

United States  
Department of  
Agriculture

Forest Service

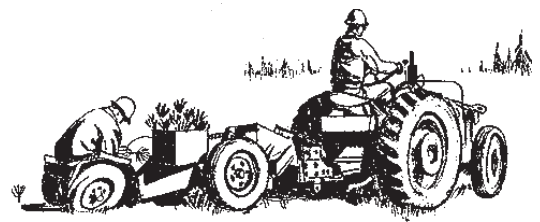
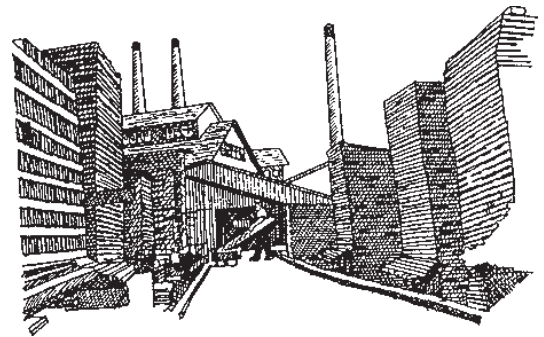
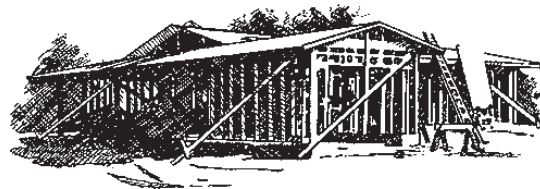


Southern  
Research Station

Resource Bulletin  
SRS-74

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

James W. Bentley, Tony G. Johnson,  
and Charles W. Becker

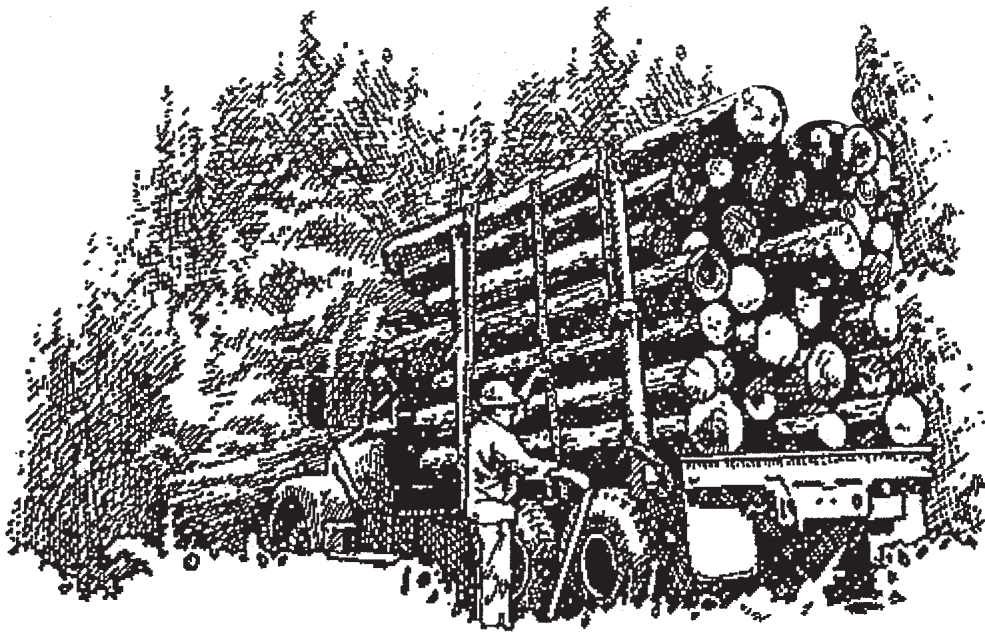


---

**The Authors:**

---

**James W. Bentley** is a Resource Forester and **Tony G. Johnson** is a Resource Analyst with the Forest Inventory and Analysis Research Work Unit, Southern Research Station, U.S. Department of Agriculture, Forest Service, Knoxville, TN 37919. **Charles W. Becker III** is a Staff Forester - Utilization and Marketing with the Virginia Department of Forestry, Charlottesville, VA 22903.



June 2002

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

## Foreword

This report contains the findings of a 1999 canvass of all primary wood-using plants in Virginia, and presents changes in product output and residue use since 1995. 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 Virginia 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 Virginia timberland was incorporated into Virginia 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 1965, 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 John A. Scrivani 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 Virginia Department of Forestry in collecting mill data. Appreciation is also extended to forest industry and mill managers for providing timber products information.



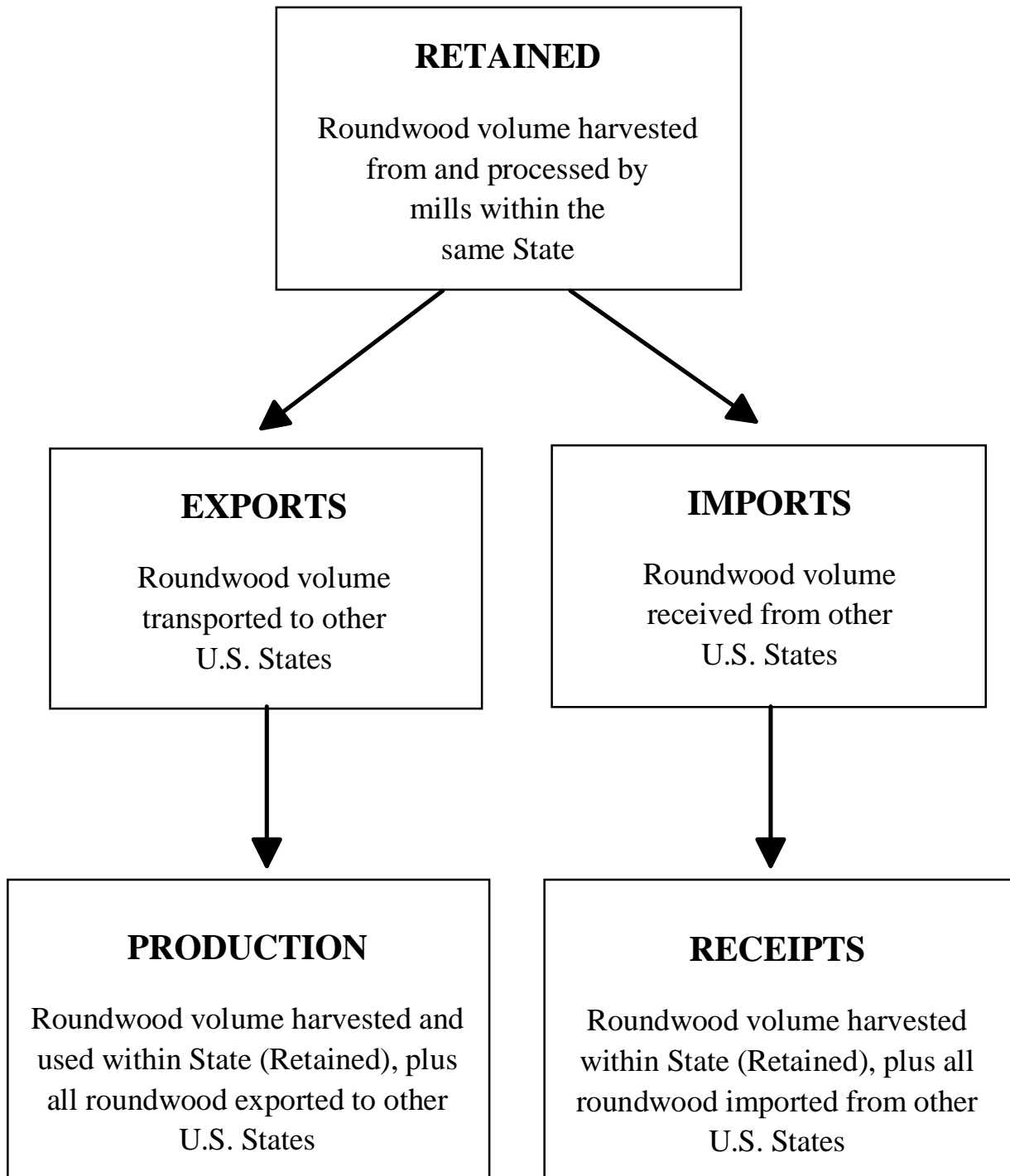


## Contents

|  | <i>Page</i> |
|--|-------------|
| Output of Industrial Timber Products ..... | 1           |
| All Products .....                         | 1           |
| Saw Logs .....                             | 4           |
| Pulpwood .....                             | 5           |
| Veneer Logs .....                          | 5           |
| Composite Panels .....                     | 6           |
| Other Industrial Products .....            | 6           |
| Plant Byproducts .....                     | 7           |
| Regional Trends .....                      | 8           |
| Coastal Plain Region .....                 | 8           |
| Southern Piedmont Region .....             | 8           |
| Northern Piedmont Region .....             | 8           |
| Northern Mountain Region .....             | 9           |
| Southern Mountain Region .....             | 9           |
| Total Roundwood Output .....               | 9           |
| Source .....                               | 9           |
| Ownership .....                            | 10          |
| Species .....                              | 10          |
| References .....                           | 11          |
| Definition of Terms .....                  | 12          |
| Conversion Factors .....                   | 15          |
| Index of Tables .....                      | 16          |
| Tables 1-28 <sup>a</sup> .....             | 17          |

<sup>a</sup> 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.



**Production** = Retained + Exports

**Receipts** = Retained + Imports

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

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

James W. Bentley, Tony G. Johnson  
and Charles W. Becker

## 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 1995 and 1999, the combined industrial timber products output (TPO) from roundwood and plant byproducts increased 6 percent from 622 to 658 million cubic feet.
- Timber products output from roundwood was up 36 million cubic feet, or 8 percent, to 492 million cubic feet, while output of plant byproducts remained stable at 167 million cubic feet.

- Output of softwood roundwood products increased 12 percent to 260 million cubic feet, while output of hardwood roundwood products increased 3 percent to more than 231 million cubic feet (fig. 2).
- Figures 3 and 4 display softwood and hardwood county-level intensity of roundwood production for all industrial products across Virginia. 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 30 cubic feet of production per acre, while for hardwoods the darkest shade represents more than 18 cubic feet per acre.

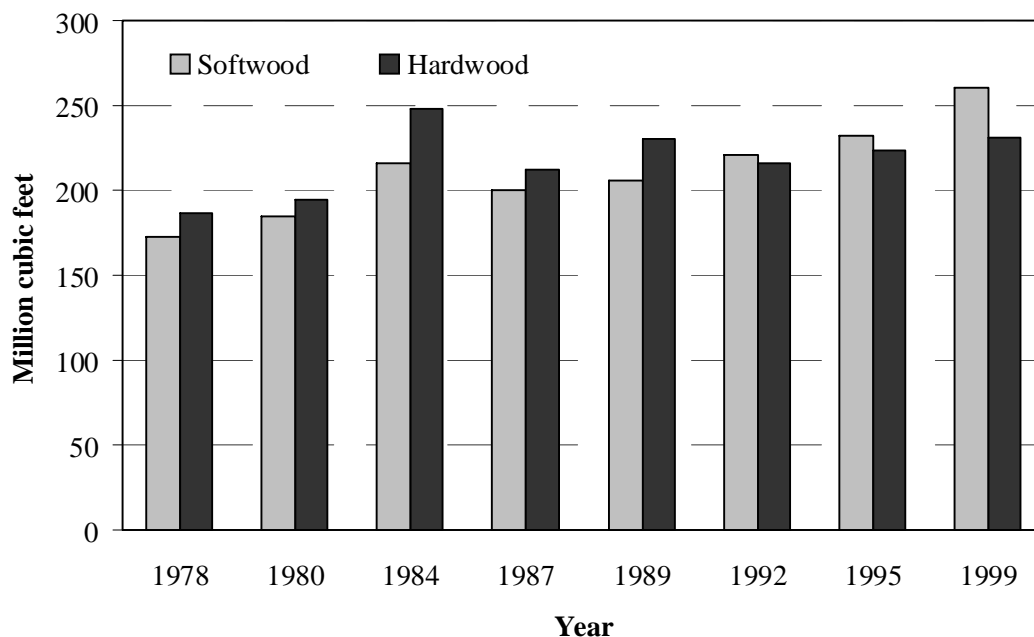


Figure 2—Roundwood production for all products by species group and year (see page 11 for references for individual years).

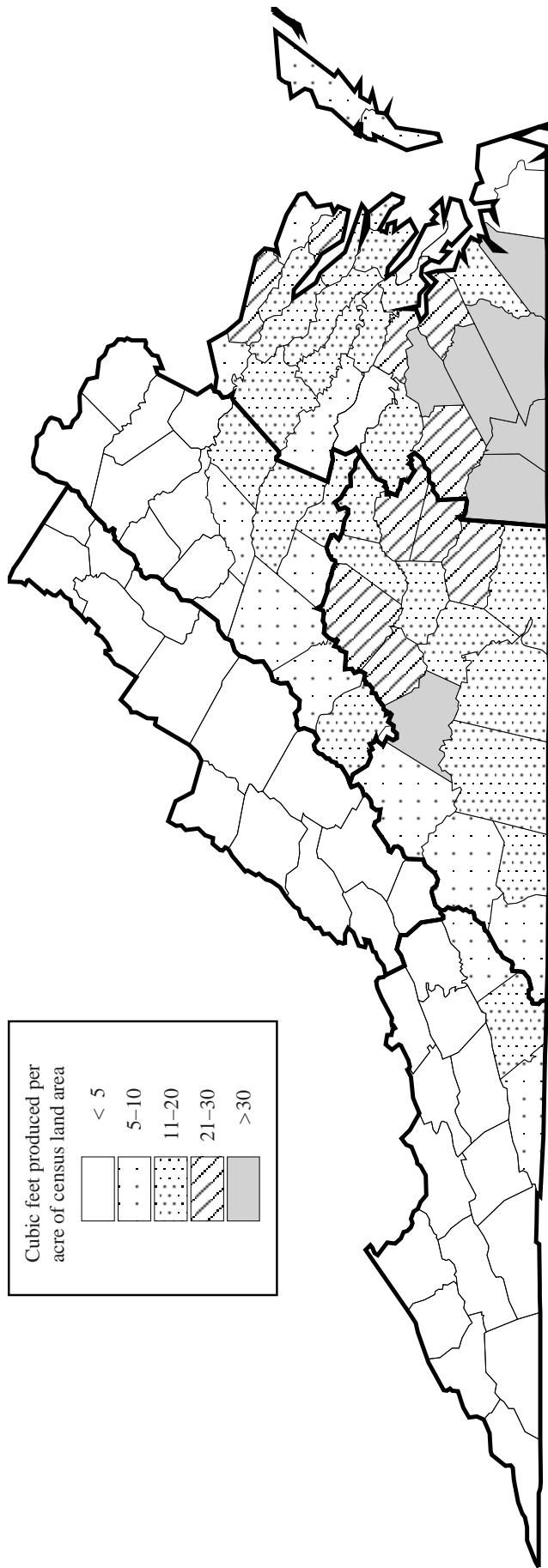


Figure 3—Intensity of roundwood softwood output for all industrial products in Virginia by county, 1999.



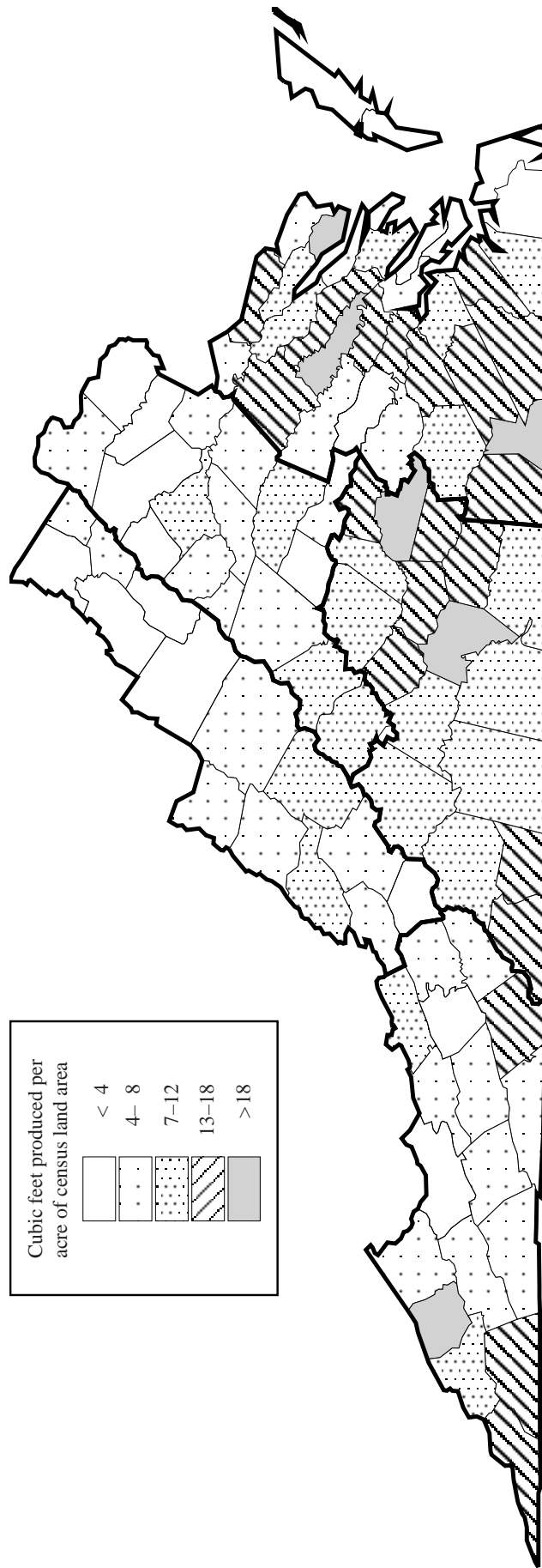


Figure 4—Intensity of roundwood hardwood output for all industrial products in Virginia by county, 1999.

- Saw logs and pulpwood were the principal roundwood products in 1999. Combined output of these two products totaled 421 million cubic feet and accounted for 86 percent of the State's total roundwood output (fig. 5).
- Total receipts at Virginia mills, which included roundwood harvested and retained in the State and roundwood imported from other States, increased 1 percent to 490 million cubic feet. At the same time, the number of primary roundwood-using plants in Virginia increased from 289 in 1995 to 290 in 1999.

**Saw Logs**

- Saw logs accounted for 50 percent of the State's total roundwood products. Output of softwood saw logs increased 23 percent to 115 million cubic feet (631 million board feet, International ¼-inch rule), while that of hardwood saw logs increased 10 percent to 131 million cubic feet (797 million board feet, International ¼-inch rule) (fig. 6).

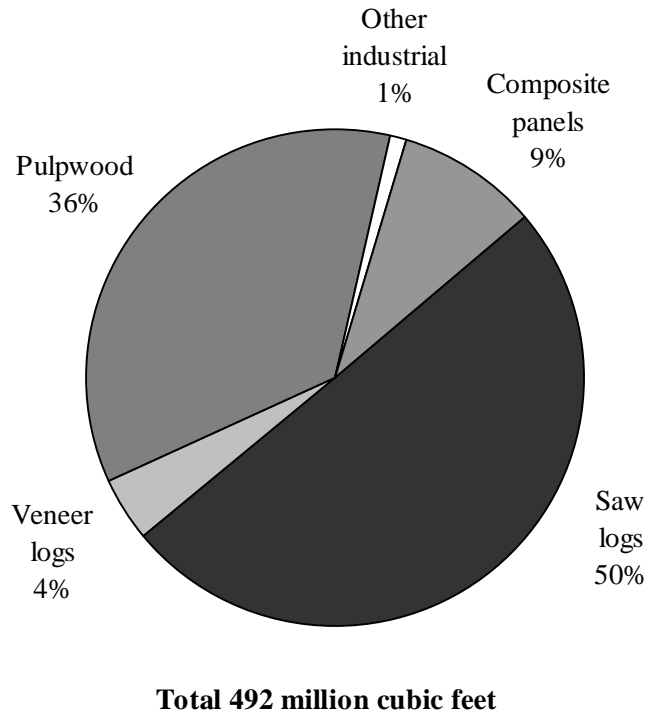


Figure 5—Roundwood production by type of product, 1999.

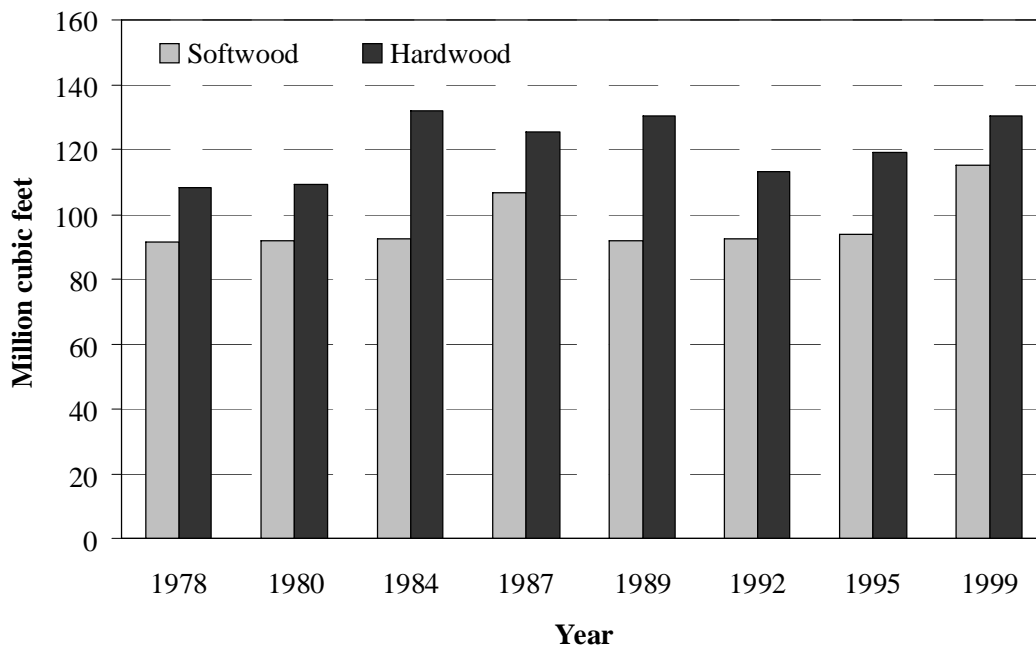


Figure 6—Roundwood saw-log production by species group and year (see page 11 for references for individual years).

- In 1999, Virginia had 254 sawmills, the same as in 1995. The total number of sawmills does not include several one-man sawmills not picked up in this survey. The total saw-log receipts increased 25 million cubic feet to 244 million cubic feet. Softwood saw-log receipts increased 16 percent to 115 million cubic feet, while hardwoods increased 7 percent to 129 million cubic feet. Of the 254 mills operating in 1999, 26 percent had receipts of less than 1 million board feet, while 37 percent, or 93 mills, had receipts greater than 5 million board feet.
- Virginia retained 90 percent of its saw-log production for domestic manufacture, with saw-log exports exceeding imports by 2 million cubic feet in 1999.

**Pulpwood**

- Pulpwood production, including chipped roundwood, decreased 26 million cubic feet to 175 million cubic feet and accounted for 36 percent of the State’s total roundwood TPO. Softwood output decreased 14 percent to 98 million cubic feet (1.3 million cords), while hardwood output declined 12 percent to 78 million cubic feet (1.0 million cords) (fig. 7).

- Nine pulpmill facilities were operating and receiving roundwood in Virginia in 1999, the same as in 1995. Total pulpwood receipts for these mills decreased 40 million cubic feet to 174 million cubic feet, accounting for 36 percent of total receipts for all mills.
- Eighty-four percent of roundwood cut for pulpwood was retained for processing at Virginia pulpmills. Roundwood pulpwood accounted for 43 percent of total known exports and 42 percent of total imports. Roundwood pulpwood exports amounted to 28 million cubic feet, while imports amounted to 26 million cubic feet, making the State a net exporter of roundwood pulpwood.

**Veneer Logs**

- Output of veneer logs in 1999 totaled 20 million cubic feet and accounted for 4 percent of the State’s total roundwood TPO volume. Softwood veneer-log production increased 6 percent to 14 million cubic feet (86 million board feet, International ¼-inch rule), while output of hardwood veneer-log production increased 88 percent to 6 million cubic feet (37 million board feet, International ¼-inch rule) (fig. 8).

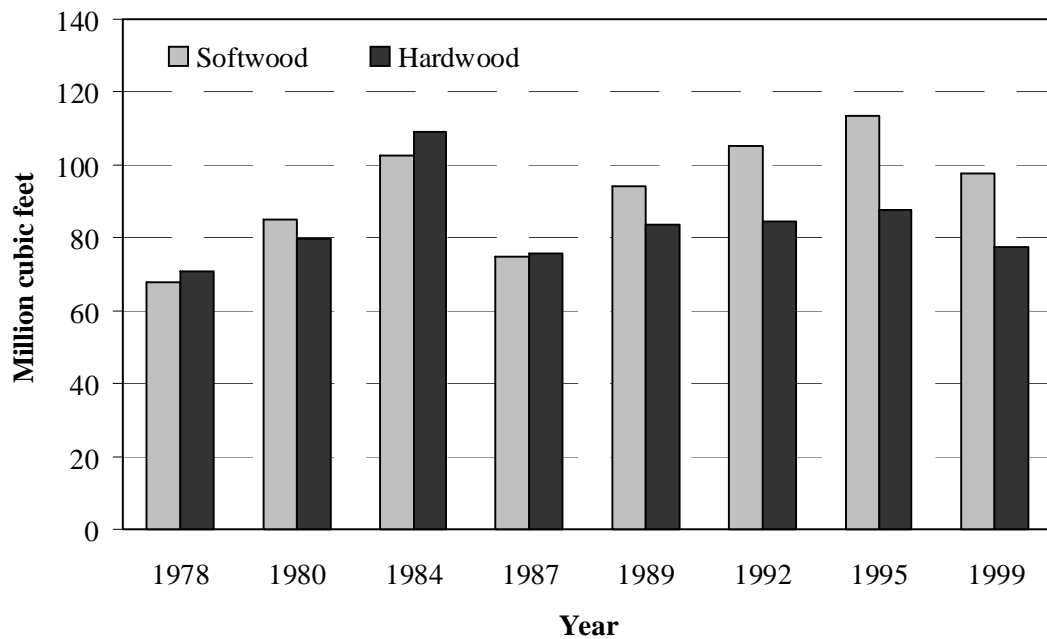


Figure 7—Roundwood pulpwood production by species group and year (see page 11 for references for individual years).

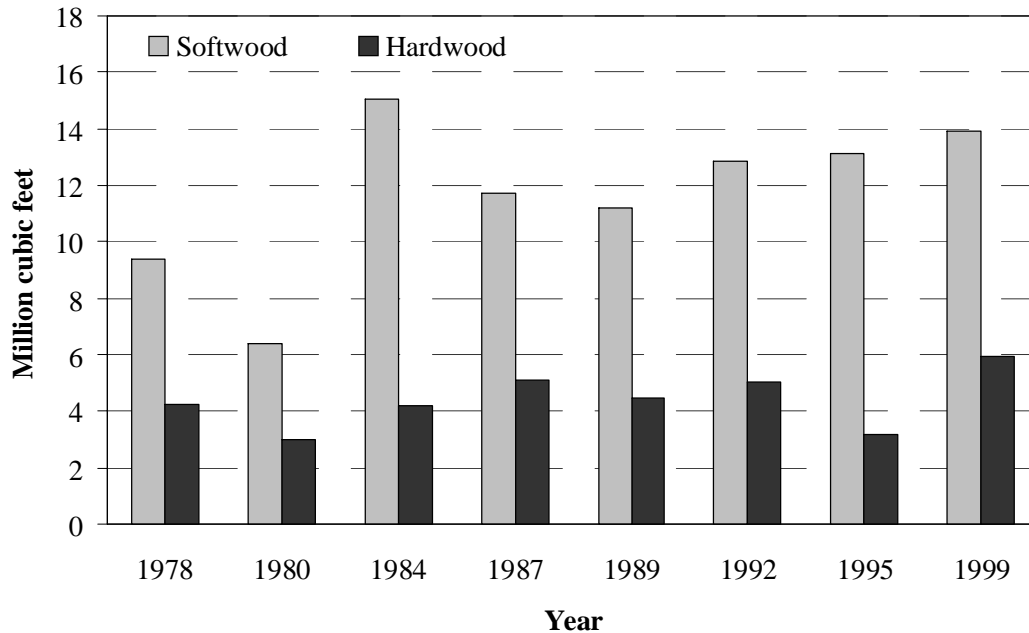


Figure 8—Roundwood veneer-log production by species group and year (see page 11 for references for individual years).

- The number of veneer mills operating in Virginia was down from eight to seven since 1995. Total receipts for veneer logs remained relatively stable at 19 million cubic feet.
- Virginia retained 73 percent of its veneer-log production for processing at domestic veneer mills. Imports amounted to 5 million cubic feet, while exports also totaled 5 million cubic feet.

### Composite Panels

- Roundwood harvested from Virginia’s forests for composite panels increased 113 percent and totaled 46 million cubic feet. Softwood output was up 208 percent to 31 million cubic feet (425 thousand cords), while hardwood production increased 28 percent to 15 million cubic feet (191 thousand cords) (fig. 9).
- The number of composite panel mills operating in Virginia increased from three to four. Total receipts for these mills were 47 million cubic feet, or about 10 percent of the State’s total receipts.

- Eighty-nine percent of the roundwood production harvested for composite panels was retained for processing at Virginia’s mills. Imports amounted to 6 million cubic feet, while exports totaled 5 million cubic feet, making the State a net importer of logs used for composite panels.

### Other Industrial Products

- Roundwood harvested for other industrial uses such as poles, posts, mulch, firewood, logs for log homes, and all other industrial products totaled 5 million cubic feet and accounted for 1 percent of the State’s total timber products output. Hardwood made up 51 percent of the other industrial product volume.
- The number of plants producing other industrial products increased from 15 to 16. Combined receipts of other industrial products from softwood and hardwood totaled 5 million cubic feet.
- Virginia was a net importer of roundwood used for other industrial products; all of the 651 thousand cubic feet imported was softwood.

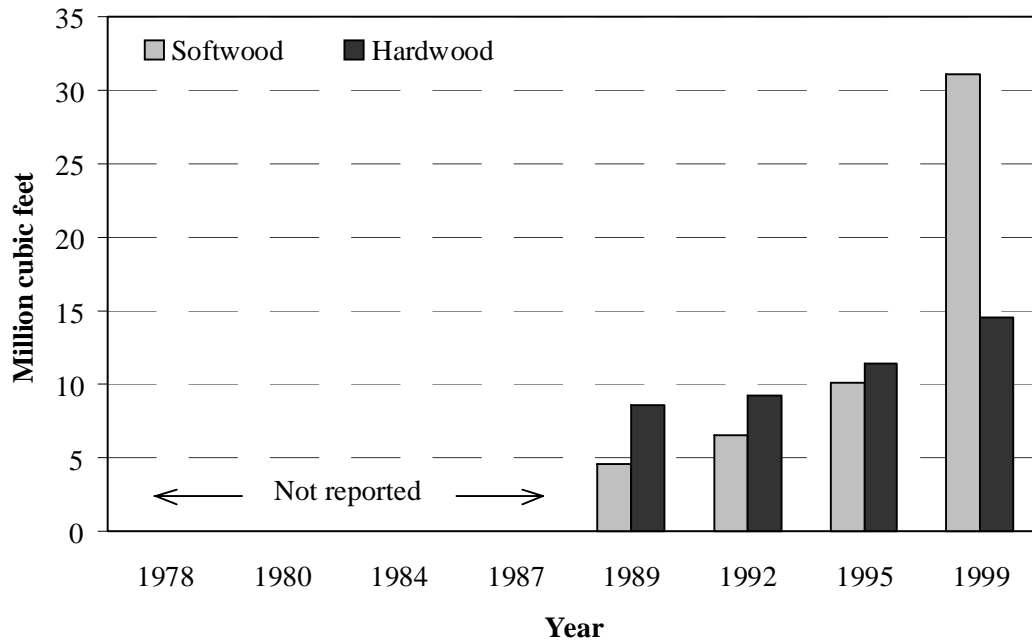


Figure 9—Roundwood production for composite panels by species group and year (see page 10 for references for individual years).

### Plant Byproducts

- In 1999, processing of primary products in Virginia mills generated about 172 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 71 million cubic feet, while bark volume totaled 43 million cubic feet. Collectively, sawdust and shavings made up 33 percent of total residues, or 57 million cubic feet (fig. 10).
- Virtually all the wood and bark residues were used for a product: about 3 percent were not used, while 37 percent of the residues were used for industrial fuel (fig. 11). Fifty-nine million cubic feet, or 82 percent, of the coarse residues were used for fiber products. Most of the bark was used for industrial fuel or other miscellaneous products, while 63 percent of the sawdust and shavings were used for industrial fuel.
- The processing of saw logs generated 139 million cubic feet of mill residues, accounting for 81 percent of the total residues produced (fig. 12).

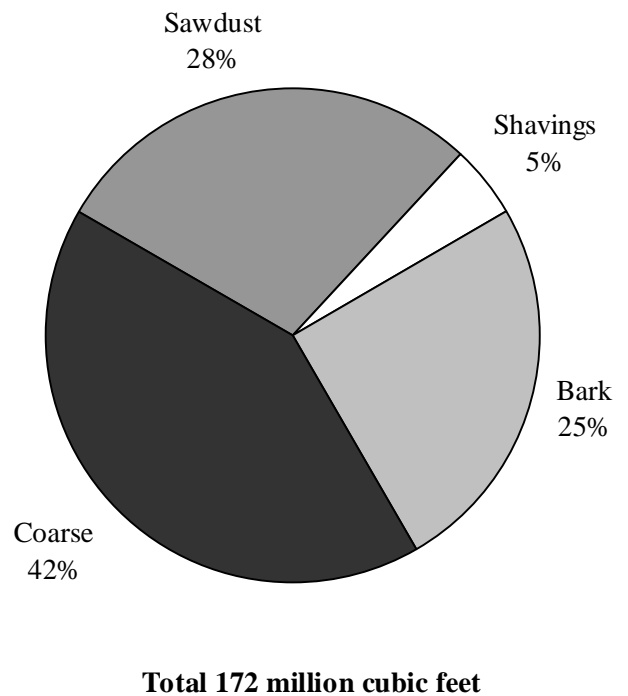


Figure 10—Primary mill residue by residue type, 1999.

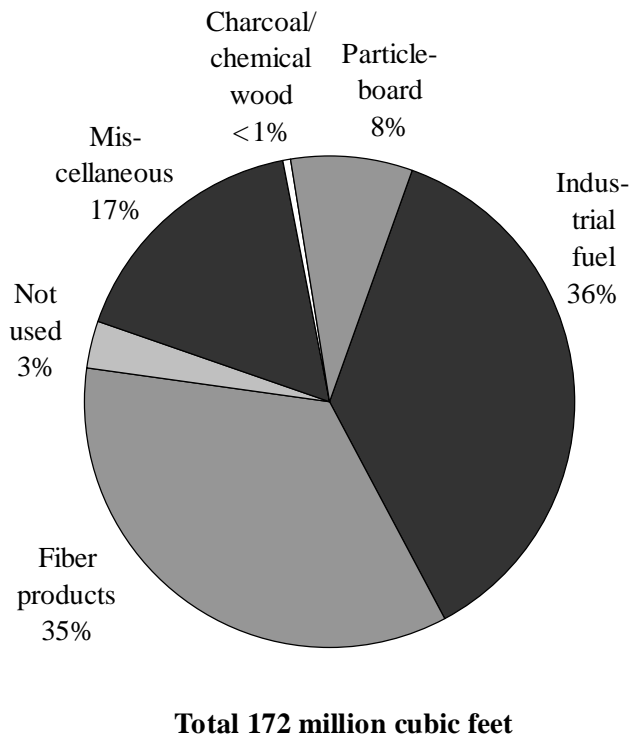


Figure 11—Disposal of residue by product, 1999.

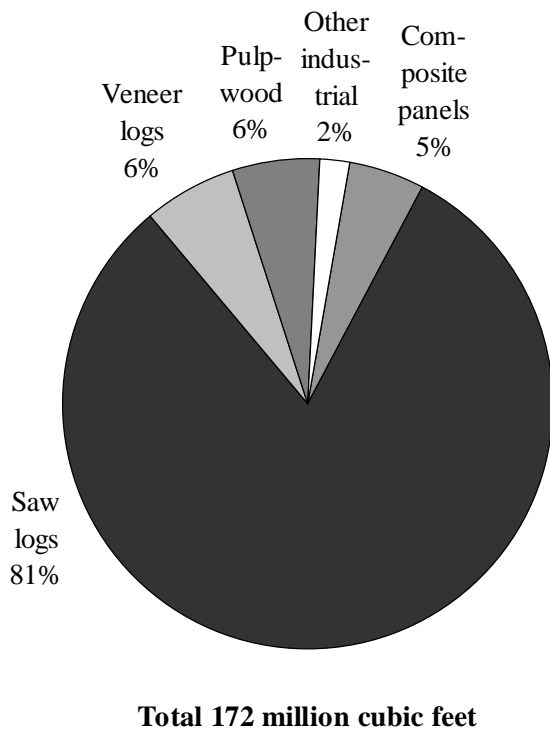


Figure 12—Primary mill residue produced by roundwood type, 1999.

## Regional Trends

- Output of industrial roundwood products increased in all regions; the Southern Mountain and Southern Piedmont regions had the largest increases at 17 and 14 percent, respectively.

### Coastal Plain Region

- Roundwood output from the Coastal Plain region totaled 196 million cubic feet, up 3 percent since 1995.
- Pulpwood accounted for 35 percent of the region's TPO and 40 percent of the State's roundwood pulpwood output. The 95 million cubic feet of saw logs accounted for 49 percent of the total roundwood output for the region.
- In the Coastal Plain region, 61 primary wood-using plants were operating during 1999, 1 more than in 1995: 47 sawmills, 5 pulpmills, 2 veneer or plywood mills, 1 composite panel mill, and 6 other miscellaneous mills. These mills processed 40 percent of the State's total roundwood output.

### Southern Piedmont Region

- Roundwood output from the Southern Piedmont region totaled 163 million cubic feet, an increase of 14 percent.
- Saw-log production of 70 million cubic feet accounted for 43 percent of the region's total roundwood output. Production of pulpwood dropped to 68 million cubic feet and accounted for 42 percent of the region's total roundwood output.
- The 96 mills operating in the Southern Piedmont region in 1999 included 87 sawmills, 4 veneer or plywood mills, 2 pulpmills, 2 composite panel mills, and 1 other miscellaneous mill.

### Northern Piedmont Region

- Roundwood output from the Northern Piedmont region totaled more than 50 million cubic feet, up 4 percent. Roundwood production from this region accounted for 10 percent of the total roundwood TPO for the State.

- Pulpwood production declined by 4 percent to 21 million cubic feet, accounting for 42 percent of the region's total TPO. Saw-log production of 26 million cubic feet accounted for another 51 percent of the region's total roundwood output.
- The 45 primary wood-using plants operating in the Northern Piedmont region included 38 sawmills, 1 pulpmill, and 6 other miscellaneous mills.

**Northern Mountain Region**

- Roundwood output from the Northern Mountain region totaled 28 million cubic feet, about the same as in 1995.
- Saw-log production remained stable at 16 million cubic feet, accounting for 59 percent of the region's total roundwood output. Production of pulpwood remained stable at 11 million cubic feet and accounted for 39 percent of the region's total roundwood output.
- In the Northern Mountain region, 36 primary wood-using plants were operating during 1999: 31 sawmills, 1 veneer mill, 1 pulpmill, and 3 other miscellaneous mills.

**Southern Mountain Region**

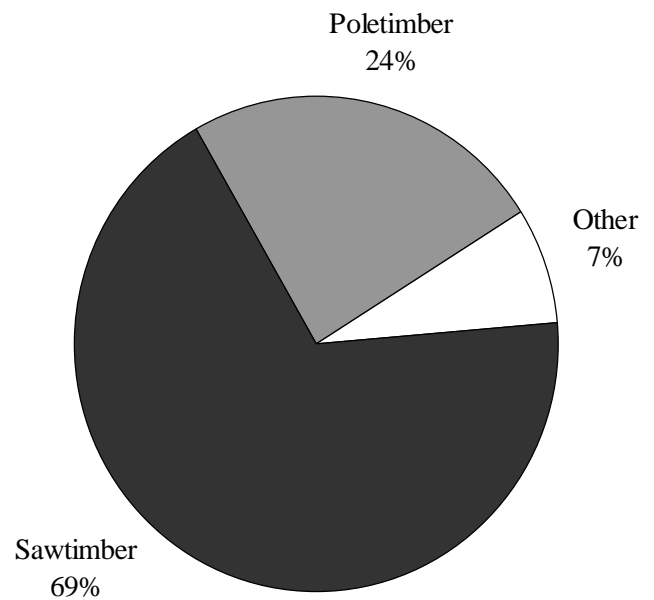
- Roundwood output from the Southern Mountain region totaled 54 million cubic feet, an increase of 17 percent.
- Saw-log production increased 27 percent to 39 million cubic feet and accounted for 72 percent of the region's total roundwood output. Pulpwood production was down 34 percent and accounted for 11 percent of the region's total TPO.
- In the Southern Mountain region, 52 primary wood-using plants were operating during 1999: 51 sawmills and 1 composite panel mill.

**Total Roundwood Output**

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

**Source**

- In addition to the 492 million cubic feet of roundwood output for industrial roundwood, an estimated 54 million cubic feet was harvested for domestic fuelwood, bringing Virginia's total roundwood output to 546 million cubic feet.
- An estimated 93 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 41 million cubic feet, or 7 percent of total roundwood output (fig. 13).



**Total 546 million cubic feet**

Figure 13—Roundwood output by source, 1999.

**Ownership**

- An estimated 394 million cubic feet, or 72 percent, of the total roundwood output came from nonindustrial private forest (NIPF) lands. Forest industry lands contributed 119 million cubic feet, or 22 percent of the output. Public lands made up the remaining 6 percent, or 32 million cubic feet (fig. 14).

**Species**

- The loblolly and shortleaf pine group provided the most volume of any softwood species group, accounting for 68 percent of the total softwood output. The other yellow pine types accounted for 27 percent of the softwood output (fig. 15). In hardwoods, the red oak and white oak groups combined accounted for 132 million cubic feet, or 47 percent of total hardwood output (fig. 16).

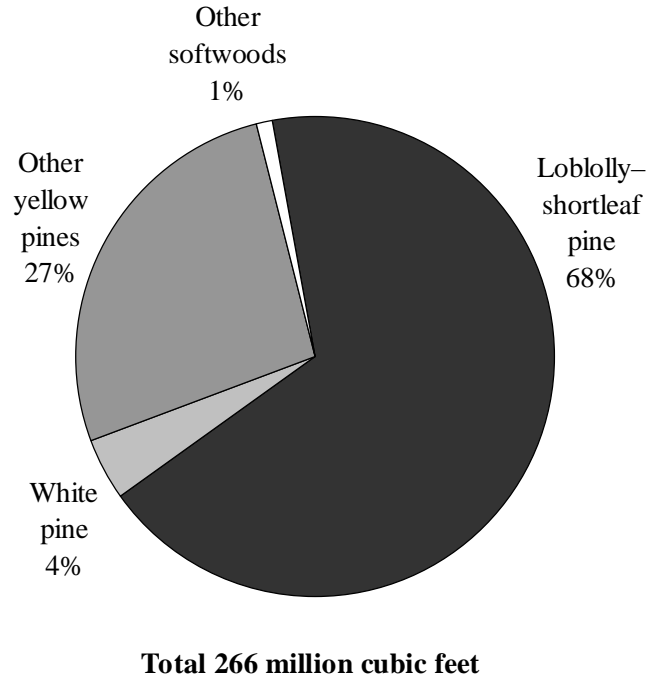


Figure 15—Roundwood output by softwood species group, 1999.

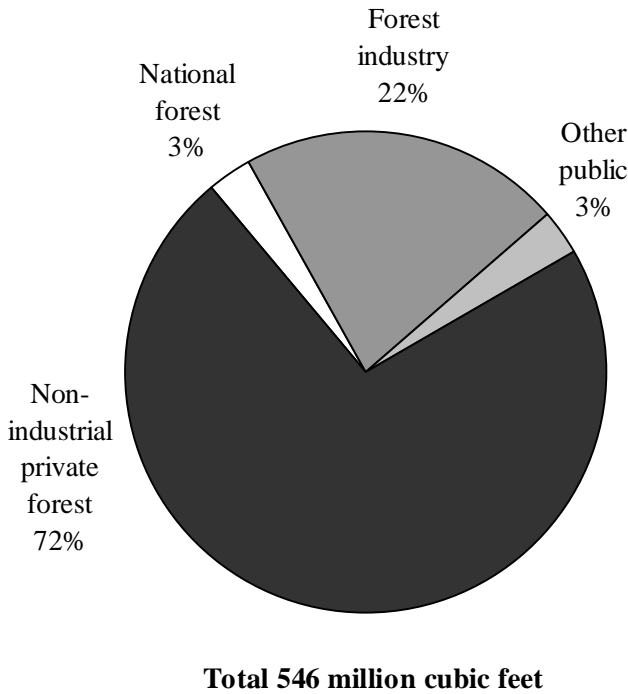


Figure 14—Roundwood output by ownership, 1999.

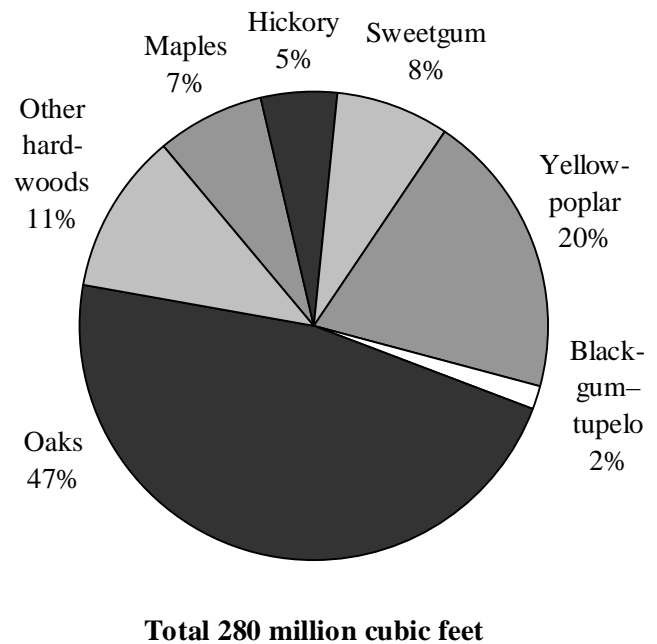


Figure 16—Roundwood output by hardwood species group, 1999.



## References

- Hutchins, Cecil C., Jr.** 1992. Changes in output of industrial timber products in Virginia, 1987-1989. Resour. Bull. SE-129. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 18 p. [1987, 1989].
- Johnson, Tony G.** 1994. Virginia's timber industry—an assessment of timber product output and use, 1992. Resour. Bull. SE-145. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 32 p. [1992].
- Johnson, Tony G.; Jenkins, Anne; Scrivani, John A.; Foreman, J. Michael.** 1997. Virginia's timber industry—an assessment of timber product output and use, 1995. Resour. Bull. SRS-19. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 37 p. [1995].
- U.S. Department of Agriculture, Forest Service.** Product drain by county, product, and species. 6 p. Unpublished data. On file with: Southern Research Station, USDA Forest Service, Forest Inventory and Analysis Research Work Unit, 4700 Old Kingston Pike, Knoxville, TN 37919. [1980, 1984].
- Welch, Richard L.; Bellamy, Thomas R.** 1980. Changes in output of industrial timber products in Virginia, 1976-1978. Resour. Bull. SE-54. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 21 p. [1978].

## 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 nonpulp mills, 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<sup>a</sup>**

---

#### **Saw logs**

|          |   |
|----------|---|
| Softwood | 0.18282 cubic foot = 1 board foot<br>5.47 board feet = 1 cubic foot |
| Hardwood | 0.16393 cubic foot = 1 board foot<br>6.10 board feet = 1 cubic foot |

#### **Veneer logs**

|          |   |
|----------|---|
| Softwood | 0.16129 cubic foot = 1 board foot<br>6.20 board feet = 1 cubic foot |
| Hardwood | 0.16000 cubic foot = 1 board foot<br>6.25 board feet = 1 cubic foot |

#### **Pulpwood<sup>b</sup>**

|          |                          |
|----------|--------------------------|
| Softwood | 73.3 cubic feet per cord |
| Hardwood | 76.1 cubic feet per cord |

---

<sup>a</sup> Conversion factors vary with stem size (d.b.h.) and species. The factors shown are for trees of average diameters removed in Virginia during the most recent survey period.

<sup>b</sup> Cubic feet of solid wood per cord.

## Index of Tables

1. Output of industrial products by product and species group, Virginia, 1995 and 1999
2. Roundwood receipts by product and species group, Virginia, 1995 and 1999
3. Number of primary wood-using plants by industry, Virginia, 1976-1999
4. Roundwood receipts by sawmill size, Virginia, 1995 and 1999
5. Roundwood receipts by species and type of mill, Virginia, 1999
6. Industrial roundwood movement by year and species group, Virginia, 1995 and 1999
7. Industrial roundwood movement by product and species group, Virginia, 1999
8. Saw-log volume by destination, source, and species group, Virginia, 1999
9. Veneer volume by destination, source, and species group, Virginia, 1999
10. Pulpwood volume by destination, source, and species group, Virginia, 1999
11. Composite panel volume by destination, source, and species group, Virginia, 1999
12. Other industrial volume by destination, source, and species group, Virginia, 1999
13. Primary mill residue volume by roundwood type, species group, and residue type, Virginia, 1999
14. Disposal of residue at primary wood-using plants by product, species group, and type of residue, Virginia, 1995 and 1999
15. Roundwood timber products output by product and species group, Coastal Plain of Virginia, 1995 and 1999
16. Roundwood timber products output by county, product, and species group, Coastal Plain of Virginia, 1999
17. Roundwood timber products output by product and species group, Southern Piedmont of Virginia, 1995 and 1999
18. Roundwood timber products output by county, product, and species group, Southern Piedmont of Virginia, 1999
19. Roundwood timber products output by product and species group, Northern Piedmont of Virginia, 1995 and 1999
20. Roundwood timber products output by county, product, and species group, Northern Piedmont of Virginia, 1999
21. Roundwood timber products output by product and species group, Northern Mountains of Virginia, 1995 and 1999
22. Roundwood timber products output by county, product, and species group, Northern Mountains of Virginia, 1999
23. Roundwood timber products output by product and species group, Southern Mountains of Virginia, 1995 and 1999
24. Roundwood timber products output by county, product, and species group, Southern Mountains of Virginia, 1999
25. Total roundwood output by product, species group, and source of material, Virginia, 1999
26. Total roundwood output by species group, survey region, and ownership class, Virginia, 1999
27. Total roundwood output by species group, detailed species group, and product, Virginia, 1999
28. Total roundwood output by species group, detailed species group, and ownership class, Virginia, 1999

**Table 1—Output of industrial products by product and species group, Virginia, 1995 and 1999**

| Product and species group   | Year    |         | Change  | Percent change |
|-----------------------------|---------|---------|---------|----------------|
|                             | 1995    | 1999    |         |                |
| <i>Thousand cubic feet</i>  |         |         |         |                |
| <b>Saw logs</b>             |         |         |         |                |
| Softwood                    | 93,769  | 115,299 | 21,530  | 23.0           |
| Hardwood                    | 119,000 | 130,578 | 11,578  | 9.7            |
| Total                       | 212,769 | 245,877 | 33,108  | 15.6           |
| <b>Veneer logs</b>          |         |         |         |                |
| Softwood                    | 13,134  | 13,947  | 813     | 6.2            |
| Hardwood                    | 3,163   | 5,947   | 2,784   | 88.0           |
| Total                       | 16,297  | 19,894  | 3,597   | 22.1           |
| <b>Pulpwood<sup>a</sup></b> |         |         |         |                |
| Softwood                    | 113,741 | 97,664  | -16,077 | -14.1          |
| Hardwood                    | 87,624  | 77,536  | -10,088 | -11.5          |
| Total                       | 201,365 | 175,200 | -26,165 | -13.0          |
| <b>Composite panels</b>     |         |         |         |                |
| Softwood                    | 10,089  | 31,106  | 21,017  | 208.3          |
| Hardwood                    | 11,373  | 14,552  | 3,179   | 28.0           |
| Total                       | 21,462  | 45,658  | 24,196  | 112.7          |
| <b>Other industrial</b>     |         |         |         |                |
| Softwood                    | 1,229   | 2,411   | 1,182   | 96.2           |
| Hardwood                    | 2,498   | 2,521   | 23      | 0.9            |
| Total                       | 3,727   | 4,932   | 1,205   | 32.3           |
| <b>All industrial</b>       |         |         |         |                |
| Softwood                    | 231,962 | 260,427 | 28,465  | 12.3           |
| Hardwood                    | 223,658 | 231,134 | 7,476   | 3.3            |
| Total                       | 455,620 | 491,561 | 35,941  | 7.9            |
| <b>Byproduct output</b>     |         |         |         |                |
| Softwood                    | 79,284  | 83,392  | 4,108   | 5.2            |
| Hardwood                    | 87,420  | 83,132  | -4,288  | -4.9           |
| Total                       | 166,704 | 166,524 | -180    | -0.1           |
| <b>Total output</b>         |         |         |         |                |
| Softwood                    | 311,246 | 343,819 | 32,573  | 10.5           |
| Hardwood                    | 311,078 | 314,266 | 3,188   | 1.0            |
| Total                       | 622,324 | 658,085 | 35,761  | 5.7            |

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (4,476,000 cubic feet in 1995 and 3,693,000 cubic feet in 1999).

**Table 2—Roundwood receipts by product and species group, Virginia, 1995 and 1999**

| Product and species group   | Year    |         | Change  | Percent change |
|-----------------------------|---------|---------|---------|----------------|
|                             | 1995    | 1999    |         |                |
| <i>Thousand cubic feet</i>  |         |         |         |                |
| <b>Saw logs</b>             |         |         |         |                |
| Softwood                    | 99,785  | 115,492 | 15,707  | 15.7           |
| Hardwood                    | 119,993 | 128,833 | 8,840   | 7.4            |
| Total                       | 219,778 | 244,325 | 24,547  | 11.2           |
| <b>Veneer logs</b>          |         |         |         |                |
| Softwood                    | 16,567  | 17,294  | 727     | 4.4            |
| Hardwood                    | 2,260   | 2,054   | -206    | -9.1           |
| Total                       | 18,827  | 19,348  | 521     | 2.8            |
| <b>Pulpwood<sup>a</sup></b> |         |         |         |                |
| Softwood                    | 106,437 | 86,628  | -19,809 | -18.6          |
| Hardwood                    | 107,753 | 87,311  | -20,442 | -19.0          |
| Total                       | 214,190 | 173,939 | -40,251 | -18.8          |
| <b>Composite panels</b>     |         |         |         |                |
| Softwood                    | 12,274  | 32,569  | 20,295  | 165.3          |
| Hardwood                    | 15,139  | 14,078  | -1,061  | -7.0           |
| Total                       | 27,413  | 46,647  | 19,234  | 70.2           |
| <b>Other industrial</b>     |         |         |         |                |
| Softwood                    | 1,851   | 2,940   | 1,089   | 58.8           |
| Hardwood                    | 2,498   | 2,521   | 23      | 0.9            |
| Total                       | 4,349   | 5,461   | 1,112   | 25.6           |
| <b>Total output</b>         |         |         |         |                |
| Softwood                    | 236,914 | 254,923 | 18,009  | 7.6            |
| Hardwood                    | 247,643 | 234,797 | -12,846 | -5.2           |
| Total                       | 484,557 | 489,720 | 5,163   | 1.1            |

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (4,629,000 cubic feet in 1995 and 4,283,000 cubic feet in 1999).



**Table 3—Number of primary wood-using plants by industry, Virginia, 1976–1999**

| Industry                | Year |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|
|                         | 1976 | 1978 | 1980 | 1984 | 1987 | 1989 | 1992 | 1995 | 1999 |
| Sawmills                | 451  | 324  | 392  | 419  | 355  | 323  | 276  | 254  | 254  |
| Veneer or plywood mills | 10   | 12   | 12   | 12   | 10   | 10   | 9    | 8    | 7    |
| Pulpmills               | 9    | 8    | 9    | 9    | 9    | 9    | 9    | 9    | 9    |
| Composite panel mills   | 0    | 0    | 0    | 0    | 1    | 3    | 3    | 3    | 4    |
| Other mills             | 15   | 18   | 24   | 22   | 19   | 24   | 14   | 15   | 16   |
| All plants              | 485  | 362  | 437  | 462  | 394  | 369  | 311  | 289  | 290  |

**Table 4—Roundwood receipts by sawmill size, Virginia, 1995 and 1999**

| Sawmill size class <sup>a</sup> | 1995            |                     |                   | 1999            |                     |                   |
|---------------------------------|-----------------|---------------------|-------------------|-----------------|---------------------|-------------------|
|                                 | Number of mills | Thousand board feet | Percent of volume | Number of mills | Thousand board feet | Percent of volume |
| <i>Million board feet</i>       |                 |                     |                   |                 |                     |                   |
| <1.0                            | 64              | 22,357              | 2                 | 67              | 22,697              | 2                 |
| 1.0 - 4.99                      | 106             | 295,647             | 23                | 94              | 265,231             | 19                |
| 5.0 - 9.99                      | 57              | 393,473             | 31                | 55              | 369,991             | 26                |
| >10                             | 27              | 565,493             | 44                | 38              | 758,791             | 53                |
| Total                           | 254             | 1,276,970           | 100               | 254             | 1,416,710           | 100               |

<sup>a</sup> Based on volume received as opposed to actual capacity.

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

| Species                    | Type of mill |          |              |              |                             |                        |             |
|----------------------------|--------------|----------|--------------|--------------|-----------------------------|------------------------|-------------|
|                            | All mills    | Sawmills | Veneer mills |              | OSB <sup>a</sup> and panels | Pulpmills <sup>b</sup> | Other mills |
|                            |              |          | Pine plywood | Other veneer |                             |                        |             |
| <i>Thousand cubic feet</i> |              |          |              |              |                             |                        |             |
| <b>Softwood</b>            |              |          |              |              |                             |                        |             |
| Yellow pine                | 155,248      | 102,635  | 17,079       | 212          | 32,382                      | NA                     | 2,940       |
| White pine                 | 9,105        | 8,918    | 0            | 0            | 187                         | NA                     | 0           |
| Cedar                      | 3            | 0        | 0            | 3            | 0                           | NA                     | 0           |
| Cypress                    | 405          | 405      | 0            | 0            | 0                           | NA                     | 0           |
| Other softwood             | 3,534        | 3,534    | 0            | 0            | 0                           | NA                     | 0           |
| Unclassified               | 86,628       | 0        | 0            | 0            | 0                           | 86,628                 | 0           |
| Total softwoods            | 254,923      | 115,492  | 17,079       | 215          | 32,569                      | 86,628                 | 2,940       |
| <b>Hardwood</b>            |              |          |              |              |                             |                        |             |
| Blackgum and tupelo        | 855          | 670      | 0            | 3            | 182                         | NA                     | 0           |
| Soft maple                 | 4,191        | 3,420    | 0            | 3            | 768                         | NA                     | 0           |
| Sweetgum                   | 3,233        | 3,077    | 0            | 0            | 156                         | NA                     | 0           |
| Yellow-poplar              | 40,606       | 35,189   | 0            | 668          | 4,749                       | NA                     | 0           |
| Other soft hardwood        | 19,400       | 11,177   | 0            | 0            | 8,223                       | NA                     | 0           |
| Hickory                    | 3,095        | 3,080    | 0            | 14           | 0                           | NA                     | 1           |
| Red oak                    | 35,722       | 35,373   | 0            | 303          | 0                           | NA                     | 46          |
| White oak                  | 21,508       | 21,152   | 0            | 316          | 0                           | NA                     | 40          |
| Other hard hardwood        | 18,876       | 15,695   | 0            | 747          | 0                           | NA                     | 2,434       |
| Unclassified               | 87,311       | 0        | 0            | 0            | 0                           | 87,311                 | 0           |
| Total hardwoods            | 234,797      | 128,833  | 0            | 2,054        | 14,078                      | 87,311                 | 2,521       |
| <b>All species</b>         | 489,720      | 244,325  | 17,079       | 2,269        | 46,647                      | 173,939                | 5,461       |

NA = not applicable.

<sup>a</sup> OSB = oriented strand board.

<sup>b</sup> Collected only by softwood and hardwood and includes roundwood chipped.

**Table 6—Industrial roundwood movement by year and species group, Virginia, 1995 and 1999**

| Year                       | Production | Exported to other States | Retained | Imported from other States | Receipts |
|----------------------------|------------|--------------------------|----------|----------------------------|----------|
| <i>Thousand cubic feet</i> |            |                          |          |                            |          |
| <b>Softwood</b>            |            |                          |          |                            |          |
| 1995                       | 231,962    | 31,340                   | 200,622  | 36,292                     | 236,914  |
| 1999                       | 260,427    | 34,992                   | 225,435  | 29,488                     | 254,923  |
| <b>Hardwood</b>            |            |                          |          |                            |          |
| 1995                       | 223,658    | 26,963                   | 196,695  | 50,948                     | 247,643  |
| 1999                       | 231,134    | 29,210                   | 201,924  | 32,873                     | 234,797  |
| <b>All species</b>         |            |                          |          |                            |          |
| 1995                       | 455,620    | 58,303                   | 397,317  | 87,240                     | 484,557  |
| 1999                       | 491,561    | 64,202                   | 427,359  | 62,361                     | 489,720  |

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

| Product and species group   | Production | Exported to other States | Retained | Imported from other States | Receipts |
|-----------------------------|------------|--------------------------|----------|----------------------------|----------|
| <i>Thousand cubic feet</i>  |            |                          |          |                            |          |
| <b>Saw logs</b>             |            |                          |          |                            |          |
| Softwood                    | 115,299    | 14,360                   | 100,939  | 14,553                     | 115,492  |
| Hardwood                    | 130,578    | 11,287                   | 119,291  | 9,542                      | 128,833  |
| Total                       | 245,877    | 25,647                   | 220,230  | 24,095                     | 244,325  |
| <b>Veneer logs</b>          |            |                          |          |                            |          |
| Softwood                    | 13,947     | 287                      | 13,660   | 3,634                      | 17,294   |
| Hardwood                    | 5,947      | 5,155                    | 792      | 1,262                      | 2,054    |
| Total                       | 19,894     | 5,442                    | 14,452   | 4,896                      | 19,348   |
| <b>Pulpwood<sup>a</sup></b> |            |                          |          |                            |          |
| Softwood                    | 97,664     | 17,491                   | 80,173   | 6,455                      | 86,628   |
| Hardwood                    | 77,536     | 10,255                   | 67,281   | 20,030                     | 87,311   |
| Total                       | 175,200    | 27,746                   | 147,454  | 26,485                     | 173,939  |
| <b>Composite panels</b>     |            |                          |          |                            |          |
| Softwood                    | 31,106     | 2,732                    | 28,374   | 4,195                      | 32,569   |
| Hardwood                    | 14,552     | 2,513                    | 12,039   | 2,039                      | 14,078   |
| Total                       | 45,658     | 5,245                    | 40,413   | 6,234                      | 46,647   |
| <b>Other industrial</b>     |            |                          |          |                            |          |
| Softwood                    | 2,411      | 122                      | 2,289    | 651                        | 2,940    |
| Hardwood                    | 2,521      | 0                        | 2,521    | 0                          | 2,521    |
| Total                       | 4,932      | 122                      | 4,810    | 651                        | 5,461    |
| <b>All products</b>         |            |                          |          |                            |          |
| Softwood                    | 260,427    | 34,992                   | 225,435  | 29,488                     | 254,923  |
| Hardwood                    | 231,134    | 29,210                   | 201,924  | 32,873                     | 234,797  |
| Total                       | 491,561    | 64,202                   | 427,359  | 62,361                     | 489,720  |

<sup>a</sup> Includes roundwood chipped.

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

| Destination<br>and source  | All<br>species | Species group |          |
|----------------------------|----------------|---------------|----------|
|                            |                | Softwood      | Hardwood |
| <i>Thousand cubic feet</i> |                |               |          |
| <b>Virginia (retained)</b> | 220,230        | 100,939       | 119,291  |
| <b>Exports to:</b>         |                |               |          |
| Kentucky                   | 138            | 0             | 138      |
| North Carolina             | 19,506         | 13,482        | 6,024    |
| Tennessee                  | 4,503          | 779           | 3,724    |
| West Virginia              | 1,500          | 99            | 1,401    |
| Total                      | 25,647         | 14,360        | 11,287   |
| <b>Imports from:</b>       |                |               |          |
| Kentucky                   | 587            | 0             | 587      |
| Maryland                   | 369            | 13            | 356      |
| North Carolina             | 20,279         | 14,514        | 5,765    |
| Pennsylvania               | 40             | 16            | 24       |
| Tennessee                  | 1,104          | 1             | 1,103    |
| West Virginia              | 1,716          | 9             | 1,707    |
| Total                      | 24,095         | 14,553        | 9,542    |

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

| Destination<br>and source  | All<br>species | Species group |          |
|----------------------------|----------------|---------------|----------|
|                            |                | Softwood      | Hardwood |
| <i>Thousand cubic feet</i> |                |               |          |
| <b>Virginia (retained)</b> | 14,452         | 13,660        | 792      |
| <b>Exports to:</b>         |                |               |          |
| Georgia                    | 1,862          | 84            | 1,778    |
| Kentucky                   | 275            | 0             | 275      |
| North Carolina             | 3,000          | 203           | 2,797    |
| South Carolina             | 34             | 0             | 34       |
| West Virginia              | 271            | 0             | 271      |
| Total                      | 5,442          | 287           | 5,155    |
| <b>Imports from:</b>       |                |               |          |
| Foreign                    | 2              | 0             | 2        |
| Indiana                    | 104            | 2             | 102      |
| Kentucky                   | 150            | 0             | 150      |
| Maine                      | 48             | 0             | 48       |
| Maryland                   | 8              | 0             | 8        |
| Michigan                   | 41             | 0             | 41       |
| New Hampshire              | 19             | 0             | 19       |
| New York                   | 21             | 0             | 21       |
| North Carolina             | 3,648          | 3,626         | 22       |
| Ohio                       | 83             | 0             | 83       |
| Pennsylvania               | 304            | 0             | 304      |
| South Carolina             | 9              | 6             | 3        |
| Tennessee                  | 231            | 0             | 231      |
| West Virginia              | 223            | 0             | 223      |
| Wisconsin                  | 5              | 0             | 5        |
| Total                      | 4,896          | 3,634         | 1,262    |

**Table 10—Pulpwood volume by destination, source, and species group, Virginia, 1999<sup>a</sup>**

| Destination and source     | All species | Species group |          |
|----------------------------|-------------|---------------|----------|
|                            |             | Softwood      | Hardwood |
| <i>Thousand cubic feet</i> |             |               |          |
| <b>Virginia (retained)</b> | 147,454     | 80,173        | 67,281   |
| <b>Exports to:</b>         |             |               |          |
| Florida                    | 5           | 5             | 0        |
| Kentucky                   | 1,136       | 0             | 1,136    |
| Maryland                   | 5,024       | 3,375         | 1,649    |
| North Carolina             | 16,030      | 11,562        | 4,468    |
| Pennsylvania               | 3,346       | 2,537         | 809      |
| South Carolina             | 344         | 0             | 344      |
| Tennessee                  | 1,861       | 12            | 1,849    |
| Total                      | 27,746      | 17,491        | 10,255   |
| <b>Imports from:</b>       |             |               |          |
| Delaware                   | 344         | 242           | 102      |
| Georgia                    | 9           | 1             | 8        |
| Maryland                   | 5,180       | 3,629         | 1,551    |
| North Carolina             | 9,516       | 2,213         | 7,303    |
| West Virginia              | 11,436      | 370           | 11,066   |
| Total                      | 26,485      | 6,455         | 20,030   |

<sup>a</sup> Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills.

**Table 11—Composite panel volume by destination, source, and species group, Virginia, 1999**

| Destination and source     | All species | Species group |          |
|----------------------------|-------------|---------------|----------|
|                            |             | Softwood      | Hardwood |
| <i>Thousand cubic feet</i> |             |               |          |
| <b>Virginia (retained)</b> | 40,413      | 28,374        | 12,039   |
| <b>Exports to:</b>         |             |               |          |
| North Carolina             | 5,245       | 2,732         | 2,513    |
| Total                      | 5,245       | 2,732         | 2,513    |
| <b>Imports from:</b>       |             |               |          |
| Kentucky                   | 1,043       | 71            | 972      |
| North Carolina             | 4,604       | 4,084         | 520      |
| Tennessee                  | 587         | 40            | 547      |
| Total                      | 6,234       | 4,195         | 2,039    |

**Table 12—Other industrial volume by destination, source, and species group, Virginia, 1999<sup>a</sup>**

| Destination and source     | All species | Species group |          |
|----------------------------|-------------|---------------|----------|
|                            |             | Softwood      | Hardwood |
| <i>Thousand cubic feet</i> |             |               |          |
| <b>Virginia (retained)</b> | 4,810       | 2,289         | 2,521    |
| <b>Exports to:</b>         |             |               |          |
| Kentucky                   | 87          | 87            | 0        |
| West Virginia              | 35          | 35            | 0        |
| Total                      | 122         | 122           | 0        |
| <b>Imports from:</b>       |             |               |          |
| Alabama                    | 144         | 144           | 0        |
| Georgia                    | 72          | 72            | 0        |
| North Carolina             | 435         | 435           | 0        |
| Total                      | 651         | 651           | 0        |

<sup>a</sup> Includes poles, posts, mulch, firewood, log homes, charcoal, and all other industrial mills.

**Table 13—Primary mill residue volume by roundwood type, species group, and residue type, Virginia, 1999**

| Roundwood type<br>and species group | All<br>types | Residue type |        |         |          |
|-------------------------------------|--------------|--------------|--------|---------|----------|
|                                     |              | Bark         | Coarse | Sawdust | Shavings |
| <i>Thousand cubic feet</i>          |              |              |        |         |          |
| <b>Saw logs</b>                     |              |              |        |         |          |
| Softwood                            | 63,377       | 7,701        | 27,530 | 20,343  | 7,803    |
| Hardwood                            | 75,927       | 13,426       | 36,101 | 25,980  | 420      |
| Total                               | 139,304      | 21,127       | 63,631 | 46,323  | 8,223    |
| <b>Veneer logs</b>                  |              |              |        |         |          |
| Softwood                            | 9,754        | 1,310        | 6,273  | 2,171   | 0        |
| Hardwood                            | 755          | 219          | 354    | 182     | 0        |
| Total                               | 10,509       | 1,529        | 6,627  | 2,353   | 0        |
| <b>Pulpwood</b>                     |              |              |        |         |          |
| Softwood                            | 4,463        | 4,463        | 0      | 0       | 0        |
| Hardwood                            | 5,517        | 5,517        | 0      | 0       | 0        |
| Total                               | 9,980        | 9,980        | 0      | 0       | 0        |
| <b>Composite panels</b>             |              |              |        |         |          |
| Softwood                            | 5,348        | 5,348        | 0      | 0       | 0        |
| Hardwood                            | 3,162        | 3,162        | 0      | 0       | 0        |
| Total                               | 8,510        | 8,510        | 0      | 0       | 0        |
| <b>Other industrial<sup>a</sup></b> |              |              |        |         |          |
| Softwood                            | 1,956        | 1,651        | 305    | 0       | 0        |
| Hardwood                            | 1,511        | 376          | 830    | 305     | 0        |
| Total                               | 3,467        | 2,027        | 1,135  | 305     | 0        |
| <b>Total</b>                        |              |              |        |         |          |
| Softwood                            | 84,898       | 20,473       | 34,108 | 22,514  | 7,803    |
| Hardwood                            | 86,872       | 22,700       | 37,285 | 26,467  | 420      |
| Total                               | 171,770      | 43,173       | 71,393 | 48,981  | 8,223    |

<sup>a</sup> Includes poles, pilings, posts, and other industrial products.



**Table 14—Disposal of residue at primary wood-using plants by product, species group, and type of residue, Virginia, 1995 and 1999**

| Product and species group     | All types |         | Bark   |        | Coarse |        | Sawdust |        | Shavings |       |
|-------------------------------|-----------|---------|--------|--------|--------|--------|---------|--------|----------|-------|
|                               | 1995      | 1999    | 1995   | 1999   | 1995   | 1999   | 1995    | 1999   | 1995     | 1999  |
| <i>Thousand cubic feet</i>    |           |         |        |        |        |        |         |        |          |       |
| <b>Fiber products</b>         |           |         |        |        |        |        |         |        |          |       |
| Softwood                      | 29,240    | 31,532  | 0      | 0      | 29,228 | 31,028 | 12      | 12     | 0        | 492   |
| Hardwood                      | 27,887    | 28,460  | 0      | 0      | 27,162 | 27,810 | 725     | 650    | 0        | 0     |
| Total                         | 57,127    | 59,992  | 0      | 0      | 56,390 | 58,838 | 737     | 662    | 0        | 492   |
| <b>Particleboard</b>          |           |         |        |        |        |        |         |        |          |       |
| Softwood                      | 8,759     | 9,523   | 0      | 0      | 747    | 442    | 4,487   | 5,154  | 3,525    | 3,927 |
| Hardwood                      | 2,688     | 4,376   | 0      | 0      | 1,593  | 3,284  | 1,016   | 1,036  | 79       | 56    |
| Total                         | 11,447    | 13,899  | 0      | 0      | 2,340  | 3,726  | 5,503   | 6,190  | 3,604    | 3,983 |
| <b>Charcoal/chemical wood</b> |           |         |        |        |        |        |         |        |          |       |
| Softwood                      | 141       | 70      | 0      | 0      | 41     | 0      | 94      | 70     | 6        | 0     |
| Hardwood                      | 618       | 722     | 27     | 27     | 534    | 396    | 49      | 299    | 8        | 0     |
| Total                         | 759       | 792     | 27     | 27     | 575    | 396    | 143     | 369    | 14       | 0     |
| <b>Sawn products</b>          |           |         |        |        |        |        |         |        |          |       |
| Softwood                      | 0         | 0       | 0      | 0      | 0      | 0      | 0       | 0      | 0        | 0     |
| Hardwood                      | 4         | 0       | 0      | 0      | 4      | 0      | 0       | 0      | 0        | 0     |
| Total                         | 4         | 0       | 0      | 0      | 4      | 0      | 0       | 0      | 0        | 0     |
| <b>Fuel</b>                   |           |         |        |        |        |        |         |        |          |       |
| Softwood                      | 29,529    | 31,375  | 13,005 | 13,179 | 2,200  | 1,949  | 13,318  | 14,726 | 1,006    | 1,521 |
| Hardwood                      | 39,645    | 31,768  | 16,976 | 9,497  | 4,632  | 2,506  | 17,815  | 19,525 | 222      | 240   |
| Total                         | 69,174    | 63,143  | 29,981 | 22,676 | 6,832  | 4,455  | 31,133  | 34,251 | 1,228    | 1,761 |
| <b>Miscellaneous</b>          |           |         |        |        |        |        |         |        |          |       |
| Softwood                      | 11,615    | 10,892  | 8,527  | 6,322  | 72     | 381    | 1,420   | 2,326  | 1,596    | 1,863 |
| Hardwood                      | 16,578    | 17,806  | 11,986 | 11,915 | 1,247  | 2,474  | 3,217   | 3,293  | 128      | 124   |
| Total                         | 28,193    | 28,698  | 20,513 | 18,237 | 1,319  | 2,855  | 4,637   | 5,619  | 1,724    | 1,987 |
| <b>Not used</b>               |           |         |        |        |        |        |         |        |          |       |
| Softwood                      | 1,108     | 1,506   | 387    | 972    | 326    | 308    | 326     | 226    | 69       | 0     |
| Hardwood                      | 3,704     | 3,740   | 854    | 1,261  | 948    | 815    | 1,873   | 1,664  | 29       | 0     |
| Total                         | 4,812     | 5,246   | 1,241  | 2,233  | 1,274  | 1,123  | 2,199   | 1,890  | 98       | 0     |
| <b>All products</b>           |           |         |        |        |        |        |         |        |          |       |
| Softwood                      | 80,392    | 84,898  | 21,919 | 20,473 | 32,614 | 34,108 | 19,657  | 22,514 | 6,202    | 7,803 |
| Hardwood                      | 91,124    | 86,872  | 29,843 | 22,700 | 36,120 | 37,285 | 24,695  | 26,467 | 466      | 420   |
| Total                         | 171,516   | 171,770 | 51,762 | 43,173 | 68,734 | 71,393 | 44,352  | 48,981 | 6,668    | 8,223 |

**Table 15—Roundwood timber products output by product and species group, Coastal Plain of Virginia, 1995 and 1999**

| Product and species group   | Year    |         | Change  | Percent change |
|-----------------------------|---------|---------|---------|----------------|
|                             | 1995    | 1999    |         |                |
| <i>Thousand cubic feet</i>  |         |         |         |                |
| <b>Saw logs</b>             |         |         |         |                |
| Softwood                    | 49,350  | 62,254  | 12,904  | 26.1           |
| Hardwood                    | 33,044  | 32,890  | -154    | -0.5           |
| Total                       | 82,394  | 95,144  | 12,750  | 15.5           |
| <b>Veneer logs</b>          |         |         |         |                |
| Softwood                    | 9,780   | 10,378  | 598     | 6.1            |
| Hardwood                    | 490     | 361     | -129    | -26.3          |
| Total                       | 10,270  | 10,739  | 469     | 4.6            |
| <b>Pulpwood<sup>a</sup></b> |         |         |         |                |
| Softwood                    | 57,416  | 44,784  | -12,632 | -22.0          |
| Hardwood                    | 31,473  | 24,693  | -6,780  | -21.5          |
| Total                       | 88,889  | 69,477  | -19,412 | -21.8          |
| <b>Composite panels</b>     |         |         |         |                |
| Softwood                    | 3,753   | 11,885  | 8,132   | 216.7          |
| Hardwood                    | 3,632   | 7,245   | 3,613   | 99.5           |
| Total                       | 7,385   | 19,130  | 11,745  | 159.0          |
| <b>Other industrial</b>     |         |         |         |                |
| Softwood                    | 410     | 878     | 468     | 114.1          |
| Hardwood                    | 728     | 728     | 0       | --             |
| Total                       | 1,138   | 1,606   | 468     | 41.1           |
| <b>All industrial</b>       |         |         |         |                |
| Softwood                    | 120,709 | 130,179 | 9,470   | 7.8            |
| Hardwood                    | 69,367  | 65,917  | -3,450  | -5.0           |
| Total                       | 190,076 | 196,096 | 6,020   | 3.2            |

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (2,319,000 cubic feet in 1995 and 1,599,000 cubic feet in 1999).

**Table 16—Roundwood timber products output by county, product, and species group, Coastal Plain of Virginia, 1999**

| County         | All products               |           | Saw logs  |           | Veneer logs |           | Pulpwood <sup>a</sup> |           | Composite panels |           | Other industrial |           |
|----------------|----------------------------|-----------|-----------|-----------|-------------|-----------|-----------------------|-----------|------------------|-----------|------------------|-----------|
|                | Soft-wood                  | Hard-wood | Soft-wood | Hard-wood | Soft-wood   | Hard-wood | Soft-wood             | Hard-wood | Soft-wood        | Hard-wood | Soft-wood        | Hard-wood |
|                | <i>Thousand cubic feet</i> |           |           |           |             |           |                       |           |                  |           |                  |           |
| Accomack       | 2,614                      | 475       | 1,447     | 144       | 0           | 0         | 1,042                 | 331       | 0                | 0         | 125              | 0         |
| Brunswick      | 20,656                     | 5,975     | 6,906     | 3,051     | 1,366       | 136       | 11,523                | 1,964     | 832              | 507       | 29               | 317       |
| Caroline       | 5,741                      | 4,110     | 4,081     | 2,687     | 0           | 20        | 1,632                 | 1,385     | 0                | 0         | 28               | 18        |
| Charles City   | 3,004                      | 1,678     | 940       | 567       | 1           | 0         | 2,021                 | 1,090     | 0                | 0         | 42               | 21        |
| Chesapeake     | 498                        | 687       | 386       | 123       | 0           | 0         | 112                   | 564       | 0                | 0         | 0                | 0         |
| Chesterfield   | 4,362                      | 1,824     | 1,656     | 1,167     | 853         | 16        | 1,853                 | 641       | 0                | 0         | 0                | 0         |
| Dinwiddie      | 8,195                      | 3,862     | 4,015     | 2,230     | 853         | 4         | 2,376                 | 732       | 951              | 579       | 0                | 317       |
| Essex          | 2,273                      | 1,856     | 1,324     | 862       | 0           | 0         | 915                   | 987       | 0                | 0         | 34               | 7         |
| Gloucester     | 1,472                      | 1,326     | 763       | 805       | 0           | 0         | 706                   | 514       | 0                | 0         | 3                | 7         |
| Greensville    | 7,669                      | 3,912     | 2,435     | 1,198     | 1,366       | 17        | 868                   | 885       | 2,971            | 1,812     | 29               | 0         |
| Hampton        | 73                         | 0         | 65        | 0         | 0           | 0         | 8                     | 0         | 0                | 0         | 0                | 0         |
| Hanover        | 2,273                      | 1,315     | 979       | 844       | 0           | 16        | 1,253                 | 447       | 0                | 0         | 41               | 8         |
| Henrico        | 756                        | 584       | 256       | 214       | 0           | 4         | 500                   | 364       | 0                | 0         | 0                | 2         |
| Isle Of Wight  | 3,980                      | 3,142     | 1,483     | 1,065     | 853         | 0         | 207                   | 1,208     | 1,426            | 869       | 11               | 0         |
| James City     | 1,222                      | 612       | 612       | 211       | 0           | 16        | 610                   | 383       | 0                | 0         | 0                | 2         |
| King and Queen | 3,997                      | 2,501     | 1,890     | 1,448     | 0           | 62        | 2,029                 | 991       | 0                | 0         | 78               | 0         |
| King George    | 907                        | 808       | 699       | 716       | 0           | 4         | 208                   | 88        | 0                | 0         | 0                | 0         |
| King William   | 1,982                      | 3,766     | 901       | 2,722     | 0           | 29        | 997                   | 1,015     | 0                | 0         | 84               | 0         |
| Lancaster      | 1,753                      | 1,738     | 829       | 567       | 0           | 0         | 913                   | 1,171     | 0                | 0         | 11               | 0         |
| Mathews        | 950                        | 389       | 645       | 228       | 0           | 4         | 305                   | 157       | 0                | 0         | 0                | 0         |
| Middlesex      | 1,135                      | 540       | 674       | 247       | 1           | 0         | 410                   | 286       | 0                | 0         | 50               | 7         |
| New Kent       | 1,799                      | 1,627     | 575       | 1,125     | 0           | 8         | 1,186                 | 477       | 0                | 0         | 38               | 17        |
| Newport News   | 121                        | 100       | 76        | 62        | 0           | 0         | 45                    | 38        | 0                | 0         | 0                | 0         |
| Northampton    | 726                        | 265       | 482       | 230       | 131         | 13        | 60                    | 22        | 0                | 0         | 53               | 0         |
| Northumberland | 1,037                      | 840       | 851       | 630       | 0           | 0         | 158                   | 210       | 0                | 0         | 28               | 0         |
| Prince George  | 6,589                      | 3,348     | 2,527     | 2,247     | 853         | 4         | 3,180                 | 1,094     | 0                | 0         | 29               | 3         |
| Richmond       | 2,010                      | 1,141     | 651       | 417       | 0           | 0         | 1,287                 | 724       | 0                | 0         | 72               | 0         |
| Southampton    | 14,554                     | 6,219     | 7,840     | 2,455     | 1,366       | 0         | 3,541                 | 2,677     | 1,783            | 1,087     | 24               | 0         |
| Suffolk        | 7,740                      | 2,723     | 3,380     | 331       | 853         | 0         | 881                   | 798       | 2,615            | 1,594     | 11               | 0         |
| Surry          | 5,192                      | 1,770     | 2,502     | 1,093     | 853         | 0         | 1,813                 | 677       | 0                | 0         | 24               | 0         |
| Sussex         | 11,572                     | 3,908     | 7,669     | 1,154     | 1,029       | 4         | 1,567                 | 1,953     | 1,307            | 797       | 0                | 0         |
| Virginia Beach | 124                        | 493       | 0         | 13        | 0           | 0         | 124                   | 480       | 0                | 0         | 0                | 0         |
| Westmoreland   | 3,105                      | 2,291     | 2,640     | 2,001     | 0           | 0         | 431                   | 290       | 0                | 0         | 34               | 0         |
| York           | 98                         | 92        | 75        | 36        | 0           | 4         | 23                    | 50        | 0                | 0         | 0                | 2         |
| All counties   | 130,179                    | 65,917    | 62,254    | 32,890    | 10,378      | 361       | 44,784                | 24,693    | 11,885           | 7,245     | 878              | 728       |

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (1,599,000 cubic feet in 1999).

**Table 17—Roundwood timber products output by product and species group, Southern Piedmont of Virginia, 1995 and 1999**

| Product and species group   | Year    |         | Change | Percent change |
|-----------------------------|---------|---------|--------|----------------|
|                             | 1995    | 1999    |        |                |
| <i>Thousand cubic feet</i>  |         |         |        |                |
| <b>Saw logs</b>             |         |         |        |                |
| Softwood                    | 23,617  | 31,962  | 8,345  | 35.3           |
| Hardwood                    | 34,051  | 37,673  | 3,622  | 10.6           |
| Total                       | 57,668  | 69,635  | 11,967 | 20.8           |
| <b>Veneer logs</b>          |         |         |        |                |
| Softwood                    | 3,354   | 3,485   | 131    | 3.9            |
| Hardwood                    | 423     | 900     | 477    | 112.8          |
| Total                       | 3,777   | 4,385   | 608    | 16.1           |
| <b>Pulpwood<sup>a</sup></b> |         |         |        |                |
| Softwood                    | 38,583  | 38,303  | -280   | -0.7           |
| Hardwood                    | 32,567  | 29,847  | -2,720 | -8.4           |
| Total                       | 71,150  | 68,150  | -3,000 | -4.2           |
| <b>Composite panels</b>     |         |         |        |                |
| Softwood                    | 5,261   | 16,764  | 11,503 | 218.6          |
| Hardwood                    | 3,154   | 2,224   | -930   | -29.5          |
| Total                       | 8,415   | 18,988  | 10,573 | 125.6          |
| <b>Other industrial</b>     |         |         |        |                |
| Softwood                    | 336     | 394     | 58     | 17.3           |
| Hardwood                    | 1,502   | 1,502   | 0      | --             |
| Total                       | 1,838   | 1,896   | 58     | 3.2            |
| <b>All industrial</b>       |         |         |        |                |
| Softwood                    | 71,151  | 90,908  | 19,757 | 27.8           |
| Hardwood                    | 71,697  | 72,146  | 449    | 0.6            |
| Total                       | 142,848 | 163,054 | 20,206 | 14.1           |

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (1,731,000 cubic feet in 1995 and 1,768,000 cubic feet in 1999).

**Table 18—Roundwood timber products output by county, product, and species group, Southern Piedmont of Virginia, 1999**

| County        | All products               |           | Saw logs  |           | Veneer logs |           | Pulpwood <sup>a</sup> |           | Composite panels |           | Other industrial |           |
|---------------|----------------------------|-----------|-----------|-----------|-------------|-----------|-----------------------|-----------|------------------|-----------|------------------|-----------|
|               | Soft-wood                  | Hard-wood | Soft-wood | Hard-wood | Soft-wood   | Hard-wood | Soft-wood             | Hard-wood | Soft-wood        | Hard-wood | Soft-wood        | Hard-wood |
|               | <i>Thousand cubic feet</i> |           |           |           |             |           |                       |           |                  |           |                  |           |
| Amelia        | 5,747                      | 4,302     | 2,889     | 2,260     | 853         | 0         | 1,984                 | 2,042     | 0                | 0         | 21               | 0         |
| Appomattox    | 5,738                      | 3,452     | 700       | 1,595     | 0           | 5         | 3,300                 | 1,852     | 1,722            | 0         | 16               | 0         |
| Bedford       | 3,330                      | 5,192     | 781       | 3,270     | 0           | 3         | 827                   | 1,919     | 1,722            | 0         | 0                | 0         |
| Buckingham    | 10,256                     | 3,248     | 3,907     | 781       | 0           | 0         | 6,328                 | 2,467     | 0                | 0         | 21               | 0         |
| Campbell      | 10,103                     | 3,072     | 2,074     | 1,071     | 0           | 40        | 6,296                 | 1,961     | 1,722            | 0         | 11               | 0         |
| Charlotte     | 5,512                      | 7,930     | 1,617     | 4,154     | 0           | 0         | 2,022                 | 3,730     | 1,873            | 39        | 0                | 7         |
| Cumberland    | 2,398                      | 1,941     | 813       | 653       | 1           | 0         | 1,320                 | 1,277     | 0                | 0         | 264              | 11        |
| Franklin      | 3,810                      | 5,211     | 819       | 4,175     | 0           | 16        | 1,269                 | 1,020     | 1,722            | 0         | 0                | 0         |
| Halifax       | 8,316                      | 4,710     | 3,986     | 2,395     | 0           | 177       | 1,535                 | 1,864     | 2,779            | 274       | 16               | 0         |
| Henry         | 4,292                      | 4,448     | 1,635     | 2,025     | 0           | 18        | 1,564                 | 1,544     | 1,093            | 861       | 0                | 0         |
| Lunenburg     | 5,553                      | 4,598     | 1,684     | 1,900     | 853         | 4         | 2,095                 | 2,037     | 905              | 235       | 16               | 422       |
| Mecklenburg   | 4,425                      | 4,535     | 1,539     | 2,818     | 853         | 232       | 1,854                 | 813       | 150              | 39        | 29               | 633       |
| Nottoway      | 4,883                      | 2,662     | 2,711     | 1,137     | 853         | 13        | 1,319                 | 1,090     | 0                | 0         | 0                | 422       |
| Patrick       | 2,142                      | 5,242     | 892       | 4,112     | 0           | 0         | 47                    | 393       | 1,203            | 737       | 0                | 0         |
| Pittsylvania  | 9,861                      | 6,037     | 5,271     | 2,527     | 71          | 322       | 2,646                 | 3,149     | 1,873            | 39        | 0                | 0         |
| Powhatan      | 1,733                      | 2,019     | 377       | 1,086     | 1           | 66        | 1,355                 | 860       | 0                | 0         | 0                | 7         |
| Prince Edward | 2,809                      | 3,547     | 267       | 1,714     | 0           | 4         | 2,542                 | 1,829     | 0                | 0         | 0                | 0         |
| All counties  | 90,908                     | 72,146    | 31,962    | 37,673    | 3,485       | 900       | 38,303                | 29,847    | 16,764           | 2,224     | 394              | 1,502     |

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (1,768,000 cubic feet in 1999).

**Table 19—Roundwood timber products output by product and species group, Northern Piedmont of Virginia, 1995 and 1999**

| Product and species group   | Year   |        | Change | Percent change |
|-----------------------------|--------|--------|--------|----------------|
|                             | 1995   | 1999   |        |                |
| <i>Thousand cubic feet</i>  |        |        |        |                |
| <b>Saw logs</b>             |        |        |        |                |
| Softwood                    | 9,899  | 9,616  | -283   | -2.9           |
| Hardwood                    | 15,880 | 16,116 | 236    | 1.5            |
| Total                       | 25,779 | 25,732 | -47    | -0.2           |
| <b>Veneer logs</b>          |        |        |        |                |
| Softwood                    | 0      | 0      | 0      | --             |
| Hardwood                    | 289    | 802    | 513    | 177.5          |
| Total                       | 289    | 802    | 513    | 177.5          |
| <b>Pulpwood<sup>a</sup></b> |        |        |        |                |
| Softwood                    | 14,058 | 11,780 | -2,278 | -16.2          |
| Hardwood                    | 7,662  | 9,146  | 1,484  | 19.4           |
| Total                       | 21,720 | 20,926 | -794   | -3.7           |
| <b>Composite panels</b>     |        |        |        |                |
| Softwood                    | 278    | 1,722  | 1,444  | 519.4          |
| Hardwood                    | 39     | 69     | 30     | 76.9           |
| Total                       | 317    | 1,791  | 1,474  | 465.0          |
| <b>Other industrial</b>     |        |        |        |                |
| Softwood                    | 369    | 937    | 568    | 153.9          |
| Hardwood                    | 211    | 234    | 23     | 10.9           |
| Total                       | 580    | 1,171  | 591    | 101.9          |
| <b>All industrial</b>       |        |        |        |                |
| Softwood                    | 24,604 | 24,055 | -549   | -2.2           |
| Hardwood                    | 24,081 | 26,367 | 2,286  | 9.5            |
| Total                       | 48,685 | 50,422 | 1,737  | 3.6            |

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (340,000 cubic feet in 1995 and 246,000 cubic feet in 1999).

**Table 20—Roundwood timber products output by county, product, and species group, Northern Piedmont of Virginia, 1999**

| County         | All products               |           | Saw logs  |           | Veneer logs |           | Pulpwood <sup>a</sup> |           | Composite panels |           | Other industrial |           |
|----------------|----------------------------|-----------|-----------|-----------|-------------|-----------|-----------------------|-----------|------------------|-----------|------------------|-----------|
|                | Soft-wood                  | Hard-wood | Soft-wood | Hard-wood | Soft-wood   | Hard-wood | Soft-wood             | Hard-wood | Soft-wood        | Hard-wood | Soft-wood        | Hard-wood |
|                | <i>Thousand cubic feet</i> |           |           |           |             |           |                       |           |                  |           |                  |           |
| Albemarle      | 3,756                      | 2,894     | 2,318     | 2,116     | 0           | 8         | 1,378                 | 756       | 0                | 0         | 60               | 14        |
| Amherst        | 3,415                      | 3,529     | 621       | 2,268     | 0           | 0         | 1,020                 | 1,261     | 1,722            | 0         | 52               | 0         |
| Culpeper       | 929                        | 2,082     | 150       | 1,151     | 0           | 9         | 730                   | 827       | 0                | 0         | 49               | 95        |
| Fairfax        | 265                        | 222       | 0         | 80        | 0           | 5         | 265                   | 137       | 0                | 0         | 0                | 0         |
| Fauquier       | 469                        | 863       | 176       | 601       | 0           | 7         | 293                   | 255       | 0                | 0         | 0                | 0         |
| Fluvanna       | 1,114                      | 714       | 788       | 55        | 0           | 56        | 311                   | 603       | 0                | 0         | 15               | 0         |
| Goochland      | 1,842                      | 896       | 411       | 359       | 0           | 16        | 1,431                 | 521       | 0                | 0         | 0                | 0         |
| Greene         | 151                        | 494       | 5         | 452       | 0           | 0         | 42                    | 42        | 0                | 0         | 104              | 0         |
| Loudoun        | 31                         | 2,349     | 7         | 916       | 0           | 530       | 24                    | 903       | 0                | 0         | 0                | 0         |
| Louisa         | 4,234                      | 2,908     | 2,135     | 1,851     | 0           | 12        | 1,641                 | 999       | 0                | 0         | 458              | 46        |
| Madison        | 311                        | 930       | 120       | 865       | 0           | 8         | 85                    | 48        | 0                | 0         | 106              | 9         |
| Nelson         | 1,676                      | 3,609     | 258       | 2,344     | 0           | 37        | 1,418                 | 1,159     | 0                | 69        | 0                | 0         |
| Orange         | 1,763                      | 1,331     | 903       | 844       | 0           | 52        | 767                   | 397       | 0                | 0         | 93               | 38        |
| Prince William | 217                        | 245       | 65        | 146       | 0           | 4         | 152                   | 95        | 0                | 0         | 0                | 0         |
| Rappahannock   | 110                        | 495       | 0         | 468       | 0           | 13        | 110                   | 14        | 0                | 0         | 0                | 0         |
| Spotsylvania   | 2,993                      | 1,790     | 1,321     | 809       | 0           | 16        | 1,672                 | 933       | 0                | 0         | 0                | 32        |
| Stafford       | 779                        | 1,016     | 338       | 791       | 0           | 29        | 441                   | 196       | 0                | 0         | 0                | 0         |
| All counties   | 24,055                     | 26,367    | 9,616     | 16,116    | 0           | 802       | 11,780                | 9,146     | 1,722            | 69        | 937              | 234       |

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (246,000 cubic feet in 1999).

**Table 21—Roundwood timber products output by product and species group, Northern Mountains of Virginia, 1995 and 1999**

| Product and species group   | Year   |        | Change | Percent change |
|-----------------------------|--------|--------|--------|----------------|
|                             | 1995   | 1999   |        |                |
| <i>Thousand cubic feet</i>  |        |        |        |                |
| <b>Saw logs</b>             |        |        |        |                |
| Softwood                    | 2,205  | 1,261  | -944   | -42.8          |
| Hardwood                    | 13,974 | 15,142 | 1,168  | 8.4            |
| Total                       | 16,179 | 16,403 | 224    | 1.4            |
| <b>Veneer logs</b>          |        |        |        |                |
| Softwood                    | 0      | 0      | 0      | --             |
| Hardwood                    | 370    | 327    | -43    | -11.6          |
| Total                       | 370    | 327    | -43    | -11.6          |
| <b>Pulpwood<sup>a</sup></b> |        |        |        |                |
| Softwood                    | 3,129  | 2,595  | -534   | -17.1          |
| Hardwood                    | 7,722  | 8,284  | 562    | 7.3            |
| Total                       | 10,851 | 10,879 | 28     | 0.3            |
| <b>Composite panels</b>     |        |        |        |                |
| Softwood                    | 0      | 0      | 0      | --             |
| Hardwood                    | 0      | 0      | 0      | --             |
| Total                       | 0      | 0      | 0      | --             |
| <b>Other industrial</b>     |        |        |        |                |
| Softwood                    | 114    | 114    | 0      | --             |
| Hardwood                    | 57     | 57     | 0      | --             |
| Total                       | 171    | 171    | 0      | --             |
| <b>All industrial</b>       |        |        |        |                |
| Softwood                    | 5,448  | 3,970  | -1,478 | -27.1          |
| Hardwood                    | 22,123 | 23,810 | 1,687  | 7.6            |
| Total                       | 27,571 | 27,780 | 209    | 0.8            |

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (13,000 cubic feet in 1995 and 13,000 cubic feet in 1999).



**Table 22—Roundwood timber products output by county, product, and species group, Northern Mountains of Virginia, 1999**

| County                     | All products |           | Saw logs  |           | Veneer logs |           | Pulpwood <sup>a</sup> |           | Composite panels |           | Other industrial |           |
|----------------------------|--------------|-----------|-----------|-----------|-------------|-----------|-----------------------|-----------|------------------|-----------|------------------|-----------|
|                            | Soft-wood    | Hard-wood | Soft-wood | Hard-wood | Soft-wood   | Hard-wood | Soft-wood             | Hard-wood | Soft-wood        | Hard-wood | Soft-wood        | Hard-wood |
| <i>Thousand cubic feet</i> |              |           |           |           |             |           |                       |           |                  |           |                  |           |
| Alleghany                  | 740          | 3,128     | 379       | 1,746     | 0           | 57        | 361                   | 1,325     | 0                | 0         | 0                | 0         |
| Augusta                    | 657          | 2,757     | 362       | 2,009     | 0           | 0         | 295                   | 729       | 0                | 0         | 0                | 19        |
| Bath                       | 221          | 1,801     | 72        | 915       | 0           | 54        | 114                   | 832       | 0                | 0         | 35               | 0         |
| Botetourt                  | 544          | 2,606     | 92        | 1,121     | 0           | 56        | 452                   | 1,429     | 0                | 0         | 0                | 0         |
| Clarke                     | 26           | 677       | 3         | 667       | 0           | 8         | 23                    | 2         | 0                | 0         | 0                | 0         |
| Craig                      | 355          | 895       | 100       | 115       | 0           | 54        | 255                   | 726       | 0                | 0         | 0                | 0         |
| Frederick                  | 250          | 1,064     | 9         | 993       | 0           | 14        | 241                   | 57        | 0                | 0         | 0                | 0         |
| Highland                   | 46           | 1,714     | 7         | 828       | 0           | 54        | 39                    | 832       | 0                | 0         | 0                | 0         |
| Page                       | 31           | 241       | 6         | 172       | 0           | 0         | 25                    | 69        | 0                | 0         | 0                | 0         |
| Roanoke                    | 55           | 267       | 14        | 150       | 0           | 0         | 41                    | 117       | 0                | 0         | 0                | 0         |
| Rockbridge                 | 652          | 4,415     | 131       | 3,053     | 0           | 16        | 442                   | 1,327     | 0                | 0         | 79               | 19        |
| Rockingham                 | 213          | 2,152     | 66        | 1,447     | 0           | 0         | 147                   | 686       | 0                | 0         | 0                | 19        |
| Shenandoah                 | 153          | 1,068     | 18        | 929       | 0           | 6         | 135                   | 133       | 0                | 0         | 0                | 0         |
| Warren                     | 27           | 1,025     | 2         | 997       | 0           | 8         | 25                    | 20        | 0                | 0         | 0                | 0         |
| All counties               | 3,970        | 23,810    | 1,261     | 15,142    | 0           | 327       | 2,595                 | 8,284     | 0                | 0         | 114              | 57        |

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (13,000 cubic feet in 1999).

**Table 23—Roundwood timber products output by product and species group, Southern Mountains of Virginia, 1995 and 1999**

| Product and species group   | Year   |        | Change | Percent change |
|-----------------------------|--------|--------|--------|----------------|
|                             | 1995   | 1999   |        |                |
| <i>Thousand cubic feet</i>  |        |        |        |                |
| <b>Saw logs</b>             |        |        |        |                |
| Softwood                    | 8,698  | 10,206 | 1,508  | 17.3           |
| Hardwood                    | 22,051 | 28,757 | 6,706  | 30.4           |
| Total                       | 30,749 | 38,963 | 8,214  | 26.7           |
| <b>Veneer logs</b>          |        |        |        |                |
| Softwood                    | 0      | 84     | 84     | --             |
| Hardwood                    | 1,591  | 3,557  | 1,966  | 123.6          |
| Total                       | 1,591  | 3,641  | 2,050  | 128.8          |
| <b>Pulpwood<sup>a</sup></b> |        |        |        |                |
| Softwood                    | 555    | 202    | -353   | -63.6          |
| Hardwood                    | 8,200  | 5,566  | -2,634 | -32.1          |
| Total                       | 8,755  | 5,768  | -2,987 | -34.1          |
| <b>Composite panels</b>     |        |        |        |                |
| Softwood                    | 797    | 735    | -62    | -7.8           |
| Hardwood                    | 4,548  | 5,014  | 466    | 10.2           |
| Total                       | 5,345  | 5,749  | 404    | 7.6            |
| <b>Other industrial</b>     |        |        |        |                |
| Softwood                    | 0      | 88     | 88     | --             |
| Hardwood                    | 0      | 0      | 0      | --             |
| Total                       | 0      | 88     | 88     | --             |
| <b>All industrial</b>       |        |        |        |                |
| Softwood                    | 10,050 | 11,315 | 1,265  | 12.6           |
| Hardwood                    | 36,390 | 42,894 | 6,504  | 17.9           |
| Total                       | 46,440 | 54,209 | 7,769  | 16.7           |

-- = negligible.

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (73,000 cubic feet in 1995 and 67,000 cubic feet in 1999).

**Table 24—Roundwood timber products output by county, product, and species group, Southern Mountains of Virginia, 1999**

| County       | All products               |           | Saw logs  |           | Veneer logs |           | Pulpwood <sup>a</sup> |           | Composite panels |           | Other industrial |           |
|--------------|----------------------------|-----------|-----------|-----------|-------------|-----------|-----------------------|-----------|------------------|-----------|------------------|-----------|
|              | Soft-wood                  | Hard-wood | Soft-wood | Hard-wood | Soft-wood   | Hard-wood | Soft-wood             | Hard-wood | Soft-wood        | Hard-wood | Soft-wood        | Hard-wood |
|              | <i>Thousand cubic feet</i> |           |           |           |             |           |                       |           |                  |           |                  |           |
| Bland        | 457                        | 1,721     | 348       | 1,645     | 0           | 0         | 0                     | 76        | 109              | 0         | 0                | 0         |
| Buchanan     | 88                         | 2,291     | 58        | 1,867     | 0           | 0         | 0                     | 1         | 30               | 423       | 0                | 0         |
| Carroll      | 5,260                      | 4,283     | 4,993     | 3,072     | 0           | 504       | 49                    | 261       | 218              | 446       | 0                | 0         |
| Dickenson    | 145                        | 5,353     | 0         | 2,350     | 0           | 0         | 0                     | 2,217     | 57               | 786       | 88               | 0         |
| Floyd        | 1,467                      | 1,888     | 1,351     | 1,539     | 0           | 12        | 7                     | 240       | 109              | 97        | 0                | 0         |
| Giles        | 224                        | 2,725     | 212       | 2,445     | 0           | 0         | 12                    | 280       | 0                | 0         | 0                | 0         |
| Grayson      | 1,925                      | 2,114     | 1,925     | 1,149     | 0           | 504       | 0                     | 388       | 0                | 73        | 0                | 0         |
| Lee          | 117                        | 3,851     | 5         | 2,029     | 84          | 1,326     | 11                    | 254       | 17               | 242       | 0                | 0         |
| Montgomery   | 122                        | 1,429     | 93        | 852       | 0           | 0         | 29                    | 541       | 0                | 36        | 0                | 0         |
| Pulaski      | 70                         | 600       | 23        | 430       | 0           | 0         | 47                    | 112       | 0                | 58        | 0                | 0         |
| Russell      | 59                         | 1,583     | 51        | 1,398     | 0           | 0         | 0                     | 65        | 8                | 120       | 0                | 0         |
| Scott        | 485                        | 5,842     | 415       | 4,124     | 0           | 504       | 0                     | 247       | 70               | 967       | 0                | 0         |
| Smyth        | 96                         | 1,191     | 92        | 750       | 0           | 0         | 0                     | 301       | 4                | 140       | 0                | 0         |
| Tazewell     | 22                         | 1,040     | 13        | 752       | 0           | 0         | 1                     | 168       | 8                | 120       | 0                | 0         |
| Washington   | 343                        | 2,456     | 262       | 1,244     | 0           | 504       | 46                    | 225       | 35               | 483       | 0                | 0         |
| Wise         | 70                         | 2,495     | 0         | 1,273     | 0           | 203       | 0                     | 52        | 70               | 967       | 0                | 0         |
| Wythe        | 365                        | 2,032     | 365       | 1,838     | 0           | 0         | 0                     | 138       | 0                | 56        | 0                | 0         |
| All counties | 11,315                     | 42,894    | 10,206    | 28,757    | 84          | 3,557     | 202                   | 5,566     | 735              | 5,014     | 88               | 0         |

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (67,000 cubic feet in 1999).

**Table 25—Total roundwood output by product, species group, and source of material, Virginia, 1999**

| Product and species group        | All sources | Total   | Growing-stock trees |            | Other sources |
|----------------------------------|-------------|---------|---------------------|------------|---------------|
|                                  |             |         | Sawtimber           | Poletimber |               |
| <i>Thousand cubic feet</i>       |             |         |                     |            |               |
| <b>Saw logs</b>                  |             |         |                     |            |               |
| Softwood                         | 115,299     | 112,562 | 108,074             | 4,488      | 2,737         |
| Hardwood                         | 130,578     | 122,443 | 115,990             | 6,453      | 8,135         |
| Total                            | 245,877     | 235,005 | 224,063             | 10,941     | 10,872        |
| <b>Veneer logs and bolts</b>     |             |         |                     |            |               |
| Softwood                         | 13,947      | 13,782  | 13,506              | 276        | 165           |
| Hardwood                         | 5,947       | 5,896   | 5,654               | 242        | 51            |
| Total                            | 19,894      | 19,678  | 19,160              | 518        | 216           |
| <b>Pulpwood</b>                  |             |         |                     |            |               |
| Softwood                         | 97,664      | 87,664  | 40,325              | 47,339     | 10,000        |
| Hardwood                         | 77,536      | 68,887  | 30,999              | 37,888     | 8,649         |
| Total                            | 175,200     | 156,551 | 71,324              | 85,227     | 18,649        |
| <b>Composite panels</b>          |             |         |                     |            |               |
| Softwood                         | 31,106      | 27,921  | 12,844              | 15,077     | 3,185         |
| Hardwood                         | 14,552      | 12,929  | 5,818               | 7,111      | 1,623         |
| Total                            | 45,658      | 40,850  | 18,662              | 22,188     | 4,808         |
| <b>Poles and posts</b>           |             |         |                     |            |               |
| Softwood                         | 2,288       | 1,879   | 1,716               | 162        | 409           |
| Hardwood                         | 69          | 58      | 42                  | 16         | 11            |
| Total                            | 2,357       | 1,937   | 1,759               | 178        | 420           |
| <b>Other miscellaneous</b>       |             |         |                     |            |               |
| Softwood                         | 123         | 123     | 88                  | 35         | 0             |
| Hardwood                         | 2,452       | 2,231   | 1,593               | 638        | 221           |
| Total                            | 2,575       | 2,354   | 1,681               | 673        | 221           |
| <b>Total industrial products</b> |             |         |                     |            |               |
| Softwood                         | 260,427     | 243,931 | 176,553             | 67,378     | 16,496        |
| Hardwood                         | 231,134     | 212,444 | 160,096             | 52,348     | 18,690        |
| Total                            | 491,561     | 456,375 | 336,649             | 119,726    | 35,186        |
| <b>Fuelwood</b>                  |             |         |                     |            |               |
| Softwood                         | 5,433       | 4,944   | 3,561               | 1,383      | 489           |
| Hardwood                         | 48,731      | 43,811  | 31,565              | 12,246     | 4,920         |
| Total                            | 54,164      | 48,755  | 35,126              | 13,628     | 5,409         |
| <b>All products</b>              |             |         |                     |            |               |
| Softwood                         | 265,860     | 248,875 | 180,114             | 68,761     | 16,985        |
| Hardwood                         | 279,865     | 256,254 | 191,661             | 64,593     | 23,611        |
| Total                            | 545,725     | 505,129 | 371,775             | 133,354    | 40,596        |

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

**Table 26—Total roundwood output by species group, survey region, and ownership class, Virginia, 1999**

| Species group<br>and survey region | Total   | Ownership class    |                 |                    |                          |
|------------------------------------|---------|--------------------|-----------------|--------------------|--------------------------|
|                                    |         | National<br>forest | Other<br>public | Forest<br>industry | Nonindustrial<br>private |
| <i>Thousand cubic feet</i>         |         |                    |                 |                    |                          |
| <b>Softwoods</b>                   |         |                    |                 |                    |                          |
| Coastal Plain                      | 132,896 | 0                  | 9,243           | 51,823             | 71,830                   |
| Southern Piedmont                  | 92,805  | 0                  | 3,639           | 25,577             | 63,588                   |
| Northern Piedmont                  | 24,555  | 0                  | 0               | 6,017              | 18,538                   |
| Northern Mountains                 | 4,053   | 308                | 0               | 136                | 3,610                    |
| Southern Mountains                 | 11,551  | 98                 | 148             | 0                  | 11,305                   |
| Total softwoods                    | 265,860 | 406                | 13,030          | 83,553             | 168,872                  |
| <b>Hardwoods</b>                   |         |                    |                 |                    |                          |
| Coastal Plain                      | 79,892  | 0                  | 702             | 18,547             | 60,643                   |
| Southern Piedmont                  | 87,337  | 0                  | 350             | 15,178             | 71,808                   |
| Northern Piedmont                  | 31,916  | 1,222              | 492             | 979                | 29,223                   |
| Northern Mountains                 | 28,820  | 11,379             | 959             | 713                | 15,768                   |
| Southern Mountains                 | 51,900  | 3,151              | 726             | 527                | 47,497                   |
| Total hardwoods                    | 279,865 | 15,753             | 3,230           | 35,943             | 224,940                  |
| <b>All species</b>                 | 545,725 | 16,158             | 16,259          | 119,496            | 393,812                  |

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 product, Virginia, 1999**

| Species group and<br>detailed species group | Product        |                |               |                |                    |                    |                        |               |
|---|----------------|----------------|---------------|----------------|--------------------|--------------------|------------------------|---------------|
|   | Total          | Saw log        | Veneer        | Pulpwood       | Composite<br>panel | Poles<br>and posts | Other<br>miscellaneous | Fuelwood      |
| <i>Thousand cubic feet</i>                  |                |                |               |                |                    |                    |                        |               |
| <b>Softwood</b>                             |                |                |               |                |                    |                    |                        |               |
| Cedar                                       | 1,122          | 208            | 30            | 614            | 150                | 9                  | 88                     | 23            |
| White pine                                  | 10,726         | 7,373          | 0             | 1,013          | 2,116              | 5                  | 0                      | 219           |
| Loblolly-shortleaf pine                     | 180,186        | 78,411         | 13,331        | 65,157         | 18,117             | 1,453              | 35                     | 3,682         |
| Other yellow pines                          | 71,676         | 27,389         | 572           | 30,825         | 10,603             | 821                | 0                      | 1,465         |
| Cypress                                     | 150            | 79             | 14            | 36             | 18                 | 0                  | 0                      | 3             |
| Hemlock                                     | 2,000          | 1,839          | 0             | 19             | 102                | 0                  | 0                      | 41            |
| Total softwoods                             | 265,860        | 115,299        | 13,947        | 97,664         | 31,106             | 2,288              | 123                    | 5,433         |
| <b>Hardwood</b>                             |                |                |               |                |                    |                    |                        |               |
| Soft maple                                  | 19,161         | 8,574          | 812           | 5,054          | 1,214              | 4                  | 166                    | 3,338         |
| Hard maple                                  | 1,957          | 939            | 23            | 376            | 273                | 0                  | 4                      | 340           |
| Other birch                                 | 2,725          | 1,222          | 33            | 950            | 45                 | 1                  | 0                      | 474           |
| Hickory                                     | 14,817         | 6,848          | 505           | 4,205          | 424                | 4                  | 253                    | 2,577         |
| Beech                                       | 3,879          | 1,723          | 71            | 990            | 411                | 0                  | 9                      | 675           |
| Ash   | 3,431          | 1,425          | 175           | 993            | 216                | 0                  | 25                     | 597           |
| Black walnut                                | 2,114          | 1,100          | 37            | 520            | 87                 | 0                  | 2                      | 368           |
| Sweetgum                                    | 21,281         | 8,381          | 195           | 6,950          | 1,759              | 10                 | 274                    | 3,713         |
| Yellow-poplar                               | 55,165         | 25,964         | 1,130         | 15,315         | 2,886              | 18                 | 261                    | 9,593         |
| Blackgum-tupelo                             | 4,918          | 1,989          | 76            | 1,569          | 388                | 1                  | 35                     | 861           |
| Sycamore                                    | 3,405          | 1,314          | 103           | 1,081          | 253                | 1                  | 61                     | 592           |
| Cottonwood                                  | 475            | 233            | 6             | 121            | 32                 | 0                  | 0                      | 83            |
| Black cherry                                | 716            | 357            | 3             | 228            | 2                  | 0                  | 1                      | 125           |
| Select white oaks                           | 45,261         | 19,696         | 684           | 14,160         | 2,233              | 12                 | 576                    | 7,899         |
| Other white oaks                            | 19,422         | 9,776          | 339           | 5,393          | 505                | 0                  | 36                     | 3,373         |
| Select red oaks                             | 18,415         | 9,018          | 561           | 4,644          | 917                | 2                  | 70                     | 3,201         |
| Other red oaks                              | 48,457         | 24,220         | 812           | 12,351         | 2,024              | 15                 | 595                    | 8,441         |
| Basswood                                    | 1,566          | 793            | 14            | 360            | 123                | 0                  | 4                      | 272           |
| Elm   | 1,145          | 500            | 8             | 339            | 73                 | 0                  | 25                     | 199           |
| Other Eastern<br>hardwoods                  | 11,557         | 6,504          | 361           | 1,938          | 687                | 1                  | 54                     | 2,011         |
| Total hardwoods                             | 279,865        | 130,578        | 5,947         | 77,536         | 14,552             | 69                 | 2,452                  | 48,731        |
| <b>All species</b>                          | <b>545,725</b> | <b>245,877</b> | <b>19,894</b> | <b>175,200</b> | <b>45,658</b>      | <b>2,357</b>       | <b>2,575</b>           | <b>54,164</b> |

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

**Table 28—Total roundwood output by species group, detailed species group and ownership class, Virginia, 1999**

| Species group and<br>detailed species group | Total   | Ownership class    |                 |                    |                          |
|---|---------|--------------------|-----------------|--------------------|--------------------------|
|   |         | National<br>forest | Other<br>public | Forest<br>industry | Nonindustrial<br>private |
| <i>Thousand cubic feet</i>                  |         |                    |                 |                    |                          |
| <b>Softwood</b>                             |         |                    |                 |                    |                          |
| Cedar                                       | 1,122   | 0                  | 34              | 282                | 806                      |
| White pine                                  | 10,726  | 0                  | 136             | 235                | 10,356                   |
| Loblolly-shortleaf pine                     | 180,186 | 0                  | 9,643           | 68,534             | 102,009                  |
| Other yellow pines                          | 71,676  | 406                | 3,217           | 14,418             | 53,635                   |
| Cypress                                     | 150     | 0                  | 0               | 84                 | 67                       |
| Hemlock                                     | 2,000   | 0                  | 0               | 0                  | 2,000                    |
| Total softwoods                             | 265,860 | 406                | 13,030          | 83,553             | 168,872                  |
| <b>Hardwood</b>                             |         |                    |                 |                    |                          |
| Soft maple                                  | 19,161  | 1,734              | 123             | 2,572              | 14,732                   |
| Hard maple                                  | 1,957   | 9                  | 0               | 49                 | 1,899                    |
| Other birch                                 | 2,725   | 81                 | 9               | 737                | 1,898                    |
| Hickory                                     | 14,817  | 573                | 115             | 1,421              | 12,707                   |
| Beech                                       | 3,879   | 0                  | 3               | 364                | 3,512                    |
| Ash   | 3,431   | 41                 | 6               | 403                | 2,981                    |
| Black walnut                                | 2,114   | 195                | 31              | 183                | 1,705                    |
| Sweetgum                                    | 21,281  | 0                  | 112             | 4,134              | 17,035                   |
| Yellow-poplar                               | 55,165  | 1,441              | 468             | 8,457              | 44,800                   |
| Blackgum-tupelo                             | 4,918   | 150                | 13              | 740                | 4,015                    |
| Sycamore                                    | 3,405   | 42                 | 0               | 906                | 2,456                    |
| Cottonwood                                  | 475     | 0                  | 0               | 59                 | 416                      |
| Black cherry                                | 716     | 87                 | 38              | 54                 | 537                      |
| Select white oaks                           | 45,261  | 1,403              | 561             | 7,014              | 36,283                   |
| Other white oaks                            | 19,422  | 3,539              | 414             | 1,155              | 14,314                   |
| Select red oaks                             | 18,415  | 2,740              | 242             | 1,477              | 13,955                   |
| Other red oaks                              | 48,457  | 2,833              | 981             | 5,177              | 39,466                   |
| Basswood                                    | 1,566   | 423                | 21              | 0                  | 1,122                    |
| Elm   | 1,145   | 0                  | 9               | 259                | 877                      |
| Other Eastern<br>hardwoods                  | 11,557  | 462                | 84              | 780                | 10,231                   |
| Total hardwoods                             | 279,865 | 15,753             | 3,230           | 35,943             | 224,940                  |
| <b>All species</b>                          | 545,725 | 16,158             | 16,259          | 119,496            | 393,812                  |

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



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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

**Bentley, James W.; Johnson, Tony G.; Becker, Charles W.** 2002. Virginia's timber industry—an assessment of timber product output and use, 1999. Resour. Bull. SRS-74. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 41p.

In 1999, roundwood output from Virginia's forests totaled 492 million cubic feet, 8 percent more than in 1995. Mill byproducts generated from primary manufacturers remained stable at 167 million cubic feet. Almost 72 percent of the plant residues were used primarily for fuel and fiber products. Saw logs were the leading roundwood product at 246 million cubic feet; pulpwood ranked second at 175 million cubic feet; composite panels were third at 46 million cubic feet. The number of primary processing plants increased from 289 in 1995 to 290 in 1999. Total receipts increased 1 percent to almost 490 million cubic feet.

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



United States  
Department of Agriculture

Forest Service

**Southern  
Research Station**

P.O. Box 2680  
200 Weaver Blvd.  
Asheville, NC 28802

OFFICIAL BUSINESS  
Penalty for Private Use, \$300

