 90 million cubic feet, but still accounted for 39 percent of the region's total roundwood output and 37 percent of the State's total roundwood pulpwood output.

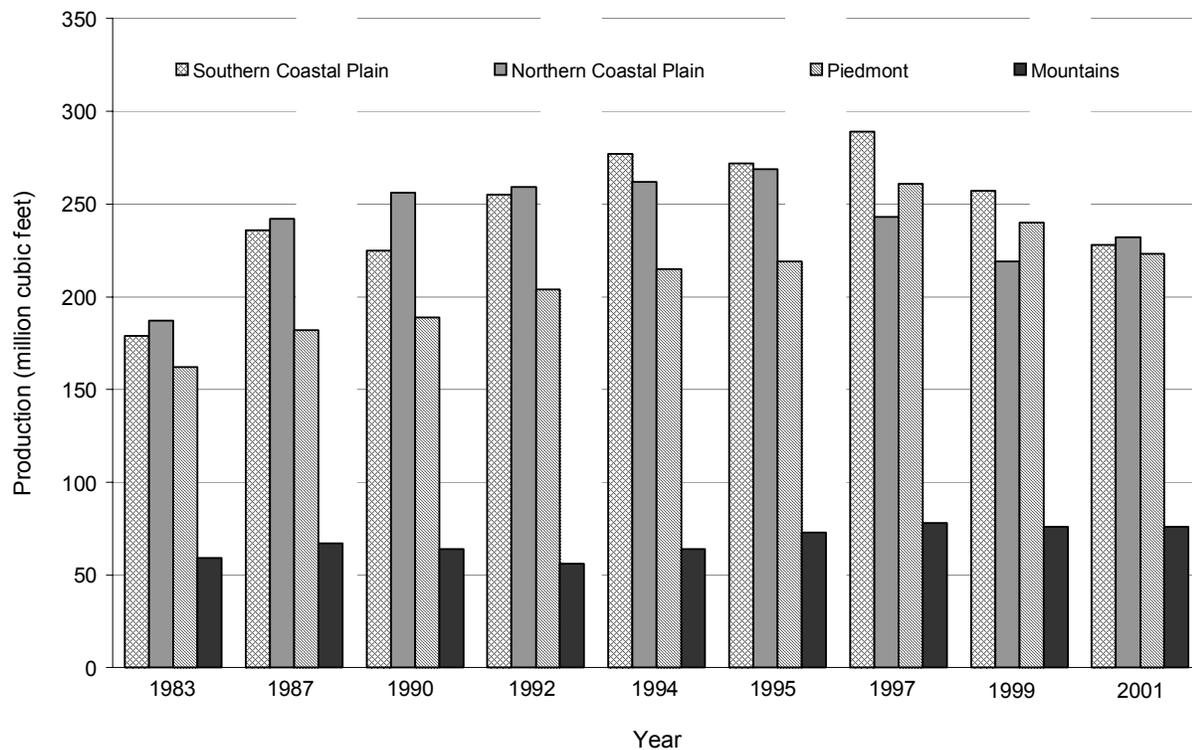


Figure 13—Roundwood production for all products by survey region and year (see page 11 for references for individual years).

- The 37 mills operating in the Northern Coastal Plain region in 2001 included 30 sawmills, 3 veneer or plywood mills, and 4 pulpmills. These mills processed 31 percent of the State’s total roundwood output.

#### Piedmont Region

- Roundwood output from the Piedmont region of North Carolina totaled 223 million cubic feet, a decline of 7 percent. Roundwood production from this region accounted for 29 percent of the total roundwood TPO for the State.
- Saw-log production of 139 million cubic feet accounted for 62 percent of the region’s total roundwood output. Pulpwood production declined by 20 percent to 50 million cubic feet, accounting for 22 percent of the region’s total TPO.

- The 105 primary wood-using plants operating in the Piedmont region included 91 sawmills, 8 veneer or plywood mills, 2 composite panel mills, and 4 other miscellaneous mills.

#### Mountain Region

- Roundwood output from the Mountain region remained relatively stable at 76 million cubic feet.
- Saw-log production declined 3 percent to 50 million cubic feet and accounted for 66 percent of the region’s total roundwood output. Pulpwood production was up 1 million cubic feet to 20 million cubic feet and accounted for 26 percent of the region’s total TPO.
- In the Mountain region, 72 primary wood-using plants were operating during 2001: 66 sawmills, 4 veneer or plywood mills, and 2 pulpmills.

## Total Roundwood Output

Using the most recent inventory data for North Carolina, product output by source, ownership, and detailed species group was estimated.

### Source

- In addition to the 758 million cubic feet of industrial roundwood output, an estimated 90 million cubic feet was harvested for domestic fuelwood, bringing North Carolina's total roundwood output to 848 million cubic feet.
- Ninety-seven percent of total roundwood output was considered growing-stock volume (sawtimber and poletimber) from timberland sources. Other sources (such as saplings; stumps, tops, and limbs of trees on timberland; and trees on nonforest land) contributed an estimated 28 million cubic feet, or 3 percent of total roundwood output (fig. 14).

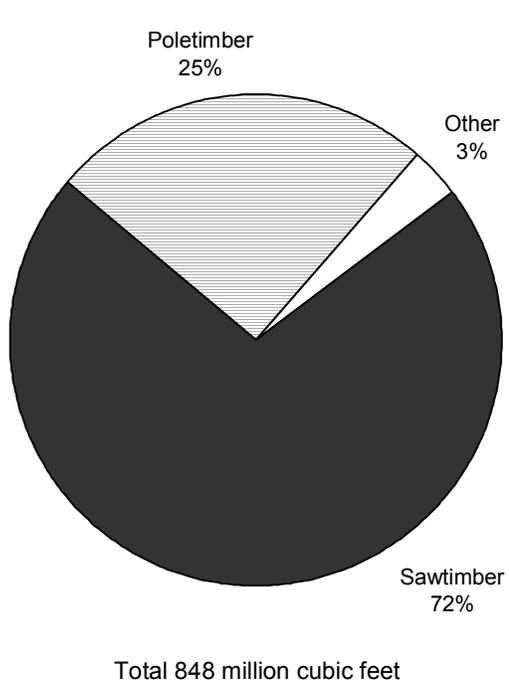


Figure 14—Roundwood output by source, 2001.

### Ownership

- An estimated 685 million cubic feet, or 81 percent, of the total roundwood output came from nonindustrial private forest lands. Forest industry lands contributed 136 million cubic feet, or 16 percent of the output. Public lands made up the remaining 3 percent, or 27 million cubic feet (fig. 15).

### Species

- The loblolly and shortleaf pine group provided the most volume of any softwood species group; at 411 million cubic feet, it accounted for 79 percent of the total softwood output (fig. 16). Other yellow pine types accounted for another 11 percent of softwood output. The red oak and white oak groups combined accounted for 115 million cubic feet, or 35 percent of total hard wood output (fig. 17).

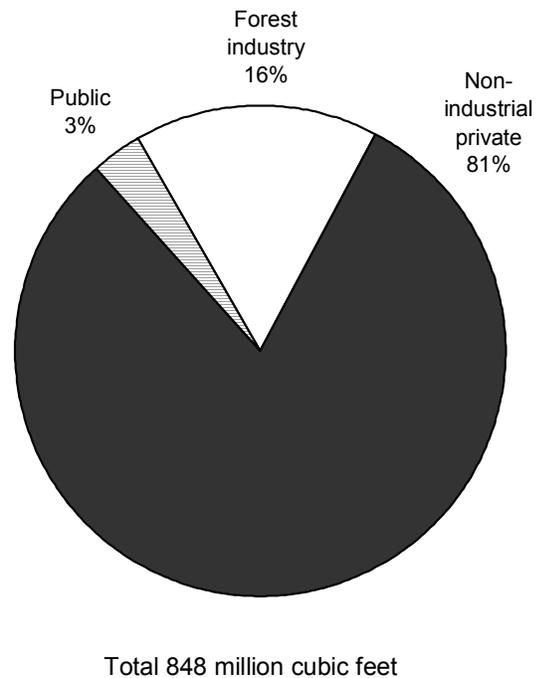


Figure 15—Roundwood output by ownership, 2001.

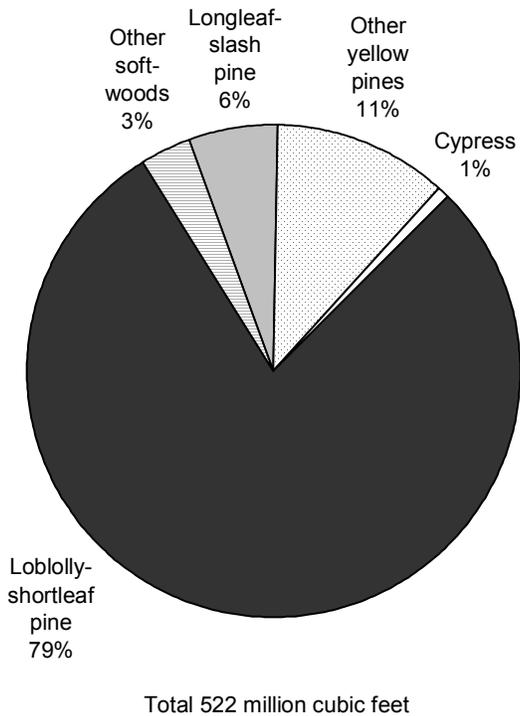


Figure 16—Roundwood output by softwood species group, 2001.

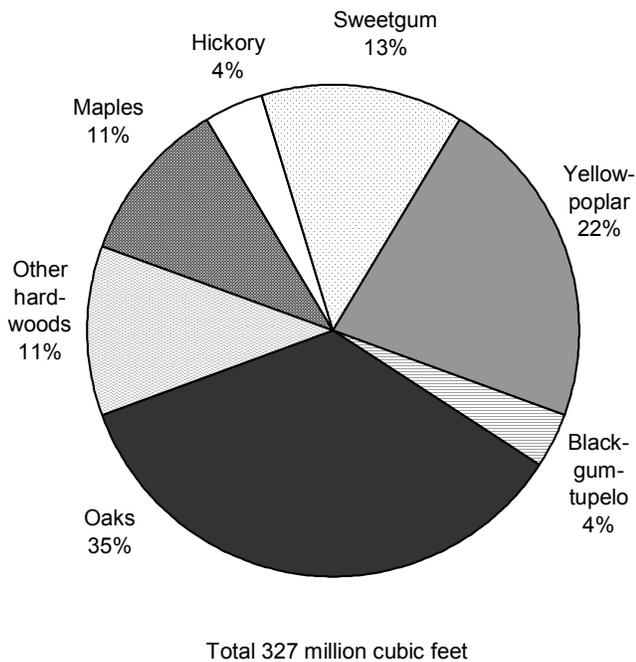


Figure 17—Roundwood output by hardwood species group, 2001.

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## Definition of Terms

**Board foot.** A unit of measure applied to lumber that is 1-foot long, 1-foot wide, and 1-inch thick (or its equivalent) and also associated with roundwood as to its potential yield of such products.

**Byproducts.** Primary wood products, e.g., pulp chips, animal bedding, and fuelwood, recycled from mill residues.

**Composite panels.** Roundwood products manufactured into chips, wafers, strands, flakes, shavings, or sawdust and then reconstituted into a variety of panel and engineered lumber products.

**Consumption.** The quantity of a commodity, such as pulpwood, utilized by a particular mill or group of mills.

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

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

**Fiber products.** Byproducts used in the manufacture of pulp, paper, paperboard, and composite products, such as chipboard.

**Fuelwood production.** The volume of roundwood harvested to produce some form of energy, e.g., heat, steam, in residential, industrial, or institutional settings.

**Growing-stock removals.** The growing-stock volume removed from poletimber and sawtimber trees in the timber-land inventory. (Note: Includes volume removed for round-wood products, logging residues, and other removals.)

**Growing-stock trees.** Living trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings. Growing-stock trees must contain at least one 12-foot or two 8-foot logs in the saw-log portion, currently or potentially (if too small to qualify). The log(s) must meet dimension and merchantability standards and have, currently or potentially, one-third of the gross board-foot volume in sound wood.

**Growing-stock volume.** The cubic-foot volume of sound wood in growing-stock trees at least 5.0 inches d.b.h. from a 1-foot stump to a minimum 4.0-inch top d.o.b. of the central stem.

**Hardwoods.** Dicotyledonous trees, usually broadleaf and deciduous.

*Soft hardwoods.* Hardwood species with an average specific gravity of 0.50 or less, such as gums, yellow-poplar, cottonwoods, red maple, basswoods, and willows.

*Hard hardwoods.* Hardwood species with an average specific gravity greater than 0.50, such as oaks, hard maples, hickories, and beech.

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

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

**Industrial roundwood products.** Any primary use of the main stem of a tree, such as saw logs, pulpwood, veneer logs, intended to be processed into primary wood products such as lumber, wood pulp, sheathing, at primary wood-using mills.

**International ¼-inch rule.** A log rule or formula for estimating the board-foot volume of logs, allowing ½-inch of taper for each 4-foot length. The rule appears in a number of forms that allow for kerf. In the form used by FIA, a ¼-inch of kerf is assumed. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

**Log.** A primary forest product harvested in long, primarily 8-, 12-, and 16-foot lengths.

**Logging residues.** The unused merchantable portion of growing-stock trees cut or destroyed during logging operations.

**Merchantable portion.** That portion of live trees 5.0 inches d.b.h. and larger between a 1-foot stump and a minimum 4.0-inch top d.o.b. on the central stem. That portion of primary forks from the point of occurrence to a minimum 4.0-inch top d.o.b. is included.

**Merchantable volume.** Solid-wood volume in the merchantable portion of live trees.

**Noncommercial species.** Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

**Nonforest land.** Land that has never supported forests and land formerly forested where timber production is precluded by development for other uses.

**Nongrowing-stock sources.** The net volume removed from the nongrowing-stock portions of poletimber and sawtimber trees (stumps, tops, limbs, cull sections of central stem) and from any portion of a rough, rotten, sapling, dead, or nonforest tree.

**Other forest land.** Forest land other than timberland and productive reserved forest land. It includes available and reserved forest land that is incapable of producing annually 20 cubic feet per acre of industrial wood under natural conditions because of adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness.

**Other products.** A miscellaneous category of roundwood products, e.g., cooperage, excelsior, shingles, and mill residue byproducts (charcoal, bedding, mulch, etc.).

**Other removals.** The growing-stock volume of trees removed from the inventory by cultural operations such as timber stand improvement, land clearing, and other changes in land use, resulting in the removal of the trees from timberland.

**Other sources.** (See: Nongrowing-stock sources.)

**Ownership.** The property owned by one ownership unit, including all parcels of land in the United States.

*National forest land.* Federal land that has been legally designated as national forests or purchase units, and other land under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III land.

*Forest industry land.* Land owned by companies or individuals operating primary wood-using plants.

*Nonindustrial private forest (NIPF) land.* Privately owned land excluding forest industry land.

*Corporate.* Owned by corporations, including incorporated farm ownerships.

*Individual.* All lands owned by individuals, including farm operators.

*Other public.* An ownership class that includes all public lands except national forests.

*Miscellaneous Federal land.* Federal land other than national forests.

*State, county, and municipal land.* Land owned by States, counties, and local public agencies or municipalities, or land leased to these governmental units for 50 years or more.

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

*Coarse residues.* Material, such as slabs, edgings, trim, veneer cores and ends, which is suitable for chipping.

*Fine residues.* Material, such as sawdust, shavings, and veneer residue, which is not suitable for chipping.

*Plant byproducts.* Residues (coarse or fine) used in the further manufacture of industrial products for consumer use or as fuel.

*Unused plant residues.* Residues (coarse or fine) that are not used for any product, including fuel.

**Posts, poles, and pilings.** Roundwood products milled (cut or peeled) into standard sizes (lengths and circumferences) to be put in the ground to provide vertical and lateral support in buildings, foundations, utility lines, and fences. May also include nonindustrial (unmilled) products.

**Poletimber-size trees.** Softwoods 5.0 to 8.9 inches d.b.h. and hardwoods 5.0 to 10.9 inches d.b.h.

**Primary wood-using plants.** Industries that convert roundwood products (saw logs, veneer logs, pulpwood, etc.) into primary wood products, such as lumber, veneer or sheathing, wood pulp.

**Production.** The total volume of known roundwood harvested from land within a State, regardless of where it is

consumed. Production is the sum of timber harvested and used within a State, and all roundwood exported to other 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 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 States.

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

**Rotten trees.** Live trees of commercial species not containing at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross board-foot tree volume in sound material.

**Rough trees.** Live trees of commercial species not containing at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross board-foot tree volume in sound material; and live trees of noncommercial species.

**Roundwood (roundwood logs).** Logs, bolts, or other round sections cut from trees for industrial manufacture or consumer uses.

**Roundwood chipped.** Any timber cut primarily for industrial manufacture, delivered to nonpulp mills, chipped, and then sold to pulpmills for use as fiber. Includes tops, jump sections, whole trees, and pulpwood sticks.

**Roundwood products.** Any primary product, such as lumber, veneer, composite panels, poles, pilings, pulp, or fuelwood that is produced from roundwood.

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

**Salvable dead trees.** Standing or downed dead trees that were formerly growing stock and considered merchantable. Trees must be at least 5.0 inches d.b.h. to qualify.

**Saplings.** Live trees 1.0 to 5.0 inches d.b.h.

**Saw log.** A roundwood product, usually 8 feet in length or longer, processed into a variety of sawn products such as lumber, cants, pallets, railroad ties, and timbers.

**Saw-log portion.** The part of the bole of sawtimber trees between a 1-foot stump and the saw-log top.

**Saw-log top.** The point on the bole of sawtimber trees above which a conventional saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods for FIA standards.

**Sawtimber-size trees.** Softwoods 9.0 inches d.b.h. and larger and hardwoods 11.0 inches d.b.h. and larger.

**Sawtimber volume.** Growing-stock volume in the saw-log portion of sawtimber-sized trees in board feet (International 1/4-inch rule).

**Seedlings.** Trees less than 1.0 inch d.b.h. and greater than 1 foot tall for hardwoods, greater than 6 inches tall for softwood, and greater than 0.5 inch in diameter at ground level for longleaf pine.

**Select red oaks.** A group of several red oak species composed of cherrybark, Shumard, and northern red oaks. Other red oak species are included in the "other red oaks" group.

**Select white oaks.** A group of several white oak species composed of white, swamp chestnut, swamp white, chinkapin, Durand, and bur oaks. Other white oak species are included in the "other white oaks" group.

**Softwoods.** Coniferous trees, usually evergreen, having leaves that are needles or scalelike.

**Standard cord.** A unit of measure applied to roundwood, usually bolts or split wood. It is a stack of wood 4 feet high, 4 feet wide, and 8 feet long encompassing 128 cubic feet of wood, bark, and air space. This usually translates to approximately 75.0 to 81.0 cubic feet of solid wood for pulpwood, because pulpwood is more uniform.

**Standard unit.** A unit measure applied to roundwood timber products. Board feet (International ¼-inch rule) is the standard unit used for saw logs and veneer; cords are used for pulpwood, composite panel, and fuelwood; hundred pieces for poles; thousand pieces for posts; and thousand cubic feet for all other miscellaneous forest products.

**Timberland.** Forest land capable of producing 20 cubic feet of industrial wood per acre per year and not withdrawn from timber utilization.

**Timber products.** Roundwood products and byproducts.

**Timber products output.** The total volume of roundwood products from all sources plus the volume of byproducts recovered from mill residues (equals roundwood product drain).

**Timber removals.** The total volume of trees removed from the timberland inventory by harvesting, cultural operations such as stand improvement, land clearing, or changes in land use. (Note: Includes roundwood products, logging residues, and other removals.)

**Tree.** Woody plants having one erect perennial stem or trunk at least 3 inches d.b.h., a more or less definitely formed crown of foliage, and a height of at least 13 feet (at maturity).

**Upper-stem portion.** The part of the main stem of sawtimber trees above the saw-log top and the minimum top diameter of 4.0 inches outside bark, or to the point where the main stem breaks into limbs.

**Utilization studies.** Studies conducted on active logging operations to develop factors for merchantable portions of trees left in the woods (logging residues), logging damage, and utilization of the unmerchantable portion of growing-stock trees and nongrowing-stock trees.

**Veneer log.** A roundwood product either rotary cut, sliced, stamped, or sawn into a variety of veneer products such as plywood, finished panels, veneer sheets, or sheathing.

**Weight.** A unit of measure for mill residues, expressed as oven-dry tons (2,000 oven-dry pounds).

### **Conversion Factors<sup>a</sup>**

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#### **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<sup>b</sup>**

Softwood	72.5 cubic feet per cord
Hardwood	76.6 cubic feet per cord

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<sup>a</sup> 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 most recent survey period.

<sup>b</sup> Cubic feet of solid wood per cord.

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**Table 1—Output of industrial products by product and species group,  
North Carolina, 1999 and 2001**

Product and species group	Year		Change	Percent change
	1999	2001		
<i>thousand cubic feet</i>				
<b>Saw logs</b>				
Softwood	296,290	308,668	12,378	4.2
Hardwood	125,778	116,581	-9,197	-7.3
Total	422,068	425,249	3,181	0.8
<b>Veneer logs</b>				
Softwood	41,748	34,117	-7,631	-18.3
Hardwood	19,310	19,302	-8	--
Total	61,058	53,419	-7,639	-12.5
<b>Pulpwood<sup>a</sup></b>				
Softwood	164,991	141,903	-23,088	-14.0
Hardwood	106,854	101,098	-5,756	-5.4
Total	271,845	243,001	-28,844	-10.6
<b>Composite panels</b>				
Softwood	27,450	26,610	-840	-3.1
Hardwood	8,860	9,184	324	3.7
Total	36,310	35,794	-516	-1.4
<b>Other industrial</b>				
Softwood	1,778	1,015	-763	-42.9
Hardwood	0	22	22	--
Total	1,778	1,037	-741	-41.7
<b>All industrial</b>				
Softwood	532,257	512,313	-19,944	-3.7
Hardwood	260,802	246,187	-14,615	-5.6
Total	793,059	758,500	-34,559	-4.4
<b>Byproduct output</b>				
Softwood	207,323	215,722	8,399	4.1
Hardwood	103,597	97,757	-5,840	-5.6
Total	310,920	313,479	2,559	0.8
<b>Total output</b>				
Softwood	739,580	728,035	-11,545	-1.6
Hardwood	364,399	343,944	-20,455	-5.6
Total	1,103,979	1,071,979	-32,000	-2.9

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (7,369,000 cubic feet in 1999 and 7,746,000 cubic feet in 2001).

**Table 2—Roundwood receipts by product and species group, North Carolina, 1999 and 2001**

Product and species group	Year		Change	Percent change
	1999	2001		
<i>thousand cubic feet</i>				
<b>Saw logs</b>				
Softwood	289,528	306,583	17,055	5.9
Hardwood	135,271	123,161	-12,110	-9.0
Total	424,799	429,744	4,945	1.2
<b>Veneer logs</b>				
Softwood	38,652	32,079	-6,573	-17.0
Hardwood	22,973	24,688	1,715	7.5
Total	61,625	56,767	-4,858	-7.9
<b>Pulpwood<sup>a</sup></b>				
Softwood	144,808	122,656	-22,152	-15.3
Hardwood	99,480	68,824	-30,656	-30.8
Total	244,288	191,480	-52,808	-21.6
<b>Composite panels</b>				
Softwood	26,136	30,387	4,251	16.3
Hardwood	10,888	12,335	1,447	13.3
Total	37,024	42,722	5,698	15.4
<b>Other industrial</b>				
Softwood	1,411	893	-518	-36.7
Hardwood	0	0	0	--
Total	1,411	893	-518	-36.7
<b>Total output</b>				
Softwood	500,535	492,598	-7,937	-1.6
Hardwood	268,612	229,008	-39,604	-14.7
Total	769,147	721,606	-47,541	-6.2

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (8,419,000 cubic feet in 1999 and 9,132,000 cubic feet in 2001).

**Table 3—Number of primary wood-using plants by industry, North Carolina, 1983-2001**

Industry	Year									
	1983	1986	1987	1990	1992	1994	1995	1997	1999	2001
Sawmills	429	336	362	308	306	275	273	243	240	215
Veneer mills	33	32	31	32	29	27	27	23	24	20
Pulpmills	8	8	8	8	8	8	8	7	7	7
Composite panel mills	0	4	4	5	4	4	4	3	3	3
Other mills	14	15	17	13	10	8	8	4	4	4
All plants	484	395	422	366	357	322	320	280	278	249

**Table 4—Roundwood receipts by sawmill size, North Carolina, 1999 and 2001**

Sawmill size class <sup>a</sup>	1999			2001		
	Number of mills	Thousand board feet	Percent of volume	Number of mills	Thousand board feet	Percent of volume
<i>million board feet</i>						
<1.0	67	23,031	1	60	19,496	1
1.0–4.99	74	199,407	8	65	159,215	6
5.0–9.99	35	228,410	9	34	233,464	10
10.0–49.99	54	1,112,407	46	44	854,144	35
> 50	10	860,111	36	12	1,179,243	48
Total	240	2,423,366	100	215	2,445,562	100

<sup>a</sup> Based on volume received as opposed to actual capacity.

**Table 5—Roundwood receipts by species and type of mill, North Carolina, 2001**

Species	Type of mill						
	All mills	Sawmills	Veneer mills		OSB <sup>a</sup> and panels	Pulpmills <sup>b</sup>	Other mills
			Pine plywood	Other veneer			
<i>thousand cubic feet</i>							
<b>Softwood</b>							
Yellow pine	349,464	286,913	31,797	278	29,583	NA	893
Eastern white pine	17,998	17,190	0	4	804	NA	0
Cedar	27	27	0	0	0	NA	0
Cypress	2,081	2,081	0	0	0	NA	0
Other softwood	372	372	0	0	0	NA	0
Unclassified	122,656	0	0	0	0	122,656	0
Total softwoods	492,598	306,583	31,797	282	30,387	122,656	893
<b>Hardwood</b>							
Blackgum and tupelo	6,151	3,957	855	318	1,021	NA	0
Soft maple	7,246	6,250	71	0	925	NA	0
Sweetgum	22,307	10,224	7,952	1,805	2,326	NA	0
Yellow-poplar	59,704	40,302	6,447	6,005	6,950	NA	0
Other soft hardwood	2,409	1,291	144	30	944	NA	0
Hickory	3,608	3,589	0	19	0	NA	0
Red oak	29,252	28,719	73	291	169	NA	0
White oak	21,960	21,708	0	252	0	NA	0
Other hard hardwood	7,547	7,121	0	426	0	NA	0
Unclassified	68,824	0	0	0	0	68,824	0
Total hardwoods	229,008	123,161	15,542	9,146	12,335	68,824	0
<b>All species</b>	721,606	429,744	47,339	9,428	42,722	191,480	893

NA = not applicable.

<sup>a</sup> OSB = oriented strand board.

<sup>b</sup> Collected only by softwood and hardwood and includes roundwood chipped.

**Table 6—Industrial roundwood movement by year and species group, North Carolina, 1999 and 2001**

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
<b>Softwood</b>					
1999	532,257	86,107	446,150	54,385	500,535
2001	512,313	81,718	430,595	62,003	492,598
<b>Hardwood</b>					
1999	260,802	30,156	230,646	37,966	268,612
2001	246,187	51,514	194,673	34,335	229,008
<b>All species</b>					
1999	793,059	116,263	676,796	92,351	769,147
2001	758,500	133,232	625,268	96,338	721,606

**Table 7—Industrial roundwood movement by product and species group, North Carolina, 2001**

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
<b>Saw logs</b>					
Softwood	308,668	28,035	280,633	25,950	306,583
Hardwood	116,581	6,715	109,866	13,295	123,161
Total	425,249	34,750	390,499	39,245	429,744
<b>Veneer logs</b>					
Softwood	34,117	5,238	28,879	3,200	32,079
Hardwood	19,302	382	18,920	5,768	24,688
Total	53,419	5,620	47,799	8,968	56,767
<b>Pulpwood<sup>a</sup></b>					
Softwood	141,903	44,447	97,456	25,200	122,656
Hardwood	101,098	44,068	57,030	11,794	68,824
Total	243,001	88,515	154,486	36,994	191,480
<b>Composite panels</b>					
Softwood	26,610	3,840	22,770	7,617	30,387
Hardwood	9,184	327	8,857	3,478	12,335
Total	35,794	4,167	31,627	11,095	42,722
<b>Other industrial</b>					
Softwood	1,015	158	857	36	893
Hardwood	22	22	0	0	0
Total	1,037	180	857	36	893
<b>All products</b>					
Softwood	512,313	81,718	430,595	62,003	492,598
Hardwood	246,187	51,514	194,673	34,335	229,008
Total	758,500	133,232	625,268	96,338	721,606

<sup>a</sup> Includes roundwood chipped.

**Table 8—Saw-log volume by destination, source, and species group,  
North Carolina, 2001**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
<b>North Carolina (retained)</b>	390,499	280,633	109,866
<b>Exports to:</b>			
Florida	132	102	30
Georgia	269	259	10
South Carolina	10,921	10,341	580
Tennessee	1,965	978	987
Virginia	21,463	16,355	5,108
Total	34,750	28,035	6,715
<b>Imports from:</b>			
Florida	37	37	0
Georgia	1,637	125	1,512
South Carolina	12,382	6,222	6,160
Tennessee	2,073	1,096	977
Virginia	23,116	18,470	4,646
Total	39,245	25,950	13,295

**Table 9—Veneer volume by destination, source, and species group,  
North Carolina, 2001**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
<b>North Carolina (retained)</b>	47,799	28,879	18,920
<b>Exports to:</b>			
Georgia	642	554	88
South Carolina	1,166	883	283
Virginia	3,812	3,801	11
Total	5,620	5,238	382
<b>Imports from:</b>			
Georgia	101	0	101
Indiana	88	0	88
Kentucky	257	0	257
Maryland	30	0	30
Michigan	24	0	24
New York	24	0	24
Ohio	125	0	125
Pennsylvania	282	0	282
South Carolina	3,882	3,200	682
Tennessee	174	0	174
Virginia	3,602	0	3,602
West Virginia	379	0	379
Total	8,968	3,200	5,768

**Table 10—Pulpwood volume by destination, source, and species group,  
North Carolina, 2001<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
<b>North Carolina (retained)</b>	154,486	97,456	57,030
<b>Exports to:</b>			
Georgia	8	8	0
Kentucky	5,663	0	5,663
Louisiana	195	0	195
Mississippi	592	0	592
South Carolina	58,381	38,825	19,556
Tennessee	1,241	678	563
Virginia	22,435	4,936	17,499
Total	88,515	44,447	44,068
<b>Imports from:</b>			
Alabama	105	0	105
Georgia	436	0	436
South Carolina	21,308	17,227	4,081
Tennessee	5,414	0	5,414
Virginia	9,731	7,973	1,758
Total	36,994	25,200	11,794

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills.

**Table 11—Composite panel volume by destination, source, and species group, North Carolina, 2001**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
<b>North Carolina (retained)</b>	31,627	22,770	8,857
<b>Exports to:</b>			
South Carolina	300	300	0
Virginia	3,679	3,522	157
West Virginia	188	18	170
Total	4,167	3,840	327
<b>Imports from:</b>			
Virginia	11,095	7,617	3,478
Total	11,095	7,617	3,478

**Table 12—Other industrial volume by destination, source, and species group, North Carolina, 2001<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
<b>North Carolina (retained)</b>	857	857	0
<b>Exports to:</b>			
Florida	19	19	0
South Carolina	87	87	0
Virginia	74	52	22
Total	180	158	22
<b>Imports from:</b>			
Virginia	36	36	0
Total	36	36	0

<sup>a</sup> 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, 2001**

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
<i>thousand cubic feet</i>					
<b>Saw logs</b>					
Softwood	183,534	20,581	77,778	60,055	25,120
Hardwood	74,508	12,770	36,097	24,685	956
Total	258,042	33,351	113,875	84,740	26,076
<b>Veneer logs</b>					
Softwood	14,673	2,227	8,755	3,691	0
Hardwood	12,693	2,673	7,811	2,209	0
Total	27,366	4,900	16,566	5,900	0
<b>Pulpwood</b>					
Softwood	12,205	12,205	0	0	0
Hardwood	8,280	8,280	0	0	0
Total	20,485	20,485	0	0	0
<b>Composite panels</b>					
Softwood	5,057	5,057	0	0	0
Hardwood	2,771	2,771	0	0	0
Total	7,828	7,828	0	0	0
<b>Other industrial<sup>a</sup></b>					
Softwood	703	589	114	0	0
Hardwood	0	0	0	0	0
Total	703	589	114	0	0
<b>Total</b>					
Softwood	216,172	40,659	86,647	63,746	25,120
Hardwood	98,252	26,494	43,908	26,894	956
Total	314,424	67,153	130,555	90,640	26,076

<sup>a</sup> 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, 1999 and 2001**

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	1999	2001	1999	2001	1999	2001	1999	2001	1999	2001
<i>thousand cubic feet</i>										
<b>Fiber products</b>										
Softwood	82,193	87,769	0	0	81,806	81,654	169	3,737	218	2,378
Hardwood	38,862	36,054	57	194	38,517	35,619	235	241	53	0
Total	121,055	123,823	57	194	120,323	117,273	404	3,978	271	2,378
<b>Particleboard</b>										
Softwood	19,062	17,619	0	3	2,999	1,081	5,540	7,334	10,523	9,201
Hardwood	1,803	3,944	46	150	708	3,089	683	563	366	142
Total	20,865	21,563	46	153	3,707	4,170	6,223	7,897	10,889	9,343
<b>Charcoal/ chemical wood</b>										
Softwood	1,823	0	0	0	0	0	1,823	0	0	0
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	1,823	0	0	0	0	0	1,823	0	0	0
<b>Sawn products</b>										
Softwood	536	2,409	0	0	536	2,409	0	0	0	0
Hardwood	575	222	0	0	575	222	0	0	0	0
Total	1,111	2,631	0	0	1,111	2,631	0	0	0	0
<b>Fuel</b>										
Softwood	70,089	71,468	25,494	22,477	1,139	475	41,993	48,417	1,463	99
Hardwood	48,824	42,831	19,804	15,952	3,142	2,947	25,411	23,434	467	498
Total	118,913	114,299	45,298	38,429	4,281	3,422	67,404	71,851	1,930	597
<b>Miscellaneous</b>										
Softwood	33,620	36,457	16,354	18,070	473	881	6,135	4,064	10,658	13,442
Hardwood	13,533	14,706	11,071	10,084	130	1,816	2,038	2,490	294	316
Total	47,153	51,163	27,425	28,154	603	2,697	8,173	6,554	10,952	13,758
<b>Not used</b>										
Softwood	468	450	95	109	243	147	130	194	0	0
Hardwood	632	495	144	114	230	215	258	166	0	0
Total	1,100	945	239	223	473	362	388	360	0	0
<b>All products</b>										
Softwood	207,791	216,172	41,943	40,659	87,196	86,647	55,790	63,746	22,862	25,120
Hardwood	104,229	98,252	31,122	26,494	43,302	43,908	28,625	26,894	1,180	956
Total	312,020	314,424	73,065	67,153	130,498	130,555	84,415	90,640	24,042	26,076

**Table 15—Roundwood timber products output by product and species group, Southern Coastal Plain Region of North Carolina, 1999 and 2001**

Product and species group	Year		Change	Percent change
	1999	2001		
<i>thousand cubic feet</i>				
<b>Saw logs</b>				
Softwood	95,204	92,943	-2,261	-2.4
Hardwood	18,232	14,046	-4,186	-23.0
Total	113,436	106,989	-6,447	-5.7
<b>Veneer logs</b>				
Softwood	28,851	25,407	-3,444	-11.9
Hardwood	3,791	5,167	1,376	36.3
Total	32,642	30,574	-2,068	-6.3
<b>Pulpwood<sup>a</sup></b>				
Softwood	66,740	55,733	-11,007	-16.5
Hardwood	35,994	27,501	-8,493	-23.6
Total	102,734	83,234	-19,500	-19.0
<b>Composite panels</b>				
Softwood	5,226	4,458	-768	-14.7
Hardwood	2,352	2,014	-338	-14.4
Total	7,578	6,472	-1,106	-14.6
<b>Other industrial</b>				
Softwood	942	315	-627	-66.6
Hardwood	0	0	0	--
Total	942	315	-627	-66.6
<b>All industrial</b>				
Softwood	196,963	178,856	-18,107	-9.2
Hardwood	60,369	48,728	-11,641	-19.3
Total	257,332	227,584	-29,748	-11.6

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (1,448,000 cubic feet in 1999 and 1,576,000 cubic feet in 2001).

**Table 16—Roundwood timber products output by county, product, and species group, Southern Coastal Plain Region of North Carolina, 2001**

County	All products		Saw logs		Veneer logs		Pulpwood <sup>a</sup>		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	<i>thousand cubic feet</i>											
Bladen	13,480	4,813	6,370	1,987	1,449	174	5,661	2,652	0	0	0	0
Brunswick	17,629	1,317	7,867	149	869	112	8,780	1,005	113	51	0	0
Columbus	18,029	5,559	9,776	1,306	1,449	232	6,791	4,021	0	0	13	0
Cumberland	5,546	2,245	2,345	406	1,226	103	1,975	1,736	0	0	0	0
Duplin	6,310	2,687	2,680	511	1,730	779	1,279	1,116	621	281	0	0
Greene	2,775	354	1,233	0	865	104	508	174	169	76	0	0
Harnett	7,114	1,501	3,101	445	1,730	232	1,719	569	564	255	0	0
Hoke	3,323	1,134	1,763	324	869	50	637	760	0	0	54	0
Johnston	6,294	2,847	3,288	886	1,730	587	599	1,068	677	306	0	0
Jones	11,036	902	6,252	105	1,735	50	2,936	696	113	51	0	0
Lee	7,634	1,908	5,154	1,070	1,730	379	642	459	0	0	108	0
Lenoir	6,280	589	2,786	234	865	0	2,234	177	395	178	0	0
Moore	13,329	3,777	10,545	2,006	646	33	2,030	1,738	0	0	108	0
New Hanover	1,962	67	469	0	579	57	914	10	0	0	0	0
Onslow	12,866	1,021	5,655	269	865	253	6,177	423	169	76	0	0
Pender	10,375	2,874	4,486	849	1,159	330	4,730	1,695	0	0	0	0
Richmond	11,144	4,179	7,454	1,135	66	9	3,624	3,035	0	0	0	0
Robeson	6,606	5,357	3,481	1,011	1,159	210	1,934	4,136	0	0	32	0
Sampson	8,477	2,185	3,708	472	2,595	365	1,327	965	847	383	0	0
Scotland	4,712	1,153	2,754	315	1,226	67	732	771	0	0	0	0
Wayne	3,935	2,259	1,776	566	865	1,041	504	295	790	357	0	0
All counties	178,856	48,728	92,943	14,046	25,407	5,167	55,733	27,501	4,458	2,014	315	0

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (1,576,000 cubic feet in 2001).

**Table 17—Roundwood timber products output by product and species group, Northern Coastal Plain Region of North Carolina, 1999 and 2001**

Product and species group	Year		Change	Percent change
	1999	2001		
<i>thousand cubic feet</i>				
<b>Saw logs</b>				
Softwood	96,545	112,410	15,865	16.4
Hardwood	20,399	16,152	-4,247	-20.8
Total	116,944	128,562	11,618	9.9
<b>Veneer logs</b>				
Softwood	7,116	5,914	-1,202	-16.9
Hardwood	5,781	5,790	9	0.2
Total	12,897	11,704	-1,193	-9.3
<b>Pulpwood<sup>a</sup></b>				
Softwood	63,126	56,566	-6,560	-10.4
Hardwood	25,538	33,619	8,081	31.6
Total	88,664	90,185	1,521	1.7
<b>Composite panels</b>				
Softwood	350	958	608	173.7
Hardwood	158	432	274	173.4
Total	508	1,390	882	173.6
<b>Other industrial</b>				
Softwood	206	0	-206	-100.0
Hardwood	0	0	0	--
Total	206	0	-206	-100.0
<b>All industrial</b>				
Softwood	167,343	175,848	8,505	5.1
Hardwood	51,876	55,993	4,117	7.9
Total	219,219	231,841	12,622	5.8

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (1,517,000 cubic feet in 1999 and 2,443,000 cubic feet in 2001).

**Table 18—Roundwood timber products output by county, product, and species group, Northern Coastal Plain Region of North Carolina, 2001**

County	All products		Saw logs		Veneer logs		Pulpwood <sup>a</sup>		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	<i>thousand cubic feet</i>											
Beaufort	23,098	6,342	17,667	1,001	0	142	5,431	5,199	0	0	0	0
Bertie	14,179	8,816	6,134	992	352	2,306	7,693	5,518	0	0	0	0
Camden	1,208	1,330	1,038	256	0	0	170	1,074	0	0	0	0
Carteret	8,689	376	5,180	0	0	6	3,509	370	0	0	0	0
Chowan	4,439	871	2,704	351	0	154	1,735	366	0	0	0	0
Craven	15,400	1,640	10,721	202	0	0	4,510	1,362	169	76	0	0
Currituck	909	489	787	270	0	0	122	219	0	0	0	0
Dare	17	21	12	5	0	0	5	16	0	0	0	0
Edgecombe	3,894	1,488	2,756	555	0	316	1,138	617	0	0	0	0
Gates	9,833	3,252	6,884	629	365	81	2,584	2,542	0	0	0	0
Halifax	10,314	5,342	7,516	3,295	550	596	2,248	1,451	0	0	0	0
Hertford	11,224	3,505	7,920	921	413	93	2,891	2,491	0	0	0	0
Hyde	5,062	1,436	3,605	386	0	0	1,457	1,050	0	0	0	0
Martin	6,593	2,288	3,517	901	0	35	3,076	1,352	0	0	0	0
Nash	4,540	3,684	3,712	1,802	0	1,420	659	386	169	76	0	0
Northampton	7,578	5,008	4,086	2,587	774	128	2,718	2,293	0	0	0	0
Pamlico	8,144	2,026	4,798	68	865	0	2,481	1,958	0	0	0	0
Pasquotank	2,280	795	1,952	252	0	0	328	543	0	0	0	0
Perquimans	4,736	778	3,596	225	0	0	1,140	553	0	0	0	0
Pitt	6,631	966	3,577	197	0	0	2,829	667	225	102	0	0
Tyrrell	7,099	2,764	4,327	382	0	91	2,772	2,291	0	0	0	0
Washington	13,442	1,540	7,555	438	0	0	5,887	1,102	0	0	0	0
Wilson	6,539	1,236	2,366	437	2,595	422	1,183	199	395	178	0	0
All counties	175,848	55,993	112,410	16,152	5,914	5,790	56,566	33,619	958	432	0	0

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (2,443,000 cubic feet in 2001).

**Table 19—Roundwood timber products output by product and species group, Piedmont Region of North Carolina, 1999 and 2001**

Product and species group	Year		Change	Percent change
	1999	2001		
<i>thousand cubic feet</i>				
<b>Saw logs</b>				
Softwood	83,901	84,477	576	0.7
Hardwood	55,990	54,933	-1,057	-1.9
Total	139,891	139,410	-481	-0.3
<b>Veneer logs</b>				
Softwood	5,625	2,238	-3,387	-60.2
Hardwood	5,994	5,168	-826	-13.8
Total	11,619	7,406	-4,213	-36.3
<b>Pulpwood<sup>a</sup></b>				
Softwood	29,840	25,127	-4,713	-15.8
Hardwood	31,975	24,493	-7,482	-23.4
Total	61,815	49,620	-12,195	-19.7
<b>Composite panels</b>				
Softwood	20,947	19,645	-1,302	-6.2
Hardwood	5,598	6,464	866	15.5
Total	26,545	26,109	-436	-1.6
<b>Other industrial</b>				
Softwood	504	628	124	24.6
Hardwood	0	22	22	--
Total	504	650	146	29.0
<b>All industrial</b>				
Softwood	140,817	132,115	-8,702	-6.2
Hardwood	99,557	91,080	-8,477	-8.5
Total	240,374	223,195	-17,179	-7.1

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (3,172,000 cubic feet in 1999 and 3,365,000 cubic feet in 2001).

**Table 20—Roundwood timber products output by county, product, and species group, Piedmont Region of North Carolina, 2001**

County	All products		Saw logs		Veneer logs		Pulpwood <sup>a</sup>		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	<i>thousand cubic feet</i>											
Alamance	2,124	2,628	2,014	2,489	0	0	1	34	109	105	0	0
Alexander	1,141	846	1,021	711	0	98	101	37	0	0	19	0
Anson	19,844	3,094	13,547	1,242	563	90	5,734	1,762	0	0	0	0
Cabarrus	1,370	507	1,100	471	0	0	161	36	109	0	0	0
Caswell	4,375	4,157	1,822	2,184	0	360	15	979	2,538	634	0	0
Catawba	1,550	706	1,365	575	0	35	76	96	109	0	0	0
Chatham	9,864	5,719	7,528	3,863	0	911	1,425	549	799	396	112	0
Cleveland	2,104	643	622	430	0	18	826	90	656	105	0	0
Davidson	2,827	4,196	2,236	3,554	0	32	263	452	328	158	0	0
Davie	1,087	1,000	896	765	0	9	78	121	109	105	4	0
Durham	3,061	3,018	1,956	183	0	22	416	2,596	689	217	0	0
Forsyth	818	1,334	568	1,086	0	4	12	127	219	117	19	0
Franklin	4,881	3,833	3,661	1,594	350	265	870	1,974	0	0	0	0
Gaston	1,007	387	298	23	0	3	600	309	109	52	0	0
Granville	5,521	1,479	4,001	813	43	370	278	91	1,020	205	179	0
Guilford	944	2,111	819	1,951	0	4	16	104	109	52	0	0
Iredell	2,568	1,454	2,060	1,053	0	50	277	193	219	158	12	0
Lincoln	1,434	713	824	304	0	54	501	355	109	0	0	0
Mecklenburg	581	1,203	384	805	0	45	88	301	109	52	0	0
Montgomery	10,881	3,618	8,074	3,178	0	0	2,698	440	109	0	0	0
Orange	1,735	1,723	1,323	843	0	427	193	85	219	368	0	0
Person	4,452	1,959	2,060	844	0	360	38	244	2,319	489	35	22
Polk	665	846	383	842	0	0	173	4	102	0	7	0
Randolph	3,900	5,478	3,124	4,822	0	72	448	426	328	158	0	0
Rockingham	5,138	5,872	1,920	3,210	86	191	440	1,511	2,692	960	0	0
Rowan	1,965	2,547	1,206	2,163	0	9	322	375	437	0	0	0
Rutherford	3,600	7,067	2,020	1,381	0	0	945	5,686	635	0	0	0
Stanly	2,766	1,161	1,631	1,000	0	0	807	161	328	0	0	0
Stokes	1,446	2,899	857	1,948	0	0	13	573	547	378	29	0
Surry	2,547	2,942	1,915	2,167	0	0	35	397	547	378	50	0
Union	2,108	1,054	225	457	320	59	1,454	486	109	52	0	0
Vance	4,385	1,943	1,616	770	350	601	255	100	2,110	472	54	0
Wake	6,044	3,066	4,396	1,599	0	350	534	535	1,025	582	89	0
Warren	10,888	6,988	4,668	3,136	526	729	5,005	2,906	689	217	0	0
Yadkin	2,494	2,889	2,337	2,477	0	0	29	358	109	54	19	0
All counties	132,115	91,080	84,477	54,933	2,238	5,168	25,127	24,493	19,645	6,464	628	22

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (3,365,000 cubic feet in 2001).

**Table 21—Roundwood timber products output by product and species group, Mountain Region of North Carolina, 1999 and 2001**

Product and species group	Year		Change	Percent change
	1999	2001		
<i>thousand cubic feet</i>				
<b>Saw logs</b>				
Softwood	20,640	18,838	-1,802	-8.7
Hardwood	31,157	31,450	293	0.9
Total	51,797	50,288	-1,509	-2.9
<b>Veneer logs</b>				
Softwood	156	558	402	257.7
Hardwood	3,744	3,177	-567	-15.1
Total	3,900	3,735	-165	-4.2
<b>Pulpwood<sup>a</sup></b>				
Softwood	5,285	4,477	-808	-15.3
Hardwood	13,347	15,485	2,138	16.0
Total	18,632	19,962	1,330	7.1
<b>Composite panels</b>				
Softwood	927	1,549	622	67.1
Hardwood	752	274	-478	-63.6
Total	1,679	1,823	144	8.6
<b>Other industrial</b>				
Softwood	126	72	-54	-42.9
Hardwood	0	0	0	--
Total	126	72	-54	-42.9
<b>All industrial</b>				
Softwood	27,134	25,494	-1,640	-6.0
Hardwood	49,000	50,386	1,386	2.8
Total	76,134	75,880	-254	-0.3

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (1,232,000 cubic feet in 1999 and 362,000 cubic feet in 2001).

**Table 22—Roundwood timber products output by county, product, and species group, Mountain Region of North Carolina, 2001**

County	All products		Saw logs		Veneer logs		Pulpwood <sup>a</sup>		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	<i>thousand cubic feet</i>											
Alleghany	1,098	1,298	1,021	985	0	45	25	268	0	0	52	0
Ashe	1,639	2,181	1,601	1,649	0	56	20	306	18	170	0	0
Avery	619	1,628	619	1,482	0	108	0	38	0	0	0	0
Buncombe	792	1,838	792	1,676	0	162	0	0	0	0	0	0
Burke	5,265	4,871	2,708	1,736	0	82	1,572	3,001	985	52	0	0
Caldwell	2,512	2,437	2,366	1,865	0	172	37	400	109	0	0	0
Cherokee	1,584	3,164	471	706	0	93	1,113	2,365	0	0	0	0
Clay	7	171	7	171	0	0	0	0	0	0	0	0
Graham	132	769	132	453	0	316	0	0	0	0	0	0
Haywood	1,802	8,539	142	2,297	0	153	1,660	6,089	0	0	0	0
Henderson	985	777	984	615	0	162	1	0	0	0	0	0
Jackson	264	1,311	264	1,203	0	108	0	0	0	0	0	0
Macon	147	1,057	147	911	0	146	0	0	0	0	0	0
Madison	992	3,786	992	3,137	0	649	0	0	0	0	0	0
McDowell	843	1,378	726	1,193	0	136	8	49	109	0	0	0
Mitchell	852	2,362	848	2,146	4	216	0	0	0	0	0	0
Swain	720	764	166	679	554	85	0	0	0	0	0	0
Transylvania	58	205	58	205	0	0	0	0	0	0	0	0
Watauga	1,390	1,713	1,390	1,552	0	0	0	161	0	0	0	0
Wilkes	3,099	7,122	2,710	4,153	0	109	41	2,808	328	52	20	0
Yancey	694	3,015	694	2,636	0	379	0	0	0	0	0	0
All counties	25,494	50,386	18,838	31,450	558	3,177	4,477	15,485	1,549	274	72	0

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (362,000 cubic feet in 2001).

**Table 23—Total roundwood output by product, species group, and source of material, North Carolina, 2001**

Product and species group	All sources	Total	Growing-stock trees		Other sources
			Sawtimber	Poletimber	
<i>thousand cubic feet</i>					
<b>Saw logs</b>					
Softwood	308,668	303,888	296,004	7,884	4,780
Hardwood	116,581	115,347	107,887	7,460	1,234
Total	425,249	419,235	403,891	15,344	6,014
<b>Veneer logs and bolts</b>					
Softwood	34,117	33,466	32,459	1,007	651
Hardwood	19,302	19,086	19,086	0	216
Total	53,419	52,552	51,545	1,007	867
<b>Pulpwood</b>					
Softwood	141,903	135,679	50,358	85,321	6,224
Hardwood	101,098	99,076	31,960	67,116	2,022
Total	243,001	234,755	82,318	152,437	8,246
<b>Composite panels</b>					
Softwood	26,610	26,211	7,145	19,066	399
Hardwood	9,184	8,804	4,987	3,817	380
Total	35,794	35,015	12,132	22,883	779
<b>Poles and posts</b>					
Softwood	996	740	397	343	256
Hardwood	0	0	0	0	0
Total	996	740	397	343	256
<b>Other miscellaneous</b>					
Softwood	19	16	8	7	3
Hardwood	22	22	9	13	0
Total	41	38	17	20	3
<b>Total industrial products</b>					
Softwood	512,313	500,000	386,372	113,628	12,313
Hardwood	246,187	242,335	163,929	78,406	3,852
Total	758,500	742,335	550,301	192,034	16,165
<b>Fuelwood</b>					
Softwood	9,584	8,490	4,936	3,554	1,094
Hardwood	80,330	69,468	50,814	18,655	10,862
Total	89,914	77,958	55,750	22,209	11,956
<b>All products</b>					
Softwood	521,897	508,490	391,308	117,182	13,407
Hardwood	326,517	311,803	214,743	97,061	14,714
Total	848,414	820,293	606,050	214,243	28,121

Numbers in rows and columns may not sum to totals due to rounding.

**Table 24—Total roundwood output by species group, survey region, and ownership class, North Carolina, 2001**

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
<b>Softwoods</b>				
Southern Coastal Plain	182,202	15,206	38,385	128,610
Northern Coastal Plain	179,138	522	68,053	110,563
Piedmont	134,585	1,306	8,082	125,198
Mountain	25,972	3,600	868	21,504
Total softwoods	<u>521,897</u>	<u>20,634</u>	<u>115,388</u>	<u>385,875</u>
<b>Hardwoods</b>				
Southern Coastal Plain	64,628	1,120	9,426	54,082
Northern Coastal Plain	74,264	445	9,273	64,546
Piedmont	120,797	869	1,601	118,327
Mountain	66,828	4,209	366	62,253
Total hardwoods	<u>326,517</u>	<u>6,642</u>	<u>20,666</u>	<u>299,208</u>
<b>All species</b>	<u>848,414</u>	<u>27,277</u>	<u>136,054</u>	<u>685,083</u>

Numbers in rows and columns may not sum to totals due to rounding.

**Table 25—Total roundwood output by species group, detailed species group, and product, North Carolina, 2001**

Species group and detailed species group	Product							Fuel- wood
	Total	Saw log	Veneer	Pulpwood	Composite panel	Poles and posts	Other miscellaneous	
	<i>thousand cubic feet</i>							
<b>Softwood</b>								
Cedar	2,387	1,441	135	375	378	15	0	44
Longleaf-slash pine	30,064	15,291	3,309	10,586	250	74	2	552
White pine	14,842	10,331	4	3,143	1,028	63	0	274
Loblolly-shortleaf pine	410,654	241,501	28,661	114,812	17,430	696	14	7,540
Other yellow pines	59,275	37,565	1,579	11,470	7,421	148	3	1,089
Cypress	4,214	2,155	428	1,452	100	0	0	77
Hemlock	461	384	0	66	3	0	0	8
<b>Total softwoods</b>	<b>521,897</b>	<b>308,668</b>	<b>34,117</b>	<b>141,903</b>	<b>26,610</b>	<b>996</b>	<b>19</b>	<b>9,584</b>
<b>Hardwood</b>								
Soft maple	33,987	11,019	2,051	11,761	791	0	3	8,361
Hard maple	969	337	13	368	13	0	0	239
Other birch	1,397	618	77	335	24	0	0	344
Yellow birch	748	242	12	299	10	0	0	184
Hickory	13,290	5,622	595	3,422	380	0	1	3,270
Beech	3,001	1,595	164	414	90	0	0	739
Ash	5,728	2,980	175	979	185	0	0	1,409
Black walnut	588	307	32	66	38	0	0	145
Sweetgum	43,598	10,809	3,427	17,271	1,358	0	7	10,726
Yellow-poplar	71,146	27,716	3,790	20,151	1,983	0	3	17,504
Blackgum-tupelo	12,305	2,911	1,043	5,101	222	0	0	3,027
Sycamore	559	304	29	87	1	0	0	138
Cottonwood	170	68	29	31	1	0	0	42
Black cherry	1,933	603	48	759	48	0	0	476
Select white oaks	38,590	14,417	2,177	11,119	1,379	0	4	9,494
Other white oaks	13,463	6,222	541	2,938	447	0	2	3,312
Select red oaks	12,515	4,844	872	3,429	290	0	1	3,078
Other red oaks	50,229	16,892	3,191	16,383	1,405	0	1	12,357
Basswood	1,815	653	51	658	7	0	0	447
Elm	2,262	815	134	667	90	0	0	556
Other Eastern hardwoods	18,224	7,608	851	4,859	423	0	0	4,483
<b>Total hardwoods</b>	<b>326,517</b>	<b>116,581</b>	<b>19,302</b>	<b>101,098</b>	<b>9,184</b>	<b>0</b>	<b>22</b>	<b>80,330</b>
<b>All species</b>	<b>848,414</b>	<b>425,249</b>	<b>53,419</b>	<b>243,001</b>	<b>35,794</b>	<b>996</b>	<b>41</b>	<b>89,914</b>

Numbers in rows and columns may not sum to totals due to rounding.

**Table 26—Total roundwood output by species group, detailed species group, and ownership class, North Carolina, 2001**

Species group and detailed species group	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
<b>Softwood</b>				
Cedar	2,387	77	291	2,018
Longleaf-slash pine	30,064	2,016	9,506	18,542
White pine	14,842	2,842	868	11,133
Loblolly-shortleaf pine	410,654	13,698	97,775	299,182
Other yellow pines	59,275	1,924	5,706	51,644
Cypress	4,214	3	1,241	2,969
Hemlock	461	74	0	387
Total softwoods	521,897	20,634	115,388	385,875
<b>Hardwood</b>				
Soft maple	33,987	553	2,777	30,657
Hard maple	969	0	0	969
Other birch	1,397	44	30	1,323
Yellow birch	748	6	10	732
Hickory	13,290	251	341	12,698
Beech	3,001	44	99	2,858
Ash	5,728	53	252	5,423
Black walnut	588	4	0	584
Sweetgum	43,598	382	4,200	39,015
Yellow-poplar	71,146	665	3,275	67,206
Blackgum-tupelo	12,305	74	2,122	10,110
Sycamore	559	4	5	551
Cottonwood	170	5	3	162
Black cherry	1,933	17	104	1,812
Select white oaks	38,590	1,088	1,580	35,922
Other white oaks	13,463	576	348	12,539
Select red oaks	12,515	606	394	11,515
Other red oaks	50,229	1,795	3,904	44,529
Basswood	1,815	33	24	1,758
Elm	2,262	8	128	2,125
Other Eastern hardwoods	18,224	433	1,071	16,719
Total hardwoods	326,517	6,642	20,666	299,208
<b>All species</b>	848,414	27,277	136,054	685,083

Numbers in rows and columns may not sum to totals due to rounding.





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**Howell, Michael; Brown, David R.** 2004. North Carolina's timber industry—an assessment of timber product output and use, 2001. Resour. Bull. SRS-94. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 39 p.

In 2001, industrial roundwood output from North Carolina's forests totaled 759 million cubic feet, 4 percent less than in 1999. Mill byproducts generated from primary manufacturers increased nearly 1 percent to 313 million cubic feet. Almost all plant residues were used primarily for fuel and fiber products. Saw logs were the leading roundwood product at 425 million cubic feet; pulpwood ranked second at 243 million cubic feet; veneer logs were third at 53 million cubic feet. The number of primary processing plants declined from 278 in 1999 to 249 in 2001. Total receipts declined 47.5 million cubic feet to 722 million cubic feet.

**Keywords:** Pulpwood, residues, roundwood, saw logs, veneer logs, wood movement.

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