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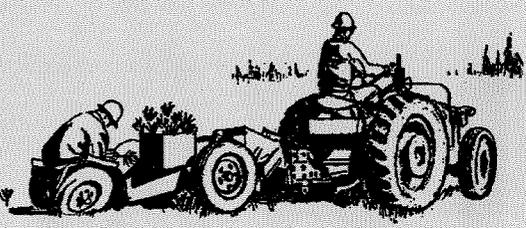
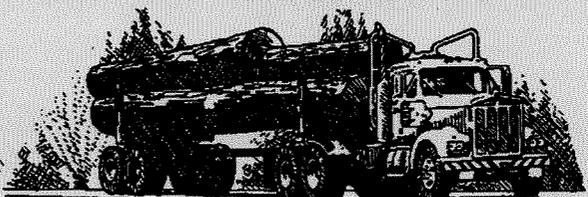
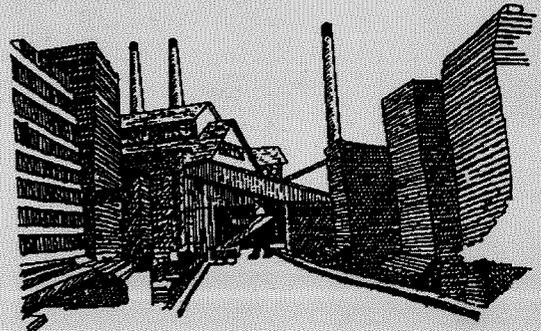
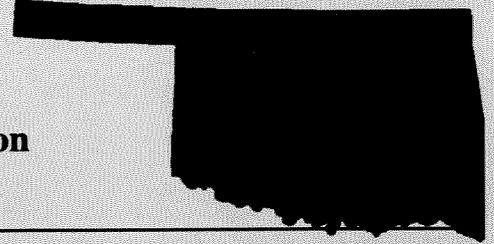


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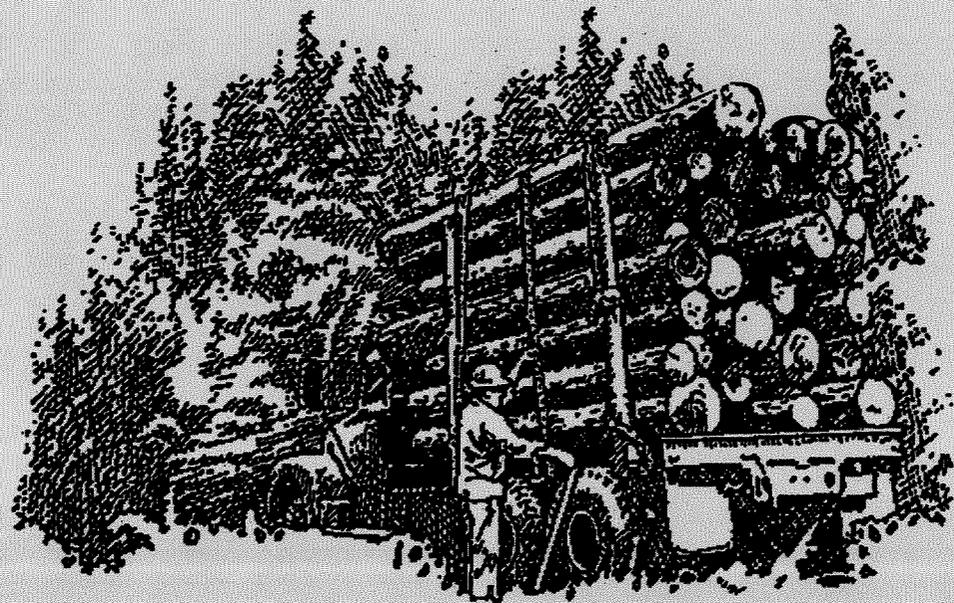
Oklahoma's Timber Industry— An Assessment of Timber Product Output and Use, 1999

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Foreword

This report contains the findings of a 1999 canvass of primary wood-using plants in Oklahoma, and presents changes in product output and residue use since 1996. 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 sampled canvass of all wood processors in Oklahoma 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 Oklahoma timberland was incorporated into Oklahoma 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 1955, and are currently conducted every 3 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 Dr. Salim Hiziroglu for review and comments; Dale Gormanson with the North Central Research Station for the maps; Anne Jenkins, Susan Bowman, Donna Burnett, and Sharon Johnson 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 Oklahoma Department of Agriculture, Forestry Division, in collecting mill data. Appreciation is also extended to forest industry and mill managers for providing timber products information.

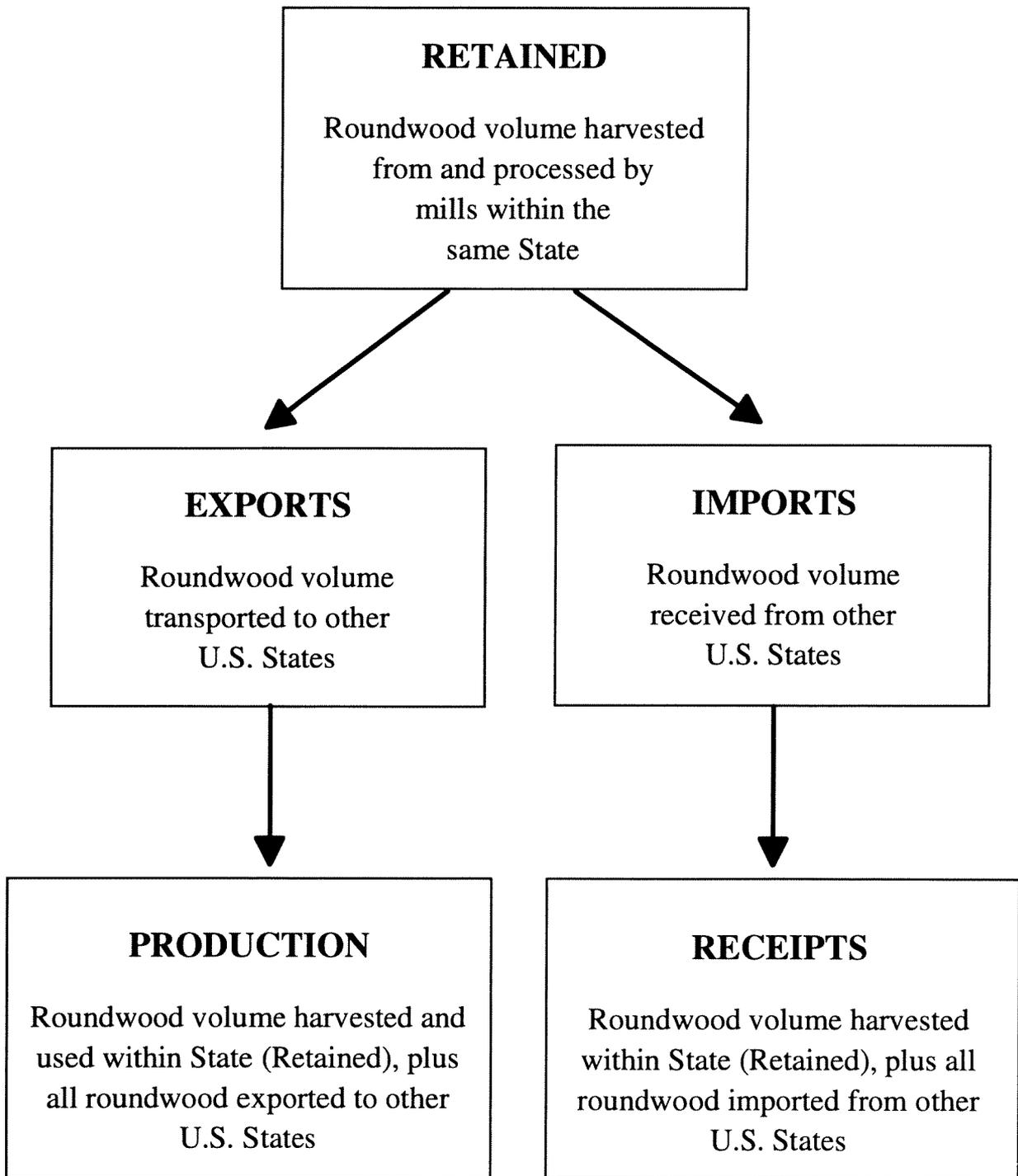


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^a All tables in this report are available in Microsoft® Excel workbook files. Upon request, these files will be supplied on 3½-inch diskettes.

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Production = Retained + Exports

Receipts = Retained + Imports

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

Oklahoma'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 1996 and 1999, the combined industrial timber products output (TPO) from roundwood and plant byproducts increased 10 percent from 155 million cubic feet to 171 million cubic feet.
- Timber products output from roundwood was up 7 million cubic feet, or 6 percent, to 120 million cubic feet, while

output of plant byproducts increased 8 million cubic feet to 51 million cubic feet.

- Output of softwood roundwood products declined 3 percent to 90 million cubic feet, while output of hardwood roundwood products increased 50 percent to 30 million cubic feet (fig. 2).
- Figures 3 and 4 display softwood and hardwood county-level intensity of roundwood production for all industrial products across Oklahoma. 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 the darkest shade represents more than 20 cubic feet of production per acre, while for hardwoods the darkest shade represents more than 5 cubic feet per acre.

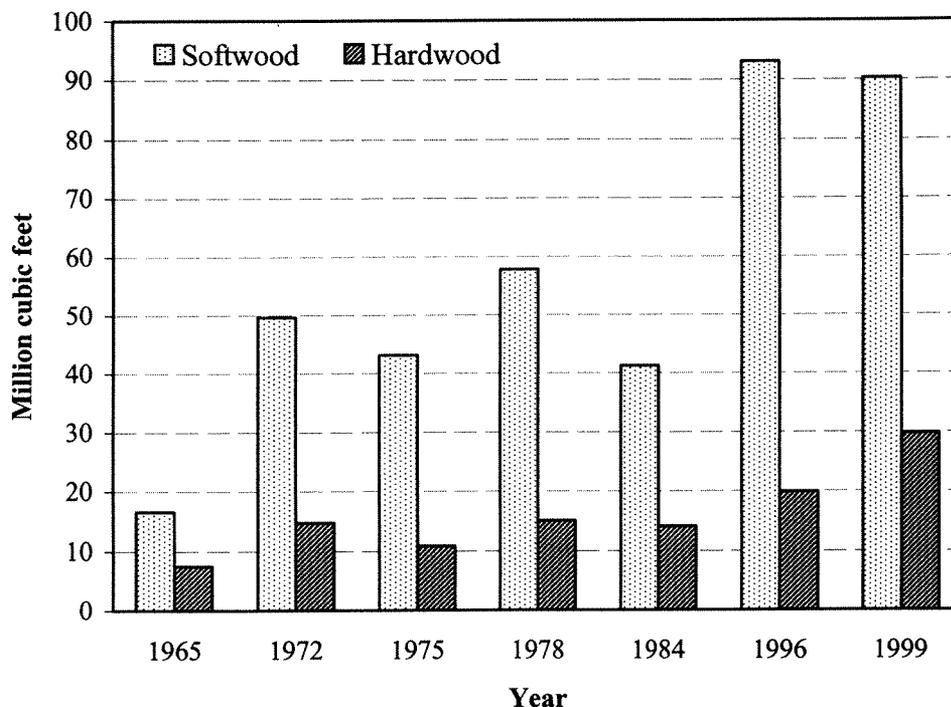


Figure 2—Roundwood production for all products by species group and year (see page 8 for references for individual years).

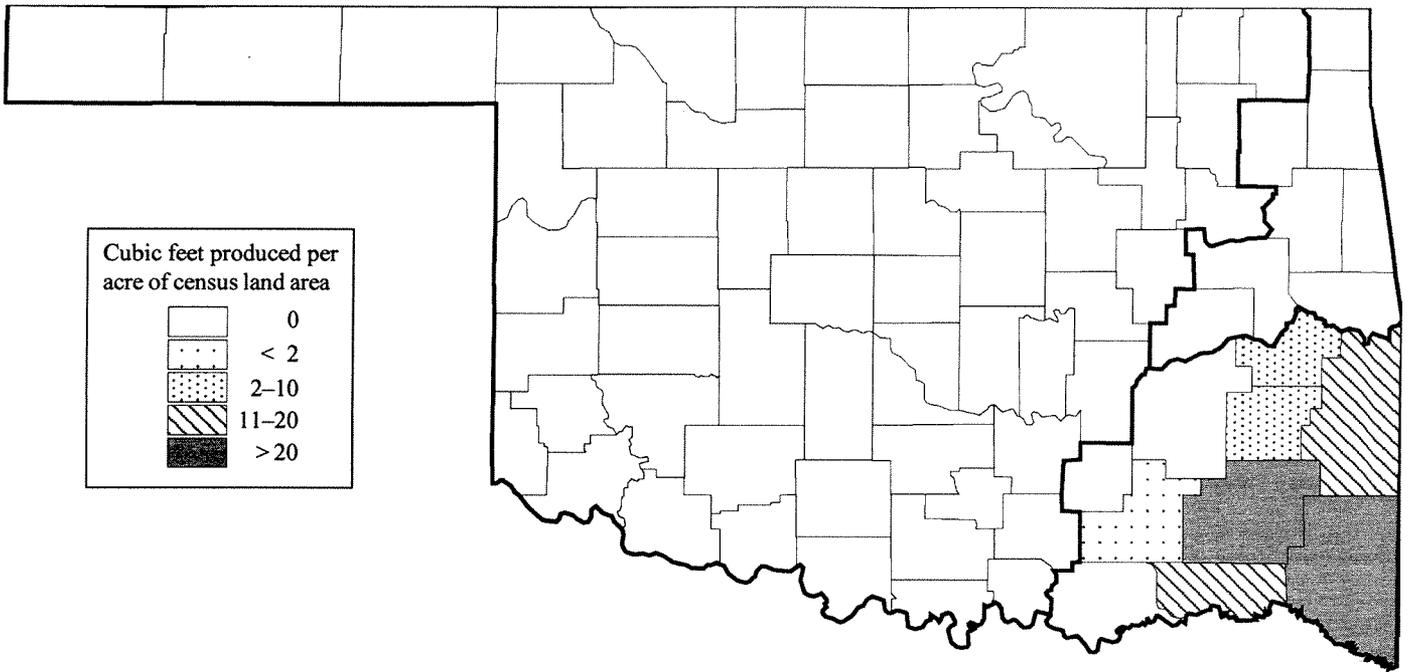


Figure 3—Intensity of roundwood softwood output for all industrial products in Oklahoma by county, 1999.

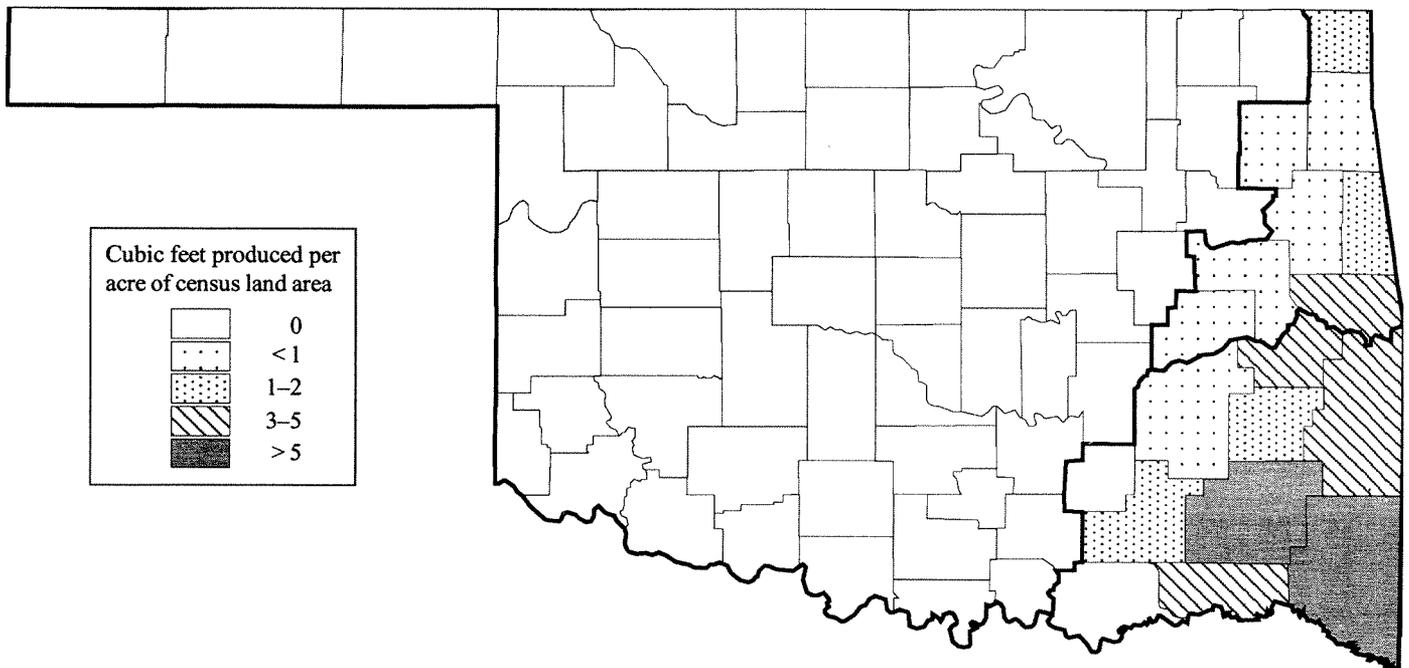


Figure 4—Intensity of roundwood hardwood output for all industrial products in Oklahoma by county, 1999.

- Pulpwood and saw logs were the principal roundwood products in 1999. Combined output of these two products totaled 105 million cubic feet and accounted for 88 percent of the State's total roundwood output (fig. 5).
- Total receipts at Oklahoma mills, which included roundwood harvested and retained in the State and roundwood imported from other States, increased 37 percent from 110 million cubic feet in 1996 to 151 million cubic feet. The number of primary roundwood-using plants in Oklahoma declined from 73 in 1996 to 67 in 1999.

Pulpwood

- Total pulpwood production, including chipped roundwood, increased 33 percent to 54 million cubic feet (725 thousand cords) and accounted for 45 percent of the State's total roundwood TPO. Softwood output was up 13 percent to 33 million cubic feet, while hardwood output increased 81 percent to 21 million cubic feet (fig. 6).
- Two pulpmill facilities were operating and receiving roundwood in Oklahoma in 1999. Total pulpwood receipts for these mills increased 79 percent to 69 million cubic feet, and accounted for 45 percent of total receipts for all mills.

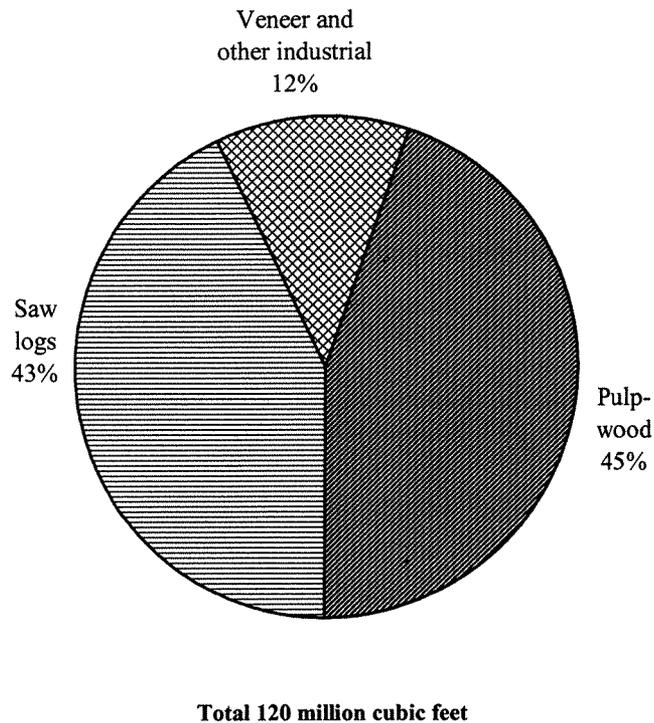


Figure 5—Roundwood production by type of product, 1999.

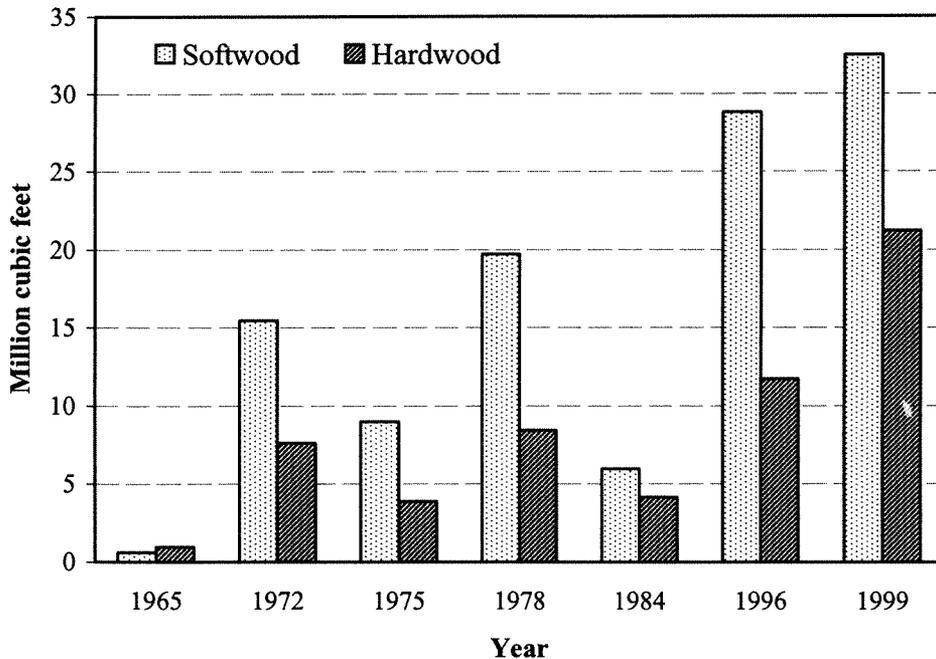


Figure 6—Roundwood pulpwood production by species group and year (see page 8 for references for individual years).

- Seventy-one percent of roundwood cut for pulpwood was retained for processing at Oklahoma pulpmills. Roundwood pulpwood accounted for 43 percent of total known exports and 45 percent of total imports. Roundwood pulpwood imports amounted to 31 million cubic feet, while exports totaled 16 million cubic feet.

Saw Logs

- Saw logs accounted for 43 percent of the State's total roundwood products. Output of softwood saw logs declined 6 percent to 43 million cubic feet (238 million board feet), while that of hardwood saw logs increased 6 percent to 9 million cubic feet (52 million board feet) (fig. 7).
- In 1999, Oklahoma had 62 sawmills, a net loss of 6 mills since 1996. Total softwood saw-log receipts were 54 million cubic feet, while those of hardwoods totaled 11 million cubic feet. Of the 13 reporting mills, 8 had receipts between 1.0 and 9.99 million board feet, while 5 had receipts greater than 10 million board feet. These five mills accounted for 92 percent of the reported volume.
- Oklahoma retained 68 percent of its saw-log production for domestic manufacture, with saw-log imports exceeding exports by 13 million cubic feet in 1999.

Veneer and Other Industrial Products

- In 1999, output of veneer and other industrial products totaled 15 million cubic feet and accounted for 12 percent of the State's total roundwood TPO volume. Softwood production declined 20 percent to 15 million cubic feet, which accounted for all the production volume (fig. 8).
- Three veneer and other industrial mills were contacted for this report. Receipts at these mills totaled 18 million cubic feet. Softwood accounted for all the receipt volume at these mills.
- Oklahoma retained 70 percent of its veneer and other industrial production for processing at domestic veneer and other industrial mills. Imports amounted to 8 million cubic feet, while exports were 4 million cubic feet, making the State a net importer of roundwood for veneer and other industrial uses.

Plant Byproducts

- In 1999, processing of primary products in Oklahoma mills generated more than 51 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 19 million cubic feet, while bark volume

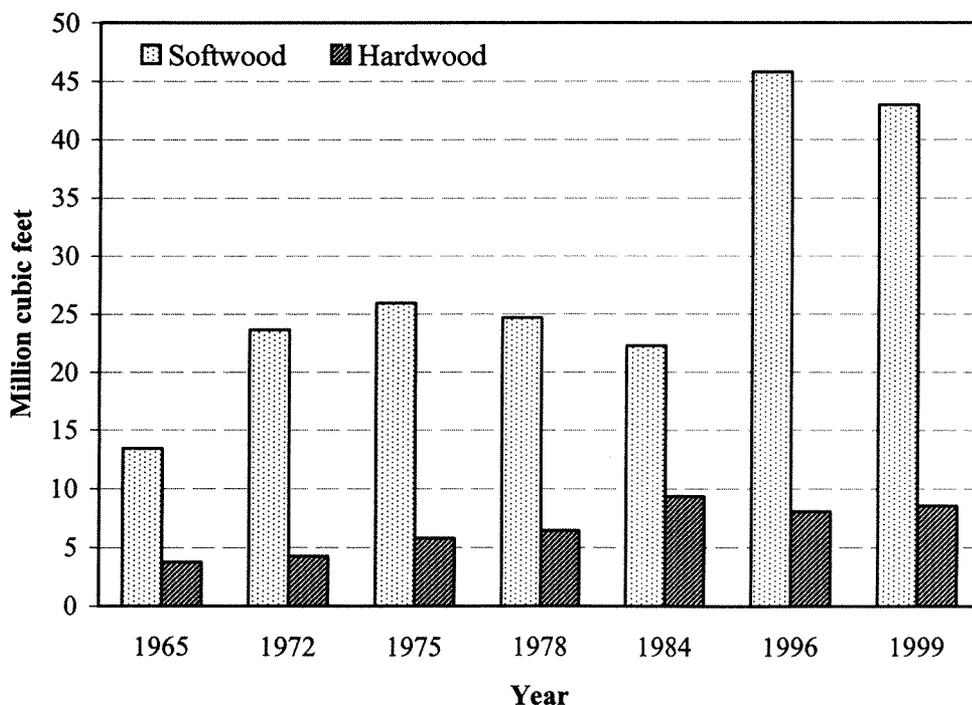


Figure 7—Roundwood saw-log production by species group and year (see page 8 for references for individual years).

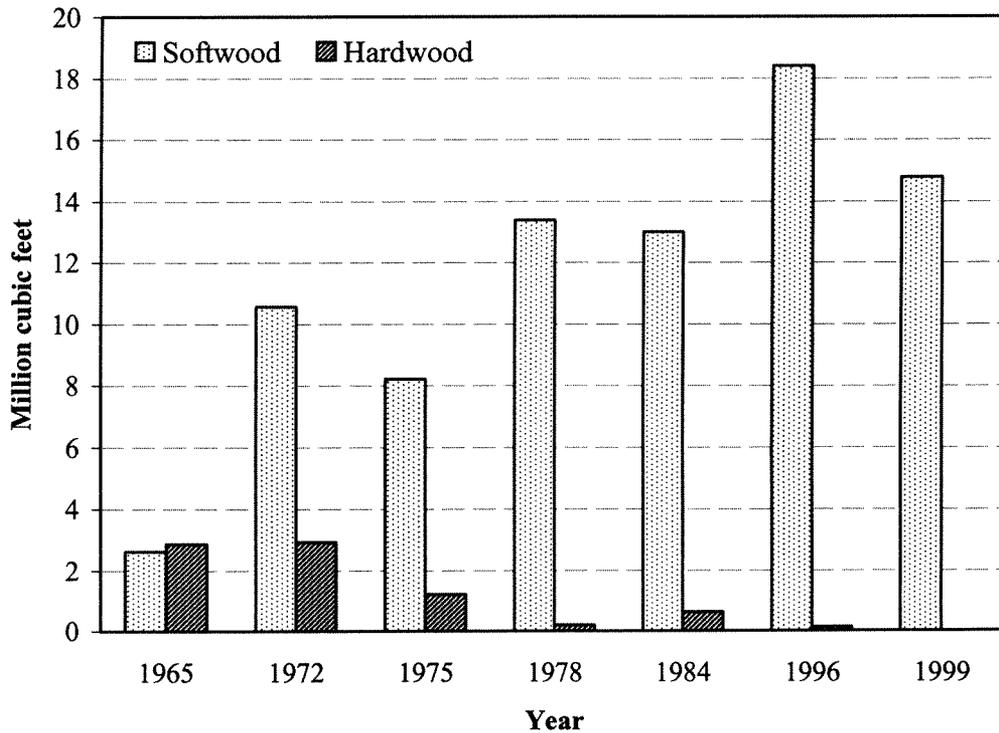


Figure 8—Roundwood veneer-log production by species group and year (see page 8 for references for individual years).

totaled 13 million cubic feet. Collectively, sawdust and shavings made up 36 percent of total residues, or 18 million cubic feet (fig. 9).

- Forty-eight percent of the wood and bark residues were used for industrial fuel (fig. 10). Twenty-seven percent were used for fiber products, with the remainder used for miscellaneous and sawn products. Eighty-four and ninety-six percent, respectively, of the bark and sawdust was used for industrial fuel, while 74 percent of the shavings was used for other miscellaneous products.
- The processing of saw logs generated 36 million cubic feet of mill residues, accounting for 72 percent of the total residues produced (fig. 11).

Regional Trends

- Hardwood output of industrial roundwood products increased in the two regions of Oklahoma; however, softwood output declined in both of these regions. The Northeast region had the largest increase, 63 percent, with all of the increase occurring in hardwood output.

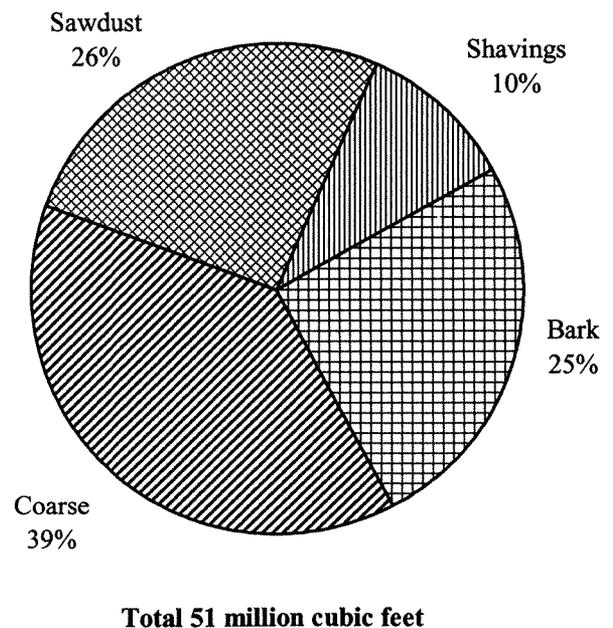


Figure 9—Primary mill residue by residue type, 1999.

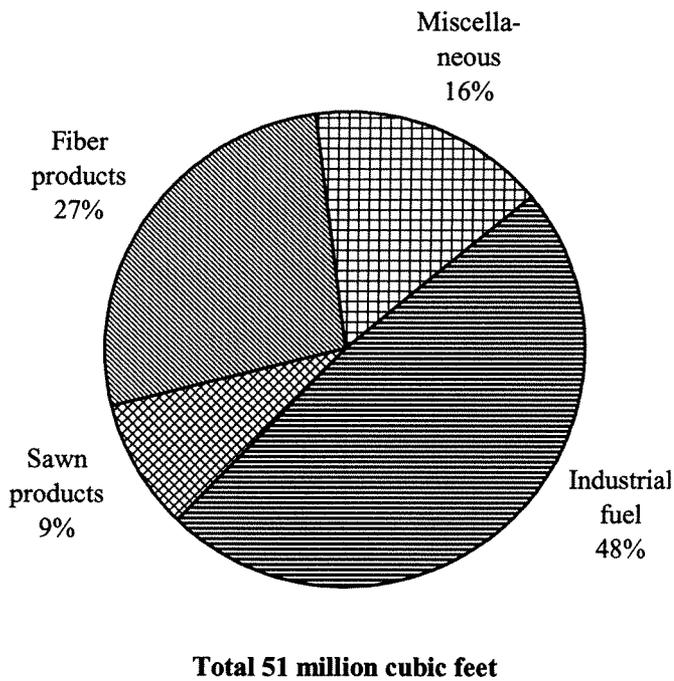


Figure 10—Disposal of residue by product, 1999.

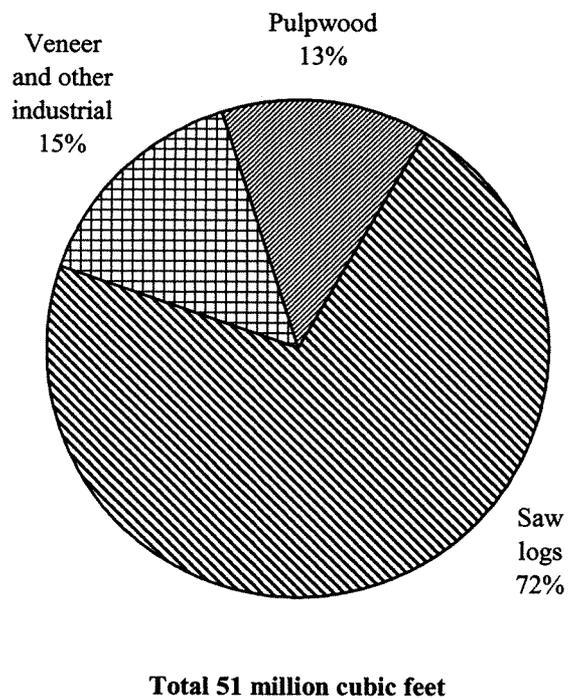


Figure 11—Primary mill residue produced by roundwood type, 1999.

Southeast Region

- Roundwood output from the Southeast region totaled 116 million cubic feet, a gain of 5 percent since 1996. Softwood output declined 3 percent to 90 million cubic feet, while hardwood output increased 45 percent to 26 million cubic feet.
- Saw-log production of 49 million cubic feet accounted for 42 percent of the total roundwood output for the region. Pulpwood accounted for 46 percent of the region's TPO and 99 percent of the State's roundwood pulpwood output.

Northeast Region

- Roundwood output from the Northeast region totaled 3 million cubic feet, an increase of 63 percent.
- Production of saw logs was up 24 percent and accounted for 76 percent of the region's total roundwood output and 4 percent of the State's total roundwood saw-log output. Pulpwood production of 733 thousand cubic feet accounted for 24 percent of the region's total roundwood output.

Total Roundwood Output

Using the latest inventory data for Oklahoma, product output was estimated by source, ownership, and detailed species group.

Source

- In addition to the 120 million cubic feet of roundwood output for industrial roundwood products, an estimated 10 million cubic feet was harvested for domestic fuelwood, bringing Oklahoma's total roundwood output to 130 million cubic feet.
- Eighty 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 25 million cubic feet, or 20 percent of total roundwood output (fig. 12).

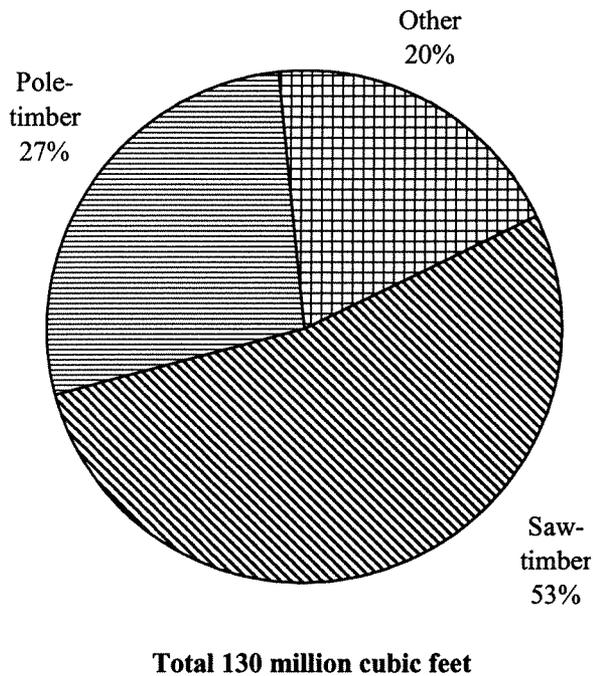


Figure 12—Roundwood output by source, 1999.

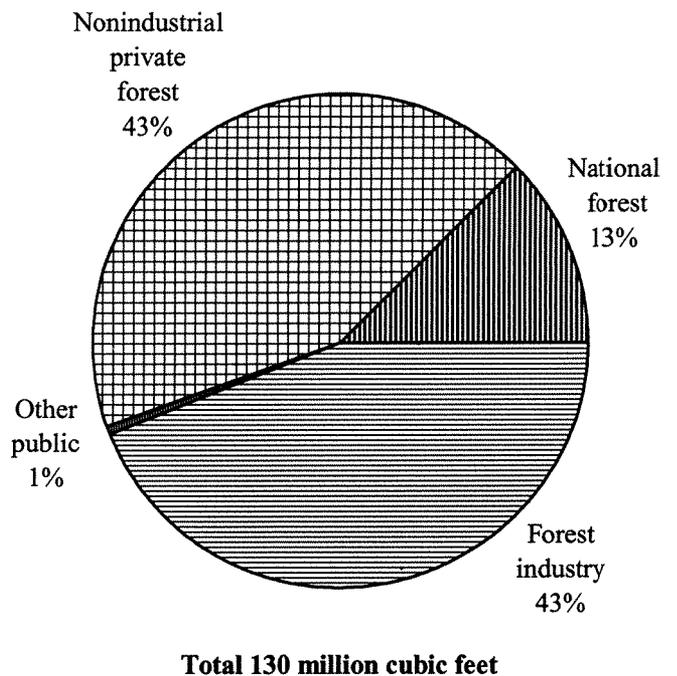


Figure 13—Roundwood output by ownership, 1999.

Ownership

- An estimated 57 million cubic feet, or 44 percent, of the total roundwood output came from forest industry lands.
- Nonindustrial private forest lands contributed 56 million cubic feet, or 43 percent, of the output. Public lands made up the remaining 13 percent, or 17 million cubic feet (fig. 13).

Species

- The loblolly and shortleaf pine group provided more volume than any other softwood species group, accounting for 98 percent of the total softwood output (fig. 14). The cedar and other yellow pine type accounted for the remaining 2 percent of the softwood output.
- The red oak and white oak groups combined accounted for 27 million cubic feet, or 68 percent of total hardwood output (fig. 15).

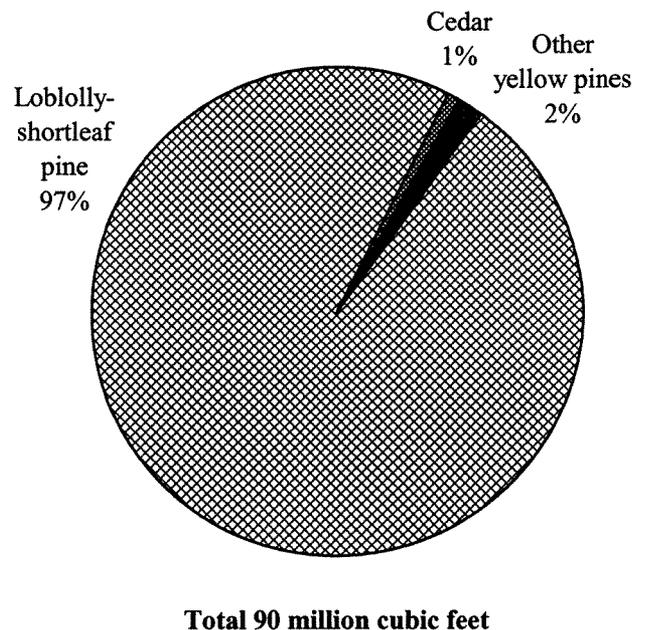


Figure 14—Roundwood output by softwood species group, 1999.

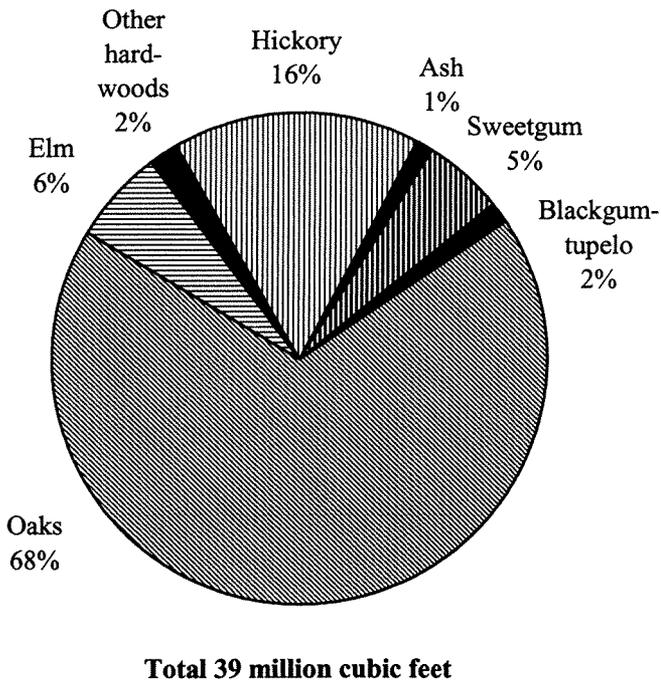


Figure 15—Roundwood output by hardwood species group, 1999.

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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, and 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 nonpulp mills, chipped, and then sold to pulp mills 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-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.

^b Cubic feet of solid wood per cord.

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Table 1—Output of industrial products by product and species group, Oklahoma, 1996 and 1999

Product and species group	Year		Change	Percent change
	1996	1999		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	45,803	42,963	-2,840	-6.2
Hardwood	8,062	8,543	481	6.0
Total	53,865	51,506	-2,359	-4.4
Veneer and other industrial^a				
Softwood	18,398	14,777	-3,621	-19.7
Hardwood	127	0	-127	-100.0
Total	18,525	14,777	-3,748	-20.2
Pulpwood^b				
Softwood	28,788	32,508	3,720	12.9
Hardwood	11,699	21,226	9,527	81.4
Total	40,487	53,734	13,247	32.7
All industrial				
Softwood	92,989	90,248	-2,741	-2.9
Hardwood	19,888	29,769	9,881	49.7
Total	112,877	120,017	7,140	6.3
Byproduct output				
Softwood	36,006	43,073	7,067	19.6
Hardwood	6,278	7,594	1,316	21.0
Total	42,284	50,667	8,383	19.8
Total output				
Softwood	128,995	133,321	4,326	3.4
Hardwood	26,166	37,363	11,197	42.8
Total	155,161	170,684	15,523	10.0

^a Includes poles, posts, mulch, firewood, log homes, charcoal, and all other industrial products.

^b Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (399,000 cubic feet in 1996 and 4,553,000 cubic feet in 1999).

Table 2—Roundwood receipts by product and species group, Oklahoma, 1996 and 1999

Product and species group	Year		Change	Percent change
	1996	1999		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	43,746	53,868	10,122	23.1
Hardwood	8,828	10,659	1,831	20.7
Total	52,574	64,527	11,953	22.7
Veneer and other industrial^a				
Softwood	19,280	18,084	-1,196	-6.2
Hardwood	0	0	0	--
Total	19,280	18,084	-1,196	-6.2
Pulpwood				
Softwood	34,161	56,529	22,368	65.5
Hardwood	4,215	12,246	8,031	190.5
Total	38,376	68,775	30,399	79.2
Total output				
Softwood	97,187	128,481	31,294	32.2
Hardwood	13,043	22,905	9,862	75.6
Total	110,230	151,386	41,156	37.3

-- = negligible.

^a Includes poles, posts, mulch, firewood, log homes, charcoal, and all other industrial products.

^b Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills

(494,000 cubic feet in 1996 and 9,563,000 cubic feet in 1999).

Table 3—Number of primary wood-using plants by industry, Oklahoma, 1955–1999

Industry	Year							
	1955	1965	1972	1975	1978	1984	1996	1999
Sawmills	80	110	103	83	66	84	68	62
Veneer or plywood mills	1	0	1	1	1	1	1	1
Pulpmills	1	2	3	3	3	3	2	2
Composite panel mills	0	0	0	0	0	0	0	0
Other mills	17	19	11	14	11	12	2	2
All plants	99	131	118	101	81	100	73	67

Table 4—Roundwood receipts by sawmill size, Oklahoma, 1996 and 1999

Sawmill size class ^a	1996			1999		
	Number of mills ^b	Thousand board feet	Percent of volume	Number of mills ^b	Thousand board feet	Percent of volume
<i>Million board feet</i>						
1.0–9.99	6	24,712	8	8	30,275	8
> 10.0	4	271,530	92	5	333,208	92
Total	10	296,242	100	13	363,483	100

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

^b Mills under 1.0 million board feet were not included in this report.

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

Species	All mills	Type of mill			Pulpmills
		Sawmills	Veneer and other industrial	OSB ^a and panels	
<i>Thousand cubic feet</i>					
Softwood					
Yellow pine	71,952	53,868	18,084	0	NA
White pine	0	0	0	0	NA
Cedar	0	0	0	0	NA
Cypress	0	0	0	0	NA
Other softwood	0	0	0	0	NA
Unclassified	56,529	0	0	0	56,529
Total softwoods	128,481	53,868	18,084	0	56,529
Hardwood					
Blackgum and tupelo	8	8	0	0	NA
Soft maple	375	375	0	0	NA
Sweetgum	399	399	0	0	NA
Yellow-poplar	63	63	0	0	NA
Other soft hardwood	865	865	0	0	NA
Hickory	1,036	1,036	0	0	NA
Red oak	3,234	3,234	0	0	NA
White oak	2,771	2,771	0	0	NA
Other hard hardwood	1,908	1,908	0	0	NA
Unclassified	12,246	0	0	0	12,246
Total hardwoods	22,905	10,659	0	0	12,246
All species	151,386	64,527	18,084	0	68,775

NA = not applicable.

^a OSB = oriented strand board.**Table 6—Industrial roundwood movement by year and species group, Oklahoma, 1996 and 1999**

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>Thousand cubic feet</i>					
Softwood					
1996	92,989	23,966	69,023	28,164	97,187
1999	90,248	22,916	67,332	61,149	128,481
Hardwood					
1996	19,888	11,687	8,201	4,842	13,043
1999	29,769	13,486	16,283	6,622	22,905
All species					
1996	112,877	35,653	77,224	33,006	110,230
1999	120,017	36,402	83,615	67,771	151,386

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

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>Thousand cubic feet</i>					
Saw logs					
Softwood	42,963	14,099	28,864	25,004	53,868
Hardwood	8,543	2,276	6,267	4,392	10,659
Total	51,506	16,375	35,131	29,396	64,527
Veneer and other industrial					
Softwood	14,777	4,375	10,402	7,682	18,084
Hardwood	0	0	0	0	0
Total	14,777	4,375	10,402	7,682	18,084
Pulpwood^a					
Softwood	32,508	4,442	28,066	28,463	56,529
Hardwood	21,226	11,210	10,016	2,230	12,246
Total	53,734	15,652	38,082	30,693	68,775
All products					
Softwood	90,248	22,916	67,332	61,149	128,481
Hardwood	29,769	13,486	16,283	6,622	22,905
Total	120,017	36,402	83,615	67,771	151,386

^a Includes roundwood chipped.

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

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>Thousand cubic feet</i>			
Oklahoma (retained)	35,131	28,864	6,267
Exports to:			
Arkansas	6,013	5,477	536
Kansas	891	0	891
Missouri	33	18	15
Texas	9,438	8,604	834
Total	16,375	14,099	2,276
Imports from:			
Arkansas	9,201	7,747	1,454
Texas	20,195	17,257	2,938
Total	29,396	25,004	4,392

Table 9—Veneer and other industrial volume by destination, source, and species group, Oklahoma, 1999^a

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>Thousand cubic feet</i>			
Oklahoma (retained)	10,402	10,402	0
Exports to:			
Arkansas	1,155	1,155	0
Texas	3,220	3,220	0
Total	4,375	4,375	0
Imports from:			
Arkansas	1,066	1,066	0
Texas	6,616	6,616	0
Total	7,682	7,682	0

^a Includes poles, posts, mulch, firewood, log homes, charcoal, and all other industrial products.

Table 10—Pulpwood volume by destination, source, and species group, Oklahoma, 1999^a

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>Thousand cubic feet</i>			
Oklahoma (retained)	38,082	28,066	10,016
Exports to:			
Arkansas	14,650	4,235	10,415
Louisiana	1	1	0
Texas	1,001	206	795
Total	15,652	4,442	11,210
Imports from:			
Arkansas	26,961	26,181	780
Texas	3,732	2,282	1,450
Total	30,693	28,463	2,230

^a Includes roundwood chipped.

Table 11—Primary mill residue volume by roundwood type, species group, and residue type, Oklahoma, 1999

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
<i>Thousand cubic feet</i>					
Saw logs					
Softwood	29,857	3,616	11,582	9,552	5,107
Hardwood	6,619	1,105	3,368	2,146	0
Total	36,476	4,721	14,950	11,698	5,107
Veneer and other industrial^a					
Softwood	7,379	1,273	4,536	1,570	0
Hardwood	0	0	0	0	0
Total	7,379	1,273	4,536	1,570	0
Pulpwood					
Softwood	5,837	5,837	0	0	0
Hardwood	975	975	0	0	0
Total	6,812	6,812	0	0	0
Total					
Softwood	43,073	10,726	16,118	11,122	5,107
Hardwood	7,594	2,080	3,368	2,146	0
Total	50,667	12,806	19,486	13,268	5,107

^a Includes poles, pilings, posts, and other industrial products.

Table 12—Disposal of residue at primary wood-using plants by product, species group, and type of residue, Oklahoma, 1996 and 1999

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	1996	1999	1996	1999	1996	1999	1996	1999	1996	1999
<i>Thousand cubic feet</i>										
Fiber products										
Softwood	11,667	11,533	0	0	11,667	11,533	0	0	0	0
Hardwood	1,608	1,956	0	0	1,608	1,956	0	0	0	0
Total	13,275	13,489	0	0	13,275	13,489	0	0	0	0
Particleboard										
Softwood	0	1,319	0	0	0	0	0	0	0	1,319
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	0	1,319	0	0	0	0	0	0	0	1,319
Composite panels										
Softwood	0	35	0	0	0	35	0	0	0	0
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	0	35	0	0	0	35	0	0	0	0
Sawn products										
Softwood	3,748	4,536	0	0	3,748	4,536	0	0	0	0
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	3,748	4,536	0	0	3,748	4,536	0	0	0	0
Fuel										
Softwood	16,106	20,087	6,847	8,951	87	14	9,054	11,122	118	0
Hardwood	3,161	4,382	1,262	1,827	1,086	900	813	1,655	0	0
Total	19,267	24,469	8,109	10,778	1,173	914	9,867	12,777	118	0
Miscellaneous										
Softwood	4,485	5,563	1,386	1,775	10	0	0	0	3,089	3,788
Hardwood	1,509	1,256	181	253	240	512	965	491	123	0
Total	5,994	6,819	1,567	2,028	250	512	965	491	3,212	3,788
Not used										
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
All products										
Softwood	36,006	43,073	8,233	10,726	15,512	16,118	9,054	11,122	3,207	5,107
Hardwood	6,278	7,594	1,443	2,080	2,934	3,368	1,778	2,146	123	0
Total	42,284	50,667	9,676	12,806	18,446	19,486	10,832	13,268	3,330	5,107

Table 13—Roundwood timber products output by product and species group, Southeast Oklahoma, 1996 and 1999

Product and species group	Year		Change	Percent change
	1996	1999		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	45,799	42,963	-2,836	-6.2
Hardwood	6,181	5,538	-643	-10.4
Total	51,980	48,501	-3,479	-6.7
Veneer and other industrial				
Softwood	18,398	14,777	-3,621	-19.7
Hardwood	115	0	-115	-100.0
Total	18,513	14,777	-3,736	-20.2
Pulpwood^a				
Softwood	28,788	32,508	3,720	12.9
Hardwood	11,699	20,493	8,794	75.2
Total	40,487	53,001	12,514	30.9
All industrial				
Softwood	92,985	90,248	-2,737	-2.9
Hardwood	17,995	26,031	8,036	44.7
Total	110,980	116,279	5,299	4.8

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (399,000 cubic feet in 1996 and 4,553,000 cubic feet in 1999).

Table 14—Roundwood timber products output by county, product, and species group, Southeast Oklahoma, 1999

County	All products		Saw logs		Veneer and other industrial		Pulpwood ^a	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
<i>Thousand cubic feet</i>								
Atoka	47	878	47	599	0	0	0	279
Choctaw	6,901	1,253	5,017	241	1,807	0	77	1,012
Haskell	1,491	936	1,082	554	409	0	0	382
Latimer	1,764	663	722	280	716	0	326	383
Le Flore	17,323	2,299	8,178	750	3,003	0	6,142	1,549
McCurtain	40,614	8,303	19,725	2,287	5,491	0	15,398	6,016
Pushmataha	22,108	11,699	8,192	827	3,351	0	10,565	10,872
All counties	90,248	26,031	42,963	5,538	14,777	0	32,508	20,493

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (4,553,000 cubic feet in 1999).

Table 15—Roundwood timber products output by product and species group, Northeast Oklahoma, 1996 and 1999

Product and species group	Year		Change	Percent change
	1996	1999		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	4	0	-4	-100.0
Hardwood	1,823	2,268	445	24.4
Total	1,827	2,268	441	24.1
Veneer and other industrial				
Softwood	0	0	0	--
Hardwood	12	0	-12	-100.0
Total	12	0	-12	-100.0
Pulpwood^a				
Softwood	0	0	0	--
Hardwood	0	733	733	--
Total	0	733	733	--
All industrial				
Softwood	4	0	-4	-100.0
Hardwood	1,835	3,001	1,166	63.5
Total	1,839	3,001	1,162	63.2

-- = negligible.

^a Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (0 cubic feet in 1996 and 0 cubic feet in 1999).

Table 16—Roundwood timber products output by county, product, and species group, Northeast Oklahoma, 1999

County	All products		Saw logs		Veneer and other industrial		Pulpwood ^a	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
<i>Thousand cubic feet</i>								
Adair	0	649	0	649	0	0	0	0
Cherokee	0	335	0	335	0	0	0	0
Delaware	0	302	0	302	0	0	0	0
Ottawa	0	358	0	358	0	0	0	0
Sequoyah	0	1,357	0	624	0	0	0	733
All counties	0	3,001	0	2,268	0	0	0	733

^a Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (0 cubic feet in 1999).

Table 17—Total roundwood output by product, species group, and source of material, Oklahoma, 1999

Product and species group	All sources	Total	Growing-stock trees		Other sources
			Sawtimber	Poletimber	
<i>Thousand cubic feet</i>					
Saw logs					
Softwood	42,963	36,518	34,327	2,191	6,445
Hardwood	8,543	8,343	7,842	501	200
Total	51,506	44,861	42,169	2,692	6,645
Veneer and other industrial^a					
Softwood	14,777	12,780	11,125	1,655	1,997
Hardwood	0	0	0	0	0
Total	14,777	12,780	11,125	1,655	1,997
Pulpwood					
Softwood	32,508	21,130	5,392	15,738	11,378
Hardwood	21,226	18,673	5,762	12,911	2,553
Total	53,734	39,803	11,154	28,649	13,931
Total industrial products					
Softwood	90,248	70,428	50,844	19,584	19,820
Hardwood	29,769	27,016	13,605	13,411	2,753
Total	120,017	97,444	64,449	32,995	22,573
Fuelwood					
Softwood	167	77	64	14	90
Hardwood	9,654	6,951	4,389	2,562	2,703
Total	9,821	7,029	4,452	2,576	2,792
All products					
Softwood	90,415	70,505	50,908	19,597	19,910
Hardwood	39,423	33,967	17,993	15,974	5,456
Total	129,838	104,473	68,901	35,571	25,365

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

^a Includes poles, posts, mulch, firewood, log homes, charcoal, and all other industrial products.

Table 18—Total roundwood output by species group, survey unit, and ownership class, Oklahoma, 1999

Species group and survey unit	Total	Ownership class			Nonindustrial private
		National forest	Other public	Forest industry	
<i>Thousand cubic feet</i>					
Softwoods					
Southeast	90,415	14,451	523	45,081	30,360
Northeast	0	0	0	0	0
Total softwoods	<u>90,415</u>	<u>14,451</u>	<u>523</u>	<u>45,081</u>	<u>30,360</u>
Hardwoods					
Southeast	34,706	1,809	0	11,939	20,958
Northeast	4,717	0	242	0	4,475
Total hardwoods	<u>39,423</u>	<u>1,809</u>	<u>242</u>	<u>11,939</u>	<u>25,433</u>
All species	129,838	16,260	765	57,020	55,793

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

Table 19—Total roundwood output by species group, detailed species group, and product, Oklahoma, 1999

Species group and detailed species group	Total	Product			
		Saw log	Veneer and other industrial	Pulpwood	Fuelwood
<i>Thousand cubic feet</i>					
Softwood					
Cedar	701	479	173	48	1
Loblolly-shortleaf pine	88,220	41,402	14,195	32,460	163
Other yellow pines	1,494	1,082	409	0	3
Total softwoods	90,415	42,963	14,777	32,508	167
Hardwood					
Soft maple	71	15	0	39	17
Hard maple	12	9	0	0	3
Hickory	6,350	1,007	0	3,786	1,557
Ash	491	205	0	166	120
Sweetgum	2,055	211	0	1,341	503
Blackgum-tupelo	521	127	0	268	127
Black cherry	129	32	0	66	32
Select white oaks	2,405	697	0	1,123	586
Other white oaks	12,189	2,098	0	7,099	2,992
Select red oaks	1,442	405	0	685	352
Other red oaks	10,746	3,038	0	5,081	2,627
Elm	2,425	445	0	1,386	594
Other Eastern hardwoods	586	256	0	187	143
Total hardwoods	39,423	8,543	0	21,226	9,654
All species	129,838	51,506	14,777	53,734	9,821

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

Table 20—Total roundwood output by species group, detailed species group, and ownership class, Oklahoma, 1999

Species group and detailed species group	Total	Ownership class			
		National forest	Other public	Forest industry	Nonindustrial private
<i>Thousand cubic feet</i>					
Softwood					
Cedar	701	87	36	0	578
Loblolly-shortleaf pine	88,220	14,364	487	45,081	28,288
Other yellow pines	1,494	0	0	0	1,494
Total softwoods	90,415	14,451	523	45,081	30,360
Hardwood					
Soft maple	71	0	0	12	59
Hard maple	12	0	0	0	12
Hickory	6,350	80	40	2,605	3,625
Ash	491	0	4	20	467
Sweetgum	2,055	0	0	959	1,096
Blackgum-tupelo	521	57	3	51	410
Black cherry	130	77	0	0	53
Select white oaks	2,405	381	40	251	1,733
Other white oaks	12,190	608	75	4,777	6,730
Select red oaks	1,443	359	9	106	969
Other red oaks	10,746	186	50	2,244	8,266
Elm	2,425	59	1	873	1,491
Other Eastern hardwoods	586	3	19	42	522
Total hardwoods	39,424	1,810	242	11,939	25,433
All species	129,839	16,260	766	57,020	55,793

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



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Howell, Michael; Johnson, Tony G. 2002. Oklahoma's timber industry—an assessment of timber product output and use, 1999. Resour. Bull. SRS-82. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 28 p.

In 1999, roundwood output from Oklahoma's forests totaled 120 million cubic feet. Mill byproducts generated from primary manufacturers totaled 51 million cubic feet. Almost all plant residue was used primarily for fuel and fiber products. Pulpwood were the leading roundwood product at 54 million cubic feet; saw logs ranked second at 52 million cubic feet. There were 67 primary processing plants operating in Oklahoma in 1999. Receipts totaled 151 million cubic feet.

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

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