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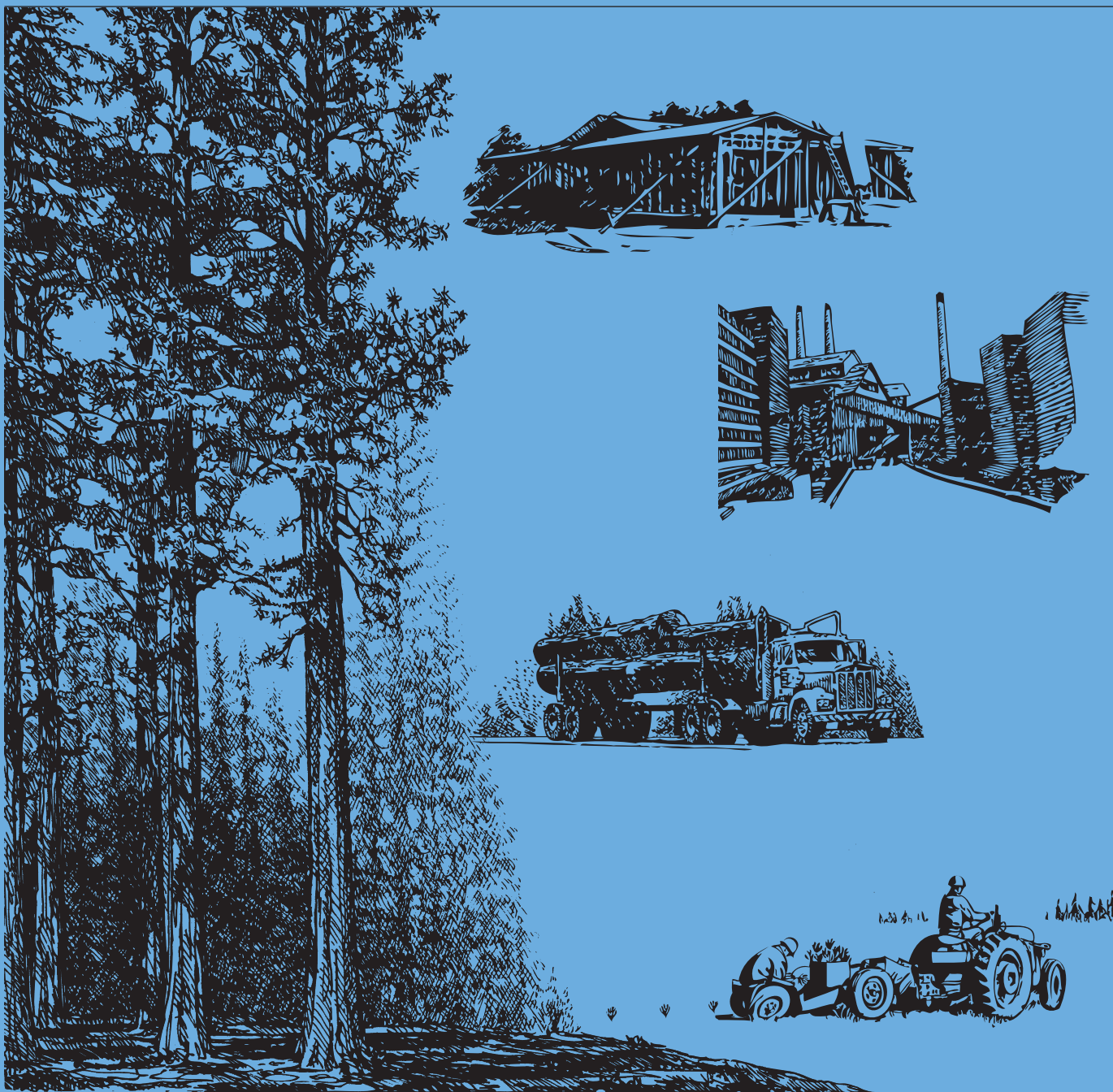


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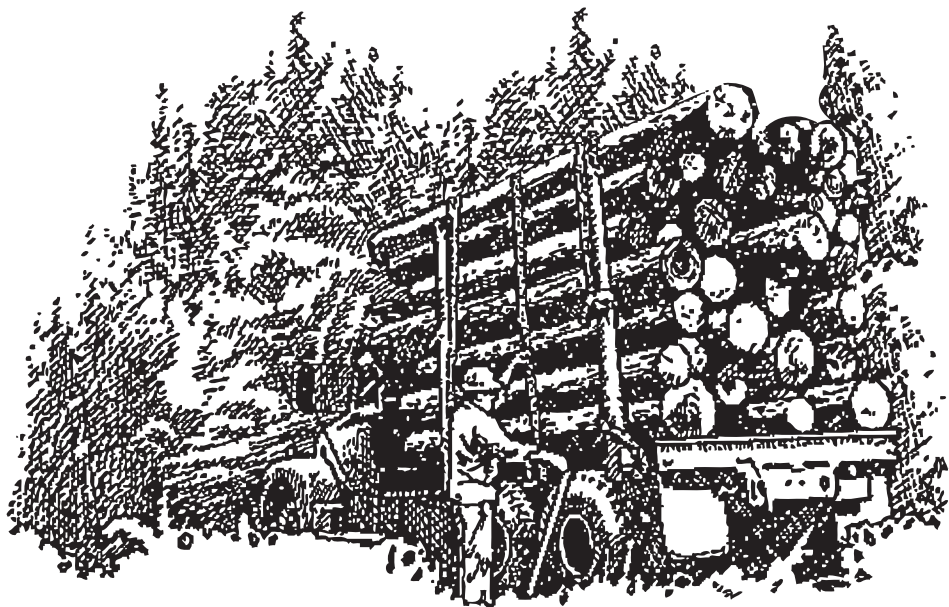
Virginia's Timber Industry—An Assessment of Timber Product Output and Use, 2005

Tony G. Johnson and
Charles W. Becker



The Authors:

Tony G. Johnson, Resource Analyst, USDA Forest Service,
Southern Research Station, Knoxville, TN 37919; **Charles**
W. Becker, Staff Forester, Utilization and Marketing, Virginia
Department of Forestry, Charlottesville, VA 22903.



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Southern Research Station
200 W.T. Weaver Blvd.
Asheville, NC 28804

Foreword

This report contains the findings of a 2005 canvass of all primary wood-using plants in Virginia, and presents changes in product output and residue use since 2003. It complements the Forest Inventory and Analysis periodic inventory of volume and removals from the State's timberland. The canvass was conducted to determine the amount and source of wood receipts and annual timber product drain, by county, in 2005 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 2006 to obtain information for 2005. 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 southern pulpmills. Medium density fiberboard, insulating board, and hardboard plants were included in this survey.

Acknowledgments

The authors thank John H. Pemberton and Roger Conner for review and comments; Carolyn Steppleton for her tireless efforts in processing and ensuring the accuracy of the data; Sonja Oswalt for the mill map; Helen Beresford for TPO database maintenance and support; Anne Jenkins, Janet Griffin, Sharon Johnson, and Charlene Walker for tables, graphs, and statistical checking; and the Southern Research Station (SRS) Technical Publications Team for editorial review, styling, and publication of this report.

The SRS 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.



Timber Product Output Database Retrieval System

The Forest Inventory and Analysis (FIA) Research Work Unit of the USDA Forest Service developed the Timber Product Output (TPO) Database Retrieval System to help customers answer questions about timber harvesting and use in the Southern Region. This system acts as an interface to a standard set of consistently coded TPO data for each State and county in the region and Nation. This regional and national set of TPO data consists of 11 variables that describe for each county the roundwood products harvested, logging residues left in the woods, other timber removals (i.e. land clearing and reserved timber removals), and wood and bark residues generated by the county's primary wood-using mills. The system is available through the FIA Web site: <http://srsfia2.fs.fed.us/php/tpo2/tpo.php>.

The database is well documented and easy to use. The retrieval system allows the user to select the TPO variables of interest and generate a standard set of timber products, removals, and mill residue tables for the specified resource area, State, or region. The system has been logically divided into two sections to assist the user in making specific data requests. In section 1, the user will be asked to define the resource area, and section 2 generates tables for the specified area. In each section, the user is asked to supply specific options that will serve to customize the database retrieval.

There are four options available for defining the geographic area of interest. Each option provides an increasing level of detail. The region, subregion, State, or county defines an area. The user selects the option that best suits the level of detail required. Users who select county as an option should be aware that some counties have been combined due to data sensitivity. These combined counties are identified with asterisks in the output tables.

The TPO contacts are listed for each region to provide additional explanation or clarification.

Tony Johnson
Southern Research Station
USDA Forest Service
4700 Old Kingston Pike
Knoxville, TN 37919
tjohnson09@fs.fed.us
865-862-2042

Helen Beresford
Southern Research Station
USDA Forest Service
4700 Old Kingston Pike
Knoxville, TN 37919
hberesford@fs.fed.us
865-862-2091

James Bentley
Southern Research Station
USDA Forest Service
4700 Old Kingston Pike
Knoxville, TN 37919
jbentley@fs.fed.us
865-862-2056

Carolyn Steppleton
Southern Research Station
USDA Forest Service
200 W.T. Weaver Blvd.
Asheville, NC 28804
csteppleton@fs.fed.us
828-257-4848

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^a All tables in this report are available in Microsoft® Excel workbook files. Upon request, these files will be supplied in the format the customer requests. The use of trade or firm names in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service.

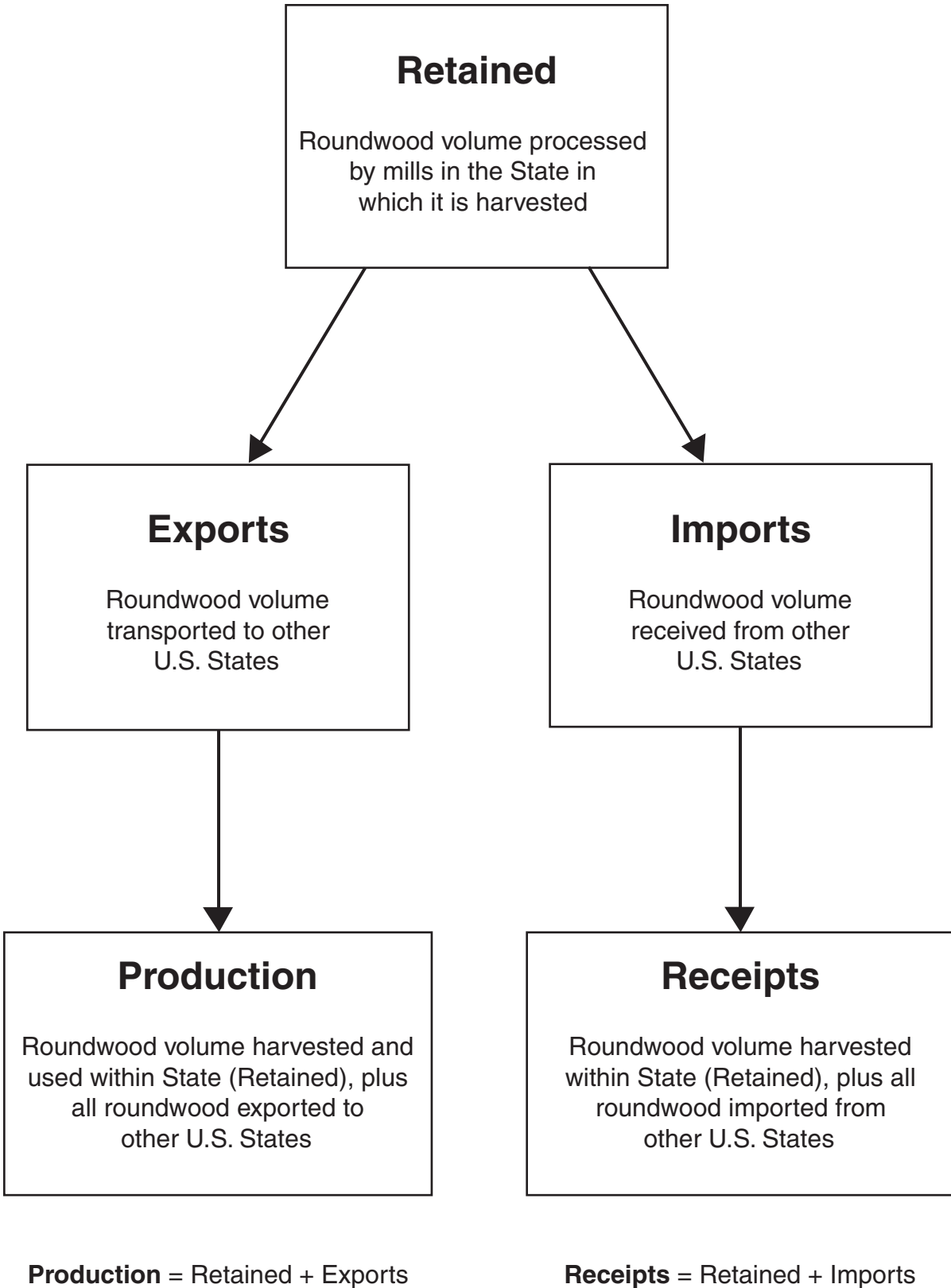


Figure 1—Movement of roundwood exports and imports within the United States.

Virginia's Timber Industry— An Assessment of Timber Product Output and Use, 2005

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Output of Industrial Timber Products

Note: Certain terms used in this report—retained, export, import, production, and receipts—have specialized meanings and relationships unique to the Forest Inventory and Analysis Units across the country that deal with timber product output (TPO) (fig. 1).

All Products

- Between 2003 and 2005, the combined industrial TPO from roundwood and plant byproducts increased 3 percent, from 660 to 682 million cubic feet.
- TPO from roundwood was up 3 percent, from 488 million cubic feet to 503 million cubic feet while output of plant byproducts increased nearly 5 percent, from 171 to 179 million cubic feet.
- Output of softwood roundwood products increased 7 percent to nearly 269 million cubic feet, while output of

hardwood roundwood products declined 1 percent to 234 million cubic feet (fig. 2).

- Saw logs and pulpwood were the principal roundwood products in 2005. Combined output of these two products totaled 428 million cubic feet and accounted for 85 percent of the State's total roundwood output (fig. 3).
- Total receipts at Virginia mills, which included roundwood harvested and retained in the State and roundwood imported from other States, increased 22 million cubic feet to 515 million cubic feet. At the same time, the number of primary roundwood-using plants in Virginia declined from 234 in 2003 to 196 in 2005 (fig. 4).
- Across all products, 84 percent of roundwood harvested was retained for processing at Virginia mills. Exports of roundwood to other States amounted to 80 million cubic feet, while imports of roundwood amounted to 92 million cubic feet making the State a net importer of roundwood. Tables A.8 to A.12 show exports to and imports from other States by individual product type.

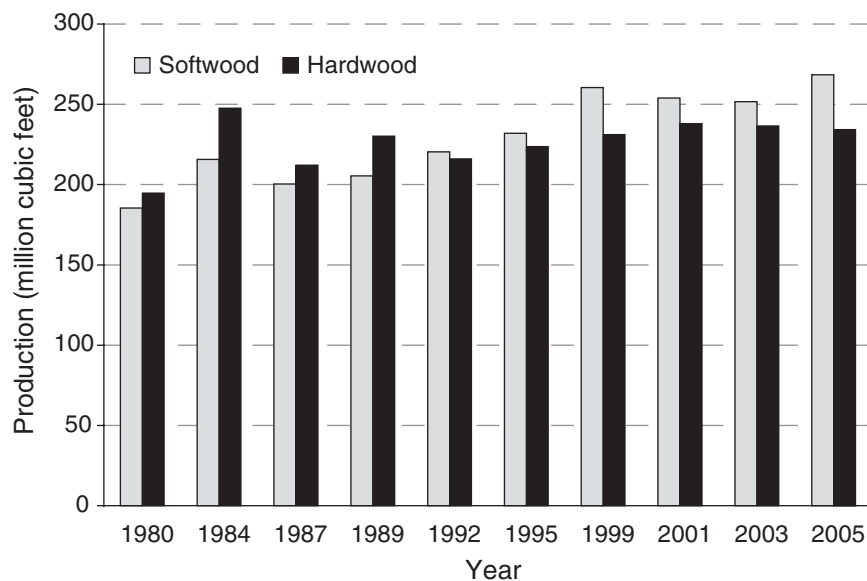


Figure 2—Roundwood production for all products by species group and year (see page 8 for references for individual years).

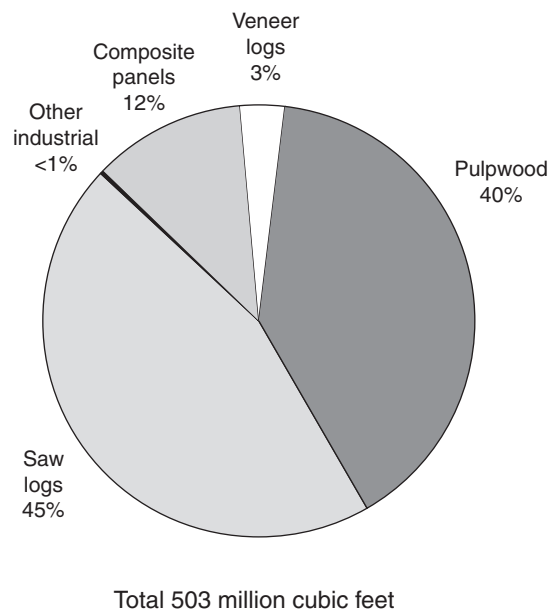


Figure 3—Roundwood production by type of product, 2005.

Saw Logs

- At 228 million cubic feet, saw logs accounted for 45 percent of the State's total roundwood products. Output of softwood saw logs declined 1.3 million cubic feet to 107 million cubic feet (583 million board feet, International ¼-inch rule), while that of hardwood saw logs remained stable at 121 million cubic feet (741 million board feet, International ¼-inch rule) (fig. 5).
- In 2005, Virginia had 168 sawmills, a net loss of 36 mills since 2003. The total number of sawmills does not include several one-man sawmills not included in this survey. Total saw-log receipts increased 4 million cubic feet to 231 million cubic feet. Softwood saw-log receipts increased 2 percent to 106 million cubic feet, while hardwoods increased 2 percent to 125 million cubic feet. Of the 168 mills operating in 2005, 16 percent had receipts of <1 million board feet, while 49 percent had receipts >5 million board feet. These 82 mills accounted for 88 percent of total sawmill receipts.
- Virginia retained 89 percent of its saw-log production for within-State manufacture, with saw-log imports exceeding exports by 2.4 million cubic feet in 2005.

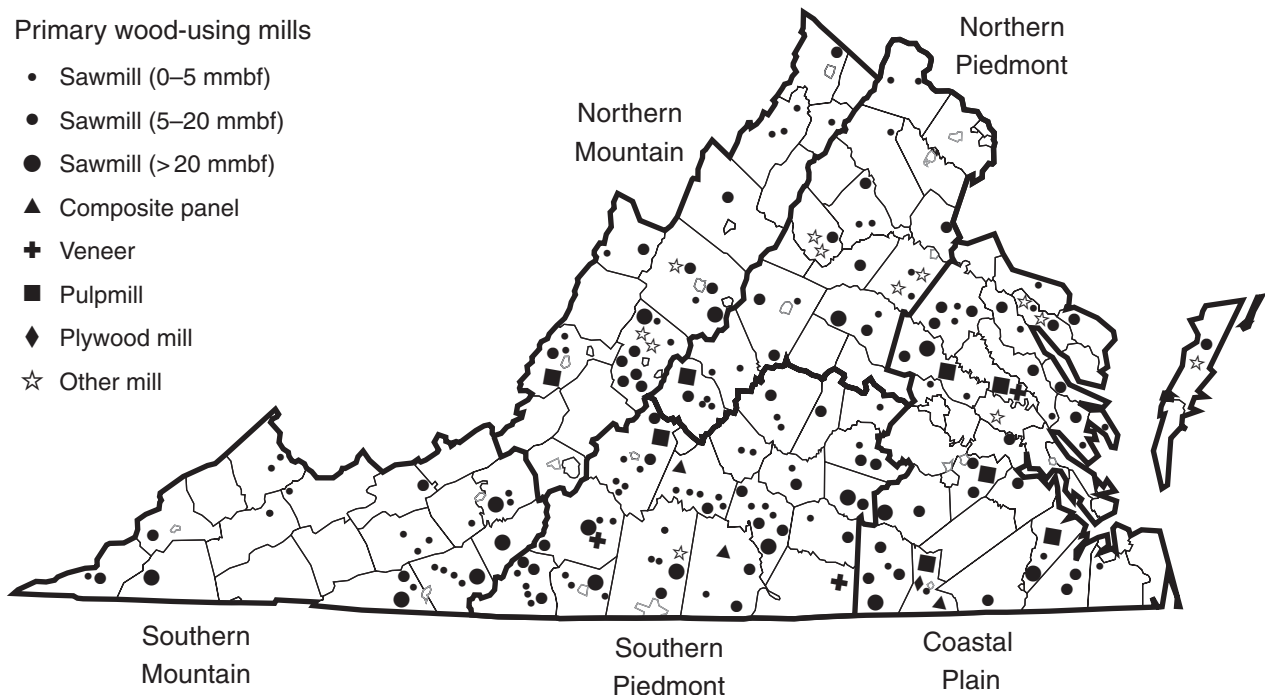


Figure 4—Primary wood-using mills, 2005.

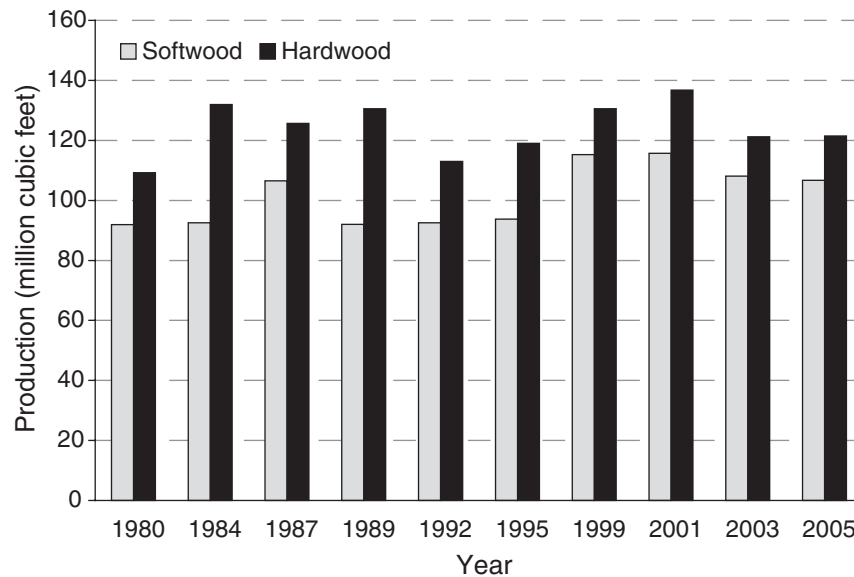


Figure 5—Roundwood saw-log production by species and year (see page 8 for references for individual years).

Pulpwood

- Pulpwood production, including chipped roundwood, increased 13 million cubic feet to 200 million cubic feet and accounted for 40 percent of the State's total roundwood TPO. Softwood output was up 8 percent to 96 million cubic feet (1.3 million cords), while hardwood

output increased 6 percent to 103 million cubic feet (1.4 million cords) (fig. 6).

- Eight pulpmill facilities were operating and receiving roundwood in Virginia in 2005, one less than in 2003. Total pulpwood receipts for these mills increased 19 million cubic feet, or 10 percent, to 203 million cubic

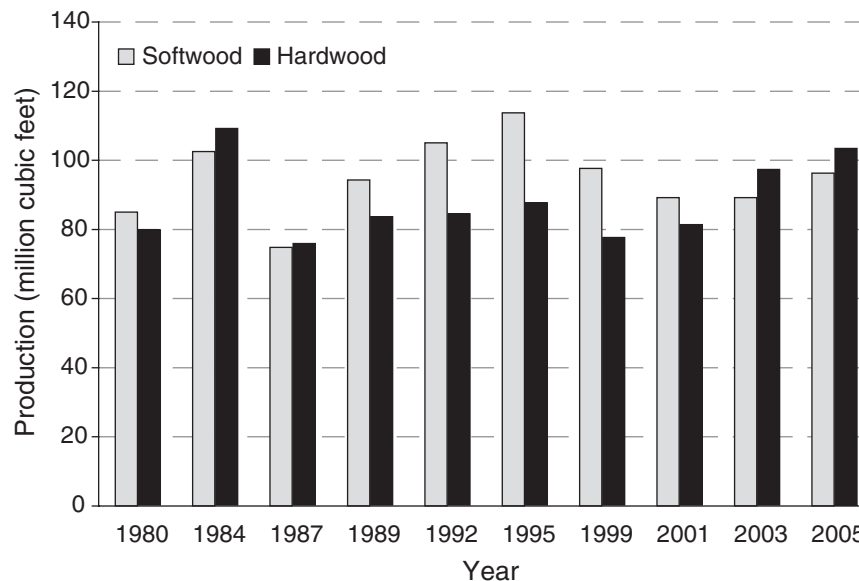


Figure 6—Roundwood pulpwood production by species group and year (see page 8 for references for individual years).

feet, accounting for 39 percent of total receipts for all mills.

- Eighty percent of roundwood cut for pulpwood was retained for processing at Virginia pulpmills. Roundwood pulpwood accounted for 51 percent of total known exports and 48 percent of total imports. Roundwood pulpwood exports amounted to 41 million cubic feet, while imports amounted to 44 million cubic feet, making the State a net importer of roundwood pulpwood.

Veneer Logs

- Output of veneer logs in 2005 totaled 16 million cubic feet and accounted for 3 percent of the State's total roundwood TPO volume. Softwood veneer-log production was up 34 percent to 11 million cubic feet (70 million board feet, International 1/4-inch rule), while output of hardwood veneer-log production declined 42 percent to 5 million cubic feet (31 million board feet, International 1/4-inch rule) (fig. 7).
- Four veneer mills were operating in Virginia in 2005, one less than in 2003. Total receipts for veneer logs remained relatively stable at 20 million cubic feet.
- Virginia retained 70 percent of its veneer-log production for processing at veneer mills within the State. Imports amounted to 8.5 million cubic feet, while exports totaled 4.8 million cubic feet.

Composite Panels

- Roundwood harvested from Virginia's forests for composite panels increased 7 percent and totaled 57 million cubic feet. Softwood output was up 19 percent to 53 million cubic feet (725,000 cords), while hardwood production dropped 54 percent to 4 million cubic feet (55,000 cords) (fig. 8).
- The number of composite panel mills operating in Virginia remained at three. Total receipts for these mills were 59 million cubic feet, or about 12 percent of the State's total receipts.
- Eighty-three percent of the roundwood production harvested for composite panels was retained for processing at Virginia's mills. Imports amounted to 12 million cubic feet, while exports totaled 10 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 declined 25 percent to 1.4 million cubic feet and only accounted for three-tenths of 1 percent of the State's TPO output. Softwood made up 72 percent of the other industrial product volume.

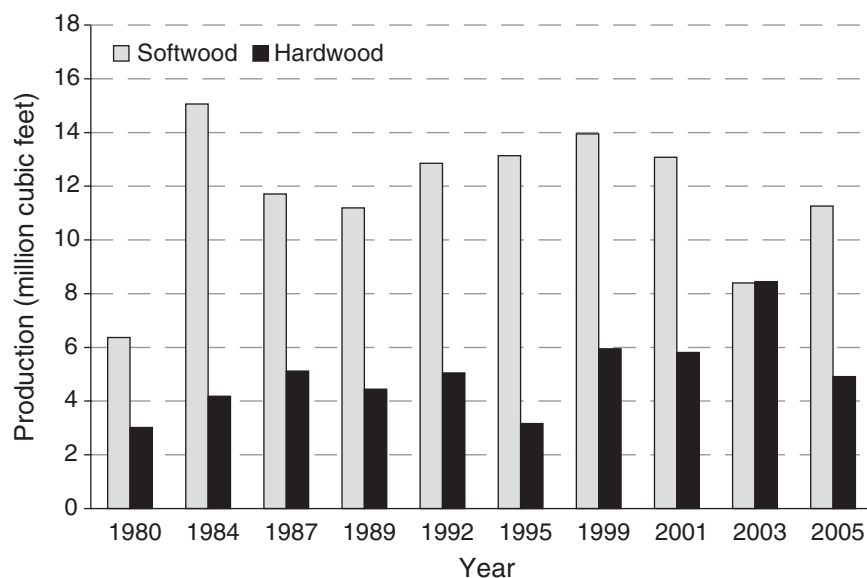


Figure 7—Roundwood veneer-log production by species group and year (see page 8 for references for individual years).

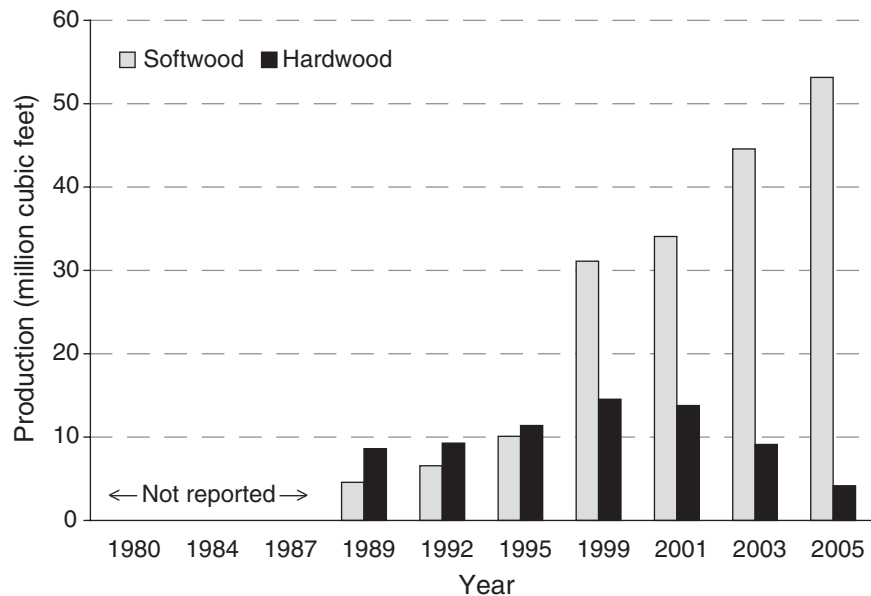


Figure 8—Roundwood production for composite panels by species group and year (see page 8 for references for individual years).

- The number of plants producing other industrial products remained at 13 in 2005. Combined receipts of other industrial products from softwood and hardwood totaled 2 million cubic feet.
- Virginia was a net importer of roundwood used for other industrial products; 786,000 cubic feet were imported, while only 49,000 cubic feet were exported to other States.

coarse residues were used for fiber products. Most of the bark was used for industrial fuel or other miscellaneous products, while 67 percent of the sawdust and shavings were used for industrial fuel.

Plant Byproducts

- In 2005, processing of primary products in Virginia mills generated more than 180 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 69 million cubic feet, while bark volume totaled 57 million cubic feet. Collectively, sawdust and shavings made up 30 percent of total residues, or 54 million cubic feet (fig. 9).
- The processing of saw logs generated 134 million cubic feet of mill residues, accounting for 74 percent of the total residues produced (fig. 10).
- Virtually all the wood and bark residues were used for a product: only about 1 percent was not used, while 44 percent of the residues were used for industrial fuel (fig. 11). Fifty-two million cubic feet, or 75 percent, of the

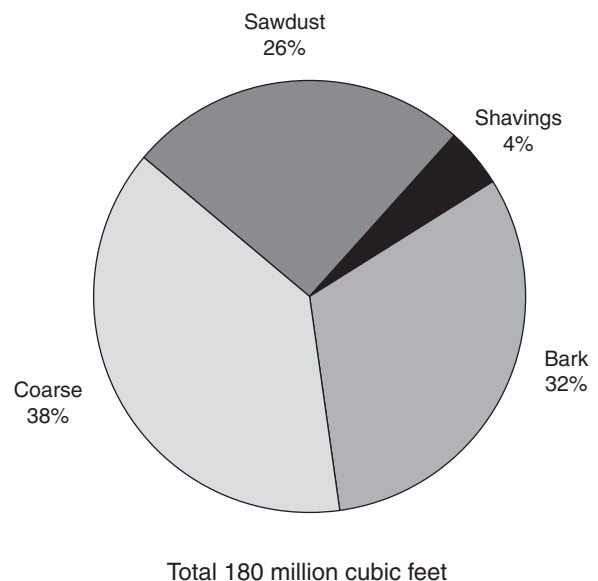
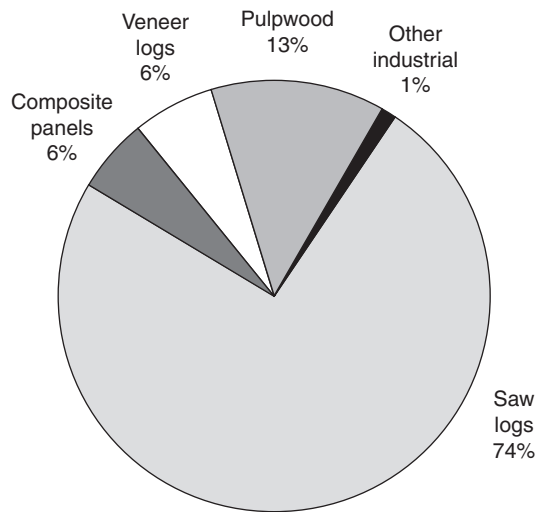
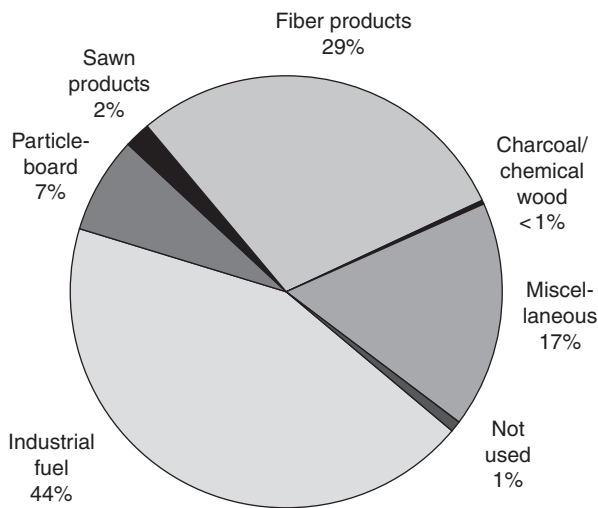


Figure 9—Primary mill residue by residue type, 2005.



Total 180 million cubic feet

Figure 10—Primary mill residue produced by roundwood type, 2005.



Total 180 million cubic feet

Figure 11—Disposal of residue by product, 2005.

County Data

- Table A.15 shows softwood and hardwood product output by county and individual product type. With the exception of one county, nearly all 100 counties in Virginia had softwood and hardwood output. Seven counties (Brunswick, Buckingham, Charlotte, Halifax,

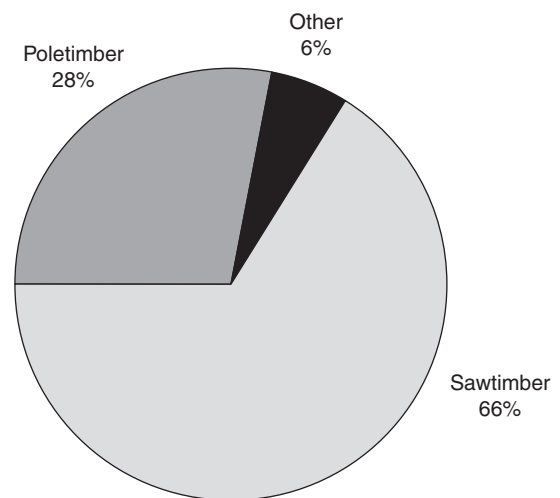
Mecklenburg, Pittsylvania, and Southampton) had combined softwood and hardwood product output of more than 15 million cubic feet each. These seven counties' total product output amounted to nearly 144 million cubic feet and accounted for 29 percent of the State's total product output.

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 503 million cubic feet of roundwood output for industrial roundwood, an estimated 41 million cubic feet was harvested for domestic fuelwood, bringing Virginia's total roundwood output to 544 million cubic feet.
- An estimated 94 percent of total roundwood output was considered growing-stock volume (sawtimber and poletimber) from timberland sources. Other sources (such as saplings; stumps, tops, and limbs of trees on timberland; and trees on nonforest land) contributed an estimated 32 million cubic feet, or 6 percent of total roundwood output (fig. 12).



Total 544 million cubic feet

Figure 12—Roundwood output by source, 2005.

Ownership

- An estimated 486 million cubic feet, or 89 percent, of the total roundwood output came from nonindustrial private forest lands. Forest industry lands contributed 39 million cubic feet, or 7 percent of the output. Public lands made up the remaining 4 percent, or 19 million cubic feet (fig. 13).

Species

- The loblolly and shortleaf pine group provided the most volume of any softwood species group, or nearly 215 million cubic feet and accounted for 79 percent of the total softwood output. The other yellow pine types accounted for 14 percent of the softwood output (fig. 14). In hardwoods, the red oak and white oak groups combined accounted for 110 million cubic feet, or 41 percent of total hardwood output (fig. 15). Yellow-poplar accounted for another 62 million cubic feet, or 23 percent of total hardwood output.

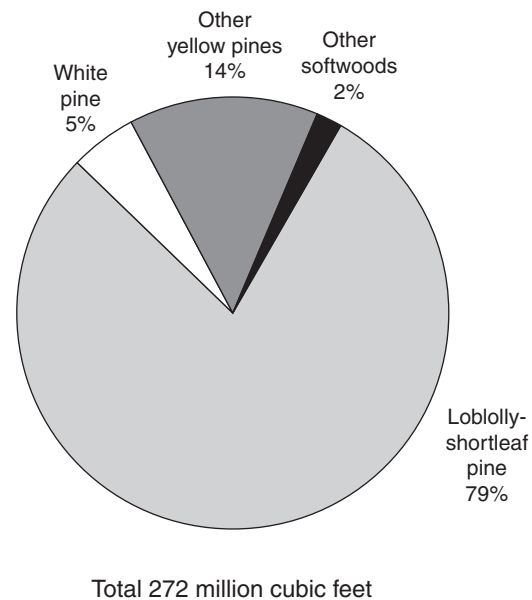


Figure 14—Roundwood output by softwood species group, 2005.

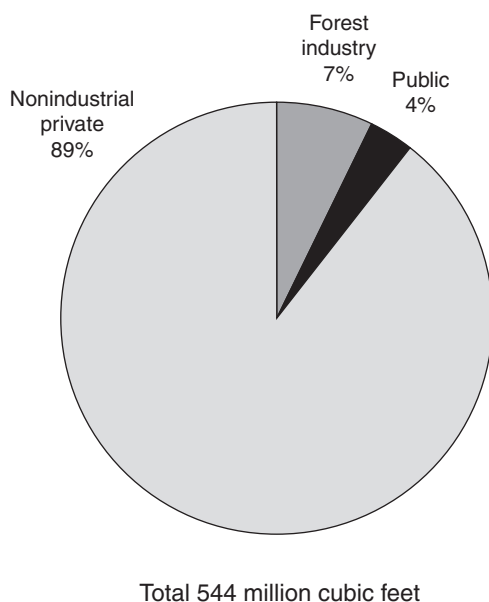


Figure 13—Roundwood output by ownership, 2005.

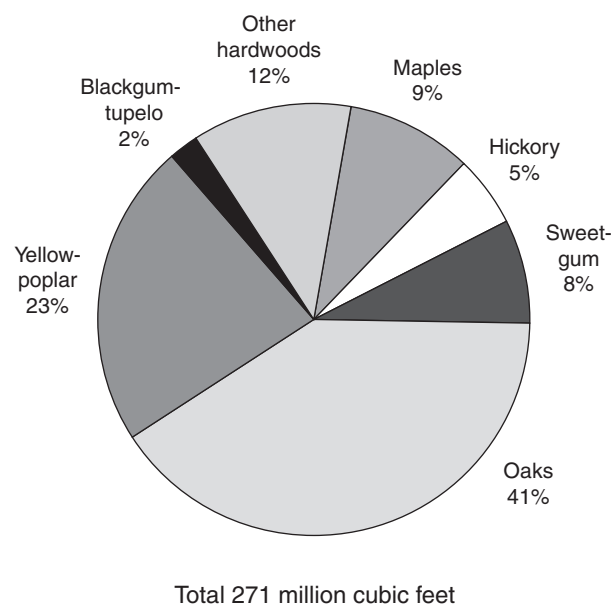


Figure 15—Roundwood output by hardwood species group, 2005.

References

- Bentley, J.W.; Johnson, T.G.; Becker, C.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. 41 p. [1999].
- Howell, M.; Becker, C.W. 2004. Virginia's timber industry—an assessment of timber product output and use, 2001. Resour. Bull. SRS-95. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 40 p. [2001].
- Howell, M.; Becker, C.W. 2006. Virginia's timber industry—an assessment of timber product output and use, 2003. Resour. Bull. SRS-108. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 44 p. [2003].
- Hutchins, C.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, T.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, T.G.; Jenkins, A.; Scrivani, J.A.; Foreman, J.M. 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].
- Little, E.L., Jr. 1979. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture. 375 p.
- 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, R.L.; Bellamy, T.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].

Glossary

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

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

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

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

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

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

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

Fuelwood production. The volume of roundwood harvested to produce some form of energy, e.g., heat and 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 >0.50, such as oaks, hard maples, hickories, and beech.

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

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

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

International 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs, allowing 1/2-inch of taper for each 4-foot length. The rule appears in a number of forms that allow for kerf. In the form used by FIA, a 1/4-inch of kerf is assumed. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Corporate. Owned by corporations, including incorporated farm ownerships.

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

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

Miscellaneous Federal land. Federal land other than national forests.

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

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

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

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

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

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

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

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

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

Production. The total volume of known roundwood harvested from land within a State, regardless of where it is consumed. Production is the sum of timber harvested and used within a State, and all roundwood exported to other States.

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

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

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

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

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

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

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

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

Roundwood products. Any primary product, such as lumber, veneer, composite panels, poles, pilings, pulp, or fuelwood that is produced from roundwood.

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

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

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

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

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

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

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

Seedlings. Trees <1.0 inch d.b.h. and >1 foot tall for hardwoods, >6 inches tall for softwoods, and >0.5 inch in diameter at ground level for longleaf pine.

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

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

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

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

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

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

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

Timber products. Roundwood products and byproducts.

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

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

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

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

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

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

Metric Equivalents

1 acre = 4,046.86 m ² or 0.404686 ha
1 cubic foot = 0.028317 m ³
1 inch = 2.54 cm or 0.0254 m
Breast height = 1.4 m above the ground
1 square foot = 929.03 cm ² or 0.0929 m ²
1 square foot per basal area = 0.229568 m ² /ha
1 pound = 0.454 kg
1 ton = 0.907 MT

Conversion Factors^a

Saw logs	
Softwood	0.18282 cubic foot = 1 board foot 5.47 board feet = 1 cubic foot
Hardwood	0.16393 cubic foot = 1 board foot 6.10 board feet = 1 cubic foot
Veneer logs	
Softwood	0.16129 cubic foot = 1 board foot 6.20 board feet = 1 cubic foot
Hardwood	0.16000 cubic foot = 1 board foot 6.25 board feet = 1 cubic foot
Pulpwood ^b	
Softwood	73.3 cubic feet per cord
Hardwood	76.1 cubic feet per cord

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

^b Cubic feet of solid wood per cord.

Species List^a

Common name	Scientific name ^b	Common name	Scientific name ^b
Softwoods		Hardwoods (continued)	
Atlantic white-cedar	<i>Chamaecyparis thyoides</i> (L.) B.S.P.	Sweetgum	<i>Liquidambar styraciflua</i> L.
Southern redcedar	<i>Juniperus silicicola</i> (Small) Bailey	Yellow-poplar	<i>Liriodendron tulipifera</i> L.
Eastern redcedar	<i>J. virginiana</i> L.	Osage-orange	<i>Maclura pomifera</i> (Raf.) Schneid.
Shortleaf pine	<i>Pinus echinata</i> Mill.	Cucumbertree	<i>Magnolia acuminata</i> L.
Slash pine	<i>P. elliotii</i> Engelm.	Southern magnolia	<i>M. grandiflora</i> L.
Spruce pine	<i>P. glabra</i> Walt.	Bigleaf magnolia	<i>M. macrophylla</i> Michx.
Longleaf pine	<i>P. palustris</i> Mill.	Sweetbay	<i>M. virginiana</i> L.
Loblolly pine	<i>P. taeda</i> L.	Apple	<i>Malus</i> spp. Mill.
Virginia pine	<i>P. virginiana</i> Mill.	Chinaberry	<i>Melia azedarach</i> L.
Baldcypress	<i>Taxodium distichum</i> (L.) Rich.	White mulberry	<i>Morus alba</i> L.
Hardwoods		Red mulberry	<i>M. rubra</i> L.
Florida maple	<i>Acer barbatum</i> Michx.	Water tupelo	<i>Nyssa aquatica</i> L.
Boxelder	<i>A. negundo</i> L.	Blackgum	<i>N. sylvatica</i> Marsh.
Red maple	<i>A. rubrum</i> L.	Swamp tupelo	<i>N. sylvatica</i> var. <i>biflora</i> (Walt.) Sarg.
Silver maple	<i>A. saccharinum</i> L.	Eastern hophornbeam	<i>Ostrya virginiana</i> (Mill.) K. Koch
Sugar maple	<i>A. saccharum</i> Marsh.	Sourwood	<i>Oxydendrum arboreum</i> (L.) DC.
Buckeye	<i>Aesculus</i> spp. L.	Redbay	<i>Persea borbonia</i> (L.) Spreng.
Ailanthus	<i>Ailanthus altissima</i> (Mill.) Swingle	American sycamore	<i>Platanus occidentalis</i> L.
Tung-oil tree	<i>Aleurites fordii</i> Hemsl.	Cottonwood	<i>Populus</i> spp. L.
Serviceberry	<i>Amelanchier</i> spp. Medic.	Black cherry	<i>Prunus serotina</i> Ehrh.
River birch	<i>Betula nigra</i> L.	White oak	<i>Quercus alba</i> L.
American hornbeam	<i>Carpinus caroliniana</i> Walt.	Scarlet oak	<i>Q. coccinea</i> Muenchh.
Hickory	<i>Carya</i> spp. Nutt.	Southern red oak	<i>Q. falcata</i> Michx.
Water hickory	<i>C. aquatica</i> (Michx. f.) Nutt.	Cherrybark oak	<i>Q. falcata</i> var. <i>pagodifolia</i> Ell.
Bitternut hickory	<i>C. cordiformis</i> (Wangenh.) K. Koch	Bluejack oak	<i>Q. incana</i> Bartr.
Pignut hickory	<i>C. glabra</i> (Mill.) Sweet	Turkey oak	<i>Q. laevis</i> Walt.
Pecan	<i>C. illinoensis</i> (Wangenh.) K. Koch	Laurel oak	<i>Q. laurifolia</i> Michx.
Shellbark hickory	<i>C. laciniata</i> (Michx. f.) Loud.	Overcup oak	<i>Q. lyrata</i> Walt.
Nutmeg hickory	<i>C. myristiciformis</i> (Michx. f.) Nutt.	Swamp chestnut oak	<i>Q. michauxii</i> Nutt.
Shagbark hickory	<i>C. ovata</i> (Mill.) K. Koch	Chinkapin oak	<i>Q. muehlenbergii</i> Engelm.
Black hickory	<i>C. texana</i> Buckl.	Water oak	<i>Q. nigra</i> L.
Mockernut hickory	<i>C. tomentosa</i> (Poir.) Nutt.	Nuttall oak	<i>Q. nuttallii</i> Palmer
Allegheny chinkapin	<i>Castanea pumila</i> Mill.	Oglethorpe oak	<i>Q. oglethorpensis</i> Duncan
Chinkapin	<i>Castanopsis</i> (D. Don) Spach	Pin oak	<i>Q. palustris</i> Muenchh.
Catalpa	<i>Catalpa</i> spp. Scop.	Willow oak	<i>Q. phellos</i> L.
Sugarberry	<i>Celtis laevigata</i> Willd.	Chestnut oak	<i>Q. prinus</i> L.
Hackberry	<i>C. occidentalis</i> L.	Northern red oak	<i>Q. rubra</i> L.
Eastern redbud	<i>Cercis canadensis</i> L.	Shumard oak	<i>Q. shumardii</i> Buckl.
Flowering dogwood	<i>Cornus florida</i> L.	Post oak	<i>Q. stellata</i> Wangenh.
Hawthorn	<i>Crataegus</i> spp. L.	Black oak	<i>Q. velutina</i> Lam.
Common persimmon	<i>Diospyros virginiana</i> L.	Live oak	<i>Q. virginiana</i> Mill.
American beech	<i>Fagus grandifolia</i> Ehrh.	Black locust	<i>Robinia pseudoacacia</i> L.
White ash	<i>Fraxinus americana</i> L.	Willow	<i>Salix</i> spp. L.
Pumpkin ash	<i>F. profunda</i> (Bush) Bush	Sassafras	<i>Sassafras albidum</i> (Nutt.) Nees
Blue ash	<i>F. quadrangulata</i> Michx.	American basswood	<i>Tilia americana</i> L.
Waterlocust	<i>Gleditsia aquatica</i> Marsh.	White basswood	<i>T. heterophylla</i> Vent.
Honeylocust	<i>G. triacanthos</i> L.	Winged elm	<i>Ulmus alata</i> Michx.
Loblolly-bay	<i>Gordonia lasianthus</i> (L.) Ellis	American elm	<i>U. americana</i> L.
American holly	<i>Ilex opaca</i> Ait.	Slippery elm	<i>U. rubra</i> Muhl.
Black walnut	<i>Juglans nigra</i> L.	September elm	<i>U. serotina</i> Sarg.

^a Common and scientific names of tree species > 1.0 inch d.b.h. occurring in the FIA sample.

^b Little (1979).

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Table A.1—Output of industrial products by product and species group, Virginia, 2003 and 2005

Product and species group	Year		Change	Change
	2003	2005		
	- - - thousand cubic feet - - -			percent
Saw logs				
Softwood	108,085	106,728	-1,357	-1.3
Hardwood	121,180	121,439	259	0.2
Total	229,265	228,167	-1,098	-0.5
Veneer logs				
Softwood	8,401	11,265	2,864	34.1
Hardwood	8,448	4,915	-3,533	-41.8
Total	16,849	16,180	-669	-4.0
Pulpwood ^a				
Softwood	89,198	96,316	7,118	8.0
Hardwood	97,264	103,385	6,121	6.3
Total	186,462	199,701	13,239	7.1
Composite panels				
Softwood	44,584	53,151	8,567	19.2
Hardwood	9,125	4,176	-4,949	-54.2
Total	53,709	57,327	3,618	6.7
Other industrial				
Softwood	1,443	1,013	-430	-29.8
Hardwood	429	392	-37	-8.6
Total	1,872	1,405	-467	-24.9
All industrial				
Softwood	251,711	268,473	16,762	6.7
Hardwood	236,446	234,307	-2,139	-0.9
Total	488,157	502,780	14,623	3.0
Byproduct output				
Softwood	83,135	88,123	4,988	6.0
Hardwood	88,238	90,952	2,714	3.1
Total	171,373	179,075	7,702	4.5
Total output				
Softwood	334,846	356,596	21,750	6.5
Hardwood	324,684	325,259	575	0.2
Total	659,530	681,855	22,325	3.4

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (2,782,000 cubic feet in 2003 and 2,657,000 cubic feet in 2005).

Table A.2—Roundwood receipts by product and species group, Virginia, 2003 and 2005

Product and species group	Year		Change	Change
	2003	2005		
	<i>- - - thousand cubic feet - - -</i>			<i>percent</i>
Saw logs				
Softwood	104,009	105,637	1,628	1.6
Hardwood	122,537	124,912	2,375	1.9
Total	226,546	230,549	4,003	1.8
Veneer logs				
Softwood	14,069	17,949	3,880	27.6
Hardwood	5,864	1,898	-3,966	-67.6
Total	19,933	19,847	-86	-0.4
Pulpwood ^a				
Softwood	73,054	73,882	828	1.1
Hardwood	110,922	128,891	17,969	16.2
Total	183,976	202,773	18,797	10.2
Composite panels				
Softwood	51,395	55,347	3,952	7.7
Hardwood	8,301	3,998	-4,303	-51.8
Total	59,696	59,345	-351	-0.6
Other industrial				
Softwood	1,675	1,728	53	3.2
Hardwood	451	414	-37	-8.2
Total	2,126	2,142	16	0.8
Total output				
Softwood	244,202	254,543	10,341	4.2
Hardwood	248,075	260,113	12,038	4.9
Total	492,277	514,656	22,379	4.5

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (3,579,000 cubic feet in 2003 and 2,807,000 cubic feet in 2005).

Table A.3—Number of primary wood-using plants by industry, Virginia, 1980 to 2005

Industry	Year								
	1980	1984	1987	1989	1995	1999	2001	2003	2005
	<i>number</i>								
Sawmills	392	419	355	323	254	254	217	204	168
Veneer or plywood mills	12	12	10	10	8	7	5	5	4
Pulpmills	9	9	9	9	9	9	9	9	8
Composite panel mills	0	0	1	3	3	4	3	3	3
Other mills	24	22	19	24	15	16	14	13	13
All plants	437	462	394	369	289	290	248	234	196

Table A.4—Roundwood receipts by sawmill size, Virginia, 2003 and 2005

Sawmill size class ^a	2003			2005		
	Mills	Volume		Mills	Volume	
<i>mmbf</i>	<i>number</i>	<i>mbf</i>	<i>percent</i>	<i>number</i>	<i>mbf</i>	<i>percent</i>
< 1.0	46	13,352	1	27	8,624	1
1.0–4.99	73	199,126	15	59	156,433	12
5.0–9.99	51	336,266	26	48	327,958	24
> 10	34	767,202	58	34	846,283	63
Total	204	1,315,946	100	168	1,339,298	100

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

Table A.5—Roundwood receipts by species and type of mill, Virginia, 2005

Species	All mills	Sawmills	Veneer mills		OSB and panels	Pulpwood ^a	Other mills
			Pine plywood	Other veneer			
<i>thousand cubic feet</i>							
Softwood							
Yellow pine	169,698	94,677	17,717	229	55,347	NA	1,728
Eastern white pine	10,059	10,056	0	3	0	NA	0
Cedar	39	39	0	0	0	NA	0
Cypress	530	530	0	0	0	NA	0
Other softwood	335	335	0	0	0	NA	0
Unclassified	73,882	0	0	0	0	73,882	0
Total softwoods	254,543	105,637	17,717	232	55,347	73,882	1,728
Hardwood							
Blackgum and tupelo	775	772	0	3	0	NA	0
Soft maple	2,938	2,935	0	3	0	NA	0
Sweetgum	3,387	3,031	356	0	0	NA	0
Yellow-poplar	43,357	41,480	0	11	1,866	NA	0
Other soft hardwood	4,668	2,536	0	0	2,132	NA	0
Hickory	4,358	4,268	0	16	0	NA	74
Red oak	34,239	33,976	0	231	0	NA	32
White oak	24,886	24,482	0	372	0	NA	32
Other hard hardwood	12,614	11,432	0	906	0	NA	276
Unclassified	128,891	0	0	0	0	128,891	0
Total hardwoods	260,113	124,912	356	1,542	3,998	128,891	414
All species	514,656	230,549	18,073	1,774	59,345	202,773	2,142

OSB = oriented strand board; NA = not applicable.

^a Collected only by softwood and hardwood and includes roundwood chipped.**Table A.6—Industrial roundwood movement by year and species group, Virginia, 2003 and 2005**

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
Softwood					
2003	251,711	44,576	207,135	37,067	244,202
2005	268,473	52,988	215,485	39,058	254,543
Hardwood					
2003	236,446	35,437	201,009	47,066	248,075
2005	234,307	27,309	206,998	53,115	260,113
All species					
2003	488,157	80,013	408,144	84,133	492,277
2005	502,780	80,297	422,483	92,173	514,656

Table A.7—Industrial roundwood movement by product and species group, Virginia, 2005

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
Saw logs					
Softwood	106,728	16,570	90,158	15,479	105,637
Hardwood	121,439	8,130	113,309	11,603	124,912
Total	228,167	24,700	203,467	27,082	230,549
Veneer logs					
Softwood	11,265	92	11,173	6,776	17,949
Hardwood	4,915	4,725	190	1,708	1,898
Total	16,180	4,817	11,363	8,484	19,847
Pulpwood ^a					
Softwood	96,316	28,152	68,164	5,718	73,882
Hardwood	103,385	12,697	90,688	38,203	128,891
Total	199,701	40,849	158,852	43,921	202,773
Composite panels					
Softwood	53,151	8,125	45,026	10,321	55,347
Hardwood	4,176	1,757	2,419	1,579	3,998
Total	57,327	9,882	47,445	11,900	59,345
Other industrial					
Softwood	1,013	49	964	764	1,728
Hardwood	392	0	392	22	414
Total	1,405	49	1,356	786	2,142
All products					
Softwood	268,473	52,988	215,485	39,058	254,543
Hardwood	234,307	27,309	206,998	53,115	260,113
Total	502,780	80,297	422,483	92,173	514,656

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills.

Table A.8—Saw-log volume by destination, source, and species group, Virginia, 2005

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
Virginia (retained)	203,467	90,158	113,309
Exports to			
Kentucky	1,070	0	1,070
North Carolina	20,870	16,387	4,483
Tennessee	1,221	146	1,075
West Virginia	1,539	37	1,502
Total	24,700	16,570	8,130
Imports from			
Kentucky	2,024	439	1,585
Maryland	364	114	250
North Carolina	20,077	14,348	5,729
Tennessee	1,196	220	976
West Virginia	3,421	358	3,063
Total	27,082	15,479	11,603

Table A.9—Veneer volume by destination, source, and species group, Virginia, 2005

Destination and source	All species	Species group	
		Softwood	Hardwood
		<i>thousand cubic feet</i>	
Virginia (retained)	11,363	11,173	190
Exports to			
Georgia	958	0	958
Indiana	49	0	49
Kentucky	8	0	8
North Carolina	3,757	92	3,665
West Virginia	45	0	45
Total	4,817	92	4,725
Imports from			
Foreign	2	0	2
Illinois	85	0	85
Indiana	177	2	175
Iowa	136	0	136
Maine	7	0	7
Maryland	8	0	8
Michigan	30	0	30
New Hampshire	19	0	19
New York	27	0	27
North Carolina	6,994	6,749	245
Ohio	191	0	191
Pennsylvania	462	0	462
South Carolina	28	25	3
Tennessee	84	0	84
West Virginia	229	0	229
Wisconsin	5	0	5
Total	8,484	6,776	1,708

Table A.10—Pulpwood volume by destination, source, and species group, Virginia, 2005^a

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
Virginia (retained)	158,852	68,164	90,688
Exports to			
Georgia	9,036	5,390	3,646
Kentucky	18,884	17,686	1,198
Maryland	5,402	5,076	326
North Carolina	244	0	244
Pennsylvania	616	0	616
South Carolina	709	0	709
Tennessee	5,958	0	5,958
Total	40,849	28,152	12,697
Imports from			
Maryland	268	65	203
North Carolina	34,327	5,382	28,945
South Carolina	111	111	0
West Virginia	9,215	160	9,055
Total	43,921	5,718	38,203

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills.

Table A.12—Other industrial volume by destination, source, and species group, Virginia, 2005^a

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
Virginia (retained)	1,356	964	392
Exports to			
Kentucky	30	30	0
North Carolina	19	19	0
Total	49	49	0
Imports from			
Alabama	139	139	0
Georgia	69	69	0
North Carolina	578	556	22
Total	786	764	22

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

Table A.11—Composite panel volume by destination, source, and species group, Virginia, 2005

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
Virginia (retained)	47,445	45,026	2,419
Exports to			
North Carolina	8,531	7,823	708
West Virginia	1,351	302	1,049
Total	9,882	8,125	1,757
Imports from			
North Carolina	11,900	10,321	1,579
Total	11,900	10,321	1,579

Table A.13—Primary mill residue volume by roundwood type, species group, and residue type, Virginia, 2005

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
thousand cubic feet					
Saw logs					
Softwood	59,729	7,041	26,474	18,604	7,610
Hardwood	74,000	13,020	35,536	25,278	166
Total	133,729	20,061	62,010	43,882	7,776
Veneer logs					
Softwood	10,133	1,361	6,517	2,255	0
Hardwood	704	205	330	169	0
Total	10,837	1,566	6,847	2,424	0
Pulpwood					
Softwood	7,479	7,479	0	0	0
Hardwood	16,111	16,111	0	0	0
Total	23,590	23,590	0	0	0
Composite panels					
Softwood	9,214	9,214	0	0	0
Hardwood	902	902	0	0	0
Total	10,116	10,116	0	0	0
Other industrial ^a					
Softwood	1,864	1,645	219	0	0
Hardwood	314	111	160	43	0
Total	2,178	1,756	379	43	0
Total					
Softwood	88,419	26,740	33,210	20,859	7,610
Hardwood	92,031	30,349	36,026	25,490	166
Total	180,450	57,089	69,236	46,349	7,776

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

Table A.14—Disposal of residue at primary wood-using plants by product, species group, and type of residue, Virginia, 2003 and 2005

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
<i>thousand cubic feet</i>										
Fiber products										
Softwood	29,314	25,289	0	0	28,576	25,271	186	0	552	18
Hardwood	28,382	27,330	0	0	28,034	26,699	348	631	0	0
Total	57,696	52,619	0	0	56,610	51,970	534	631	552	18
Particleboard										
Softwood	7,213	9,077	0	0	205	3,634	3,405	2,021	3,603	3,422
Hardwood	2,866	3,829	0	0	1,198	3,010	1,653	786	15	33
Total	10,079	12,906	0	0	1,403	6,644	5,058	2,807	3,618	3,455
Charcoal/ chemical wood										
Softwood	64	64	0	0	0	0	64	64	0	0
Hardwood	655	814	0	0	419	347	236	467	0	0
Total	719	878	0	0	419	347	300	531	0	0
Sawn products										
Softwood	0	3,216	0	0	0	3,216	0	0	0	0
Hardwood	0	31	0	0	0	31	0	0	0	0
Total	0	3,247	0	0	0	3,247	0	0	0	0
Fuel										
Softwood	34,795	38,699	18,465	20,714	1,521	599	14,495	16,919	314	467
Hardwood	37,852	40,180	17,832	18,589	1,961	2,693	18,007	18,849	52	49
Total	72,647	78,879	36,297	39,303	3,482	3,292	32,502	35,768	366	516
Miscellaneous										
Softwood	11,749	11,778	6,341	6,009	527	430	1,633	1,636	3,248	3,703
Hardwood	18,483	18,768	11,095	11,624	3,124	2,852	4,182	4,208	82	84
Total	30,232	30,546	17,436	17,633	3,651	3,282	5,815	5,844	3,330	3,787
Not used										
Softwood	466	296	36	17	132	60	298	219	0	0
Hardwood	1,894	1,079	293	136	664	394	937	549	0	0
Total	2,360	1,375	329	153	796	454	1,235	768	0	0
All products										
Softwood	83,601	88,419	24,842	26,740	30,961	33,210	20,081	20,859	7,717	7,610
Hardwood	90,132	92,031	29,220	30,349	35,400	36,026	25,363	25,490	149	166
Total	173,733	180,450	54,062	57,089	66,361	69,236	45,444	46,349	7,866	7,776

Table A.15—Roundwood timber product output by county, product, and species group, Virginia, 2005

County	All products		Saw logs		Veneer logs		Pulpwood ^a		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
<i>thousand cubic feet</i>												
Accomack	894	298	798	79	0	0	2	219	0	0	94	0
Albemarle	3,698	3,208	2,632	1,922	0	0	1,066	1,268	0	18	0	0
Alleghany	531	3,546	257	1,614	0	3	274	1,929	0	0	0	0
Amelia	5,851	4,761	2,291	2,030	354	0	2,111	2,713	1,095	18	0	0
Amherst	1,448	3,623	299	2,080	0	0	784	1,525	365	18	0	0
Appomattox	3,039	2,412	680	1,000	0	5	1,082	1,370	1,277	37	0	0
Augusta	406	2,139	278	1,987	0	0	128	123	0	10	0	19
Bath	262	2,162	24	786	0	0	224	1,376	0	0	14	0
Bedford	1,410	4,773	785	2,952	0	3	260	1,687	365	131	0	0
Bland	339	1,361	333	1,138	0	29	6	194	0	0	0	0
Botetourt	411	4,352	156	2,750	0	2	255	1,600	0	0	0	0
Brunswick	25,399	7,829	9,796	2,846	2,127	303	11,603	4,531	1,836	149	37	0
Buchanan	30	694	0	694	0	0	0	0	0	0	30	0
Buckingham	9,788	7,731	3,554	1,897	0	0	5,125	5,816	1,095	18	14	0
Campbell	4,688	4,028	1,816	1,971	0	2	1,412	1,887	1,460	168	0	0
Caroline	6,186	4,423	2,401	1,296	0	0	3,784	3,109	0	0	1	18
Carroll	4,240	3,017	3,718	2,607	0	9	81	200	435	201	6	0
Charles City	3,281	2,540	885	1,426	180	0	2,165	1,107	0	0	51	7
Charlotte	10,478	7,178	2,937	3,995	177	0	1,678	2,989	5,677	187	9	7
Chesapeake	1,120	545	1,089	441	0	0	31	104	0	0	0	0
Chesterfield	2,390	1,760	764	644	177	0	1,449	1,116	0	0	0	0
Clarke	36	678	2	659	0	2	34	17	0	0	0	0
Craig	118	623	0	143	0	0	118	480	0	0	0	0
Culpeper	1,060	1,364	345	998	0	0	715	271	0	0	0	95
Cumberland	2,514	3,601	823	635	1	0	1,690	2,955	0	0	0	11
Dickenson	208	7,867	208	1,166	0	0	0	6,701	0	0	0	0
Dinwiddie	9,630	3,129	4,958	2,282	886	14	2,943	769	834	64	9	0
Essex	2,156	1,839	781	810	0	0	1,357	1,022	0	0	18	7
Fairfax	58	360	0	77	0	5	58	278	0	0	0	0
Fauquier	364	472	194	462	0	0	170	10	0	0	0	0
Floyd	1,988	3,023	1,973	2,966	0	12	15	45	0	0	0	0
Fluvanna	1,757	692	475	40	0	0	1,253	652	0	0	29	0
Franklin	2,557	6,065	1,719	4,220	5	127	468	1,662	365	56	0	0
Frederick	319	1,507	35	1,058	0	6	284	443	0	0	0	0
Giles	358	2,640	358	2,565	0	45	0	30	0	0	0	0
Gloucester	1,057	1,249	629	812	1	0	403	437	0	0	24	0
Goochland	1,234	627	269	225	0	0	965	384	0	18	0	0
Grayson	1,223	2,110	851	1,518	13	255	5	217	348	120	6	0
Greene	51	321	0	320	0	0	21	1	0	0	30	0
Greensville	7,524	1,642	1,641	976	1,063	333	2,975	205	1,836	128	9	0
Halifax	15,143	5,976	5,540	2,956	531	317	1,029	2,382	8,034	299	9	22
Hampton	0	53	0	50	0	0	0	3	0	0	0	0
Hanover	2,775	1,471	1,808	884	0	0	956	584	0	0	11	3
Henrico	557	1,337	144	87	0	0	326	1,135	87	115	0	0

continued

Table A.15—Roundwood timber product output by county, product, and species group, Virginia, 2005 (continued)

County	All products		Saw logs		Veneer logs		Pulpwood ^a		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
<i>thousand cubic feet</i>												
Henry	2,726	3,180	1,911	1,572	0	5	446	1,348	369	248	0	7
Highland	90	1,744	0	1,243	0	0	90	501	0	0	0	0
Isle of Wight	4,888	4,819	2,246	1,104	531	32	1,706	3,598	333	85	72	0
James City	1,074	647	550	107	0	0	524	540	0	0	0	0
King and Queen	5,232	2,316	1,174	925	177	0	3,532	1,391	333	0	16	0
King George	345	1,831	90	1,622	0	0	255	188	0	21	0	0
King William	2,215	1,722	1,061	1,241	0	5	1,145	476	0	0	9	0
Lancaster	877	845	313	424	0	0	548	421	0	0	16	0
Lee	329	1,844	329	1,844	0	0	0	0	0	0	0	0
Loudoun	6	1,664	6	861	0	0	0	803	0	0	0	0
Louisa	3,108	4,809	1,434	1,673	0	0	1,652	3,090	0	0	22	46
Lunenburg	11,165	2,657	2,696	1,851	886	5	1,832	595	5,751	206	0	0
Madison	60	909	0	757	0	0	20	152	0	0	40	0
Mathews	587	414	301	229	0	0	286	185	0	0	0	0
Mecklenburg	14,860	3,727	4,147	2,130	1,063	303	4,129	1,153	5,521	141	0	0
Middlesex	667	929	300	455	3	0	364	467	0	0	0	7
Montgomery	460	1,921	409	1,488	0	0	51	433	0	0	0	0
Nelson	1,400	3,965	182	2,496	0	0	1,218	1,050	0	419	0	0
New Kent	1,179	1,516	397	772	0	0	766	741	0	0	16	3
Newport News	76	318	0	104	0	0	76	214	0	0	0	0
Northampton	239	201	199	201	0	0	0	0	0	0	40	0
Northumberland	699	1,293	333	971	0	0	327	322	0	0	39	0
Nottoway	3,688	2,687	1,605	1,045	354	5	1,164	1,488	547	149	18	0
Orange	1,853	1,288	1,153	669	0	0	577	277	123	304	0	38
Page	2	339	0	292	0	0	2	47	0	0	0	0
Patrick	2,081	5,469	677	3,437	0	0	1,030	1,905	368	127	6	0
Pittsylvania	13,577	5,942	4,695	2,014	0	315	1,987	3,385	6,895	206	0	22
Powhatan	3,529	3,018	661	666	1	0	1,655	2,345	1,212	0	0	7
Prince Edward	5,456	2,832	362	957	0	0	1,119	1,857	3,975	18	0	0
Prince George	4,614	3,943	1,092	1,006	354	0	3,002	2,892	166	42	0	3
Prince William	266	1,426	0	719	0	0	266	707	0	0	0	0
Pulaski	157	402	157	393	0	0	0	9	0	0	0	0
Rappahannock	286	473	0	456	0	0	286	17	0	0	0	0
Richmond	1,349	1,691	624	1,077	0	0	694	614	0	0	31	0
Roanoke	165	376	149	270	0	0	16	106	0	0	0	0
Rockbridge	576	3,590	239	2,478	0	16	323	1,077	0	0	14	19
Rockingham	55	745	39	635	0	0	16	91	0	0	0	19
Russell	179	2,121	160	1,646	19	475	0	0	0	0	0	0
Scott	680	3,514	658	2,242	22	1,272	0	0	0	0	0	0
Shenandoah	160	868	15	323	0	0	145	545	0	0	0	0
Smyth	478	1,231	230	974	0	9	0	111	248	137	0	0
Southampton	11,291	4,844	6,349	1,625	531	21	3,979	3,156	333	42	99	0
Spotsylvania	3,517	1,132	2,821	741	0	0	696	359	0	0	0	32
Stafford	444	1,594	256	1,155	0	0	188	439	0	0	0	0

continued

Table A.15—Roundwood timber product output by county, product, and species group, Virginia, 2005 (continued)

County	All products		Saw logs		Veneer logs		Pulpwood ^a		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
<i>thousand cubic feet</i>												
Suffolk	6,027	4,424	2,339	925	177	14	3,308	3,485	166	0	37	0
Surry	5,410	3,362	2,147	1,407	177	0	2,893	1,934	166	21	27	0
Sussex	9,501	3,946	2,703	1,658	1,423	321	4,126	1,860	1,168	107	81	0
Tazewell	86	1,199	85	1,003	0	20	1	176	0	0	0	0
Virginia Beach	213	224	19	55	0	0	194	169	0	0	0	0
Warren	34	809	0	581	0	0	34	207	0	21	0	0
Washington	98	1,248	79	809	19	361	0	78	0	0	0	0
Westmoreland	582	1,837	279	1,269	0	0	274	568	0	0	29	0
Wise	252	1,986	239	1,731	13	255	0	0	0	0	0	0
Wythe	921	1,280	553	1,047	0	9	0	97	368	127	0	0
York	88	170	19	0	0	0	69	170	0	0	0	0
All counties	268,473	234,307	106,728	121,439	11,265	4,915	96,316	103,385	53,151	4,176	1,013	392

^a Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (2,657,000 cubic feet in 2005).

Table A.16—Total roundwood output by product, species group, and source of material, Virginia, 2005

Product and species group	All sources	Total	Growing-stock trees		Other sources
			Sawtimber	Poletimber	
			thousand cubic feet		
Saw logs					
Softwood	106,728	104,195	100,040	4,155	2,533
Hardwood	121,439	117,741	111,611	6,130	3,698
Total	228,167	221,936	211,651	10,285	6,231
Veneer logs and bolts					
Softwood	11,265	11,011	10,757	254	254
Hardwood	4,915	4,824	4,623	200	91
Total	16,180	15,834	15,380	454	346
Pulpwood					
Softwood	96,316	86,437	37,235	49,203	9,879
Hardwood	103,385	98,166	44,237	53,929	5,219
Total	199,701	184,603	81,471	103,132	15,098
Composite panels					
Softwood	53,151	47,709	21,946	25,763	5,442
Hardwood	4,176	3,971	1,780	2,191	205
Total	57,327	51,679	23,726	27,953	5,648
Poles and posts					
Softwood	983	807	737	70	176
Hardwood	69	58	42	16	11
Total	1,052	866	780	86	186
Other miscellaneous					
Softwood	30	30	21	9	0
Hardwood	323	294	210	84	29
Total	353	324	231	93	29
Total industrial products					
Softwood	268,473	250,189	170,736	79,453	18,284
Hardwood	234,307	225,054	162,503	62,550	9,253
Total	502,780	475,243	333,239	142,003	27,537
Fuelwood					
Softwood	3,952	3,596	2,591	1,006	356
Hardwood	36,957	33,226	23,938	9,287	3,731
Total	40,909	36,822	26,529	10,293	4,087
All products					
Softwood	272,425	253,785	173,326	80,459	18,640
Hardwood	271,264	258,279	186,442	71,837	12,985
Total	543,689	512,064	359,768	152,296	31,625

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

Table A.17—Total roundwood output by species group, survey region, and ownership class, Virginia, 2005

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
		<i>thousand cubic feet</i>		
Softwoods				
Coastal Plain	121,891	136	13,854	107,901
Southern Piedmont	114,206	1,210	9,484	103,512
Northern Piedmont	20,914	640	2,840	17,434
Northern Mountain	3,212	0	271	2,941
Southern Mountain	12,202	115	87	12,000
Total softwoods	272,425	2,101	26,536	243,788
Hardwoods				
Coastal Plain	80,356	3,882	5,393	71,081
Southern Piedmont	88,031	5,503	4,466	78,062
Northern Piedmont	32,331	3,786	1,114	27,431
Northern Mountain	27,180	2,811	461	23,909
Southern Mountain	43,366	812	695	41,859
Total hardwoods	271,264	16,794	12,129	242,342
All species	543,689	18,895	38,664	486,130

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

Table A.18—Total roundwood output by species group, detailed species group, and product, Virginia, 2005

Species group and detailed species group	Total	Product						
		Saw logs	Veneer logs	Pulpwood	Composite panels	Poles and posts	Other miscellaneous	Fuel- wood
thousand cubic feet								
Softwood								
Cedar	4,539	2,006	167	1,716	567	14	3	66
Eastern white pine	13,892	11,039	44	1,075	1,517	16	0	201
Loblolly-shortleaf pine	214,544	78,123	10,869	79,472	42,119	848	0	3,113
Other yellow pines	38,508	15,156	183	13,690	8,790	104	27	559
Cypress	47	18	1	25	1	0	0	1
Hemlock	895	387	0	339	157	0	0	13
Total softwoods	272,425	106,728	11,265	96,316	53,151	983	30	3,952
Hardwood								
Soft maple	23,614	9,962	218	9,931	240	7	37	3,217
Hard maple	1,718	1,277	33	115	58	0	0	234
Yellow birch	45	27	0	11	0	0	0	6
Hickory	14,243	6,999	244	4,760	288	4	8	1,940
Beech	3,795	1,114	8	2,102	49	3	3	517
Ash	3,937	2,511	150	727	10	1	1	536
Black walnut	3,206	1,837	890	39	3	0	0	437
Sweetgum	21,361	8,037	370	9,713	314	3	13	2,910
Yellow-poplar	62,179	27,219	1,191	24,153	1,060	21	65	8,471
Blackgum-tupelo	5,483	2,440	21	2,222	48	1	4	747
Sycamore	5,553	2,162	107	2,473	48	0	6	757
Cottonwood	717	288	0	325	1	1	4	98
Black cherry	3,952	2,309	324	727	46	0	7	538
Select white oaks	36,669	15,193	330	15,363	690	14	83	4,996
Other white oaks	16,174	8,900	221	4,561	271	0	19	2,203
Select red oaks	18,637	7,421	151	8,160	344	8	13	2,540
Other red oaks	38,573	17,527	460	14,772	516	7	35	5,255
Basswood	1,475	967	40	244	22	0	0	201
Elm	928	341	16	425	19	0	0	126
Other eastern hardwoods	9,005	4,907	139	2,559	148	1	25	1,227
Total hardwoods	271,264	121,439	4,915	103,385	4,176	69	323	36,957
All species	543,689	228,167	16,180	199,701	57,327	1,052	353	40,909

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

Table A.19—Total roundwood output by species group, detailed species group, and ownership class, Virginia, 2005

Species group and detailed species group	Total	Ownership class		
		Public	Forest	Nonindustrial
			industry	private
thousand cubic feet				
Softwood				
Cedar	4,539	84	171	4,285
Eastern white pine	13,892	43	162	13,687
Loblolly-shortleaf pine	214,544	866	21,681	191,996
Other yellow pines	38,508	948	4,422	33,137
Cypress	47	0	13	34
Hemlock	895	159	87	649
Total softwoods	272,425	2,101	26,536	243,788
Hardwood				
Soft maple	23,614	1,667	668	21,279
Hard maple	1,718	133	31	1,554
Yellow birch	45	19	4	22
Hickory	14,243	1,676	530	12,037
Beech	3,795	300	448	3,047
Ash	3,937	78	62	3,796
Black walnut	3,206	42	1	3,164
Sweetgum	21,361	537	1,034	19,790
Yellow-poplar	62,179	2,911	2,294	56,974
Blackgum-tupelo	5,483	428	181	4,874
Sycamore	5,553	188	779	4,587
Cottonwood	717	14	29	673
Black cherry	3,952	271	74	3,607
Select white oaks	36,669	1,312	1,279	34,078
Other white oaks	16,174	1,537	562	14,075
Select red oaks	18,637	3,775	1,822	13,040
Other red oaks	38,573	1,563	2,045	34,965
Basswood	1,475	57	11	1,407
Elm	928	80	36	811
Other eastern hardwoods	9,005	209	236	8,561
Total hardwoods	271,264	16,794	12,129	242,342
All species	543,689	18,895	38,664	486,130

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

Johnson, Tony G.; Becker, Charles W. 2007. Virginia's timber industry—an assessment of timber product output and use, 2005. Resour. Bull. SRS-125. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 34 p.

In 2005, roundwood output from Virginia's forests increased 3 percent to 503 million cubic feet. Mill byproducts generated from primary manufacturers totaled 179 million cubic feet, 5 percent more than in 2003. Seventy-three percent of the plant residues were used primarily for fuel and fiber products. Saw logs were the leading roundwood product at 228 million cubic feet; pulpwood ranked second at 200 million cubic feet; composite panels were third at 57 million cubic feet. The number of primary processing plants declined from 234 in 2003 to 196 in 2005. Total receipts increased 5 percent to 515 million cubic feet.

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



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