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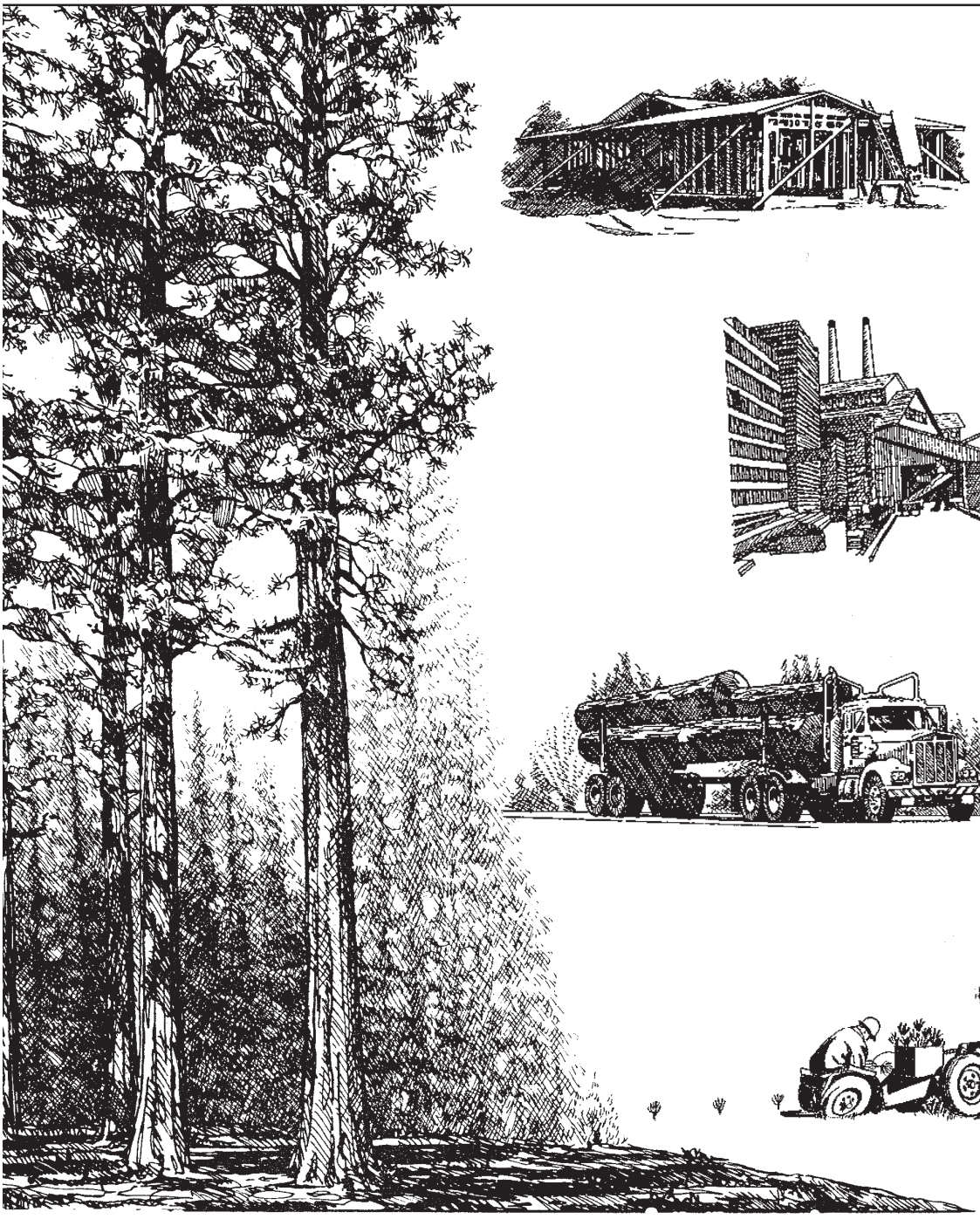
Tennessee's Timber Industry—An Assessment of Timber Product Output and Use, 1999

**Michael Howell and
Robert C. Wright**



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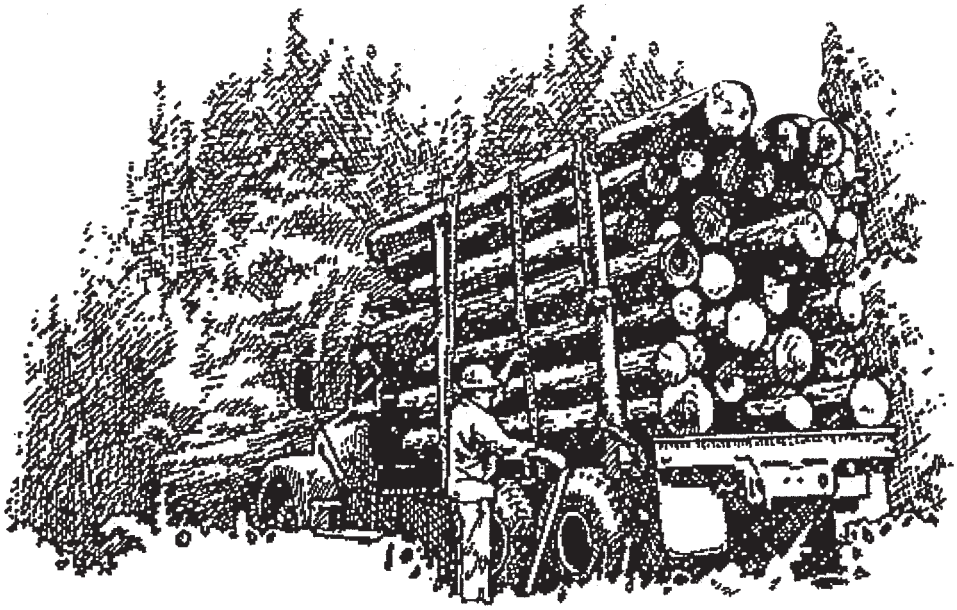

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Southern Research Station
P.O. Box 2680
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Foreword

This report contains the findings of a 1999 canvass of all primary wood-using plants in Tennessee, and presents changes in product output and residue use since 1997. It complements the Forest Inventory and Analysis (FIA) periodic inventory of volume and removals from the State's timberland. The canvass was conducted to determine the amount and source of wood receipts and annual timber product drain, by county, in 1999 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 Tennessee was conducted in 2000 to obtain information for 1999. 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 southeastern pulpmills. Medium density fiberboard, insulating board, and hardboard plants were included in this survey.

Acknowledgments

The authors thank David Arnold for review and comments; Dale Gormanson from the North Central Research Station for the maps; Anne Jenkins, Susan Bowman, and Donna Burnett 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.

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

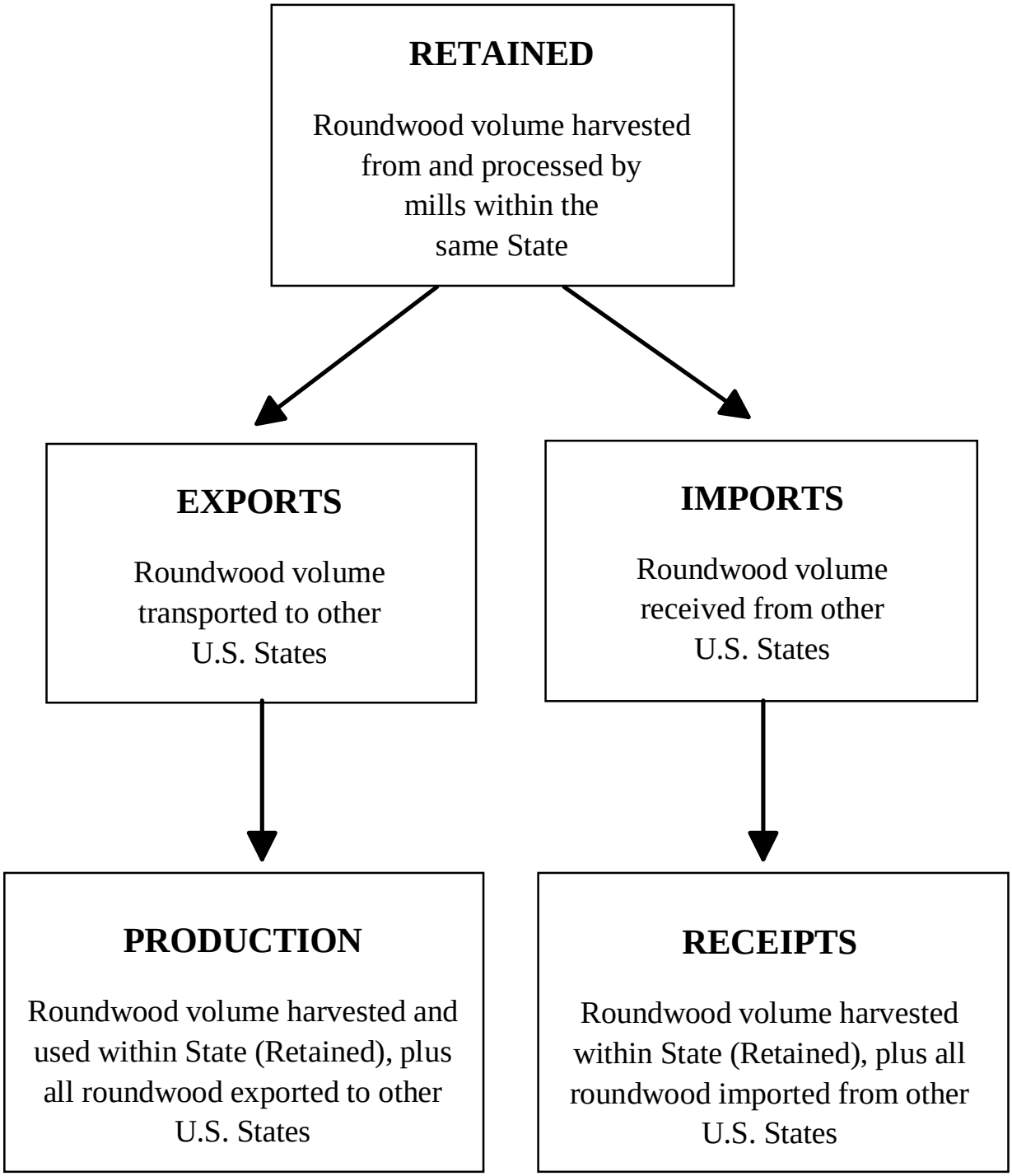

Figure 1—Movement of roundwood exports and imports within the United States.

Tennessee's Timber Industry—An Assessment of Timber Product Output and Use, 1999

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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 1997 and 1999, the combined industrial timber products output (TPO) from roundwood and plant byproducts declined 3 percent from 449 to 438 million cubic feet.

- Timber products output from roundwood was up 5 million cubic feet, or 1 percent, to 325 million cubic feet, while output of plant byproducts was down 16 million cubic feet to 112 million cubic feet.

- Output of softwood roundwood products increased 19 percent to 100 million cubic feet, while output of hardwood roundwood products declined 5 percent to 225 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.

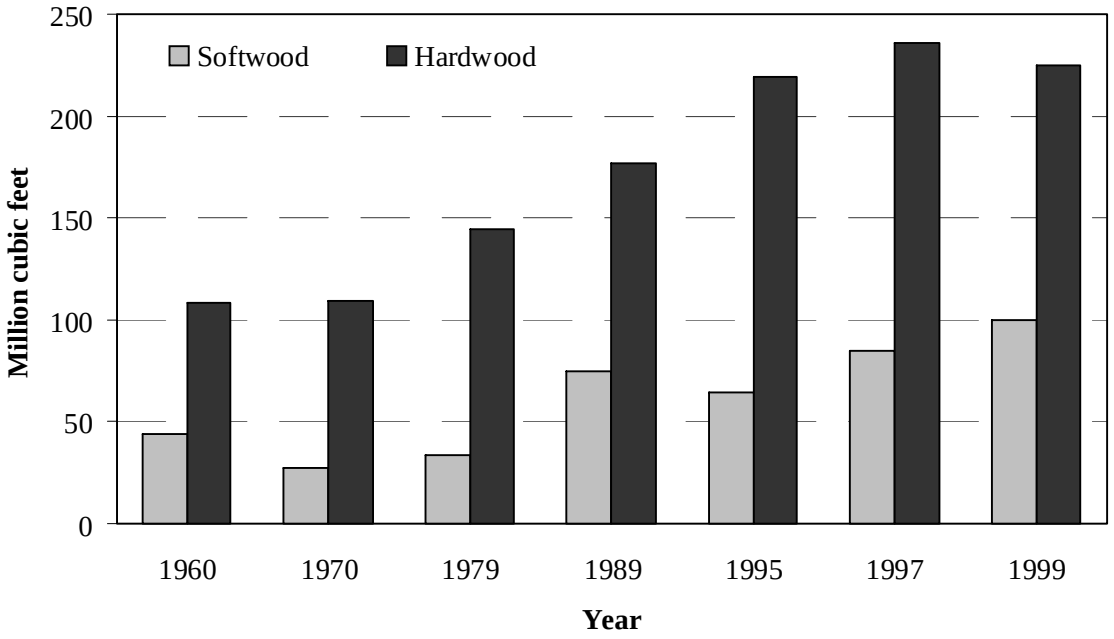


Figure 2—Roundwood production for all products by species group and year (see page 11 for references for individual years).

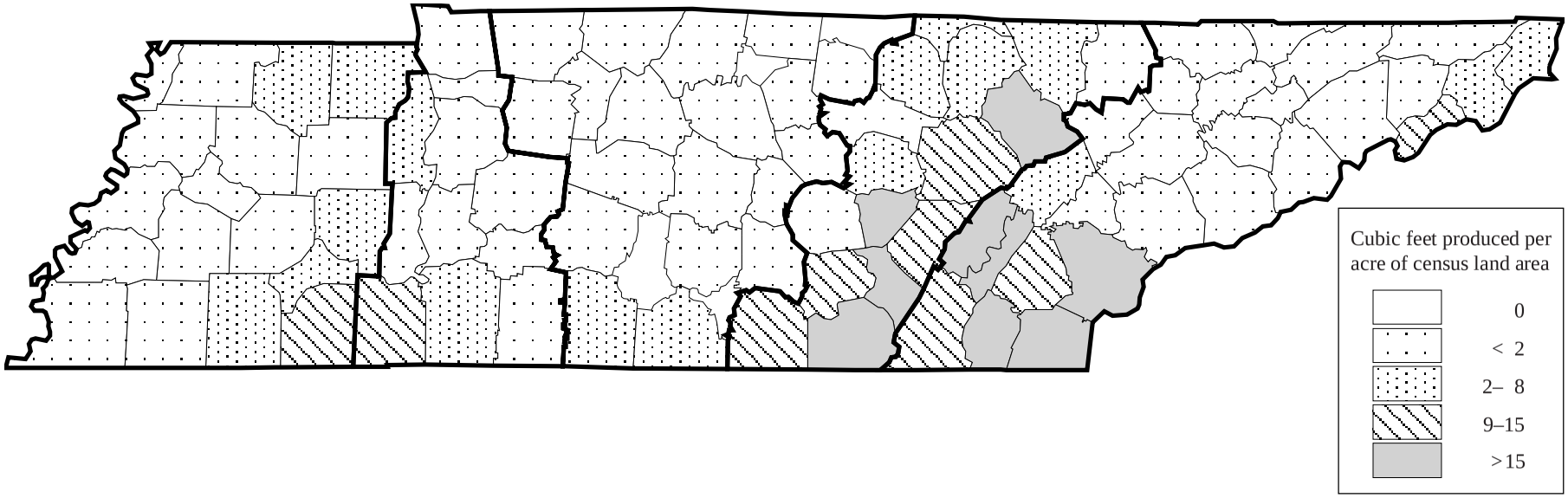


Figure 3—Intensity of roundwood softwood output for all industrial products in Tennessee by county, 1999.

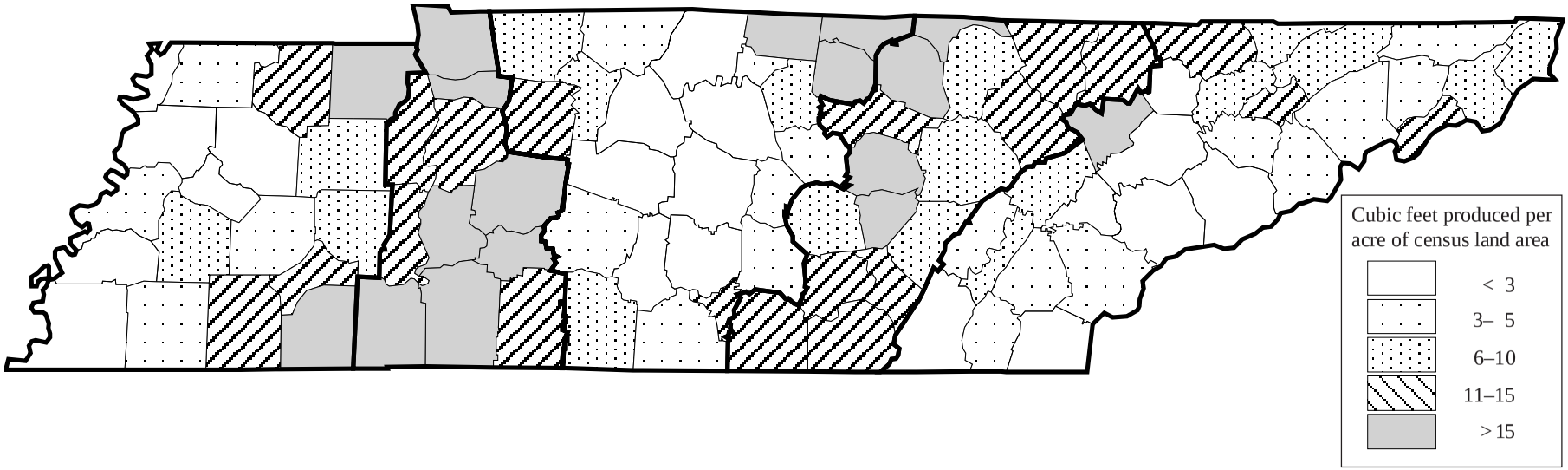


Figure 4—Intensity of roundwood hardwood output for all industrial products in Tennessee by county, 1999.

- Saw logs and pulpwood were the principal roundwood products in 1999. Combined output of these products totaled 306 million cubic feet and accounted for 94 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, declined by 14 percent to 306 million cubic feet. At the same time, the number of primary roundwood-using plants in Tennessee was down from 505 in 1997 to 451 in 1999.

Saw Logs

- Saw logs accounted for 57 percent of the State's total industrial roundwood products. Output of softwood saw logs increased 63 percent to 33 million cubic feet (183 million board feet, International ¼-inch rule), while that of hardwood saw logs was down 5 percent to 152 million cubic feet (917 million board feet, International ¼-inch rule) (fig. 6).

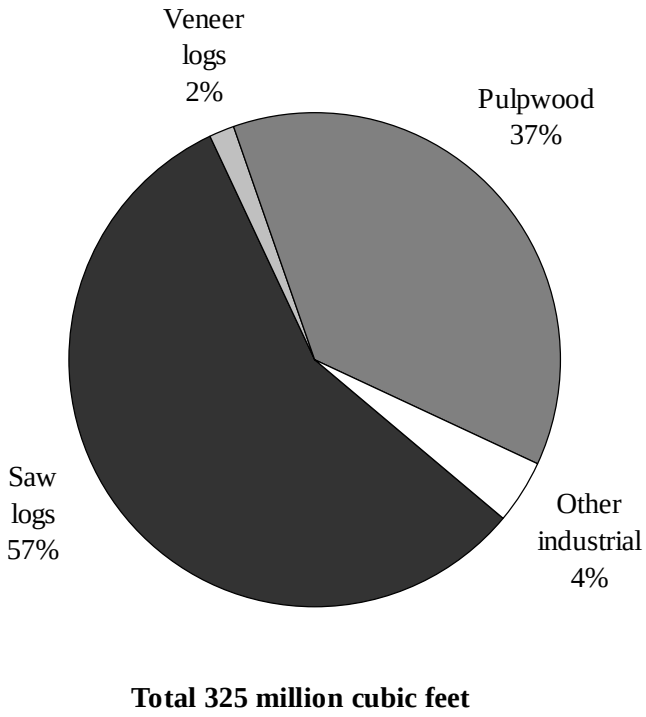


Figure 5—Roundwood production by type of product, 1999.

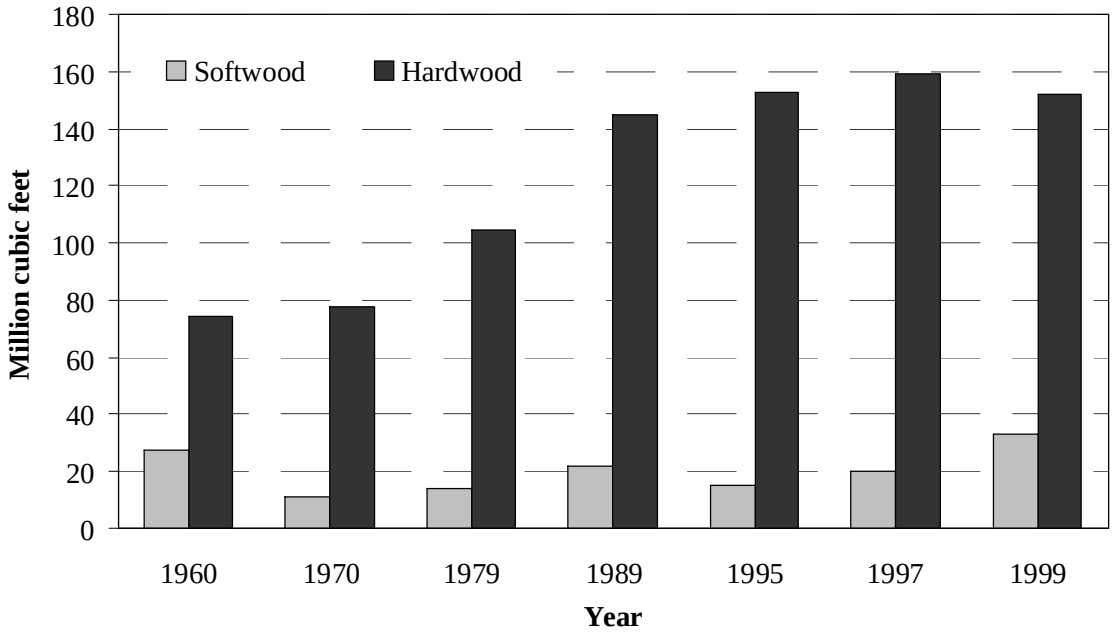


Figure 6—Roundwood saw-log production by species group and year (see page 11 for references for individual years).

- In 1999, Tennessee had 440 sawmills, a loss of 56 mills since 1997. Total saw-log receipts were down 7 million cubic feet to 169 million cubic feet. Softwood saw-log receipts increased 15 percent to 18 million cubic feet, while those of hardwoods declined 6 percent to 151 million cubic feet. Of the 440 operating mills in 1999, 54 percent, or 239 mills, had receipts of less than 1 million board feet. Thirteen percent, or 55 mills, had receipts greater than 5 million board feet and accounted for 57 percent of the total saw-log receipts.

- Tennessee retained 83 percent of its saw-log production for domestic manufacture in 1999; saw-log exports amounted to 31 million cubic feet, while imports totaled 15 million cubic feet.

Pulpwood

- Total pulpwood production declined 464 thousand cubic feet to 121 million cubic feet and accounted for 37 percent of the State's total industrial roundwood TPO. Softwood output was up 3 percent to 52 million cubic feet (719 thousand cords); hardwood output declined 3 percent to 69 million cubic feet (900 thousand cords) (fig. 7).

- Five pulpmill facilities were operating and receiving roundwood in Tennessee in 1999. Total pulpwood receipts for these mills were down 38 million cubic feet to 121 million cubic feet, accounting for 40 percent of total receipts for all mills.

- Fifty-six percent of roundwood cut for pulpwood was retained for processing at Tennessee pulpmills. Roundwood pulpwood accounted for 59 percent of total known exports and 75 percent of total imports. Roundwood pulpwood imports and exports were nearly in balance at 54 million cubic feet.

Veneer Logs

- Output of veneer logs in 1999 totaled 6 million cubic feet and accounted for 2 percent of the State's total industrial roundwood TPO volume. Softwood veneer production increased thirty-four fold to 4 million cubic feet (25 million board feet, International ¼-inch rule), while output of hardwood veneer logs increased 29 percent to 2 million cubic feet (10 million board feet, International ¼-inch rule) (fig. 8).

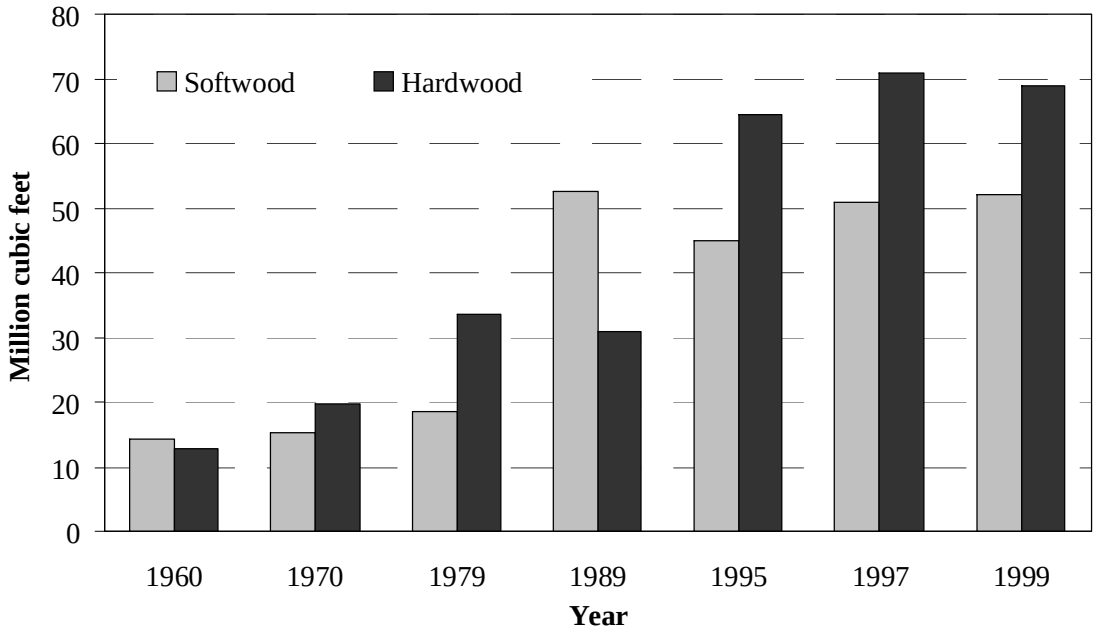


Figure 7—Roundwood pulpwood production by species group and year (see page 11 for references for individual years).

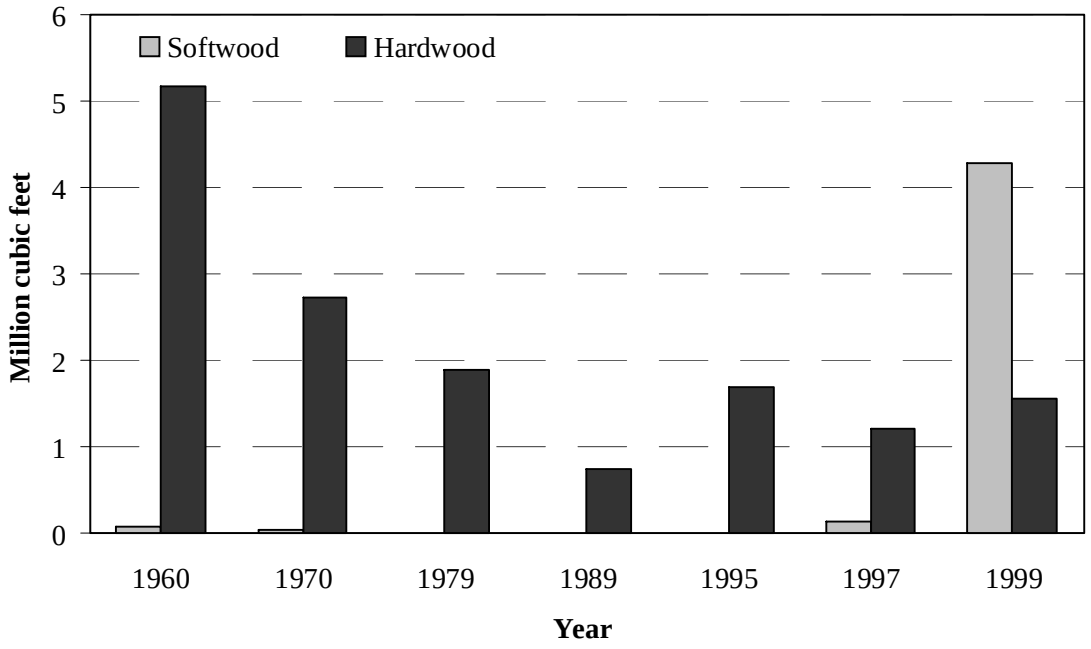


Figure 8—Roundwood veneer-log production by species group and year (see page 11 for references for individual years).

- The number of veneer mills operating in Tennessee remained at two. Receipts of hardwood veneer logs declined 53 percent to 152 thousand cubic feet.

- Tennessee retained 3 percent of its veneer-log production for processing at domestic veneer mills. Imports amounted to 2 thousand cubic feet, while exports totaled 5.7 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, fell 28 percent from 18 million cubic feet in 1997 to 13 million cubic feet in 1999. Softwoods made up 82 percent of the other industrial product volume (fig. 9).

- Only four plants were producing other industrial products. Receipts of other industrial products totaled 15 million cubic feet.

- Ninety-three percent of the other industrial production was retained for processing at Tennessee mills. Imports amounted to 3 million cubic feet, while exports totaled 930 thousand cubic feet, making the State a net importer of roundwood used for other industrial products.

Plant Byproducts

- In 1999, 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 28 percent of total residues, or 35 million cubic feet (fig. 10).

- Ten 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-four million cubic feet, or 59 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 71 percent of the sawdust and shavings was used for industrial fuel.

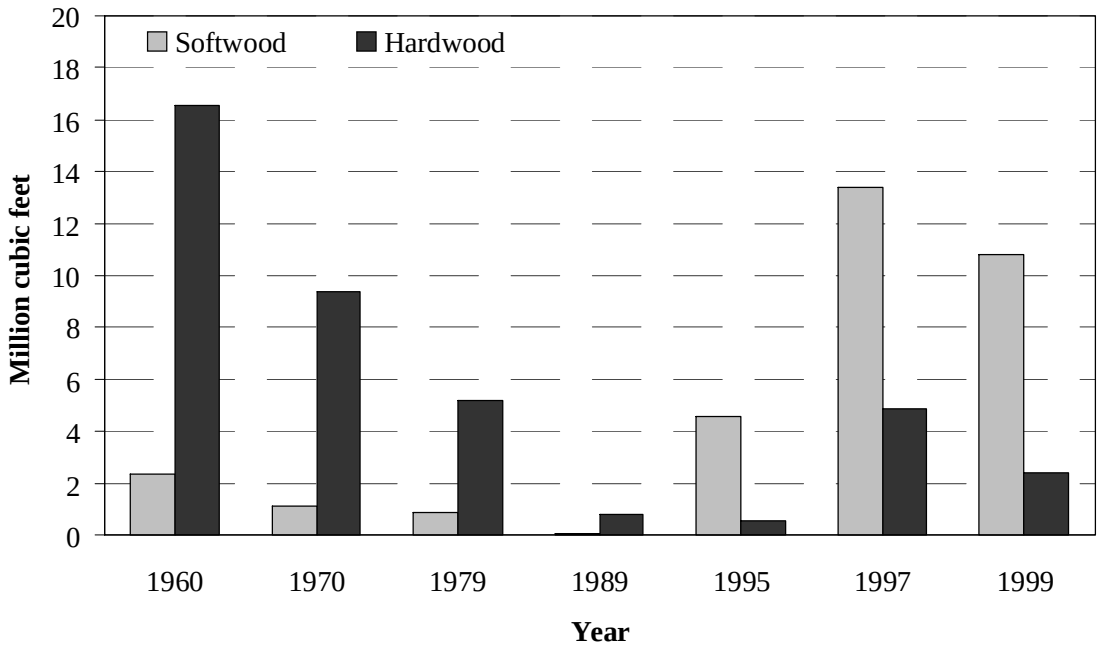


Figure 9—Roundwood production for other industrial by species group and year (see page 11 for references for individual years).

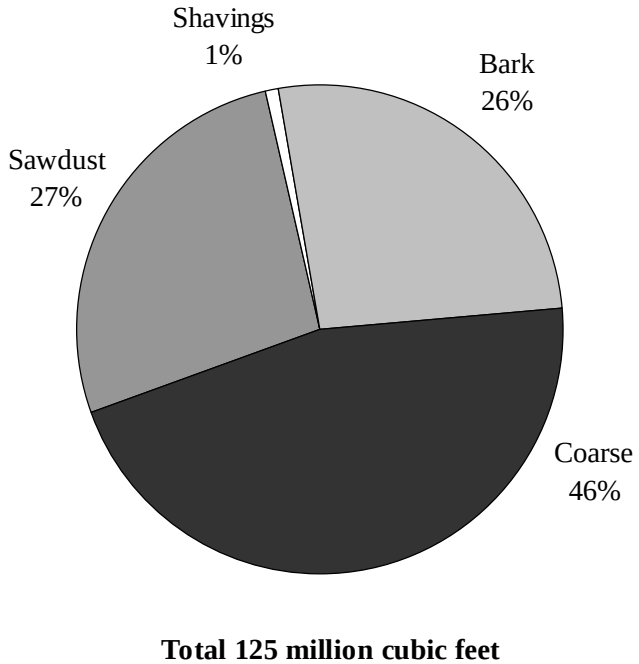


Figure 10—Primary mill residue by residue type, 1999.

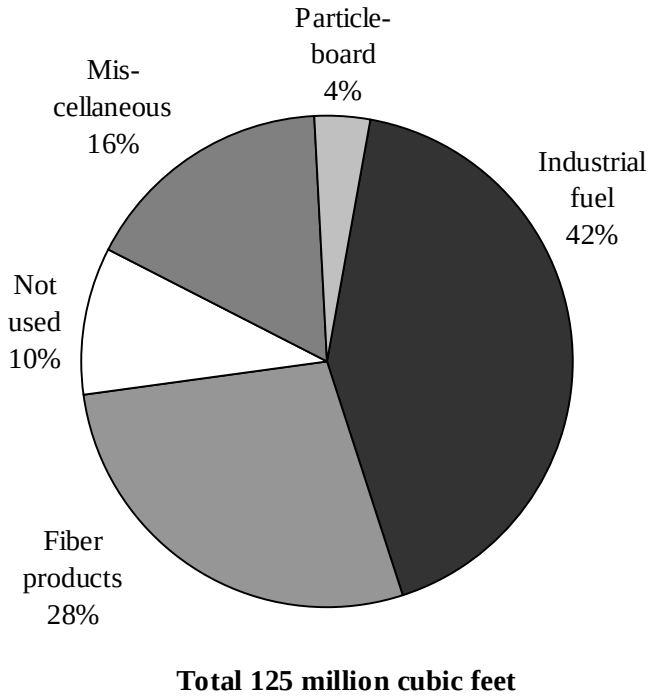


Figure 11—Disposal of residue by product, 1999.

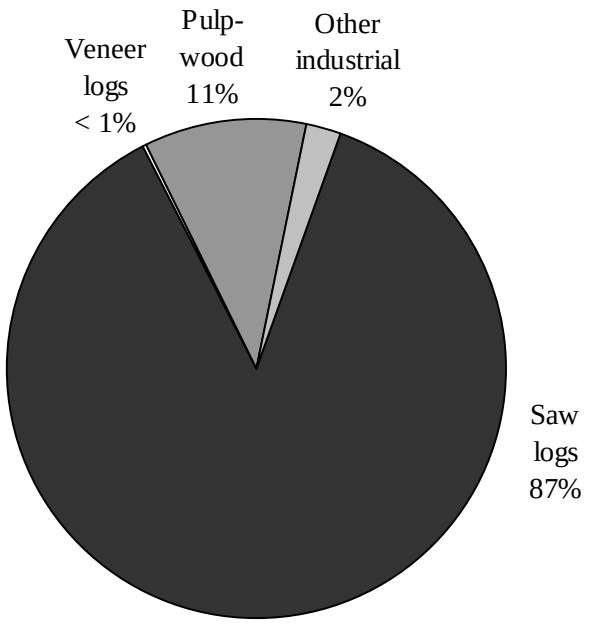


Figure 12—Primary mill residue produced by roundwood type, 1999.

- The processing of saw logs generated 109 million cubic feet of mill residues, accounting for 87 percent of the total residues produced (fig. 12).

Regional Trends

- Output of industrial roundwood products declined across all regions of Tennessee except the Plateau region, which experienced a 36-percent increase. The West Central region recorded a 17-percent decline in roundwood production.

West Region

- Roundwood output for both softwood and hardwood combined from the Western region totaled nearly 55 million cubic feet, down 2 percent from 1997. Softwood output increased 51 percent to 10 million cubic feet, while hardwood output declined 8 percent to 45 million cubic feet.
- Saw-log production of 38 million cubic feet accounted for 69 percent of the region's total roundwood output and 20 percent of the State's total saw-log output. Pulpwood accounted for 31 percent of the region's TPO with 17 million cubic feet, a 14-percent increase since 1997. Hardwood pulpwood output declined 3 percent to 9 million cubic feet, while softwood output increased 47 percent to 7 million cubic feet.
- Sixty-three primary wood-using plants were operating during 1999: 62 sawmills and 1 veneer mill. These mills accounted for 17 percent of the State's total TPO.

West Central Region

- Sixty-three million cubic feet of roundwood were produced in the West Central region, a 17-percent decline from 1997. Softwood output declined 33 percent to 9 million cubic feet, while hardwood output declined 13 percent to 55 million cubic feet.
- Pulpwood production of 35 million cubic feet accounted for 55 percent of the region's total roundwood output and 29 percent of the State's total pulpwood output. Softwood output declined 30 percent to 8 million cubic feet.
- Saw-log production (29 million cubic feet) accounted for 45 percent of the region's total roundwood output and 15 percent of the State's total saw-log output. Hardwood output declined 13 percent to 28 million cubic feet.
- Eighty-one sawmills and 2 pulpmills were operating in 1999 and these mills accounted for 19 percent of the State's total TPO.

Central Region

- Roundwood output for both softwood and hardwood combined from the Central region totaled 42 million cubic feet, down 7 percent. Softwood output increased 51 percent to 6 million cubic feet, while hardwood output declined 12 percent to 36 million cubic feet.
- Saw-log production of 38 million cubic feet accounted for 91 percent of region's total roundwood output and 20 percent of the State's total saw-log output. Softwood output increased 74 percent to 5 million cubic feet.

- Pulpwood production of 3 million cubic feet accounted for 8 percent of the region's total TPO. Softwood and hardwood output declined 21 and 24 percent, respectively.

- Seventy-nine mills were operating in 1999: 78 sawmills and 1 other industrial mill. These mills accounted for 13 percent of the State's total TPO.

Plateau Region

- Roundwood output for both softwood and hardwood combined from the Plateau region totaled 93 million cubic feet, up 36 percent from 1997. Softwood output increased 63 percent to 39 million cubic feet, while hardwood output increased 22 percent to 54 million cubic feet.

- Forty-three million cubic feet of saw-log production accounted for 46 percent of the region's total roundwood output and made up 23 percent of the State's total saw-log output. Softwood output increased 187 percent to 11 million cubic feet. Pulpwood production accounted for 46 percent of the region's total roundwood output with 43 million cubic feet, an increase of 60 percent from 1997.

- In the Plateau region, 87 mills were operating during 1999: 86 sawmills and 1 other industrial mill. These mills accounted for 29 percent of the State's total TPO.

East Region

- Roundwood output for both softwood and hardwood combined from the Eastern region totaled 72 million cubic feet, down 5 percent. Softwood output declined 1 percent to 37 million cubic feet, while hardwood output declined 9 percent to 35 million cubic feet.

- Saw-log production of 38 million cubic feet accounted for 53 percent of the region's total roundwood output and 21 percent of the State's total saw-log output. Hardwood saw-log output increased 12 percent to 24 million cubic feet, while softwood output increased 32 percent to 14 million cubic feet. Pulpwood production accounted for 32 percent of the region's total TPO with 23 million cubic feet, down 31 percent. Softwood output was down 23 percent to 15 million cubic feet with hardwood output down 41 percent to 8 million cubic feet.

- In the Eastern region, 139 primary wood-using plants were operating during 1999: 133 sawmills, 1 veneer or plywood mill, 3 pulpmills, and 2 other industrial mills. These mills accounted for 22 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 23 million cubic feet were harvested for domestic fuelwood, bringing Tennessee's total roundwood output to 348 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).

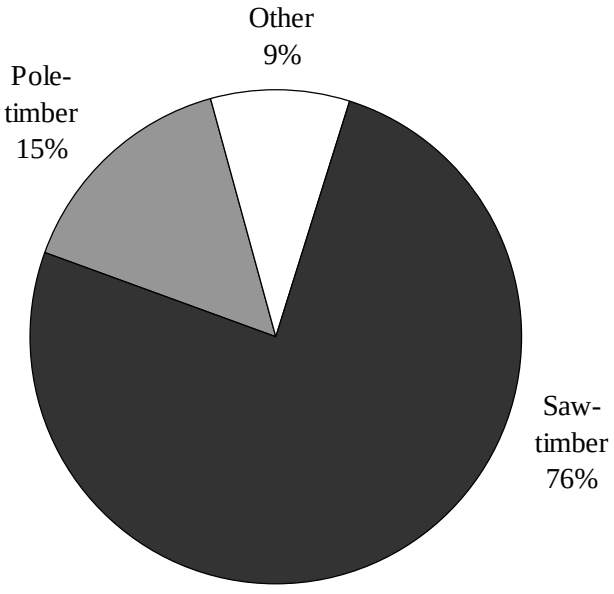


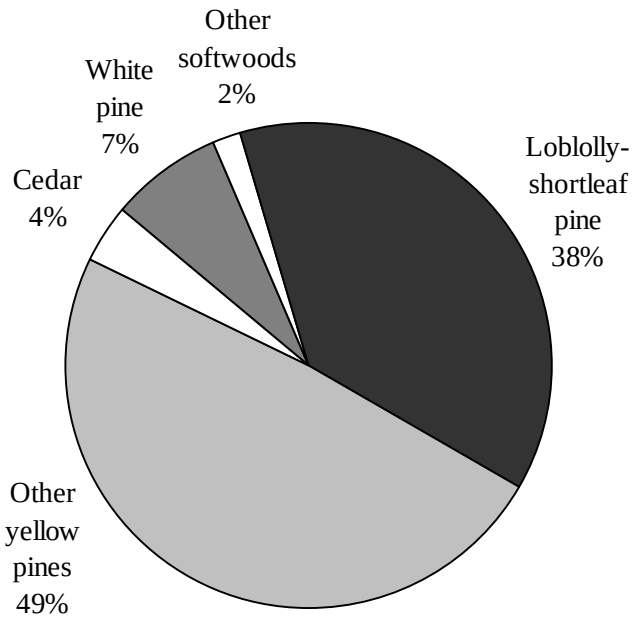
Figure 13—Roundwood output by source, 1999.

Ownership

- An estimated 275 million cubic feet, or 79 percent, of the total roundwood output in 1999 came from nonindustrial private forest (NIPF) lands. Forest industry lands contributed 48 million cubic feet, or 14 percent of the output. Public lands made up the remaining 7 percent, or 26 million cubic feet (fig. 14).

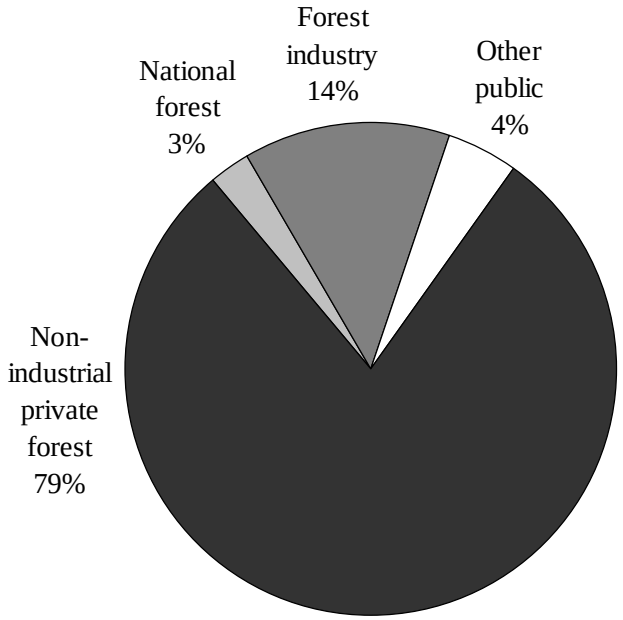
Species

- The other yellow pine group provided more volume than any other softwood species group, accounting for 49 percent of the total softwood output (fig. 15). The loblolly-shortleaf pine type accounted for another 38 percent of the softwood output. The red oak and white oak groups combined accounted for 130 million cubic feet, or 53 percent of total hardwood output (fig. 16).



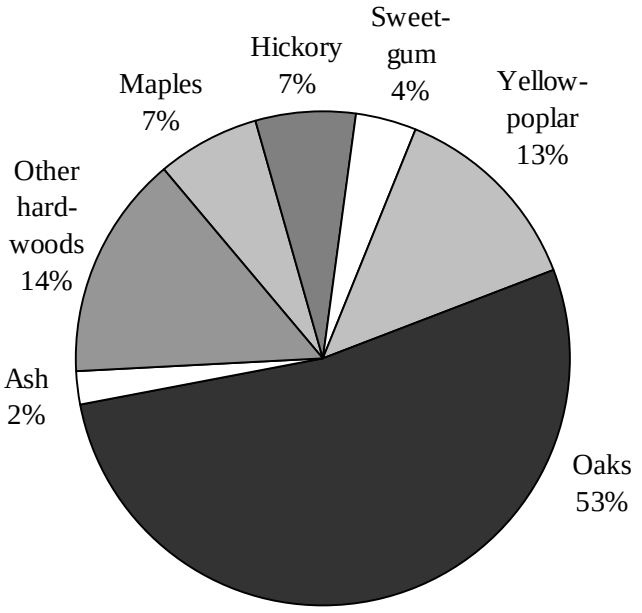
Total 103 million cubic feet

Figure 15—Roundwood output by softwood species group, 1999.



Total 348 million cubic feet

Figure 14—Roundwood output by ownership, 1999.



Total 246 million cubic feet

Figure 16—Roundwood output by hardwood species group, 1999.

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Definition of Terms

Board foot. Unit of measure applied to roundwood. It relates to lumber that is 1-foot long, 1-foot wide, and 1-inch thick (or its equivalent).

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

Composite products. 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 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 waferboard or 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 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 chippings, 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 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 chipboard, fiberboard, insulating board, and paperboard.

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

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

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

Rough trees. Live trees of commercial species not containing at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross board-foot tree volume in sound material; and live trees of noncommercial species.

Roundwood (roundwood logs). Logs, bolts, or other round sections cut from trees for industrial manufacture or consumer uses.

Roundwood chipped. Any timber cut primarily for industrial manufacture, delivered to nonpulpmills, chipped, and then sold to pulpmills for use as fiber. Includes tops, jump sections, whole trees, and pulpwood sticks.

Roundwood products. Any primary product, such as lumber, 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.

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 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, 1997 and 1999

Product and species group	Year 1997	Year 1999	Change	Percent change
	Thousand cubic feet			
Saw logs				
Softwood	20,263	32,928	12,665	62.5
Hardwood	159,278	152,109	-7,169	-4.5
Total	179,541	185,037	5,496	3.1
Veneer logs				
Softwood	122	4,278	4,156	3,406.6
Hardwood	1,208	1,563	355	29.4
Total	1,330	5,841	4,511	339.2
Pulpwood				
Softwood	50,813	52,185	1,372	2.7
Hardwood	70,768	68,932	-1,836	-2.6
Total	121,581	121,117	-464	-0.4
Other industrial				
Softwood	13,397	10,817	-2,580	-19.3
Hardwood	4,868	2,431	-2,437	-50.1
Total	18,265	13,248	-5,017	-27.5
All industrial				
Softwood	84,595	100,208	15,613	18.5
Hardwood	236,122	225,035	-11,087	-4.7
Total	320,717	325,243	4,526	1.4
Byproduct output				
Softwood	27,024	20,535	-6,489	-24.0
Hardwood	101,135	91,808	-9,327	-9.2
Total	128,159	112,343	-15,816	-12.3
Total output				
Softwood	111,619	120,743	9,124	8.2
Hardwood	337,257	316,843	-20,414	-6.1
Total	448,876	437,586	-11,290	-2.5

Table 2—Roundwood receipts by product and species group, Tennessee, 1997 and 1999

Product and species group	Year		Change	Percent change
	1997	1999		
	Thousand cubic feet			
Saw logs				
Softwood	15,706	18,086	2,380	15.2
Hardwood	159,541	150,547	-8,994	-5.6
Total	175,247	168,633	-6,614	-3.8
Veneer logs				
Softwood	0	0	0	--
Hardwood	322	152	-170	-52.8
Total	322	152	-170	-52.8
Pulpwood				
Softwood	100,937	89,811	-11,126	-11.0
Hardwood	58,004	31,532	-26,472	-45.6
Total	158,941	121,343	-37,598	-23.7
Other industrial				
Softwood	15,629	13,061	-2,568	-16.4
Hardwood	5,400	2,371	-3,029	-56.1
Total	21,029	15,432	-5,597	-26.6
Total output				
Softwood	132,272	120,958	-11,314	-8.6
Hardwood	223,267	184,602	-38,665	-17.3
Total	355,539	305,560	-49,979	-14.1

-- = negligible.

Table 3—Number of primary wood-using plants by industry, Tennessee, 1949–1999

Industry	Year							
	1949	1960	1970	1979	1989	1995	1997	1999
Sawmills	2,789	1,135	546	694	490	495	496	440
Veneer mills	14	9	6	5	3	2	2	2
Pulpmills	4	5	7	7	6	5	5	5
Composite panel mills	0	0	0	0	0	0	1	1
Other mills	177	133	64	32	24	1	1	3
All plants	2,984	1,282	623	738	523	503	505	451

Table 4—Roundwood receipts by sawmill size, Tennessee, 1997 and 1999

Sawmill size class[a]	1997			1999		
	Number of mills	Thousand board feet	Percent of volume	Number of mills	Thousand board feet	Percent of volume
Million board feet						
< 1.0	286	73,436	7	239	65,449	6
1.0–4.99	153	366,936	35	146	377,214	37
5.0–9.99	32	214,748	20	35	246,933	25
> 10.0	25	393,142	38	20	317,680	32
Total	496	1,048,262	100	440	1,007,276	100

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

Table 5—Roundwood receipts by species and type of mill, Tennessee, 1999

Species	All mills	Type of mill				
		Sawmills	Veneer mills		Pulpmills	Other mills
			Pine plywood	Other veneer		
		Thousand cubic feet				
Softwood						
Yellow pine	22,134	9,840	0	0	NA	12,294
Eastern white pine	6,806	6,070	0	0	NA	736
Cedar	1,183	1,152	0	0	NA	31
Cypress	939	939	0	0	NA	0
Other softwood	85	85	0	0	NA	0
Unclassified	89,811	0	0	0	89,811	0
Total softwoods	120,958	18,086	0	0	89,811	13,061
Hardwood						
Blackgum and tupelo	1,079	925	0	0	NA	154
Soft maple	2,473	2,164	0	0	NA	309
Sweetgum	4,230	3,805	0	116	NA	309
Yellow-poplar	32,690	31,415	0	35	NA	1,240
Other soft hardwood	842	532	0	1	NA	309
Hickory	9,967	9,967	0	0	NA	0
Red oak	48,268	48,268	0	0	NA	0
White oak	36,524	36,524	0	0	NA	0
Other hard hardwood	16,997	16,947	0	0	NA	50
Unclassified	31,532	0	0	0	31,532	0
Total hardwoods	184,602	150,547	0	152	31,532	2,371
All species	305,560	168,633	0	152	121,343	15,432

NA = not applicable.

Table 6—Industrial roundwood movement by year and species group, Tennessee, 1997 and 1999

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
			Thousand cubic feet		
			Softwood		
1997	84,595	16,318	68,277	63,995	132,272
1999	100,208	26,867	73,341	47,617	120,958
			Hardwood		
1997	236,122	65,421	170,701	52,566	223,267
1999	225,035	64,184	160,851	23,751	184,602
			All species		
1997	320,717	81,739	238,978	116,561	355,539
1999	325,243	91,051	234,192	71,368	305,560

Table 7—Industrial roundwood movement by product and species group, Tennessee, 1999

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
			Thousand cubic feet		
Saw logs					
Softwood	32,928	16,399	16,529	1,557	18,086
Hardwood	152,109	14,595	137,514	13,033	150,547
Total	185,037	30,994	154,043	14,590	168,633
Veneer logs					
Softwood	4,278	4,278	0	0	0
Hardwood	1,563	1,413	150	2	152
Total	5,841	5,691	150	2	152
Pulpwood					
Softwood	52,185	5,810	46,375	43,436	89,811
Hardwood	68,932	47,626	21,306	10,226	31,532
Total	121,117	53,436	67,681	53,662	121,343
Other industrial					
Softwood	10,817	380	10,437	2,624	13,061
Hardwood	2,431	550	1,881	490	2,371
Total	13,248	930	12,318	3,114	15,432
All products					
Softwood	100,208	26,867	73,341	47,617	120,958
Hardwood	225,035	64,184	160,851	23,751	184,602
Total	325,243	91,051	234,192	71,368	305,560

Table 8—Saw-log volume by destination, source, and species group, Tennessee, 1999

Destination and source	All species	Species group	
		Softwood	Hardwood
	Thousand cubic feet		
Tennessee (retained)	154,043	16,529	137,514
Exports to:			
Alabama	11,866	11,077	789
Georgia	2,015	2,005	10
Kentucky	9,712	805	8,907
Mississippi	3,357	1,291	2,066
Missouri	204	9	195
North Carolina	2,672	1,212	1,460
Virginia	1,168	0	1,168
Total	30,994	16,399	14,595
Imports from:			
Alabama	4,373	77	4,296
Georgia	65	8	57
Kentucky	2,015	59	1,956
Mississippi	2,434	138	2,296
North Carolina	1,116	495	621
Virginia	4,587	780	3,807
Total	14,590	1,557	13,033

Table 9—Veneer volume by destination, source, and species group, Tennessee, 1999

Destination and source	All species	Species group	
		Softwood	Hardwood
	Thousand cubic feet		
Tennessee (retained)	150	0	150
Exports to:			
Alabama	319	319	0
Georgia	4,370	3,949	421
Indiana	254	0	254
Kentucky	209	0	209
North Carolina	313	10	303
Virginia	226	0	226
Total	5,691	4,278	1,413
Imports from:			
Virginia	2	0	2
Total	2	0	2

Table 10—Pulpwood volume by destination, source, and species group, Tennessee, 1999

Destination and source	All species	Species group	
		Softwood	Hardwood
	Thousand cubic feet		
Tennessee (retained)	67,681	46,375	21,306
Exports to:			
Alabama	31,282	3,662	27,620
Florida	1,155	0	1,155
Georgia	685	639	46
Kentucky	14,146	1,486	12,660
Louisiana	127	0	127
Mississippi	63	0	63
North Carolina	5,955	0	5,955
Virginia	23	23	0
Total	53,436	5,810	47,626
Imports from:			
Alabama	16,359	13,939	2,420
Georgia	15,057	12,026	3,031
Kentucky	728	288	440
Mississippi	18,925	16,733	2,192
North Carolina	721	439	282
Virginia	1,872	11	1,861
Total	53,662	43,436	10,226

Table 11—Other industrial volume by destination, source, and species group, Tennessee, 1999

Destination and source	All species	Species group	
		Softwood	Hardwood
	Thousand cubic feet		
Tennessee (retained)	12,318	10,437	1,881
Exports to:			
Alabama	136	134	2
Kentucky	207	207	0
Virginia	587	39	548
Total	930	380	550
Imports from:			
Georgia	1,484	1,249	235
Kentucky	1,630	1,375	255
Total	3,114	2,624	490

Table 12—Primary mill residue volume by roundwood type, species group, and residue type, Tennessee, 1999

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
		Thousand cubic feet			
Saw logs					
Softwood	10,346	1,214	5,342	3,208	582
Hardwood	98,238	15,521	51,800	30,297	620
Total	108,584	16,735	57,142	33,505	1,202
Veneer logs					
Softwood	0	0	0	0	0
Hardwood	57	17	27	13	0
Total	57	17	27	13	0
Pulpwood					
Softwood	9,279	9,279	0	0	0
Hardwood	3,990	3,990	0	0	0
Total	13,269	13,269	0	0	0
Other industrial[a]					
Softwood	2,137	2,120	12	5	0
Hardwood	549	527	16	6	0
Total	2,686	2,647	28	11	0
Total					
Softwood	21,762	12,613	5,354	3,213	582
Hardwood	102,834	20,055	51,843	30,316	620
Total	124,596	32,668	57,197	33,529	1,202

[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, 1997 and 1999

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	1997	1999	1997	1999	1997	1999	1997	1999	1997	1999
	Thousand cubic feet									
Fiber products										
Softwood	1,596	3,077	0	0	1,596	3,012	0	65	0	0
Hardwood	25,831	31,614	0	0	25,654	30,574	177	1,023	0	17
Total	27,427	34,691	0	0	27,250	33,586	177	1,088	0	17
Particleboard										
Softwood	0	487	0	0	0	487	0	0	0	0
Hardwood	234	4,126	0	15	234	3,619	0	492	0	0
Total	234	4,613	0	15	234	4,106	0	492	0	0
Charcoal/chemical wood										
Softwood	0	0	0	0	0	0	0	0	0	0
Hardwood	348	868	14	91	78	584	256	193	0	0
Total	348	868	14	91	78	584	256	193	0	0
Sawn products										
Softwood	0	0	0	0	0	0	0	0	0	0
Hardwood	45	0	0	0	45	0	0	0	0	0
Total	45	0	0	0	45	0	0	0	0	0
Fuel										
Softwood	22,562	13,207	17,488	9,917	3,252	740	1,820	2,107	2	443
Hardwood	56,230	39,276	14,637	9,124	17,600	8,153	23,819	21,713	174	286
Total	78,792	52,483	32,125	19,041	20,852	8,893	25,639	23,820	176	729
Miscellaneous										
Softwood	2,866	3,764	1,516	2,552	536	396	655	679	159	137
Hardwood	18,447	15,924	8,762	8,906	5,461	3,129	4,151	3,631	73	258
Total	21,313	19,688	10,278	11,458	5,997	3,525	4,806	4,310	232	395
Not used										
Softwood	846	1,227	107	144	429	719	310	362	0	2
Hardwood	11,393	11,026	1,739	1,919	5,918	5,784	3,736	3,264	0	59
Total	12,239	12,253	1,846	2,063	6,347	6,503	4,046	3,626	0	61
All products										
Softwood	27,870	21,762	19,111	12,613	5,813	5,354	2,785	3,213	161	582
Hardwood	112,528	102,834	25,152	20,055	54,990	51,843	32,139	30,316	247	620
Total	140,398	124,596	44,263	32,668	60,803	57,197	34,924	33,529	408	1,202

Table 14—Roundwood timber products output by product and species group, West Region of Tennessee, 1997 and 1999

Product and species group	Year 1997	Year 1999	Change	Percent change
	Thousand cubic feet			
Saw logs				
Softwood	1,346	2,227	881	65.5
Hardwood	39,164	35,478	-3,686	-9.4
Total	40,510	37,705	-2,805	-6.9
Veneer logs				
Softwood	0	0	0	--
Hardwood	250	116	-134	-53.6
Total	250	116	-134	-53.6
Pulpwood				
Softwood	5,080	7,448	2,368	46.6
Hardwood	9,814	9,487	-327	-3.3
Total	14,894	16,935	2,041	13.7
Other industrial				
Softwood	0	0	0	--
Hardwood	0	0	0	--
Total	0	0	0	--
All industrial				
Softwood	6,426	9,675	3,249	50.6
Hardwood	49,228	45,081	-4,147	-8.4
Total	55,654	54,756	-898	-1.6

-- = negligible.

Table 15—Roundwood timber products output by county, product, and species group, West Region of Tennessee, 1999

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	642	3,516	150	2,572	0	0	492	944	0	0
Chester	934	2,632	138	2,348	0	0	796	284	0	0
Crockett	3	173	3	173	0	0	0	0	0	0
Dyer	17	214	0	183	0	0	17	31	0	0
Fayette	240	2,701	115	2,680	0	0	125	21	0	0
Gibson	37	387	25	387	0	0	12	0	0	0
Hardeman	1,538	6,392	220	5,525	0	0	1,318	867	0	0
Haywood	33	2,869	33	2,782	0	0	0	87	0	0
Henderson	759	3,258	29	2,383	0	0	730	875	0	0
Henry	811	5,614	97	3,938	0	0	714	1,676	0	0
Lake	6	301	6	282	0	0	0	19	0	0
Lauderdale	3	1,197	3	969	0	58	0	170	0	0
McNairy	3,668	6,577	1,259	4,710	0	0	2,409	1,867	0	0
Madison	23	1,478	6	1,365	0	0	17	113	0	0
Obion	27	1,959	27	1,901	0	58	0	0	0	0
Shelby	35	664	0	635	0	0	35	29	0	0
Tipton	4	724	3	714	0	0	1	10	0	0
Weakley	895	4,425	113	1,931	0	0	782	2,494	0	0
All counties	9,675	45,081	2,227	35,478	0	116	7,448	9,487	0	0

Table 16—Roundwood timber products output by product and species group, West Central Region of Tennessee, 1997 and 1999

Product and species group	Year 1997	Year 1999	Change	Percent change
	Thousand cubic feet			
Saw logs				
Softwood	1,901	955	-946	-49.8
Hardwood	31,745	27,671	-4,074	-12.8
Total	33,646	28,626	-5,020	-14.9
Veneer logs				
Softwood	111	0	-111	-100.0
Hardwood	0	0	0	--
Total	111	0	-111	-100.0
Pulpwood				
Softwood	10,997	7,751	-3,246	-29.5
Hardwood	31,234	27,022	-4,212	-13.5
Total	42,231	34,773	-7,458	-17.7
Other industrial				
Softwood	0	0	0	--
Hardwood	0	0	0	--
Total	0	0	0	--
All industrial				
Softwood	13,009	8,706	-4,303	-33.1
Hardwood	62,979	54,693	-8,286	-13.2
Total	75,988	63,399	-12,589	-16.6

-- = negligible.

Table 17—Roundwood timber products output by county, product, and species group, West Central Region of Tennessee, 1999

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	667	3,381	156	2,238	0	0	511	1,143	0	0
Decatur	392	2,683	15	1,332	0	0	377	1,351	0	0
Hardin	4,762	8,071	516	3,549	0	0	4,246	4,522	0	0
Hickman	319	8,274	40	3,335	0	0	279	4,939	0	0
Houston	5	2,023	4	1,991	0	0	1	32	0	0
Humphreys	32	4,220	16	2,542	0	0	16	1,678	0	0
Lawrence	479	4,794	8	2,477	0	0	471	2,317	0	0
Lewis	210	3,248	18	1,785	0	0	192	1,463	0	0
Perry	62	4,318	40	1,990	0	0	22	2,328	0	0
Stewart	110	5,679	11	3,303	0	0	99	2,376	0	0
Wayne	1,668	8,002	131	3,129	0	0	1,537	4,873	0	0
All counties	8,706	54,693	955	27,671	0	0	7,751	27,022	0	0

Table 18—Roundwood timber products output by product and species group, Central Region Tennessee, 1997 and 1999

Product and species group	Year		Change	Percent change
	1997	1999		
	Thousand cubic feet			
Saw logs				
Softwood	2,728	4,743	2,015	73.9
Hardwood	37,261	33,047	-4,214	-11.3
Total	39,989	37,790	-2,199	-5.5
Veneer logs				
Softwood	0	0	0	--
Hardwood	311	253	-58	-18.6
Total	311	253	-58	-18.6
Pulpwood				
Softwood	1,082	855	-227	-21.0
Hardwood	3,381	2,587	-794	-23.5
Total	4,463	3,442	-1,021	-22.9
Other industrial				
Softwood	0	150	150	--
Hardwood	0	52	52	--
Total	0	202	202	--
All industrial				
Softwood	3,810	5,748	1,938	50.9
Hardwood	40,953	35,939	-5,014	-12.2
Total	44,763	41,687	-3,076	-6.9

-- = negligible.

Table 19—Roundwood timber products output by county, product, and species group, Central Region of Tennessee, 1999

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	82	150	82	150	0	0	0	0	0	0
Cannon	104	522	104	503	0	0	0	19	0	0
Cheatham	1	1878	1	1861	0	0	0	17	0	0
Clay	0	3049	0	2861	0	186	0	2	0	0
Coffee	304	1254	5	1229	0	0	299	25	0	0
Davidson	10	317	2	292	0	0	0	0	8	25
De Kalb	123	867	111	832	0	0	12	35	0	0
Dickson	6	3839	0	3684	0	0	6	155	0	0
Giles	1948	3656	1420	2366	0	0	528	1290	0	0
Jackson	14	3176	14	3170	0	0	0	6	0	0
Lincoln	2529	2012	2386	1515	0	0	9	495	134	2
Macon	6	3509	6	3474	0	27	0	8	0	0
Marshall	0	607	0	519	0	0	0	88	0	0
Maury	8	2218	7	1771	0	0	1	447	0	0
Montgomery	4	2256	4	2256	0	0	0	0	0	0
Moore	0	1014	0	1014	0	0	0	0	0	0
Robertson	4	959	1	949	0	0	0	0	3	10
Rutherford	214	242	214	242	0	0	0	0	0	0
Smith	216	1578	216	1578	0	0	0	0	0	0
Sumner	27	952	22	897	0	40	0	0	5	15
Trousdale	0	320	0	320	0	0	0	0	0	0
Williamson	1	1002	1	1002	0	0	0	0	0	0
Wilson	147	562	147	562	0	0	0	0	0	0
All counties	5748	35939	4743	33047	0	253	855	2587	150	52

Table 20—Roundwood timber products output by product and species group, Plateau Region of Tennessee, 1997 and 1999

Product and species group	Year		Change	Percent change
	1997	1999		
	Thousand cubic feet			
Saw logs				
Softwood	3,963	11,386	7,423	187
Hardwood	29,430	31,586	2,156	7
Total	33,393	42,972	9,579	29
Veneer logs				
Softwood	0	319	319	--
Hardwood	72	53	-19	-26
Total	72	372	300	417
Pulpwood				
Softwood	14,202	21,168	6,966	49
Hardwood	12,764	21,851	9,087	71
Total	26,966	43,019	16,053	60
Other industrial				
Softwood	5,831	6,139	308	5
Hardwood	2,592	997	-1,595	-62
Total	8,423	7,136	-1,287	-15
All industrial				
Softwood	23,996	39,012	15,016	63
Hardwood	44,858	54,487	9,629	21
Total	68,854	93,499	24,645	36

-- = negligible.

Table 21—Roundwood timber products output by county, product, and species group, Plateau Region of Tennessee, 1999

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	3,412	2,239	6	417	0	7	2,284	1,606	1,122	209
Campbell	445	3,206	444	1,886	0	0	1	1,320	0	0
Cumberland	4,491	3,705	547	2,128	0	0	3,898	1,577	46	0
Fentress	1,561	2,449	603	2,148	0	0	601	301	357	0
Franklin	2,917	4,435	2,372	3,072	319	0	226	1,363	0	0
Grundy	3,388	3,032	1,381	1,031	0	0	2,007	2,001	0	0
Marion	6,466	3,566	3,765	798	0	0	2,203	2,675	498	93
Morgan	6,417	4,189	1,011	1,533	0	46	3,800	2,332	1,606	278
Overton	1,161	5,093	58	3,716	0	0	106	1,192	997	185
Pickett	231	2,908	18	2,839	0	0	0	69	213	0
Putnam	104	2,837	47	2,538	0	0	30	299	27	0
Scott	1,439	3,429	856	2,340	0	0	556	1,089	27	0
Sequatchie	2,597	2,140	3	792	0	0	2,594	1,348	0	0
Van Buren	3,226	4,634	23	1,674	0	0	1,957	2,728	1,246	232
Warren	355	2,731	154	2,134	0	0	201	597	0	0
White	802	3,894	98	2,540	0	0	704	1,354	0	0
All counties	39,012	54,487	11,386	31,586	319	53	21,168	21,851	6,139	997

Table 22—Roundwood timber products output by product and species group, East Region of Tennessee, 1997 and 1999

Product and species group	Year 1997	Year 1999	Change	Percent change
	Thousand cubic feet			
Saw logs				
Softwood	10,325	13,617	3,292	32
Hardwood	21,678	24,327	2,649	12
Total	32,003	37,944	5,941	19
Veneer logs				
Softwood	11	3,959	3,948	35,891
Hardwood	575	1,141	566	98
Total	586	5,100	4,514	770
Pulpwood				
Softwood	19,452	14,963	-4,489	-23
Hardwood	13,575	7,985	-5,590	-41
Total	33,027	22,948	-10,079	-31
Other industrial				
Softwood	7,566	4,528	-3,038	-40
Hardwood	2,276	1,382	-894	-39
Total	9,842	5,910	-3,932	-40
All industrial				
Softwood	37,354	37,067	-287	-1
Hardwood	38,104	34,835	-3,269	-9
Total	75,458	71,902	-3,556	-5

Table 23—Roundwood timber products output by county, product, and species group, East Region of Tennessee, 1999

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	29	3,328	23	2,120	0	0	6	1,208	0	0
Blount	544	309	70	226	0	46	474	37	0	0
Bradley	4,553	1,206	2,392	273	0	0	2,161	933	0	0
Carter	774	1,504	774	1,213	0	235	0	56	0	0
Claiborne	144	3,047	140	2,544	0	447	4	56	0	0
Cocke	271	1,178	271	593	0	0	0	585	0	0
Grainger	22	1,536	15	1,534	0	0	7	2	0	0
Greene	202	1,201	202	629	0	100	0	472	0	0
Hamblen	8	1,287	8	1,287	0	0	0	0	0	0
Hamilton	4,036	691	1,388	13	0	5	1,776	511	872	162
Hancock	64	1,357	41	1,334	0	0	23	23	0	0
Hawkins	93	2,593	93	2,507	0	0	0	86	0	0
Jefferson	60	954	5	828	0	46	55	80	0	0
Johnson	693	1,755	693	1,647	0	52	0	56	0	0
Knox	264	549	0	489	0	0	264	60	0	0
Loudon	82	80	2	56	0	0	80	24	0	0
McMinn	2,961	1,069	63	144	0	0	1,901	740	997	185
Meigs	3,113	1,026	743	53	0	5	1,747	852	623	116
Monroe	7,371	1,311	2,972	671	1,974	46	1,802	478	623	116
Polk	4,964	617	1,510	247	1,974	0	1,480	370	0	0
Rhea	4,067	1,169	136	216	0	17	2,560	681	1,371	255
Roane	804	2,279	181	2,023	0	0	623	256	0	0
Sevier	96	1,087	82	594	11	142	0	351	3	0
Sullivan	62	1,054	23	488	0	0	0	18	39	548
Unicoi	1,386	1,531	1,386	1,531	0	0	0	0	0	0
Union	10	143	10	143	0	0	0	0	0	0
Washington	394	974	394	924	0	0	0	50	0	0
All counties	37,067	34,835	13,617	24,327	3,959	1,141	14,963	7,985	4,528	1,382

Table 24—Total roundwood output by product, species group, and source of material, Tennessee, 1999

Product and species group	All sources	Growing-stock trees			Other sources
		Total	Sawtimber	Poletimber	
	Thousand cubic feet				
Saw logs					
Softwood	32,928	29,843	28,219	1,624	3,085
Hardwood	152,109	148,548	139,635	8,913	3,561
Total	185,037	178,391	167,854	10,537	6,646
Veneer logs and bolts					
Softwood	4,278	3,998	3,998	0	280
Hardwood	1,563	1,536	1,536	0	27
Total	5,841	5,534	5,534	0	307
Pulpwood					
Softwood	52,185	43,280	26,532	16,748	8,905
Hardwood	68,932	60,648	43,390	17,259	8,284
Total	121,117	103,928	69,922	34,007	17,189
Poles and posts					
Softwood	548	407	219	189	141
Hardwood	0	0	0	0	0
Total	548	407	219	189	141
Other miscellaneous					
Softwood	10,269	8,671	4,950	3,721	1,598
Hardwood	2,431	2,171	891	1,280	260
Total	12,700	10,842	5,841	5,001	1,858
Total industrial products					
Softwood	100,208	86,199	63,918	22,281	14,009
Hardwood	225,035	212,903	185,451	27,452	12,132
Total	325,243	299,102	249,369	49,733	26,141
Fuelwood					
Softwood	2,385	1,430	1,059	372	955
Hardwood	20,824	15,826	12,494	3,332	4,998
Total	23,209	17,256	13,553	3,704	5,953
All products					
Softwood	102,593	87,629	64,976	22,653	14,964
Hardwood	245,859	228,729	197,945	30,784	17,130
Total	348,452	316,358	262,922	53,437	32,094

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, 1999

Species group and survey region	Total	Ownership class			
		National forest	Other public	Forest industry	Nonindustrial private
		Thousand cubic feet			
Softwoods					
West	9,905	0	1,400	2,697	5,808
West Central	8,914	0	0	0	8,914
Central	5,883	0	4	0	5,879
Plateau	39,942	0	1,569	11,906	26,468
East	37,949	7,343	1,899	6,141	22,566
Total softwoods	102,593	7,343	4,871	20,744	69,635
Hardwoods					
West	49,252	0	472	4,973	43,807
West Central	59,750	0	97	10,486	49,167
Central	39,275	0	515	441	38,319
Plateau	59,524	0	9,613	7,445	42,466
East	38,058	2,481	558	3,583	31,437
Total hardwoods	245,859	2,481	11,255	26,928	205,195
All species	348,452	9,824	16,126	47,671	274,831

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, 1999

Species group and detailed species group	Total	Product					
		Saw log	Veneer	Pulpwood	Poles and posts	Other miscellaneous	Fuelwood
		Thousand cubic feet					
Softwood							
Cedar	3,852	3,027	24	571	0	142	88
White pine	7,677	2,635	114	3,721	98	932	178
Loblolly-shortleaf pine	38,906	10,700	527	23,809	202	2,762	905
Other yellow pines	50,200	15,859	3,614	23,143	226	6,191	1,168
Cypress	902	114	0	768	0	0	21
Hemlock	1,056	593	0	173	22	242	25
Total softwoods	102,593	32,928	4,278	52,185	548	10,269	2,385
Hardwood							
Soft maple	10,013	5,446	57	3,491	0	171	848
Hard maple	6,561	4,306	14	1,655	0	31	555
Other birch	1,521	1,226	3	164	0	0	129
Hickory	16,453	9,712	46	5,208	0	94	1,393
Beech	4,892	3,275	77	1,105	0	20	414
Ash	5,649	4,052	36	999	0	83	479
Black walnut	1,543	931	4	469	0	8	131
Sweetgum	9,264	5,965	97	2,399	0	18	784
Yellow-poplar	32,346	22,086	257	6,922	0	343	2,738
Blackgum-tupelo	2,140	1,208	17	713	0	20	181
Sycamore	2,406	1,432	2	582	0	186	204
Cottonwood	569	438	15	68	0	0	48
Black cherry	1,369	584	4	609	0	56	116
Select white oaks	41,773	23,990	272	13,396	0	580	3,536
Other white oaks	26,882	15,123	120	9,084	0	280	2,275
Select red oaks	18,398	12,348	164	4,279	0	50	1,557
Other red oaks	42,541	25,365	306	12,864	0	404	3,602
Basswood	562	361	0	153	0	0	48
Elm	1,960	1,370	17	390	0	17	166
Other Eastern hardwoods	19,018	12,891	56	4,383	0	68	1,621
Total hardwoods	245,859	152,109	1,563	68,932	0	2,431	20,824
All species	348,452	185,037	5,841	121,117	548	12,700	23,209

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, 1999

Species group and detailed species group	Total	Ownership class			
		National forest	Other public	Forest industry	Nonindustrial private
		Thousand cubic feet			
Softwood					
Cedar	3,852	44	16	54	3,737
White pine	7,677	212	208	1,502	5,755
Loblolly-shortleaf pine	38,906	979	1,548	13,083	23,295
Other yellow pines	50,200	6,108	1,952	5,787	36,353
Cypress	902	0	886	0	16
Hemlock	1,056	0	261	317	478
Total softwoods	102,593	7,343	4,871	20,744	69,635
Hardwood					
Soft maple	10,013	349	1,260	1,454	6,951
Hard maple	6,561	0	329	701	5,530
Other birch	1,521	69	835	59	557
Hickory	16,453	25	223	2,371	13,834
Beech	4,892	0	356	194	4,341
Ash	5,649	0	273	296	5,081
Black walnut	1,543	0	17	118	1,408
Sweetgum	9,264	55	57	903	8,249
Yellow-poplar	32,346	309	1,016	2,633	28,388
Blackgum-tupelo	2,140	0	107	273	1,759
Sycamore	2,406	58	2	253	2,093
Cottonwood	569	0	122	349	98
Black cherry	1,369	0	2	548	820
Select white oaks	41,773	169	1,654	5,070	34,880
Other white oaks	26,881	229	1,142	3,547	21,963
Select red oaks	18,398	492	1,718	2,771	13,416
Other red oaks	42,541	476	1,475	4,681	35,909
Basswood	562	0	79	34	449
Elm	1,960	0	97	82	1,781
Other Eastern hardwoods	19,018	249	490	591	17,687
Total hardwoods	245,859	2,480	11,254	26,929	205,195
All species	348,452	9,823	16,126	47,672	274,830

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

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Howell, Michael; Wright, Robert C. 2002**.** Tennessee's timber industry—an assessment of timber product output and use, 1999. Resour. Bull. SRS–76. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 39 p.

In 1999, roundwood output from Tennessee's forests was 325 million cubic feet. Mill byproducts generated from primary manufacturers totaled 125 million cubic feet. Ninety percent of the plant residues were used primarily for fuel and fiber products. Saw logs were the leading roundwood product at 185 million cubic feet; pulpwood ranked second at 121 million cubic feet; other industrial products were third at 13 million cubic feet. There were 451 primary processing plants operating in Tennessee in 1999. Total receipts amounted to 306 million cubic feet.

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

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