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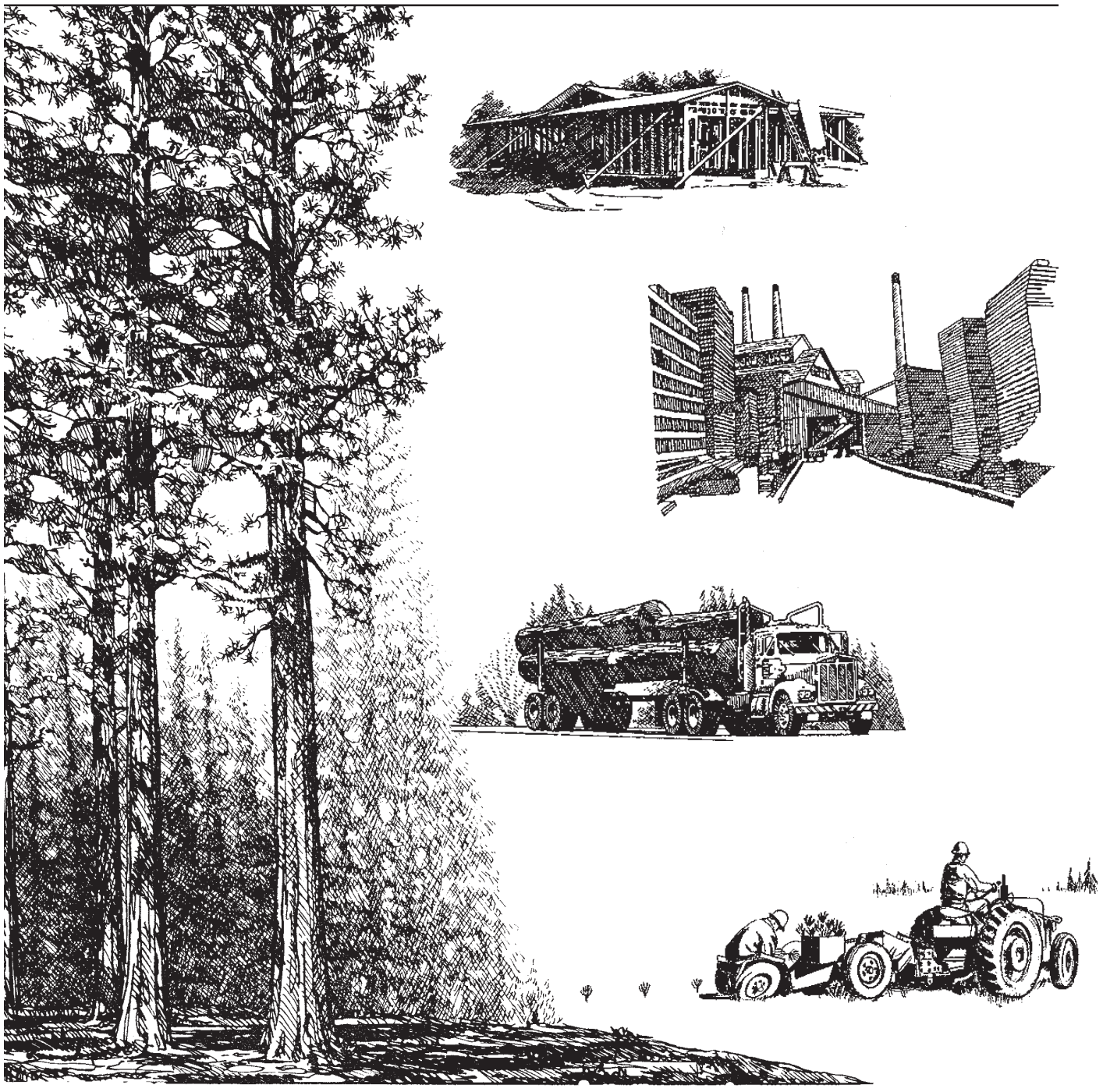
Tennessee's Timber Industry—An Assessment of Timber Product Output and Use, 2001

**James W. Bentley and
Robert C. Wright**



The Authors:

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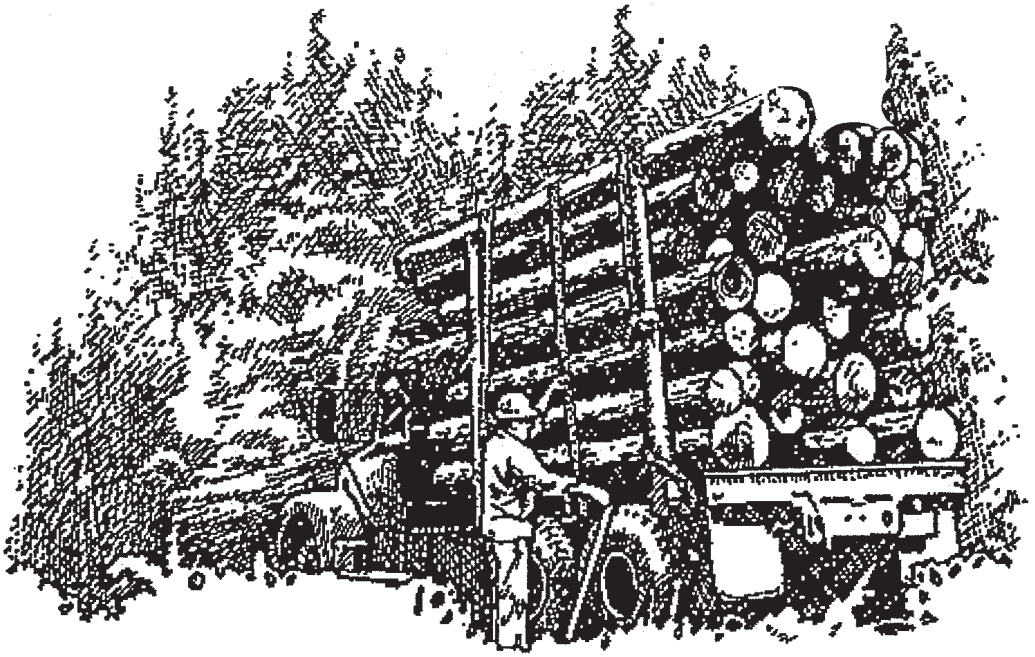

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Southern Research Station
P.O. Box 2680
Asheville, NC 28802

Foreword

This report contains the findings of a 2001 sample survey of all primary wood-using plants in Tennessee, and presents changes in product output and residue use since 1999. It complements the Forest Inventory and Analysis periodic inventory of volume and removals from the State's timberland. The canvass was conducted to determine the amount and source of wood receipts and annual timber product drain, by county, in 2001 and to determine interstate and cross-regional movement of industrial roundwood. Only primary wood-using mills were canvassed. Primary mills are those that process roundwood in log or bolt form or as chipped roundwood. Examples of industrial roundwood products are saw logs, pulpwood, veneer logs, poles, and logs used for composite board products. Mills producing products from residues generated at primary and secondary processors were not canvassed. Trees chipped in the woods were included in the estimate of timber drain only if they were delivered to a primary domestic manufacturer.

A sampled canvass of certain wood processors in Tennessee was conducted in 2002 to obtain information for 2001. In addition, roundwood from out-of-State mills known to be using logs or bolts harvested from Tennessee timberland was incorporated into Tennessee 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 1949, 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 David Arnold for review and comments; Dumitru Salajanu for the maps; Anne Jenkins, Sharon Johnson, and Janet Griffin for tables, graphs, and statistical checking; and Paul Smith, Diana Corbin, and Louise Wilde for editorial review, styling, and publication of this report.

The Southern Research Station gratefully acknowledges the cooperation and assistance provided by the Tennessee Department of Agriculture, Division of Forestry, in collecting mill data. Appreciation is also extended to forest industry and mill managers for providing timber products information.

Contents

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

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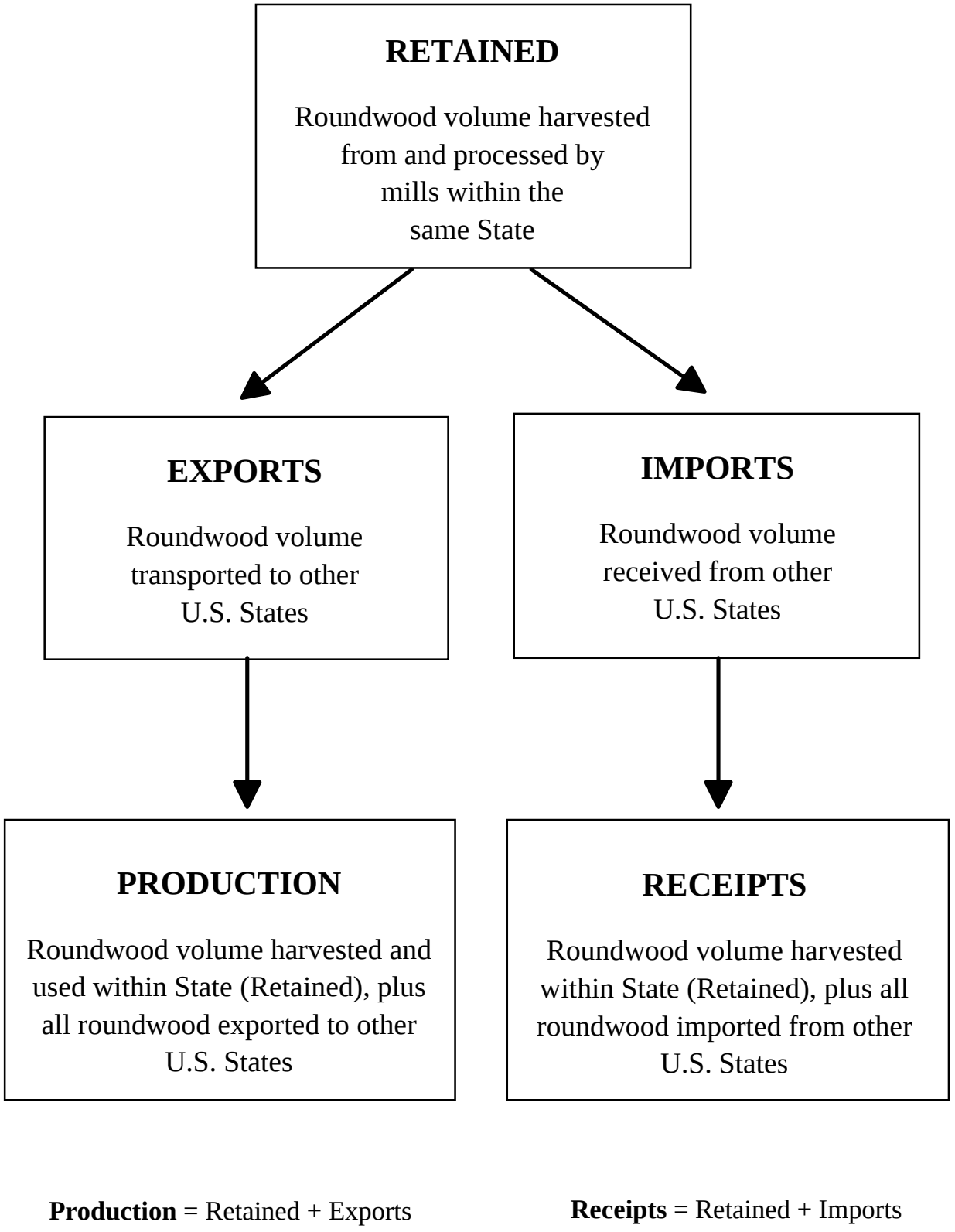

Figure 1—Movement of roundwood exports and imports within the United States.

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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 products output (fig. 1).

All Products

- Between 1999 and 2001, the combined industrial timber products output (TPO) from roundwood and plant byproducts remained at 438 million cubic feet.
- Timber products output from roundwood was down 527 thousand cubic feet, or less than 1 percent, to 325 million cubic feet, while output of plant byproducts was up 641 thousand cubic feet to 113 million cubic feet.
- Output of softwood roundwood products declined 1 percent to 99 million cubic feet, while output of hardwood roundwood products increased less than 1 percent to 226 million cubic feet (fig. 2).
- Figures 3 and 4 display softwood and hardwood county level intensity of roundwood production for all industrial products across Tennessee. The data are depicted in cubic feet produced per acre of census land area. Counties with the highest production intensity are depicted in the darker shades. For softwoods and hardwoods the darkest shade represents more than 15 cubic feet of production per acre.

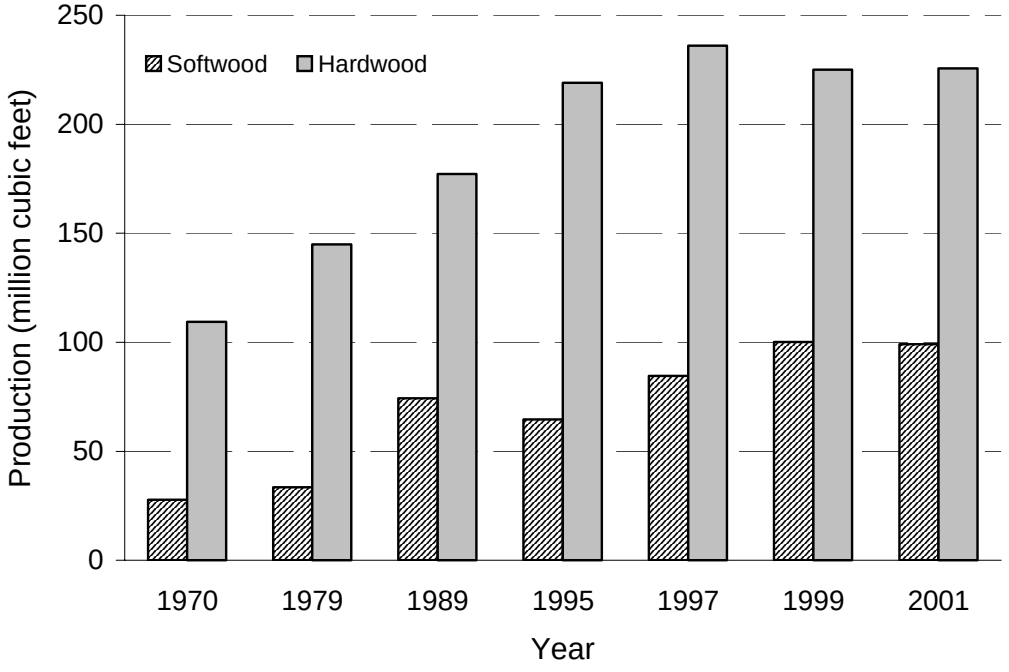

Figure 2—Roundwood production for all products by species group and year (see page 10 for references for individual years).

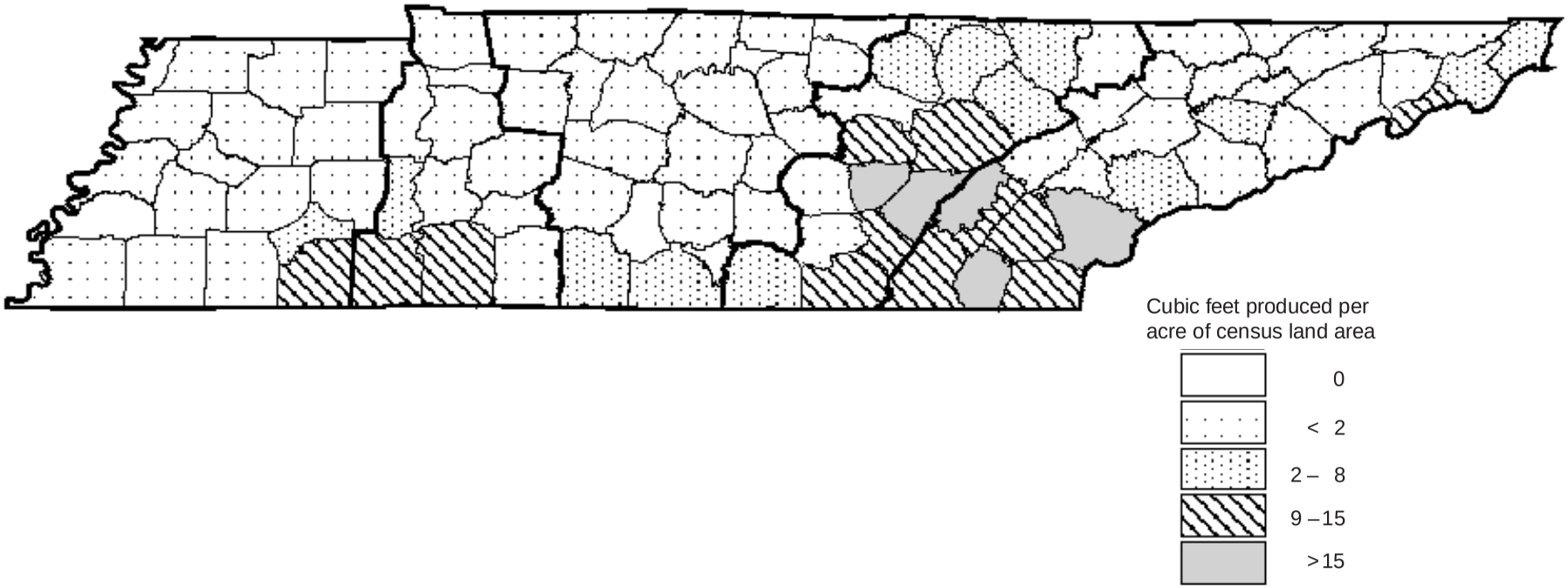

Figure 3—Intensity of roundwood softwood output for all industrial products in Tennessee by county, 2001.

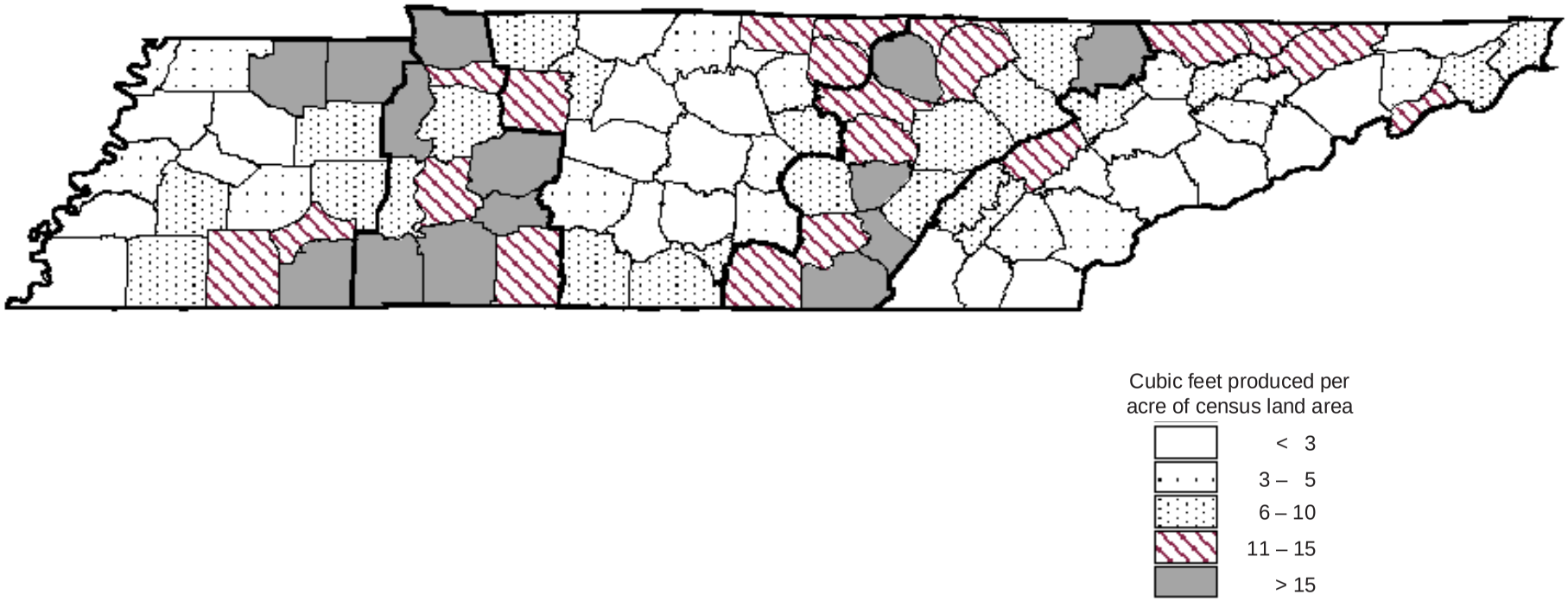

Figure 4—Intensity of roundwood hardwood output for all industrial products in Tennessee by county, 2001.

- Saw logs and pulpwood were the principal roundwood products in 2001. Combined output of these products totaled 309 million cubic feet and accounted for 95 percent of Tennessee's total industrial roundwood output (fig. 5).

- Total receipts at Tennessee mills, which included roundwood harvested and retained in the State as well as roundwood imported from other States, increased by 2 percent to 311 million cubic feet. At the same time, the number of primary roundwood-using plants in Tennessee was down from 451 in 1999 to 450 in 2001.

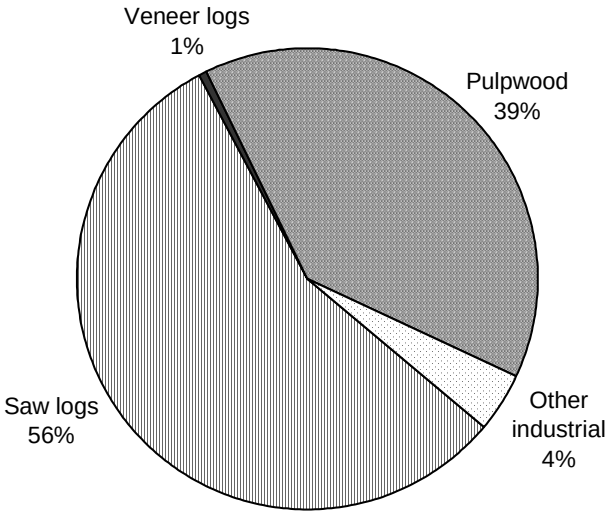

Figure 5—Roundwood production by type of product, 2001.

Saw Logs

- Saw logs accounted for 56 percent of the State's total industrial roundwood products. Output of softwood saw logs declined 8 percent to 30 million cubic feet (169 million board feet, International ¼-inch rule), while that of hardwood saw logs was down less than 1 percent to 152 million cubic feet (918 million board feet, International ¼-inch rule) (fig. 6).

- In 2001, Tennessee had 439 sawmills, a loss of 1 mill since 1999. Total saw-log receipts were down 311 thousand cubic feet to 168 million cubic feet. Softwood saw-log receipts declined 5 percent to 17 million cubic feet, while those of hardwoods increased less than 1 percent to 151 million cubic feet. Of the 439 operating mills in 2001, 54 percent, or 235 mills, had receipts of less than 1 million board feet. Twelve percent, or 54 mills, had receipts greater than 5 million board feet and accounted for 56 percent of the total saw-log receipts.

- Tennessee retained 84 percent of its saw-log production for domestic manufacture in 2001; saw-log exports amounted to 29 million cubic feet, while imports totaled 15 million cubic feet.

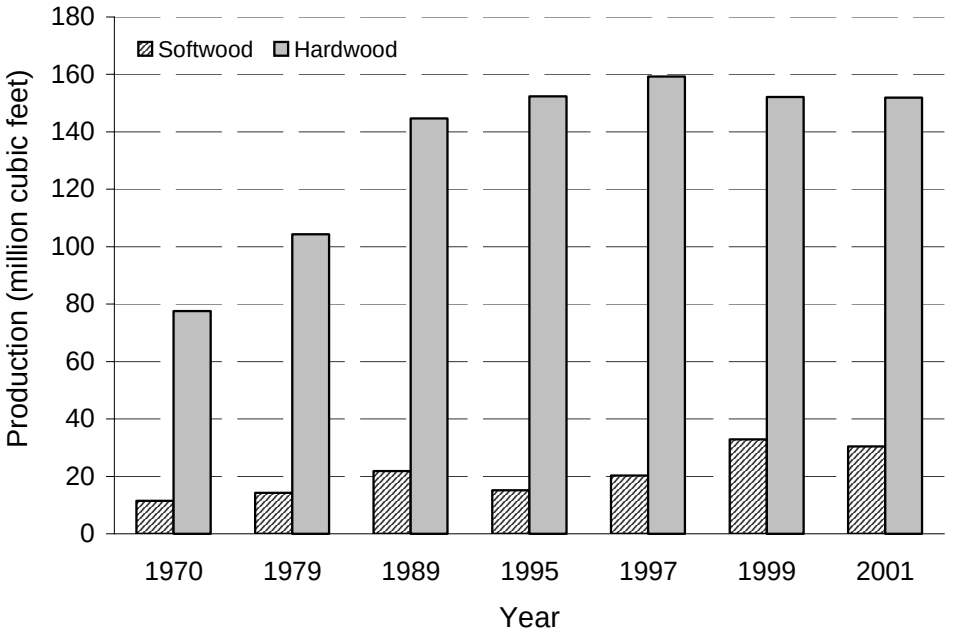

Figure 6—Roundwood saw-log production by species group and year (see page 10 for references for individual years).

Pulpwood

- Total pulpwood production increased 6 million cubic feet to 127 million cubic feet and accounted for 39 percent of the State's total industrial roundwood TPO. Softwood output was up 6 percent to 55 million cubic feet (761 thousand cords); hardwood output increased 4 percent to 72 million cubic feet (939 thousand cords) (fig. 7).

- Five pulpmill facilities were operating and receiving roundwood in Tennessee in 2001. Total pulpwood receipts for these mills were up 5 million cubic feet to 127 million cubic feet, accounting for 41 percent of total receipts for all mills.

- Fifty-nine percent of roundwood cut for pulpwood was retained for processing at Tennessee pulpmills. Roundwood pulpwood accounted for 63 percent of total known exports and 75 percent of total imports. Roundwood pulpwood imports and exports were nearly in balance at 52 million cubic feet.

Veneer Logs

- Output of veneer logs in 2001 totaled 1.5 million cubic feet and accounted for less than 1 percent of the State's total industrial roundwood TPO volume. Softwood veneer production decreased 94 percent to 271 thousand cubic feet (2 million board feet, International ¼-inch rule), while output of hardwood veneer logs decreased 18 percent to 1.3 million cubic feet (8 million board feet, International ¼-inch rule) (fig. 8).

- The number of veneer mills operating in Tennessee remained at two. Receipts of hardwood veneer logs remained the same at 152 thousand cubic feet.

- Tennessee retained 10 percent of its veneer-log production for processing at domestic veneer mills. Imports amounted to 2 thousand cubic feet, while exports totaled 1.4 million cubic feet, making the State a net exporter of roundwood veneer logs.

Other Industrial Products

- Roundwood harvested for other industrial uses, such as composite panels, poles, posts, mulch, firewood, logs for log homes, and all other industrial products, was up 4 percent from 13 million cubic feet in 1999 to 14 million cubic feet in 2001. Softwoods made up 97 percent of the other industrial product volume (fig. 9).

- Only four plants were producing other industrial products. Receipts of other industrial products totaled 16 million cubic feet.

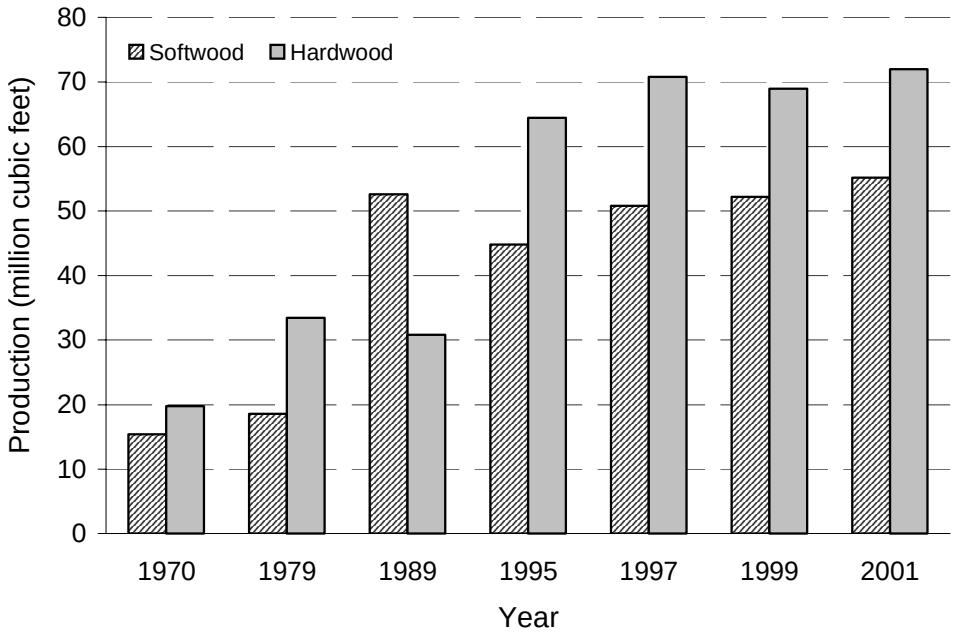

Figure 7—Roundwood pulpwood production by species group and year (see page 10 for references for individual years).

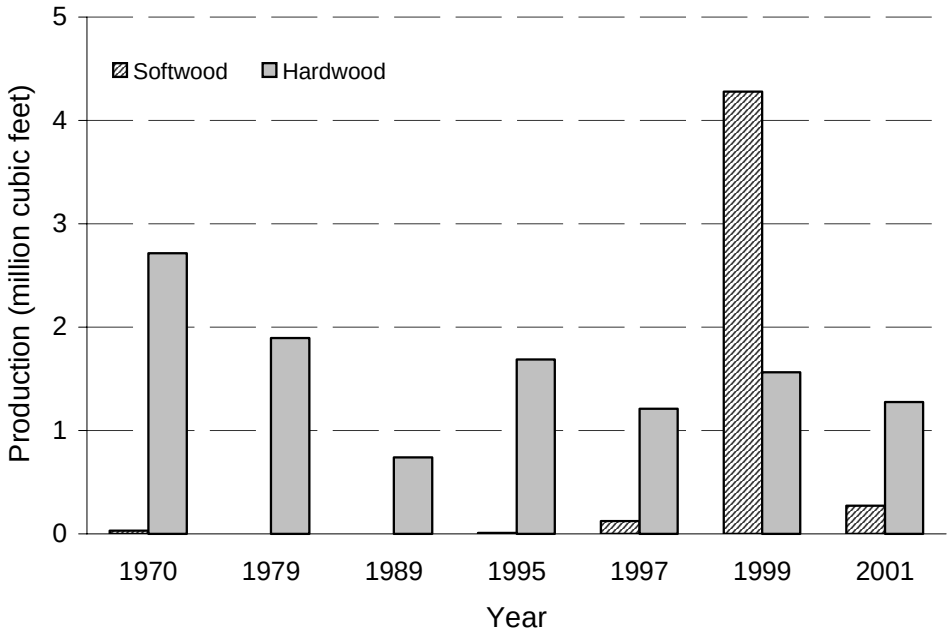

Figure 8—Roundwood veneer-log production by species group and year (see page 10 for references for individual years).

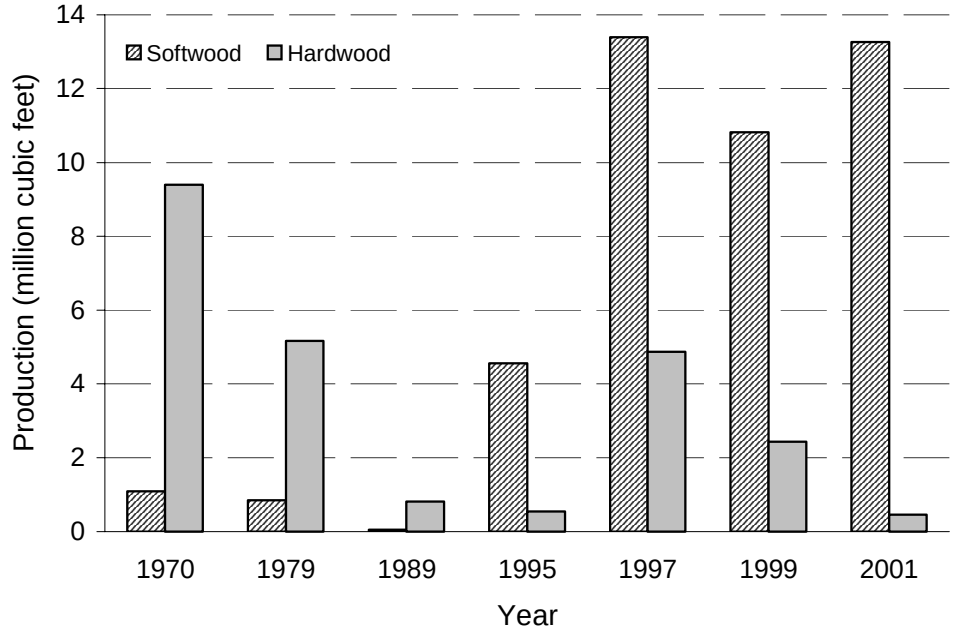

Figure 9—Roundwood production for other industrial products by species group and year (see page 10 for references for individual years).

- Ninety-eight percent of the other industrial production was retained for processing at Tennessee mills. Imports amounted to 3 million cubic feet, while exports totaled 324 thousand cubic feet, making the State a net importer of roundwood used for other industrial products.

Plant Byproducts

- In 2001, processing of primary products in Tennessee mills generated 125 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 57 million cubic feet and bark volume totaled 33 million cubic feet. Sawdust and shavings made up 27 percent of total residues, or 34 million cubic feet (fig. 10).

- Nine percent of the wood and bark residues were not used for a product, while 42 percent of the residues were used for industrial fuel (fig. 11). Thirty-six million cubic feet, or 63 percent, of the coarse residues were used to manufacture fiber products. Most of the bark was used for industrial fuel or other miscellaneous products, and 73 percent of the sawdust and shavings was used for industrial fuel

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- The processing of saw logs generated 108 million cubic feet of mill residues, accounting for 87 percent of the total residues produced (fig. 12).

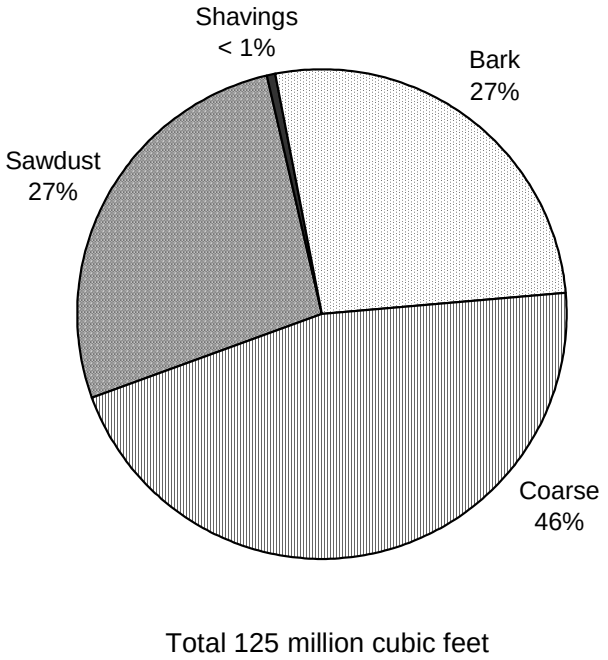

Figure 10—Primary mill residue by residue type, 2001.

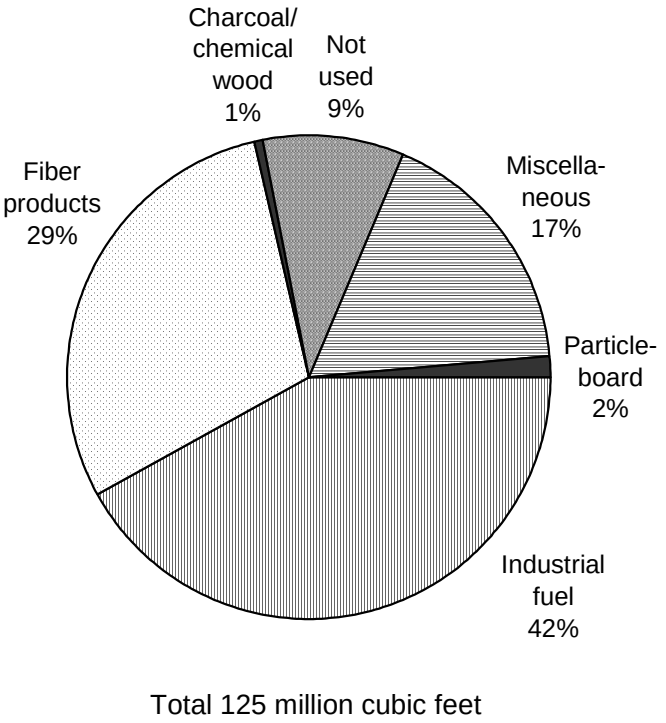

Figure 11—Disposal of residue by product, 2001.

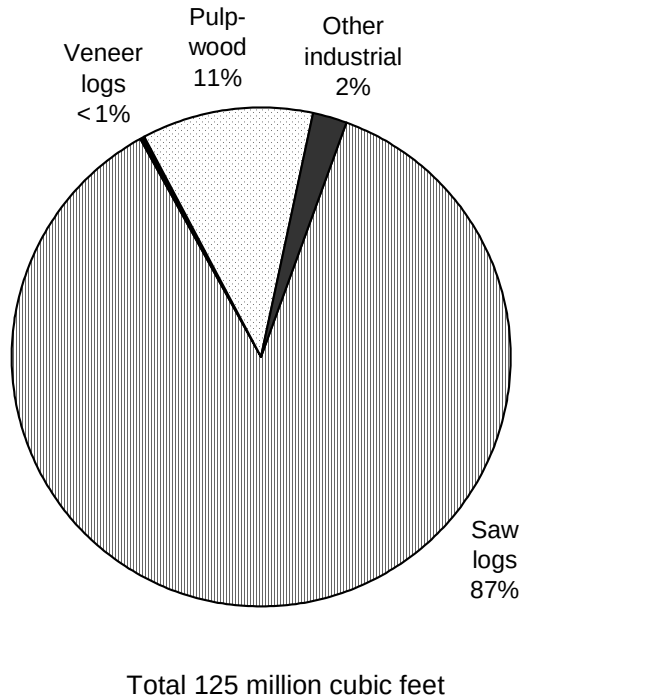

Figure 12—Primary mill residue produced by roundwood type, 2001.

Regional Trends

Output of industrial roundwood products declined across all regions of Tennessee except the West Central and East regions, which experienced a 10- and 3-percent increase, respectively. The Central region recorded a 12-percent decline in roundwood production**.**

West Region

- Roundwood output for both softwood and hardwood combined from the West region totaled 54 million cubic feet, down 1 percent from 1999. Softwood output decreased 27 percent to 7 million cubic feet, while hardwood output increased 5 percent to 47 million cubic feet.

- Saw-log production of 37 million cubic feet accounted for 68 percent of the region's total roundwood output and 20 percent of the State's total saw-log output. Pulpwood accounted for 32 percent of the region's TPO with 17 million cubic feet, a 2-percent increase since 1999. Hardwood pulpwood output increased 34 percent to 13 million cubic feet, while softwood output declined 37 percent to 5 million cubic feet.

- Sixty-one primary wood-using plants were operating during 2001: 60 sawmills and 1 veneer mill. These mills accounted for 17 percent of the State's total TPO.

West Central Region

- Seventy million cubic feet of roundwood were produced in the West Central region, a 10-percent increase from 1999. Softwood output was up 54 percent to 13 million cubic feet, while hardwood output increased 3 percent to 57 million cubic feet.

- Pulpwood production of 40 million cubic feet accounted for 57 percent of the region's total roundwood output and 31 percent of the State's total pulpwood output. Softwood output increased 57 percent to 12 million cubic feet.

- Saw-log production (30 million cubic feet) accounted for 43 percent of the region's total roundwood output and 17 percent of the State's total saw-log output. Hardwood output was up 5 percent to 29 million cubic feet.

- Eighty-one sawmills and 2 pulpmills were operating in 2001 and these mills accounted for 22 percent of the State's total TPO.

Central Region

- Roundwood output for both softwood and hardwood combined from the Central region totaled 37 million cubic feet, down 12 percent. Softwood output was down 8 percent to 5 million cubic feet, while hardwood output declined 13 percent to 31 million cubic feet.

- Saw-log production of 35 million cubic feet accounted for 95 percent of the region's total roundwood output and 19 percent of the State's total saw-log output. Hardwood output declined 9 percent to 30 million cubic feet.

- Pulpwood production of 1.6 million cubic feet accounted for 4 percent of the region's total TPO. Both softwood and hardwood output declined 53 percent.

- Seventy-nine mills were operating in 2001: 78 sawmills and 1 other industrial mill. These mills accounted for 11 percent of the State's total TPO.

Plateau Region

- Roundwood output for both softwood and hardwood combined from the Plateau region totaled 90 million cubic feet, down 4 percent from 1999. Softwood output declined 19 percent to 32 million cubic feet, while hardwood output increased 7 percent to 58 million cubic feet.

- Forty-three million cubic feet of saw-log production accounted for 48 percent of the region's total roundwood output and made up 24 percent of the State's total saw-log output. Softwood output decreased 14 percent to 10 million cubic feet. Pulpwood production accounted for 46 percent of the region's total roundwood output with 41 million cubic feet, a decline of 4 percent from 1999.

- In the Plateau region, 87 mills were operating during 2001: 86 sawmills and 1 other industrial mill. These mills accounted for 28 percent of the State's total TPO.

East Region

- Roundwood output for both softwood and hardwood combined from the East region totaled 74 million cubic feet, up 3 percent. Softwood output increased 12 percent to 42 million cubic feet, while hardwood output declined 8 percent to 32 million cubic feet.

- Saw-log production of 37 million cubic feet accounted for 51 percent of the region's total roundwood output and 20 percent of the State's total saw-log output. Hardwood

saw-log output increased 3 percent to 25 million cubic feet, while softwood output declined 10 percent to 12 million cubic feet. Pulpwood production accounted for 37 percent of the region's total TPO with 27 million cubic feet, up 18 percent. Softwood output was up 44 percent to 21 million cubic feet while hardwood output was down 29 percent to 6 million cubic feet.

- In the East region, 140 primary wood-using plants were operating during 2001: 134 sawmills, 1 veneer or plywood mill, 3 pulpmills, and 2 other industrial mills. These mills accounted for 23 percent of the State's total TPO.

Total Roundwood Output

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

Source

- In addition to the 325 million cubic feet of roundwood output for industrial products, an estimated 22 million cubic feet were harvested for domestic fuelwood, bringing Tennessee's total roundwood output to 347 million cubic feet.

- Ninety-one 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 32 million cubic feet, or 9 percent of total roundwood output (fig. 13).

Ownership

- An estimated 276 million cubic feet, or 80 percent, of the total roundwood output in 2001 came from nonindustrial private forest lands. Forest industry lands contributed 49 million cubic feet, or 14 percent of the output. Public lands made up the remaining 6 percent, or 21 million cubic feet (fig. 14).

Species

- The other yellow pine group provided more volume than any other softwood species group, accounting for 56 percent of the total softwood output (fig. 15). The loblolly-shortleaf pine type accounted for another 35 percent of the softwood output. The red oak and white oak groups combined accounted for 134 million cubic feet, or 55 percent of total hardwood output (fig. 16).

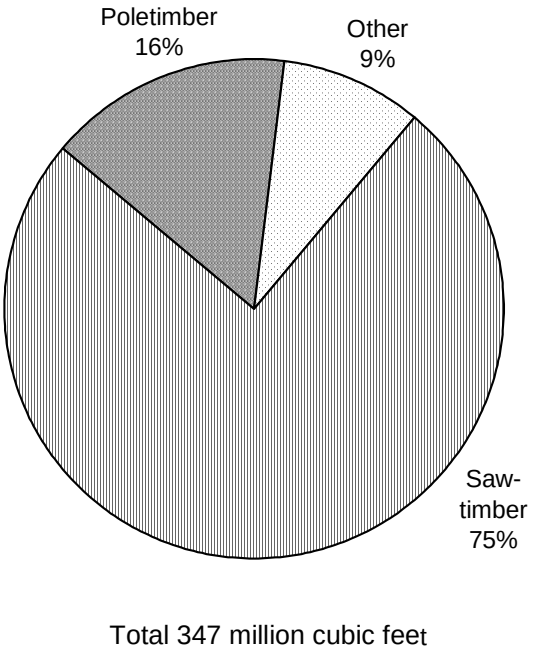

Figure 13—Roundwood output by source, 2001.

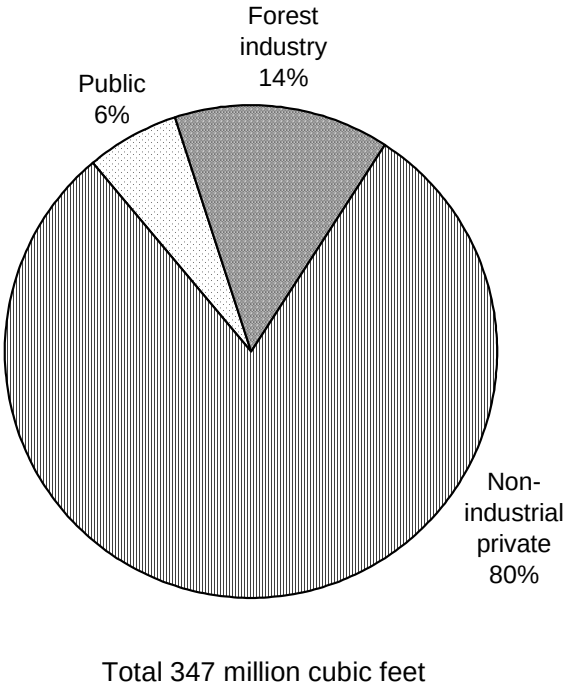

Figure 14—Roundwood output by ownership, 2001.

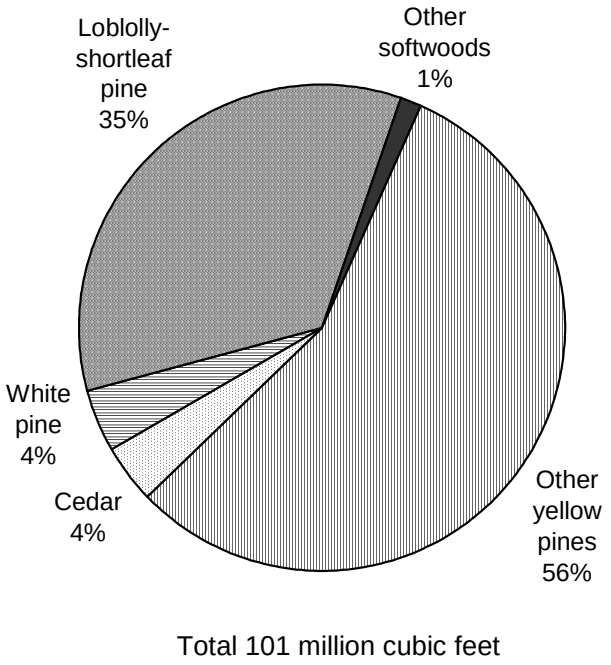

Figure 15—Roundwood output by softwood species group, 2001.

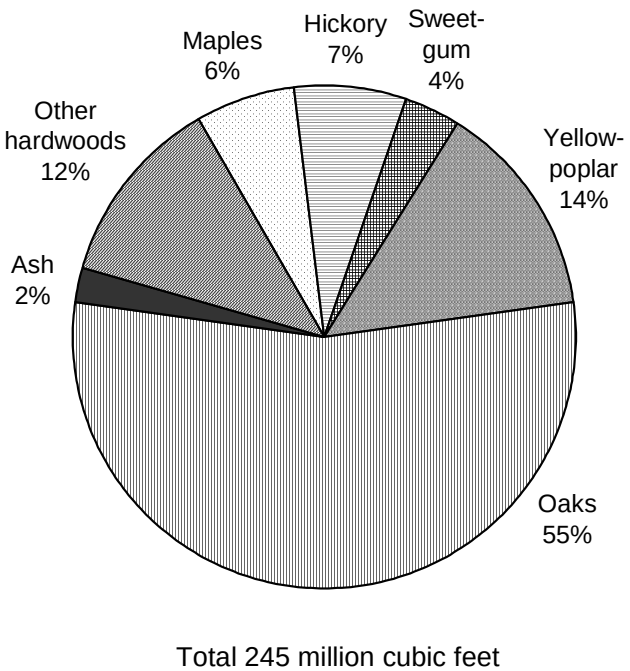

Figure 16—Roundwood output by hardwood species group, 2001.

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Definition of Terms

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

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

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

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

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

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

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

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

Growing-stock removals. The growing-stock volume removed from poletimber and sawtimber trees in the 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 greater than 0.50, such as oaks, hard maples, hickories, and beech.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Corporate. Owned by corporations, including incorporated farm ownerships.

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

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

Miscellaneous Federal land. Federal land other than national forests.

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

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

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

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

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

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

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

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

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

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

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

Pulpwood. A roundwood product that will be reduced to individual wood fibers by chemical or mechanical means. The fibers are used to make a broad generic group of pulp products that includes paper products, as well as fiberboard, insulating board, and paperboard.

Receipts. The quantity or volume of industrial roundwood received at a mill or by a group of mills in a State, regardless of the geographic source. Volume of roundwood receipts is equal to the volume of roundwood retained in a State plus roundwood imported from other States.

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

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

Rough trees. Live trees of commercial species not containing at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross broad-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 products. Any primary product, such as lumber, veneer, composite panels, poles, pilings, pulp, or fuelwood that is produced from roundwood.

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

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

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

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

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

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

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

Sawtimber volume. Growing-stock volume in the saw-log portion of sawtimber-sized trees in board feet (International ¼-inch rule).

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

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

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

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

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

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

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

Timber products. Roundwood products and byproducts.

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

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

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

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

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

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

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

Conversion Factors[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 Tennessee during the most recent survey period.

[b] Cubic feet of solid wood per cord.

Index of Tables

Table 1—Output of industrial products by product and species group, Tennessee, 1999 and 2001

Product and species group	Year 1999	Year 2001	Change	Percent change
	thousand cubic feet			
Saw logs				
Softwood	32,928	30,397	-2,531	-7.7
Hardwood	152,109	151,914	-195	-0.1
Total	185,037	182,311	-2,726	-1.5
Veneer logs				
Softwood	4,278	271	-4,007	-93.7
Hardwood	1,563	1,275	-288	-18.4
Total	5,841	1,546	-4,295	-73.5
Pulpwood				
Softwood	52,185	55,183	2,998	5.7
Hardwood	68,932	71,961	3,029	4.4
Total	121,117	127,144	6,027	5.0
Other industrial				
Softwood	10,817	13,266	2,449	22.6
Hardwood	2,431	449	-1,982	-81.5
Total	13,248	13,715	467	3.5
All industrial				
Softwood	100,208	99,117	-1,091	-1.1
Hardwood	225,035	225,599	564	0.3
Total	325,243	324,716	-527	-0.2
Byproduct output				
Softwood	20,535	20,327	-208	-1.0
Hardwood	91,808	92,657	849	0.9
Total	112,343	112,984	641	0.6
Total output				
Softwood	120,743	119,444	-1,299	-1.1
Hardwood	316,843	318,256	1,413	0.4
Total	437,586	437,700	114	0.0

Table 2—Roundwood receipts by product and species group, Tennessee, 1999 and 2001

Product and species group	Year 1999	Year 2001	Change	Percent change
	thousand cubic feet			
Saw logs				
Softwood	18,086	17,217	-869	-4.8
Hardwood	150,547	151,105	558	0.4
Total	168,633	168,322	-311	-0.2
Veneer logs				
Softwood	0	0	0	--
Hardwood	152	152	0	--
Total	152	152	0	--
Pulpwood				
Softwood	89,811	92,136	2,325	2.6
Hardwood	31,532	34,460	2,928	9.3
Total	121,343	126,596	5,253	4.3
Other industrial				
Softwood	13,061	15,662	2,601	19.9
Hardwood	2,371	539	-1,832	-77.3
Total	15,432	16,201	769	5.0
Total output				
Softwood	120,958	125,015	4,057	3.4
Hardwood	184,602	186,256	1,654	0.9
Total	305,560	311,271	5,711	1.9

-- = negligible.

Table 3—Number of primary wood-using plants by industry, Tennessee, 1960-2001

Industry	Year							
	1960	1970	1979	1989	1995	1997	1999	2001
Sawmills	1,135	546	694	490	495	496	440	439
Veneer mills	9	6	5	3	2	2	2	2
Pulpmills	5	7	7	6	5	5	5	5
Composite panel mills	0	0	0	0	0	1	1	1
Other mills	133	64	32	24	1	1	3	3
All plants	1,282	623	738	523	503	505	451	450

Table 4—Roundwood receipts by sawmill size, Tennessee, 1999 and 2001

Sawmill size class[a]	1999			2001		
	Number of mills	Thousand board feet	Percent of volume	Number of mills	Thousand board feet	Percent of volume
million board feet						
< 1.0	239	65,449	6	235	62,709	6
1.0–4.99	146	377,214	37	150	385,912	38
5.0–9.99	35	246,933	25	32	227,381	23
> 10.0	20	317,680	32	22	329,845	33
Total	440	1,007,276	100	439	1,005,847	100

[a] Based on volume received as opposed to actual capacity.

Table 5—Roundwood receipts by species and type of mill, Tennessee, 2001

Species	All mills	Type of mill				
			Veneer mills			
		Sawmills	Pine plywood	Other veneer	Pulpmills	Other mills
		thousand cubic feet				
Softwood						
Yellow pine	25,032	9,870	0	0	NA	15,162
Eastern white pine	5,209	4,740	0	0	NA	469
Cedar	1,291	1,260	0	0	NA	31
Cypress	1,308	1,308	0	0	NA	0
Other softwood	39	39	0	0	NA	0
Unclassified	92,136	0	0	0	92,136	0
Total softwoods	125,015	17,217	0	0	92,136	15,662
Hardwood						
Blackgum and tupelo	849	849	0	0	NA	0
Soft maple	2,631	2,468	0	0	NA	163
Sweetgum	4,046	3,767	0	116	NA	163
Yellow-poplar	32,516	32,318	0	35	NA	163
Other soft hardwood	1,250	1,249	0	1	NA	0
Hickory	9,287	9,287	0	0	NA	0
Red oak	47,395	47,395	0	0	NA	0
White oak	37,982	37,982	0	0	NA	0
Other hard hardwood	15,840	15,790	0	0	NA	50
Unclassified	34,460	0	0	0	34,460	0
Total hardwoods	186,256	151,105	0	152	34,460	539
All species	311,271	168,322	0	152	126,596	16,201

NA = not applicable.

Table 6—Industrial roundwood movement by year and species group, Tennessee, 1999 and 2001

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
			thousand cubic feet		
			Softwood		
1999	100,208	26,867	73,341	47,617	120,958
2001	99,117	19,230	79,887	45,128	125,015
			Hardwood		
1999	225,035	64,184	160,851	23,751	184,602
2001	225,599	63,216	162,383	23,873	186,256
			All species		
1999	325,243	91,051	234,192	71,368	305,560
2001	324,716	82,446	242,270	69,001	311,271

Table 7—Industrial roundwood movement by product and species group, Tennessee, 2001

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
			thousand cubic feet		
Saw logs					
Softwood	30,397	15,037	15,360	1,857	17,217
Hardwood	151,914	13,502	138,412	12,693	151,105
Total	182,311	28,539	153,772	14,550	168,322
Veneer logs					
Softwood	271	271	0	0	0
Hardwood	1,275	1,125	150	2	152
Total	1,546	1,396	150	2	152
Pulpwood					
Softwood	55,183	3,600	51,583	40,553	92,136
Hardwood	71,961	48,587	23,374	11,086	34,460
Total	127,144	52,187	74,957	51,639	126,596
Other industrial					
Softwood	13,266	322	12,944	2,718	15,662
Hardwood	449	2	447	92	539
Total	13,715	324	13,391	2,810	16,201
All products					
Softwood	99,117	19,230	79,887	45,128	125,015
Hardwood	225,599	63,216	162,383	23,873	186,256
Total	324,716	82,446	242,270	69,001	311,271

Table 8—Saw-log volume by destination, source, and species group, Tennessee, 2001

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Tennessee (retained)	153,772	15,360	138,412
Exports to:			
Alabama	10,678	9,968	710
Georgia	2,118	2,103	15
Indiana	21	0	21
Kentucky	9,071	500	8,571
Mississippi	3,024	1,162	1,862
Missouri	85	0	85
North Carolina	2,070	1,088	982
Virginia	1,472	216	1,256
Total	28,539	15,037	13,502
Imports from:			
Alabama	4,227	195	4,032
Georgia	85	85	0
Indiana	1	0	1
Kentucky	2,993	396	2,597
Mississippi	2,525	170	2,355
North Carolina	1,991	1,001	990
Virginia	2,728	10	2,718
Total	14,550	1,857	12,693

Table 9—Veneer volume by destination, source, and species group, Tennessee, 2001

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Tennessee (retained)	150	0	150
Exports to:			
Alabama	271	271	0
Georgia	422	0	422
Indiana	74	0	74
Kentucky	208	0	208
North Carolina	172	0	172
Virginia	226	0	226
West Virginia	23	0	23
Total	1,396	271	1,125
Imports from:			
Kentucky	2	0	2
Total	2	0	2

Table 10—Pulpwood volume by destination, source, and species group, Tennessee, 2001

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Tennessee (retained)	74,957	51,583	23,374
Exports to:			
Alabama	31,225	3,479	27,746
Arkansas	81	0	81
Georgia	12	12	0
Kentucky	15,195	109	15,086
Louisiana	44	0	44
Mississippi	218	0	218
North Carolina	5,412	0	5,412
Total	52,187	3,600	48,587
Imports from:			
Alabama	18,377	16,284	2,093
Georgia	10,975	7,760	3,215
Kentucky	1,156	316	840
Mississippi	18,313	15,511	2,802
North Carolina	1,240	678	562
South Carolina	4	4	0
Virginia	1,574	0	1,574
Total	51,639	40,553	11,086

Table 11—Other industrial volume by destination, source, and species group, Tennessee, 2001

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Tennessee (retained)	13,391	12,944	447
Exports to:			
Alabama	113	111	2
Kentucky	211	211	0
Total	324	322	2
Imports from:			
Alabama	158	152	6
Georgia	1,559	1,509	50
Kentucky	935	905	30
Virginia	158	152	6
Total	2,810	2,718	92

Table 12—Primary mill residue volume by roundwood type, species group, and residue type, Tennessee, 2001

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
		thousand cubic feet			
Saw logs					
Softwood	9,473	1,156	5,086	3,053	178
Hardwood	98,530	15,605	51,995	30,411	519
Total	108,003	16,761	57,081	33,464	697
Veneer logs					
Softwood	0	0	0	0	0
Hardwood	56	17	26	13	0
Total	56	17	26	13	0
Pulpwood					
Softwood	9,495	9,495	0	0	0
Hardwood	4,355	4,355	0	0	0
Total	13,850	13,850	0	0	0
Other industrial[a]					
Softwood	2,569	2,553	11	5	0
Hardwood	138	116	16	6	0
Total	2,707	2,669	27	11	0
Total					
Softwood	21,537	13,204	5,097	3,058	178
Hardwood	103,079	20,093	52,037	30,430	519
Total	124,616	33,297	57,134	33,488	697

[a] Includes poles, pilings, posts, composite panels, and other industrial products.

Table 13—Disposal of residue at primary wood-using plants by product, species group, and type of residue, Tennessee, 1999 and 2001

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	1999	2001	1999	2001	1999	2001	1999	2001	1999	2001
	thousand cubic feet									
Fiber products										
Softwood	3,077	2,941	0	0	3,012	2,876	65	65	0	0
Hardwood	31,614	33,789	0	0	30,574	33,097	1,023	692	17	0
Total	34,691	36,730	0	0	33,586	35,973	1,088	757	17	0
Particleboard										
Softwood	487	46	0	0	487	45	0	1	0	0
Hardwood	4,126	1,807	15	15	3,619	1,760	492	32	0	0
Total	4,613	1,853	15	15	4,106	1,805	492	33	0	0
Charcoal/ chemical wood										
Softwood	0	0	0	0	0	0	0	0	0	0
Hardwood	868	712	91	64	584	411	193	237	0	0
Total	868	712	91	64	584	411	193	237	0	0
Sawn products										
Softwood	0	0	0	0	0	0	0	0	0	0
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Fuel										
Softwood	13,207	12,633	9,917	9,908	740	1,003	2,107	1,709	443	13
Hardwood	39,276	39,707	9,124	8,586	8,153	7,872	21,713	23,126	286	123
Total	52,483	52,340	19,041	18,494	8,893	8,875	23,820	24,835	729	136
Miscellaneous										
Softwood	3,764	4,707	2,552	3,161	396	492	679	890	137	164
Hardwood	15,924	16,642	8,906	9,133	3,129	3,350	3,631	3,817	258	342
Total	19,688	21,349	11,458	12,294	3,525	3,842	4,310	4,707	395	506
Not used										
Softwood	1,227	1,210	144	135	719	681	362	393	2	1
Hardwood	11,026	10,422	1,919	2,295	5,784	5,547	3,264	2,526	59	54
Total	12,253	11,632	2,063	2,430	6,503	6,228	3,626	2,919	61	55
All products										
Softwood	21,762	21,537	12,613	13,204	5,354	5,097	3,213	3,058	582	178
Hardwood	102,834	103,079	20,055	20,093	51,843	52,037	30,316	30,430	620	519
Total	124,596	124,616	32,668	33,297	57,197	57,134	33,529	33,488	1,202	697

Table 14—Roundwood timber products output by product and species group, West Region of Tennessee, 1999 and 2001

Product and species group	Year 1999	Year 2001	Change	Percent change
	thousand cubic feet			
Saw logs				
Softwood	2,227	2,362	135	6.1
Hardwood	35,478	34,565	-913	-2.6
Total	37,705	36,927	-778	-2.1
Veneer logs				
Softwood	0	0	0	--
Hardwood	116	116	0	--
Total	116	116	0	--
Pulpwood				
Softwood	7,448	4,666	-2,782	-37.4
Hardwood	9,487	12,661	3,174	33.5
Total	16,935	17,327	392	2.3
Other industrial				
Softwood	0	0	0	--
Hardwood	0	0	0	--
Total	0	0	0	--
All industrial				
Softwood	9,675	7,028	-2,647	-27.4
Hardwood	45,081	47,342	2,261	5.0
Total	54,756	54,370	-386	-0.7

-- = negligible.

Table 15—Roundwood timber products output by county, product, and species group, West Region of Tennessee, 2001

County	All products		Saw logs		Veneer logs		Pulpwood		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Carroll	461	3,656	228	2,696	0	0	233	960	0	0
Chester	859	2,615	86	2,062	0	0	773	553	0	0
Crockett	20	77	0	66	0	0	20	11	0	0
Dyer	5	201	5	201	0	0	0	0	0	0
Fayette	198	2,737	49	2,732	0	0	149	5	0	0
Gibson	46	596	46	591	0	0	0	5	0	0
Hardeman	447	5,231	137	4,665	0	0	310	566	0	0
Haywood	84	1,970	78	1,941	0	0	6	29	0	0
Henderson	383	3,461	30	2,635	0	0	353	826	0	0
Henry	573	6,939	293	4,736	0	0	280	2,203	0	0
Lake	0	337	0	337	0	0	0	0	0	0
Lauderdale	11	1,211	11	921	0	58	0	232	0	0
Madison	143	1,904	113	1,621	0	0	30	283	0	0
McNairy	3,276	7,085	1,071	3,808	0	0	2,205	3,277	0	0
Obion	37	1,753	37	1,695	0	58	0	0	0	0
Shelby	34	623	0	522	0	0	34	101	0	0
Tipton	0	623	0	623	0	0	0	0	0	0
Weakley	451	6,323	178	2,713	0	0	273	3,610	0	0
All counties	7,028	47,342	2,362	34,565	0	116	4,666	12,661	0	0

Table 16—Roundwood timber products output by product and species group, West Central Region of Tennessee, 1999 and 2001

Product and species group	Year 1999	Year 2001	Change	Percent change
	thousand cubic feet			
Saw logs				
Softwood	955	1,238	283	29.6
Hardwood	27,671	29,093	1,422	5.1
Total	28,626	30,331	1,705	6.0
Veneer logs				
Softwood	0	0	0	--
Hardwood	0	9	9	--
Total	0	9	9	--
Pulpwood				
Softwood	7,751	12,184	4,433	57.2
Hardwood	27,022	27,442	420	1.6
Total	34,773	39,626	4,853	14.0
Other industrial				
Softwood	0	0	0	--
Hardwood	0	0	0	--
Total	0	0	0	--
All industrial				
Softwood	8,706	13,422	4,716	54.2
Hardwood	54,693	56,544	1,851	3.4
Total	63,399	69,966	6,567	10.4

-- = negligible.

Table 17—Roundwood timber products output by county, product, and species group, West Central Region of Tennessee, 2001

County	All products		Saw logs		Veneer logs		Pulpwood		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Benton	430	4,036	150	2,345	0	0	280	1,691	0	0
Decatur	725	2,235	5	996	0	0	720	1,239	0	0
Hardin	4,655	7,927	451	4,007	0	0	4,204	3,920	0	0
Hickman	197	7,702	25	3,259	0	0	172	4,443	0	0
Houston	4	1,958	4	1,955	0	0	0	3	0	0
Humphreys	28	2,552	28	2,051	0	0	0	501	0	0
Lawrence	552	5,630	8	3,231	0	0	544	2,399	0	0
Lewis	301	5,126	2	1,722	0	0	299	3,404	0	0
Perry	138	2,843	34	2,088	0	0	104	755	0	0
Stewart	54	6,309	2	3,688	0	9	52	2,612	0	0
Wayne	6,338	10,226	529	3,751	0	0	5,809	6,475	0	0
All counties	13,422	56,544	1,238	29,093	0	9	12,184	27,442	0	0

Table 18—Roundwood timber products output by product and species group, Central Region of Tennessee, 1999 and 2001

Product and species group	Year 1999	Year 2001	Change	Percent change
	thousand cubic feet			
Saw logs				
Softwood	4,743	4,749	6	0.1
Hardwood	33,047	29,965	-3,082	-9.3
Total	37,790	34,714	-3,076	-8.1
Veneer logs				
Softwood	0	0	0	--
Hardwood	253	63	-190	-75.1
Total	253	63	-190	-75.1
Pulpwood				
Softwood	855	401	-454	-53.1
Hardwood	2,587	1,212	-1,375	-53.2
Total	3,442	1,613	-1,829	-53.1
Other industrial				
Softwood	150	130	-20	-13.3
Hardwood	52	52	0	--
Total	202	182	-20	-10.0
All industrial				
Softwood	5,748	5,280	-468	-8.1
Hardwood	35,939	31,292	-4,647	-12.9
Total	41,687	36,572	-5,115	-12.3

-- = negligible.

Table 19—Roundwood timber products output by county, product, and species group, Central Region of Tennessee, 2001

County	All products		Saw logs		Veneer logs		Pulpwood		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Bedford	108	272	108	272	0	0	0	0	0	0
Cannon	183	821	183	801	0	0	0	20	0	0
Cheatham	1	1,914	1	1,914	0	0	0	0	0	0
Clay	0	1,952	0	1,952	0	0	0	0	0	0
Coffee	324	1,461	98	1,411	0	0	226	50	0	0
Davidson	10	149	2	124	0	0	0	0	8	25
De Kalb	206	1,390	206	1,332	0	0	0	58	0	0
Dickson	22	3,487	2	3,480	0	0	20	7	0	0
Giles	1,316	3,497	1,278	2,978	0	0	38	519	0	0
Jackson	112	2,467	112	2,467	0	0	0	0	0	0
Lincoln	2,264	2,332	2,148	1,854	0	0	2	476	114	2
Macon	6	2,952	6	2,928	0	22	0	2	0	0
Marshall	0	393	0	338	0	0	0	55	0	0
Maury	115	1,597	0	1,592	0	0	115	5	0	0
Montgomery	4	2,262	4	2,261	0	0	0	1	0	0
Moore	0	468	0	449	0	0	0	19	0	0
Robertson	4	820	1	791	0	19	0	0	3	10
Rutherford	214	223	214	223	0	0	0	0	0	0
Smith	216	1,083	216	1,083	0	0	0	0	0	0
Sumner	27	1,161	22	1,124	0	22	0	0	5	15
Trousdale	0	63	0	63	0	0	0	0	0	0
Williamson	1	201	1	201	0	0	0	0	0	0
Wilson	147	327	147	327	0	0	0	0	0	0
All counties	5,280	31,292	4,749	29,965	0	63	401	1,212	130	52

Table 20—Roundwood timber products output by product and species group, Plateau Region of Tennessee, 1999 and 2001

Product and species group	Year 1999	Year 2001	Change	Percent change
	thousand cubic feet			
Saw logs				
Softwood	11,386	9,848	-1,538	-13.5
Hardwood	31,586	33,215	1,629	5.2
Total	42,972	43,063	91	0.2
Veneer logs				
Softwood	319	271	-48	-15.0
Hardwood	53	53	0	--
Total	372	324	-48	-12.9
Pulpwood				
Softwood	21,168	16,454	-4,714	-22.3
Hardwood	21,851	25,002	3,151	14.4
Total	43,019	41,456	-1,563	-3.6
Other industrial				
Softwood	6,139	5,149	-990	-16.1
Hardwood	997	139	-858	-86.1
Total	7,136	5,288	-1,848	-25.9
All industrial				
Softwood	39,012	31,722	-7,290	-18.7
Hardwood	54,487	58,409	3,922	7.2
Total	93,499	90,131	-3,368	-3.6

-- = negligible.

Table 21—Roundwood timber products output by county, product, and species group, Plateau Region of Tennessee, 2001

County	All products		Saw logs		Veneer logs		Pulpwood		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Bledsoe	4,253	1,886	174	662	0	7	3,477	1,198	602	19
Campbell	138	7,139	138	1,801	0	0	0	5,338	0	0
Cumberland	5,491	3,598	546	1,865	0	0	3,995	1,704	950	29
Fentress	1,493	3,836	509	2,830	0	0	175	992	809	14
Franklin	2,732	3,988	2,447	2,451	271	0	14	1,537	0	0
Grundy	312	3,199	133	1,141	0	0	179	2,058	0	0
Marion	3,722	5,447	3,529	2,719	0	0	193	2,728	0	0
Morgan	1,078	2,055	687	1,236	0	46	281	773	110	0
Overton	1,271	6,839	259	5,313	0	0	108	1,497	904	29
Pickett	240	1,326	26	1,290	0	0	0	36	214	0
Putnam	271	3,694	197	2,961	0	0	47	733	27	0
Scott	886	3,368	845	3,188	0	0	14	180	27	0
Sequatchie	1,830	2,873	105	722	0	0	1,725	2,151	0	0
Van Buren	4,371	3,645	7	1,442	0	0	3,460	2,174	904	29
Warren	281	2,438	238	1,432	0	0	43	1,006	0	0
White	3,353	3,078	8	2,162	0	0	2,743	897	602	19
All counties	31,722	58,409	9,848	33,215	271	53	16,454	25,002	5,149	139

Table 22—Roundwood timber products output by product and species group, East Region of Tennessee, 1999 and 2001

Product and species group	Year 1999	Year 2001	Change	Percent change
	thousand cubic feet			
Saw logs				
Softwood	13,617	12,200	-1,417	-10.4
Hardwood	24,327	25,076	749	3.1
Total	37,944	37,276	-668	-1.8
Veneer logs				
Softwood	3,959	0	-3,959	-100.0
Hardwood	1,141	1,034	-107	-9.4
Total	5,100	1,034	-4,066	-79.7
Pulpwood				
Softwood	14,963	21,478	6,515	43.5
Hardwood	7,985	5,644	-2,341	-29.3
Total	22,948	27,122	4,174	18.2
Other industrial				
Softwood	4,528	7,987	3,459	76.4
Hardwood	1,382	258	-1,124	-81.3
Total	5,910	8,245	2,335	39.5
All industrial				
Softwood	37,067	41,665	4,598	12.4
Hardwood	34,835	32,012	-2,823	-8.1
Total	71,902	73,677	1,775	2.5

Table 23—Roundwood timber products output by county, product, and species group, East Region of Tennessee, 2001

County	All products		Saw logs		Veneer logs		Pulpwood		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Anderson	7	1,799	7	1,760	0	0	0	39	0	0
Blount	1,695	734	106	117	0	46	535	537	1,054	34
Bradley	5,342	398	1,592	71	0	0	2,696	293	1,054	34
Carter	602	1,356	602	1,064	0	288	0	4	0	0
Claiborne	189	3,475	189	3,019	0	447	0	9	0	0
Cocke	220	640	220	582	0	53	0	5	0	0
Grainger	19	1,604	19	1,601	0	0	0	3	0	0
Greene	156	984	156	984	0	0	0	0	0	0
Hamblen	8	97	8	42	0	55	0	0	0	0
Hamilton	5,385	973	1,754	296	0	5	3,631	672	0	0
Hancock	124	1,681	124	1,681	0	0	0	0	0	0
Hawkins	409	4,005	409	4,005	0	0	0	0	0	0
Jefferson	607	948	5	883	0	46	0	0	602	19
Johnson	538	1,153	538	1,090	0	3	0	60	0	0
Knox	316	407	0	404	0	0	316	3	0	0
Loudon	187	126	29	78	0	0	158	48	0	0
McMinn	3,921	1,027	165	144	0	0	2,249	834	1,507	49
Meigs	1,520	717	170	53	0	5	1,350	659	0	0
Monroe	7,736	1,510	2,999	579	0	46	2,326	807	2,411	78
Polk	4,072	456	1,074	253	0	0	2,998	203	0	0
Rhea	6,650	1,472	136	216	0	17	5,158	1,195	1,356	44
Roane	200	2,540	139	2,277	0	0	61	263	0	0
Sevier	85	634	82	634	0	0	0	0	3	0
Sullivan	85	547	85	519	0	23	0	5	0	0
Unicoi	1,421	1,495	1,421	1,490	0	0	0	5	0	0
Union	10	543	10	543	0	0	0	0	0	0
Washington	161	691	161	691	0	0	0	0	0	0
All counties	41,665	32,012	12,200	25,076	0	1,034	21,478	5,644	7,987	258

Table 24—Total roundwood output by product, species group, and source of material, Tennessee, 2001

Product and species group	All sources	Growing-stock trees		Other sources
		Total	Sawtimber	Poletimber	
	thousand cubic feet				
Saw logs					
Softwood	30,397	27,549	26,050	1,499	2,848
Hardwood	151,914	148,358	139,456	8,901	3,556
Total	182,311	175,907	165,506	10,400	6,404
Veneer logs and bolts					
Softwood	271	253	253	0	18
Hardwood	1,275	1,253	1,253	0	22
Total	1,546	1,506	1,506	0	40
Pulpwood					
Softwood	55,183	45,767	28,056	17,710	9,416
Hardwood	71,961	63,313	45,296	18,017	8,648
Total	127,144	109,080	73,353	35,727	18,064
Poles and posts					
Softwood	548	407	219	189	141
Hardwood	0	0	0	0	0
Total	548	407	219	189	141
Other miscellaneous					
Softwood	12,718	10,736	6,117	4,619	1,982
Hardwood	449	405	184	221	44
Total	13,167	11,141	6,302	4,839	2,026
Total industrial products					
Softwood	99,117	84,712	60,695	24,016	14,405
Hardwood	225,599	213,329	186,190	27,139	12,270
Total	324,716	298,041	246,885	51,156	26,675
Fuelwood					
Softwood	2,260	1,355	1,003	352	905
Hardwood	19,728	14,993	11,836	3,157	4,735
Total	21,988	16,349	12,839	3,509	5,639
All products					
Softwood	101,377	86,067	61,698	24,369	15,310
Hardwood	245,327	228,322	198,026	30,296	17,005
Total	346,704	314,389	259,725	54,665	32,315

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

Table 25—Total roundwood output by species group, survey region, and ownership class, Tennessee, 2001

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
		thousand cubic feet		
Softwoods				
West	7,189	920	2,419	3,850
West Central	13,728	0	0	13,728
Central	5,401	4	0	5,397
Plateau	32,444	1,376	9,988	21,080
East	42,615	8,369	6,206	28,040
Total softwoods	101,377	10,668	18,613	72,096
Hardwoods				
West	51,480	475	6,301	44,704
West Central	61,487	107	11,675	49,705
Central	34,033	370	377	33,287
Plateau	63,516	7,019	9,101	47,396
East	34,811	2,538	3,423	28,850
Total hardwoods	245,327	10,509	30,876	203,942
All species	346,704	21,178	49,489	276,037

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

Table 26—Total roundwood output by species group, detailed species group, and product, Tennessee, 2001

Species group and detailed species group	Total	Product					
		Saw log	Veneer	Pulpwood	Poles and posts	Other miscellaneous	Fuel-wood
		thousand cubic feet					
Softwood							
Cedar	3,954	3,114	0	630	0	122	88
White pine	4,293	2,014	0	1,648	98	437	96
Loblolly-shortleaf pine	34,968	8,835	0	21,632	202	3,518	781
Other yellow pines	56,904	15,756	271	30,983	226	8,400	1,267
Cypress	464	186	0	268	0	0	10
Hemlock	795	492	0	22	22	241	17
Total softwoods	101,377	30,397	271	55,183	548	12,718	2,260
Hardwood							
Soft maple	9,484	5,232	34	3,440	0	15	763
Hard maple	6,292	4,236	12	1,527	0	11	506
Other birch	1,166	874	0	196	0	3	94
Hickory	17,277	9,630	29	6,202	0	26	1,389
Beech	4,338	2,887	12	1,080	0	12	349
Ash	5,017	3,477	35	1,082	0	20	404
Black walnut	1,614	1,184	0	298	0	2	130
Sweetgum	9,475	6,098	30	2,582	0	4	761
Yellow-poplar	33,946	22,886	184	8,079	0	68	2,730
Blackgum-tupelo	2,065	1,247	6	641	0	5	166
Sycamore	2,267	1,503	9	571	0	1	182
Cottonwood	556	426	15	70	0	0	45
Black cherry	1,272	576	3	589	0	1	102
Select white oaks	41,835	24,397	215	13,773	0	86	3,364
Other white oaks	29,961	16,976	101	10,431	0	44	2,409
Select red oaks	18,277	11,896	159	4,739	0	13	1,469
Other red oaks	43,668	25,922	333	13,818	0	83	3,512
Basswood	555	413	0	97	0	1	45
Elm	1,980	1,442	8	360	0	10	159
Other Eastern hardwoods	14,282	10,613	90	2,385	0	46	1,149
Total hardwoods	245,327	151,914	1,275	71,961	0	449	19,728
All species	346,704	182,311	1,546	127,144	548	13,167	21,988

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

Table 27—Total roundwood output by species group, detailed species group, and ownership class, Tennessee, 2001

Species group and detailed species group	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
		thousand cubic feet		
Softwood				
Cedar	3,954	44	53	3,856
White pine	4,293	442	784	3,067
Loblolly-shortleaf pine	34,968	2,061	11,071	21,836
Other yellow pines	56,904	7,402	6,521	42,980
Cypress	464	454	1	8
Hemlock	795	264	182	348
Total softwoods	101,377	10,668	18,613	72,096
Hardwood				
Soft maple	9,484	964	1,369	7,151
Hard maple	6,292	271	751	5,269
Other birch	1,166	504	47	615
Hickory	17,277	258	2,823	14,196
Beech	4,338	317	170	3,852
Ash	5,017	218	329	4,470
Black walnut	1,614	17	111	1,486
Sweetgum	9,475	98	1,127	8,251
Yellow-poplar	33,946	1,241	3,225	29,481
Blackgum-tupelo	2,065	94	279	1,692
Sycamore	2,267	44	256	1,966
Cottonwood	556	123	340	94
Black cherry	1,272	2	421	849
Select white oaks	41,835	1,725	5,560	34,550
Other white oaks	29,961	915	4,358	24,688
Select red oaks	18,277	1,323	3,419	13,535
Other red oaks	43,668	1,673	5,456	36,539
Basswood	555	77	27	451
Elm	1,980	102	90	1,787
Other Eastern hardwoods	14,282	544	720	13,019
Total hardwoods	245,327	10,509	30,876	203,942
All species	346,704	21,178	49,489	276,037

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

The Forest Service, U.S. Department of Agriculture, is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

Bentley, James W.; Wright, Robert C. 2004**.** Tennessee's timber industry—an assessment of timber product output and use, 2001. Resour. Bull. SRS-91. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 39 p.

In 2001, roundwood output from Tennessee's forests was 325 million cubic feet. Mill byproducts generated from primary manufacturers totaled 125 million cubic feet. Seventy-one percent of the plant residues were used primarily for fuel and fiber products. Saw logs were the leading roundwood product at 182 million cubic feet; pulpwood ranked second at 127 million cubic feet; other industrial products were third at 14 million cubic feet. There were 450 primary processing plants operating in Tennessee in 2001. Total receipts amounted to 311 million cubic feet.

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

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