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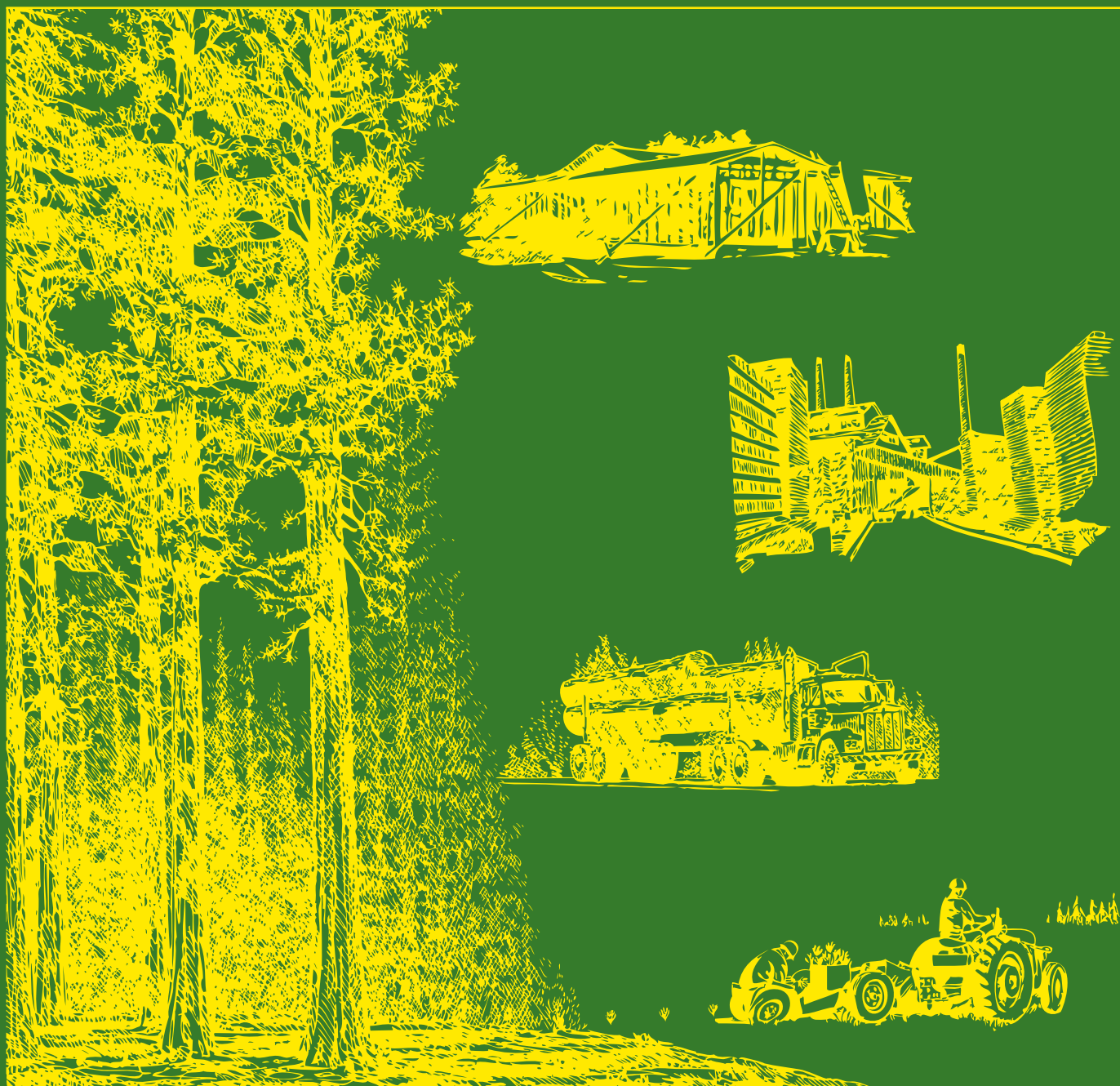


Southern  
Research Station

Resource Bulletin  
SRS-179

# Virginia's Timber Industry—An Assessment of Timber Product Output and Use, 2009

Jason A. Cooper,  
Tony G. Johnson, and  
Charles W. Becker

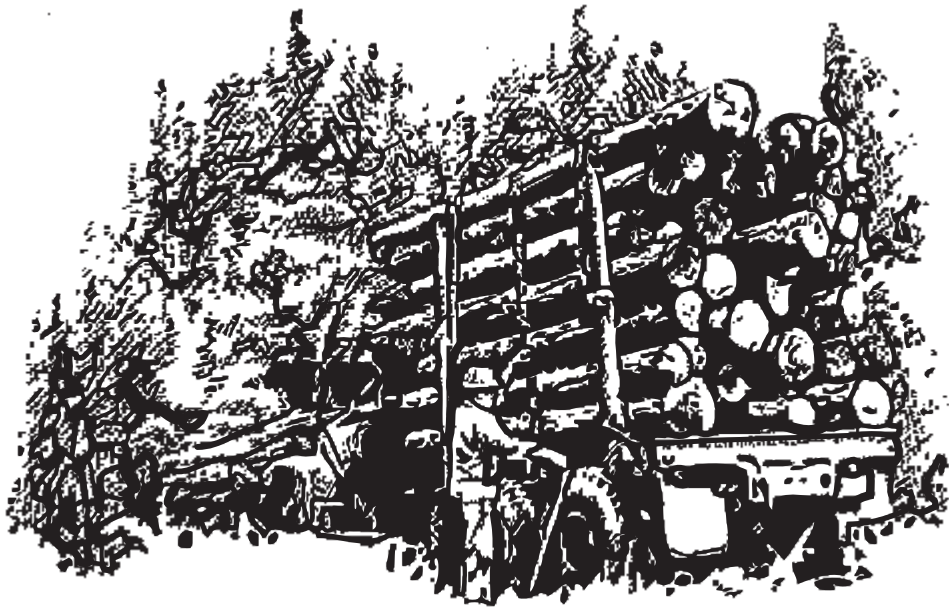


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## Foreword

This report contains the findings of a 2009 canvass of all primary wood-using plants in Virginia, and presents changes in product output and residue use since 2007. 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 2009 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 2010 to obtain information for 2009. 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 Southern Research Station (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.

The authors thank John H. Pemberton and Tracy D. McDonald for review and comments; Carolyn Steppleton and Michael Howell for their tireless efforts in processing and accuracy of the data; Helen Beresford for timber product output database maintenance and support; Anne Jenkins, Janet Griffin, Sharon Johnson, and Charlene Walker for tables, graphs, statistical checking, and styling; and the SRS Technical Publications Team for editorial review and publication of this report.



## 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/>.

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.

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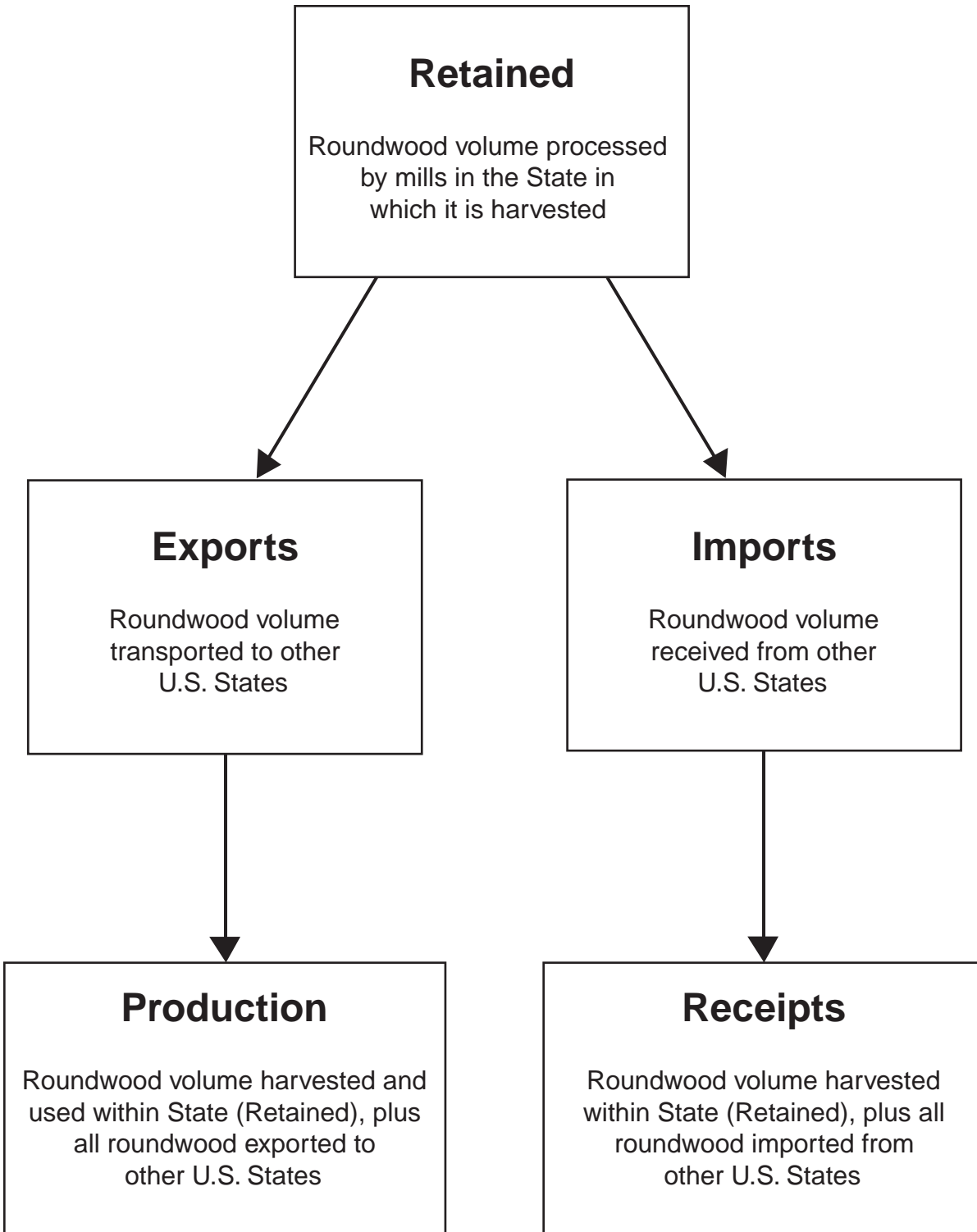
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<sup>a</sup> All tables in this report are available in Microsoft® Excel workbook files. Upon request, these files will be supplied in the format the customer requests. The use of trade or firm names in this publication is for reader information and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



**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, 2009

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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). Unless otherwise indicated, the context for production and receipts comparisons (increases, decreases, or stabilizations) throughout the report is the change from 2007 to 2009.

### All Products

- TPO from roundwood was down 13 percent, from 464.0 million cubic feet to 402.5 million cubic feet.

- Output of softwood roundwood products decreased 11 percent to 224.7 million cubic feet and output of hardwood roundwood products declined 16 percent to 177.8 million cubic feet (fig. 2).
- Saw logs and pulpwood were the principal roundwood products in 2009. Combined output of these two products totaled 333.1 million cubic feet and accounted for 83 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, decreased 82.1 million cubic feet to 397.9 million cubic feet, while output of utilized plant byproducts declined 29 percent, from 173.3 to 123.9 million cubic feet.

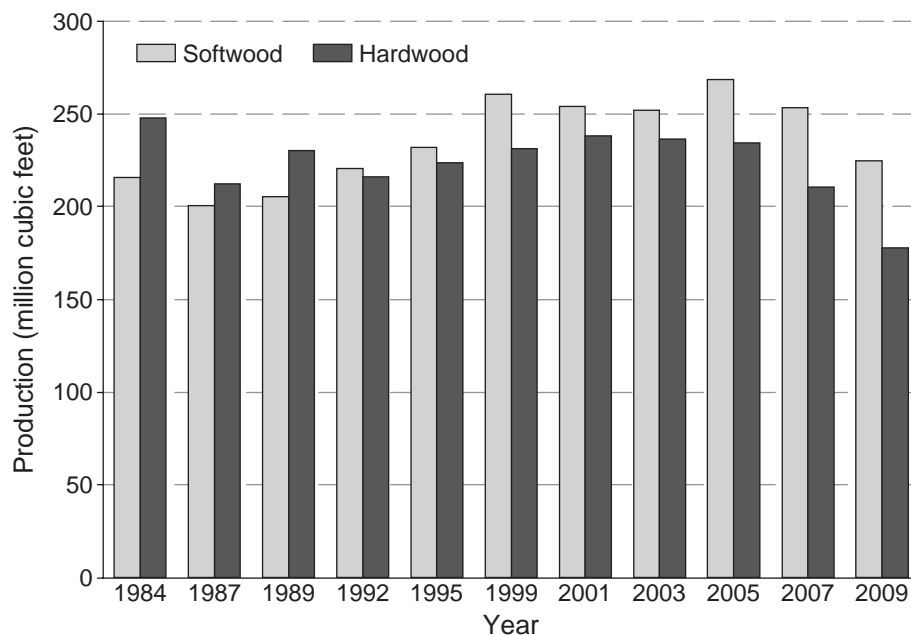


Figure 2—Roundwood production for all products by species group and year (see page 8 for references for individual years) Virginia.

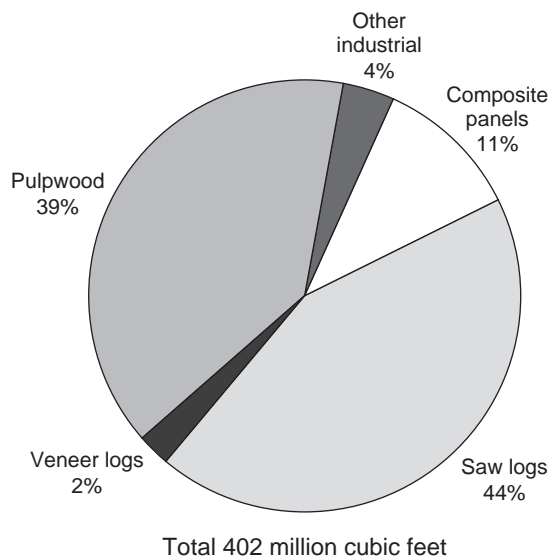


Figure 3—Roundwood production by type of product, Virginia, 2009.

- At the same time, the number of primary roundwood-using plants in Virginia declined from 179 in 2007 to 151 in 2009 (fig. 4).
- Across all products, 78 percent of roundwood harvested was retained for processing at Virginia mills. Exports of roundwood to other States amounted to 86.6 million cubic feet, while imports of roundwood amounted to

82.1 million cubic feet making the State a net exporter of roundwood. Tables A.8 to A.12 show exports to and imports from other States by individual product type.

### Saw Logs

- At 174.9 million cubic feet, saw logs accounted for 44 percent of the State's total roundwood products. Output of softwood saw logs declined 16.7 million cubic feet to 83.1 million cubic feet (454.4 million board feet, International 1/4-inch rule) and hardwood saw logs declined 27.7 million cubic feet to 91.7 million cubic feet (559.6 million board feet, International 1/4-inch rule) (fig. 5).
- In 2009, Virginia had 129 sawmills, a net loss of 26 mills since 2007. The total number of sawmills does not include several one-person sawmills not included in this survey. Total saw-log receipts decreased 60.4 million cubic feet to 153.6 million cubic feet. Softwood saw-log receipts decreased nearly 20 percent to 74.6 million cubic feet, while hardwoods dropped nearly 35 percent to 79.1 million cubic feet. Of the 129 mills operating in 2009, 16 percent had receipts of < 1 million board feet, while 43 percent had receipts > 5 million board feet. These 56 mills accounted for 83 percent of total sawmill receipts.
- Virginia retained 82 percent of its saw-log production for within State manufacture, with saw-log exports exceeding imports by 21.2 million cubic feet in 2009.

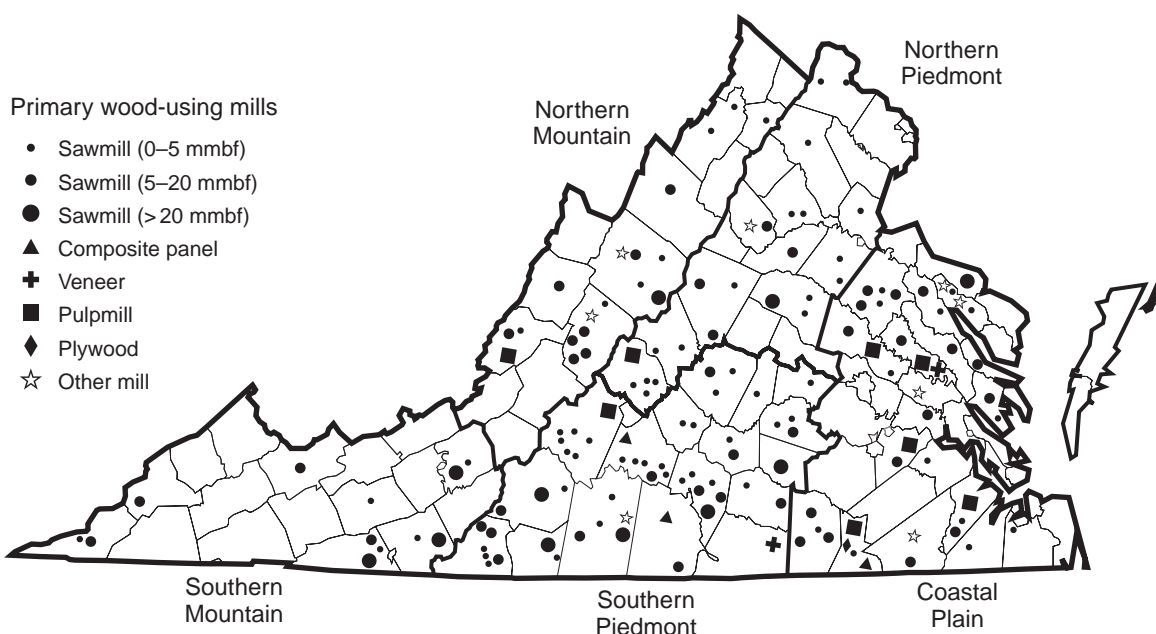


Figure 4—Primary wood-using mills by region, Virginia, 2009.



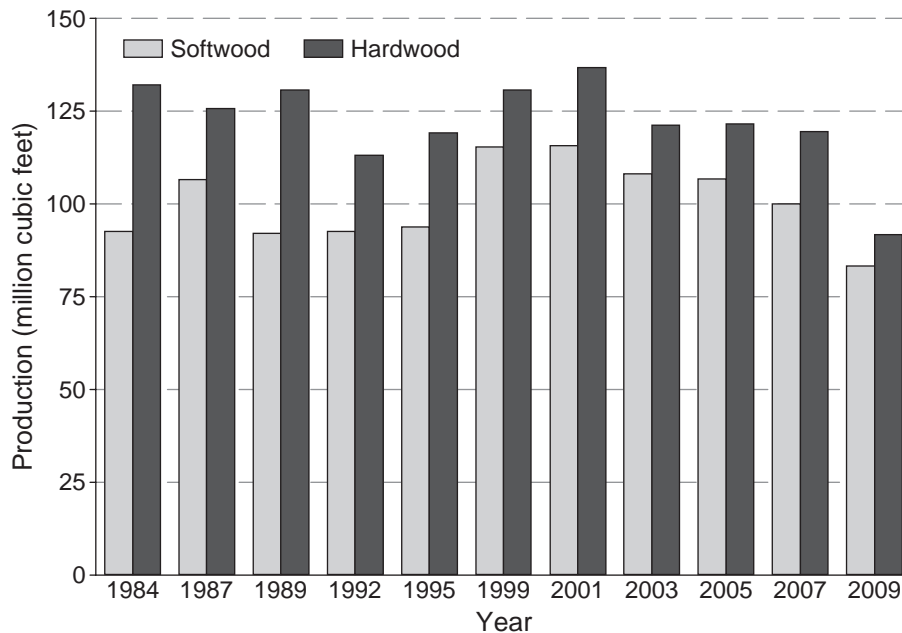


Figure 5—Roundwood saw-log production by species group and year (see page 8 for references for individual years) Virginia.

## Pulpwood

- Pulpwood production, including chipped roundwood, decreased 4.1 million cubic feet to 158.2 million cubic feet and accounted for 39 percent of the State's total roundwood TPO. Softwood output was up 1.8 percent to 86.2 million cubic feet (1.2 million cords) and hardwood output decreased 7 percent to 72.0 million cubic feet (0.9 million cords) (fig. 6).
- Eight pulpmill facilities were operating and receiving roundwood in Virginia in 2009, remaining constant since 2005. Total pulpwood receipts for these mills decreased 16.7 million cubic feet, or 10 percent, to 158.3 million cubic feet, accounting for 40 percent of total receipts for all mills.
- Seventy percent of roundwood cut for pulpwood was retained for processing at Virginia pulpmills. Roundwood pulpwood accounted for 56 percent of total known exports and 59 percent of total imports. Roundwood pulpwood exports amounted to 48.2 million cubic feet, while imports amounted to 48.3 million cubic feet.

## Veneer Logs

- Output of veneer logs in 2009 totaled 9.8 million cubic feet and accounted for 2 percent of the State's total roundwood TPO volume. Softwood veneer-log production dropped 45 percent to 7.0 million cubic feet (43.4 million board feet, International ¼-inch rule), while output of hardwood veneer-log production declined 31 percent to 2.9 million cubic feet (18.0 million board feet, International ¼-inch rule) (fig. 7).
- Three veneer mills were operating in Virginia in 2009, down one from 2007. Total receipts for veneer logs decreased by 4 percent to 17.4 million cubic feet.
- Virginia retained 70 percent of its veneer-log production for processing at veneer mills within State. Imports amounted to 10.5 million cubic feet, while exports totaled 3.0 million cubic feet, showing the State as a net importer of logs used for veneer.

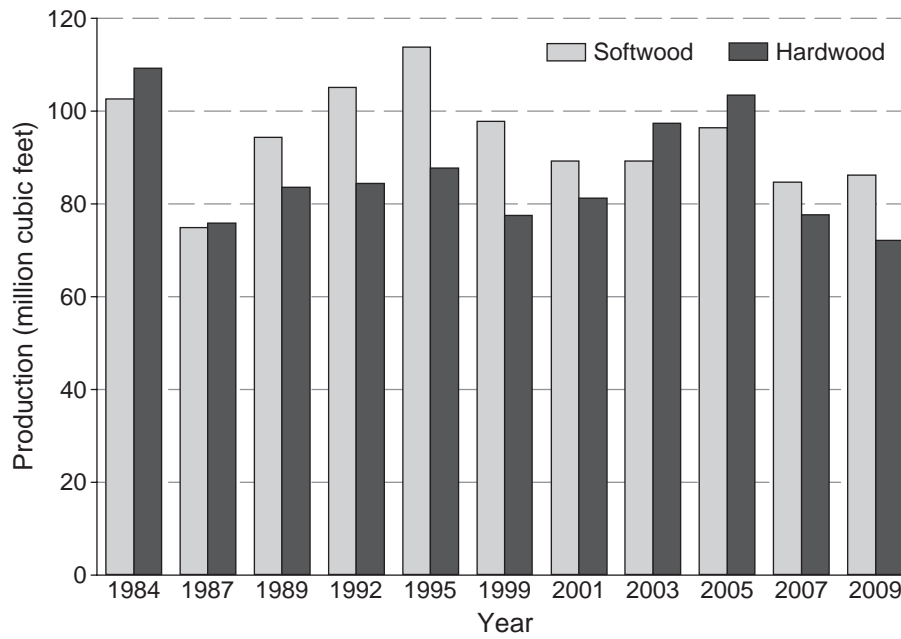


Figure 6—Roundwood pulpwood production by species group and year (see page 8 for references for individual years) Virginia.

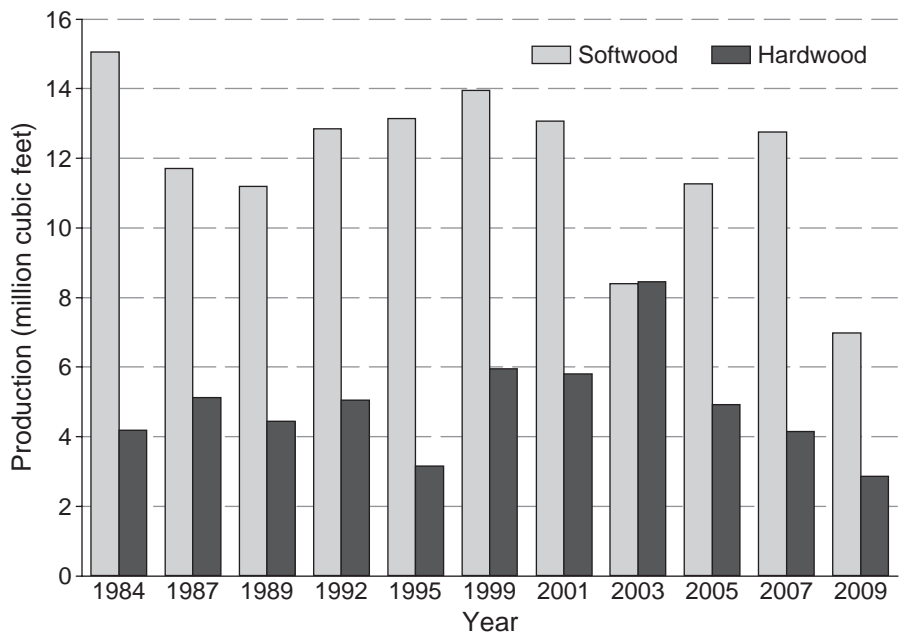


Figure 7—Roundwood veneer-log production by species group and year (see page 8 for references for individual years) Virginia.

## Composite Panels

- Roundwood harvested from Virginia's forests for composite panels decreased 19 percent and totaled 44.0 million cubic feet. Softwood output was down 16 percent to 42.5 million cubic feet (580,300 cords) and hardwood production dropped 58 percent to 1.5 million cubic feet (19,700 cords) (fig. 8).
- Three composite panel mills were operating in Virginia in 2009, the same since 2001. Total receipts for these mills declined to 51.5 million cubic feet, and accounted for 13 percent of the State's total receipts.
- Ninety-one percent of the roundwood production harvested for composite panels was retained for processing at Virginia's mills. Imports amounted to 11.3 million cubic feet, while exports totaled 3.8 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 increased from 11.4 to 15.5 million cubic feet and accounted for 4 percent of the State's TPO output. Hardwood made-up 62 percent of the other industrial product volume.
- The number of plants producing other industrial products decreased from nine in 2007 to eight in 2009. Combined receipts of other industrial products from softwood and hardwood totaled 17.1 million cubic feet. Industrial fuel accounted for 15.3 million cubic feet of receipt volume for this category.
- Virginia was a net importer of roundwood used for other industrial products; 2.2 million cubic feet were imported, while only 601,000 cubic feet were exported to other States.

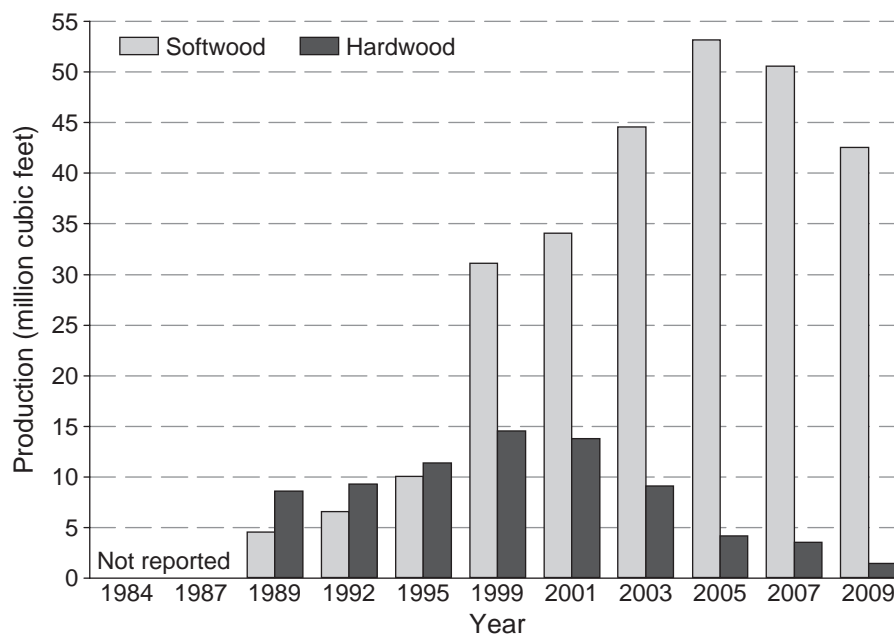


Figure 8—Roundwood production for composite panels by species group and year (see page 8 for references for individual years) Virginia.

## Plant Byproducts

- In 2009, processing of primary products in Virginia mills generated > 124.4 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 49.2 million cubic feet, while bark volume totaled 38.2 million cubic feet. Collectively, sawdust and shavings made-up 30 percent of total residues, or 37.1 million cubic feet (fig. 9).
- The processing of saw logs generated 91.1 million cubic feet of mill residues, accounting for 73 percent of the total residues produced (fig. 10).
- Virtually all the wood and bark residues were used for a product: <0.5 percent was not used, while 44 percent of the residues were used for industrial fuel (fig. 11). Forty million cubic feet, or 81 percent, of the coarse residues were used for fiber products. Most of the bark was used for industrial fuel or other miscellaneous products, while 66 percent of the sawdust and shavings were used for industrial fuel.

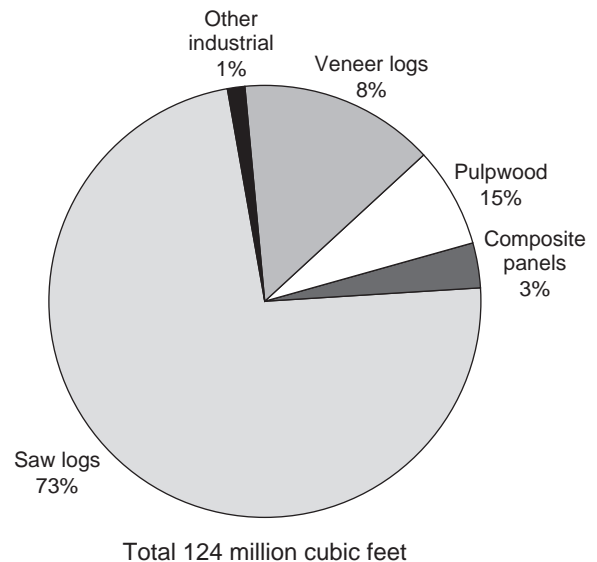


Figure 10—Primary mill residue produced by roundwood type, Virginia, 2009.

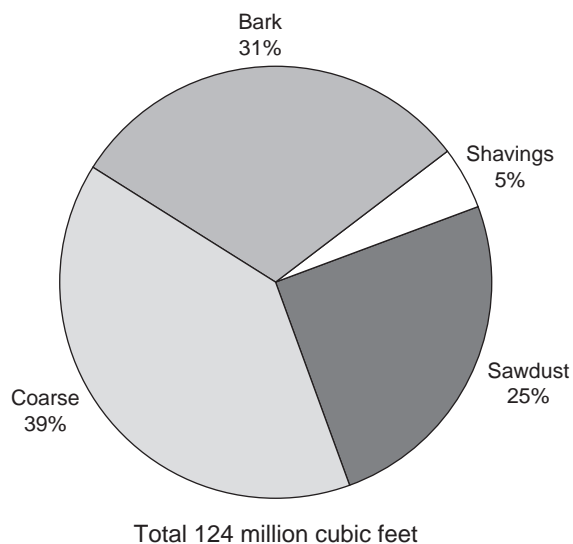


Figure 9—Primary mill residue by residue type, Virginia, 2009.

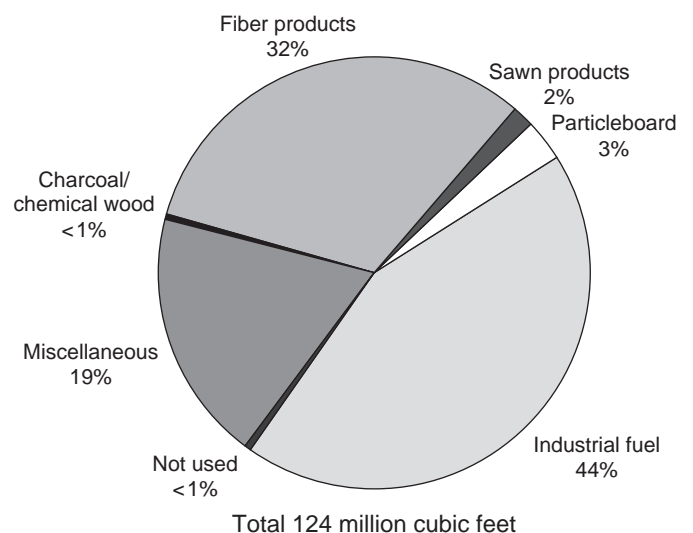


Figure 11—Disposal of residue by product, Virginia, 2009.

## County Data

- Table A.15 shows softwood and hardwood product output by county and individual product type. Eight counties (Brunswick, Buckingham, Campbell, Charlotte, Dinwiddie, Halifax, Pittsylvania, and Southampton) had combined softwood and hardwood product output of >13 million cubic feet each. These eight counties total product output amounted to 139.4 million cubic feet and accounted for 35 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 402.5 million cubic feet of roundwood output for industrial roundwood, an estimated 51.7 million cubic feet was harvested for residential fuelwood, bringing Virginia's total roundwood output to 454.1 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 29.3 million cubic feet, or 7 percent of total roundwood output (fig. 12).

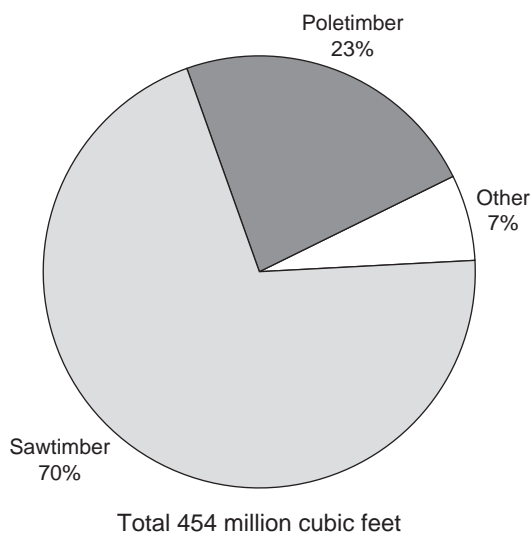


Figure 12—Roundwood output by source, Virginia, 2009.

## Ownership

- An estimated 404.4 million cubic feet, or 89 percent, of the total roundwood output came from nonindustrial private forest lands. Forest industry lands contributed 33.7 million cubic feet, or 7 percent of the output. Public lands made-up the remaining 4 percent, or 16.0 million cubic feet (fig. 13).

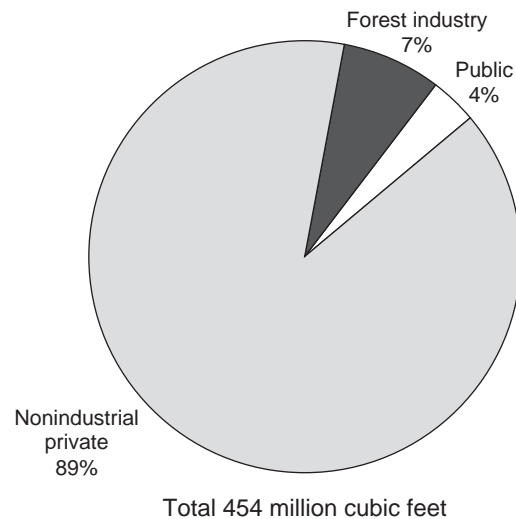


Figure 13—Roundwood output by ownership, Virginia, 2009.

## Species

- The loblolly and shortleaf pine group provided the most volume of any softwood species group, or 172.8 million cubic feet and accounted for 75 percent of the total softwood output. The other yellow pine types accounted for 18 percent of the softwood output (fig. 14). In hardwoods, the red oak and white oak groups combined accounted for 88.0 million cubic feet, or 39 percent of total hardwood output (fig. 15). Yellow-poplar accounted for another 58.7 million cubic feet, or 26 percent of total hardwood output.

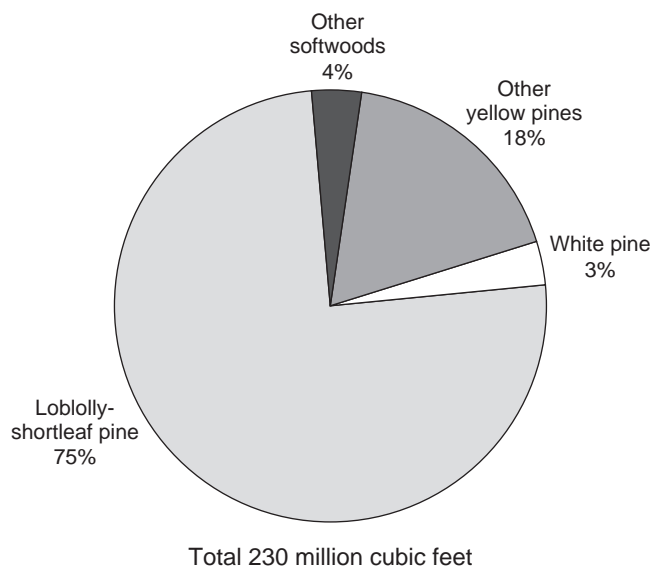


Figure 14—Roundwood output by softwood species group, Virginia, 2009.

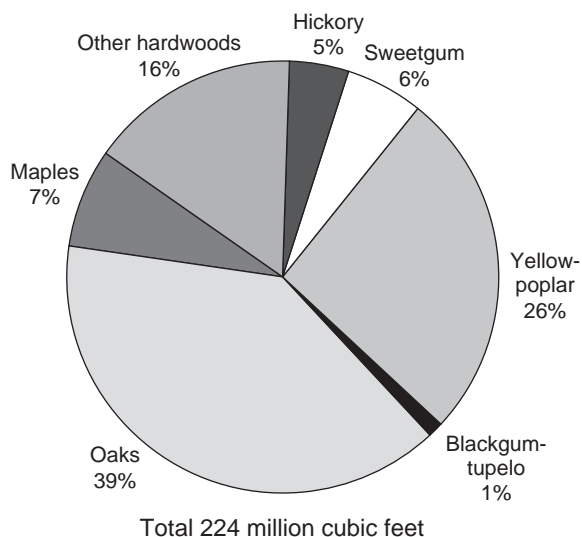


Figure 15—Roundwood output by hardwood species group, Virginia, 2009.

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## 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.

**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  $\leq 0.50$ , 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 U.S. 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 portion of 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.

**Residential fuelwood.** The volume of roundwood harvested to produce heat for residential settings.

**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 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 1/4-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 1/4-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).

## Conversion Factors<sup>a</sup>

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 <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.

## Species List<sup>a</sup>

Common name	Scientific name <sup>b</sup>	Common name	Scientific name <sup>b</sup>
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. laciniosa</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.

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

<sup>b</sup> Little (1979).





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**Table A.1—Output of industrial products by product and species group, Virginia, 2007 and 2009**

Product and species group	Year		Change	Change
	2007	2009		
	- - - thousand cubic feet - - -			percent
Saw logs				
Softwood	99,859	83,130	-16,729	-16.8
Hardwood	119,406	91,728	-27,678	-23.2
Total	219,265	174,858	-44,407	-20.3
Veneer logs				
Softwood	12,754	6,974	-5,780	-45.3
Hardwood	4,142	2,867	-1,275	-30.8
Total	16,896	9,841	-7,055	-41.8
Pulpwood <sup>a</sup>				
Softwood	84,676	86,171	1,495	1.8
Hardwood	77,604	72,039	-5,565	-7.2
Total	162,280	158,210	-4,070	-2.5
Composite panels				
Softwood	50,556	42,525	-8,031	-15.9
Hardwood	3,564	1,481	-2,083	-58.4
Total	54,120	44,006	-10,114	-18.7
Other industrial				
Softwood	5,549	5,886	337	6.1
Hardwood	5,897	9,662	3,765	63.8
Total	11,446	15,548	4,102	35.8
All industrial				
Softwood	253,394	224,686	-28,708	-11.3
Hardwood	210,613	177,777	-32,836	-15.6
Total	464,007	402,463	-61,544	-13.3

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (3,436,000 cubic feet in 2007 and 2,070,000 cubic feet in 2009).

**Table A.2—Roundwood receipts by product and species group, Virginia, 2007 and 2009**

Product and species group	Year		Change	Change
	2007	2009		
	- - - thousand cubic feet - - -			percent
Saw logs				
Softwood	92,735	74,589	-18,146	-19.6
Hardwood	121,275	79,054	-42,221	-34.8
Total	214,010	153,643	-60,367	-28.2
Veneer logs				
Softwood	16,359	16,157	-202	-1.2
Hardwood	1,701	1,218	-483	-28.4
Total	18,060	17,375	-685	-3.8
Pulpwood <sup>a</sup>				
Softwood	67,709	66,256	-1,453	-2.1
Hardwood	107,295	92,015	-15,280	-14.2
Total	175,004	158,271	-16,733	-9.6
Composite panels				
Softwood	56,301	49,300	-7,001	-12.4
Hardwood	3,056	2,195	-861	-28.2
Total	59,357	51,495	-7,862	-13.2
Other industrial <sup>b</sup>				
Softwood	6,690	6,552	-138	-2.1
Hardwood	6,899	10,578	3,679	53.3
Total	13,589	17,130	3,541	26.1
Total output				
Softwood	239,794	212,854	-26,940	-11.2
Hardwood	240,226	185,060	-55,166	-23.0
Total	480,020	397,914	-82,106	-17.1

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulp mills (3,993,000 cubic feet in 2007 and 2,411,000 cubic feet in 2009).

<sup>b</sup> Includes 15,349,000 cubic feet used as industrial fuel in 2009.

**Table A.3—Number of primary wood-using plants by type of mill, Virginia, 1980 to 2009**

Type of mill	Year										
	1980	1984	1987	1989	1995	1999	2001	2003	2005	2007	2009
	number										
Sawmills	392	419	355	323	254	254	217	204	168	155	129
Veneer or plywood mills	12	12	10	10	8	7	5	5	4	4	3
Pulp mills	9	9	9	9	9	9	9	9	8	8	8
Composite panel mills	0	0	1	3	3	4	3	3	3	3	3
Other mills	24	22	19	24	15	16	14	13	13	9	8
All plants	437	462	394	369	289	290	248	234	196	179	151

**Table A.4—Roundwood receipts by sawmill size, Virginia, 2007 and 2009**

Sawmill size class <sup>a</sup> <i>mmbf</i>	2007			2009		
	Mills	Volume		Mills	Volume	
	<i>number</i>	<i>mbf</i>	<i>percent</i>	<i>number</i>	<i>mbf</i>	<i>percent</i>
< 1.0	25	9,580	1	20	7,356	1
1.0–4.99	57	152,612	12	53	141,547	16
5.0–9.99	35	243,211	20	31	212,919	24
> 10	38	841,215	67	25	528,191	59
Total	155	1,246,618	100	129	890,013	100

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

**Table A.5—Roundwood receipts by species and type of mill, Virginia, 2009**

Species	All mills	Sawmills	Veneer mills		OSB and panels	Pulpwood <sup>a</sup>	Other mills <sup>b</sup>
			Pine plywood	Other veneer			
thousand cubic feet							
Softwood							
Yellow pine	139,685	69,011	15,959	198	49,300	NA	5,217
Eastern white pine	5,289	5,289	0	0	0	NA	0
Cedar	2	2	0	0	0	NA	0
Cypress	226	226	0	0	0	NA	0
Other softwood	1,396	61	0	0	0	NA	1,335
Unclassified	66,256	0	0	0	0	66,256	0
Total softwoods	212,854	74,589	15,959	198	49,300	66,256	6,552
Hardwood							
Blackgum and tupelo	327	327	0	0	0	NA	0
Soft maple	2,001	2,001	0	0	0	NA	0
Sweetgum	2,556	2,556	0	0	0	NA	0
Yellow-poplar	31,347	28,068	0	0	0	NA	3,279
Other soft hardwood	8,793	3,617	0	0	2,195	NA	2,981
Hickory	1,889	1,877	0	12	0	NA	0
Red oak	22,117	19,623	0	200	0	NA	2,294
White oak	16,188	14,698	0	327	0	NA	1,163
Other hard hardwood	7,827	6,287	0	679	0	NA	861
Unclassified	92,015	0	0	0	0	92,015	0
Total hardwoods	185,060	79,054	0	1,218	2,195	92,015	10,578
All species	397,914	153,643	15,959	1,416	51,495	158,271	17,130

OSB = oriented strand board; NA = not applicable.

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

<sup>b</sup> Includes 15,349,000 cubic feet used as industrial fuel in 2009.



**Table A.6—Industrial roundwood movement by year and species group, Virginia, 2007 and 2009**

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
<b>Softwood</b>					
2007	253,394	49,132	204,262	35,532	239,794
2009	224,686	47,482	177,204	35,650	212,854
<b>Hardwood</b>					
2007	210,613	24,113	186,500	53,726	240,226
2009	177,777	39,140	138,637	46,423	185,060
<b>All species</b>					
2007	464,007	73,245	390,762	89,258	480,020
2009	402,463	86,622	315,841	82,073	397,914

**Table A.7—Industrial roundwood movement by product and species group, Virginia, 2009**

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>thousand cubic feet</i>					
Saw logs					
Softwood	83,130	13,735	69,395	5,194	74,589
Hardwood	91,728	17,307	74,421	4,633	79,054
Total	174,858	31,042	143,816	9,827	153,643
Veneer logs					
Softwood	6,974	108	6,866	9,291	16,157
Hardwood	2,867	2,867	0	1,218	1,218
Total	9,841	2,975	6,866	10,509	17,375
Pulpwood <sup>a</sup>					
Softwood	86,171	30,201	55,970	10,286	66,256
Hardwood	72,039	18,027	54,012	38,003	92,015
Total	158,210	48,228	109,982	48,289	158,271
Composite panels					
Softwood	42,525	2,923	39,602	9,698	49,300
Hardwood	1,481	853	628	1,567	2,195
Total	44,006	3,776	40,230	11,265	51,495
Other industrial					
Softwood	5,886	515	5,371	1,181	6,552
Hardwood	9,662	86	9,576	1,002	10,578
Total	15,548	601	14,947	2,183	17,130
All products					
Softwood	224,686	47,482	177,204	35,650	212,854
Hardwood	177,777	39,140	138,637	46,423	185,060
Total	402,463	86,622	315,841	82,073	397,914

<sup>a</sup> 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, 2009**

Destination and source	All species	Species group	
		Softwood	Hardwood
		<i>thousand cubic feet</i>	
Virginia (retained)	143,816	69,395	74,421
Exports to			
Kentucky	124	0	124
Maryland	3,648	2,458	1,190
North Carolina	13,007	10,987	2,020
Tennessee	261	0	261
West Virginia	14,002	290	13,712
Total	31,042	13,735	17,307
Imports from			
Maryland	299	147	152
North Carolina	9,284	5,047	4,237
Tennessee	244	0	244
Total	9,827	5,194	4,633

**Table A.9—Veneer volume by destination, source, and species group, Virginia, 2009**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
Virginia (retained)	6,866	6,866	0
Exports to			
Georgia	537	0	537
North Carolina	1,270	108	1,162
West Virginia	1,168	0	1,168
Total	2,975	108	2,867
Imports from			
Illinois	85	0	85
Indiana	153	0	153
Iowa	136	0	136
Michigan	30	0	30
New York	6	0	6
North Carolina	9,272	9,272	0
Ohio	187	0	187
Pennsylvania	323	0	323
South Carolina	19	19	0
Tennessee	82	0	82
West Virginia	216	0	216
Total	10,509	9,291	1,218

**Table A.10—Pulpwood volume by destination, source, and species group, Virginia, 2009<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
Virginia (retained)	109,982	55,970	54,012
Exports to			
Georgia	3,920	0	3,920
Maryland	9,108	6,427	2,681
North Carolina	19,283	17,030	2,253
Ohio	706	706	0
Pennsylvania	6,933	6,035	898
South Carolina	393	3	390
Tennessee	7,885	0	7,885
Total	48,228	30,201	18,027
Imports from			
North Carolina	31,704	10,037	21,667
Tennessee	3	0	3
West Virginia	16,582	249	16,333
Total	48,289	10,286	38,003

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

**Table A.12—Other industrial volume by destination, source, and species group, Virginia, 2009<sup>a</sup>**

Destination and source	All species	Species group	
		Softwood	Hardwood
		<i>thousand cubic feet</i>	
Virginia (retained)	14,947	5,371	9,576
Exports to			
Maryland	372	372	0
West Virginia	229	143	86
Total	601	515	86
Imports from			
North Carolina	2,183	1,181	1,002
Total	2,183	1,181	1,002

<sup>a</sup> 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, 2009**

Destination and source	All species	Species group	
		Softwood	Hardwood
<i>thousand cubic feet</i>			
Virginia (retained)	40,230	39,602	628
Exports to			
North Carolina	3,272	2,756	516
West Virginia	504	167	337
Total	3,776	2,923	853
Imports from			
North Carolina	11,265	9,698	1,567
Total	11,265	9,698	1,567

**Table A.13—Primary mill residue volume by roundwood type, species group, and residue type, Virginia, 2009**

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
thousand cubic feet					
Saw logs					
Softwood	43,860	4,973	20,052	13,137	5,698
Hardwood	47,251	8,242	22,886	16,003	120
Total	91,111	13,215	42,938	29,140	5,818
Veneer logs					
Softwood	8,857	1,225	5,603	2,029	0
Hardwood	446	130	209	107	0
Total	9,303	1,355	5,812	2,136	0
Pulpwood					
Softwood	6,690	6,690	0	0	0
Hardwood	11,527	11,527	0	0	0
Total	18,217	18,217	0	0	0
Composite panels					
Softwood	3,894	3,611	283	0	0
Hardwood	300	278	22	0	0
Total	4,194	3,889	305	0	0
Other industrial <sup>a</sup>					
Softwood	760	670	90	0	0
Hardwood	859	854	5	0	0
Total	1,619	1,524	95	0	0
Total					
Softwood	64,061	17,169	26,028	15,166	5,698
Hardwood	60,383	21,031	23,122	16,110	120
Total	124,444	38,200	49,150	31,276	5,818

<sup>a</sup> 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, 2007 and 2009**

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	2007	2009	2007	2009	2007	2009	2007	2009	2007	2009
<i>thousand cubic feet</i>										
Fiber products										
Softwood	26,360	22,554	0	0	26,360	22,554	0	0	0	0
Hardwood	27,074	17,215	0	0	26,443	17,215	631	0	0	0
Total	53,434	39,769	0	0	52,803	39,769	631	0	0	0
Particleboard										
Softwood	4,881	3,572	0	12	548	779	1,644	1,387	2,689	1,394
Hardwood	2,999	313	0	0	2,311	177	660	136	28	0
Total	7,880	3,885	0	12	2,859	956	2,304	1,523	2,717	1,394
Charcoal/ chemical wood										
Softwood	35	0	0	0	0	0	35	0	0	0
Hardwood	560	269	0	0	323	269	237	0	0	0
Total	595	269	0	0	323	269	272	0	0	0
Sawn products										
Softwood	2,927	2,028	0	0	2,927	2,028	0	0	0	0
Hardwood	1,379	0	0	0	1,379	0	0	0	0	0
Total	4,306	2,028	0	0	4,306	2,028	0	0	0	0
Industrial fuel										
Softwood	36,893	25,870	19,913	12,859	1,865	383	14,857	12,165	258	463
Hardwood	40,830	28,606	17,288	14,285	4,920	2,377	18,578	11,910	44	34
Total	77,723	54,476	37,201	27,144	6,785	2,760	33,435	24,075	302	497
Miscellaneous										
Softwood	11,579	9,857	5,428	4,292	315	261	1,971	1,463	3,865	3,841
Hardwood	17,772	13,568	10,535	6,726	2,582	3,021	4,578	3,735	77	86
Total	29,351	23,425	15,963	11,018	2,897	3,282	6,549	5,198	3,942	3,927
Not used										
Softwood	500	180	16	6	55	23	429	151	0	0
Hardwood	1,282	412	110	20	314	63	858	329	0	0
Total	1,782	592	126	26	369	86	1,287	480	0	0
All products										
Softwood	83,175	64,061	25,357	17,169	32,070	26,028	18,936	15,166	6,812	5,698
Hardwood	91,896	60,383	27,933	21,031	38,272	23,122	25,542	16,110	149	120
Total	175,071	124,444	53,290	38,200	70,342	49,150	44,478	31,276	6,961	5,818

**Table A.15—Roundwood timber product output by county, product, and species group, Virginia, 2009**

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	3,695	2,109	2,554	1,337	0	0	1,084	770	0	2	57	0
Alleghany	850	5,272	226	3,120	0	0	250	1,608	4	11	370	533
Amelia	4,079	1,783	2,991	1,201	319	0	76	498	647	17	46	67
Amherst	1,240	3,160	209	2,016	0	0	842	1,137	189	7	0	0
Appomattox	3,609	1,546	580	1,051	0	0	1,278	421	1,705	7	46	67
Augusta	311	3,215	148	2,426	0	270	159	502	0	0	4	17
Bath	337	5,142	32	3,653	0	96	259	1,386	0	0	46	7
Bedford	1,760	4,537	637	1,751	0	0	517	2,169	189	17	417	600
Bland	179	2,901	130	2,656	0	0	36	203	13	42	0	0
Botetourt	553	3,043	0	1,536	0	0	507	1,440	0	0	46	67
Brunswick	21,985	3,098	5,346	1,309	798	0	9,709	1,709	6,095	80	37	0
Buchanan	93	695	0	463	0	0	0	80	0	18	93	134
Buckingham	15,188	6,722	2,997	1,525	0	0	8,563	4,354	3,282	7	346	836
Campbell	8,461	5,871	2,081	1,723	15	53	1,107	2,422	4,609	33	649	1,640
Caroline	4,605	1,551	2,377	1,433	0	0	2,228	118	0	0	0	0
Carroll	2,525	1,894	2,209	1,473	0	0	74	305	242	116	0	0
Charles City	1,064	1,235	268	1,137	15	41	730	50	0	0	51	7
Charlotte	8,919	5,049	2,426	2,564	7	26	3,103	1,902	3,004	17	379	540
Chesapeake	233	486	151	16	0	0	82	470	0	0	0	0
Chesterfield	1,000	1,343	525	551	319	0	156	792	0	0	0	0
Clarke	0	432	0	421	0	0	0	11	0	0	0	0
Craig	99	730	0	114	0	0	99	616	0	0	0	0
Culpeper	807	717	82	514	0	0	725	203	0	0	0	0
Cumberland	3,411	1,167	771	516	0	0	2,158	638	482	2	0	11
Dickenson	15	7,265	0	532	0	90	15	6,643	0	0	0	0
Dinwiddie	12,470	915	2,962	606	798	0	7,490	269	1,211	40	9	0
Essex	1,462	796	1,034	736	0	0	427	53	0	0	1	7
Fairfax	58	236	0	42	0	0	58	194	0	0	0	0
Fauquier	590	590	127	479	0	0	463	111	0	0	0	0
Floyd	1,155	1,551	1,036	1,370	0	0	19	133	100	48	0	0
Fluvanna	2,020	1,012	436	20	0	0	1,584	992	0	0	0	0
Franklin	2,307	4,574	954	2,569	0	18	507	1,839	753	14	93	134
Frederick	759	1,025	20	455	0	0	739	570	0	0	0	0
Giles	187	3,033	178	2,885	0	0	2	139	7	9	0	0
Gloucester	873	1,088	849	1,077	1	0	20	11	0	0	3	0
Goochland	134	256	33	126	0	0	101	130	0	0	0	0
Grayson	584	1,085	415	826	0	90	5	76	164	93	0	0
Greene	0	193	0	181	0	0	0	12	0	0	0	0
Greensville	5,805	2,648	858	439	479	0	3,204	2,149	1,255	60	9	0
Halifax	9,283	7,826	4,276	2,626	49	175	860	3,604	3,719	17	379	1,404
Hanover	3,068	787	1,411	494	0	0	1,511	290	0	0	146	3
Henrico	85	81	33	73	0	0	52	8	0	0	0	0
Henry	2,262	2,699	1,178	533	2	7	345	1,844	598	115	139	200
Highland	187	3,975	0	2,833	0	270	82	796	0	0	105	76
Isle of Wight	3,550	1,026	1,349	432	319	0	1,653	594	157	0	72	0
James City	565	111	554	107	0	0	11	4	0	0	0	0
King and Queen	2,773	1,061	1,981	1,015	0	0	791	46	0	0	1	0
King George	842	1,716	4	1,664	0	0	837	52	0	0	1	0

*continued*



**Table A.15—Roundwood timber product output by county, product, and species group, Virginia, 2009 (continued)**

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>												
King William	1,545	1,248	1,356	1,241	0	0	188	7	0	0	1	0
Lancaster	1,103	264	1,019	264	0	0	0	0	0	0	84	0
Lee	459	786	0	786	0	0	459	0	0	0	0	0
Loudoun	0	533	0	498	0	0	0	35	0	0	0	0
Louisa	3,054	3,200	1,413	920	0	0	1,556	1,555	0	0	85	725
Lunenburg	4,037	2,267	2,512	461	159	0	338	1,778	1,028	28	0	0
Madison	51	532	0	329	0	0	51	203	0	0	0	0
Mathews	546	150	522	146	0	0	24	4	0	0	0	0
Mecklenburg	5,900	3,845	2,278	2,053	319	0	1,459	1,630	1,751	28	93	134
Middlesex	515	258	502	246	3	0	9	5	0	0	1	7
Montgomery	80	1,410	64	736	0	0	16	674	0	0	0	0
Nelson	2,396	3,028	226	1,863	0	0	1,355	1,163	758	2	57	0
New Kent	523	688	490	685	0	0	17	0	0	0	16	3
Northumberland	2,407	649	2,053	219	0	0	0	430	0	0	354	0
Nottoway	5,946	1,218	1,313	771	159	0	3,827	445	629	2	18	0
Orange	1,913	747	1,132	418	0	0	696	299	0	0	85	30
Page	10	171	0	81	0	0	10	90	0	0	0	0
Patrick	1,305	5,257	403	2,394	0	120	433	2,465	376	144	93	134
Pittsylvania	10,943	7,021	4,634	2,361	7	26	877	3,259	4,776	74	649	1,301
Powhatan	241	819	222	291	0	0	19	521	0	0	0	7
Prince Edward	3,282	2,404	762	536	2	7	645	1,521	1,827	2	46	338
Prince George	1,265	803	167	639	319	0	466	161	313	0	0	3
Prince William	0	478	0	467	0	0	0	11	0	0	0	0
Pulaski	62	141	18	106	0	0	0	2	44	33	0	0
Rappahannock	20	503	0	459	0	0	20	44	0	0	0	0
Richmond	1,738	1,001	1,606	507	0	0	88	494	0	0	44	0
Roanoke	123	648	0	123	0	0	77	458	0	0	46	67
Rockbridge	232	2,791	0	2,050	0	0	218	726	0	0	14	15
Rockingham	37	2,424	18	1,688	0	324	19	397	0	0	0	15
Russell	0	793	0	532	0	0	0	261	0	0	0	0
Scott	11	1,729	0	885	11	609	0	235	0	0	0	0
Shenandoah	165	1,408	19	934	0	216	146	258	0	0	0	0
Smyth	48	1,237	32	1,017	0	120	10	74	6	26	0	0
Southampton	11,627	4,017	4,022	913	798	0	6,080	3,084	628	20	99	0
Spotsylvania	4,142	904	3,319	597	0	0	822	307	0	0	1	0
Stafford	592	2,071	278	1,517	0	0	314	554	0	0	0	0
Suffolk	4,393	1,389	1,702	195	638	0	1,859	1,013	157	181	37	0
Surry	6,391	2,299	899	905	638	0	4,670	1,394	157	0	27	0
Sussex	9,181	1,435	2,539	505	800	8	4,192	862	1,569	60	81	0
Tazewell	601	2,385	229	1,136	0	0	1	638	1	78	370	533
Virginia Beach	48	100	45	0	0	0	3	100	0	0	0	0
Warren	19	513	0	430	0	0	19	83	0	0	0	0
Washington	24	368	24	210	0	120	0	38	0	0	0	0
Westmoreland	1,305	743	683	595	0	0	582	148	0	0	40	0
Wise	0	1,267	0	1,042	0	181	0	44	0	0	0	0
Wythe	369	588	201	351	0	0	88	206	80	31	0	0
All counties	224,686	177,777	83,130	91,728	6,974	2,867	86,171	72,039	42,525	1,481	5,886	9,662

<sup>a</sup> Includes roundwood delivered to nonpulp mills, then chipped and sold to pulpmills (2,070,000 cubic feet in 2009).

**Table A.16—Total roundwood output by product, species group, and source of material, Virginia, 2009**

Product and species group	All sources	Total	Growing-stock trees		Other sources
			Sawtimber	Poletimber	
thousand cubic feet					
Saw logs					
Softwood	83,130	81,157	77,921	3,236	1,973
Hardwood	91,728	88,935	84,305	4,630	2,793
Total	174,858	170,092	162,225	7,867	4,766
Veneer logs and bolts					
Softwood	6,974	6,817	6,659	157	157
Hardwood	2,867	2,814	2,697	117	53
Total	9,841	9,630	9,356	274	211
Pulpwood					
Softwood	86,171	78,905	43,385	35,520	7,266
Hardwood	72,039	68,515	43,876	24,638	3,524
Total	158,210	147,420	87,261	60,159	10,790
Composite panels					
Softwood	42,525	38,171	17,558	20,612	4,354
Hardwood	1,481	1,408	631	777	73
Total	44,006	39,579	18,190	21,389	4,427
Poles and posts					
Softwood	1,526	1,253	1,145	108	273
Hardwood	154	130	95	36	24
Total	1,680	1,383	1,240	144	297
Other miscellaneous					
Softwood	4,360	3,270	2,165	1,105	1,090
Hardwood	9,508	6,988	5,677	1,311	2,520
Total	13,868	10,258	7,842	2,416	3,610
Total industrial products					
Softwood	224,686	209,572	148,833	60,739	15,114
Hardwood	177,777	168,790	137,281	31,509	8,987
Total	402,463	378,363	286,114	92,248	24,100
Residential fuelwood					
Softwood	5,158	4,694	3,381	1,313	464
Hardwood	46,501	41,806	30,120	11,685	4,695
Total	51,659	46,499	33,502	12,998	5,160
All products					
Softwood	229,844	214,266	152,214	62,052	15,578
Hardwood	224,278	210,596	167,402	43,194	13,682
Total	454,122	424,862	319,616	105,246	29,260

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, 2009**

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
<i>thousand cubic feet</i>				
Softwoods				
Coastal Plain	105,330	626	13,303	91,401
Southern Piedmont	93,021	3,602	5,655	83,763
Northern Piedmont	21,189	222	2,644	18,324
Northern Mountain	3,766	122	0	3,644
Southern Mountain	6,538	55	615	5,868
Total softwoods	229,844	4,627	22,217	203,000
Hardwoods				
Coastal Plain	41,613	1,324	2,651	37,638
Southern Piedmont	81,503	2,348	6,613	72,542
Northern Piedmont	25,572	3,232	1,694	20,646
Northern Mountain	38,843	3,712	304	34,828
Southern Mountain	36,747	740	260	35,747
Total hardwoods	224,278	11,357	11,522	201,400
All species	454,122	15,984	33,738	404,400

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, 2009**

Species group and detailed species group	Total	Product						
		Saw logs	Veneer logs	Pulpwood	Composite panels	Poles and posts	Other miscellaneous	Residential fuelwood
		thousand cubic feet						
Softwood								
Cedar	7,319	3,684	350	1,913	919	7	282	165
Eastern white pine	7,494	4,477	0	1,662	837	91	259	167
Loblolly-shortleaf pine	172,779	59,475	6,541	67,185	32,504	1,078	2,118	3,877
Other yellow pines	41,022	15,104	78	15,107	8,203	282	1,328	921
Cypress	30	11	4	12	1	0	0	1
Hemlock	1,200	379	0	293	62	67	373	27
Total softwoods	229,844	83,130	6,974	86,171	42,525	1,526	4,360	5,158
Hardwood								
Soft maple	15,455	6,261	95	5,109	164	7	615	3,204
Hard maple	1,181	552	12	329	6	1	37	245
Yellow birch	122	76	0	15	3	0	3	25
Hickory	9,938	3,593	131	3,600	81	2	469	2,061
Beech	2,139	587	18	1,033	23	3	32	443
Ash	5,028	2,757	71	1,113	7	6	32	1,042
Black walnut	2,335	997	522	330	1	0	1	484
Sweetgum	13,054	4,065	35	5,635	90	3	520	2,706
Yellow-poplar	58,674	23,382	469	19,644	416	27	2,569	12,166
Blackgum-tupelo	2,563	1,078	14	752	34	1	153	532
Sycamore	2,336	1,055	90	659	16	0	31	484
Cottonwood	1,887	689	4	643	7	1	151	391
Black cherry	3,727	1,753	167	933	18	9	74	773
Select white oaks	28,419	11,533	312	9,271	104	28	1,278	5,893
Other white oaks	18,735	7,582	189	5,262	101	3	1,713	3,885
Select red oaks	9,098	3,002	133	3,796	28	16	236	1,886
Other red oaks	31,756	14,583	504	8,981	304	41	759	6,583
Basswood	1,735	1,108	26	208	19	0	13	360
Elm	1,076	408	4	376	7	0	59	223
Other eastern hardwoods	15,017	6,665	70	4,350	50	7	762	3,114
Total hardwoods	224,278	91,728	2,867	72,039	1,481	154	9,508	46,501
All species	454,122	174,858	9,841	158,210	44,006	1,680	13,868	51,659

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, 2009**

Species group and detailed species group	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
thousand cubic feet				
Softwood				
Cedar	7,319	42	60	7,217
Eastern white pine	7,494	65	83	7,346
Loblolly-shortleaf pine	172,779	3,446	17,137	152,197
Other yellow pines	41,022	937	4,310	35,775
Cypress	30	0	12	18
Hemlock	1,200	138	615	447
Total softwoods	229,844	4,627	22,217	203,000
Hardwood				
Soft maple	15,455	968	398	14,090
Hard maple	1,181	84	13	1,085
Yellow birch	122	17	1	104
Hickory	9,938	544	349	9,045
Beech	2,139	121	200	1,818
Ash	5,028	521	22	4,485
Black walnut	2,335	48	2	2,285
Sweetgum	13,054	215	664	12,175
Yellow-poplar	58,674	2,414	4,449	51,810
Blackgum-tupelo	2,563	192	230	2,142
Sycamore	2,336	412	200	1,724
Cottonwood	1,887	3	112	1,772
Black cherry	3,727	348	78	3,301
Select white oaks	28,419	2,052	850	25,517
Other white oaks	18,735	1,602	369	16,764
Select red oaks	9,098	314	474	8,310
Other red oaks	31,756	1,170	2,923	27,663
Basswood	1,735	48	0	1,687
Elm	1,076	138	35	903
Other eastern hardwoods	15,017	145	154	14,718
Total hardwoods	224,278	11,357	11,522	201,400
All species	454,122	15,984	33,738	404,400

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



**Cooper, Jason A.; Johnson, Tony G.; Becker, Charles W.** 2011. Virginia's timber industry—an assessment of timber product output and use, 2009. Resour. Bull. SRS-179. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 31 p.

In 2009, roundwood output from Virginia's forests decreased 13 percent to 402.5 million cubic feet. Mill byproducts generated from primary manufacturers totaled 124.4 million cubic feet, 29 percent less than in 2007. Seventy-six percent of the plant residues were used primarily for fuel and fiber products. Saw logs were the leading roundwood product at 174.9 million cubic feet; pulpwood ranked second at 158.2 million cubic feet; composite panels were third at 44.0 million cubic feet. The number of primary processing plants declined from 179 in 2007 to 151 in 2009. Total receipts decreased 17 percent to 397.9 million cubic feet.

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



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