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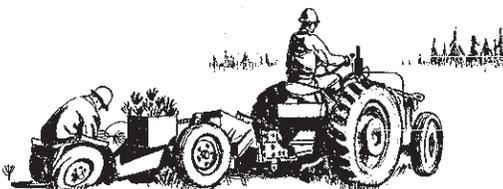
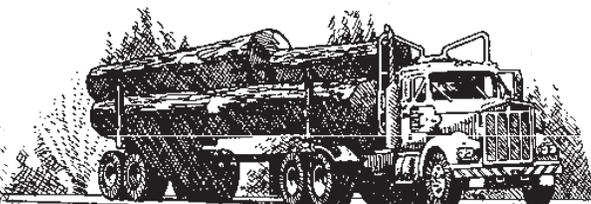
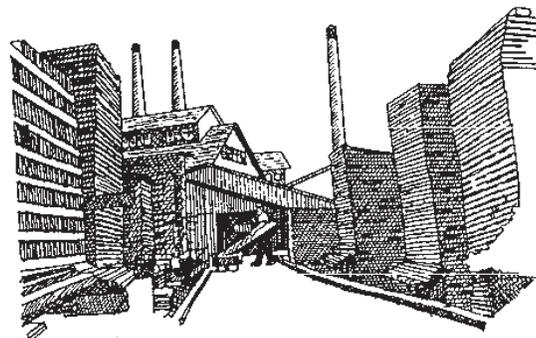


Southern  
Research Station

Resource Bulletin  
SRS-106

# South Carolina's Timber Industry— An Assessment of Timber Product Output and Use, 2003

Tony G. Johnson and  
Miles Knight

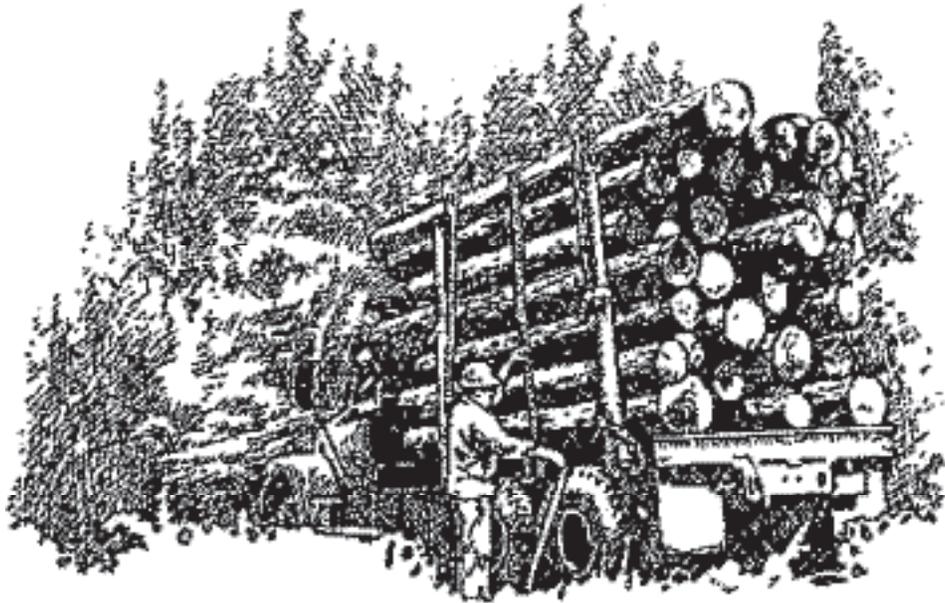


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## Foreword

This report contains the findings of a 2003 canvass of all primary wood-using plants in South Carolina, and presents changes in product output and residue use since 2001. It complements the Forest Inventory and Analysis (FIA) 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 2003 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 South Carolina was conducted in 2004 to obtain information for 2003. In addition, roundwood from out-of-State mills known to be using logs or bolts harvested from South Carolina timberland was incorporated into South Carolina production estimates. 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 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 1936, and are currently conducted every 2 years.

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

## Acknowledgments

The authors thank Joel Felder and Roger Conner for review and comments; Sonja Oswald and Joe McCollum for the maps; Anne Jenkins, Sharon Johnson, and Janet Griffin, 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 South Carolina Forestry Commission and the Cooperative Extension Service, Clemson University, in collecting mill data. Appreciation is also extended to forest industry and mill managers for providing timber products information.



## Timber Product Output Database Retrieval System

The FIA Research Work Unit of the U.S. Department of Agriculture Forest Service (USDA Forest Service) developed the Timber Product Output (TPO) Database Retrieval System to help customers answer questions about timber harvesting and use in the Southern region. This system acts as an interface to a standard set of consistently coded TPO data for each State and county in the Southern region. This regional and national set of TPO data consists of 11 variables that describe for each county the roundwood products harvested, logging residues left in the woods, timber otherwise removed, and wood and bark residues generated by the county's primary wood-using mills. The system is available through the FIA Web site: <http://srsfia2.fs.fed.us/php/tpo2/tpo.php>.

The database is well documented and easy to use. The retrieval system allows the user to select the TPO variables of interest and generate a standard set of timber products, removals, and mill residue tables for the specified resource area or areas. The system has been logically divided into two sections to assist the user in making specific data requests. In section 1, the user is asked to define the resource area, and section 2 generates tables for the specified area. In each section, the user is asked to supply specific input that will serve to customize the database retrieval.

There are four options available for defining the geographic area of interest. Each option provides an increasing level of detail. The region, subregion, State, or county defines an area. The user selects the option that best suits the level of detail required. Users who select county as an option should be aware that some counties have been combined due to data sensitivity. These combined counties are identified with asterisks in the output tables.

The TPO contacts are listed for each region to provide additional explanation or clarification.

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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.

The use of trade or firm names in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service.

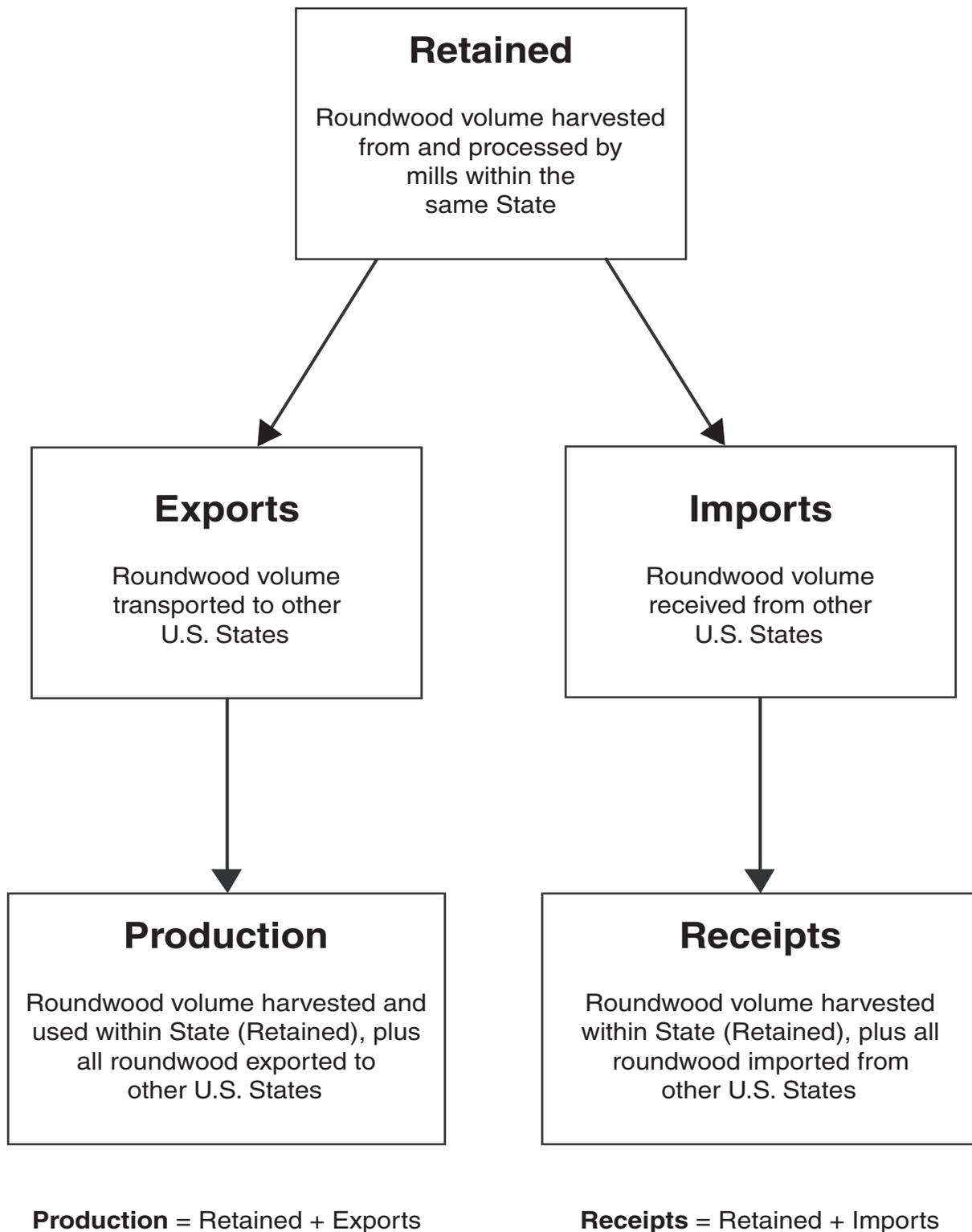


Figure 1—Movement of roundwood exports and imports within the United States.

# South Carolina's Timber Industry— An Assessment of Timber Product Output and Use, 2003

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## Output of Industrial Timber Products

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

### All Products

- Between 2001 and 2003, the combined industrial TPO from roundwood and plant byproducts increased 3 percent, from 721 to 740 million cubic feet.
- TPO from roundwood was up 23 million cubic feet, or 4 percent, to 572 million cubic feet, while output of plant byproducts declined 2 percent to 168 million cubic feet.

- With the exception of veneer products, all product output was up or at least stable. Output of softwood roundwood products was up 6 percent to 469 million cubic feet, while hardwood roundwood products declined 5 percent to 103 million cubic feet (fig. 2).

- Figures 3 and 4 display softwood and hardwood county-level intensity of roundwood production for all industrial products across South 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 40 cubic feet of production per acre, while for hardwoods the darkest shade represents more than 10 cubic feet per acre.

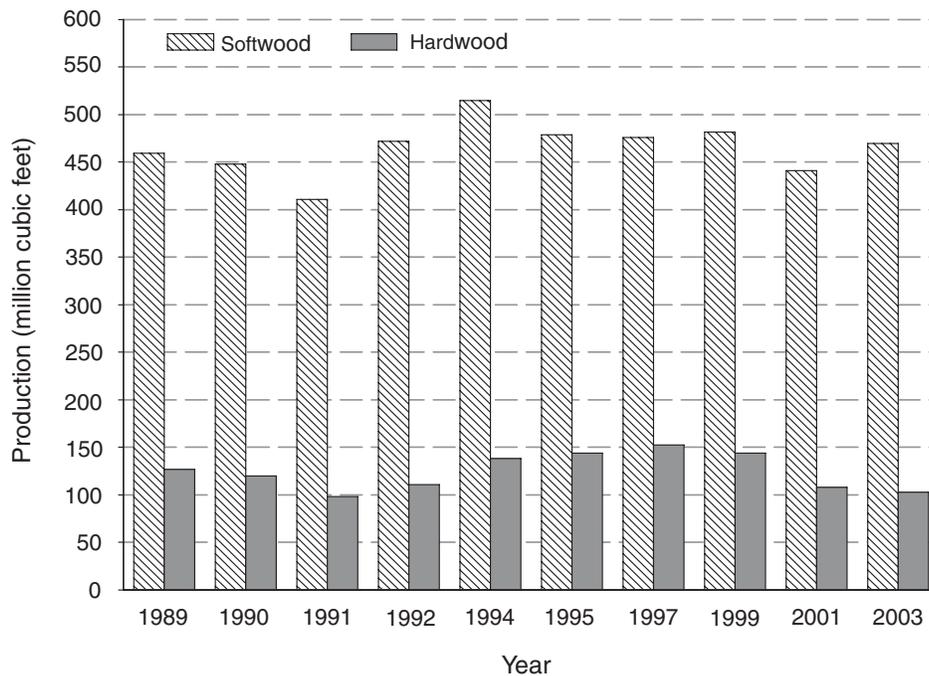


Figure 2—Roundwood production for all products by species group and year (see page 10 for references for individual years).

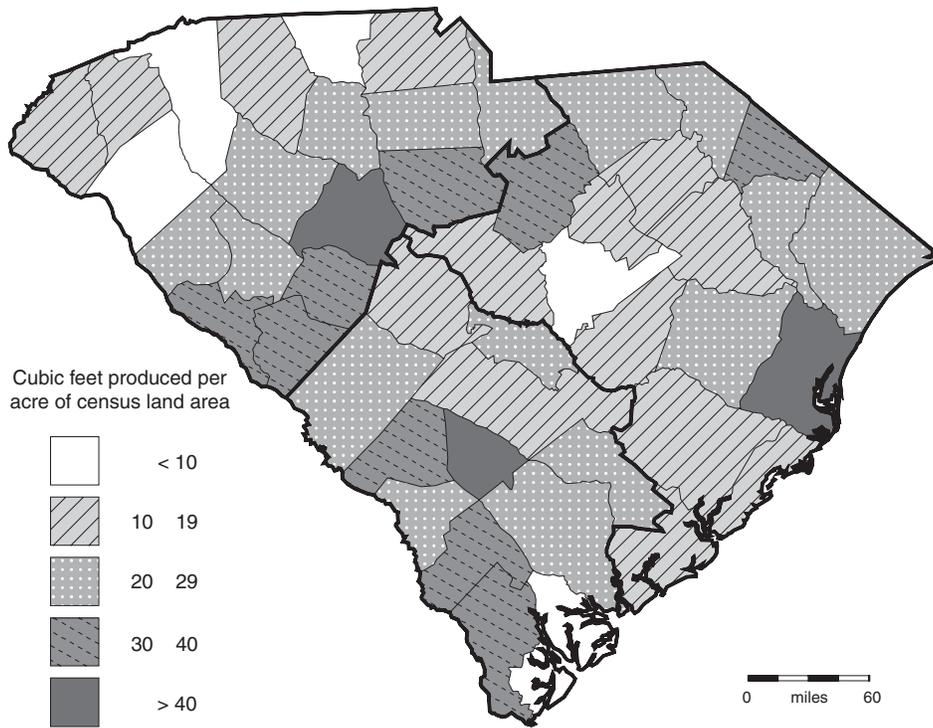


Figure 3—Intensity of roundwood softwood output for all industrial products in South Carolina by county, 2003.

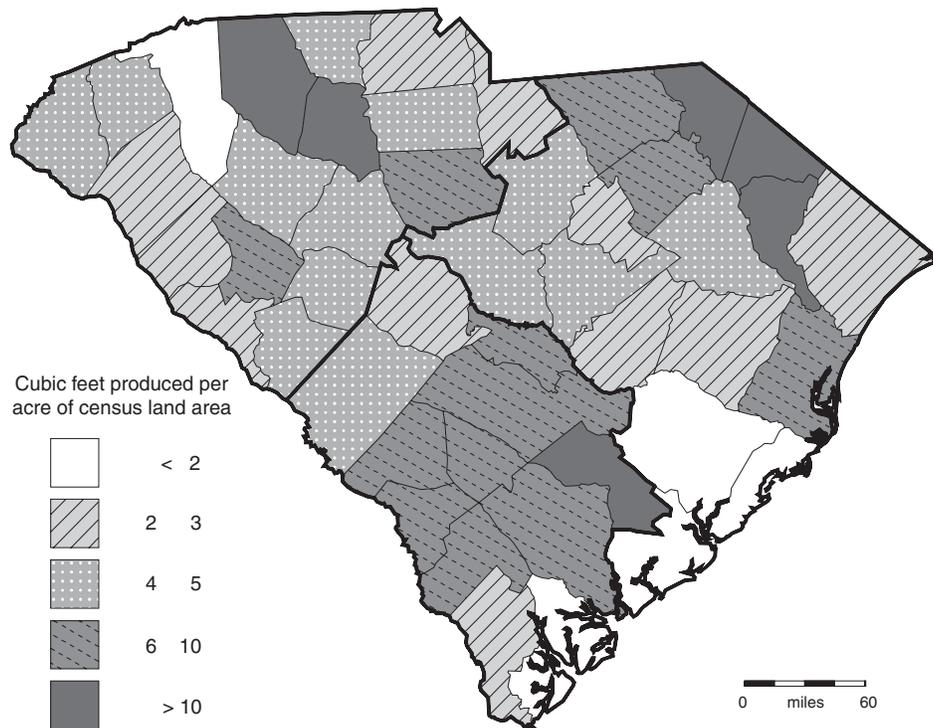


Figure 4—Intensity of roundwood hardwood output for all industrial products in South Carolina by county, 2003.

- Pulpwood and saw logs were the principal roundwood products in 2003. Combined output of these products totaled 509 million cubic feet and accounted for 89 percent of South Carolina’s total roundwood output (fig. 5).
- Total receipts at South Carolina mills, which included roundwood harvested and retained in the State and roundwood imported from other States, increased 3 percent to 540 million cubic feet. At the same time, the number of primary roundwood-using plants in South Carolina was down from 76 in 2001 to 75 in 2003.

**Pulpwood**

- Pulpwood production, including chipped roundwood, was up 4 million cubic feet to 274 million cubic feet and accounted for 48 percent of the State’s total roundwood TPO. Softwood output increased 6 percent to 205 million cubic feet (3.0 million cords), while hardwood output fell 11 percent to 68 million cubic feet (1.0 million cords) (fig. 6).

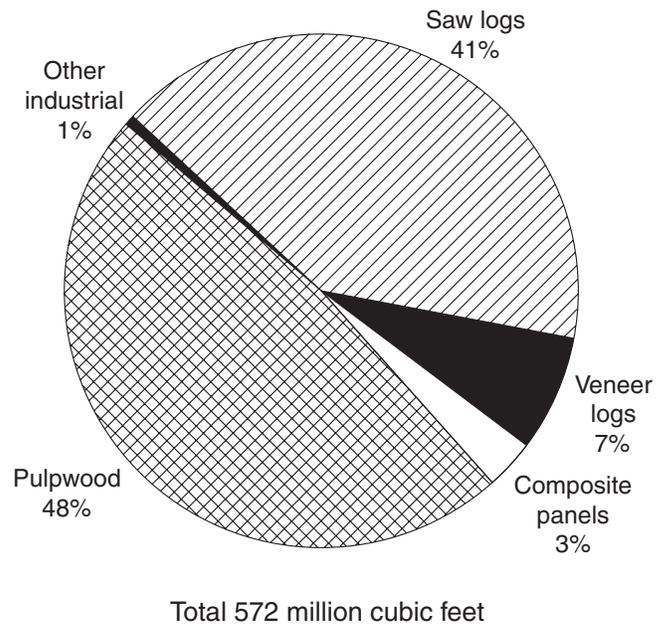


Figure 5—Roundwood production by type of product, 2003.

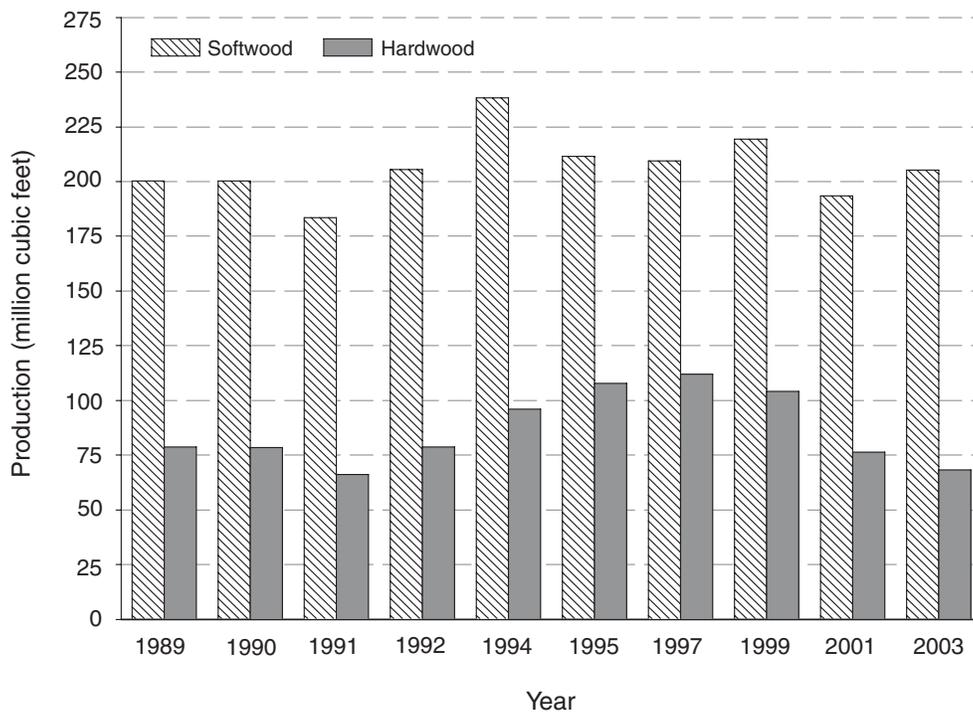


Figure 6—Roundwood pulpwood production by species group and year (see page 10 for references for individual years).

- Seven pulpmill facilities were operating and receiving roundwood in South Carolina in 2003. Total pulpwood receipts for these mills were up 13 million cubic feet to 278 million cubic feet, accounting for 51 percent of total receipts for all mills.
- Eighty-one percent of roundwood cut for pulpwood was retained for processing at South Carolina pulpmills. Roundwood pulpwood accounted for 50 percent of total known exports and 79 percent of total imports. Roundwood pulpwood exports amounted to 52 million cubic feet, or 4 million cubic feet less than was imported.

### Saw Logs

- Saw logs accounted for 41 percent of the State’s total roundwood products. Output of softwood saw logs increased 8 percent to 208 million cubic feet (1.2 billion board feet, International ¼-inch rule); hardwood saw-log output increased 13 percent to 27 million cubic feet (163 million board feet, International ¼-inch rule) (fig. 7).
- In 2003, South Carolina had 51 sawmills, the same as in 2001. Total saw-log receipts were up 6 million cubic

feet to 207 million cubic feet. Softwood saw-log receipts increased 1 percent to 185 million cubic feet, while those of hardwoods rose 20 percent to 22 million cubic feet. Of the 51 mills operating in 2003, 8 percent had receipts of < 1 million board feet, while 39 percent had receipts > 10 million board feet. Those 20 mills accounted for 89 percent of saw-log receipts.

- South Carolina retained 83 percent of its saw-log production for domestic manufacture, with saw-log exports exceeding imports by 28 million cubic feet in 2003.

### Veneer Logs

- Output of veneer logs in 2003 totaled 42 million cubic feet and accounted for 7 percent of South Carolina’s total roundwood TPO volume. Softwood veneer production was down 15 percent to 35 million cubic feet (198 million board feet, International ¼-inch rule); output of hardwood veneer logs declined 1 percent to 7 million cubic feet (43 million board feet, International ¼-inch rule) (fig. 8).

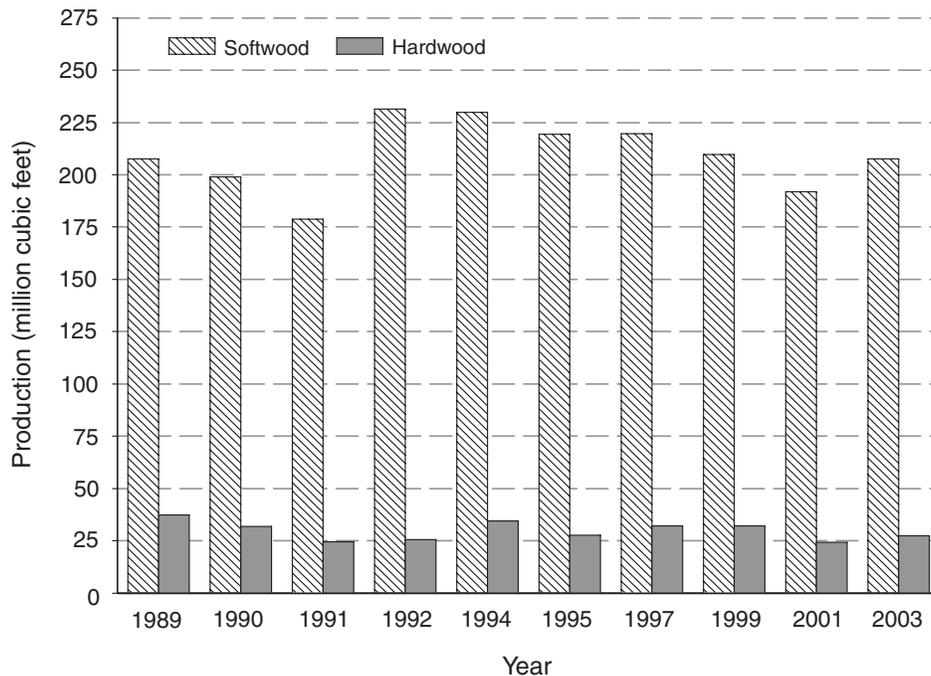


Figure 7—Roundwood saw-log production by species group and year (see page 10 for references for individual years).

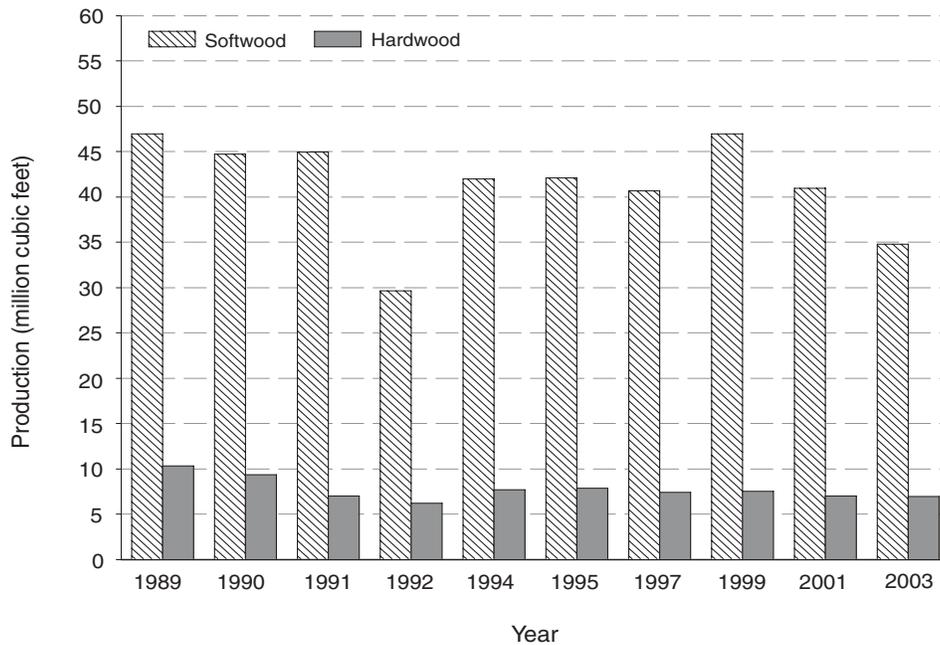


Figure 8—Roundwood veneer-log production by species group and year (see page 10 for references for individual years).

- Eight veneer mills were operating in South Carolina, one less than in 2001. Receipts of veneer logs declined 19 percent to 37 million cubic feet. Softwood veneer receipts were down 8 million cubic feet to 30 million cubic feet, while hardwood veneer receipts declined 0.6 million cubic feet to 6 million cubic feet.
- South Carolina retained 81 percent of its veneer-log production for processing at domestic veneer mills. Exports amounted to 8 million cubic feet, while imports totaled 3 million cubic feet.

### Composite Panels

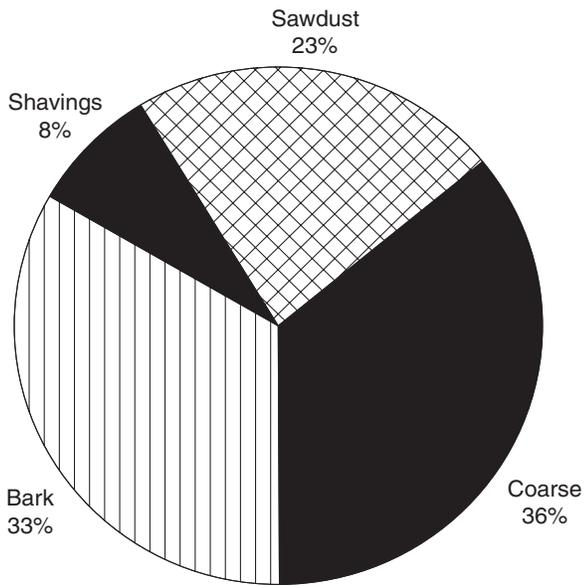
- Roundwood harvested from South Carolina's forests for composite panels increased 62 percent to 18 million cubic feet (261,000 cords). Softwood output accounted for nearly all of composite panel production in South Carolina.

### Other Industrial Products

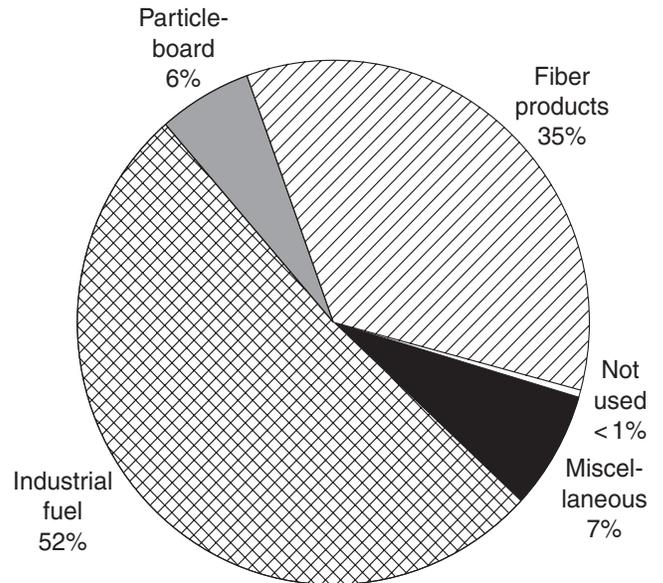
- Roundwood harvested for other industrial uses such as poles, posts, mulch, firewood, logs for log homes, and all other industrial products totaled 3.8 million cubic feet, the same as in 2001. Softwood made up all of the other industrial products volume.
- The number of plants producing other industrial products totaled eight in 2003.

### Plant Byproducts

- In 2003, processing of primary products in South Carolina mills generated 168 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 60 million cubic feet, and bark volume totaled 56 million cubic feet. Sawdust and shavings made up 31 percent of total residues, or 52 million cubic feet (fig. 9).



Total 168 million cubic feet



Total 168 million cubic feet

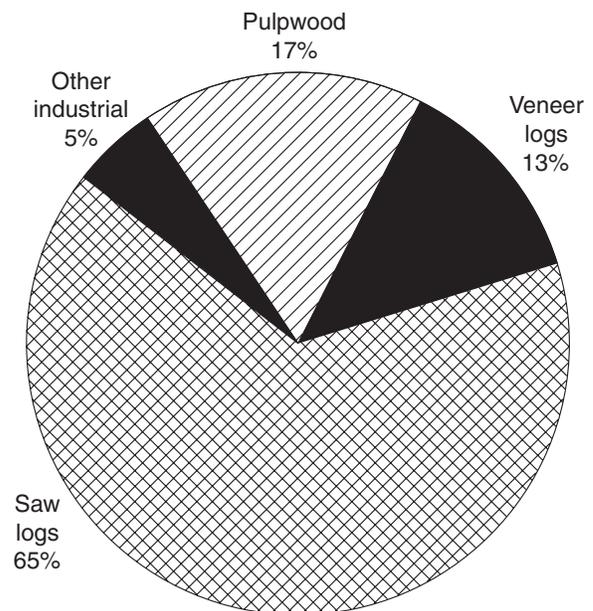
Figure 9—Primary mill residue by residue type, 2003.

Figure 10—Disposal of residue by product, 2003.

- Almost all of the wood and bark residues were used for products. Fifty-two percent of the residue was used for industrial fuel (fig. 10). More than 50 million cubic feet, or 83 percent, of the coarse residues were used to manufacture fiber products. Most of the bark was used for industrial fuel or other miscellaneous products, and 58 percent of the sawdust and shavings were used for industrial fuel.
- The processing of saw logs generated 110 million cubic feet of mill residues, accounting for 65 percent of the total residues produced (fig. 11).

### Regional Trends

- Output of industrial roundwood products increased across the two Coastal Plain regions of South Carolina. The Piedmont region had a 3-percent decline, although it was the only area that experienced an increase in hardwood output.



Total 168 million cubic feet

Figure 11—Primary mill residue produced by roundwood type, 2003.

### Southern Coastal Plain Region

- Roundwood output from the Southern Coastal Plain region totaled 159 million cubic feet, a 14-percent increase since 2001. Softwood output rose 23 percent to 129 million cubic feet, while hardwood output declined 11 percent to 30 million cubic feet.
- The Southern Coastal Plain region was the only region to experience an increase in both softwood and hardwood saw-log production. Softwood production increased 22 percent to 62 million cubic feet, while hardwood output increased 79 percent to 8 million cubic feet. Saw logs accounted for 44 percent of the region's

TPO and 30 percent of the State's roundwood saw-log output. Pulpwood production increased 7 percent to 80 million cubic feet, accounting for 51 percent of the total roundwood output for the region. Softwood pulpwood production was up 28 percent to 62 million cubic feet, while hardwood production declined 32 percent to 18 million cubic feet.

- In the Southern Coastal Plain region, 25 primary wood-using plants were operating during 2003: 14 sawmills, 5 veneer or plywood mills, and 6 other miscellaneous mills (fig. 12). These mills processed 28 percent of the State's total roundwood output.

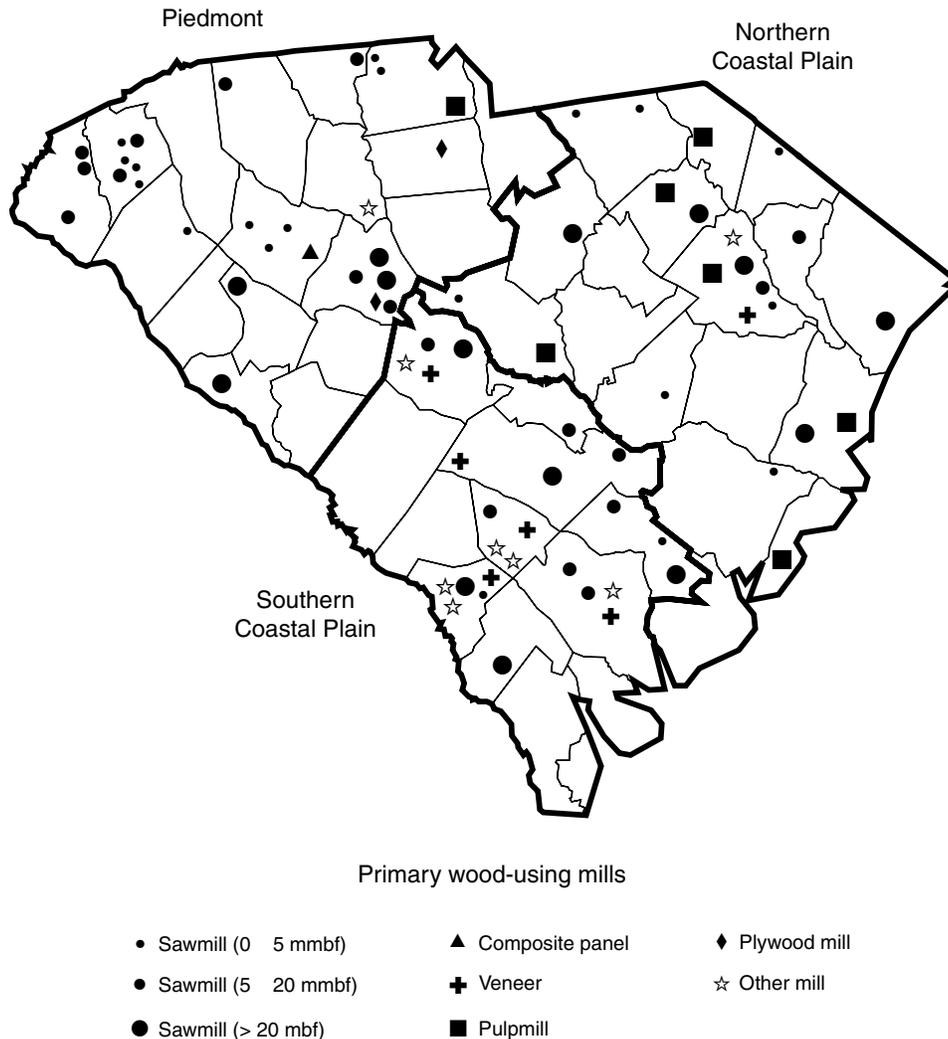


Figure 12—Primary wood-using mills by region, 2003.

### Northern Coastal Plain Region

- Roundwood output from the Northern Coastal Plain region totaled 214 million cubic feet, a 5-percent increase.
- Production of pulpwood was up 6 percent; it accounted for 52 percent of the region's total roundwood output and 41 percent of the State's total roundwood pulpwood output. Saw-log production of 92 million cubic feet accounted for 43 percent of the region's total roundwood output.
- The 22 mills operating in the Northern Coastal Plain region in 2003 included 14 sawmills, 1 veneer or plywood mill, 6 pulpmills, and 1 other miscellaneous mill. These mills processed 37 percent of the State's total roundwood output.

### Piedmont Region

- Roundwood output from the Piedmont region of South Carolina totaled 199 million cubic feet, a decline of 3 percent since 2001. Roundwood production from this region accounted for 35 percent of the total roundwood TPO for the State.
- Pulpwood production was down 9 percent to 82 million cubic feet, accounting for 41 percent of the region's total TPO. Saw-log production declined 3 percent to 73 million cubic feet and accounted for another 37 percent of the region's total roundwood output.
- The 28 primary wood-using plants operating in the Piedmont region included 23 sawmills, 2 veneer or plywood mills, 1 composite panel mill, 1 pulpmill, and 1 other miscellaneous mill.

### Total Roundwood Output

Using the latest inventory data for South Carolina, product output was estimated by source, ownership, and detailed species group.

### Source

- In addition to the 572 million cubic feet of roundwood output for industrial roundwood products, an estimated 30 million cubic feet were harvested for domestic fuelwood, bringing South Carolina's total roundwood output to 602 million cubic feet.
- Ninety-two 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 nonforestland) contributed an estimated 46 million cubic feet, or 8 percent of total roundwood output (fig. 13).

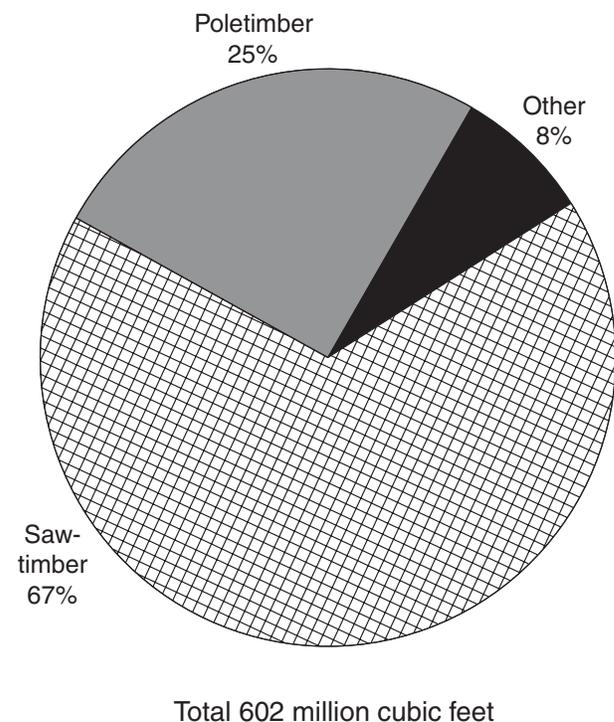


Figure 13—Roundwood output by source, 2003.

### Ownership

- An estimated 399 million cubic feet, or 66 percent, of the total roundwood output came from nonindustrial private forest lands.
- Forest industry lands contributed 181 million cubic feet, or 30 percent of the output. Public lands made up the remaining 4 percent, or 22 million cubic feet (fig. 14).

### Species

- The loblolly and shortleaf pine group provided more volume than any other softwood species group, accounting for 74 percent of the total softwood output (fig. 15). The longleaf and slash pine type accounted for another 16 percent of the softwood output.
- The red oak and white oak groups combined accounted for 53 million cubic feet, or 41 percent of total hardwood output (fig. 16). Sweetgum accounted for another 27 million cubic feet, or 21 percent, of total hardwood output.

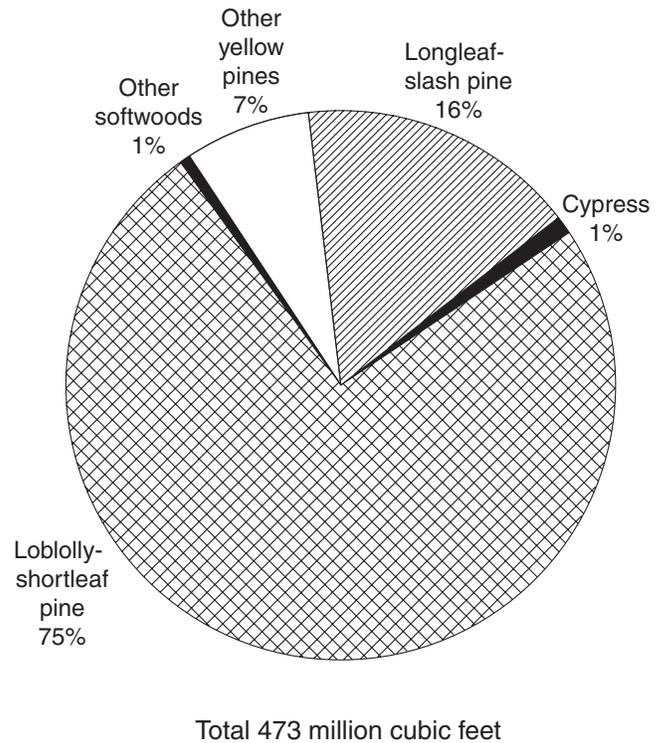


Figure 15—Roundwood output by softwood species group, 2003.

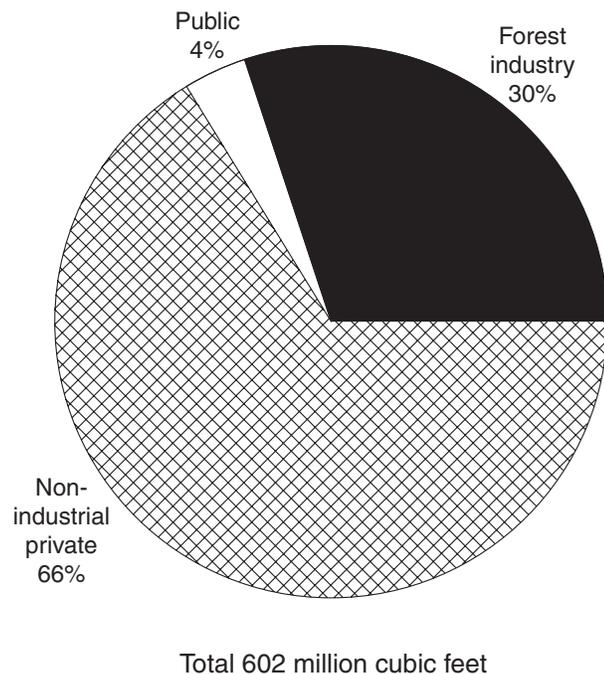


Figure 14—Roundwood output by ownership, 2003.

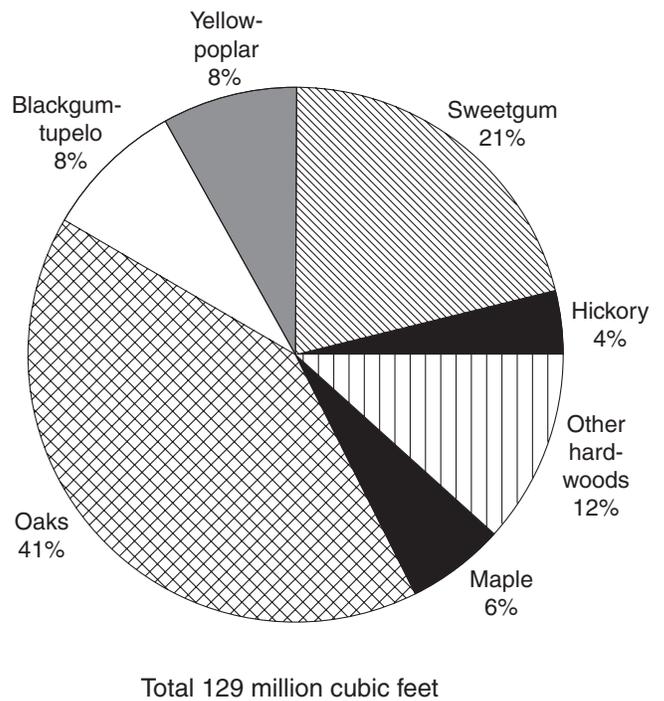


Figure 16—Roundwood output by hardwood species group, 2003.

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## Glossary

**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 and steam, in residential, industrial or institutional settings.

**Growing-stock removals.** The growing-stock volume removed from poletimber and sawtimber trees in the timberland inventory. (Note: Includes volume removed for roundwood 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 >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.

**Nonforestland.** 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 forestland.** Forestland other than timberland and productive reserved forestland. It includes available and reserved forestland 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.

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

**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.

**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 pulp mills for use as fiber. Includes tops, jump sections, whole trees, and pulpwood sticks.

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

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

**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 ¼-inch rule).

**Seedlings.** Trees < 1.0 inch d.b.h. and > 1 foot tall for hardwoods, > 6 inches tall for softwoods, and > 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 scale like.

**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 1/4-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.** Forestland capable of producing 20 cubic feet of industrial wood per acre per year and not withdrawn from timber utilization.

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

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

**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 saw-timber 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).

## Metric Equivalents

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1 acre = 4,046.86 m <sup>2</sup> or 0.404686 ha
1 cubic foot = 0.028317 m <sup>3</sup>
1 inch = 2.54 cm or 0.0254 m
Breast height = 1.4 m above the ground
1 square foot = 929.03 cm <sup>2</sup> or 0.0929 m <sup>2</sup>
1 square foot per basal area = 0.229568 m <sup>2</sup> /ha
1 pound = 0.454 kg
1 ton = 0.907 mt

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## 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	0.16750 cubic foot = 1 board foot 5.97 board feet = 1 cubic foot
Veneer logs	
Softwood	0.17601 cubic foot = 1 board foot 5.68 board feet = 1 cubic foot
Hardwood	0.16340 cubic foot = 1 board foot 6.12 board feet = 1 cubic foot
Pulpwood <sup>b</sup>	
Softwood	68.6 cubic feet per cord
Hardwood	70.5 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 South Carolina during the most recent survey period.

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

## Species List<sup>a</sup>

Common name	Scientific name <sup>b</sup>	Common name	Scientific name <sup>b</sup>
<b>Softwoods</b>		<b>Hardwoods (continued)</b>	
Atlantic white-cedar	<i>Chamaecyparis thyoides</i> (L.) B.S.P.	American holly	<i>Ilex opaca</i> Ait.
Southern redcedar	<i>Juniperus silicicola</i> (Small) Bailey	Black walnut	<i>Juglans nigra</i> L.
Eastern redcedar	<i>J. virginiana</i> L.	Sweetgum	<i>Liquidambar styraciflua</i> L.
Shortleaf pine	<i>Pinus echinata</i> Mill.	Yellow-poplar	<i>Liriodendron tulipifera</i> L.
Slash pine	<i>P. elliotii</i> Engelm.	Osage-orange	<i>Maclura pomifera</i> (Raf.) Schneid.
Spruce pine	<i>P. glabra</i> Walt.	Cucumbertree	<i>Magnolia acuminata</i> L.
Longleaf pine	<i>P. palustris</i> Mill.	Southern magnolia	<i>M. grandiflora</i> L.
Pitch pine	<i>P. rigida</i> Mill.	Bigleaf magnolia	<i>M. macrophylla</i> Michx.
Pond pine	<i>P. serotina</i> Michx.	Sweetbay	<i>M. virginiana</i> L.
Eastern white pine	<i>P. strobus</i> L.	Apple	<i>Malus</i> spp. Mill.
Loblolly pine	<i>P. taeda</i> L.	Chinaberry	<i>Melia azedarach</i> L.
Virginia pine	<i>P. virginiana</i> Mill.	White mulberry	<i>Morus alba</i> L.
Baldcypress	<i>Taxodium distichum</i> (L.) Rich.	Red mulberry	<i>M. rubra</i> L.
Pondcypress	<i>T. distichum</i> var. <i>nutan</i> (Ait.) Sweet	Water tupelo	<i>Nyssa aquatica</i> L.
Eastern hemlock	<i>Tsuga canadensis</i> (L.) Carr.	Blackgum	<i>N. sylvatica</i> Marsh.
<b>Hardwoods</b>		Swamp tupelo	<i>N. sylvatica</i> var. <i>biflora</i> (Walt.) Sarg.
Florida maple	<i>Acer barbatum</i> Michx.	Eastern hophornbeam	<i>Ostrya virginiana</i> (Mill.) K. Koch
Boxelder	<i>A. negundo</i> L.	Sourwood	<i>Oxydendrum arboreum</i> (L.) DC.
Red maple	<i>A. rubrum</i> L.	Redbay	<i>Persea borbonia</i> (L.) Spreng.
Silver maple	<i>A. saccharinum</i> L.	American sycamore	<i>Platanus occidentalis</i> L.
Sugar maple	<i>A. saccharum</i> Marsh.	Cottonwood	<i>Populus</i> spp. L.
Buckeye	<i>Aesculus</i> spp. L.	Black cherry	<i>Prunus serotina</i> Ehrh.
Ohio buckeye	<i>A. glabra</i> Willd.	White oak	<i>Quercus alba</i> L.
Ailanthus	<i>Ailanthus altissima</i> (Mill.) Swingle	Scarlet oak	<i>Q. coccinea</i> Muenchh.
Tung-oil tree	<i>Aleurites fordii</i> Hemsl.	Durand oak	<i>Q. durandii</i> Buckl.
Serviceberry	<i>Amelanchier</i> spp. Med.	Southern red oak	<i>Q. falcata</i> Michx.
River birch	<i>Betula nigra</i> L.	Cherrybark oak	<i>Q. falcata</i> var. <i>pagodaefolia</i> Ell.
American hornbeam	<i>Carpinus caroliniana</i> Walt.	Bluejack oak	<i>Q. incana</i> Bartr.
Hickory	<i>Carya</i> spp. Nutt.	Turkey oak	<i>Q. laevis</i> Walt.
Water hickory	<i>C. aquatica</i> (Michx. f.) Nutt.	Laurel oak	<i>Q. laurifolia</i> Michx.
Bitternut hickory	<i>C. cordiformis</i> (Wangenh.) K. Koch	Overcup oak	<i>Q. lyrata</i> Walt.
Pignut hickory	<i>C. glabra</i> (Mill.) Sweet	Swamp chestnut oak	<i>Q. michauxii</i> Nutt.
Pecan	<i>C. illinoensis</i> (Wangenh.) K. Koch	Chinkapin oak	<i>Q. muehlenbergii</i> Engelm.
Shellbark hickory	<i>C. laciniosa</i> (Michx. f.) Loud.	Water oak	<i>Q. nigra</i> L.
Nutmeg hickory	<i>C. myristicaeformis</i> (Michx. f.) Nutt.	Nuttall oak	<i>Q. nuttallii</i> Palmer
Shagbark hickory	<i>C. ovata</i> (Mill.) K. Koch	Pin oak	<i>Q. palustris</i> Muenchh.
Black hickory	<i>C. texana</i> Buckl.	Willow oak	<i>Q. phellos</i> L.
Mockernut hickory	<i>C. tomentosa</i> Nutt.	Chestnut oak	<i>Q. prinus</i> L.
Allegheny chinkapin	<i>Castanea pumila</i> Mill.	Northern red oak	<i>Q. rubra</i> L.
Chinkapin	<i>Castanopsis</i> (D. Don) Spach	Shumard oak	<i>Q. shumardii</i> Buckl.
Catalpa	<i>Catalpa</i> spp. Scop.	Post oak	<i>Q. stellata</i> Wangenh.
Sugarberry	<i>Celtis laevigata</i> Willd.	Black oak	<i>Q. velutina</i> Lam.
Hackberry	<i>C. occidentalis</i> L.	Live oak	<i>Q. virginiana</i> Mill.
Eastern redbud	<i>Cercis canadensis</i> L.	Black locust	<i>Robinia pseudoacacia</i> L.
Flowering dogwood	<i>Cornus florida</i> L.	Willow	<i>Salix</i> spp. L.
Hawthorn	<i>Crataegus</i> spp. L.	Sassafras	<i>Sassafras albidum</i> (Nutt.) Nees
Common persimmon	<i>Diospyros virginiana</i> L.	American basswood	<i>Tilia americana</i> L.
American beech	<i>Fagus grandifolia</i> Ehrh.	White basswood	<i>T. heterophylla</i> Vent.
White ash	<i>Fraxinus americana</i> L.	Winged elm	<i>Ulmus alata</i> Michx.
Pumpkin ash	<i>F. profunda</i> (Bush) Bush	American elm	<i>U. americana</i> L.
Blue ash	<i>F. quadrangulata</i> Michx.	Cedar elm	<i>U. crassifolia</i> Nutt.
Waterlocust	<i>Gleditsia aquatica</i> Marsh.	Slippery elm	<i>U. rubra</i> Muhl.
Honeylocust	<i>G. triacanthos</i> L.	September elm	<i>U. serotina</i> Sarg.
Kentucky coffeetree	<i>Gymnocladus dioica</i> (L.) K. Koch	Rock elm	<i>U. thomasi</i> Sarg.

<sup>a</sup> Scientific and common names of tree species > 1.0 inch in d.b.h. occurring in the FIA sample.

<sup>b</sup> Nomenclature (Little 1979).



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**Table A.1—Output of industrial products by product and species group, South Carolina, 2001 and 2003**

Product and species group	Year		Change	Change
	2001	2003		
	<i>----- thousand cubic feet</i>		<i>-----</i>	<i>percent</i>
Saw logs				
Softwood	191,723	207,536	15,813	8.2
Hardwood	24,153	27,381	3,228	13.4
Total	215,876	234,917	19,041	8.8
Veneer logs				
Softwood	40,967	34,781	-6,186	-15.1
Hardwood	7,025	6,958	-67	-1.0
Total	47,992	41,739	-6,253	-13.0
Pulpwood <sup>a</sup>				
Softwood	193,408	205,321	11,913	6.2
Hardwood	76,380	68,303	-8,077	-10.6
Total	269,788	273,624	3,836	1.4
Composite panels				
Softwood	10,982	17,870	6,888	62.7
Hardwood	65	56	-9	-13.8
Total	11,047	17,926	6,879	62.3
Other industrial				
Softwood	3,769	3,753	-16	-0.4
Hardwood	0	0	0	
Total	3,769	3,753	-16	-0.4
All industrial				
Softwood	440,849	469,261	28,412	6.4
Hardwood	107,623	102,698	-4,925	-4.6
Total	548,472	571,959	23,487	4.3
Byproduct output				
Softwood	150,009	142,208	-7,801	-5.2
Hardwood	22,413	26,109	3,696	16.5
Total	172,422	168,317	-4,105	-2.4
Total output				
Softwood	590,858	611,469	20,611	3.5
Hardwood	130,036	128,807	-1,229	-0.9
Total	720,894	740,276	19,382	2.7

= negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (9,216,000 cubic feet in 2001 and 2,257,000 cubic feet in 2003).

**Table A.2—Roundwood receipts by product and species group,  
South Carolina, 2001 and 2003**

Product and species group	Year		Change	Change
	2001	2003		
	<i>----- thousand cubic feet -----</i>			<i>----- percent -----</i>
Saw logs				
Softwood	182,912	185,013	2,101	1.1
Hardwood	18,393	22,041	3,648	19.8
Total	201,305	207,054	5,749	2.9
Veneer logs				
Softwood	38,243	30,274	-7,969	-20.8
Hardwood	6,983	6,335	-648	-9.3
Total	45,226	36,609	-8,617	-19.1
Pulpwood <sup>a</sup>				
Softwood	191,316	199,354	8,038	4.2
Hardwood	73,613	78,400	4,787	6.5
Total	264,929	277,754	12,825	4.8
Other industrial				
Softwood	13,524	18,138	4,614	34.1
Hardwood	0	0	0	
Total	13,524	18,138	4,614	34.1
Total output				
Softwood	425,995	432,779	6,784	1.6
Hardwood	98,989	106,776	7,787	7.9
Total	524,984	539,555	14,571	2.8

= negligible.

<sup>a</sup> Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (9,818,000 cubic feet in 2001 and 2,444,000 cubic feet in 2003).

**Table A.3—Number of primary wood-using plants by industry, South Carolina, 1985 to 2003**

Industry	Year									
	1985	1987	1989	1992	1994	1995	1997	1999	2001	2003
	<i>number</i>									
Sawmills	118	99	87	79	76	70	66	63	51	51
Veneer mills	21	20	17	14	14	14	12	12	9	8
Pulpmills	8	8	8	9	8	8	8	7	7	7
Composite panel mills	0	0	0	0	0	0	0	0	1	1
Other mills	8	6	5	9	7	7	6	8	8	8
All plants	155	133	117	111	105	99	92	90	76	75

**Table A.4—Roundwood receipts by sawmill size, South Carolina, 2001 and 2003**

Sawmill size class <sup>a</sup> <i>mmbf</i>	2001			2003		
	Mills <i>number</i>	Volume <i>mbf</i>	<i>percen</i>	Mills <i>number</i>	Volume <i>mbf</i>	<i>percen</i>
< 1.0	4	1,611	0	4	1,525	0
1.0 – 4.99	16	44,327	4	15	41,469	3
5.0 – 9.99	11	80,077	7	12	89,995	8
10.0 – 49.99	11	249,329	22	11	263,010	23
> 50	9	750,314	67	9	763,242	66
Total	51	1,125,658	100	51	1,159,241	100

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

**Table A.5—Roundwood receipts by species and type of mill, South Carolina, 2003**

Species	Type of mill					
	All mills	Sawmills	Veneer mills		Pulpmills <sup>a</sup>	Other mills
			Pine plywood	Other veneer		
<i>thousand cubic feet</i>						
<b>Softwood</b>						
Yellow pine	232,235	183,864	30,130	103	NA	18,138
Eastern white pine	593	593	0	0	NA	0
Cedar	1	1	0	0	NA	0
Cypress	596	555	0	41	NA	0
Other softwood	0	0	0	0	NA	0
Unclassified	199,354	0	0	0	199,354	0
<b>Total softwoods</b>	<b>432,779</b>	<b>185,013</b>	<b>30,130</b>	<b>144</b>	<b>199,354</b>	<b>18,138</b>
<b>Hardwood</b>						
Blackgum and tupelo	1,370	415	0	955	NA	0
Soft maple	695	527	0	168	NA	0
Sweetgum	3,752	1,727	877	1,148	NA	0
Yellow-poplar	5,939	4,590	702	647	NA	0
Other soft hardwood	4,613	4,579	0	34	NA	0
Hickory	1,166	538	0	628	NA	0
Red oak	5,990	4,994	0	996	NA	0
White oak	3,690	3,604	0	86	NA	0
Other hard hardwood	1,161	1,067	0	94	NA	0
Unclassified	78,400	0	0	0	78,400	0
<b>Total hardwoods</b>	<b>106,776</b>	<b>22,041</b>	<b>1,579</b>	<b>4,756</b>	<b>78,400</b>	<b>0</b>
<b>All species</b>	<b>539,555</b>	<b>207,054</b>	<b>31,709</b>	<b>4,900</b>	<b>277,754</b>	<b>18,138</b>

NA = not applicable.

<sup>a</sup> Only collected by softwood and hardwood and includes roundwood chipped.

**Table A.6—Industrial roundwood movement by year and species group,  
South Carolina, 2001 and 2003**

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
<b>Softwood</b>					
2001	440,849	67,610	373,239	52,756	425,995
2003	469,261	78,976	390,285	42,494	432,779
<b>Hardwood</b>					
2001	107,623	28,755	78,868	20,121	98,989
2003	102,698	24,280	78,414	28,358	106,776
<b>All species</b>					
2001	548,472	96,365	452,107	72,877	524,984
2003	571,959	103,256	468,703	70,852	539,554

**Table A.7—Industrial roundwood movement by product and species group, South Carolina, 2003**

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
Saw logs					
Softwood	207,536	32,029	175,507	9,506	185,013
Hardwood	27,381	7,915	19,466	2,575	22,041
Total	234,917	39,944	194,973	12,081	207,054
Veneer logs					
Softwood	34,781	6,061	28,720	1,554	30,274
Hardwood	6,958	1,700	5,258	1,077	6,335
Total	41,739	7,761	33,978	2,631	36,609
Pulpwood <sup>a</sup>					
Softwood	205,321	37,286	168,035	31,319	199,354
Hardwood	68,303	14,609	53,694	24,706	78,400
Total	273,624	51,895	221,729	56,025	277,754
Other industrial					
Softwood	21,623	3,600	18,023	115	18,138
Hardwood	56	56	0	0	0
Total	21,679	3,656	18,023	115	18,138
All products					
Softwood	469,261	78,976	390,285	42,494	432,779
Hardwood	102,698	24,280	78,418	28,358	106,776
Total	571,959	103,256	468,703	70,852	539,555

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

**Table A.8—Saw-log volume by destination, source, and species group, South Carolina, 2003**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
South Carolina (retained)	194,973	175,507	19,466
Exports to			
Georgia	22,209	18,734	3,475
North Carolina	17,735	13,295	4,440
Total	39,944	32,029	7,915
Imports from			
Georgia	5,058	3,184	1,874
North Carolina	7,023	6,322	701
Total	12,081	9,506	2,575

**Table A.9—Veneer volume by destination, source, and species group, South Carolina, 2003**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
South Carolina (retained)	33,978	28,720	5,258
Exports to			
Florida	222	222	0
Georgia	1,951	1,530	421
North Carolina	5,577	4,302	1,275
Virginia	11	7	4
Total	7,761	6,061	1,700
Imports from			
Georgia	936	0	936
North Carolina	1,695	1,554	141
Total	2,631	1,554	1,077

**Table A.10—Pulpwood volume by destination, source, and species group, South Carolina, 2003<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
South Carolina (retained)	221,729	168,035	53,694
Exports to			
Georgia	27,511	17,924	9,587
North Carolina	23,615	18,659	4,956
Tennessee	681	681	0
Texas	22	22	0
Virginia	66	0	66
Total	51,895	37,286	14,609
Imports from			
Florida	236	0	236
Georgia	2,378	515	1,863
North Carolina	52,542	30,730	21,812
Virginia	869	74	795
Total	56,025	31,319	24,706

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

**Table A.11—Other industrial volume by destination, source, and species group, South Carolina, 2003<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
South Carolina (retained)	18,023	18,023	0
Exports to			
Georgia	3,656	3,600	56
Total	3,656	3,600	56
Imports from			
Georgia	71	71	0
North Carolina	44	44	0
Total	115	115	0

<sup>a</sup> Includes poles, posts, mulch, firewood, log homes, charcoal, and all other industrial mills.

**Table A.12—Primary mill residue volume by roundwood type, species group, and residue type, South Carolina, 2003**

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
<i>housand cubic fee</i>					
Saw logs					
Softwood	97,264	15,760	42,993	25,221	13,290
Hardwood	12,631	2,368	5,862	4,347	54
Total	109,895	18,128	48,855	29,568	13,344
Veneer logs					
Softwood	17,102	2,638	7,273	7,191	0
Hardwood	4,405	703	1,886	1,816	0
Total	21,507	3,341	9,159	9,007	0
Pulpwood					
Softwood	19,233	19,233	0	0	0
Hardwood	9,118	9,118	0	0	0
Total	28,351	28,351	0	0	0
Other industrial <sup>a</sup>					
Softwood	8,627	6,373	2,254	0	0
Hardwood	0	0	0	0	0
Total	8,627	6,373	2,254	0	0
Total					
Softwood	142,226	44,004	52,520	32,412	13,290
Hardwood	26,154	12,189	7,748	6,163	54
Total	168,380	56,193	60,268	38,575	13,344

<sup>a</sup> Includes poles, pilings, posts, and all other industrial products.

**Table A.13—Disposal of residue at primary wood-using plants by product, species group, and type of residue, South Carolina, 2001 and 2003**

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
<i>thousand cubic feet</i>										
Fiber products										
Softwood	54,406	52,333	0	0	48,779	43,942	3,462	4,614	2,165	3,777
Hardwood	4,330	6,103	0	0	4,330	6,103	0	0	0	0
Total	58,736	58,436	0	0	53,109	50,045	3,462	4,614	2,165	3,777
Particleboard										
Softwood	12,604	9,487	30	0	419	948	5,961	5,858	6,194	2,681
Hardwood	7	452	7	0	0	0	0	452	0	0
Total	12,611	9,939	37	0	419	948	5,961	6,310	6,194	2,681
Sawn products										
Softwood	2,125	363	0	0	2,125	363	0	0	0	0
Hardwood	18	18	0	0	18	18	0	0	0	0
Total	2,143	381	0	0	2,143	381	0	0	0	0
Fuel										
Softwood	67,295	70,413	34,710	38,687	6,951	6,851	23,588	20,537	2,046	4,338
Hardwood	16,218	16,774	9,892	10,541	1,063	1,192	5,229	4,998	34	43
Total	83,513	87,187	44,602	49,228	8,014	8,043	28,817	25,535	2,080	4,381
Miscellaneous										
Softwood	13,579	9,612	7,318	5,306	540	415	1,975	1,397	3,746	2,494
Hardwood	1,840	2,762	1,330	1,641	178	413	316	697	16	11
Total	15,419	12,374	8,648	6,947	718	828	2,291	2,094	3,762	2,505
Not used										
Softwood	50	18	21	11	8	1	21	6	0	0
Hardwood	122	45	13	7	85	22	24	16	0	0
Total	172	63	34	18	93	23	45	22	0	0
All products										
Softwood	150,059	142,226	42,079	44,004	58,822	52,520	35,007	32,412	14,151	13,290
Hardwood	22,535	26,154	11,242	12,189	5,674	7,748	5,569	6,163	50	54
Total	172,594	168,380	53,321	56,193	64,496	60,268	40,576	38,575	14,201	13,344

**Table A.14—Roundwood timber product output by product and species group, Southern Coastal Plain region of South Carolina, 2001 and 2003**

Product and species group	Year		Change	Change
	2001	2003		
	<i>----- thousand cubic feet</i>		<i>-----</i>	<i>percent</i>
Saw logs				
Softwood	50,610	61,890	11,280	22.3
Hardwood	4,482	8,008	3,526	78.7
Total	55,092	69,898	14,806	26.9
Veneer logs				
Softwood	3,516	2,492	-1,024	-29.1
Hardwood	3,230	4,163	933	28.9
Total	6,746	6,655	-91	-1.3
Pulpwood <sup>a</sup>				
Softwood	48,611	62,146	13,535	27.8
Hardwood	26,452	18,105	-8,347	-31.6
Total	75,063	80,251	5,188	6.9
Composite panels				
Softwood	283	572	289	102.1
Hardwood	0	0	0	
Total	283	572	289	102.1
Other industrial				
Softwood	1,544	1,427	-117	-7.6
Hardwood	0	0	0	
Total	1,544	1,427	-117	-7.6
All industrial				
Softwood	104,564	128,527	23,963	22.9
Hardwood	34,164	30,276	-3,888	-11.4
Total	138,728	158,803	20,075	14.5

= negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (1,582,000 cubic feet in 2001 and 353,000 cubic feet in 2003).

**Table A.15—Roundwood timber product output by county, product, and species group, Southern Coastal Plain region of South Carolina, 2003**

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>housand cubic fee</i>											
Aiken	16,060	3,057	8,086	954	1,031	86	6,150	2,017	572	0	221	0
Allendale	6,459	1,621	2,532	75	0	485	3,819	1,061	0	0	108	0
Bamberg	10,694	1,869	4,207	495	128	278	6,231	1,096	0	0	128	0
Barnwell	12,437	2,558	4,933	833	0	313	7,443	1,412	0	0	61	0
Beaufort	2,802	400	2,152	0	0	146	593	254	0	0	57	0
Calhoun	5,740	1,623	1,709	417	0	169	3,988	1,037	0	0	43	0
Colleton	16,199	4,287	9,345	1,546	0	772	6,653	1,969	0	0	201	0
Dorchester	9,557	3,868	3,955	92	0	170	5,602	3,606	0	0	0	0
Hampton	12,135	3,167	8,427	588	0	768	3,530	1,811	0	0	178	0
Jasper	14,925	1,617	7,482	548	0	244	7,317	825	0	0	126	0
Lexington	8,408	1,001	4,720	85	1,205	80	2,310	836	0	0	173	0
Orangeburg	13,111	5,208	4,342	2,375	128	652	8,510	2,181	0	0	131	0
All counties	128,527	30,276	61,890	8,008	2,492	4,163	62,146	18,105	572	0	1,427	0

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (353,000 cubic feet in 2003).

**Table A.16—Roundwood timber product output by product and species group, Northern Coastal Plain region of South Carolina, 2001 and 2003**

Product and species group	Year		Change	Change
	2001	2003		
	----- <i>housand cubic fee</i> -----			<i>percen</i>
Saw logs				
Softwood	77,371	85,518	8,147	10.5
Hardwood	8,027	6,556	-1,471	-18.3
Total	85,398	92,074	6,676	7.8
Veneer logs				
Softwood	12,182	8,156	-4,026	-33.0
Hardwood	837	1,278	441	52.7
Total	13,019	9,434	-3,585	-27.5
Pulpwood <sup>a</sup>				
Softwood	73,083	82,045	8,962	12.3
Hardwood	31,867	29,447	-2,420	-7.6
Total	104,950	111,492	6,542	6.2
Composite panels				
Softwood	94	0	-94	-100.0
Hardwood	0	0	0	
Total	94	0	-94	-100.0
Other industrial				
Softwood	1,006	933	-73	-7.3
Hardwood	0	0	0	
Total	1,006	933	-73	-7.3
All industrial				
Softwood	163,736	176,652	12,916	7.9
Hardwood	40,731	37,281	-3,450	-8.5
Total	204,467	213,933	9,466	4.6

= negligible.

<sup>a</sup> Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (2,293,000 cubic feet in 2001 and 410,000 cubic feet in 2003).

**Table A.17—Roundwood timber product output by county, product, and species group, Northern Coastal Plain region of South Carolina, 2003**

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>housand cubic fee</i>											
Berkeley	9,475	934	4,021	200	738	0	4,716	734	0	0	0	0
Charleston	7,615	601	2,966	0	0	0	4,649	601	0	0	0	0
Chesterfield	15,296	3,898	4,575	985	690	962	10,031	1,951	0	0	0	0
Clarendon	5,096	972	2,465	303	0	0	2,631	669	0	0	0	0
Darlington	5,025	2,304	2,105	613	3	1	2,917	1,690	0	0	0	0
Dillon	9,985	3,375	7,329	398	819	0	1,790	2,977	0	0	47	0
Florence	9,981	2,787	6,665	598	58	29	2,976	2,160	0	0	282	0
Georgetown	29,138	3,341	15,962	0	17	6	13,019	3,335	0	0	140	0
Horry	16,421	2,434	9,884	702	2,474	84	3,923	1,648	0	0	140	0
Kershaw	18,586	2,419	6,039	0	1,065	78	11,439	2,341	0	0	43	0
Lee	5,114	847	1,621	0	0	0	3,493	847	0	0	0	0
Marion	8,489	4,184	5,752	893	845	5	1,798	3,286	0	0	94	0
Marlboro	9,129	3,109	3,321	705	1,035	94	4,773	2,310	0	0	0	0
Richland	8,776	2,301	3,544	476	386	12	4,799	1,813	0	0	47	0
Sumter	3,250	1,784	829	200	0	0	2,421	1,584	0	0	0	0
Williamsburg	15,276	1,991	8,440	483	26	7	6,670	1,501	0	0	140	0
All counties	176,652	37,281	85,518	6,556	8,156	1,278	82,045	29,447	0	0	933	0

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (410,000 cubic feet in 2003).

**Table A.18—Roundwood timber product output by product and species group, Piedmont region of South Carolina, 2001 and 2003**

Product and species group	Year		Change	Change
	2001	2003		
	<i>----- thousand cubic feet -----</i>		<i>-----</i>	<i>percen</i>
Saw logs				
Softwood	63,742	60,128	-3,614	-5.7
Hardwood	11,644	12,817	1,173	10.1
Total	75,386	72,945	-2,441	-3.2
Veneer logs				
Softwood	25,269	24,133	-1,136	-4.5
Hardwood	2,958	1,517	-1,441	-48.7
Total	28,227	25,650	-2,577	-9.1
Pulpwood <sup>a</sup>				
Softwood	71,714	61,130	-10,584	-14.8
Hardwood	18,061	20,751	2,690	14.9
Total	89,775	81,881	-7,894	-8.8
Composite panels				
Softwood	10,605	17,298	6,693	63.1
Hardwood	65	56	-9	-13.8
Total	10,670	17,354	6,684	62.6
Other industrial				
Softwood	1,219	1,393	174	14.3
Hardwood	0	0	0	
Total	1,219	1,393	174	14.3
All industrial				
Softwood	172,549	164,082	-8,467	-4.9
Hardwood	32,728	35,141	2,413	7.4
Total	205,277	199,223	-6,054	-2.9

= negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (5,341,000 cubic feet in 2001 and 1,494,000 cubic feet in 2003).

**Table A.19—Roundwood timber product output by county, product, and species group, Piedmont region of South Carolina, 2003**

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>housand cubic fee</i>											
Abbeville	6,708	767	2,859	591	1,134	0	376	157	2,332	19	7	0
Anderson	4,129	1,197	1,445	1,172	343	0	106	4	2,205	21	30	0
Cherokee	2,037	1,131	572	711	345	142	834	278	286	0	0	0
Chester	10,458	1,649	1,021	1,254	3,234	284	5,664	111	429	0	110	0
Edgefield	9,849	1,369	6,637	364	1,160	0	789	1,005	1,145	0	118	0
Fairfield	16,684	2,852	5,476	82	2,328	189	8,395	2,581	286	0	199	0
Greenville	1,878	967	931	892	257	0	404	75	286	0	0	0
Greenwood	7,989	2,100	5,117	752	644	49	1,185	1,299	1,002	0	41	0
Lancaster	9,650	1,085	2,759	498	818	63	6,066	524	0	0	7	0
Laurens	12,360	2,553	3,318	962	2,238	110	3,035	1,481	3,578	0	191	0
McCormick	8,401	832	6,142	344	1,297	0	290	487	631	1	41	0
Newberry	30,420	2,093	8,021	383	2,665	31	17,590	1,679	1,860	0	284	0
Oconee	5,149	1,616	2,098	1,550	688	51	1,537	0	826	15	0	0
Pickens	3,543	1,492	2,811	1,106	135	4	311	382	286	0	0	0
Saluda	10,343	1,323	6,943	349	1,417	0	582	974	1,145	0	256	0
Spartanburg	10,048	7,115	2,651	618	1,162	60	5,898	6,437	286	0	51	0
Union	8,214	3,298	1,176	281	2,198	202	4,366	2,815	429	0	45	0
York	6,222	1,702	151	908	2,070	332	3,702	462	286	0	13	0
All counties	164,082	35,141	60,128	12,817	24,133	1,517	61,130	20,751	17,298	56	1,393	0

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (1,494,000 cubic feet in 2003).

**Table A.20—Total roundwood output by product, species group, and source of material, South Carolina, 2003**

Product and species group	All sources	Total	Growing-stock trees		Other sources
			Sawtimber	Poletimber	
<i>thousand cubic feet</i>					
Saw logs					
Softwood	207,536	196,509	193,799	2,710	11,027
Hardwood	27,381	25,750	25,260	490	1,631
Total	234,917	222,259	219,059	3,200	12,658
Veneer logs and bolts					
Softwood	34,781	33,543	33,016	527	1,238
Hardwood	6,958	6,879	6,879	0	79
Total	41,739	40,421	39,894	527	1,318
Pulpwood					
Softwood	205,321	188,013	86,697	101,316	17,308
Hardwood	68,303	62,545	29,342	33,203	5,758
Total	273,624	250,558	116,039	134,519	23,066
Composite panels					
Softwood	17,870	16,366	7,411	8,955	1,504
Hardwood	56	51	20	32	5
Total	17,926	16,417	7,430	8,987	1,509
Poles and posts					
Softwood	3,723	3,050	2,967	83	673
Hardwood	0	0	0	0	0
Total	3,723	3,050	2,967	83	673
Other miscellaneous					
Softwood	30	25	20	5	5
Hardwood	0	0	0	0	0
Total	30	25	20	5	5
Total industrial products					
Softwood	469,261	437,505	323,910	113,595	31,756
Hardwood	102,698	95,225	61,500	33,725	7,473
Total	571,959	532,730	385,410	147,320	39,229
Fuelwood					
Softwood	3,367	1,278	699	580	2,089
Hardwood	26,463	21,462	17,134	4,328	5,001
Total	29,830	22,740	17,832	4,908	7,090
All products					
Softwood	472,628	438,783	324,608	114,175	33,845
Hardwood	129,161	116,687	78,634	38,054	12,474
Total	601,789	555,470	403,242	152,228	46,319

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

**Table A.21—Total roundwood output by species group, survey region, and ownership class, South Carolina, 2003**

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
Softwoods				
Southern Coastal Plain	129,448	7,503	30,986	90,959
Northern Coastal Plain	177,921	8,713	62,224	106,984
Piedmont	165,259	5,084	53,059	107,116
Total softwoods	472,628	21,300	146,269	305,059
Hardwoods				
Southern Coastal Plain	38,079	53	11,406	26,620
Northern Coastal Plain	46,887	282	11,988	34,616
Piedmont	44,195	658	11,231	32,306
Total hardwoods	129,161	994	34,625	93,542
All species	601,789	22,293	180,895	398,601

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

**Table A.22—Total roundwood output by species group, detailed species group, and product, South Carolina, 2003**

Species group and detailed species group	Total	Product						Fuel- wood
		Saw logs	Veneer logs	Pulpwood	Composite panel	Poles and posts	Other miscellaneous	
<i>thousand cubic feet</i>								
<b>Softwood</b>								
Cedar	2,703	662	569	1,055	378	20	0	19
Longleaf-slash pine	77,642	34,379	2,854	39,034	282	541	0	552
White pine	331	112	41	143	32	1	0	2
Loblolly-shortleaf pine	351,886	153,968	28,630	147,461	16,401	2,890	30	2,507
Other yellow pines	35,009	15,869	2,523	15,379	777	212	0	249
Cypress	5,057	2,546	165	2,250	0	60	0	36
<b>Total softwoods</b>	<b>472,628</b>	<b>207,536</b>	<b>34,781</b>	<b>205,321</b>	<b>17,870</b>	<b>3,723</b>	<b>30</b>	<b>3,367</b>
<b>Hardwood</b>								
Soft maple	7,656	1,497	420	4,170	1	0	0	1,569
Other birch	413	194	28	107	0	0	0	85
Hickory	4,967	1,093	258	2,596	3	0	0	1,018
Beech	644	111	10	391	0	0	0	132
Ash	4,181	779	200	2,344	2	0	0	857
Black walnut	39	1	2	28	0	0	0	8
Sweetgum	27,238	5,446	1,565	14,635	11	0	0	5,581
Yellow-poplar	10,524	2,564	763	5,039	3	0	0	2,156
Blackgum-tupelo	11,010	2,098	589	6,067	1	0	0	2,256
Sycamore	1,226	252	85	638	0	0	0	251
Cottonwood	407	81	38	205	0	0	0	83
Black cherry	398	95	45	176	0	0	0	82
Select white oaks	11,879	2,477	316	6,642	10	0	0	2,434
Other white oaks	4,374	1,113	154	2,207	3	0	0	896
Select red oaks	3,083	650	136	1,665	1	0	0	632
Other red oaks	33,332	7,274	1,966	17,243	19	0	0	6,829
Elm	2,483	572	155	1,246	1	0	0	509
Other Eastern hardwoods	5,307	1,085	228	2,906	2	0	0	1,087
<b>Total hardwoods</b>	<b>129,161</b>	<b>27,381</b>	<b>6,958</b>	<b>68,303</b>	<b>56</b>	<b>0</b>	<b>0</b>	<b>26,463</b>
<b>All species</b>	<b>601,789</b>	<b>234,917</b>	<b>41,739</b>	<b>273,624</b>	<b>17,926</b>	<b>3,723</b>	<b>30</b>	<b>29,830</b>

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

**Table A.23—Total roundwood output by species group, detailed species group, and ownership class, South Carolina, 2003**

Species group and detailed species group	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
<b>Softwood</b>				
Cedar	2,703	114	986	1,602
Longleaf-slash pine	77,642	7,753	21,463	48,426
White pine	331	11	0	320
Loblolly-shortleaf pine	351,886	12,410	115,238	224,239
Other yellow pines	35,009	923	7,416	26,670
Cypress	5,057	88	1,167	3,802
<b>Total softwoods</b>	<b>472,628</b>	<b>21,300</b>	<b>146,269</b>	<b>305,059</b>
<b>Hardwood</b>				
Soft maple	7,656	43	2,446	5,167
Other birch	413	5	215	193
Hickory	4,967	59	1,430	3,478
Beech	644	16	42	586
Ash	4,181	40	955	3,186
Black walnut	39	0	15	24
Sweetgum	27,238	168	6,819	20,251
Yellow-poplar	10,524	86	2,425	8,013
Blackgum-tupelo	11,010	52	3,027	7,932
Sycamore	1,226	18	524	684
Cottonwood	407	3	117	287
Black cherry	398	4	67	327
Select white oaks	11,879	147	2,647	9,085
Other white oaks	4,374	23	1,294	3,056
Select red oaks	3,083	33	1,204	1,846
Other red oaks	33,332	227	9,708	23,397
Elm	2,483	17	621	1,846
Other Eastern hardwoods	5,307	54	1,070	4,183
<b>Total hardwoods</b>	<b>129,161</b>	<b>994</b>	<b>34,625</b>	<b>93,542</b>
<b>All species</b>	<b>601,789</b>	<b>22,293</b>	<b>180,895</b>	<b>398,601</b>

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



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**Johnson, T.G.; Knight, M.** 2006. South Carolina's timber industry—an assessment of timber product output and use, 2003. Resour. Bull. SRS-106. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 39 p.

In 2003, industrial roundwood output from South Carolina's forests totaled 572 million cubic feet, 4 percent more than in 2001. Mill byproducts generated from primary manufacturers declined 2 percent to 168 million cubic feet. Almost all plant residues were used primarily for fuel and fiber products. Pulpwood was the leading roundwood product at 274 million cubic feet; saw logs ranked second at 235 million cubic feet; veneer logs were third at 42 million cubic feet. The number of primary processing plants declined from 76 in 2001 to 75 in 2003. Total receipts increased 3 percent to 540 million cubic feet.

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

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