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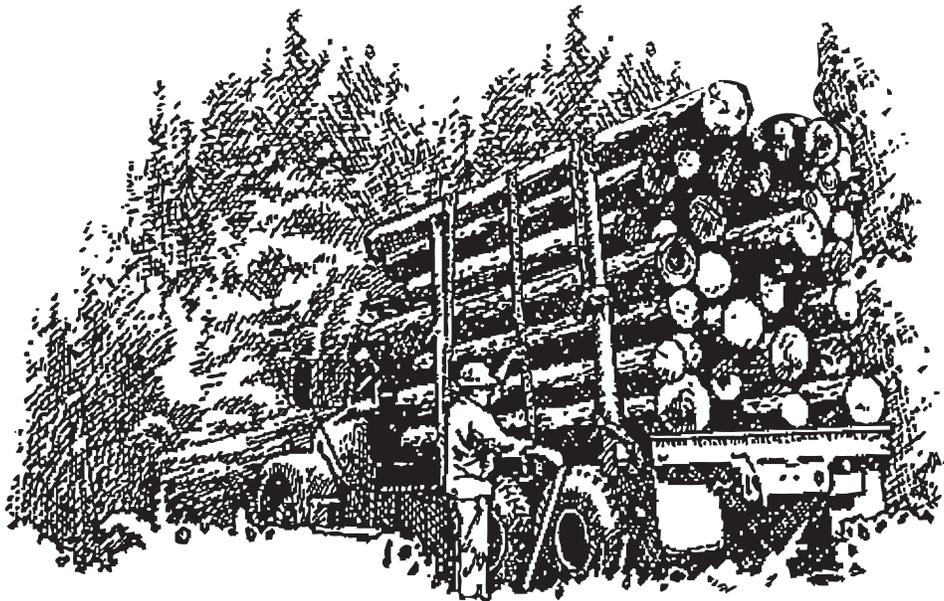
North Carolina's Timber Industry— An Assessment of Timber Product Output and Use, 2005

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Foreword

This report contains the findings of a 2005 canvass of all primary wood-using plants in North Carolina, and presents changes in product output and residue use since 2003. 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 2005 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 2006 to obtain information for 2005. 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 Mark Brown for review and comments; Carolyn Steppleton for her tireless efforts in processing and ensuring the accuracy of the data; Sonja Oswald for the mill map; 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/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, 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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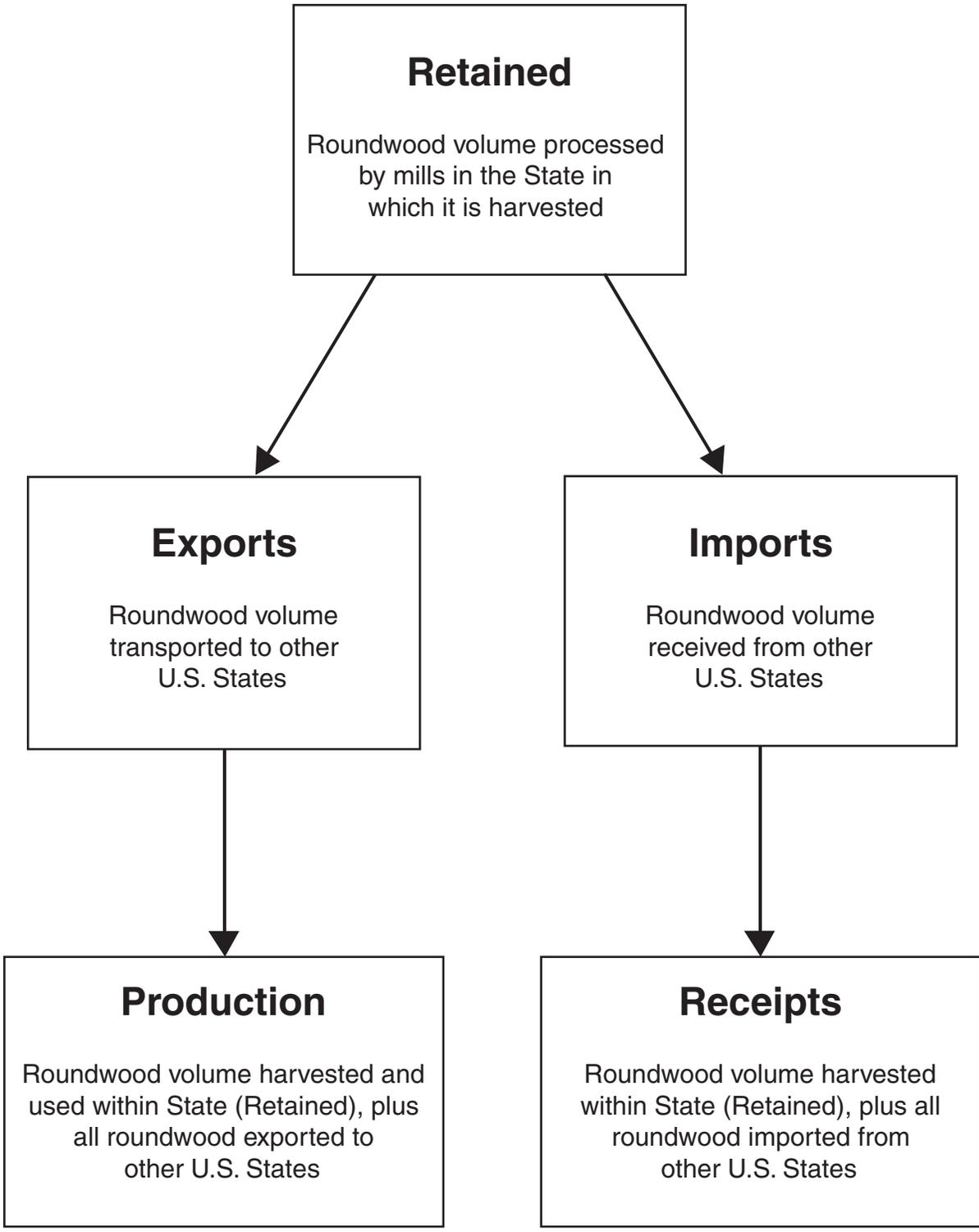
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^a All tables in this report are available in Microsoft® Excel workbook files. Upon request, these files will be supplied in the format the customer requests. The use of trade or firm names in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service.



Production = Retained + Exports

Receipts = Retained + Imports

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

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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 2003 and 2005, the combined industrial TPO from roundwood and plant byproduct remained unchanged at 1.09 billion cubic feet.
- TPO from roundwood was up 8 million cubic feet, or 1 percent, to 784 million cubic feet, while output of plant byproducts was down 8 million cubic feet to 306 million cubic feet.
- Output of softwood roundwood products declined 3 percent to 513 million cubic feet, while output of hardwood roundwood products increased 10 percent, from 245 to 271 million cubic feet (fig. 2).
- Saw logs and pulpwood were the principal roundwood products in 2005. Combined output of these products totaled 673 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 up 9 million cubic feet to 751 million cubic feet. At the same time, the number of primary roundwood-using plants in North Carolina was down from 235 in 2003 to 180 in 2005 (fig. 4). Nearly all the decline was in sawmills.
- Across all products, 81 percent of roundwood harvested was retained for processing at North Carolina mills. Exports of roundwood to other States amounted to 147 million cubic feet, while imports of roundwood amounted to 114 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.

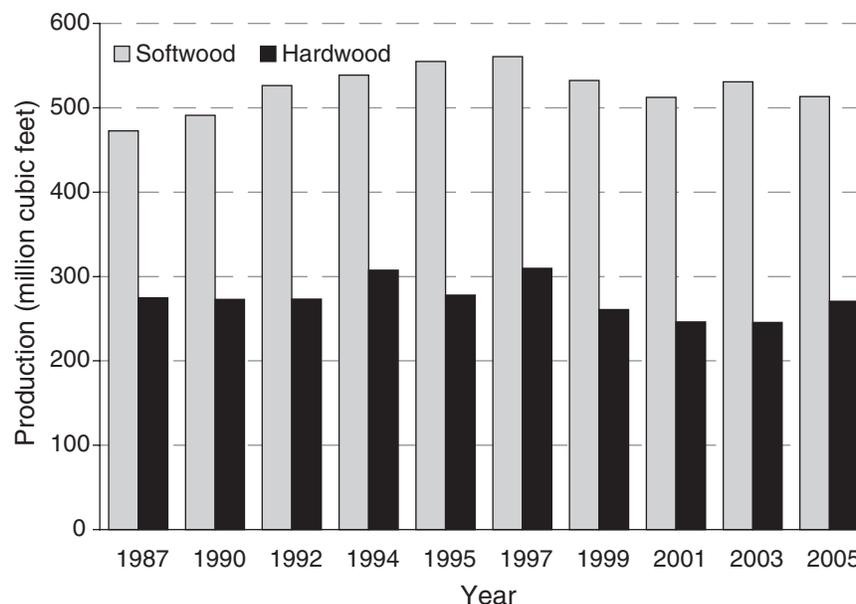


Figure 2—Roundwood production for all products by species group and year (see page 8 for references for individual years).

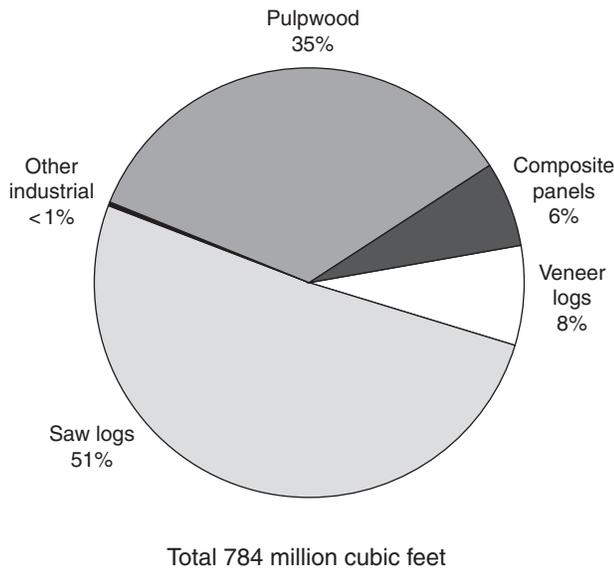


Figure 3—Roundwood production by type of product, 2005.

saw logs declined 2 percent to 110 million cubic feet (665 million board feet, International ¼-inch rule) (fig. 5).

- In 2005, North Carolina had 153 sawmills, a net loss of 51 mills since 2003. Total saw-log receipts were down slightly, only about 0.5 million cubic feet to 414 million cubic feet but still accounted for 55 percent of the State’s total receipts. Softwood saw-log receipts were up 2 percent to 303 million cubic feet, while hardwood receipts declined 6 percent to 111 million cubic feet. Of the mills operating in 2005, 24 percent had receipts <1 million board feet, while 38 percent had receipts >10 million board feet. Those 58 mills accounted for 90 percent of saw-log receipts.
- North Carolina retained 93 percent of its saw-log production for within-State manufacture. Saw-log imports at 41 million cubic feet exceeded exports by 14 million cubic feet in 2005, making the State a net importer of saw logs.

Saw Logs

- Saw logs accounted for 51 percent of the State’s total roundwood products. Output of softwood saw logs was up 1 percent to 289 million cubic feet (1.61 billion board feet, International ¼-inch rule), while output of hardwood

Pulpwood

- Pulpwood production, including chipped roundwood, increased 7 million cubic feet to 274 million cubic feet and accounted for 35 percent of the State’s total roundwood TPO. Softwood output declined 14 percent to

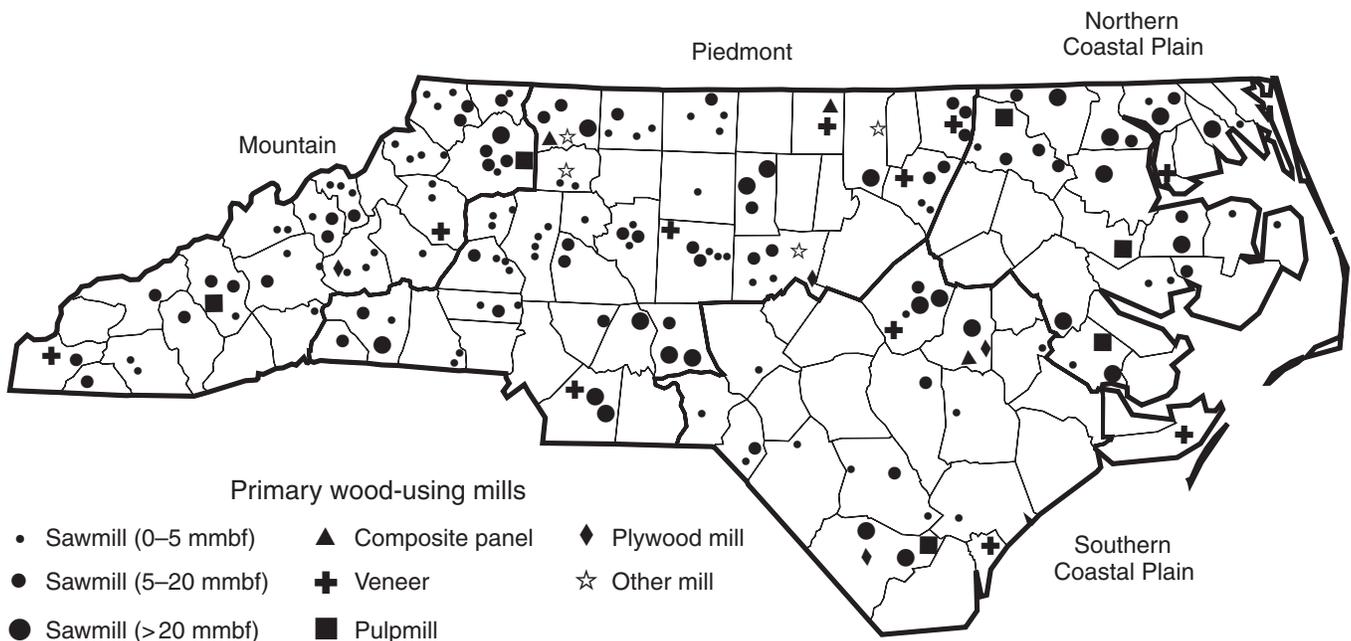


Figure 4—Primary wood-using mills, 2005.

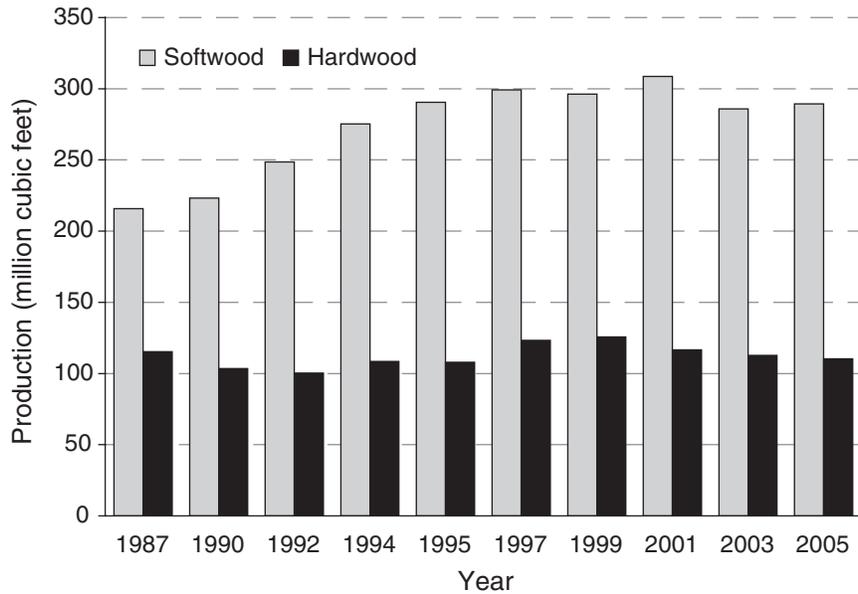


Figure 5—Roundwood saw-log production by species and year (see page 8 for references for individual years).

137 million cubic feet (1.9 million cords), while hardwood output increased 26 percent to 137 million cubic feet (1.8 million cords) (fig. 6).

- Six pulpmill facilities were operating and receiving roundwood in North Carolina in 2005, the same as in 2003. Total pulpwood receipts for these mills were up

6 million cubic feet to 231 million cubic feet, accounting for 31 percent of total receipts for all mills.

- Sixty-five percent of roundwood cut for pulpwood was retained for processing by North Carolina pulpmills. Roundwood pulpwood accounted for 65 percent of total known exports and 47 percent of total imports.

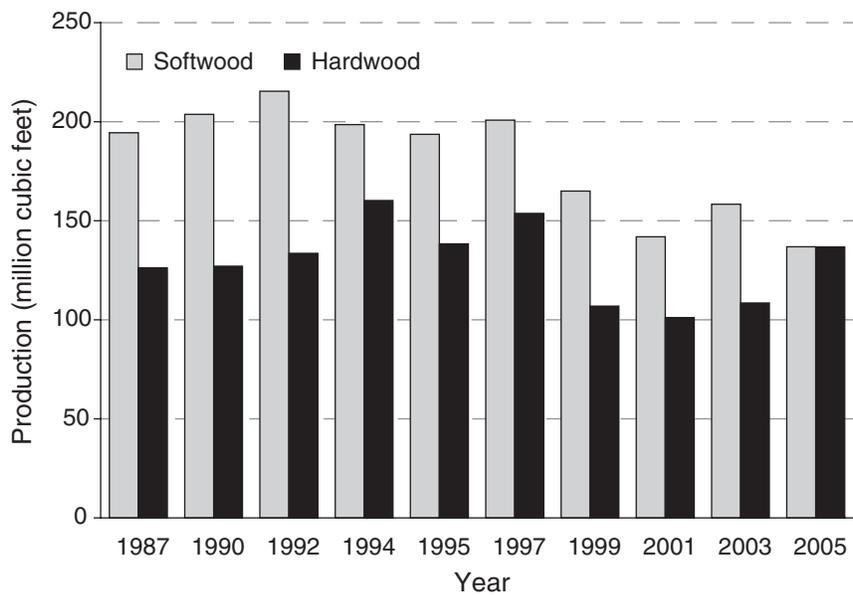


Figure 6—Roundwood pulpwood production by species group and year (see page 8 for references for individual years).

Roundwood pulpwood exports amounted to 96 million cubic feet, while imports totaled 53 million cubic feet, making the State a net exporter of roundwood pulpwood.

Veneer Logs

- Output of veneer logs in 2005 totaled 60 million cubic feet and accounted for 8 percent of the State’s total roundwood TPO volume. Softwood veneer production was up 11 percent to 44 million cubic feet (255 million board feet, International ¼-inch rule), while output of hardwood veneer logs declined 7 percent to 15 million cubic feet (97 million board feet, International ¼-inch rule) (fig. 7).
- The number of veneer mills operating in North Carolina declined from 18 in 2003 to 14 in 2005. At the same time, receipts of veneer logs increased 4 percent to 60 million cubic feet. Softwood veneer receipts were up 2.3 million cubic feet to 38 million cubic feet. Hardwood veneer receipts were up nearly 1 percent but remained at 22 million cubic feet.
- North Carolina retained 82 percent of its veneer-log production for processing at veneer mills within the State. Imports amounted to 11.4 million cubic feet, while exports totaled 10.9 million cubic feet, making the State a net importer of roundwood veneer logs.

Composite Panels

- Roundwood harvested from North Carolina’s forests for composite panels declined 7 percent and totaled 49 million cubic feet. Softwood output was down 10 percent to 41 million cubic feet (567,000 cords), while hardwood output was up 10 percent to 8.3 million cubic feet (108,000 cords) (fig. 8).
- Three composite panel mills were operating in North Carolina in 2005, the same as in 2003. Total receipts for these mills increased 2 percent to 45 million cubic feet.
- Seventy-three percent of the composite panel production was retained for processing by North Carolina mills. Exports amounted to 13.1 million cubic feet, while imports totaled 8.5 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 1.4 million cubic feet, up 50 percent from 2003. Softwood made up 98 percent of the other industrial products volume.

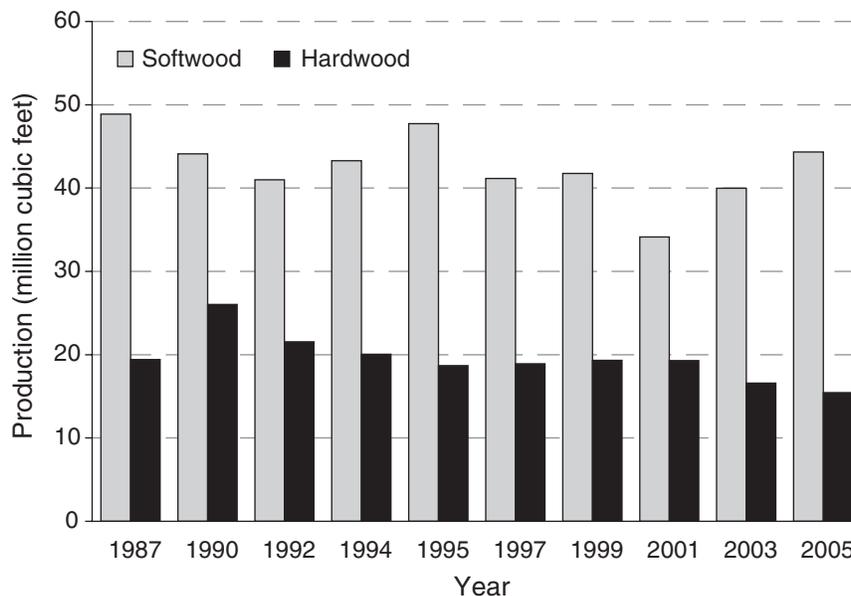


Figure 7—Roundwood veneer-log production by species group and year (see page 8 for references for individual years).

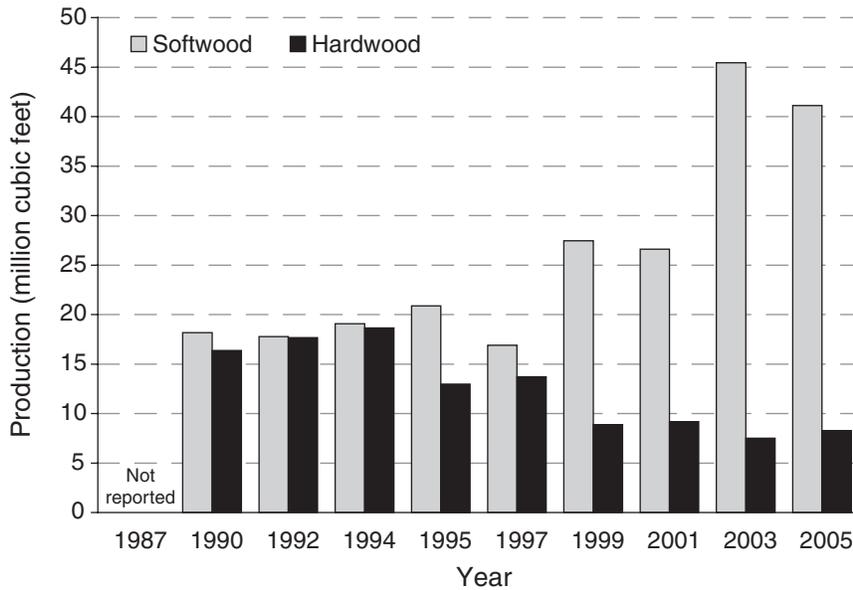


Figure 8—Roundwood production for composite panels by species group and year (see page 8 for references for individual years).

- The number of plants producing other industrial products remained at four in 2005, the same as in 2003. Receipts of other industrial products totaled 883,000 cubic feet.
- North Carolina was a net exporter of roundwood used for other industrial products. Of the 577,000 cubic feet exported for other industrial uses, 96 percent was softwood, whereas 100 percent of the 30,000 cubic feet imported was softwood.

Plant Byproducts

- In 2005, processing of primary products in North Carolina mills generated 307 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 128 million cubic feet, while bark volume totaled 70 million cubic feet. Sawdust and shavings made up 35 percent of total residues, or 108 million cubic feet (fig. 9).
- 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. 10). More than 115 million cubic feet, or 90 percent, of the coarse residues were used to manufacture fiber products. Most of the bark was used for industrial fuel or other miscellaneous products, while 79 percent of the sawdust and 8 percent of the shavings were used for industrial fuel. Shavings

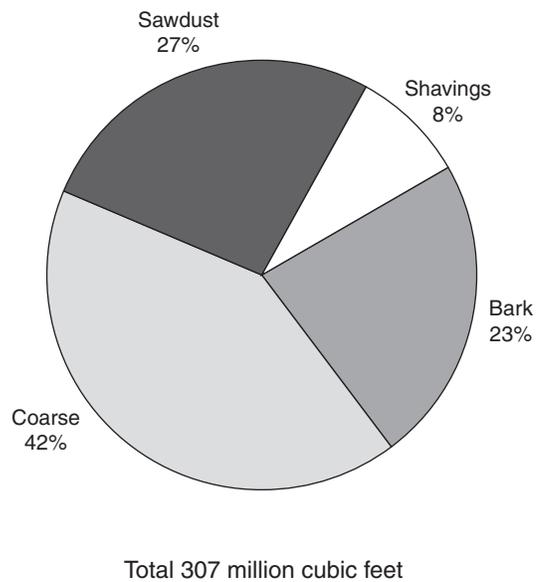


Figure 9—Primary mill residue by residue type, 2005.

were used primarily for particleboard manufacture or miscellaneous uses such as bedding.

- The processing of saw logs by sawmills generated 247 million cubic feet of mill residues, or 81 percent of the total residues produced (fig. 11).

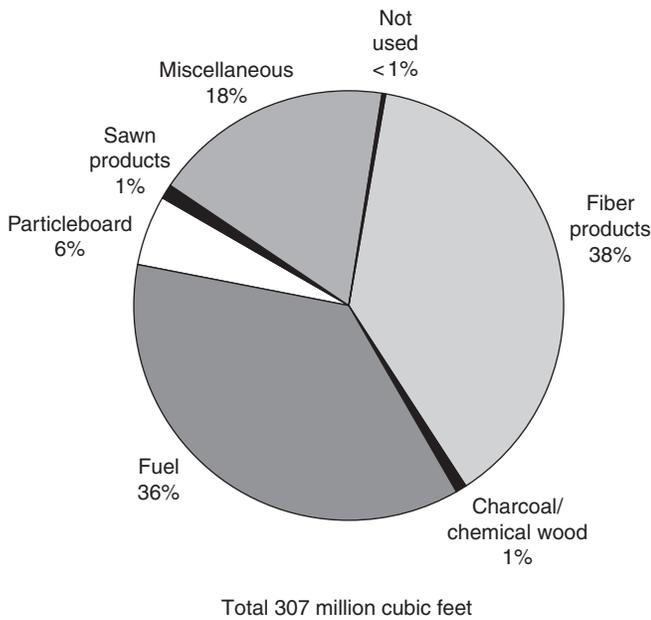


Figure 10—Disposal of residue by product, 2005.

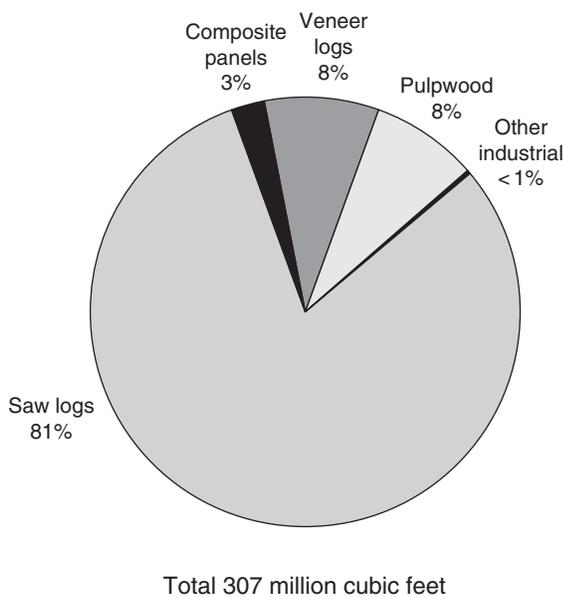


Figure 11—Primary mill residue produced by roundwood type, 2005.

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, Gates, Greene, Halifax, Martin, Montgomery, Sampson, and Warren) had combined softwood and hardwood product output of more than 15 million cubic feet each. These 14 counties' total product output amounted to nearly 290 million cubic feet and accounted for 37 percent of the State's total product output.

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 784 million cubic feet of industrial roundwood output, an estimated 57 million cubic feet was harvested for domestic fuelwood, bringing North Carolina's total roundwood output to 841 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 24 million cubic feet, or 3 percent of total roundwood output (fig. 12).

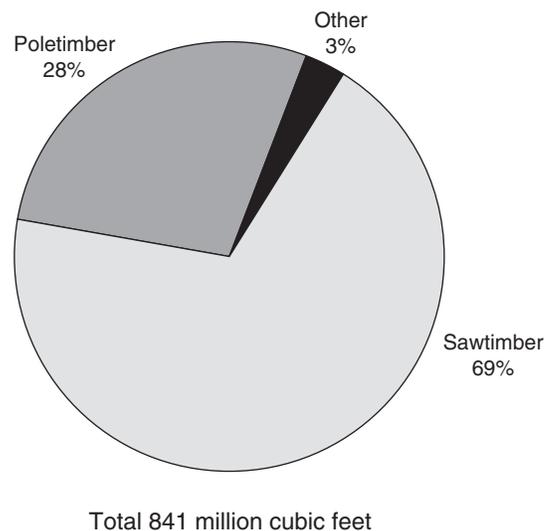


Figure 12—Roundwood output by source, 2005.

Ownership

- An estimated 703 million cubic feet, or 84 percent, of the total roundwood output came from nonindustrial private forest lands. Forest industry lands contributed 127 million cubic feet, or 15 percent of the output. Public lands made up the remaining 1 percent, or more than 11 million cubic feet (fig. 13).

Species

- The loblolly and shortleaf pine group provided the most volume of any softwood species group; at 414 million cubic feet, it accounted for 79 percent of the total softwood output (fig. 14). At 61 million cubic feet, other yellow pine types accounted for another 12 percent of softwood output. The red oak and white oak groups combined accounted for 124 million cubic feet, or 39 percent of total hardwood output (fig. 15).

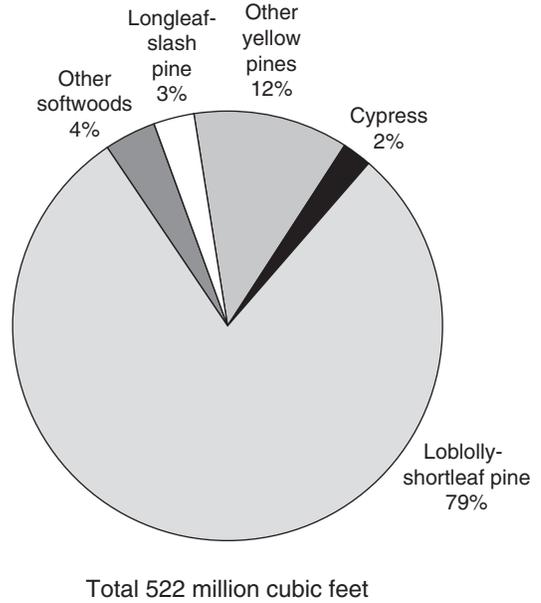


Figure 14—Roundwood output by softwood species group, 2005.

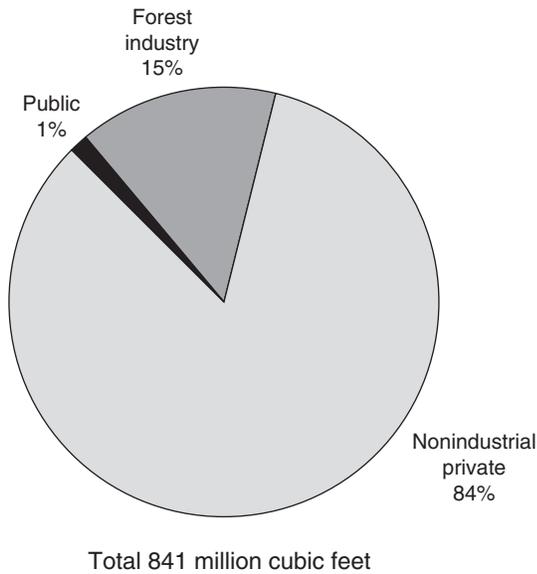


Figure 13—Roundwood output by ownership, 2005.

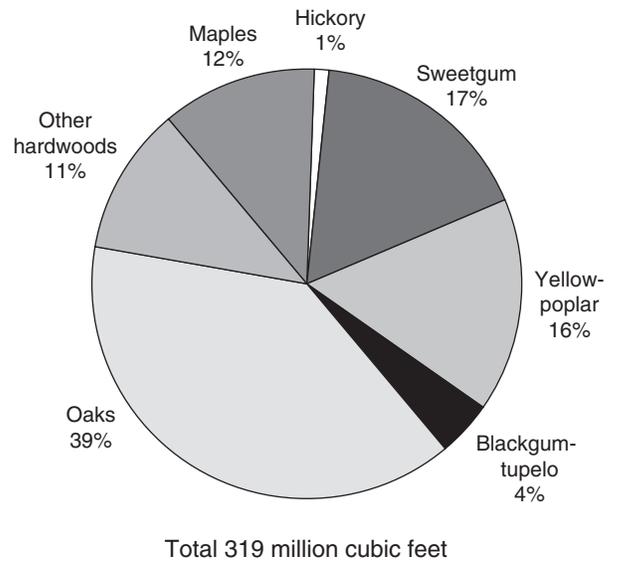


Figure 15—Roundwood output by hardwood species group, 2005.

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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 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs, allowing 1/2-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 1/4-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 nonpulpmills, 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 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 ¼-inch rule) is the standard unit used for saw logs and veneer; cords are used for pulpwood, composite panel, and fuelwood; hundred pieces for poles; thousand pieces for posts; and thousand cubic feet for all other miscellaneous forest products.

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

Timber 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

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

Conversion Factors^a

Saw logs	
Softwood	0.18018 cubic foot = 1 board foot 5.55 board feet = 1 cubic foot
Hardwood	0.16556 cubic foot = 1 board foot 6.04 board feet = 1 cubic foot
Veneer logs	
Softwood	0.17391 cubic foot = 1 board foot 5.75 board feet = 1 cubic foot
Hardwood	0.15873 cubic foot = 1 board foot 6.30 board feet = 1 cubic foot
Pulpwood ^b	
Softwood	72.5 cubic feet per cord
Hardwood	76.6 cubic feet per cord

^a 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.

^b Cubic feet of solid wood per cord.

Species List^a

Common name	Scientific name ^b	Common name	Scientific name ^b
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. laciniosa</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.

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

^b Little (1979).

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Table A.1—Output of industrial products by product and species group, North Carolina, 2003 and 2005

Product and species group	Year		Change	Change
	2003	2005		
	- - - thousand cubic feet - - -			percent
Saw logs				
Softwood	285,904	289,355	3,451	1.2
Hardwood	112,758	110,302	-2,456	-2.2
Total	398,662	399,657	995	0.2
Veneer logs				
Softwood	39,980	44,337	4,357	10.9
Hardwood	16,574	15,437	-1,137	-6.9
Total	56,554	59,774	3,220	5.7
Pulpwood^a				
Softwood	158,359	136,936	-21,423	-13.5
Hardwood	108,554	136,726	28,172	26.0
Total	266,913	273,662	6,749	2.5
Composite panels				
Softwood	45,444	41,126	-4,318	-9.5
Hardwood	7,519	8,271	752	10.0
Total	52,963	49,397	-3,566	-6.7
Other industrial				
Softwood	929	1,408	479	51.6
Hardwood	22	22	0	—
Total	951	1,430	479	50.4
All industrial				
Softwood	530,616	513,162	-17,454	-3.3
Hardwood	245,427	270,758	25,331	10.3
Total	776,043	783,920	7,877	1.0
Byproduct output				
Softwood	213,304	218,458	5,154	2.4
Hardwood	100,645	87,084	-13,561	-13.5
Total	313,949	305,542	-8,407	-2.7
Total output				
Softwood	743,920	731,620	-12,300	-1.7
Hardwood	346,072	357,842	11,770	3.4
Total	1,089,992	1,089,462	-530	0.0

— = negligible; 0.0 = a value of < 0.0 but > 0.05 for the cell.

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (11,934,000 cubic feet in 2003 and 7,051,000 cubic feet in 2005).

Table A.2—Roundwood receipts by product and species group, North Carolina, 2003 and 2005

Product and species group	Year		Change	Change
	2003	2005		
	<i>--- thousand cubic feet ---</i>			<i>percent</i>
Saw logs				
Softwood	297,099	303,275	6,176	2.1
Hardwood	117,449	110,788	-6,661	-5.7
Total	414,548	414,063	-485	-0.1
Veneer logs				
Softwood	36,142	38,491	2,349	6.5
Hardwood	21,589	21,765	176	0.8
Total	57,731	60,256	2,525	4.4
Pulpwood ^a				
Softwood	150,273	139,970	-10,303	-6.9
Hardwood	74,750	91,355	16,605	22.2
Total	225,023	231,325	6,302	2.8
Composite panels				
Softwood	38,383	38,304	-79	-0.2
Hardwood	5,721	6,521	800	14.0
Total	44,104	44,825	721	1.6
Other industrial				
Softwood	887	883	-4	-0.5
Hardwood	0	0	0	—
Total	887	883	-4	-0.5
Total output				
Softwood	522,784	520,923	-1,861	-0.4
Hardwood	219,509	230,429	10,920	5.0
Total	742,293	751,352	9,059	1.2

— = negligible.

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (15,150,000 cubic feet in 2003 and 9,658,000 cubic feet in 2005).

Table A.3—Number of primary wood-using plants by industry, North Carolina, 1987 to 2005

Industry	Year									
	1987	1990	1992	1994	1995	1997	1999	2001	2003	2005
	<i>number</i>									
Sawmills	362	308	306	275	273	243	240	215	204	153
Veneer mills	31	32	29	27	27	23	24	20	18	14
Pulpmills	8	8	8	8	8	7	7	7	6	6
Composite panel mills	4	5	4	4	4	3	3	3	3	3
Other mills	17	13	10	8	8	4	4	4	4	4
All plants	422	366	357	322	320	280	278	249	235	180

Table A.4—Roundwood receipts by sawmill size, North Carolina, 2003 and 2005

Sawmill size class ^a <i>mmbf</i>	2003			2005		
	Mills <i>number</i>	Volume <i>mbf</i>	<i>percent</i>	Mills <i>number</i>	Volume <i>mbf</i>	<i>percent</i>
< 1.0	58	18,958	1	37	12,317	1
1.0–4.99	59	150,977	6	41	106,536	4
5.0–9.99	27	180,071	8	17	116,556	5
10.0–49.99	48	860,631	36	45	827,473	35
> 50	12	1,147,792	49	13	1,289,790	55
Total	204	2,358,429	100	153	2,352,672	100

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

Table A.5—Roundwood receipts by species and type of mill, North Carolina, 2005

Species	All mills	Sawmills	Veneer mills			Pulpmills ^a	Other mills
			Pine plywood	Other veneer	OSB and panels		
<i>thousand cubic feet</i>							
Softwood							
Yellow pine	358,964	282,371	38,119	82	37,509	NA	883
Eastern white pine	18,002	16,923	278	6	795	NA	0
Cedar	300	300	0	0	0	NA	0
Cypress	3,245	3,239	0	6	0	NA	0
Other softwood	442	442	0	0	0	NA	0
Unclassified	139,970	0	0	0	0	139,970	0
Total softwoods	520,923	303,275	38,397	94	38,304	139,970	883
Hardwood							
Blackgum and tupelo	4,858	2,595	1,095	753	415	NA	0
Soft maple	7,277	5,201	72	32	1,972	NA	0
Sweetgum	16,502	7,867	5,734	1,548	1,353	NA	0
Yellow-poplar	50,158	36,693	6,619	4,400	2,446	NA	0
Other soft hardwood	1,223	524	364	0	335	NA	0
Hickory	3,220	3,214	0	6	0	NA	0
Red oak	25,143	24,761	0	382	0	NA	0
White oak	20,906	20,706	0	200	0	NA	0
Other hard hardwood	9,787	9,227	0	560	0	NA	0
Unclassified	91,355	0	0	0	0	91,355	0
Total hardwoods	230,429	110,788	13,884	7,881	6,521	91,355	0
All species	751,352	414,063	52,281	7,975	44,825	231,325	883

OSB = oriented strand board; NA = not applicable.

^a Collected only by softwood and hardwood and includes roundwood chipped.

Table A.6—Industrial roundwood movement by year and species group, North Carolina, 2003 and 2005

Year	Production	Exported to		Imported from	
		other States	Retained	other States	Receipts
<i>thousand cubic feet</i>					
Softwood					
2003	530,616	78,827	451,789	70,995	522,784
2005	513,162	76,200	436,962	83,961	520,923
Hardwood					
2003	245,427	60,651	184,776	34,733	219,509
2005	270,758	70,538	200,220	30,209	230,429
All species					
2003	776,043	139,478	636,565	105,728	742,293
2005	783,920	146,738	637,182	114,170	751,352

Table A.7—Industrial roundwood movement by product and species group, North Carolina, 2005

Product and species group	Production	Exported to		Imported from	
		other States	Retained	other States	Receipts
<i>thousand cubic feet</i>					
Saw logs					
Softwood	289,355	18,166	271,189	32,086	303,275
Hardwood	110,302	8,292	102,010	8,778	110,788
Total	399,657	26,458	373,199	40,864	414,063
Veneer logs					
Softwood	44,337	10,411	33,926	4,565	38,491
Hardwood	15,437	524	14,913	6,852	21,765
Total	59,774	10,935	48,839	11,417	60,256
Pulpwood ^a					
Softwood	136,936	36,495	100,441	39,529	139,970
Hardwood	136,726	59,155	77,571	13,784	91,355
Total	273,662	95,650	178,012	53,313	231,325
Composite panels					
Softwood	41,126	10,573	30,553	7,751	38,304
Hardwood	8,271	2,545	5,726	795	6,521
Total	49,397	13,118	36,279	8,546	44,825
Other industrial					
Softwood	1,408	555	853	30	883
Hardwood	22	22	0	0	0
Total	1,430	577	853	30	883
All products					
Softwood	513,162	76,200	436,962	83,961	520,923
Hardwood	270,758	70,538	200,220	30,209	230,429
Total	783,920	146,738	637,182	114,170	751,352

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills.

Table A.8—Saw-log volume by destination, source, and species group, North Carolina, 2005

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	373,199	271,189	102,010
Exports to			
Georgia	109	99	10
South Carolina	3,977	3,550	427
Tennessee	2,463	409	2,054
Virginia	19,909	14,108	5,801
Total	26,458	18,166	8,292
Imports from			
Georgia	146	3	143
South Carolina	19,447	15,902	3,545
Tennessee	612	105	507
Virginia	20,659	16,076	4,583
Total	40,864	32,086	8,778

Table A.9—Veneer volume by destination, source, and species group, North Carolina, 2005

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	48,839	33,926	14,913
Exports to			
Georgia	657	531	126
Indiana	2	0	2
South Carolina	2,735	2,551	184
Virginia	7,541	7,329	212
Total	10,935	10,411	524
Imports from			
Georgia	117	0	117
Illinois	168	0	168
Kentucky	1,406	76	1,330
New York	18	0	18
Pennsylvania	744	0	744
South Carolina	4,620	4,362	258
Tennessee	562	27	535
Virginia	3,744	100	3,644
West Virginia	38	0	38
Total	11,417	4,565	6,852

Table A.10—Pulpwood volume by destination, source, and species group, North Carolina, 2005^a

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	178,012	100,441	77,571
Exports to			
Georgia	1,666	0	1,666
Kentucky	704	0	704
South Carolina	51,631	30,609	21,022
Tennessee	7,320	691	6,629
Virginia	34,329	5,195	29,134
Total	95,650	36,495	59,155
Imports from			
Alabama	807	0	807
Georgia	257	0	257
South Carolina	25,351	21,256	4,095
Tennessee	7,422	2	7,420
Virginia	19,476	18,271	1,205
Total	53,313	39,529	13,784

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills.

Table A.11—Composite panel volume by destination, source, and species group, North Carolina, 2005

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	36,279	30,553	5,726
Exports to			
Virginia	11,805	10,296	1,509
West Virginia	1,313	277	1,036
Total	13,118	10,573	2,545
Imports from			
Virginia	8,546	7,751	795
Total	8,546	7,751	795

Table A.12—Other industrial volume by destination, source, and species group, North Carolina, 2005^a

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	853	853	0
Exports to			
South Carolina	184	184	0
Virginia	393	371	22
Total	577	555	22
Imports from			
Virginia	30	30	0
Total	30	30	0

^a 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, 2005

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
<i>thousand cubic feet</i>					
Saw logs					
Softwood	182,332	20,360	82,683	53,852	25,437
Hardwood	64,946	11,489	30,640	22,196	621
Total	247,278	31,849	113,323	76,048	26,058
Veneer logs					
Softwood	16,267	2,674	9,163	4,430	0
Hardwood	9,691	2,360	5,382	1,949	0
Total	25,958	5,034	14,545	6,379	0
Pulpwood					
Softwood	13,492	13,492	0	0	0
Hardwood	11,516	11,516	0	0	0
Total	25,008	25,008	0	0	0
Composite panels					
Softwood	6,378	6,378	0	0	0
Hardwood	1,467	1,467	0	0	0
Total	7,845	7,845	0	0	0
Other industrial ^a					
Softwood	703	589	114	0	0
Hardwood	0	0	0	0	0
Total	703	589	114	0	0
Total					
Softwood	219,172	43,493	91,960	58,282	25,437
Hardwood	87,620	26,832	36,022	24,145	621
Total	306,792	70,325	127,982	82,427	26,058

^a 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, 2003 and 2005

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
	<i>thousand cubic feet</i>									
Fiber products										
Softwood	83,705	84,994	0	0	83,599	84,031	106	963	0	0
Hardwood	31,812	31,395	194	29	31,561	31,309	57	57	0	0
Total	115,517	116,389	194	29	115,160	115,340	163	1,020	0	0
Particleboard										
Softwood	13,357	14,327	3	3	3,148	3,729	3,145	3,093	7,061	7,502
Hardwood	4,764	2,416	143	35	3,873	1,621	574	592	174	168
Total	18,121	16,743	146	38	7,021	5,350	3,719	3,685	7,235	7,670
Charcoal/ chemical wood										
Softwood	3,178	3,178	0	0	0	0	3,178	3,178	0	0
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	3,178	3,178	0	0	0	0	3,178	3,178	0	0
Sawn products										
Softwood	5	2,790	1	0	4	2,790	0	0	0	0
Hardwood	9,430	54	3	0	9,427	54	0	0	0	0
Total	9,435	2,844	4	0	9,431	2,844	0	0	0	0
Fuel										
Softwood	67,020	71,736	24,596	25,495	676	212	40,493	44,226	1,255	1,803
Hardwood	39,242	39,439	14,120	15,862	3,760	2,038	21,273	21,244	89	295
Total	106,262	111,175	38,716	41,357	4,436	2,250	61,766	65,470	1,344	2,098
Miscellaneous										
Softwood	46,039	41,433	19,012	17,984	825	1,153	9,948	6,164	16,254	16,132
Hardwood	15,397	13,780	10,379	10,892	1,385	963	3,249	1,767	384	158
Total	61,436	55,213	29,391	28,876	2,210	2,116	13,197	7,931	16,638	16,290
Not used										
Softwood	219	714	48	11	73	45	98	658	0	0
Hardwood	549	536	86	14	146	37	317	485	0	0
Total	768	1,250	134	25	219	82	415	1,143	0	0
All products										
Softwood	213,523	219,172	43,660	43,493	88,325	91,960	56,968	58,282	24,570	25,437
Hardwood	101,194	87,620	24,925	26,832	50,152	36,022	25,470	24,145	647	621
Total	314,717	306,792	68,585	70,325	138,477	127,982	82,438	82,427	25,217	26,058

Table A.15—Roundwood timber product output by county, product, and species group, North Carolina, 2005

County	All products		Saw logs		Veneer logs		Pulpwood ^a		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	<i>thousand cubic feet</i>											
Alamance	2,700	3,667	2,079	2,318	0	187	30	67	591	1,095	0	0
Alexander	897	1,008	750	905	0	23	9	38	119	42	19	0
Alleghany	1,038	1,654	990	1,527	0	0	3	127	0	0	45	0
Anson	15,697	3,829	7,635	1,073	867	365	7,195	2,391	0	0	0	0
Ashe	1,402	3,137	1,344	2,952	0	0	58	185	0	0	0	0
Avery	294	1,716	288	1,625	3	60	3	31	0	0	0	0
Beaufort	32,029	4,535	26,012	524	0	512	6,017	3,499	0	0	0	0
Bertie	12,795	6,237	8,333	1,013	213	1,257	4,031	3,967	183	0	35	0
Bladen	12,912	3,946	8,357	1,241	2,562	85	1,974	2,620	0	0	19	0
Brunswick	20,713	1,808	11,680	73	3,416	88	5,518	1,647	0	0	99	0
Buncombe	481	2,409	474	2,288	7	121	0	0	0	0	0	0
Burke	6,493	3,552	3,374	1,114	6	49	2,278	2,389	835	0	0	0
Cabarrus	1,700	740	1,229	512	0	0	233	186	238	42	0	0
Caldwell	2,805	2,265	2,690	1,915	0	7	115	343	0	0	0	0
Camden	1,249	598	827	357	0	6	210	235	183	0	29	0
Carteret	3,364	56	1,969	37	0	0	1,395	19	0	0	0	0
Caswell	3,765	3,291	2,213	1,267	0	167	59	1,758	1,493	99	0	0
Catawba	1,178	923	999	724	0	0	60	199	119	0	0	0
Chatham	8,784	4,775	7,407	2,828	0	20	476	1,927	789	0	112	0
Cherokee	1,326	3,856	449	566	212	147	665	3,143	0	0	0	0
Chowan	4,408	806	2,893	4	0	0	1,486	802	0	0	29	0
Clay	34	447	27	405	0	33	7	9	0	0	0	0
Cleveland	2,537	814	1,025	580	0	0	796	150	716	84	0	0
Columbus	27,826	9,699	11,975	1,005	2,562	253	13,263	8,441	0	0	26	0
Craven	20,297	1,375	15,605	0	0	439	4,692	936	0	0	0	0
Cumberland	2,299	609	683	162	341	377	1,275	70	0	0	0	0
Currituck	570	244	386	15	0	0	149	229	0	0	35	0
Dare	416	48	280	0	0	0	136	48	0	0	0	0
Davidson	2,089	3,151	1,393	2,820	0	0	100	247	596	84	0	0
Davie	384	721	19	617	0	0	3	62	358	42	4	0
Duplin	5,544	917	1,626	132	2,098	353	488	184	1,332	248	0	0
Durham	3,586	1,690	2,123	339	0	86	280	1,265	1,183	0	0	0
Edgecombe	3,877	1,689	2,932	916	213	309	549	425	183	39	0	0
Forsyth	635	1,198	488	867	0	0	9	206	119	125	19	0
Franklin	7,094	1,995	4,162	1,363	570	275	303	278	2,059	79	0	0
Gaston	2,086	479	502	199	842	0	623	280	119	0	0	0
Gates	10,445	4,717	5,615	1,052	584	24	3,238	3,483	1,008	158	0	0
Graham	59	662	1	131	27	517	31	14	0	0	0	0
Granville	7,037	1,402	4,036	727	590	271	519	102	1,713	302	179	0
Greene	6,393	12,034	1,353	163	1,049	28	3,658	11,781	333	62	0	0
Guilford	1,004	2,940	499	2,545	0	0	70	353	435	42	0	0
Halifax	10,072	4,985	5,501	2,756	1,371	807	1,032	1,066	2,109	356	59	0
Harnett	7,118	619	3,803	160	2,098	236	1,020	223	197	0	0	0
Haywood	2,362	7,951	177	2,565	10	186	2,175	5,200	0	0	0	0
Henderson	898	1,313	895	1,253	3	60	0	0	0	0	0	0
Hertford	7,304	4,970	2,464	1,589	630	282	3,886	3,073	275	26	49	0
Hoke	3,821	598	1,875	324	341	219	1,383	55	197	0	25	0
Hyde	1,900	673	1,006	140	0	0	894	533	0	0	0	0
Iredell	1,975	2,028	1,272	1,516	0	0	95	261	596	251	12	0
Jackson	34	1,732	21	1,491	13	241	0	0	0	0	0	0
Johnston	7,217	914	2,202	246	1,049	491	2,905	53	1,061	124	0	0

continued

Table A.15—Roundwood timber product output by county, product, and species group, North Carolina, 2005 (continued)

County	All products		Saw logs		Veneer logs		Pulpwood ^a		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	8,772	2,009	4,909	0	1,049	19	2,814	1,990	0	0	0	0
Lee	6,452	1,521	3,578	1,036	2,098	382	274	103	394	0	108	0
Lenoir	6,864	99	3,152	0	2,098	19	1,281	18	333	62	0	0
Lincoln	1,517	888	830	564	0	0	329	282	358	42	0	0
Macon	309	957	309	924	0	33	0	0	0	0	0	0
Madison	305	3,120	257	2,274	48	846	0	0	0	0	0	0
Martin	9,107	6,361	6,309	1,554	0	529	2,798	4,278	0	0	0	0
McDowell	1,722	1,808	1,716	1,730	3	78	3	0	0	0	0	0
Mecklenburg	1,055	1,145	560	797	0	0	250	264	238	84	7	0
Mitchell	1,126	1,767	1,116	1,586	10	181	0	0	0	0	0	0
Montgomery	8,186	7,145	5,630	3,294	0	378	2,437	3,473	119	0	0	0
Moore	9,585	4,184	7,025	2,682	0	365	2,255	1,137	197	0	108	0
Nash	5,002	1,785	2,910	1,122	570	184	330	321	1,192	158	0	0
New Hanover	753	26	462	0	170	20	121	6	0	0	0	0
Northampton	8,810	4,517	4,300	1,700	854	330	3,149	2,250	458	237	49	0
Onslow	12,366	574	4,099	36	1,049	88	6,885	388	333	62	0	0
Orange	3,218	962	828	535	0	100	10	7	2,380	320	0	0
Pamlico	6,718	2,079	3,209	37	1,049	0	2,460	2,042	0	0	0	0
Pasquotank	1,704	1,033	1,456	481	0	0	229	552	0	0	19	0
Pender	12,798	882	5,969	657	854	222	5,975	3	0	0	0	0
Perquimans	8,284	4,880	6,076	301	213	0	1,976	4,579	0	0	19	0
Person	4,091	1,125	2,480	710	0	181	15	212	1,561	0	35	22
Pitt	7,380	1,615	4,158	398	0	292	3,222	925	0	0	0	0
Polk	1,083	563	726	563	0	0	119	0	238	0	0	0
Randolph	2,732	6,259	1,967	5,063	0	386	210	422	555	388	0	0
Richmond	8,090	1,407	5,097	764	0	365	2,993	278	0	0	0	0
Robeson	8,705	1,360	4,160	769	1,708	0	2,837	591	0	0	0	0
Rockingham	5,385	7,378	3,480	2,501	21	11	971	4,386	913	480	0	0
Rowan	2,935	2,494	1,726	1,357	0	0	135	1,137	1,074	0	0	0
Rutherford	3,224	8,459	897	1,470	0	0	2,089	6,989	238	0	0	0
Sampson	13,298	3,136	3,109	101	3,147	75	5,710	2,712	1,332	248	0	0
Scotland	3,659	5,831	738	535	854	365	2,067	4,931	0	0	0	0
Stanly	1,968	279	1,630	229	0	8	219	0	119	42	0	0
Stokes	2,534	4,194	1,535	3,147	0	0	16	544	954	503	29	0
Surry	1,791	2,964	1,219	2,009	0	0	45	578	477	377	50	0
Swain	351	675	32	663	319	12	0	0	0	0	0	0
Transylvania	6	29	6	28	0	0	0	1	0	0	0	0
Tyrrell	2,635	920	1,876	140	0	0	759	780	0	0	0	0
Union	2,366	2,865	272	335	842	0	1,126	2,488	119	42	7	0
Vance	3,628	972	987	803	356	86	89	38	2,142	45	54	0
Wake	6,676	6,276	3,834	424	0	407	518	4,380	2,235	1,065	89	0
Warren	9,619	10,740	5,749	2,338	1,139	277	1,878	8,046	853	79	0	0
Washington	4,489	1,615	2,409	362	0	0	2,080	1,253	0	0	0	0
Watauga	672	1,402	669	1,310	0	0	3	92	0	0	0	0
Wayne	5,269	547	2,423	0	1,049	267	281	6	1,516	274	0	0
Wilkes	3,775	11,418	3,272	5,396	0	8	245	5,847	238	167	20	0
Wilson	7,062	3,896	2,420	153	3,147	73	312	3,458	1,183	212	0	0
Yadkin	1,080	3,336	796	2,913	0	0	27	339	238	84	19	0
Yancey	1,063	3,839	1,050	3,570	13	269	0	0	0	0	0	0
All counties	513,162	270,758	289,355	110,302	44,337	15,437	136,936	136,726	41,126	8,271	1,408	22

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (7,051,000 cubic feet in 2005).

Table A.16—Total roundwood output by product, species group, and source of material, North Carolina, 2005

Product and species group	All sources	Total	Growing-stock trees		Other sources
			Sawtimber	Poletimber	
<i>thousand cubic feet</i>					
Saw logs					
Softwood	289,355	284,874	277,483	7,391	4,481
Hardwood	110,302	109,134	102,076	7,058	1,168
Total	399,657	394,009	379,560	14,449	5,648
Veneer logs and bolts					
Softwood	44,337	43,491	42,182	1,309	846
Hardwood	15,437	15,264	15,264	0	173
Total	59,774	58,755	57,447	1,309	1,019
Pulpwood					
Softwood	136,936	130,930	48,595	82,335	6,006
Hardwood	136,726	133,991	43,223	90,768	2,735
Total	273,662	264,921	91,818	173,103	8,741
Composite panels					
Softwood	41,126	40,509	11,043	29,467	617
Hardwood	8,271	7,929	4,491	3,438	342
Total	49,397	48,438	15,534	32,904	959
Poles and posts					
Softwood	1,337	993	533	460	344
Hardwood	0	0	0	0	0
Total	1,337	993	533	460	344
Other miscellaneous					
Softwood	71	59	32	27	12
Hardwood	22	22	9	13	0
Total	93	81	41	40	12
Total industrial products					
Softwood	513,162	500,857	379,869	120,988	12,305
Hardwood	270,758	266,341	165,064	101,277	4,417
Total	783,920	767,197	544,932	222,265	16,723
Fuelwood					
Softwood	9,207	8,156	4,742	3,414	1,051
Hardwood	48,007	41,516	30,367	11,149	6,491
Total	57,214	49,672	35,109	14,563	7,542
All products					
Softwood	522,369	509,012	384,610	124,402	13,357
Hardwood	318,765	307,857	195,431	112,426	10,908
Total	841,134	816,869	580,041	236,828	24,265

Table A.17—Total roundwood output by species group, survey region, and ownership class, North Carolina, 2005

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
Softwoods				
Southern Coastal Plain	193,873	9,016	58,274	126,584
Northern Coastal Plain	172,966	243	34,254	138,469
Piedmont	128,499	565	10,891	117,043
Mountain	27,031	491	0	26,540
Total softwoods	522,369	10,314	103,418	408,637
Hardwoods				
Southern Coastal Plain	62,068	107	4,694	57,267
Northern Coastal Plain	70,206	0	2,119	68,087
Piedmont	120,904	0	16,571	104,333
Mountain	65,587	1,231	0	64,356
Total hardwoods	318,765	1,339	23,383	294,043
All species	841,134	11,653	126,801	702,680

Table A.18—Total roundwood output by species group, detailed species group, and product, North Carolina, 2005

Species group and detailed species group	Total	Product						Fuel-wood
		Saw logs	Veneer logs	Pulpwood	Composite panels	Poles and posts	Other miscellaneous	
<i>thousand cubic feet</i>								
Softwood								
Cedar	5,894	3,982	79	826	881	22	1	104
Longleaf-slash pine	16,618	10,822	1,262	4,014	201	21	5	293
Eastern white pine	10,916	7,327	43	2,429	878	46	0	192
Loblolly-shortleaf pine	414,015	222,617	39,608	112,378	30,967	1,087	59	7,298
Other yellow pines	60,766	34,814	2,606	14,194	7,936	139	6	1,070
Cypress	11,032	7,473	347	2,767	231	19	0	195
Hemlock	3,127	2,318	391	329	31	3	0	55
Total softwoods	522,369	289,355	44,337	136,936	41,126	1,337	71	9,207
Hardwood								
Soft maple	35,383	10,304	1,633	16,969	1,143	0	6	5,329
Hard maple	1,484	1,056	39	154	11	0	0	224
Hickory	4,243	2,095	299	955	253	0	2	639
Beech	3,563	2,338	159	483	46	0	0	537
Ash	1,143	487	18	340	125	0	0	172
Black walnut	621	468	37	17	5	0	0	93
Sweetgum	53,918	16,226	3,952	24,479	1,136	0	5	8,119
Yellow-poplar	51,009	20,777	1,683	19,482	1,381	0	4	7,682
Blackgum-tupelo	13,753	3,215	1,254	7,056	156	0	0	2,071
Sycamore	2,231	572	94	1,110	119	0	0	336
Black cherry	2,208	822	87	876	91	0	0	333
Select white oaks	35,102	12,848	1,315	14,428	1,220	0	4	5,287
Other white oaks	17,593	8,741	988	5,007	207	0	0	2,649
Select red oaks	15,561	6,738	397	5,974	108	0	0	2,344
Other red oaks	55,350	15,514	2,605	27,107	1,788	0	0	8,336
Elm	5,539	1,390	253	2,944	119	0	0	834
Other eastern hardwoods	20,065	6,711	624	9,345	364	0	1	3,021
Total hardwoods	318,765	110,302	15,437	136,726	8,271	0	22	48,007
All species	841,134	399,657	59,774	273,662	49,397	1,337	93	57,214

Table A.19—Total roundwood output by species group, detailed species group, and ownership class, North Carolina, 2005

Species group and detailed species group	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
Softwood				
Cedar	5,894	313	65	5,516
Longleaf-slash pine	16,618	82	7,352	9,185
Eastern white pine	10,916	9	0	10,907
Loblolly-shortleaf pine	414,015	7,513	89,959	316,543
Other yellow pines	60,766	2,232	5,923	52,610
Cypress	11,032	0	119	10,913
Hemlock	3,127	165	0	2,962
Total softwoods	522,369	10,314	103,418	408,637
Hardwood				
Soft maple	35,383	70	2,685	32,628
Hard maple	1,484	0	0	1,484
Hickory	4,243	44	22	4,177
Beech	3,563	0	30	3,534
Ash	1,143	0	0	1,143
Black walnut	621	6	0	615
Sweetgum	53,918	2	2,056	51,861
Yellow-poplar	51,009	280	3,336	47,393
Blackgum-tupelo	13,753	8	795	12,950
Sycamore	2,231	0	203	2,027
Black cherry	2,208	37	175	1,996
Select white oaks	35,102	121	4,341	30,640
Other white oaks	17,593	23	1,178	16,392
Select red oaks	15,561	661	23	14,877
Other red oaks	55,350	43	8,356	46,951
Elm	5,539	0	7	5,532
Other eastern hardwoods	20,065	45	177	19,844
Total hardwoods	318,765	1,339	23,383	294,043
All species	841,134	11,653	126,801	702,680

Johnson, Tony G.; Mann, Michael C. 2007. North Carolina's timber industry—an assessment of timber product output and use, 2005. Resour. Bull. SRS-127. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 33 p.

In 2005, industrial roundwood output from North Carolina's forests totaled 784 million cubic feet, 1 percent more than in 2003. Mill byproducts generated from primary manufacturers declined 3 percent to 306 million cubic feet. Almost all plant residues were used primarily for fuel and fiber products. Saw logs were the leading roundwood product at 400 million cubic feet; pulpwood ranked second at 274 million cubic feet; veneer logs were third at 60 million cubic feet. The number of primary processing plants declined from 235 in 2003 to 180 in 2005. Total receipts increased 9 million cubic feet to 751 million cubic feet.

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



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