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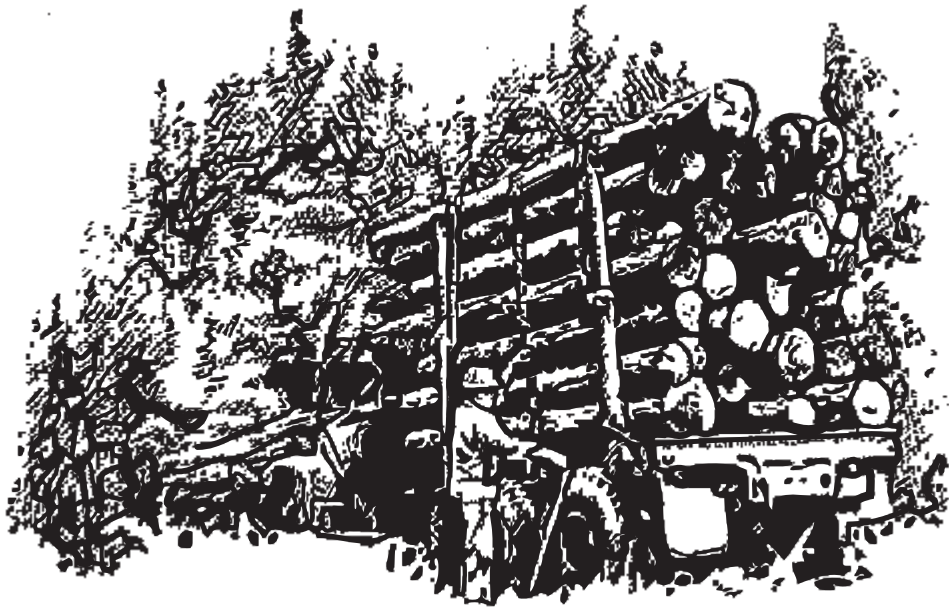
North Carolina's Timber Industry— An Assessment of Timber Product Output and Use, 2009

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Foreword

This report contains the findings of a 2009 canvass of all primary wood-using plants in North Carolina, and presents changes in product output and residue use since 2007. 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 2009 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 2010 to obtain information for 2009. 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 Southern Research Station (SRS) gratefully acknowledges the cooperation and assistance provided by the North Carolina Department of Environment and Natural Resources, Division of Forest Resources (Michael Mann, Barry New, and Clayton Altizer) in collecting mill data. Appreciation is also extended to forest industry and mill managers for providing timber products information.

The authors thank Doug Duncan 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, statistical checking, and styling; and the SRS Technical Publications Team for editorial review and publication of this report.



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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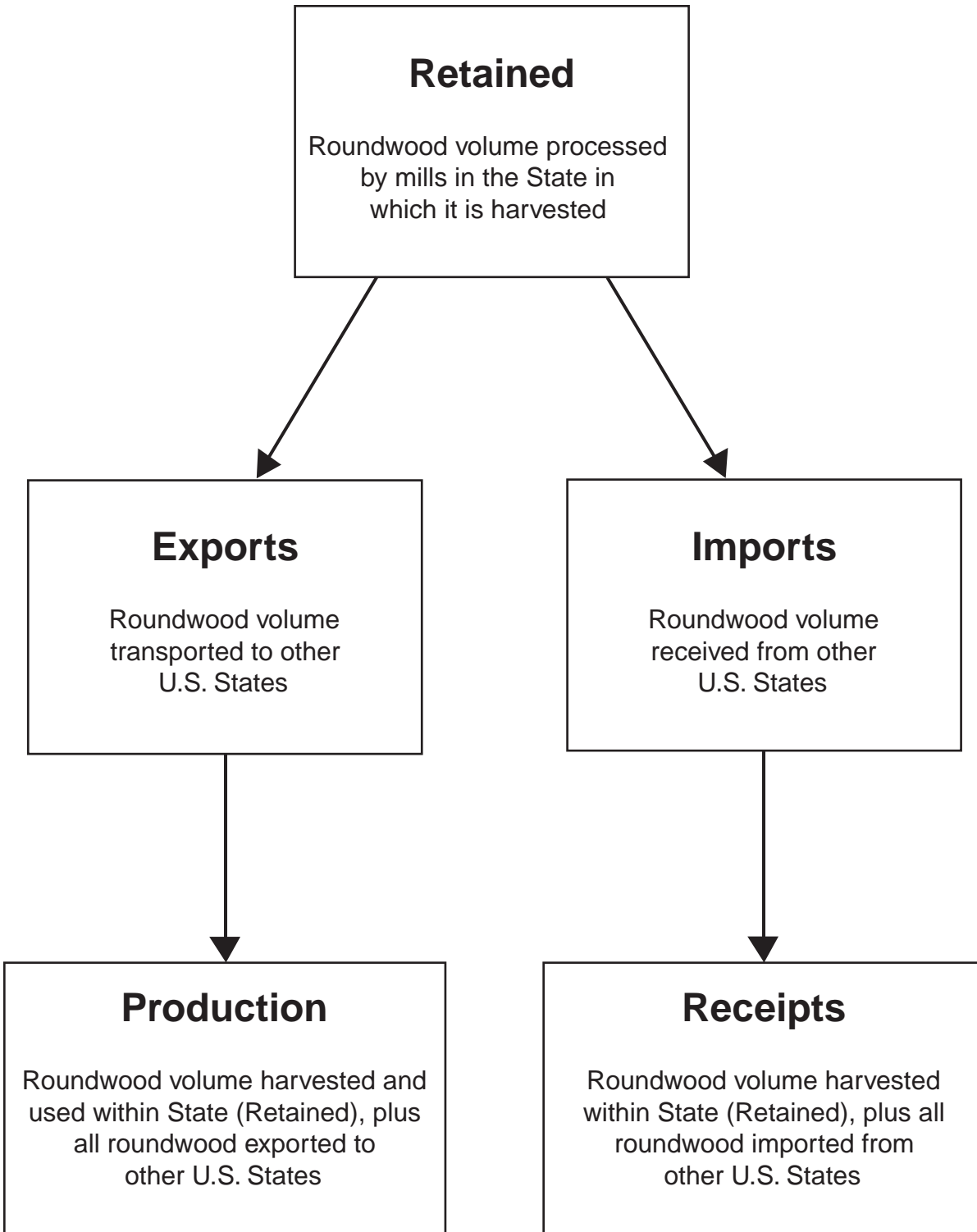
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^a All tables in this report are available in Microsoft® Excel workbook files. Upon request, these files will be supplied in the format the customer requests. The use of trade or firm names in this publication is for reader information and does not 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 and relationships unique to the Forest Inventory and Analysis Units across the country that deal with timber product output (TPO) (fig. 1). Unless otherwise indicated, the context for production and receipts comparisons (increases, decreases, or stabilizations) throughout the report is the change from 2007 to 2009.

All Products

- Between 2007 and 2009, TPO from roundwood was down 143.3 million cubic feet, or 20 percent, to 585.1 million cubic feet.

- Output of softwood roundwood products declined 13 percent from 473.7 million cubic feet in 2007 to 411.4 million cubic feet in 2009. Output of hardwood roundwood products declined 32 percent from 254.7 million cubic feet to 173.7 million cubic feet (fig. 2).
- Saw logs and pulpwood were the principal roundwood products in 2009. Combined output of these two products totaled 512.2 million cubic feet and accounted for 87 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 153.4 million cubic feet to 560.7 million cubic feet, while output of utilized plant byproducts was down 88.7 million cubic feet to 204.8 million cubic feet.

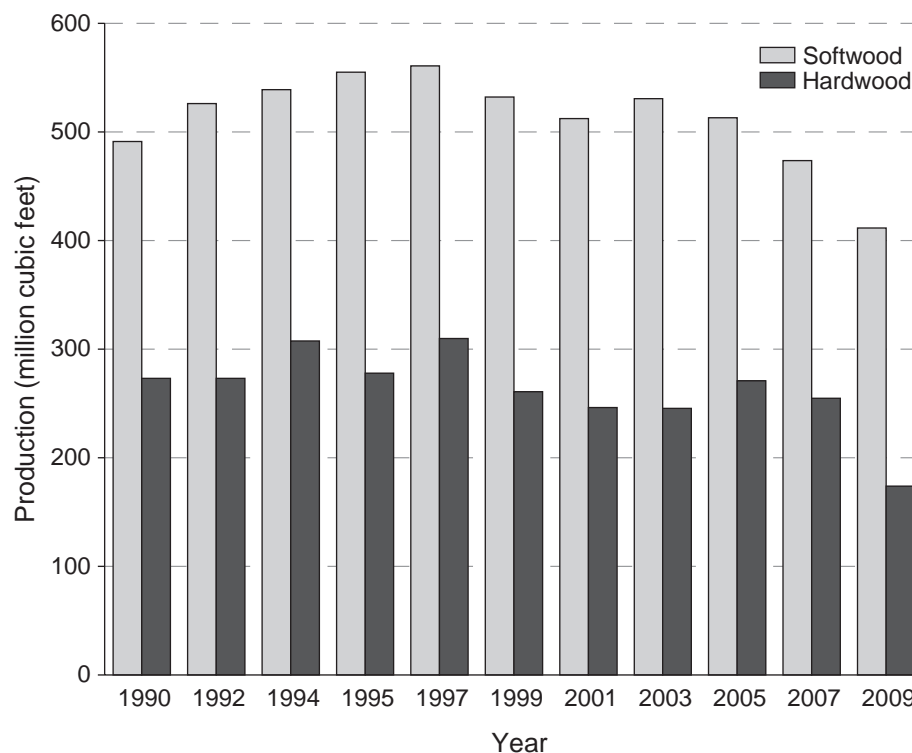


Figure 2—Roundwood production for all products by species group and year (see page 8 for references for individual years), North Carolina.

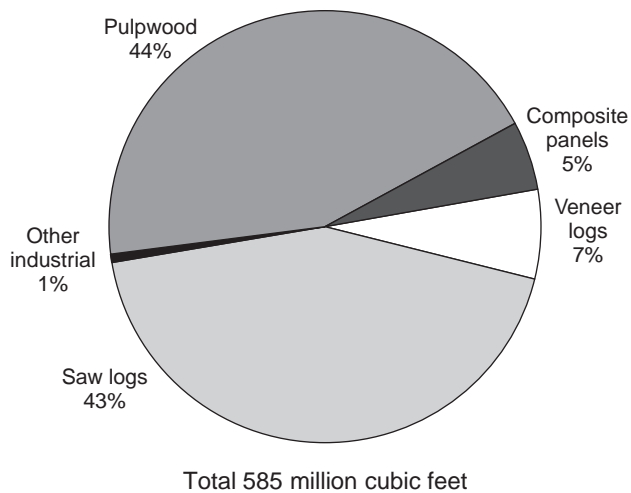


Figure 3—Roundwood production by type of product, North Carolina, 2009.

- At the same time, the number of primary roundwood-using plants in North Carolina was down from 163 in 2007 to 141 in 2009 (fig. 4). All the decline in mill numbers was in saw and veneer mills.
- Across all products, 81 percent of roundwood harvested was retained for processing at North Carolina mills. Exports of roundwood to other States amounted to 111.7 million cubic feet, while imports of roundwood amounted to 87.3 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 43 percent of the State's total roundwood products. Output of softwood saw logs was down 25 percent to 183.7 million cubic feet (1.02 billion board feet, International ¼-inch rule) and the output of hardwood saw logs declined 32 percent to 70.5 million cubic feet (424.9 million board feet, International ¼-inch rule) (fig. 5).
- In 2009, North Carolina had 118 sawmills, a net loss of 18 mills since 2007. Total saw-log receipts were down 107.8 million cubic feet to 266.6 million cubic feet, but still accounted for 48 percent of the State's total receipts. Softwood saw-log receipts were down 27 percent to nearly 194.3 million cubic feet, while hardwood receipts declined 34 percent to 72.2 million cubic feet. Of the mills operating in 2009, 23 percent had receipts < 1 million board feet, while 30 percent had receipts > 10 million board feet. Those 35 mills accounted for 83 percent of saw-log receipts.
- North Carolina retained 96 percent of its saw-log production for within State manufacture. Saw-log imports at 23.4 million cubic feet exceeded exports by 12.3 million cubic feet in 2009, making the State a net importer of saw logs.

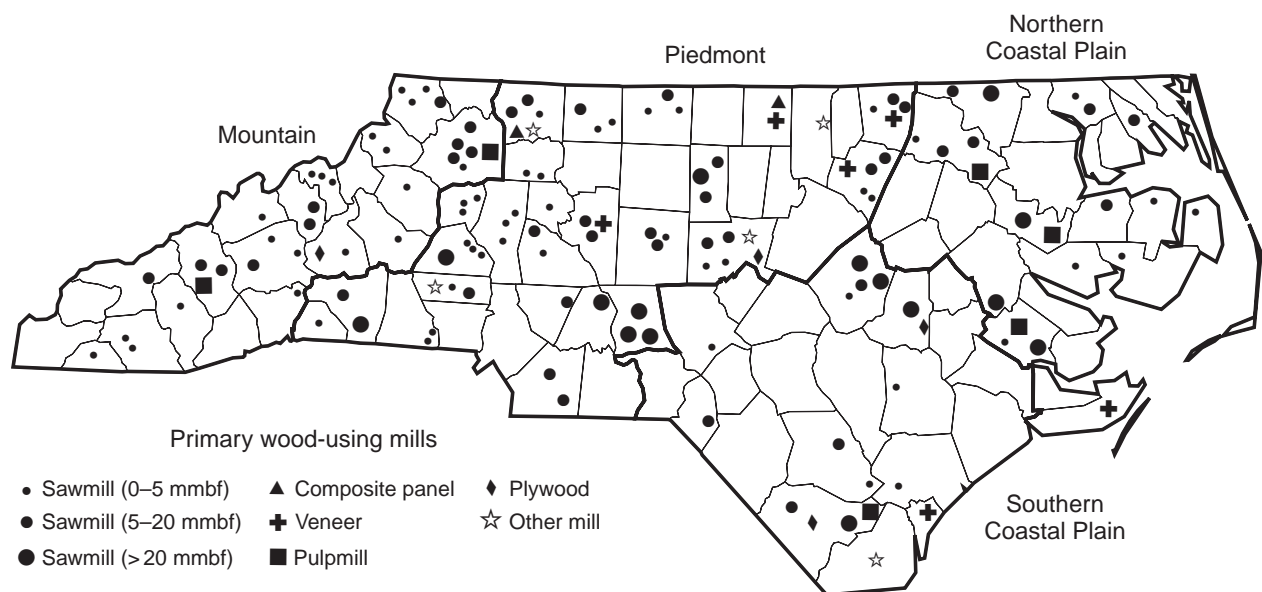


Figure 4—Primary wood-using mills by region, North Carolina, 2009.

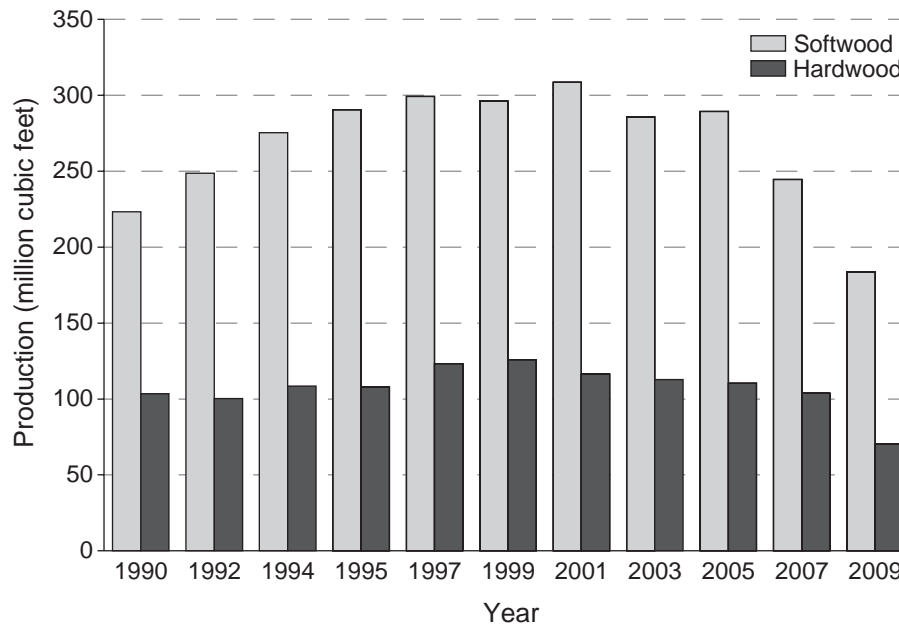


Figure 5—Roundwood saw-log production by species group and year (see page 8 for references for individual years), North Carolina.

Pulpwood

- Pulpwood production, including chipped roundwood, decreased 22.4 million cubic feet to 258.0 million cubic feet but still accounted for 44 percent of the State's total roundwood TPO. Softwood output increased 10 percent to 167.1 million cubic feet (2.3 million cords), while hardwood output dropped 30 percent to 90.9 million cubic feet (1.2 million cords) (fig. 6).
- Six pulpmill facilities were operating and receiving roundwood in North Carolina in 2009, the same since 2003. Total pulpwood receipts for these mills were down 3.8 million cubic feet to 241.3 million cubic feet, accounting for 43 percent of total receipts for all mills.
- Seventy-one percent of roundwood cut for pulpwood was retained for processing by North Carolina pulpmills. Roundwood pulpwood accounted for 66 percent of total known exports and 65 percent of total imports. Roundwood pulpwood exports amounted to 73.5 million cubic feet, while imports totaled 56.8 million cubic feet, making the State a net exporter of roundwood pulpwood.

Veneer Logs

- Output of veneer logs in 2009 totaled 39.0 million cubic feet and accounted for 7 percent of the State's total

roundwood TPO volume. Softwood veneer production was down 9 percent to 32.9 million cubic feet (189.0 million board feet, International ¼-inch rule) and the output of hardwood veneer logs declined 58 percent to 6.1 million cubic feet (38.7 million board feet, International ¼-inch rule) (fig. 7).

- Ten veneer mills were operating in North Carolina in 2009, down from 14 in 2007. At the same time, receipts of veneer logs decreased 45 percent to 29.4 million cubic feet. Softwood veneer receipts were down 11.4 million cubic feet to 21.0 million cubic feet. Hardwood veneer receipts were down 61 percent to 8.4 million cubic feet.
- North Carolina retained 65 percent of its veneer-log production for processing at veneer mills within State. Imports amounted to 3.9 million cubic feet, while exports totaled 13.5 million cubic feet, making the State a net exporter of roundwood veneer logs.

Composite Panels

- Roundwood harvested from North Carolina's forests for composite panels declined 34 percent and totaled 30.1 million cubic feet. Softwood output was down 37 percent to 25.0 million cubic feet (345,000 cords), and hardwood output was down 20 percent to 5.1 million cubic feet (66,500 cords) (fig. 8).

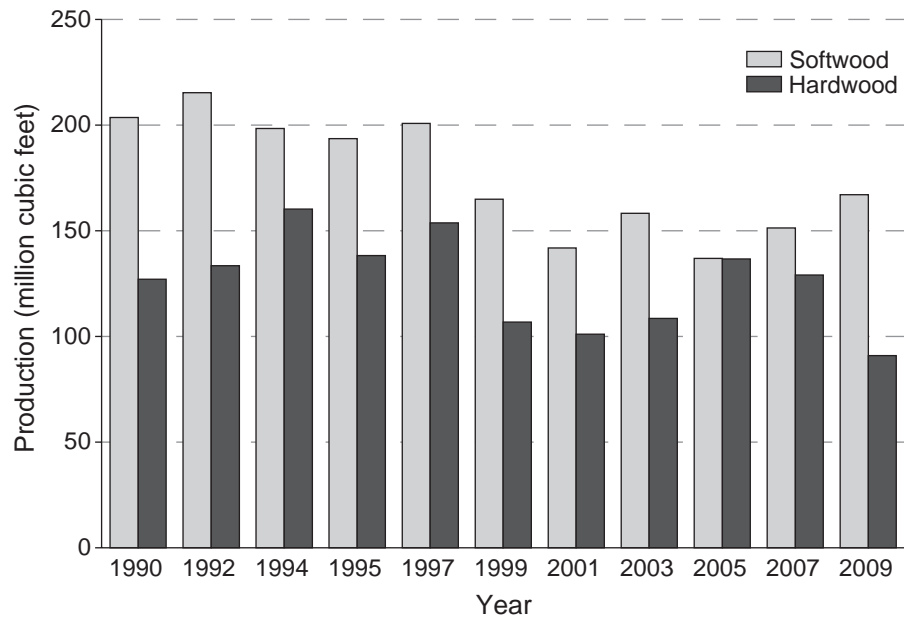


Figure 6—Roundwood pulpwood production by species group and year (see page 8 for references for individual years), North Carolina.

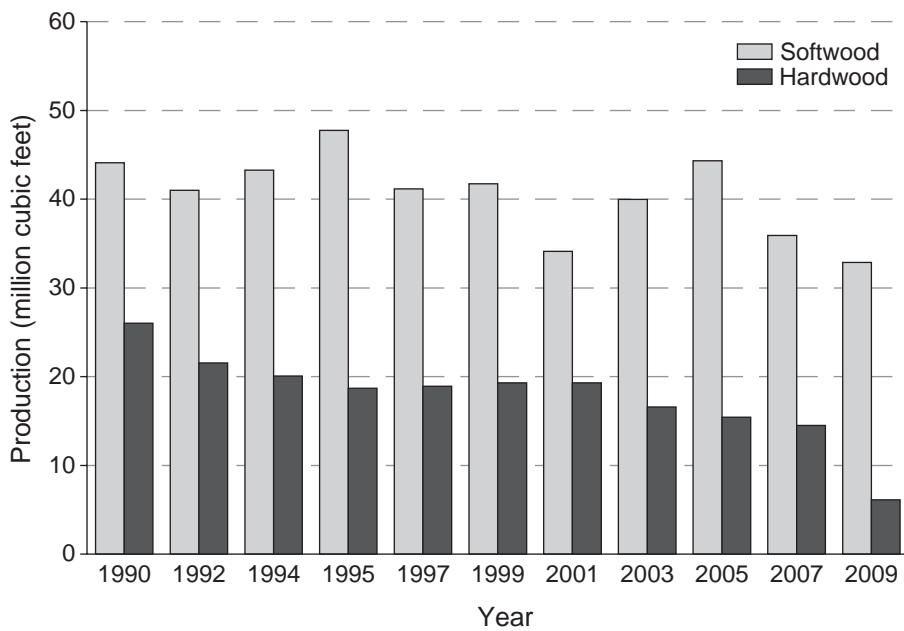


Figure 7—Roundwood veneer-log production by species group and year (see page 8 for references for individual years), North Carolina.

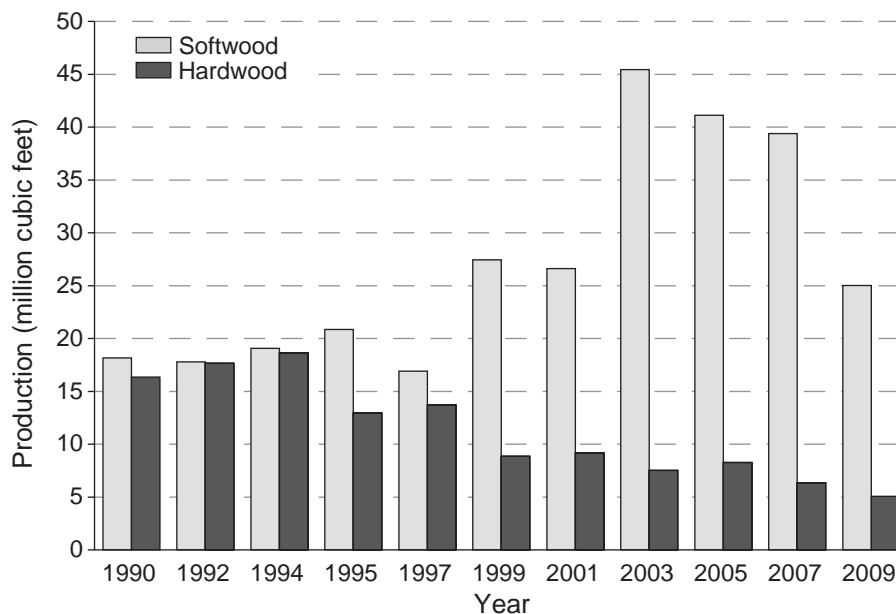


Figure 8—Roundwood production for composite panels by species group and year (see page 8 for references for individual years), North Carolina.

- Two composite panel mills were operating in North Carolina in 2009, the same as 2007. Total receipts for these mills decreased 44 percent to 22.1 million cubic feet.
- Sixty-three percent of the composite panel production was retained for processing by North Carolina mills. Exports amounted to 11.2 million cubic feet, while imports totaled 3.3 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 3.7 million cubic feet, up 11 percent from 2007. Softwood made-up 72 percent of the other industrial products volume.
- The number of plants producing other industrial products remained at five for 2009. 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 2.4 million cubic feet exported for other industrial uses, 56 percent was softwood.

Plant Byproducts

- In 2009, processing of primary products in North Carolina mills generated 206.2 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 85.8 million cubic feet, while bark volume totaled 51.4 million cubic feet. Sawdust and shavings made-up 33 percent of total residues, or 68.9 million cubic feet (fig. 9).
- The processing of saw logs by sawmills generated 164.2 million cubic feet of mill residues, or 80 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 35 percent of the residues were used for industrial fuel (fig. 11). More than 77.2 million cubic feet, or 90 percent, of the coarse residues were used to manufacture fiber products. Ninety-seven percent of the bark was used for industrial fuel or other miscellaneous products, while 73 percent of the sawdust and 13 percent of the shavings were used for industrial fuel. Shavings were used primarily for particleboard manufacture or miscellaneous uses such as bedding.

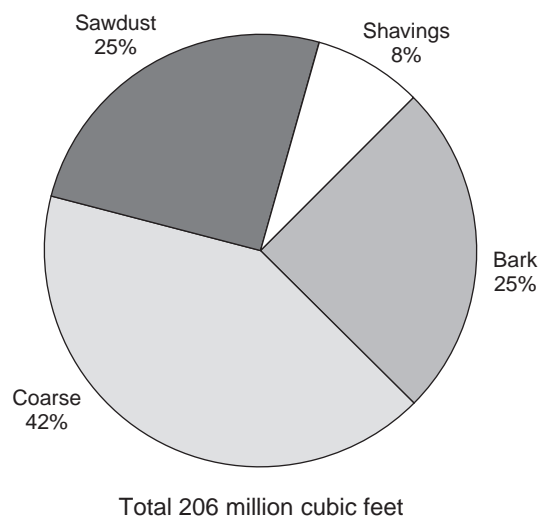


Figure 9—Primary mill residue by residue type, North Carolina, 2009.

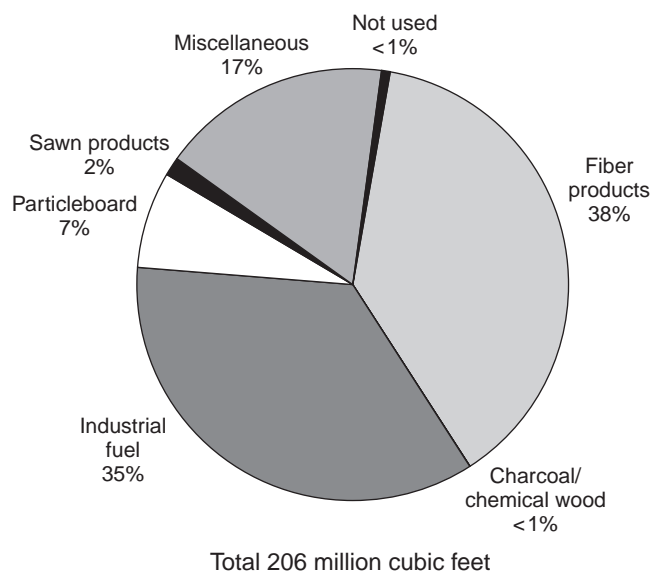


Figure 11—Primary mill residue produced by roundwood type, North Carolina, 2009.

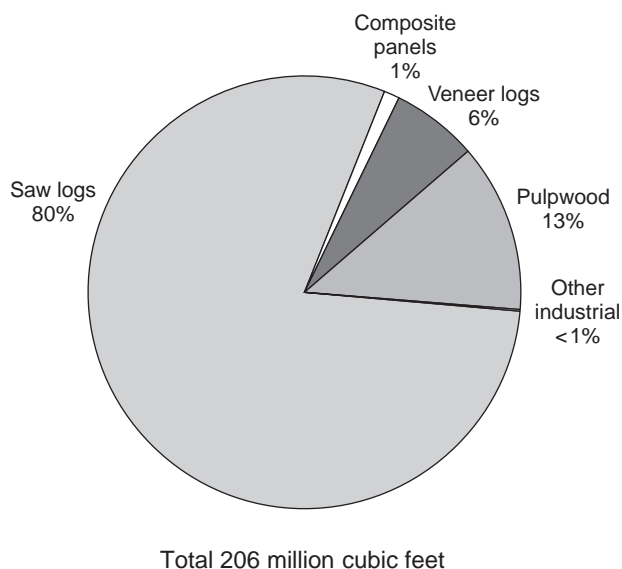


Figure 10—Disposal of residue by product, North Carolina, 2009.

County Data

- Table A.15 shows softwood and hardwood product output by county and individual product type. Ninety-nine of the 100 counties in North Carolina had softwood and hardwood output. Fourteen counties (Anson, Beaufort, Bertie, Bladen, Brunswick, Columbus, Craven, Gates, Halifax, Martin, Montgomery, Moore, Northampton, and Onslow) had combined softwood and hardwood product output of >12 million cubic feet each. These 14 counties total product output amounted to 227.9 million cubic feet and accounted for 39 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 585.1 million cubic feet of industrial roundwood output, an estimated 64.1 million cubic feet was harvested for residential fuelwood, bringing North Carolina's total roundwood output to 649.2 million cubic feet.
- Ninety-five 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 30.9 million cubic feet, or 5 percent of total roundwood output (fig. 12).

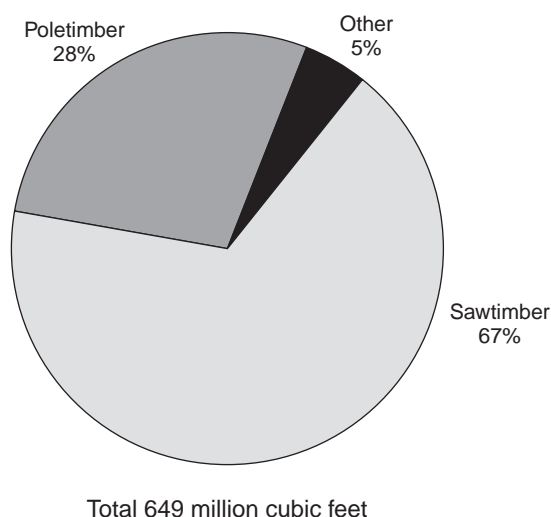


Figure 12—Roundwood output by source, North Carolina, 2009.

Ownership

- An estimated 533.6 million cubic feet, or 82 percent, of the total roundwood output came from nonindustrial private forest lands. Forest industry lands contributed 101.2 million cubic feet, or 16 percent of the output. Public lands made-up the remaining 2 percent, or nearly 14.5 million cubic feet (fig. 13).

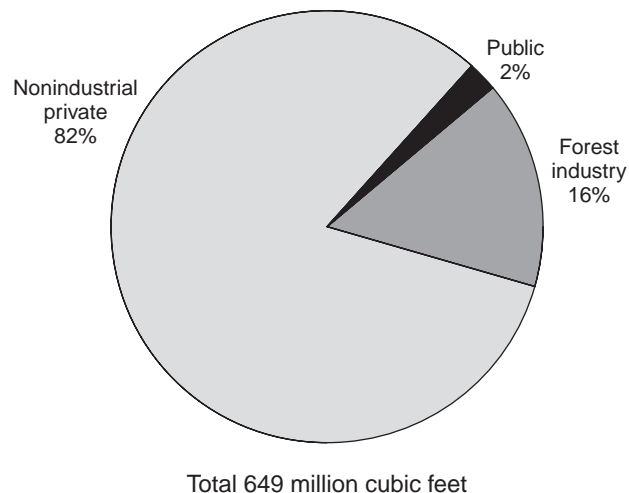


Figure 13—Roundwood output by ownership, North Carolina, 2009.

Species

- The loblolly and shortleaf pine group provided the most volume of any softwood species group; at 342.2 million cubic feet, it accounted for 81 percent of the total softwood output (fig. 14). At 49.0 million cubic feet, the other yellow pine type accounted for another 12 percent of softwood output. The red oak and white oak groups combined accounted for 81.6 million cubic feet, or 36 percent of total hardwood output (fig. 15).

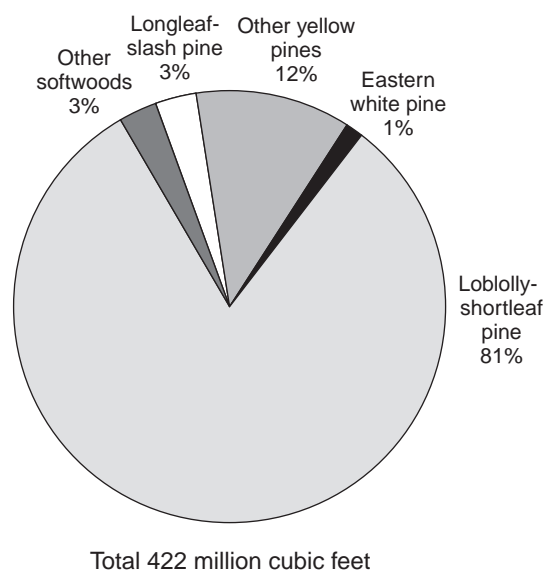


Figure 14—Roundwood output by softwood species group, North Carolina, 2009.

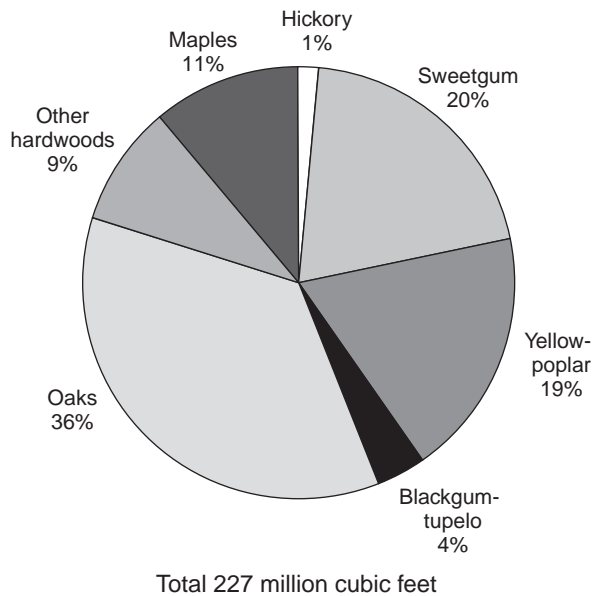


Figure 15—Roundwood output by hardwood species group, North Carolina, 2009.

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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.

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 , 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 U.S. 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 portion of 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.

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

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^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. 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.

^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, 2007 and 2009

Product and species group	Year		Change	Change
	2007	2009		
	- - - thousand cubic feet - - -			percent
Saw logs				
Softwood	244,657	183,745	-60,912	-24.9
Hardwood	103,760	70,500	-33,260	-32.1
Total	348,417	254,245	-94,172	-27.0
Veneer logs				
Softwood	35,911	32,871	-3,040	-8.5
Hardwood	14,505	6,130	-8,375	-57.7
Total	50,416	39,001	-11,415	-22.6
Pulpwood ^a				
Softwood	151,350	167,060	15,710	10.4
Hardwood	129,059	90,925	-38,134	-29.5
Total	280,409	257,985	-22,424	-8.0
Composite panels				
Softwood	39,403	25,033	-14,370	-36.5
Hardwood	6,356	5,082	-1,274	-20.0
Total	45,759	30,115	-15,644	-34.2
Other industrial				
Softwood	2,383	2,684	301	12.6
Hardwood	1,000	1,053	53	5.3
Total	3,383	3,737	354	10.5
All industrial				
Softwood	473,704	411,393	-62,311	-13.2
Hardwood	254,680	173,690	-80,990	-31.8
Total	728,384	585,083	-143,301	-19.7

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (4,608,000 cubic feet in 2007 and 5,227,000 cubic feet in 2009).

Table A.2—Roundwood receipts by product and species group, North Carolina, 2007 and 2009

Product and species group	Year		Change	Change
	2007	2009		
	- - - thousand cubic feet - - -			percent
Saw logs				
Softwood	265,162	194,340	-70,822	-26.7
Hardwood	109,248	72,233	-37,015	-33.9
Total	374,410	266,573	-107,837	-28.8
Veneer logs				
Softwood	32,347	20,960	-11,387	-35.2
Hardwood	21,441	8,408	-13,033	-60.8
Total	53,788	29,368	-24,420	-45.4
Pulpwood ^a				
Softwood	155,112	168,380	13,268	7.9
Hardwood	89,950	72,901	-17,049	-19.0
Total	245,062	241,281	-3,781	-1.5
Composite panels				
Softwood	32,838	18,146	-14,692	-44.7
Hardwood	6,673	3,998	-2,675	-40.1
Total	39,511	22,144	-17,367	-44.0
Other industrial ^b				
Softwood	1,302	1,343	41	3.1
Hardwood	0	2	2	—
Total	1,302	1,345	43	3.2
Total output				
Softwood	486,761	403,169	-83,592	-17.2
Hardwood	227,312	157,542	-69,770	-30.7
Total	714,073	560,711	-153,362	-21.5

— = negligible.

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (5,993,000 cubic feet in 2007 and 5,999,000 cubic feet in 2009).

^b Includes 51,000 cubic feet used as industrial fuel in 2009.

Table A.3—Number of primary wood-using plants by type of mill, North Carolina, 1990 to 2009

Type of mill	Year										
	1990	1992	1994	1995	1997	1999	2001	2003	2005	2007	2009
	<i>number</i>										
Sawmills	308	306	275	273	243	240	215	204	153	136	118
Veneer mills	32	29	27	27	23	24	20	18	14	14	10
Pulpmills	8	8	8	8	7	7	7	6	6	6	6
Composite panel mills	5	4	4	4	3	3	3	3	3	2	2
Other mills	13	10	8	8	4	4	4	4	4	5	5
All plants	366	357	322	320	280	278	249	235	180	163	141

Table A.4—Roundwood receipts by sawmill size, North Carolina, 2007 and 2009

Sawmill size class ^a	2007			2009		
	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	32	12,234	1	27	8,788	1
1.0–4.99	34	87,200	4	33	82,806	5
5.0–9.99	15	103,618	5	23	169,752	11
10.0–49.99	44	836,201	39	25	421,437	28
>50	11	1,092,535	51	10	832,509	55
Total	136	2,131,788	100	118	1,515,292	100

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

Table A.5—Roundwood receipts by species and type of mill, North Carolina, 2009

Species	All mills	Sawmills	Type of mill				Other mills ^b
			Veneer mills		OSB and panels	Pulpmills ^a	
			Pine plywood	Other veneer			
<i>thousand cubic feet</i>							
Softwood							
Yellow pine	218,855	178,959	20,694	266	17,640	NA	1,296
Eastern white pine	12,767	12,261	0	0	506	NA	0
Cedar	45	45	0	0	0	NA	0
Cypress	2,698	2,698	0	0	0	NA	0
Other softwood	424	377	0	0	0	NA	47
Unclassified	168,380	0	0	0	0	168,380	0
Total softwoods	403,169	194,340	20,694	266	18,146	168,380	1,343
Hardwood							
Blackgum and tupelo	2,855	1,224	440	978	213	NA	0
Soft maple	4,022	2,894	44	0	1,084	NA	0
Sweetgum	8,711	5,553	1,322	1,143	693	NA	0
Yellow-poplar	29,211	23,312	3,158	1,069	1,671	NA	1
Other soft hardwood	859	492	30	0	337	NA	0
Hickory	2,591	2,582	0	9	0	NA	0
Red oak	16,263	16,197	0	65	0	NA	1
White oak	14,886	14,850	0	36	0	NA	0
Other hard hardwood	5,243	5,129	0	114	0	NA	0
Unclassified	72,901	0	0	0	0	72,901	0
Total hardwoods	157,542	72,233	4,994	3,414	3,998	72,901	2
All species	560,711	266,573	25,688	3,680	22,144	241,281	1,345

NA = not applicable; OSB = oriented strand board.

^a Collected only by softwood and hardwood and includes roundwood chipped.^b Includes 51,000 cubic feet used as industrial fuel in 2009.**Table A.6—Industrial roundwood movement by year and species group, North Carolina, 2007 and 2009**

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
Softwood					
2007	473,704	64,792	408,912	77,849	486,761
2009	411,393	70,054	341,339	61,830	403,169
Hardwood					
2007	254,680	61,898	192,782	34,530	227,312
2009	173,690	41,667	132,023	25,519	157,542
All species					
2007	728,384	126,690	601,694	112,379	714,073
2009	585,083	111,721	473,362	87,349	560,711

Table A.7—Industrial roundwood movement by product and species group, North Carolina, 2009

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
Saw logs					
Softwood	183,745	6,437	177,308	17,032	194,340
Hardwood	70,500	4,616	65,884	6,349	72,233
Total	254,245	11,053	243,192	23,381	266,573
Veneer logs					
Softwood	32,871	12,944	19,927	1,033	20,960
Hardwood	6,130	573	5,557	2,851	8,408
Total	39,001	13,517	25,484	3,884	29,368
Pulpwood ^a					
Softwood	167,060	39,714	127,346	41,034	168,380
Hardwood	90,925	33,824	57,101	15,800	72,901
Total	257,985	73,538	184,447	56,834	241,281
Composite panels					
Softwood	25,033	9,618	15,415	2,731	18,146
Hardwood	5,082	1,603	3,479	519	3,998
Total	30,115	11,221	18,894	3,250	22,144
Other industrial					
Softwood	2,684	1,341	1,343	0	1,343
Hardwood	1,053	1,051	2	0	2
Total	3,737	2,392	1,345	0	1,345
All products					
Softwood	411,393	70,054	341,339	61,830	403,169
Hardwood	173,690	41,667	132,023	25,519	157,542
Total	585,083	111,721	473,362	87,349	560,711

^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, 2009

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	243,192	177,308	65,884
Exports to			
Georgia	206	166	40
South Carolina	1,475	1,286	189
Tennessee	115	24	91
Virginia	9,257	4,961	4,296
Total	11,053	6,437	4,616
Imports from			
Georgia	157	28	129
South Carolina	9,854	6,108	3,746
Tennessee	520	91	429
Virginia	12,850	10,805	2,045
Total	23,381	17,032	6,349

Table A.9—Veneer volume by destination, source, and species group, North Carolina, 2009

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	25,484	19,927	5,557
Exports to			
Georgia	44	0	44
Michigan	12	12	0
South Carolina	3,439	2,910	529
Virginia	10,022	10,022	0
Total	13,517	12,944	573
Imports from			
Georgia	60	0	60
Kentucky	702	3	699
Ohio	54	11	43
Pennsylvania	154	0	154
South Carolina	1,047	859	188
Tennessee	541	43	498
Virginia	1,272	117	1,155
West Virginia	54	0	54
Total	3,884	1,033	2,851

Table A.10—Pulpwood volume by destination, source, and species group, North Carolina, 2009^a

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	184,447	127,346	57,101
Exports to			
Georgia	43	0	43
South Carolina	35,808	29,313	6,495
Tennessee	6,237	764	5,473
Virginia	31,450	9,637	21,813
Total	73,538	39,714	33,824
Imports from			
Georgia	585	196	389
Kentucky	1	0	1
South Carolina	27,936	23,244	4,692
Tennessee	8,445	0	8,445
Virginia	19,867	17,594	2,273
Total	56,834	41,034	15,800

^a 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, 2009

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	18,894	15,415	3,479
Exports to Virginia	11,181	9,599	1,582
West Virginia	40	19	21
Total	11,221	9,618	1,603
Imports from Virginia	3,250	2,731	519
Total	3,250	2,731	519

Table A.12—Other industrial volume by destination, source, and species group, North Carolina, 2009^a

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
North Carolina (retained)	1,345	1,343	2
Exports to			
South Carolina	371	320	51
Virginia	2,021	1,021	1,000
Total	2,392	1,341	1,051

^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, 2009

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
thousand cubic feet					
Saw logs					
Softwood	120,234	13,046	56,492	34,469	16,227
Hardwood	43,975	7,492	21,409	14,547	527
Total	164,209	20,538	77,901	49,016	16,754
Veneer logs					
Softwood	10,051	1,457	6,180	2,414	0
Hardwood	3,286	912	1,620	754	0
Total	13,337	2,369	7,800	3,168	0
Pulpwood					
Softwood	16,843	16,843	0	0	0
Hardwood	9,134	9,134	0	0	0
Total	25,977	25,977	0	0	0
Composite panels					
Softwood	1,874	1,874	0	0	0
Hardwood	507	507	0	0	0
Total	2,381	2,381	0	0	0
Other industrial ^a					
Softwood	250	161	89	0	0
Hardwood	0	0	0	0	0
Total	250	161	89	0	0
Total					
Softwood	149,252	33,381	62,761	36,883	16,227
Hardwood	56,902	18,045	23,029	15,301	527
Total	206,154	51,426	85,790	52,184	16,754

^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, 2007 and 2009

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	2007	2009	2007	2009	2007	2009	2007	2009	2007	2009
<i>thousand cubic feet</i>										
Fiber products										
Softwood	78,346	58,203	0	0	77,853	56,854	493	0	0	1,349
Hardwood	29,969	20,351	0	0	29,912	20,351	57	0	0	0
Total	108,315	78,554	0	0	107,765	77,205	550	0	0	1,349
Particleboard										
Softwood	19,989	12,988	50	15	5,199	2,301	5,626	5,526	9,114	5,146
Hardwood	2,134	1,914	55	7	1,861	1,561	218	346	0	0
Total	22,123	14,902	105	22	7,060	3,862	5,844	5,872	9,114	5,146
Charcoal/ chemical wood										
Softwood	2,780	0	0	0	0	0	2,780	0	0	0
Hardwood	0	12	0	0	0	0	0	12	0	0
Total	2,780	12	0	0	0	0	2,780	12	0	0
Sawn products										
Softwood	5,364	2,480	0	0	5,364	2,480	0	0	0	0
Hardwood	3,436	402	1	0	3,435	402	0	0	0	0
Total	8,800	2,882	1	0	8,799	2,882	0	0	0	0
Industrial fuel										
Softwood	66,139	47,673	26,609	21,046	334	382	37,347	24,526	1,849	1,719
Hardwood	39,054	25,282	16,007	11,221	1,615	310	21,024	13,359	408	392
Total	105,193	72,955	42,616	32,267	1,949	692	58,371	37,885	2,257	2,111
Miscellaneous										
Softwood	32,598	26,761	15,606	11,206	1,015	729	4,571	6,813	11,406	8,013
Hardwood	13,709	8,747	10,351	6,661	946	399	2,306	1,552	106	135
Total	46,307	35,508	25,957	17,867	1,961	1,128	6,877	8,365	11,512	8,148
Not used										
Softwood	90	1,147	6	1,114	31	15	53	18	0	0
Hardwood	216	194	17	156	15	6	184	32	0	0
Total	306	1,341	23	1,270	46	21	237	50	0	0
All products										
Softwood	205,306	149,252	42,271	33,381	89,796	62,761	50,870	36,883	22,369	16,227
Hardwood	88,518	56,902	26,431	18,045	37,784	23,029	23,789	15,301	514	527
Total	293,824	206,154	68,702	51,426	127,580	85,790	74,659	52,184	22,883	16,754

Table A.15—Roundwood timber product output by county, product, and species group, North Carolina, 2009

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	1,143	1,508	1,141	1,348	0	0	2	160	0	0	0	0
Alexander	960	968	867	832	0	0	19	107	74	29	0	0
Alleghany	718	1,106	637	588	0	0	7	489	74	29	0	0
Anson	15,296	1,074	8,390	457	919	0	5,951	610	0	0	36	7
Ashe	1,017	2,035	963	1,654	0	0	54	381	0	0	0	0
Avery	114	238	114	207	0	30	0	1	0	0	0	0
Beaufort	28,065	3,745	17,221	420	1,666	162	9,178	3,163	0	0	0	0
Bertie	12,170	1,796	3,330	316	885	312	7,920	1,168	0	0	35	0
Bladen	12,229	1,662	5,445	617	1,458	106	5,228	939	0	0	98	0
Brunswick	13,696	1,446	6,663	0	1,020	276	5,933	1,170	0	0	80	0
Buncombe	472	1,437	123	981	0	119	349	337	0	0	0	0
Burke	2,204	2,000	1,146	823	0	0	837	1,091	221	86	0	0
Cabarrus	838	559	499	385	0	0	265	145	74	29	0	0
Caldwell	1,109	1,282	1,029	1,211	0	0	6	42	74	29	0	0
Camden	812	1,625	558	130	0	0	225	1,495	0	0	29	0
Carteret	3,461	367	1,660	0	162	0	1,639	367	0	0	0	0
Caswell	4,649	2,639	1,881	657	16	51	143	1,681	2,609	250	0	0
Catawba	2,060	1,973	1,904	1,091	0	59	82	794	74	29	0	0
Chatham	9,145	2,558	6,324	2,376	0	0	686	182	1,936	0	199	0
Cherokee	1,227	1,747	163	301	0	104	1,064	1,342	0	0	0	0
Chowan	743	433	229	219	0	0	485	214	0	0	29	0
Clay	462	613	13	55	0	0	449	558	0	0	0	0
Cleveland	2,406	2,988	1,105	901	0	0	1,301	2,087	0	0	0	0
Columbus	14,775	3,020	6,827	541	1,450	529	6,271	1,950	0	0	227	0
Craven	15,387	1,434	5,947	0	3,633	0	5,807	1,434	0	0	0	0
Cumberland	3,286	576	372	58	302	90	2,612	428	0	0	0	0
Currituck	546	1,503	37	72	0	0	474	1,431	0	0	35	0
Dare	148	12	43	0	0	0	105	12	0	0	0	0
Davidson	2,005	2,124	1,446	1,777	0	42	190	161	369	144	0	0
Davie	380	1,228	198	813	0	0	34	358	148	57	0	0
Duplin	5,299	2,309	1,394	74	1,014	156	2,891	2,079	0	0	0	0
Durham	1,939	431	1,153	322	2	8	31	101	753	0	0	0
Edgecombe	5,571	1,916	788	529	653	202	3,987	1,124	143	61	0	0
Forsyth	1,063	924	815	609	0	0	100	258	148	57	0	0
Franklin	4,011	1,922	788	561	494	8	1,530	1,162	1,109	61	90	130
Gaston	2,783	727	1,165	268	947	0	584	430	74	29	13	0
Gates	9,126	3,220	3,280	584	1,195	16	4,294	2,543	357	77	0	0
Graham	8	653	8	47	0	59	0	547	0	0	0	0
Granville	5,287	2,503	2,176	801	49	147	373	1,264	2,510	291	179	0
Greene	676	982	110	125	0	0	378	586	0	0	188	271
Guilford	691	2,530	370	1,918	2	8	122	477	148	57	49	70
Halifax	12,755	5,469	2,999	2,008	903	203	6,746	2,810	2,001	448	106	0
Harnett	2,422	617	1,039	124	676	110	596	383	0	0	111	0
Haywood	485	2,307	57	987	12	90	416	1,230	0	0	0	0
Henderson	1,194	931	1,194	931	0	0	0	0	0	0	0	0
Hertford	7,830	2,099	1,807	243	749	278	5,082	1,517	143	61	49	0
Hoke	3,335	512	990	205	54	108	2,291	199	0	0	0	0
Hyde	1,983	345	904	234	0	0	1,079	111	0	0	0	0
Iredell	2,372	2,005	1,621	1,418	0	0	12	299	739	288	0	0
Jackson	623	4,064	74	1,011	0	90	549	2,963	0	0	0	0
Johnston	2,172	1,017	590	131	324	182	1,258	704	0	0	0	0

continued

Table A.15—Roundwood timber product output by county, product, and species group, North Carolina, 2009 (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	9,855	1,306	3,842	0	2,430	0	3,583	1,306	0	0	0	0
Lee	1,719	747	1,353	728	0	0	233	19	0	0	133	0
Lenoir	3,126	1,102	527	52	162	76	2,437	974	0	0	0	0
Lincoln	2,047	1,378	1,791	1,162	0	0	253	216	0	0	3	0
Macon	518	1,053	70	411	0	0	448	642	0	0	0	0
Madison	104	1,208	104	969	0	239	0	0	0	0	0	0
Martin	15,343	3,123	5,149	669	815	196	9,379	2,258	0	0	0	0
McDowell	2,536	2,332	1,474	948	0	59	1,062	1,325	0	0	0	0
Mecklenburg	197	676	32	306	0	0	91	341	74	29	0	0
Mitchell	303	780	303	690	0	90	0	0	0	0	0	0
Montgomery	10,032	2,380	6,200	2,151	0	0	3,832	229	0	0	0	0
Moore	12,302	2,621	9,489	2,225	76	108	2,737	288	0	0	0	0
Nash	3,562	2,054	422	612	162	0	2,478	1,272	500	170	0	0
New Hanover	519	91	334	0	0	0	185	91	0	0	0	0
Northampton	9,012	3,854	2,650	792	1,054	284	4,473	2,593	786	185	49	0
Onslow	11,732	1,097	3,413	0	1,458	139	6,861	958	0	0	0	0
Orange	2,141	858	1,270	506	0	0	0	295	871	57	0	0
Pamlico	5,948	1,269	1,624	112	1,620	0	2,704	1,157	0	0	0	0
Pasquotank	1,172	818	527	197	0	0	626	621	0	0	19	0
Pender	8,536	2,477	3,961	305	0	276	4,535	1,896	0	0	40	0
Perquimans	2,830	825	1,065	47	393	0	1,353	778	0	0	19	0
Person	3,184	3,550	1,281	1,660	18	60	1	1,139	1,807	632	77	59
Pitt	8,808	2,485	3,105	293	852	156	4,851	2,036	0	0	0	0
Polk	1,796	2,401	347	925	123	0	1,211	1,476	0	0	115	0
Randolph	1,845	5,800	1,537	4,791	2	8	85	915	221	86	0	0
Richmond	8,803	569	6,732	295	0	0	2,025	265	0	0	46	9
Robeson	6,633	2,206	2,419	468	386	56	3,828	1,682	0	0	0	0
Rockingham	2,174	2,664	872	1,324	0	0	184	895	1,069	375	49	70
Rowan	2,210	2,780	1,660	1,487	0	0	181	1,149	369	144	0	0
Rutherford	2,497	6,579	1,219	1,331	0	59	1,278	5,189	0	0	0	0
Sampson	5,913	2,390	1,606	58	852	78	3,455	2,254	0	0	0	0
Scotland	2,793	379	1,633	205	43	0	1,117	174	0	0	0	0
Stanly	2,403	449	1,511	350	0	0	818	70	74	29	0	0
Stokes	1,801	2,189	1,131	1,380	0	0	97	537	517	202	56	70
Surry	1,517	2,683	523	1,375	0	0	122	969	832	339	40	0
Swain	14	444	14	444	0	0	0	0	0	0	0	0
Transylvania	0	143	0	143	0	0	0	0	0	0	0	0
Tyrrell	1,550	694	854	0	0	33	696	661	0	0	0	0
Union	2,785	550	858	339	919	0	899	174	0	0	109	37
Vance	1,995	1,298	65	811	497	70	378	294	1,001	123	54	0
Wake	5,196	876	3,437	328	491	92	283	393	896	63	89	0
Warren	7,233	4,263	1,770	1,464	890	120	3,057	2,195	1,287	154	229	330
Washington	4,890	1,792	2,056	399	393	33	2,441	1,360	0	0	0	0
Watauga	216	747	216	642	0	0	0	105	0	0	0	0
Wayne	2,320	1,296	525	0	488	125	1,164	1,094	143	77	0	0
Wilkes	2,486	5,244	2,060	2,932	0	0	276	2,255	148	57	2	0
Wilson	2,391	918	447	165	162	138	1,639	569	143	46	0	0
Yadkin	1,104	2,332	516	1,542	0	0	69	588	517	202	2	0
Yancey	154	741	154	507	0	90	0	144	0	0	0	0
All counties	411,393	173,690	183,745	70,500	32,871	6,130	167,060	90,925	25,033	5,082	2,684	1,053

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (5,227,000 cubic feet in 2009).

Table A.16—Total roundwood output by product, species group, and source of material, North Carolina, 2009

Product and species group	All sources	Total	Growing-stock trees		Other sources
			Sawtimber	Poletimber	
thousand cubic feet					
Saw logs					
Softwood	183,745	180,900	176,206	4,693	2,845
Hardwood	70,500	69,754	65,242	4,511	746
Total	254,245	250,653	241,449	9,204	3,592
Veneer logs and bolts					
Softwood	32,871	32,244	31,274	970	627
Hardwood	6,130	6,061	6,061	0	69
Total	39,001	38,305	37,335	970	696
Pulpwood					
Softwood	167,060	152,894	70,564	82,331	14,166
Hardwood	90,925	88,643	28,756	59,887	2,282
Total	257,985	241,538	99,320	142,218	16,447
Composite panels					
Softwood	25,033	24,658	13,722	10,936	375
Hardwood	5,082	4,872	2,760	2,112	210
Total	30,115	29,530	16,481	13,048	585
Poles and posts					
Softwood	1,632	1,213	651	562	419
Hardwood	0	0	0	0	0
Total	1,632	1,213	651	562	419
Other miscellaneous					
Softwood	1,052	633	229	404	419
Hardwood	1,053	743	431	312	310
Total	2,105	1,376	660	716	729
Total industrial products					
Softwood	411,393	392,541	292,646	99,896	18,852
Hardwood	173,690	170,073	103,250	66,823	3,617
Total	585,083	562,614	395,896	166,719	22,469
Residential fuelwood					
Softwood	10,356	9,174	5,334	3,840	1,182
Hardwood	53,785	46,513	34,022	12,490	7,272
Total	64,141	55,686	39,356	16,330	8,455
All products					
Softwood	421,749	401,715	297,979	103,736	20,034
Hardwood	227,475	216,586	137,272	79,313	10,889
Total	649,224	618,301	435,252	183,049	30,923

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, 2009

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
Softwoods				
Southern Coastal Plain	135,468	8,906	41,237	85,324
Northern Coastal Plain	157,982	215	38,195	119,572
Piedmont	111,932	391	8,547	102,994
Mountain	16,367	1,562	0	14,805
Total softwoods	421,749	11,075	87,979	322,695
Hardwoods				
Southern Coastal Plain	37,222	228	2,452	34,542
Northern Coastal Plain	54,737	0	2,090	52,647
Piedmont	94,774	0	8,637	86,137
Mountain	40,742	3,168	0	37,574
Total hardwoods	227,475	3,395	13,179	210,901
All species	649,224	14,470	101,158	533,596

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, 2009

Species group and detailed species group	Total	Product						
		Saw logs	Veneer logs	Pulpwood	Composite panels	Poles and posts	Other miscellaneous	Residential fuelwood
thousand cubic feet								
Softwood								
Cedar	4,683	2,237	178	1,672	424	29	28	115
Longleaf-slash pine	12,997	6,958	845	4,837	5	34	0	319
Eastern white pine	5,504	3,425	0	1,631	313	0	0	135
Loblolly-shortleaf pine	342,243	143,678	28,987	141,877	17,099	1,391	809	8,403
Other yellow pines	48,946	24,410	2,178	13,691	7,090	159	215	1,203
Cypress	5,317	1,906	681	2,499	82	19	0	130
Hemlock	2,059	1,133	2	853	20	0	0	51
Total softwoods	421,749	183,745	32,871	167,060	25,033	1,632	1,052	10,356
Hardwood								
Soft maple	24,414	7,504	821	9,732	515	0	71	5,772
Hard maple	734	425	21	96	18	0	0	173
Hickory	3,507	1,338	78	1,098	147	0	16	829
Beech	1,992	906	66	525	17	0	8	471
Ash	800	324	7	241	33	0	6	189
Black walnut	510	183	16	181	4	0	6	121
Sweetgum	46,010	11,452	1,482	21,044	1,041	0	114	10,878
Yellow-poplar	42,279	13,980	618	16,014	1,478	0	194	9,996
Blackgum-tupelo	8,378	1,966	444	3,923	62	0	2	1,981
Sycamore	1,496	373	81	641	47	0	0	354
Black cherry	1,987	557	93	779	85	0	3	470
Select white oaks	26,927	8,774	585	10,489	597	0	116	6,366
Other white oaks	11,992	4,620	378	3,979	139	0	37	2,838
Select red oaks	7,437	3,393	137	2,062	53	0	33	1,759
Other red oaks	35,279	10,219	992	14,659	689	0	379	8,341
Elm	2,987	864	46	1,329	33	0	9	706
Other eastern hardwoods	10,745	3,621	267	4,133	125	0	59	2,541
Total hardwoods	227,475	70,500	6,130	90,925	5,082	0	1,053	53,785
All species	649,224	254,245	39,001	257,985	30,115	1,632	2,105	64,141

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, 2009

Species group and detailed species group	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
thousand cubic feet				
Softwood				
Cedar	4,683	217	59	4,407
Longleaf-slash pine	12,997	77	5,489	7,432
Eastern white pine	5,504	36	0	5,468
Loblolly-shortleaf pine	342,243	7,432	78,258	256,553
Other yellow pines	48,946	3,096	3,971	41,879
Cypress	5,317	0	202	5,115
Hemlock	2,059	217	0	1,842
Total softwoods	421,749	11,075	87,979	322,695
Hardwood				
Soft maple	24,414	178	1,395	22,840
Hard maple	734	0	0	734
Hickory	3,507	66	16	3,426
Beech	1,992	0	28	1,964
Ash	800	0	0	800
Black walnut	510	44	0	465
Sweetgum	46,010	4	1,633	44,373
Yellow-poplar	42,279	1,255	1,817	39,207
Blackgum-tupelo	8,378	42	455	7,881
Sycamore	1,496	0	193	1,303
Black cherry	1,987	58	99	1,830
Select white oaks	26,927	542	2,303	24,082
Other white oaks	11,992	66	664	11,262
Select red oaks	7,437	793	22	6,622
Other red oaks	35,279	232	4,413	30,634
Elm	2,987	0	5	2,982
Other eastern hardwoods	10,745	115	135	10,495
Total hardwoods	227,475	3,395	13,179	210,901
All species	649,224	14,470	101,158	533,596

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

Cooper, Jason A.; Johnson, Tony G.; New, Barry D.; Altizer, Clayton B.

2011. North Carolina's timber industry—an assessment of timber product output and use, 2009. Resour. Bull. SRS-178. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 31 p.

In 2009, industrial roundwood output from North Carolina's forests totaled 585.1 million cubic feet, 20 percent less than in 2007. Mill byproducts generated from primary manufacturers declined 30 percent to 206.2 million cubic feet. Almost all plant residues were used primarily for fuel and fiber products. Pulpwood was the leading roundwood product at 258.0 million cubic feet; saw logs ranked second at 254.2 million cubic feet; veneer logs were third at 39.0 million cubic feet. The number of primary processing plants declined from 163 in 2007 to 141 in 2009. Total receipts decreased by 153.4 million cubic feet to 560.7 million cubic feet.

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



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