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# North Carolina's Timber Industry— An Assessment of Timber Product Output and Use, 2007

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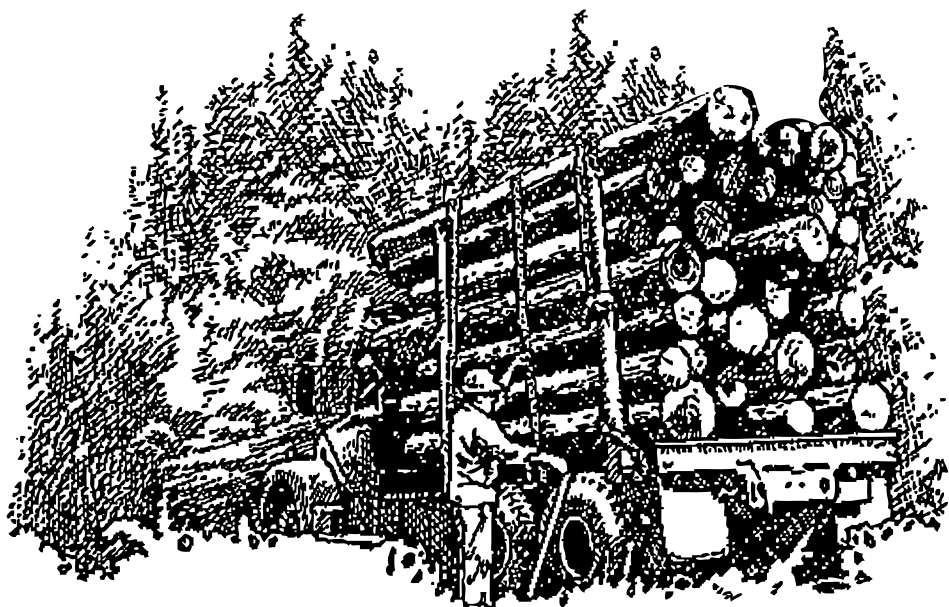


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## Foreword

This report contains the findings of a 2007 canvass of all primary wood-using plants in North Carolina, and presents changes in product output and residue use since 2005. 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 2007 and to determine interstate and cross-regional movement of industrial roundwood. Only primary wood-using mills were canvassed. Primary mills are those that process roundwood in log or bolt form or as chipped roundwood. Examples of industrial roundwood products are saw logs, pulpwood, veneer logs, poles, and logs used for composite board products. Mills producing products from residues generated at primary and secondary processors were not canvassed. Trees chipped in the woods were included in the estimate of timber drain only if they were delivered to a primary domestic manufacturer.

A 100-percent canvass of all wood processors in North Carolina was conducted in 2008 to obtain information for 2007. 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. 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 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 New and Don Roach for review and comments; Carolyn Steppleton and Michael Howell for their tireless efforts in processing and accuracy of the data; Helen Beresford for timber product output database maintenance and support; Anne Jenkins, Janet Griffin, Sharon Johnson, and Charlene Walker for tables, graphs, and statistical checking; and the Southern Research Station (SRS) Technical Publications Team for editorial review, styling, and publication of this report.

The SRS 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.



## Timber Product Output Database Retrieval System

The Forest Inventory and Analysis (FIA) Research Work Unit of the 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 region and Nation. 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, other timber removals (i.e. land clearing and reserved timber removals), 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/>.

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, State, or region. The system has been logically divided into two sections to assist the user in making specific data requests. In section 1, the user will be 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 options 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 in the format the customer requests. 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.

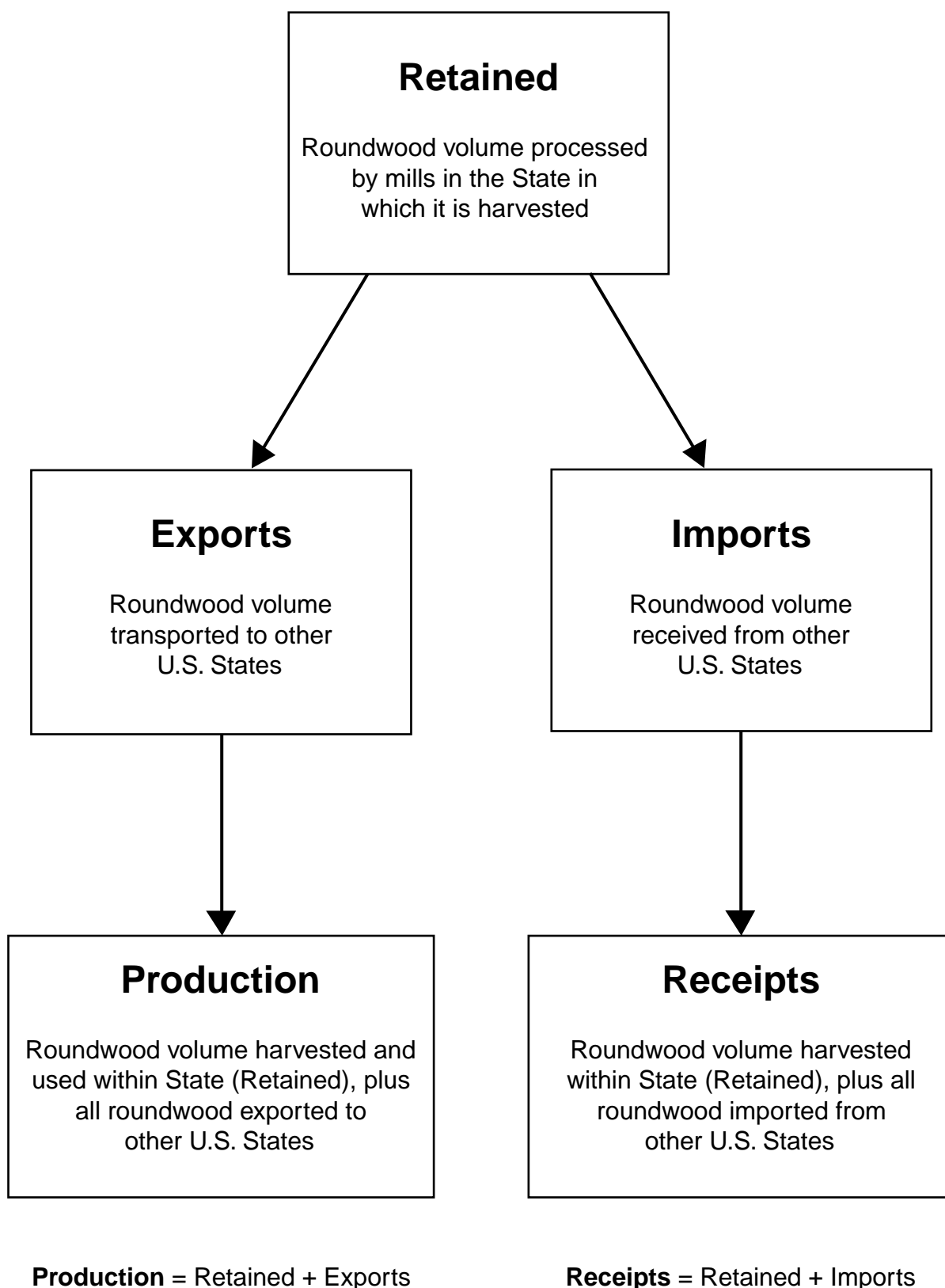


Figure 1—Movement of roundwood exports and imports within the United States.

# North Carolina's Timber Industry— An Assessment of Timber Product Output and Use, 2007

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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 product output (TPO) (fig. 1).

### All Products

- Between 2005 and 2007, TPO from roundwood was down 56 million cubic feet, or 7 percent, to 728 million cubic feet, while output of utilized plant byproducts was down 12 million cubic feet to 294 million cubic feet.

- Output of softwood roundwood products declined 8 percent to 474 million cubic feet, and the output of hardwood roundwood products declined 6 percent from 255 million cubic feet (fig. 2).
- Saw logs and pulpwood were the principal roundwood products in 2007. Combined output of these products totaled 629 million cubic feet and accounted for 86 percent of the State's total roundwood output (fig. 3).
- 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 37 million cubic feet to 714 million cubic feet. At the same time, the number of primary roundwood-using plants in North Carolina was down from 180 in 2005 to 163 in 2007 (fig. 4). Nearly all the decline was in sawmills.

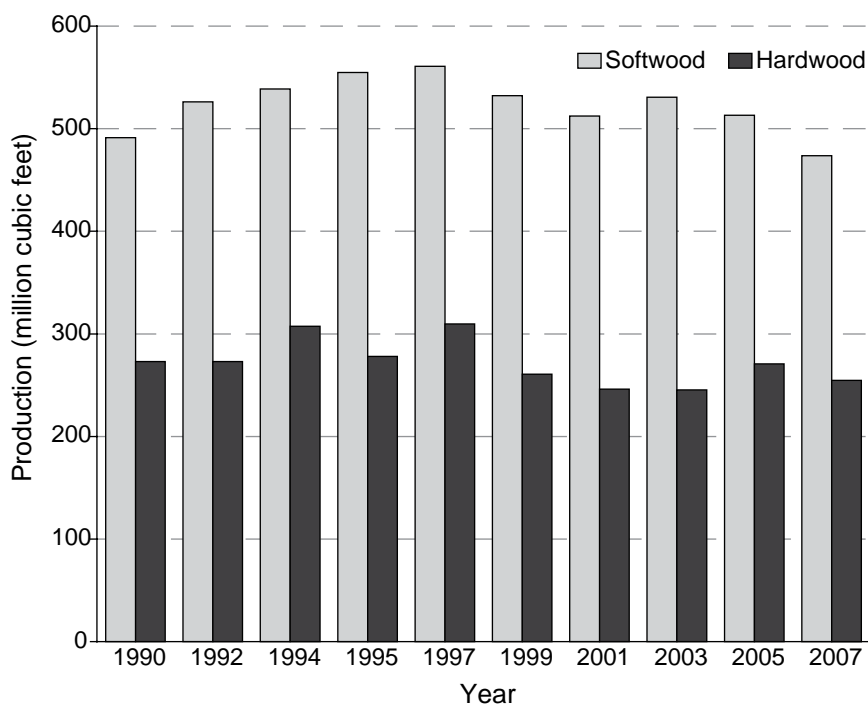


Figure 2—Roundwood production for all products by species group and year (see page 8 for references for individual years), North Carolina.

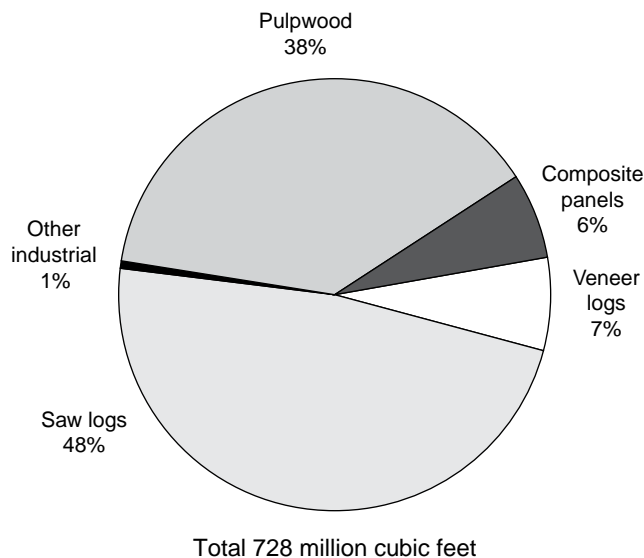


Figure 3—Roundwood production by type of product, North Carolina, 2007.

- Across all products, 83 percent of roundwood harvested was retained for processing at North Carolina mills. Exports of roundwood to other States amounted to 127 million cubic feet, while imports of roundwood amounted to 112 million cubic feet, making the State a net exporter of roundwood. Tables A.8 to A.12 show exports to and imports from other States by individual product type.

## Saw Logs

- Saw logs accounted for 48 percent of the State's total roundwood products. Output of softwood saw logs was down 15 percent to 245 million cubic feet (1.36 billion board feet, International ¼-inch rule), and the output of hardwood saw logs declined 6 percent to 104 million cubic feet (625 million board feet, International ¼-inch rule) (fig. 5).
- In 2007, North Carolina had 136 sawmills, a net loss of 17 mills since 2005. Total saw-log receipts were down about 40 million cubic feet to 374 million cubic feet but still accounted for 52 percent of the State's total receipts. Softwood saw-log receipts were down nearly 13 percent to 265 million cubic feet, while hardwood receipts declined slightly > 1 percent to 109 million cubic feet. Of the mills operating in 2007, 24 percent had receipts < 1 million board feet, while 40 percent had receipts > 10 million board feet. Those 55 mills accounted for 90 percent of saw-log receipts.
- North Carolina retained 94 percent of its saw-log production for within State manufacture. Saw-log imports at 46 million cubic feet exceeded exports by 26 million cubic feet in 2007, making the State a net importer of saw logs.

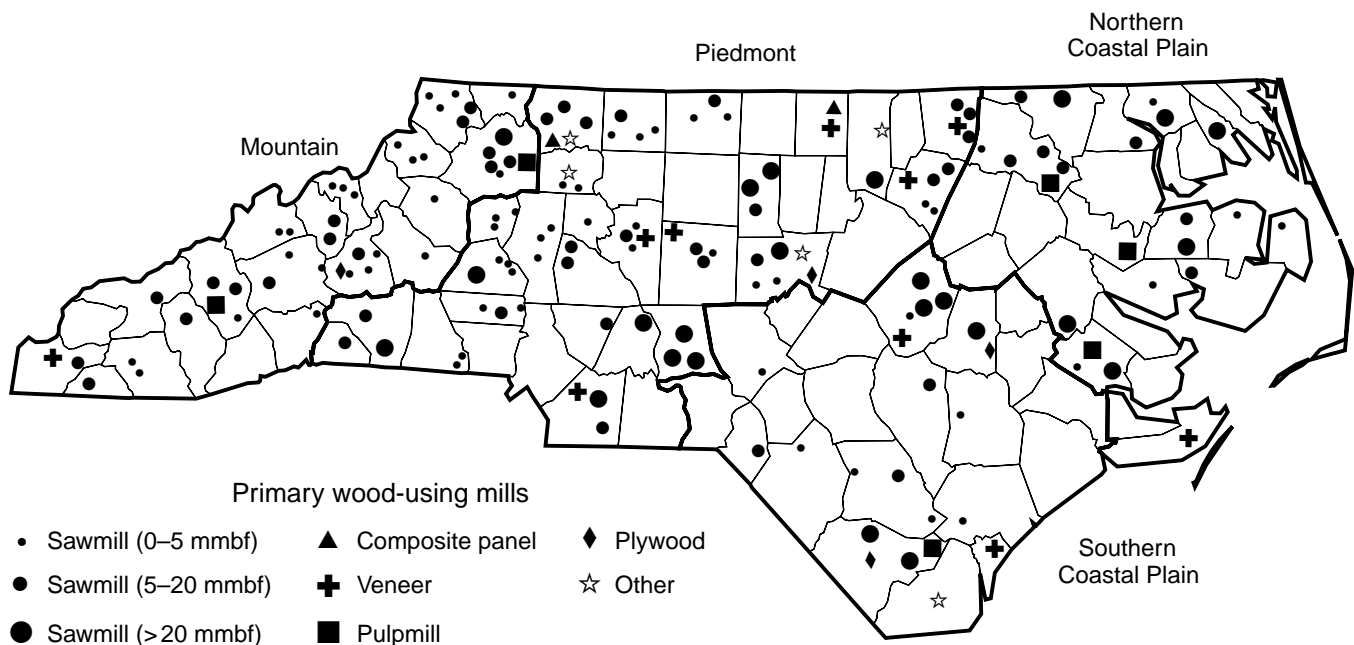


Figure 4—Primary wood-using mills by region, North Carolina, 2007.



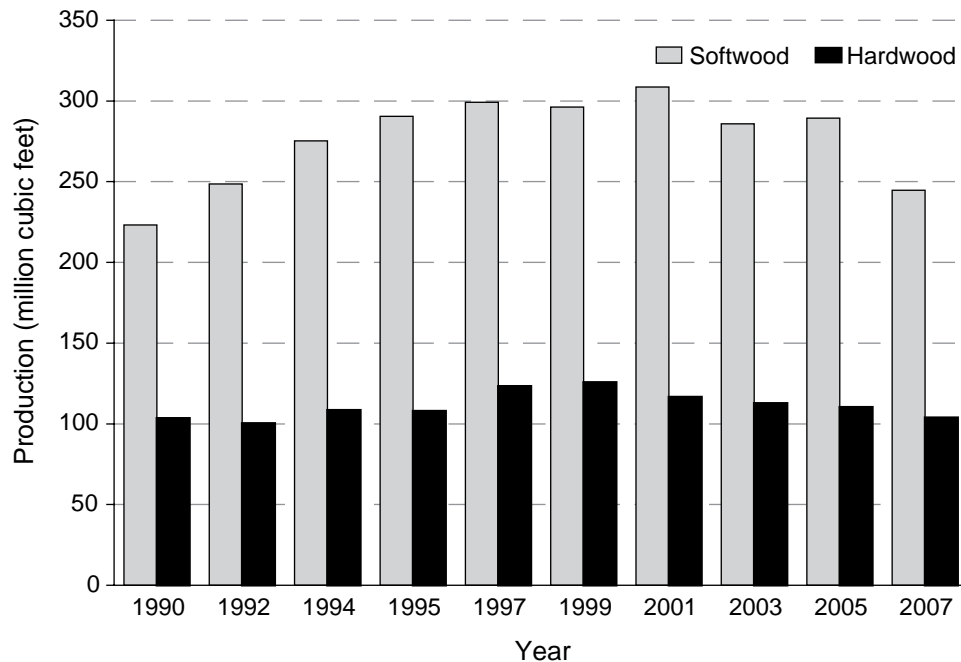


Figure 5—Roundwood saw-log production by species group and year (see page 8 for references for individual years), North Carolina.

## Pulpwood

- Pulpwood production, including chipped roundwood, increased 7 million cubic feet to 280 million cubic feet and accounted for 39 percent of the State's total roundwood TPO. Softwood output increased nearly 11 percent to 151 million cubic feet (2.1 million cords), while hardwood output decreased 6 percent to 129 million cubic feet (1.7 million cords) (fig. 6).
- Six pulpmill facilities were operating and receiving roundwood in North Carolina in 2007, the same as in 2005. Total pulpwood receipts for these mills were up 14 million cubic feet to 245 million cubic feet, accounting for 34 percent of total receipts for all mills.
- Seventy percent of roundwood cut for pulpwood was retained for processing by North Carolina pulpmills. Roundwood pulpwood accounted for 67 percent of total known exports and 44 percent of total imports. Roundwood pulpwood exports amounted to 85 million cubic feet, while imports totaled 50 million cubic feet, making the State a net exporter of roundwood pulpwood.

## Veneer Logs

- Output of veneer logs in 2007 totaled 50 million cubic feet and accounted for 7 percent of the State's total roundwood TPO volume. Softwood veneer production was down 19 percent to 36 million cubic feet (206 million board feet, International ¼-inch rule), and the output of hardwood veneer logs declined 6 percent to 14 million cubic feet (91 million board feet, International ¼-inch rule) (fig. 7).
- Fourteen veneer mills were operating in North Carolina in 2007, the same as in 2005. At the same time, receipts of veneer logs decreased 11 percent to 54 million cubic feet. Softwood veneer receipts were down 6.1 million cubic feet to 32 million cubic feet. Hardwood veneer receipts were down nearly 2 percent to 21 million cubic feet.
- North Carolina retained 85 percent of its veneer-log production for processing at veneer mills within the State. Imports amounted to 10.7 million cubic feet, while exports totaled 7.3 million cubic feet, making the State a net importer of roundwood veneer logs.

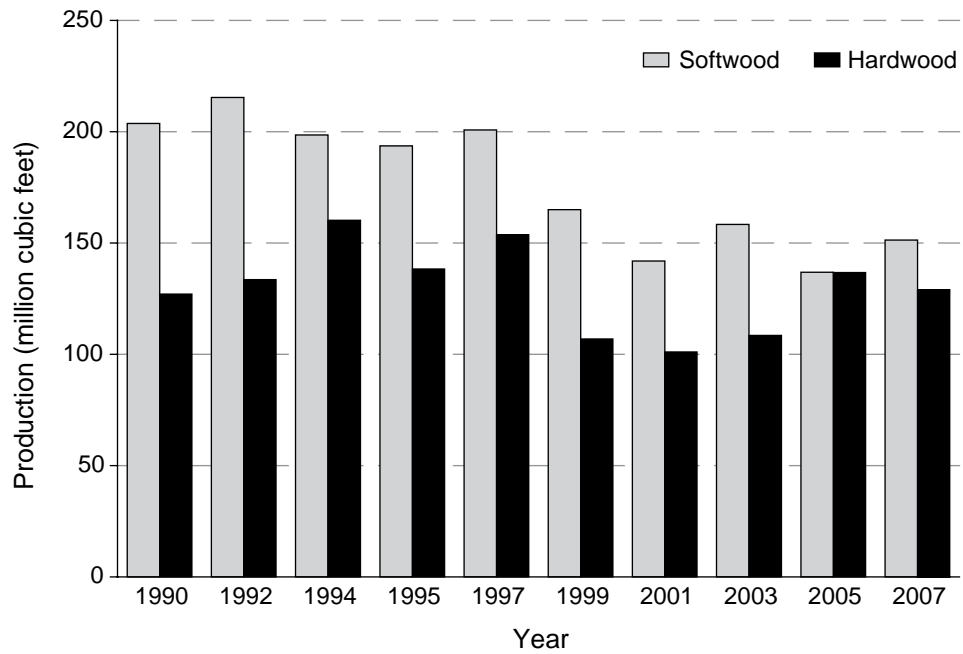


Figure 6—Roundwood pulpwood production by species group and year (see page 8 for references for individual years), North Carolina.

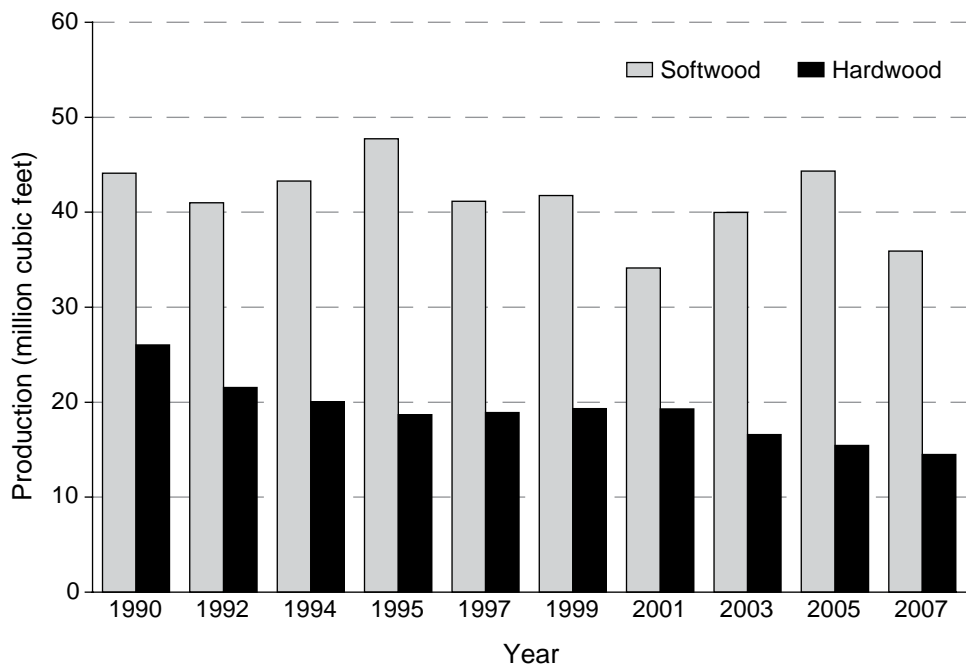


Figure 7—Roundwood veneer-log production by species group and year (see page 8 for references for individual years), North Carolina.

## Composite Panels

- Roundwood harvested from North Carolina's forests for composite panels declined 7 percent and totaled 46 million cubic feet. Softwood output was down 4 percent to 39 million cubic feet (543,000 cords), and hardwood output was down 23 percent to 6.4 million cubic feet (83,000 cords) (fig. 8).
- Two composite panel mills were operating in North Carolina in 2007, down from three in 2005. Total receipts for these mills decreased 12 percent to 40 million cubic feet.
- Seventy-three percent of the composite panel production was retained for processing by North Carolina mills. Exports amounted to 12.2 million cubic feet, while imports totaled 5.9 million cubic feet, making the State a net exporter 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 3.4 million cubic feet, up 136 percent from 2005. Softwood made up 70 percent of the other industrial products volume.

- The number of plants producing other industrial products increased from four in 2005 to five in 2007. Receipts of other industrial products totaled 1.3 million cubic feet.
- North Carolina was a net exporter of roundwood used for other industrial products. Of the 2 million cubic feet exported for other industrial uses, 52 percent was softwood.

## Plant Byproducts

- In 2007, processing of primary products in North Carolina mills generated 294 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 128 million cubic feet, while bark volume totaled 69 million cubic feet. Sawdust and shavings made up 33 percent of total residues, or 98 million cubic feet (fig. 9).

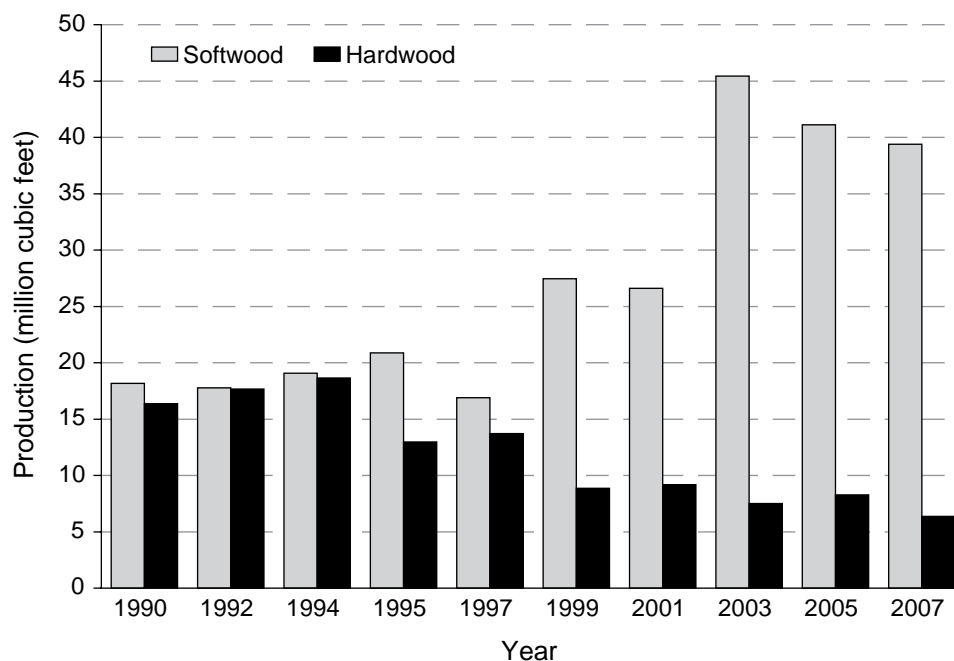


Figure 8—Roundwood production for composite panels by species group and year (see page 8 for references for individual years), North Carolina.

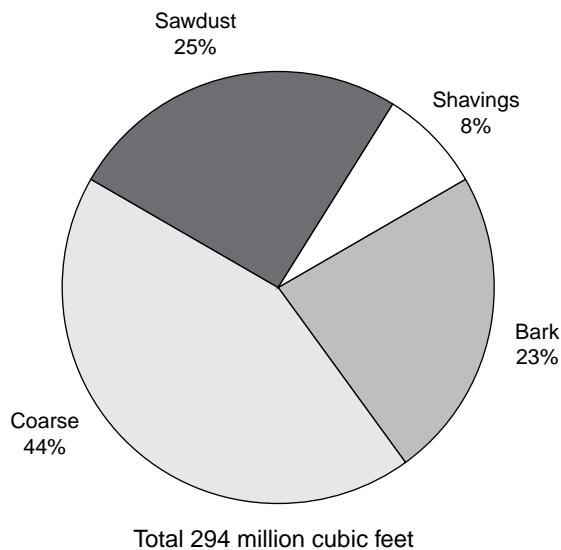


Figure 9—Primary mill residue by residue type, North Carolina, 2007.

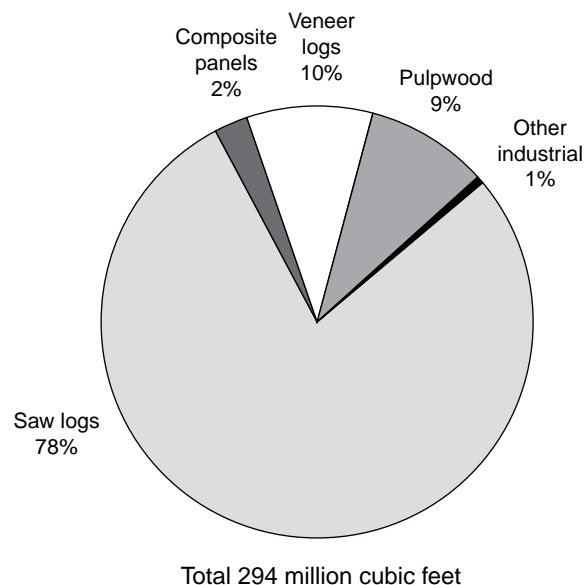


Figure 10—Disposal of residue by product, North Carolina, 2007.

- The processing of saw logs by sawmills generated 230 million cubic feet of mill residues, or 78 percent of the total residues produced (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 107 million cubic feet, or 84 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 78 percent of the sawdust and 10 percent of the shavings were used for industrial fuel. Shavings were used primarily for particleboard manufacture or miscellaneous uses such as bedding.

## County Data

- Table A.15 shows softwood and hardwood product output by county and individual product type. All 100 counties in North Carolina had softwood and hardwood output. Fourteen counties (Anson, Beaufort, Bertie, Bladen, Brunswick, Columbus, Craven, Halifax, Jones, Moore, Northampton, Onslow, Pitt, and Warren) had combined softwood and hardwood product output of > 14 million cubic feet each. These 14 counties total product output amounted to 262 million cubic feet and accounted for 36 percent of the State's total product output.

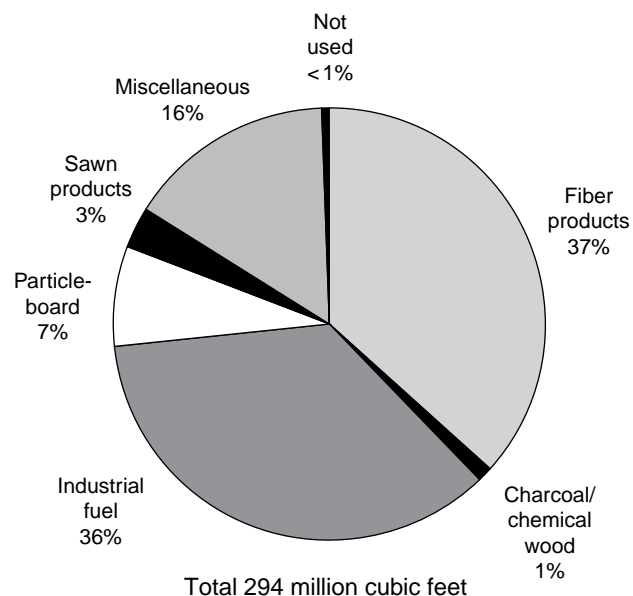


Figure 11—Primary mill residue produced by roundwood type, North Carolina, 2007.

## 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 728 million cubic feet of industrial roundwood output, an estimated 55 million cubic feet was harvested for domestic fuelwood, bringing North Carolina's total roundwood output to 783 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 22 million cubic feet, or 3 percent of total roundwood output (fig. 12).

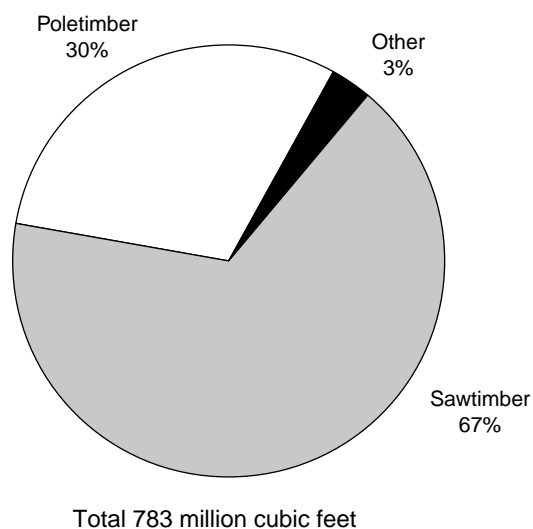


Figure 12—Roundwood output by source, North Carolina, 2007.

### Ownership

- An estimated 653 million cubic feet, or 83 percent, of the total roundwood output came from nonindustrial private forest lands. Forest industry lands contributed 115 million cubic feet, or 15 percent of the output. Public lands made up the remaining 2 percent, or > 15 million cubic feet (fig. 13).

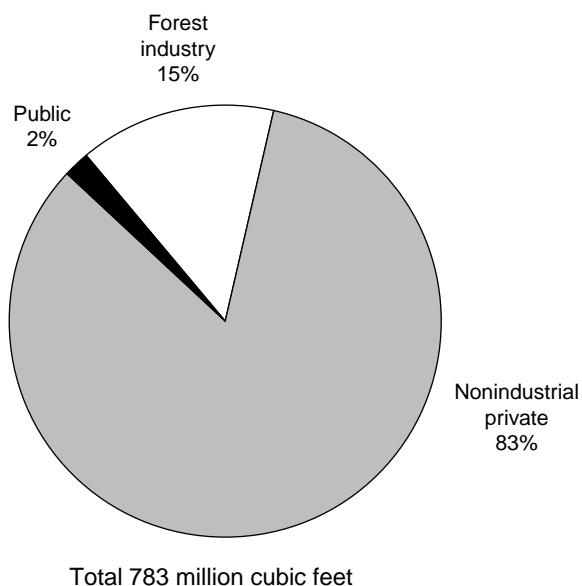
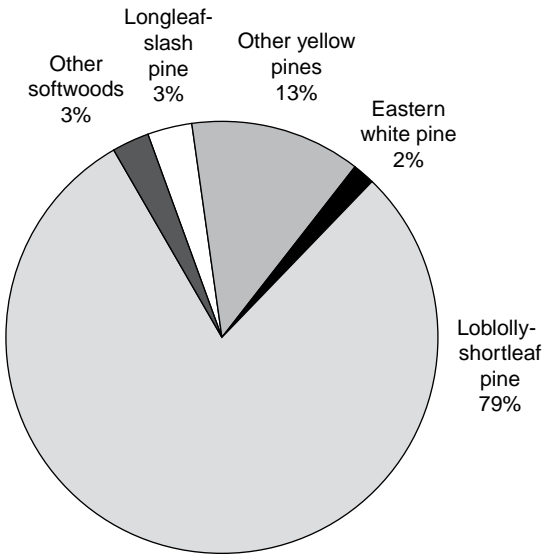


Figure 13—Roundwood output by ownership, North Carolina, 2007.

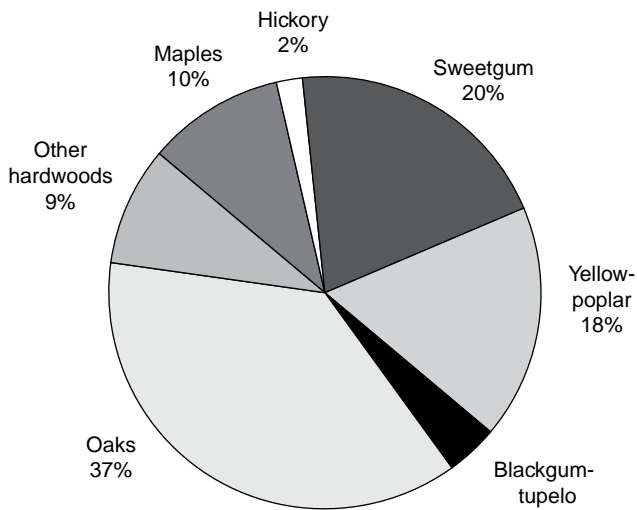
### Species

- The loblolly and shortleaf pine group provided the most volume of any softwood species group; at 383 million cubic feet, it accounted for 79 percent of the total softwood output (fig. 14). At 63 million cubic feet, other yellow pine types accounted for another 13 percent of softwood output. The red oak and white oak groups combined accounted for 112 million cubic feet, or 37 percent of total hardwood output (fig. 15).



Total 483 million cubic feet

Figure 14—Roundwood output by softwood species group, North Carolina, 2007.



Total 301 million cubic feet

Figure 15—Roundwood output by hardwood species group, North Carolina, 2007.

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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.

**Domestic fuelwood.** The volume of roundwood harvested to produce heat for residential settings.

**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.

**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.

**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.

**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 pulpmills 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 1/4-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.** Forest land 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).

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

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	

<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.

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

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

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

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



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**Table A.1—Output of industrial products by product and species group, North Carolina, 2005 and 2007**

Product and species group	Year		Change	Change
	2005	2007		
	----- <i>thousand cubic feet</i> -----			<i>percent</i>
Saw logs				
Softwood	289,355	244,657	-44,698	-15.4
Hardwood	110,302	103,760	-6,542	-5.9
Total	399,657	348,417	-51,240	-12.8
Veneer logs				
Softwood	44,337	35,911	-8,426	-19.0
Hardwood	15,437	14,505	-932	-6.0
Total	59,774	50,416	-9,358	-15.7
Pulpwood <sup>a</sup>				
Softwood	136,936	151,350	14,414	10.5
Hardwood	136,726	129,059	-7,667	-5.6
Total	273,662	280,409	6,747	2.5
Composite panels				
Softwood	41,126	39,403	-1,723	-4.2
Hardwood	8,271	6,356	-1,915	-23.2
Total	49,397	45,759	-3,638	-7.4
Other industrial				
Softwood	1,408	2,383	975	69.2
Hardwood	22	1,000	978	4,445.5
Total	1,430	3,383	1,953	136.6
All industrial				
Softwood	513,162	473,704	-39,458	-7.7
Hardwood	270,758	254,680	-16,078	-5.9
Total	783,920	728,384	-55,536	-7.1

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (7,051,000 cubic feet in 2005 and 4,608,000 cubic feet in 2007).

**Table A.2—Roundwood receipts by product and species group,  
North Carolina, 2005 and 2007**

Product and species group	Year		Change	Change
	2005	2007		
	----- <i>thousand cubic feet</i> -----			<i>percent</i>
Saw logs				
Softwood	303,275	265,162	-38,113	-12.6
Hardwood	110,788	109,248	-1,540	-1.4
Total	414,063	374,410	-39,653	-9.6
Veneer logs				
Softwood	38,491	32,347	-6,144	-16.0
Hardwood	21,765	21,441	-324	-1.5
Total	60,256	53,788	-6,468	-10.7
Pulpwood <sup>a</sup>				
Softwood	139,970	155,112	15,142	10.8
Hardwood	91,355	89,950	-1,405	-1.5
Total	231,325	245,062	13,737	5.9
Composite panels				
Softwood	38,304	32,838	-5,466	-14.3
Hardwood	6,521	6,673	152	2.3
Total	44,825	39,511	-5,314	-11.9
Other industrial				
Softwood	883	1,302	419	47.5
Hardwood	0	0	0	—
Total	883	1,302	419	47.5
Total output				
Softwood	520,923	486,761	-34,162	-6.6
Hardwood	230,429	227,312	-3,117	-1.4
Total	751,352	714,073	-37,279	-5.0

— = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (9,658,000 cubic feet in 2005 and 5,933,000 cubic feet in 2007).

**Table A.3—Number of primary wood-using plants by type of mill, North Carolina, 1990 to 2007**

Type of mill	Year									
	1990	1992	1994	1995	1997	1999	2001	2003	2005	2007
	<i>number</i>									
Sawmills	308	306	275	273	243	240	215	204	153	136
Veneer mills	32	29	27	27	23	24	20	18	14	14
Pulpmills	8	8	8	8	7	7	7	6	6	6
Composite panel mills	5	4	4	4	3	3	3	3	3	2
Other mills	13	10	8	8	4	4	4	4	4	5
All plants	366	357	322	320	280	278	249	235	180	163

**Table A.4—Roundwood receipts by sawmill size, North Carolina, 2005 and 2007**

Sawmill size class <sup>a</sup>	2005			2007		
	Mills	Volume		Mills	Volume	
<i>mmbf</i>	<i>number</i>	<i>mbf</i>	<i>percent</i>	<i>number</i>	<i>mbf</i>	<i>percent</i>
<1.0	37	12,317	1	32	12,234	1
1.0–4.99	41	106,536	4	34	87,200	4
5.0–9.99	17	116,556	5	15	103,618	5
10.0–49.99	45	827,473	35	44	836,201	39
>50	13	1,289,790	55	11	1,092,535	51
Total	153	2,352,672	100	136	2,131,788	100

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

**Table A.5—Roundwood receipts by species and type of mill, North Carolina, 2007**

Species	Type of mill						
	All mills	Sawmills	Veneer mills		OSB and panels	Pulpmills <sup>a</sup>	Other mills
			Pine plywood	Other veneer			
thousand cubic feet							
Softwood							
Yellow pine	311,579	245,856	32,265	75	32,081	NA	1,302
Eastern white pine	15,672	14,915	0	0	757	NA	0
Cedar	296	289	0	7	0	NA	0
Cypress	3,754	3,754	0	0	0	NA	0
Other softwood	348	348	0	0	0	NA	0
Unclassified	155,112	0	0	0	0	155,112	0
Total softwoods	486,761	265,162	32,265	82	32,838	155,112	1,302
Hardwood							
Blackgum-tupelo	3,920	2,142	568	812	398	NA	0
Soft maple	7,417	5,542	63	4	1,808	NA	0
Sweetgum	13,376	8,079	3,268	1,005	1,024	NA	0
Yellow-poplar	53,183	35,833	9,655	4,650	3,045	NA	0
Other soft hardwood	1,312	773	141	0	398	NA	0
Hickory	3,519	3,485	0	34	0	NA	0
Red oak	24,349	24,081	0	268	0	NA	0
White oak	21,205	20,889	0	316	0	NA	0
Other hard hardwood	9,081	8,424	0	657	0	NA	0
Unclassified	90,034	0	0	0	0	90,034	0
Total hardwoods	227,396	109,248	13,695	7,746	6,673	90,034	0
All species	714,157	374,410	45,960	7,828	39,511	245,146	1,302

NA = not applicable; OSB = oriented strand board.

<sup>a</sup> Collected only by softwood and hardwood and includes roundwood chipped.**Table A.6—Industrial roundwood movement by year and species group, North Carolina, 2005 and 2007**

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
<b>Softwood</b>					
2005	513,162	76,200	436,962	83,961	520,923
2007	473,704	64,792	408,912	77,849	486,761
<b>Hardwood</b>					
2005	270,758	70,538	200,220	30,209	230,429
2007	254,680	61,898	192,782	34,530	227,312
<b>All species</b>					
2005	783,920	146,738	637,182	114,170	751,352
2007	728,384	126,690	601,694	112,379	714,073

**Table A.7—Industrial roundwood movement by product and species group, North Carolina, 2007**

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
Saw logs					
Softwood	244,657	13,470	231,187	33,975	265,162
Hardwood	103,760	6,577	97,183	12,065	109,248
Total	348,417	20,047	328,370	46,040	374,410
Veneer logs					
Softwood	35,911	6,761	29,150	3,197	32,347
Hardwood	14,505	566	13,939	7,502	21,441
Total	50,416	7,327	43,089	10,699	53,788
Pulpwood <sup>a</sup>					
Softwood	151,350	31,987	119,363	35,749	155,112
Hardwood	129,059	53,078	75,981	13,969	89,950
Total	280,409	85,065	195,344	49,718	245,062
Composite panels					
Softwood	39,403	11,493	27,910	4,928	32,838
Hardwood	6,356	677	5,679	994	6,673
Total	45,759	12,170	33,589	5,922	39,511
Other industrial					
Softwood	2,383	1,081	1,302	0	1,302
Hardwood	1,000	1,000	0	0	0
Total	3,383	2,081	1,302	0	1,302
All products					
Softwood	473,704	64,792	408,912	77,849	486,761
Hardwood	254,680	61,898	192,782	34,530	227,312
Total	728,384	126,690	601,694	112,379	714,073

<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, North Carolina, 2007**

Destination and source	All species	Species group	
		Softwood	Hardwood
		<i>thousand cubic feet</i>	
North Carolina (retained)	328,370	231,187	97,183
Exports to			
Georgia	139	126	13
Kentucky	3	3	0
South Carolina	2,452	2,135	317
Tennessee	1,351	493	858
Virginia	16,102	10,713	5,389
Total	20,047	13,470	6,577
Imports from			
Georgia	1,139	39	1,100
South Carolina	20,770	15,826	4,944
Tennessee	1,059	97	962
Virginia	23,072	18,013	5,059
Total	46,040	33,975	12,065

**Table A.9—Veneer volume by destination, source, and species group, North Carolina, 2007**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	43,089	29,150	13,939
Exports to			
Georgia	512	332	180
South Carolina	2,823	2,551	272
Virginia	3,992	3,878	114
Total	7,327	6,761	566
Imports from			
Georgia	185	15	170
Indiana	38	0	38
Kentucky	1,776	0	1,776
New York	154	0	154
Ohio	140	0	140
Pennsylvania	804	0	804
South Carolina	3,462	3,174	288
Tennessee	1,315	0	1,315
Virginia	2,817	0	2,817
West Virginia	8	8	0
Total	10,699	3,197	7,502

**Table A.10—Pulpwood volume by destination, source, and species group, North Carolina, 2007<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
		<i>thousand cubic feet</i>	
North Carolina (retained)	195,344	119,363	75,981
Exports to			
Georgia	37	0	37
Kentucky	85	0	85
South Carolina	41,534	24,321	17,213
Tennessee	7,825	1,181	6,644
Virginia	35,584	6,485	29,099
Total	85,065	31,987	53,078
Imports from			
Alabama	145	0	145
Georgia	469	143	326
South Carolina	26,047	21,783	4,264
Tennessee	7,891	1	7,890
Virginia	15,166	13,822	1,344
Total	49,718	35,749	13,969

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

**Table A.11—Composite panel volume by destination, source, and species group, North Carolina, 2007**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	33,589	27,910	5,679
Exports to Virginia	12,170	11,493	677
Total	12,170	11,493	677
Imports from Virginia	5,922	4,928	994
Total	5,922	4,928	994

**Table A.12—Other industrial volume by destination, source, and species group, North Carolina, 2007<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	1,302	1,302	0
Exports to			
South Carolina	60	60	0
Virginia	2,021	1,021	1,000
Total	2,081	1,081	1,000

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

**Table A.13—Primary mill residue volume by roundwood type, species group, and residue type, North Carolina, 2007**

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
		thousand cubic feet			
Saw logs					
Softwood	165,810	17,801	78,492	47,148	22,369
Hardwood	64,402	11,318	30,702	21,868	514
Total	230,212	29,119	109,194	69,016	22,883
Veneer logs					
Softwood	17,017	2,247	11,048	3,722	0
Hardwood	11,327	2,324	7,082	1,921	0
Total	28,344	4,571	18,130	5,643	0
Pulpwood					
Softwood	15,482	15,482	0	0	0
Hardwood	11,286	11,286	0	0	0
Total	26,768	26,768	0	0	0
Composite panels					
Softwood	5,468	5,468	0	0	0
Hardwood	1,503	1,503	0	0	0
Total	6,971	6,971	0	0	0
Other industrial <sup>a</sup>					
Softwood	1,529	1,273	256	0	0
Hardwood	0	0	0	0	0
Total	1,529	1,273	256	0	0
Total					
Softwood	205,306	42,271	89,796	50,870	22,369
Hardwood	88,518	26,431	37,784	23,789	514
Total	293,824	68,702	127,580	74,659	22,883

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



**Table A.14—Disposal of residue at primary wood-using plants by product, species group, and type of residue, North Carolina, 2005 and 2007**

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007
<i>thousand cubic feet</i>										
Fiber products										
Softwood	84,994	78,346	0	0	84,031	77,853	963	493	0	0
Hardwood	31,395	29,969	29	0	31,309	29,912	57	57	0	0
Total	116,389	108,315	29	0	115,340	107,765	1,020	550	0	0
Particleboard										
Softwood	14,327	19,989	3	50	3,729	5,199	3,093	5,626	7,502	9,114
Hardwood	2,416	2,134	35	55	1,621	1,861	592	218	168	0
Total	16,743	22,123	38	105	5,350	7,060	3,685	5,844	7,670	9,114
Charcoal/ chemical wood										
Softwood	3,178	2,780	0	0	0	0	3,178	2,780	0	0
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	3,178	2,780	0	0	0	0	3,178	2,780	0	0
Sawn products										
Softwood	2,790	5,364	0	0	2,790	5,364	0	0	0	0
Hardwood	54	3,436	0	1	54	3,435	0	0	0	0
Total	2,844	8,800	0	1	2,844	8,799	0	0	0	0
Industrial fuel										
Softwood	71,736	66,139	25,495	26,609	212	334	44,226	37,347	1,803	1,849
Hardwood	39,439	39,054	15,862	16,007	2,038	1,615	21,244	21,024	295	408
Total	111,175	105,193	41,357	42,616	2,250	1,949	65,470	58,371	2,098	2,257
Miscellaneous										
Softwood	41,433	32,598	17,984	15,606	1,153	1,015	6,164	4,571	16,132	11,406
Hardwood	13,780	13,709	10,892	10,351	963	946	1,767	2,306	158	106
Total	55,213	46,307	28,876	25,957	2,116	1,961	7,931	6,877	16,290	11,512
Not used										
Softwood	714	90	11	6	45	31	658	53	0	0
Hardwood	536	216	14	17	37	15	485	184	0	0
Total	1,250	306	25	23	82	46	1,143	237	0	0
All products										
Softwood	219,172	205,306	43,493	42,271	91,960	89,796	58,282	50,870	25,437	22,369
Hardwood	87,620	88,518	26,832	26,431	36,022	37,784	24,145	23,789	621	514
Total	306,792	293,824	70,325	68,702	127,982	127,580	82,427	74,659	26,058	22,883

**Table A.15—Roundwood timber product output by county, product, and species group, North Carolina, 2007**

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	3,639	2,607	3,032	1,961	0	0	42	646	565	0	0	0
Alexander	1,464	931	1,182	741	0	0	2	139	280	51	0	0
Alleghany	625	1,433	620	880	0	0	5	502	0	51	0	0
Anson	12,085	1,922	5,597	1,045	842	0	5,646	877	0	0	0	0
Ashe	1,389	3,010	1,307	2,471	0	0	82	539	0	0	0	0
Avery	146	1,292	146	1,222	0	70	0	0	0	0	0	0
Beaufort	32,770	5,385	25,245	611	0	208	7,525	4,566	0	0	0	0
Bertie	17,548	5,110	8,604	1,149	0	702	8,577	3,246	332	13	35	0
Bladen	12,404	2,361	6,011	1,056	1,415	84	4,880	1,221	0	0	98	0
Brunswick	18,092	1,298	8,192	73	2,831	81	6,989	1,144	0	0	80	0
Buncombe	602	2,066	280	1,373	0	283	322	410	0	0	0	0
Burke	3,165	2,379	1,378	962	0	0	806	1,417	981	0	0	0
Cabarrus	1,275	540	697	472	0	0	438	17	140	51	0	0
Caldwell	1,711	1,878	1,675	1,647	0	20	36	160	0	51	0	0
Camden	1,290	3,413	491	575	0	407	355	2,425	415	6	29	0
Carteret	4,112	649	2,020	37	0	0	2,092	612	0	0	0	0
Caswell	7,115	3,486	2,298	1,113	0	175	30	1,667	4,787	531	0	0
Catawba	2,287	1,209	1,676	1,085	0	70	51	54	560	0	0	0
Chatham	8,405	3,683	5,943	3,119	0	178	191	386	2,072	0	199	0
Cherokee	1,946	3,442	138	1,144	332	189	1,476	2,109	0	0	0	0
Chowan	1,782	781	849	7	0	0	904	774	0	0	29	0
Clay	483	869	26	314	0	8	457	547	0	0	0	0
Cleveland	3,008	1,991	1,486	1,461	0	12	962	467	560	51	0	0
Columbus	17,988	3,025	9,043	899	2,973	201	5,745	1,925	0	0	227	0
Craven	19,516	3,221	12,619	0	1,268	239	5,629	2,982	0	0	0	0
Cumberland	2,095	1,710	478	136	283	410	1,334	1,164	0	0	0	0
Currituck	794	627	532	194	0	0	227	433	0	0	35	0
Dare	283	13	280	0	0	0	3	13	0	0	0	0
Davidson	1,599	2,290	861	1,875	0	65	38	194	700	156	0	0
Davie	389	689	239	546	0	0	6	143	140	0	4	0
Duplin	6,742	3,367	2,002	106	2,095	350	2,645	2,911	0	0	0	0
Durham	2,383	597	1,630	339	0	5	0	253	753	0	0	0
Edgecombe	6,694	2,936	2,472	609	1,087	335	2,803	1,979	332	13	0	0
Forsyth	1,197	1,803	862	1,435	0	0	55	212	280	156	0	0
Franklin	5,620	3,111	2,573	1,055	514	124	963	1,756	1,480	46	90	130
Gaston	2,731	970	1,363	376	842	0	232	491	280	103	14	0
Gates	9,176	4,464	3,957	1,241	14	46	4,623	3,085	582	92	0	0
Graham	1	1,081	1	47	0	433	0	601	0	0	0	0
Granville	7,403	4,152	3,623	1,083	20	199	43	2,272	3,538	598	179	0
Greene	1,372	1,190	782	179	0	17	402	723	0	0	188	271
Guilford	856	2,971	466	2,480	0	0	61	318	280	103	49	70
Halifax	12,687	7,620	4,916	2,933	1,230	557	4,486	3,893	1,996	237	59	0
Harnett	5,735	1,254	2,794	182	1,449	454	1,241	618	140	0	111	0
Haywood	1,100	4,032	213	1,906	0	212	887	1,914	0	0	0	0
Henderson	1,219	1,539	1,219	1,447	0	92	0	0	0	0	0	0
Hertford	6,113	3,383	2,691	973	60	284	2,981	2,113	332	13	49	0
Hoke	3,217	1,102	1,748	324	0	407	1,469	371	0	0	0	0
Hyde	3,363	887	1,084	321	0	0	2,279	566	0	0	0	0
Iredell	1,665	2,277	1,060	1,498	0	0	43	676	560	103	2	0
Jackson	121	1,491	121	1,208	0	283	0	0	0	0	0	0
Johnston	2,486	2,360	1,773	188	0	408	713	1,764	0	0	0	0

*continued*

**Table A.15—Roundwood timber product output by county, product, and species group, North Carolina, 2007 (continued)**

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>												
Jones	13,116	1,758	5,553	0	1,449	3	6,114	1,755	0	0	0	0
Lee	2,915	1,055	1,961	906	724	4	97	145	0	0	133	0
Lenoir	4,702	1,328	1,932	0	543	5	2,227	1,323	0	0	0	0
Lincoln	2,375	1,707	2,076	1,320	0	0	159	387	140	0	0	0
Macon	882	2,698	283	970	0	8	599	1,720	0	0	0	0
Madison	397	2,322	397	1,684	0	638	0	0	0	0	0	0
Martin	10,990	2,053	7,165	889	0	69	3,825	1,095	0	0	0	0
McDowell	2,355	3,273	1,375	2,000	0	70	980	1,203	0	0	0	0
Mecklenburg	1,320	1,579	829	711	0	0	211	817	280	51	0	0
Mitchell	339	1,455	339	1,243	0	212	0	0	0	0	0	0
Montgomery	5,677	8,021	4,000	2,931	0	36	1,397	5,054	280	0	0	0
Moore	10,351	4,068	7,814	2,687	0	407	2,117	974	420	0	0	0
Nash	2,780	3,403	1,421	1,685	0	183	777	1,450	582	85	0	0
New Hanover	847	75	352	0	283	25	212	50	0	0	0	0
Northampton	9,322	5,885	2,272	1,474	70	305	6,349	4,093	582	13	49	0
Onslow	14,044	1,946	4,233	36	2,174	106	7,637	1,804	0	0	0	0
Orange	1,612	1,405	434	638	0	175	0	103	1,178	489	0	0
Pamlico	7,962	2,651	3,612	427	1,087	234	3,263	1,990	0	0	0	0
Pasquotank	1,706	1,657	972	255	0	0	715	1,402	0	0	19	0
Pender	9,557	1,390	4,212	525	708	250	4,597	615	0	0	40	0
Perquimans	2,847	519	2,024	19	0	0	804	500	0	0	19	0
Person	6,350	4,170	788	1,090	0	284	40	2,096	5,445	641	77	59
Pitt	10,076	4,673	5,172	429	724	723	4,180	3,521	0	0	0	0
Polk	2,361	1,611	1,057	900	0	0	1,024	711	280	0	0	0
Randolph	2,231	6,363	1,534	5,204	0	301	137	443	560	415	0	0
Richmond	7,502	1,354	5,724	820	0	407	1,778	127	0	0	0	0
Robeson	6,436	3,749	2,173	743	991	436	3,272	2,570	0	0	0	0
Rockingham	3,118	6,100	927	1,478	21	186	804	3,899	1,317	467	49	70
Rowan	2,380	4,294	1,385	1,311	0	43	155	2,837	840	103	0	0
Rutherford	3,147	8,422	1,635	2,020	0	70	1,326	6,332	140	0	46	0
Sampson	6,873	1,528	2,843	75	1,511	17	2,519	1,436	0	0	0	0
Scotland	3,344	1,198	1,016	300	849	413	1,479	485	0	0	0	0
Stanly	2,344	573	1,315	480	0	0	889	93	140	0	0	0
Stokes	2,535	4,161	1,240	2,884	0	0	118	636	1,121	571	56	70
Surry	1,923	3,278	1,004	2,224	0	0	37	535	841	519	41	0
Swain	90	662	90	662	0	0	0	0	0	0	0	0
Transylvania	24	207	24	207	0	0	0	0	0	0	0	0
Tyrrell	3,530	1,294	2,401	140	0	0	1,129	1,154	0	0	0	0
Union	2,520	3,464	709	329	867	0	664	3,084	280	51	0	0
Vance	2,582	1,865	892	652	881	228	190	985	565	0	54	0
Wake	7,263	4,768	4,189	353	724	211	2,073	4,204	188	0	89	0
Warren	7,883	6,304	3,085	2,126	1,065	365	2,423	3,417	1,081	66	229	330
Washington	5,957	1,311	3,993	381	0	132	1,964	798	0	0	0	0
Watauga	711	1,530	703	1,419	0	0	8	111	0	0	0	0
Wayne	6,215	2,193	2,606	0	2,174	52	1,103	2,128	332	13	0	0
Wilkes	2,357	6,201	2,161	3,594	0	1	193	2,399	0	207	3	0
Wilson	4,265	1,224	1,320	164	1,811	15	968	1,012	166	33	0	0
Yadkin	1,331	2,973	748	2,495	0	0	21	271	560	207	2	0
Yancey	372	3,065	372	2,782	0	283	0	0	0	0	0	0
All counties	473,704	254,680	244,657	103,760	35,911	14,505	151,350	129,059	39,403	6,356	2,383	1,000

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (4,608,000 cubic feet in 2007).

**Table A.16—Total roundwood output by product, species group, and source of material, North Carolina, 2007**

Product and species group	All sources	Total	Growing-stock trees		Other sources
			Sawtimber	Poletimber	
thousand cubic feet					
Saw logs					
Softwood	244,657	240,868	234,619	6,249	3,789
Hardwood	103,760	102,662	96,022	6,640	1,098
Total	348,417	343,530	330,641	12,889	4,887
Veneer logs and bolts					
Softwood	35,911	35,226	34,166	1,060	685
Hardwood	14,505	14,343	14,343	0	162
Total	50,416	49,568	48,508	1,060	848
Pulpwood					
Softwood	151,350	145,643	54,056	91,587	5,707
Hardwood	129,059	126,530	40,816	85,713	2,529
Total	280,409	272,172	94,872	177,301	8,237
Composite panels					
Softwood	39,403	38,812	10,580	28,232	591
Hardwood	6,356	6,093	3,451	2,642	263
Total	45,759	44,905	14,031	30,874	854
Poles and posts					
Softwood	1,641	1,219	655	565	422
Hardwood	0	0	0	0	0
Total	1,641	1,219	655	565	422
Other miscellaneous					
Softwood	742	615	330	285	127
Hardwood	1,000	1,000	409	591	0
Total	1,742	1,615	739	876	127
Total industrial products					
Softwood	473,704	462,383	334,405	127,978	11,321
Hardwood	254,680	250,627	155,042	95,586	4,053
Total	728,384	713,010	489,446	223,564	15,374
Domestic fuelwood					
Softwood	8,892	7,877	4,580	3,297	1,015
Hardwood	46,183	39,939	29,214	10,725	6,244
Total	55,075	47,815	33,793	14,022	7,260
All products					
Softwood	482,596	470,260	338,984	131,275	12,336
Hardwood	300,863	290,566	184,255	106,311	10,297
Total	783,459	760,825	523,240	237,586	22,634

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

**Table A.17—Total roundwood output by species group, survey region, and ownership class, North Carolina, 2007**

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
Softwoods				
Southern Coastal Plain	158,964	10,845	49,363	98,756
Northern Coastal Plain	178,858	249	40,948	137,661
Piedmont	124,364	482	9,387	114,495
Mountain	20,410	1,060	0	19,350
Total softwoods	482,596	12,636	99,698	370,262
Hardwoods				
Southern Coastal Plain	46,439	364	2,176	43,898
Northern Coastal Plain	74,611	0	2,663	71,948
Piedmont	125,561	0	10,959	114,602
Mountain	54,252	2,236	0	52,016
Total hardwoods	300,863	2,601	15,798	282,464
All species	783,459	15,237	115,496	652,726

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

**Table A.18—Total roundwood output by species group, detailed species group, and product, North Carolina, 2007**

Species group and detailed species group	Total	Product						
		Saw logs	Veneer logs	Pulpwood	Composite panels	Poles and posts	Other miscellaneous	Domestic fuelwood
thousand cubic feet								
Softwood								
Cedar	6,420	3,718	268	1,408	848	29	31	118
Longleaf-slash pine	15,498	9,532	955	4,570	121	34	0	286
Eastern white pine	7,575	4,747	0	1,619	1,069	0	0	139
Loblolly-shortleaf pine	383,024	192,274	31,649	127,111	22,966	1,396	569	7,060
Other yellow pines	62,783	29,685	3,031	14,341	14,265	162	143	1,157
Cypress	5,237	3,055	3	1,931	134	19	0	96
Hemlock	2,058	1,646	4	370	0	0	0	37
Total softwoods	482,596	244,657	35,911	151,350	39,403	1,641	742	8,892
Hardwood								
Soft maple	29,942	9,915	1,506	13,079	780	0	65	4,597
Hard maple	1,214	869	48	90	20	0	0	186
Hickory	5,349	2,013	245	1,918	335	0	16	821
Beech	3,684	2,204	152	736	19	0	8	566
Ash	1,304	437	47	552	63	0	5	200
Black walnut	599	329	45	123	4	0	6	92
Sweetgum	61,016	16,435	4,067	30,101	942	0	105	9,366
Yellow-poplar	53,097	20,002	1,868	21,189	1,696	0	193	8,150
Blackgum-tupelo	11,873	3,095	933	5,927	93	0	2	1,823
Sycamore	1,925	529	72	1,006	23	0	0	296
Black cherry	2,167	824	99	788	120	0	3	332
Select white oaks	38,135	12,699	1,083	17,807	576	0	116	5,853
Other white oaks	16,196	7,231	849	5,377	220	0	33	2,486
Select red oaks	11,315	5,960	414	3,031	140	0	33	1,737
Other red oaks	46,163	15,161	2,370	20,156	1,042	0	348	7,087
Elm	3,524	1,193	137	1,602	44	0	7	541
Other eastern hardwoods	13,360	4,864	572	5,576	238	0	58	2,051
Total hardwoods	300,863	103,760	14,505	129,059	6,356	0	1,000	46,183
All species	783,459	348,417	50,416	280,409	45,759	1,641	1,742	55,075

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

**Table A.19—Total roundwood output by species group, detailed species group, and ownership class, North Carolina, 2007**

Species group and detailed species group	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
Softwood				
Cedar	6,420	267	66	6,087
Longleaf-slash pine	15,498	92	6,627	8,779
Eastern white pine	7,575	24	0	7,551
Loblolly-shortleaf pine	383,024	9,071	87,616	286,337
Other yellow pines	62,783	2,995	5,246	54,543
Cypress	5,237	0	144	5,093
Hemlock	2,058	187	0	1,871
Total softwoods	482,596	12,636	99,698	370,262
Hardwood				
Soft maple	29,942	228	1,417	28,297
Hard maple	1,214	0	0	1,214
Hickory	5,349	72	19	5,257
Beech	3,684	0	39	3,645
Ash	1,304	0	0	1,304
Black walnut	599	10	0	589
Sweetgum	61,016	6	1,912	59,098
Yellow-poplar	53,097	475	2,314	50,308
Blackgum-tupelo	11,873	17	478	11,378
Sycamore	1,925	0	266	1,659
Black cherry	2,167	67	121	1,979
Select white oaks	38,135	552	2,906	34,677
Other white oaks	16,196	53	815	15,328
Select red oaks	11,315	879	31	10,405
Other red oaks	46,163	135	5,342	40,686
Elm	3,524	0	4	3,520
Other eastern hardwoods	13,360	107	133	13,120
Total hardwoods	300,863	2,601	15,798	282,464
All species	783,459	15,237	115,496	652,726

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









**Cooper, Jason A.; Mann, Michael C.** 2009. North Carolina's timber industry—an assessment of timber product output and use, 2007. Resour. Bull. SRS-156. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 33 p.

In 2007, industrial roundwood output from North Carolina's forests totaled 728 million cubic feet, 7 percent less than in 2005. Mill byproducts generated from primary manufacturers declined 4 percent to 294 million cubic feet. Almost all plant residues were used primarily for fuel and fiber products. Saw logs were the leading roundwood product at 348 million cubic feet; pulpwood ranked second at 280 million cubic feet; veneer logs were third at 50 million cubic feet. The number of primary processing plants declined from 180 in 2005 to 163 in 2007. Total receipts decreased by 37 million cubic feet to 714 million cubic feet.

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



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