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**The Author:**

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**Tony G. Johnson is a Resource Forester,  
with the Forest Inventory and Analysis group,  
Southeastern Forest Experiment Station, Asheville, NC.**

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**Southeastern Forest Experiment Station  
P.O. Box 2680  
Asheville, North Carolina 28802**

## Foreword

This report contains the findings of a 1992 canvass of all primary wood-using plants in Virginia and presents changes in product output and residue use since 1989. 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 1992 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 1993 for 1992. Out-of-State mills known to be using logs or bolts harvested from Virginia timberland were also contacted. 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 response was necessary. In the event of a nonresponse, data collected in previous surveys were updated by current data collected for mills of similar size, product type, and location. Surveys for all timber products other than pulpwood began in 1986 and are currently conducted every 3 years.

Pulpwood production data were taken from an annual canvass of all southeastern pulpmills, conducted annually in cooperation with the American Pulpwood Association. Medium density fiberboard, insulating board, and hardboard plants were included in this survey.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the Virginia Department of Forestry in collecting mill data and to forest industry and mill managers for providing timber products information. The information in this report is based on responses from 88 percent of mills operating in 1992: 9 pulpmills, 9 veneer mills, 3 composite panel mills, 11 of the 14 mills manufacturing other industrial products, and 247 of the 278 sawmills. They accounted for 90 percent of the 1992 mill receipts.



# Virginia's Timber Industry: An Assessment of Timber Product Output and Use, 1992

## Output of Industrial Timber Products

Between 1989 and 1992, the combined output of industrial roundwood timber products and plant byproducts increased nearly 2 percent from 588 to 599 million cubic feet. Timber product output (TPO) from roundwood was up 7 17 thousand cubic feet to 436 million cubic feet. Output from plant byproducts increased more than 10 million cubic feet to 163 million cubic feet, 27 percent of total output (table 1). Output of softwood roundwood products increased 7 percent to 220 million cubic feet. Softwoods accounted for 51 percent of Virginia's total output of roundwood products. Hardwood roundwood production was down by 6 percent to 216 million cubic feet.

Pulpwood and saw logs were the principal roundwood products in 1992. Combined output for these two products amounted to nearly 395 million cubic feet, 90 percent of the State's total roundwood output.

## Saw Logs

Saw-log production remains the leading roundwood product in Virginia, accounting for 47 percent of the State's total roundwood products output in 1992. Combined output of softwood and hardwood saw-log production in 1992 totaled 206 million cubic feet, down 8 percent since 1989. Output of softwood saw logs increased nearly 1 percent since 1989 and totaled 93 million cubic feet (506 million board feet). In contrast, hardwood saw-log production dropped 13 percent to 113 million cubic feet (689 million board feet). Hardwoods accounted for 58 percent of the saw-log production in 1976, 59 percent in 1989, and 55 percent in 1992 (fig. 1). Southern yellow pine accounted for 89 percent of the softwood saw logs harvested in the State in 1992, while hard hardwoods (mostly oaks) made up almost two-thirds of the hardwood saw-log output.

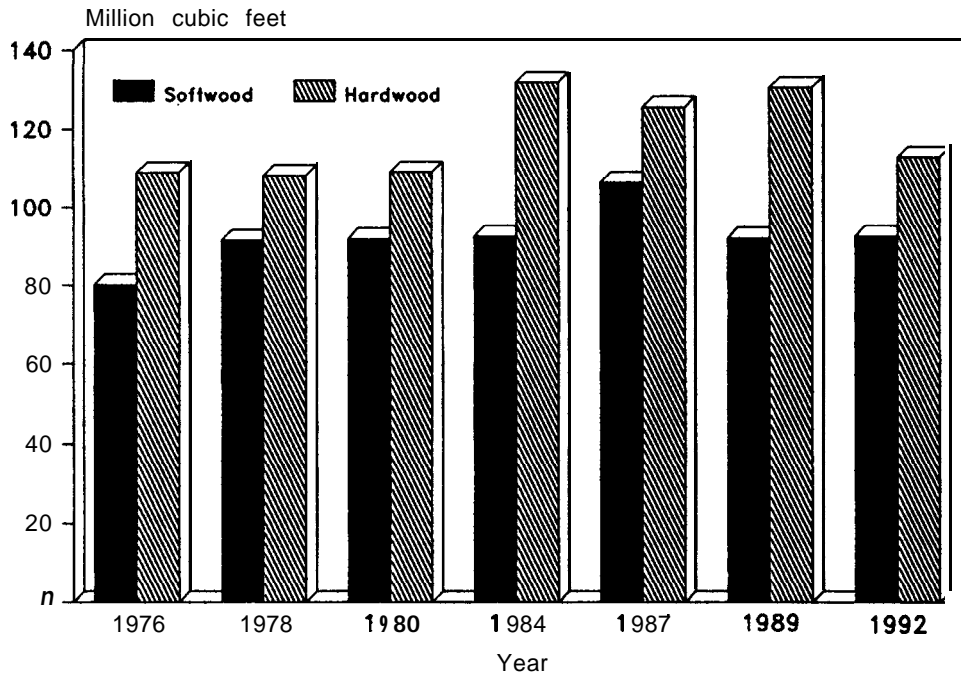


Figure 1 -Roundwood saw-log production, by species group and year.

## Pulpwood

Pulpwood production was close behind saw logs in roundwood production. Output of pulpwood (including chipped roundwood) increased from 178 million cubic feet (2.4 million cords) in 1989 to 189 million cubic feet (2.5 million cords) in 1992. Pulpwood production accounted for 43 percent of the State's total roundwood output. Both softwood and hardwood output increased between 1989 and 1992. Softwood output increased by 11 percent to 105 million cubic feet, while hardwood output was up 1 percent to 84 million cubic feet. Hardwood continues to provide a fairly equal share of total pulpwood production in Virginia compared with other Southeastern States (fig. 2). In 1976, hardwood accounted for 50 percent of the State's pulpwood production, compared with 45 percent in 1992. Softwoods accounted for 55 percent of Virginia's pulpwood production in 1992, up 2 percent from 1989.

## Veneer Logs

Output of veneer logs in 1992 totaled 18 million cubic feet, a **14-percent** increase since 1989. Still, veneer production accounted for only 4 percent of the State's total roundwood TPO in 1992. Softwoods continued to dominate the veneer industry in Virginia, with pine plywood the principal product. Output of softwood veneer logs increased 15 percent to 13 million cubic feet (80 million board feet). Softwoods accounted for 72 percent of the State's veneer production, about the same as in 1989. Softwood veneer production has remained relatively stable since 1984 (fig. 3). Output of hardwood veneer logs increased 14 percent to 5 million cubic feet (32 million board feet). Southern yellow pine accounted for nearly all of the softwood roundwood harvested for veneer.

## Composite Panels

Between 1989 and 1992, roundwood harvested from Virginia's forests for composite panels increased 20 percent and totaled nearly 18 million cubic feet. Eighty percent of this volume was used in the production of oriented strand board (**OSB**) in Virginia mills and made up 4 percent of the State's total roundwood TPO volume in 1992. Softwood output was up 43 percent to 7 million cubic feet and accounted for 41 percent of composite panel production. Hardwood production increased 8 percent to 9 million cubic feet. Yellow pine accounted for all of the softwood volume used in composite panels.

## Other Industrial Products

Roundwood harvested for other industrial uses such as poles, posts, mulch, firewood, and all other industrial products totaled 8 million cubic feet in 1992, almost a 20-percent increase since 1989. This large increase reflects a boost in production of posts in the State. Between 1989 and 1992, post production increased from **694,000 cubic** feet to 5 million cubic feet.

Softwoods made up 45 percent of the other industrial product volume. Hardwood volume used for other industrial products increased nearly 42 percent from 3 to more than 4 million cubic feet. Roundwood used for other industrial products accounted for less than 2 percent of Virginia's total TPO in 1992.

## Number of Mills and Receipts

Total receipts at Virginia mills, which include roundwood harvested and retained in the State and roundwood imported from other States, declined by 2 percent to 470 million cubic feet (table 2). The number of primary roundwood-using plants in Virginia dropped from 369 in 1989 to 311 in 1992, a 16-percent decline (table 3). This continues a general downward trend since 1984.

Sawmills. Virginia had a net loss of 47 sawmills between 1989 and 1992. However, this decline masks many changes in the industry over the past 3 years: the startup of 29 sawmills with combined receipts of more than 50 million board feet and the closing of 76 sawmills with total receipts of 153 million board feet. Total saw-log receipts declined 17 million cubic feet to 210 million cubic feet, an 8-percent loss since 1989. In 1992, sawmill receipts accounted for 45 percent of total receipts. Softwood saw-log receipts remained stable at 93 million cubic feet, while those of hardwoods declined 13 percent to 117 million cubic feet. Yellow pine accounted for 89 percent of the State's total softwood saw-log receipts. For the 276 mills currently operating, 7 out of 10 mills had receipts of less than 5 million board feet. While only 8 percent of the mills had receipts greater than 10 million board feet, these mills accounted for 38 percent of total receipts (table 4).

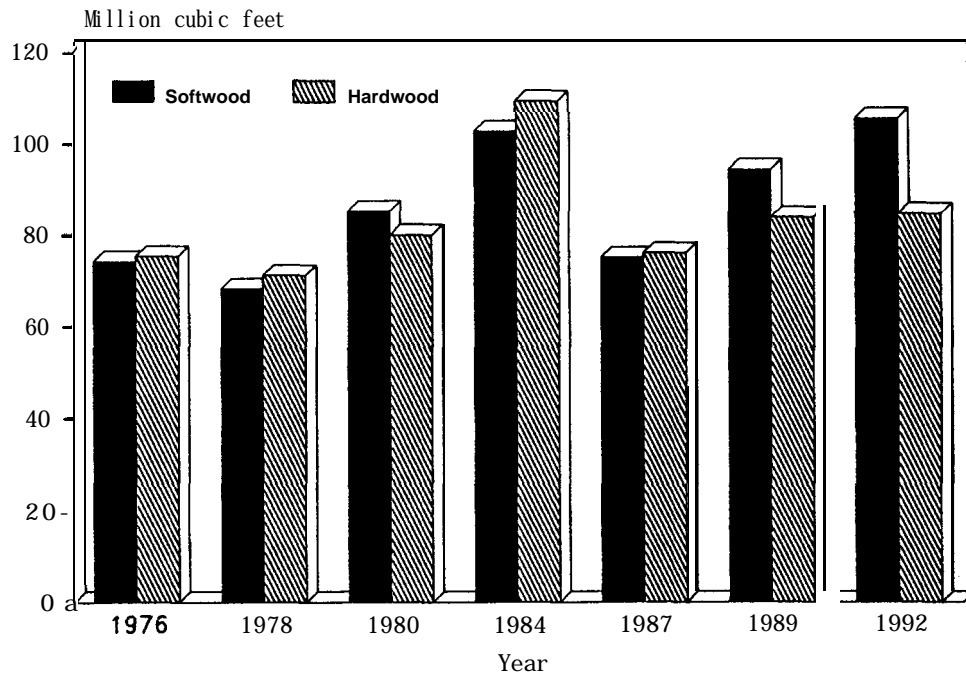


Figure 2-Roundwood pulpwood production, by species group end year.

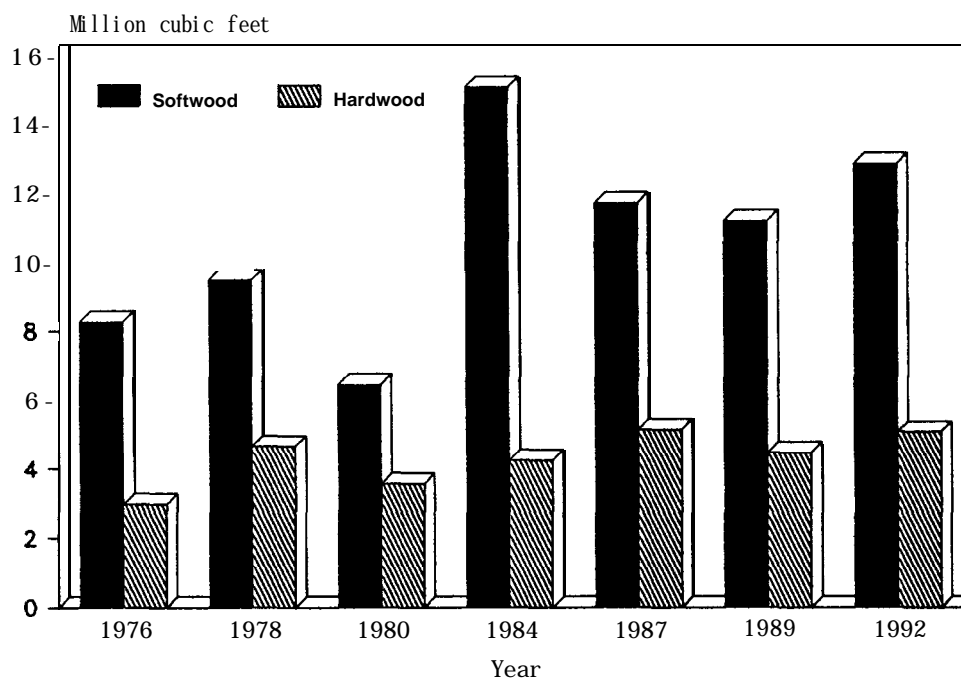


Figure 3-Roundwood veneer-log production, by species group end year.

## Roundwood Movement

Pulpmills. Nine pulpmills were operating and receiving roundwood in 1992, the same as in 1989. At the same time, the State's total pulpwood receipts were up by 1 percent to 208 million cubic feet, and the 24-hour pulping capacity for these mills increased from 8,475 tons to 8,790 tons (Miller **1994**). Receipts of round pulpwood in 1992 accounted for 44 percent of total receipts for all mills (table 5). Softwood receipts were up 6 percent to 98 million cubic feet, while hardwood receipts declined 2 percent to 110 million cubic feet. Hardwoods accounted for 53 percent of the pulpwood receipts.

**Veneer Mills.** The number of veneer mills operating in Virginia dropped from 10 to 9 between 1989 and 1992. Receipts at the remaining mills across the State increased nearly 2 million cubic feet, or about 11 percent, to 19 million cubic feet. **All of** the increase was in receipts of softwood veneer logs, which was up 18 percent to 16 million cubic feet. In contrast, hardwood veneer receipts were down 15 percent to 3 million cubic feet. All of the softwood veneer-log receipts were Southern yellow pine used to manufacture plywood. Veneer accounted for 4 percent of Virginia's total receipts for all products.

**Composite Panels Mills.** Three composite panel mills were operating in Virginia in 1992, the same as in 1989. Total receipts for these mills were 24 million cubic feet, or 5 percent of the State's total receipts. Softwood receipts for composite panel totaled 9 million cubic feet and hardwood receipts totaled 15 million cubic feet. Hardwoods accounted for 63 percent of the composite panel receipts.

**Other Industrial Mills.** The number of plants producing other industrial products declined from 24 to 14 since 1989. At the same time, receipts at the remaining mills totaled 8 million cubic feet, up nearly 2 million cubic feet since 1989. Current facilities include four pole mills, five post mills, four firewood processors, and one charcoal plant.

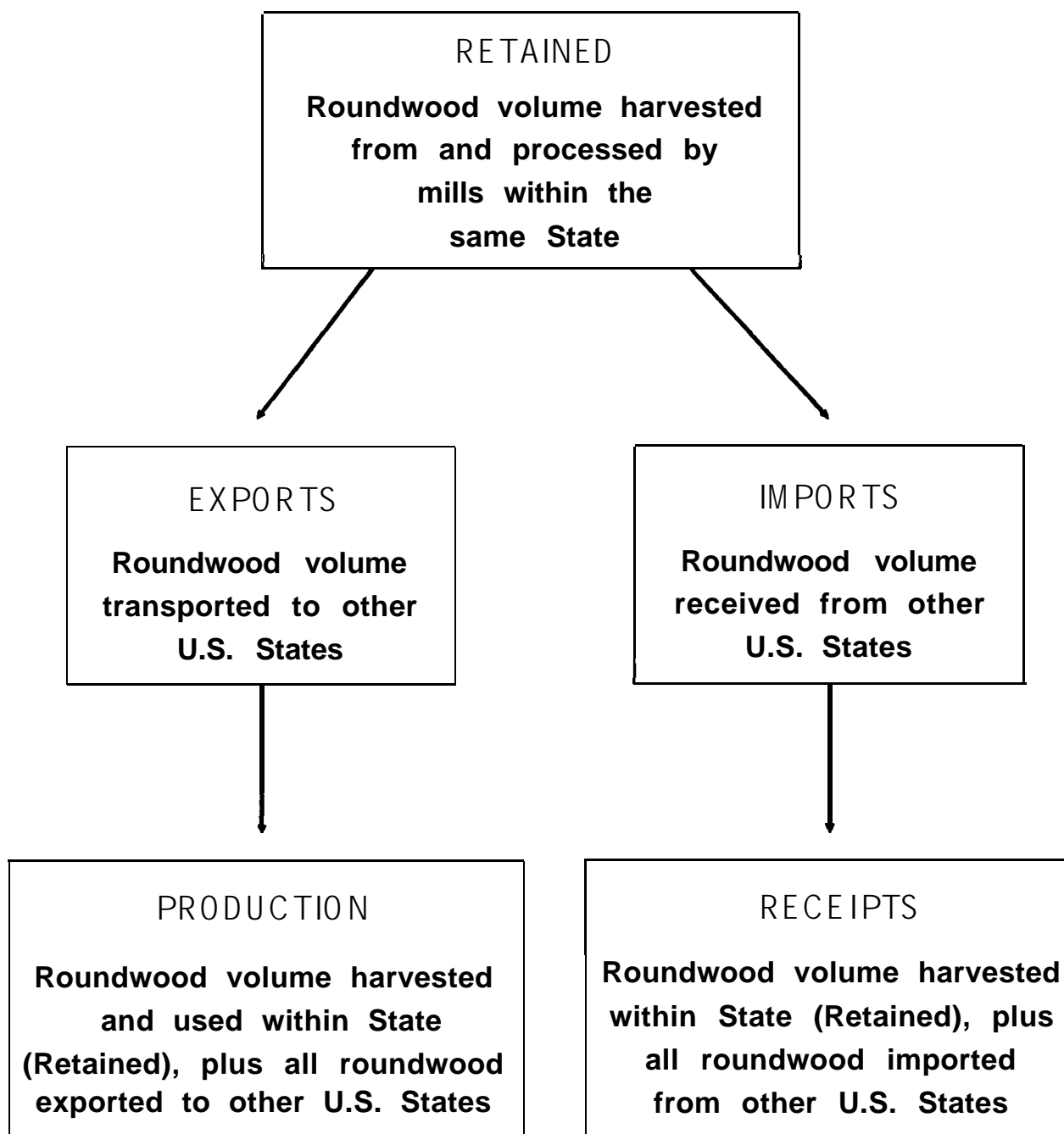
Note: To follow the logic of this section, the reader must understand that certain terms—namely, production, retained, export, import, and receipts—have specialized meanings and relationships unique to the Forest Inventory and Analysis Units across the country dealing with timber products output (fig. **4**).

Virginia continues to be a net importer of industrial roundwood. In 1992, the State retained 384 million cubic feet, or 88 percent of its production (table **6**). Imports from other States totaled 85 million cubic feet, a 4-percent increase from 1989. Exports to mills outside Virginia amounted to 52 million cubic feet, up 33 percent. Imports of all softwood products were nearly in balance with exports at 33 million cubic feet, while hardwood imports were more than 52 million cubic feet, exceeding exports by 34 million cubic feet.

The volume of whole trees cut or trees chipped in the woods and delivered to chip facilities for export overseas is not included in the estimate of export volume or roundwood production. Most of this volume is hardwood chips destined for wood fiber companies in Japan, Korea, and Taiwan. The result is an underestimate of hardwood volume produced or exported from Virginia. The volume of hardwood chips exported from Southern U.S. ports in 1992 was more than 3.0 million green metric tons, or about 89 million cubic feet (West 1993, compared with 1 million green metric tons in 1990 (Colquitt 1991)). Dealers active in the export market have indicated that roundwood from Virginia contributed at least 200,000 green metric tons (5.7 million cubic feet) to the 1992 total, equivalent to less than 3 percent of total hardwood production.

Roundwood pulpwood accounted for 57 percent of total known exports as well as 57 percent of total imports (table **7**). Round pulpwood imports amounted to nearly 49 million cubic feet, or 19 million cubic feet more than was exported. Saw logs accounted for the next largest share, 24 percent, of the import total and accounted for 31 percent of the export total.

**Saw Logs.** Virginia retained 92 percent of its saw-log production for domestic manufacture (table **8**), about the same proportion reported in 1989. However, the State remains a net importer of saw logs. About 21 million cubic feet of saw logs were imported, with softwoods making up 57 percent of the imports. Virginia mills received saw logs from North Carolina (**73** percent), West Virginia (16 percent), Tennessee (**6** percent), Kentucky (**3** percent), Maryland (**2** percent), and Delaware (negligible). Saw-log exports



**Production = Retained + Exports**

**Receipts = Retained + Imports**

Figure 4--Movement of roundwood exports and imports within the **United States**.



of more than 16 million cubic feet came entirely from North Carolina. Softwoods accounted for nearly 70 percent of the saw log exports.

**Veneer Logs.** Virginia retained 84 percent of its veneer-log production for processing at domestic veneer mills (table 9). Imports amounted to more than 4 million cubic feet, while exports totaled about 3 million cubic feet, making the State a net importer of roundwood veneer logs. Sources of the imports **were** North Carolina (91 percent), Pennsylvania (5 percent), and Maryland (4 percent), and a negligible portion coming from both West Virginia and foreign sources. Hardwoods accounted for most of the State's veneer-log movement into other States; North Carolina was the recipient of all of this volume.

**Pulpwood.** Eighty-four percent of roundwood cut for pulpwood was retained for processing at Virginia **pulp-**mills (table 10). Imports of nearly 49 million cubic feet exceeded exports by 64 percent, making the State a net importer of pulpwood. Imports came primarily from North Carolina (67 percent), West Virginia (22 percent), Maryland (8 percent), Delaware (3 percent), and a negligible amount from Kentucky and Tennessee. Exports totaling 30 million cubic feet went to North Carolina (47 percent), Tennessee (20 percent), Maryland (18 percent), Pennsylvania (13 percent), and Georgia (2 percent).

**Composite Panels.** Almost 80 percent of the **round-**wood production harvested for composite panel was retained for processing at Virginia composite panel mills (table 11). Imports of almost 12 million cubic feet nearly doubled receipts and was nearly four times the amount exported out of State. Imports came primarily from North Carolina (98 percent), and Kentucky and Tennessee (1 percent each). Exports amounting to more than 3 million cubic feet went entirely to North Carolina.

**Other Industrial.** Virginia was also a net importer of roundwood used for other industrial products but only by a small margin (table 12). All of the roundwood harvested for other industrial products was retained for processing within the State and only 378,000 cubic feet was imported by Virginia mills. Most of the imports were hardwood and came from North Carolina.

## Plant Byproducts

In 1992, processing of primary products in Virginia mills generated nearly 168 million cubic feet of wood and bark residues (table 13). Coarse residues from all primary products amounted to more than 69 million

cubic feet, while bark volume totaled 49 million cubic feet. Collectively, sawdust and shavings made up 30 percent of total residues, or 50 million cubic feet. Of the mill residues generated, 56 percent was from the processing of hardwoods and 44 percent from softwoods. About 97 percent of the residues generated, both softwood and hardwood, became products or industrial fuel (table 14). Nearly 53 million cubic feet, or 77 percent of the coarse residues, were used for fiber products, while 5 million cubic feet were used for industrial fuel. The remainder were used for composite panels, sawn products, particleboard, and other miscellaneous products. Most of the bark was used for industrial fuel or other miscellaneous products. Almost 61 percent of the sawdust and shavings was used for industrial fuel, 19 percent was used in the manufacture of particleboard, 12 percent for other miscellaneous products, and 2 percent for fiber products and composite panels.

**Saw Logs.** In 1992, sawmills generated more than 129 million cubic feet of mill residues accounting for 77 percent of the total residues produced. Most of the 62 million cubic feet of coarse residues from saw logs was used for fiber products. Bark and sawdust generated was 61 million cubic feet and was used mostly for industrial fuel and miscellaneous products. Shavings from dressed lumber totaled 6 million cubic feet.

**Veneer Logs.** Veneer mills generated nearly 10 million cubic feet of residues in 1992, about 6 percent of the State's total primary mill residue volume. Nearly half of the 8 million cubic feet of coarse veneer residues was veneer cores, which were sawn into framing studs or landscape timbers. The slabs from these cores, along with other coarse residues, were chipped for use in fiber products. Sawdust and bark, totaling 4 million cubic feet, were used mostly for industrial fuel.

**Pulpwood and Composite Panels.** Bark was the only residue associated with roundwood pulpwood or composite panel mills. Bark volumes reported from the nine pulpmills and three composite panel mills in Virginia totaled 26 million cubic feet. Most was converted to fuel by the same mills that produced it. Bark from roundwood pulpwood and composite panel accounted for 54 percent of the total bark volume at all primary mills.

**Other Industrial.** Residues of all types from other industrial products totaled 3 million cubic feet, about 1 percent of Virginia's total mill residue volume. Coarse residues of nearly 1 million cubic feet were used mainly for mulch, fuel, and fiber products. Sawdust and bark, totaling 2 million cubic feet, were used mostly for industrial fuel and mulch.

## Regional Trends

Between 1989 and 1992, total output of industrial roundwood products increased or remained stable in the Coastal Plain and Southern and Northern Piedmont Regions of Virginia, while declining in the Mountain Regions. Output for all hardwood products declined substantially in all regions except the Southern Piedmont Region. Changes in output varied considerably by product and by region; however, for four of the five regions, hardwoods accounted for more than half of the total TPO.

### Coastal Plain Region

Roundwood output from the 34 counties of the Coastal Plain Region totaled 175 million cubic feet in 1992, a 1 -percent increase since 1989 (table 15). A 5-percent decline in hardwood output was totally offset by a 7-percent increase in softwood production. Output of hardwood saw logs dropped 14 percent to 31 million cubic feet, and hardwood veneer dropped 8 percent to slightly more than 1 million cubic feet. Nearly two-thirds of the total roundwood TPO was softwood; the largest proportion of any region in Virginia.

Saw logs are still the leading product in the Coastal Plain Region, accounting for 46 percent of the region's total TPO and for 39 percent of the State's total roundwood saw-log output. Pulpwood production of 75 million cubic feet accounted for 43 percent of the region's total roundwood output; this figure represents 39 percent of the State's total pulpwood output. Sixty percent of the veneer logs harvested in Virginia during 1992 came from the Coastal Plain Region; however, only 17 percent of the State's other industrial products came from this region. Of the 34 counties in this area, 1 had production greater than 20 million cubic feet, 3 had production between 10 and 20 million cubic feet, 10 had production between 5 and 10 million cubic feet, and 20 had production less than 5 million cubic feet (table 16). About two-thirds of the softwood production and half of the hardwood production came from the counties south of the James River. The Coastal Plain Region had 65 primary wood-using plants operating during 1992, 19 less than in 1989: 5 pulpmills, 50 sawmills, 3 veneer or plywood mills, 1 OSB mill, 5 pole or post mills, and 1 other miscellaneous mill (fig. 5). These mills processed 40 percent of the State's total roundwood output.

### Southern Piedmont Region

In 1992, more than 141 million cubic feet of roundwood were produced in the 17 counties making up the Southern Piedmont Region of Virginia. This total reflects an increase of nearly 3 percent between 1989 and 1992 (table 17). The region ranks second in the State in the production of roundwood products, with 32 percent of the total output. Softwood production increased 3 percent and accounted for 48 percent of the total roundwood output. Hardwood output for all products increased 2 percent, with the largest increases in composite panel and pulpwood production.

Pulpwood production of nearly 71 million cubic feet accounted for half of the total roundwood production for this area. The Southern Piedmont Region was the only region where pulpwood production exceeded saw-log production. Production of saw logs fell by 4 percent and accounted for 40 percent of the region's total roundwood output. This region produced 27 percent of the State's saw logs, 23 percent of the veneer logs, 37 percent of the pulpwood, 40 percent of the composite panel production, and 48 percent of the roundwood used for other industrial products. Six counties in the **17-county** area had production greater than 10 million cubic feet, 7 counties had production between 5 and 10 million cubic feet, and 4 counties had production less than 5 million cubic feet (table 18). The Southern Piedmont Region had 100 primary wood-using plants operating in 1992, 15 less than in 1989: 91 sawmills, 2 pulpmills, 4 veneer or plywood plants, 1 composite panel mill, and 2 other miscellaneous mills.

### Northern Piedmont Region

In 1992, roundwood output from the 18 counties making up the Northern Piedmont Region totaled 55 million cubic feet, up more than 4 percent from 1989 (table 19). The region ranks third in the State in roundwood production, with 13 percent of the total roundwood TPO. Softwood production increased almost 26 percent, and accounted for half of the total roundwood output for the area. Hardwood output for all products declined nearly 11 percent. Most of the decline was in the output of hardwood saw logs, down 22 percent, or more than 4 million cubic feet.

Saw-log production was down 7 percent to 27 million cubic feet. Still, saw logs were the leading product in the Northern Piedmont Region, accounting for nearly half of the region's total roundwood output. Pulpwood accounted for another 45 percent of the total TPO. Pulpwood production increased by 10 percent from 22 to 25 million cubic feet. This region **produced**

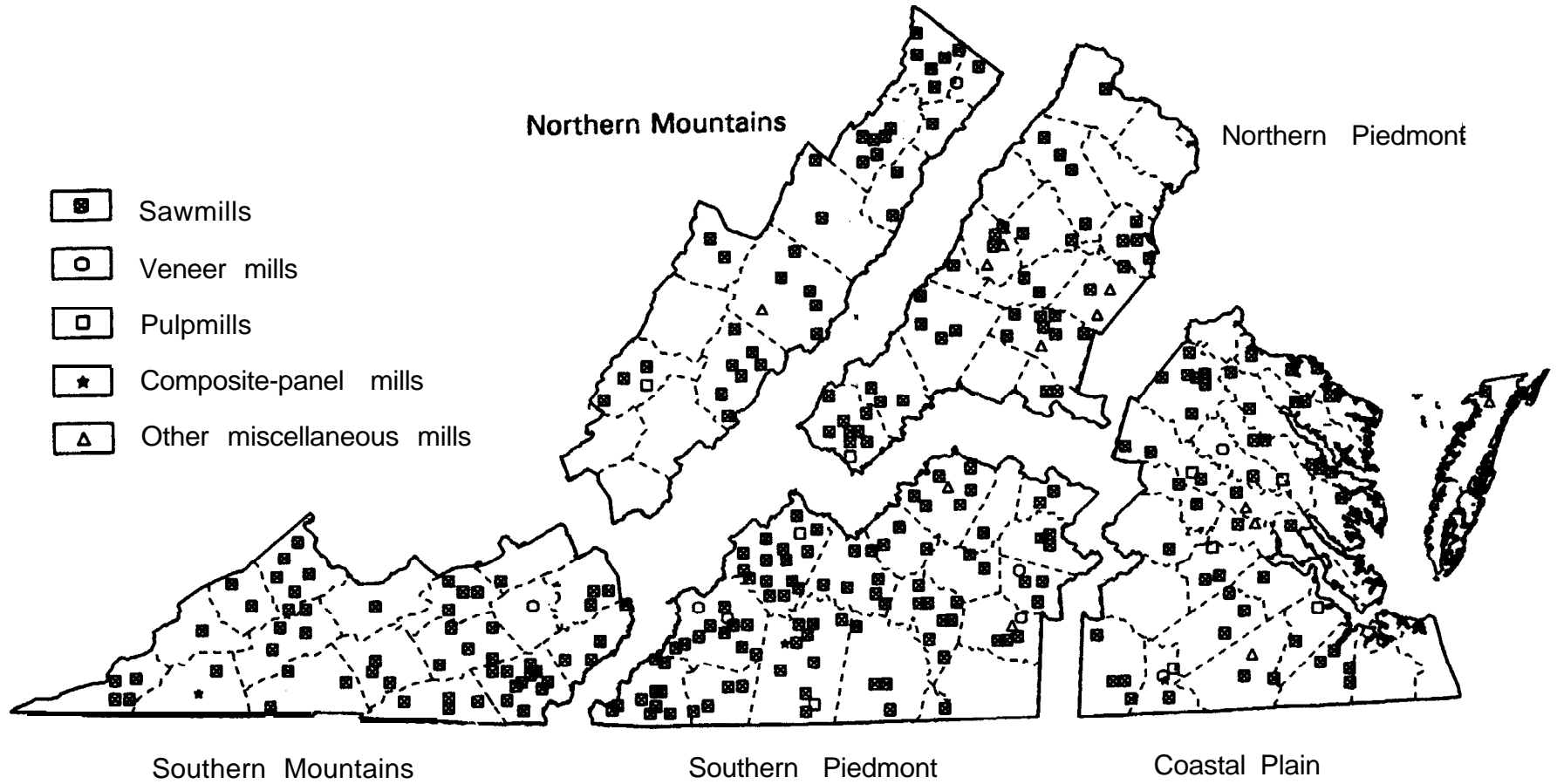


Figure 5—Primary wood-using mills by regions.

13 percent of the State's saw logs and pulpwood, and more than a third of the roundwood used for other industrial products. Of the 18 counties in the area, only 1 had production greater than 10 million cubic feet, 2 had production between 5 and 10 million cubic feet, and 15 had production less than 5 million cubic feet (table 20). The 49 mills operating in the Northern Piedmont Region in 1992 included 43 sawmills, 1 pulpmill, 3 post mills, and 2 other miscellaneous mills.

#### Northern Mountain Region

In 1992, roundwood output from the 14 counties making up the Northern Mountain Region declined 4 percent to 25 million cubic feet (table 21). The region produced 6 percent of the State's total roundwood TPO. Softwood production was up 4 percent to 4 million cubic feet, accounting for only 15 percent of the total roundwood output. Total hardwood output was down nearly 6 percent, with declines recorded for all products except hardwood veneer.

Saw-log production dropped 7 percent to 13 million cubic feet, accounting for 52 percent of the total roundwood production for this area. Production of pulpwood remained stable at 12 million cubic feet and accounted for 47 percent of the region's total roundwood output. This region produced 6 percent of the State's saw logs and pulpwood and about 2 percent of the veneer logs. All of the 14 counties in this area had production less than 5 million cubic feet (table 22). The Northern Mountain Region had 38 primary wood-using plants operating in 1992, 6 less than in 1989: 35 sawmills, 1 veneer or plywood plant, 1 pulpmill, and 1 other miscellaneous mill.

#### Southern Mountain Region

Roundwood output from the 17 counties making up the Southern Mountain Region declined nearly 13 percent to 41 million cubic feet (table 23). The region produced 9 percent of the State's total roundwood TPO. Total hardwood output dropped 14 percent, with the largest absolute declines in hardwood saw logs and composite panels. Hardwood production accounted for 81 percent of the total roundwood output. Softwood production declined 6 percent to 8 million cubic feet.

Saw-log production fell by 16 percent to 29 million cubic feet but still accounted for 71 percent of the total roundwood production for this area. Production of pulpwood was up by 7 percent to more than 7 million cubic feet. All of this was due to an increase in hardwood output. Pulpwood accounted for another 18 percent of the region's total roundwood output. This region produced 14 percent of the State's saw logs, 4 percent of the pulpwood, and 13 percent of the veneer and composite panel production. Only 1 of the 17 counties in this area had production greater than 5 million cubic feet (table 24). The Southern Mountain Region had 59 primary wood-using plants operating in 1992, 11 less than in 1989: 57 sawmills, 1 veneer mill, and 1 composite panel mill.

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## Definitions

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

Composite panels. Consists of structural panels (oriented strand board or waferboard), particleboard (industrial underlayment, thin **panelboard**).

Consumption. The quantity of a commodity, such as pulpwood, utilized.

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

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

Industrial **roundwood products**. Any primary use of the main stem of a tree, such as saw logs, poles, pilings, veneer **logs**, pulpwood, posts, or cooperage logs.

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

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

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

Coarse residues. Suitable for chipping such as slabs, edgings, trim, veneer cores, and ends.

**Fine residues**. Not suitable for chipping such as sawdust, shavings, and veneer clippings.

**Log**. A primary forest product harvested in long, primarily 8-foot lengths.

Primary **wood-using plants**. Industries that receive roundwood or chips from roundwood for the manufacture of products such as veneer, pulp, and lumber.

Production. The total volume of roundwood harvested from land within the specified State, regardless of where consumed. Production is the sum of timber harvested and used within the State, **plus all roundwood exported to other U.S. States**.

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

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

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

Roundwood. Logs, bolts, or other round sections cut from trees for industrial manufacture or consumer use.

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

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

**Saw log**. A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with minimum diameter inside bark of 8 inches for **softwoods** and **8 inches for hardwoods**.

**Standard cord**. A unit measure applied to roundwood, usually bolts or split wood. It relates to a stack of wood 4 feet high, 4 feet wide, and 8 feet long-encompassing 128 cubic feet of wood, bark, and air space. In Virginia this usually translates to 74.9 cubic feet of solid wood for pulpwood, since pulpwood is more uniform.

**Timber products output**. Roundwood production in an area's forests (equals roundwood product drain).

**Timber removals**. The merchantable volume of trees removed from the timberland inventory by harvesting, cultural operations such as stand improvement, land clearing, or changes in land use.

**Veneer log**. Logs to be used in the production of plywood, finished panels, or veneer sheets, both rotary cut and sliced.

## Conversion Factors\*

### 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  
6.26 board feet = 1 cubic foot

### Pulpwood

Softwood                      73.3 cubic feet/cord  
Hardwood                      76.1 cubic feet/cord

\*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 latest survey period.

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

Table 1 --Output of industrial timber products, by product, and species group, Virginia, 1989 and 1992

Product and species group	Year		Change	Percent change
	1969	1992		
<i>Thousand cubic feet</i>				
<i>saw logs</i>				
Softwood	92,035	92,552	+517	+0.6
Hardwood	130,558	113,003	-17,556	-13.4
Total	222,594	205,555	-17,039	-7.7
<i>Veneer logs</i>				
Softwood	11,196	12,651	+1,655	+14.8
Hardwood	4,446	5,054	+606	+13.6
Total	15,644	17,905	+2,261	+14.5
<i>Pulpwood'</i>				
Softwood	94,276	105,052	+10,774	+11.4
Hardwood	63,555	64,359	+804	+1.0
Total	177,633	169,411	+11,578	+6.5
<i>Composite panels</i>				
Softwood	4,572	6,546	+ 1,974	+43.2
Hardwood	6,611	9,266	+677	+7.9
Total	13,163	15,634	+2,651	+20.1
<i>Other industrial</i>				
Softwood	3,421	3,441	+20	+0.6
Hardwood	3,002	4,246	+ 1,246	+41.5
Total	6,423	7,669	+ 1,266	+19.7
<i>All industrial</i>				
Softwood	205,502	220,442	+14,940	+7.3
Hardwood	230,175	215,952	-14,223	-6.2
Total	435,677	436,394	+717	+0.2
<i>Byproduct output</i>				
Softwood	67,939	72,196	+4,257	+6.3
Hardwood	64,396	90,363	+5,965	+7.1
Total	152,337	162,559	+ 10,222	+6.7
<i>Total output</i>				
Softwood	273,441	292,638	+19,197	+7.0
Hardwood	314,573	306,315	-6,256	-2.6
Total	566,014	596,953	+10,939	+1.9

\* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (12,129,000 cubic feet in 1969 and 10,031,000 cubic feet in 1992).

**Table 2--Roundwood receipts, by product and species group, Virginia, 1989 and 1992**

Product and species group	Year		Change	Percent change
	1989	1992		
<i>Thousand cubic feet</i>				
<b>Saw logs</b>				
Softwood	92,998	92,844	-154	-0.2
Hardwood	134,332	117,042	-17,290	-12.9
Total	227,330	209,888	-17,444	-7.8
<b>Veneer logs</b>				
Softwood	13,894	18,100	+2,406	+17.6
Hardwood	3,559	3,011	-548	-15.4
Total	17,253	19,111	+ 1,858	+10.8
<b>Pulpwood<sup>a</sup></b>				
Softwood	92,740	98,198	+5,458	+5.9
Hardwood	112,895	110,148	-2,750	-2.4
Total	205,838	208,344	+2,708	+1.3
<b>Composite panels</b>				
Softwood	8,326	9,024	+698	+8.4
Hardwood	14,830	15,405	+775	+5.3
Total	22,958	24,429	+ 1,473	+6.4
<b>Other industrial</b>				
Softwood	3,357	3,814	+457	+13.6
Hardwood	2,738	4,253	+1,517	+55.4
Total	8,093	8,087	+ 1,974	+32.4
<b>All industrial</b>				
Softwood	211,115	219,980	+8,865	+4.2
Hardwood	288,153	249,857	-18,298	-8.8
Total	479,288	489,837	-9,431	-2.0

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (14,374,000 cubic feet in 1989 and 11,201,000 cubic feet in 1992).



**Table 3--Number of primary wood-using plants, by industry, Virginia, 1976-- 1992**

Industry	Year						
	1976	1976	1960	1964	1967	1969	1992
	<i>Number</i>						
Sawmills	451	324	392	419	355	323	276
Veneer mills	10	12	12	12	10	10	9
Pulpmills	9	6	9	9	9	9	9
Composite panel mills	0	0	0	0	1	3	3
Other mills	15	16	24	22	19	24	14
All plants	465	362	437	462	394	369	311

**Table 4-- Roundwood receipts, by sawmill size, Virginia, 1989 and 1992**

Sawmill size class <sup>a</sup> (million board feet)	1969			1992		
	Number of mills	Thousand board feet	Percent of volume	Number of mills	Thousand board feet	Percent of volume
< 1.0	100	26,479	3	60	24,610	2
1.0 - 4.99	144	363,666	30	113	313,464	26
5.0 - 9.99	55	375,165	31	60	413,071	34
> 10	24	432,670	36	23	466,620	36
Total	323	1,200,222	100	276	1,220,185	100

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

Table 5--Roundwood receipts, by species and type of mill, Virginia, 1992

species	Type of mill						
	All mills	Sawmills	Veneer mills		OSB and panels*	Pulpmills <sup>b</sup>	Other mills
			Pins plywood	Other veneer			
	<i>Thousand cubic feet</i>						
<b>Softwood</b>							
Yelbw pine	109,396	82,603	16,048	21	9,024	NA	1,700
other softwood	12,386	10,241	0	31	0	NA	2,114
Unclassified	98,198	0	0	0	0	98,198	0
<b>Total softwoods</b>	<b>219,966</b>	<b>92,844</b>	<b>16,648</b>	<b>52</b>	<b>9,024</b>	<b>98,198</b>	<b>3,814</b>
<b>Hardwood</b>							
Hard hardwoods	55,418	39,976	493	552	14,397	NA	0
Soft hardwoods	84,283	77,066	0	1,956	1,008	NA	4,253
Unclassified	110,156	0	0	10	0	110,146	0
<b>Total hardwoods</b>	<b>249,857</b>	<b>117,042</b>	<b>493</b>	<b>2,518</b>	<b>15,405</b>	<b>110,146</b>	<b>4,253</b>
<b>All species</b>	<b>469,837</b>	<b>209,886</b>	<b>16,541</b>	<b>2,570</b>	<b>24,429</b>	<b>208,344</b>	<b>8,067</b>

NA = not applicable.

\* OSB = oriented strand board.

<sup>b</sup> Only collected by softwood and hardwood and includes roundwood chipped.

**Table 6-- Industrial roundwood movement, by year and species group, Virginia, 1989 and 1992**

<b>Year</b>	<b>Production</b>	<b>Exported to other States</b>	<b>Retained</b>	<b>Imported from other States</b>	<b>Receipts</b>
<i>Thousand cubic feet</i>					
<b>SOFTWOOD</b>					
1969	<b>205,502</b>	22,170	163,332	27,763	211,115
<b>1992</b>	220,442	33,599	166,643	33,137	219,960
<b>HARDWOOD</b>					
1969	230,175	16,790	213,365	<b>54,768</b>	266,153
<b>1992</b>	215,952	16,412	197,540	52,317	249,657
<b>AU SPECIES</b>					
1969	435,677	<b>38,960</b>	396,717	62,551	479,266
<b>1992</b>	436,394	52,011	<b>384,383</b>	65,454	469,637

**Table 7--Industrial roundwood movement, by product and species group, Virginia, 1992**

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>Thousand cubic feet</i>					
<b>saw logs</b>					
<b>softwood</b>	92,552	11,394	01,158	11,686	92,844
Hardwood	113,003	4,919	108,084	0,950	117,042
Total	205,555	16,313	189,242	20,644	209,886
<b>Veneer logs</b>					
<b>Softwood</b>	12,851	6	12,845	3,255	16,100
Hardwood	5,054	2,905	2,149	662	3,011
Total	17,905	2,911	14,994	4,117	19,111
<b>Pulpwood'</b>					
<b>softwood</b>	105,052	20,610	84,442	13,756	98,198
Hardwood	84,359	8,999	75,360	34,766	110,146
Total	189,411	29,609	159,802	48,542	208,344
<b>Composite panels</b>					
<b>Softwood</b>	6,546	1,569	4,957	4,067	9,024
Hardwood	9,288	1,589	7,699	7,706	15,405
Total	15,634	3,178	12,656	11,773	24,429
<b>Other industrial</b>					
<b>Softwood</b>	3,441	0	3,441	373	3,614
Hardwood	4,240	0	4,248	5	4,253
Total	7,689	0	7,689	370	8,067
<b>All products</b>					
<b>Softwood</b>	220,442	33,599	186,843	33,137	219,980
Hardwood	215,952	18,412	197,540	52,317	249,857
Total	436,394	52,011	384,383	65,454	469,837

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

**Table 8--Saw-log volume, by destination, source, and species group, Virginia, 1992**

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
Virginia (retained)	169,242	81,158	108,084
<b>Exports to:</b>			
North Carolina	16,313	11,394	4,919
<b>Imports from:</b>			
Delaware	<b>30</b>	0	30
Kentucky	582	40	542
Maryland	351	0	351
North Carolina	15,183	11,347	3,838
Tennessee	1,255	20	1,235
West Virginia	3,243	279	<b>2,964</b>
Total	20,844	<b>11,686</b>	8,958

**Table 9--Veneer volume, by destination, source, and species group, Virginia, 1992**

Destination and source	species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
Virginia (retained)	<b>14,994</b>	12,845	2,149
<b>Exports to:</b>			
North Carolina	2,911	8	<b>2,905</b>
<b>Imports from:</b>			
Maryland	152	0	152
North Carolina	3,742	3,245	497
Pennsylvania	203	10	193
We&Virginia	10	0	10
Foreign	10	0	10
Total	4,117	3,255	882

**Table 10--Pulpwood volume, by destination, source, and species group, Virginia, 1992<sup>a</sup>**

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
Virginia (retained)	159,502	94,442	75,380
<b>Exports to:</b>			
Georgia	619	0	619
Maryland	5,285	4,210	1,075
North Carolina	14,065	12,700	1,365
Pennsylvania	3,853	3,700	153
Tennessee	5,787	0	5,707
<b>Total</b>	<b>29,609</b>	<b>20,610</b>	<b>8,999</b>
<b>Imports from:</b>			
Delaware	1,748	1,336	412
Maryland	3,839	2,313	1,525
Kentucky	2	0	2
North Carolina	32,435	9,494	22,941
Tennessee	4	0	4
West Virginia	10,514	613	9,901
<b>Total</b>	<b>48,542</b>	<b>13,755</b>	<b>34,786</b>

<sup>a</sup> Includes roundwood chipped that was delivered to non-pulpmills and then chipped and sold to pulpmills.

**Table 11 -- Composite panel volume, by destination, source, and species group, Virginia, 1992**

Destination and source	Specks group		
	All species	softwood	Hardwood
	<i>Thousand cubic feet</i>		
Virginia (retained)	12,656	4,957	7,699
<b>Exports to:</b>			
North Carolina	3,178	1,589	1,589
<b>Imports from:</b>			
Kentucky	172	0	172
North Carolina	11,498	4,067	7,431
Tennessee	103	0	103
<b>Total</b>	<b>11,773</b>	<b>4,057</b>	<b>7,705</b>

**Table 12-- Other industrial volume, by destination, source, and species group, Virginia, 1992'**

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
<b>Virginia (retained)</b>	<b>7,669</b>	3,441	4,246
<b>Exports to:</b>	0	0	0
<b>Imports from:</b>			
North Carolina	376	373	5

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

Table 13--Primary mill residue volume, by roundwood type, specks group, and residue type, Virginia, 1992

Roundwood type and species group	Residue type				
	All types	Bark	Coarse	Saw dust	Shavings
<i>Thousand cubic feet</i>					
Saw logs					
<b>Softwood</b>	52,043	6,164	<b>24,396</b>	16,450	5,013
Hardwood	76,497	<b>13,397</b>	37,517	<b>25,091</b>	<b>492</b>
Total	126,540	19,561	61,914	41,541	5,505
Veneer logs					
<b>Softwood</b>	9,070	1,219	5,637	<b>2,020</b>	0
Hardwood	674	254	410	210	0
Total	<b>9,950</b>	1,473	6,247	<b>2,230</b>	0
Pulpwood					
<b>Softwood</b>	9,359	9,359	0	0	0
Hardwood	13,504	13,504	0	0	0
Total	<b>22,863</b>	<b>22,863</b>	0	0	0
Composite panels					
Softwood	1,502	1,502	0	0	0
Hardwood	2,327	2,327	0	0	0
Total	<b>3,829</b>	<b>3,829</b>	0	0	0
Other industrial'					
<b>Softwood</b>	1,175	<b>982</b>	<b>193</b>	0	0
Hardwood	<b>1,448</b>	345	792	311	0
Total	2,623	1,327	<b>985</b>	311	0
Total					
Softwood	73,155	19,246	30,426	16,470	5,013
Hardwood	<b>94,650</b>	<b>29,827</b>	36,719	25,612	492
Total	167,605	49,073	69,145	44,062	5,505

• Includes poles, pilings, posts, and other industrial products.



Table 14--Disposal of residue at primary wood-using plants, by product, species group, and type of residue, Virginia, 1999 and 1992

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	1999	1992	1999	1992	1999	1992	1999	1992	1999	1992
<i>Thousand cubic feet</i>										
<b>Fiber products</b>										
Softwood	<b>25,661</b>	25,722	0	0	24,521	<b>25,439</b>	2 %	2 %	850	75
Hardwood	<b>30,144</b>	28,118	0	0	<b>29,222</b>	27,522	922	5 %	0	0
<b>Total</b>	<b>55,805</b>	<b>53,840</b>	0	0	53,743	52,981	1212	<b>804</b>	<b>850</b>	75
<b>Particleboard</b>										
Softwood	5,674	8,743	0	0	2 %	402	2,470	5,162	<b>2,969</b>	3,179
Hardwood	<b>1,953</b>	1,907	0	0	<b>576</b>	853	1,195	971	182	83
<b>Total</b>	7,627	<b>10,650</b>	0	0	811	<b>1,255</b>	<b>3,665</b>	6,133	3,151	<b>3,262</b>
<b>Composite panels</b>										
Softwood	0	120	0	0	0	0	0	114	0	8
Hardwood	0	3,621	0	0	0	3,571	0	49	0	1
<b>Total</b>	0	3,741	0	0	0	3,571	0	1 %	0	7
<b>Sawn products</b>										
Softwood	2,192	3,101	0	29	<b>2,192</b>	2,913	0	<b>159</b>	0	0
Hardwood	0	<b>95</b>	0	23	0	4	0	86	0	0
<b>Total</b>	2,192	<b>3,196</b>	0	52	<b>2,192</b>	2,917	0	<b>227</b>	0	<b>0</b>
<b>Fuel</b>										
Softwood	<b>24,399</b>	24,531	10,527	11,385	<b>939</b>	1,288	12,733	11,328	<b>200</b>	532
Hardwood	37,430	<b>39,832</b>	<b>17,098</b>	17,524	<b>4,223</b>	3,933	<b>15,898</b>	18,152	211	223
<b>Total</b>	61,829	<b>64,363</b>	27,625	28,909	5,162	5,221	28,631	29,478	411	7 %
<b>Miscellaneous</b>										
Softwood	10,013	9,979	7,058	7,582	19	17	1,762	1,180	1,174	<b>1,200</b>
Hardwood	14,871	16,790	10,190	11,354	<b>956</b>	<b>1,686</b>	3,515	<b>3,594</b>	210	1 %
<b>Total</b>	24,884	26,769	17,248	18,936	975	<b>1,703</b>	5,277	4,774	<b>1,384</b>	<b>1,356</b>
<b>Not used</b>										
Softwood	1,401	<b>959</b>	2 %	<b>250</b>	577	367	558	321	0	21
Hardwood	5,467	4,287	<b>1,029</b>	926	<b>1,526</b>	1,150	2,912	2,182	0	29
<b>Total</b>	<b>6,868</b>	5,246	<b>1,295</b>	1,176	2,103	1,517	3,470	<b>2,503</b>	0	50
<b>All products</b>										
Softwood	<b>69,340</b>	73,155	17,851	19,248	28,483	<b>30,426</b>	17,813	18,470	5,193	5,013
Hardwood	<b>89,865</b>	<b>94,650</b>	28,317	29,027	36,509	38,719	24,442	25,612	603	492
<b>Total</b>	<b>159,205</b>	167,805	46,168	49,073	<b>64,996</b>	69,145	42,255	<b>44,082</b>	<b>5,796</b>	<b>5,505</b>

**Table 15—Roundwood timber products output, by product and species group, Coastal Plain of Virginia, 1989 and 1992**

Product and species group	Year		Change	Percent change
	1989	1992		
<i>Thousand cubic feet</i>				
<b>saw logs</b>				
softwood	50,474	49,110	-1,364	-2.7
Hardwood	38,881	31,474	-5,207	-14.2
Total	87,155	80,584	-8,571	-7.5
<b>Veneer logs</b>				
softwood	8,453	9,828	+1,173	+13.9
Hardwood	1,211	1,118	-95	-7.8
Total	9,864	10,742	+ 1,078	+11.2
<b>Pulpwood<sup>a</sup></b>				
Softwood	41,333	50,486	+9,153	+22.1
Hardwood	25,432	24,228	-1,204	-4.7
Total	68,785	74,714	+7,949	+11.9
<b>Composite panels</b>				
softwood	3,409	3,696	+287	+8.4
Hardwood	3,118	3,542	+426	+13.7
Total	6,525	7,230	+713	+10.9
<b>Other industrial</b>				
Softwood	2,099	475	- 1,824	-77.4
Hardwood	707	831	+124	+17.5
Total	2,806	1,306	-1,500	-53.5
<b>All industrial</b>				
Softwood	105,788	113,393	+7,625	+7.2
Hardwood	67,147	61,191	-5,958	-8.9
Total	172,915	174,584	+ 1,889	+1.0

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (6,290,000 cubic feet in 1989 and 5,889,000 cubic feet in 1992).

**Table 16--** Roundwood timber products output, by county, product and species group, Coastal Plain of Virginia, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood <sup>a</sup>		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	<i>Thousand cubic feet</i>											
Accomack	1,967	450	960	218	0	0	0	0	786	235	221	0
Brunswick	16,760	5,534	4,557	2,606	1,284	49	451	432	10,439	2,236	29	211
Caroline	5,062	3,233	4,217	2,848	0	81	0	0	884	306	1	18
Charles City	2,345	1,598	919	706	0	0	0	0	1,402	875	24	17
Chesapeake	1,015	990	421	180	0	24	0	0	594	788	0	0
Chesterfield	6,002	2,047	3,062	1,330	802	43	180	173	1,958	501	0	0
Dinwiddie	9,002	3,904	2,694	2,078	802	55	451	432	5,055	938	0	401
Essex	2,715	2,259	1,207	1,300	0	U	0	0	1,507	912	1	3
Gloucester	2,283	1,305	795	783	0	0	0	0	1,487	515	1	7
Greensville	5,123	3,455	2,439	1,235	1,284	239	451	432	920	1,549	29	0
Hampton	72	0	65	0	0	0	0	0	7	0	0	0
Hanover	2,970	2,150	1,600	1,211	0	87	0	0	1,369	723	1	149
Henrico	704	340	342	198	0	0	0	0	382	140	0	2
Isle of Wight	4,055	2,095	1,961	752	652	43	270	259	991	1,041	11	0
James City	383	514	140	187	0	12	0	0	223	313	0	2
King and Queen	4,247	2,247	1,831	921	0	63	0	0	2,815	1,263	1	0
King George	200	1,724	115	1,663	0	0	0	0	85	41	0	0
King William	2,037	1,445	891	1,226	0	128	0	0	1,145	91	1	0
Lancaster	734	825	415	310	0	0	0	0	319	315	0	0
Mathews	765	177	702	132	0	0	0	0	84	45	0	0
Middlesex	692	864	376	359	0	8	0	0	314	316	0	3
New Kent	2,969	2,962	818	1,244	0	35	0	0	2,340	1,668	11	15
Newport News	330	50	271	49	0	0	0	0	59	1	0	0
Northampton	366	280	240	275	0	0	0	0	71	5	55	0
Northumberland	653	785	464	534	0	0	0	0	189	234	0	0
Prince George	5,299	2,483	1,525	1,145	602	30	270	259	2,673	1,028	29	1
Richmond	2,690	1,062	814	391	0	0	0	0	1,875	691	1	0
Southampton	10,548	6,565	5,202	2,936	1,284	120	451	432	3,587	3,077	24	0
Suffolk	4,703	2,017	2,443	488	802	24	451	432	996	1,093	11	0
Surry	6,220	3,148	3,073	1,399	802	24	270	259	2,051	1,466	24	0
Sussex	8,223	3,178	3,824	1,438	962	49	451	432	3,158	1,257	0	0
Virginia Beach	314	187	208	13	0	0	0	0	108	154	0	0
Westmoreland	1,793	1,634	1,034	1,258	0	0	0	0	759	378	0	0
York	131	103	85	84	0	0	0	0	85	37	0	2
All counties	113,399	81,191	49,110	31,474	9,828	1,118	3,696	3,542	50,488	24,228	475	831

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (5,889,000 cubic feet in 1992).

**Table 17--Roundwood timber products output, by product and species group, Southern Piedmont of Virginia, 1989 and 1992**

Product and species group	Year		Change	Percent change
	1989	1992		
<i>Thousand cubic feet</i>				
<b>Saw logs</b>				
Softwood	24,185	24,299	+114	+0.5
Hardwood	33,868	31,701	-2,167	-8.4
Total	58,053	56,000	-2,053	-3.5
<b>Veneer logs</b>				
softwood	2,743	3,220	+477	+17.4
Hardwood	930	856	-74	-8.0
Total	3,873	4,078	+403	+11.0
<b>Pulpwood<sup>a</sup></b>				
Softwood	37,040	36,081	-959	-2.6
Hardwood	33,039	34,847	+1,808	+5.5
Total	70,079	70,928	+849	+1.2
<b>Composite panels</b>				
Softwood	1,163	2,346	+1,183	+101.7
Hardwood	1,799	4,055	+2,256	+125.4
Total	2,962	6,401	+3,439	+116.1
<b>Other industrial</b>				
softwood	923	2,187	+1,264	+136.9
Hardwood	1,755	1,508	-247	-14.1
Total	2,878	3,695	+1,017	+38.0
<b>All industrial</b>				
softwood	66,054	68,133	+2,079	+3.1
Hardwood	71,391	72,967	+1,578	+2.2
Total	137,445	141,190	+3,655	+2.7

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (2355,000 cubic feet in 1989 and 2,793,000 cubic feet in 1992).

Table 18--Roundwood timber products output, by county, product and species group, Southern Piedmont of Virginia, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood <sup>a</sup>		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	<i>Thousand cubic feet</i>											
Amelia	6,350	6,741	3,370	2,463	802	50	270	259	1,908	3,989	0	0
Appomattox	4,696	3,877	758	1,056	0	6	0	0	9,410	2,815	528	0
Bedford	1,665	6,861	859	SASS	0	0	0	0	1,006	3,248	0	0
Buckingham	9,132	5,375	1,886	1,694	1	6	0	0	6,714	3,675	531	0
Campbell	6,762	3,458	2,119	1,053	0	58	0	0	4,832	2,347	11	0
Charlotte	2,772	6,049	999	3,406	0	6	0	0	1,773	2,634	0	3
Cumberland	2,419	2,970	95	747	0	6	0	0	1,790	2,214	528	3
Franklin	2,219	4,784	602	2,321	0	1 %	0	0	1,871	2,267	0	0
Halifax	4,682	5,959	3,743	2,751	0	0	0	504	1,123	2,704	16	0
Henry	1,066	2,881	539	1,566	0	73	511	886	16	136	0	0
Lunenburg	3,876	4,174	1,098	1,719	802	30	270	259	1,690	1,638	16	528
Mecklenburg	5,976	4,700	2,874	1,807	813	30	451	432	1,809	1,619	29	612
Nottoway	5,099	2,603	2,246	988	802	50	270	259	1,781	967	0	359
Patrick	951	9,531	557	2,645	0	244	383	494	11	148	0	0
Pittsylvania	5,249	6,658	2,375	2,885	0	48	191	962	2,683	2,7 %	0	0
Powhatan	2,085	948	282	555	0	89	0	0	1,823	298	0	3
Prince Edward	2,886	1,800	117	611	0	6	0	0	2,241	1,163	528	0
<b>All counties</b>	<b>68,133</b>	<b>72,967</b>	<b>24.2%</b>	<b>31,701</b>	<b>3,220</b>	<b>856</b>	<b>2,348</b>	<b>4,055</b>	<b>36,081</b>	<b>34,847</b>	<b>2,187</b>	<b>1,508</b>

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (2,793,000 cubic feet in 1992).

**Table 19-- Roundwood timber products output, by product and species group, Northern Piedmont of Virginia, 1989 and 1992**

Product and species group	Year		Change	Percent change
	1989	1992		
<i>Thousand cubic feet</i>				
<b>saw logs</b>				
Softwood	8,014	10,528	<b>+2,512</b>	<b>+31.3</b>
Hardwood	20,833	18,381	-4,472	-21.5
Total	28,847	28,887	<b>-1,960</b>	<b>-8.8</b>
<b>Veneer logs</b>				
softwood	0	3	<b>+3</b>	- -
Hardwood	558	433	-123	-22.1
Total	558	438	-120	-21.8
<b>Pulpwood*</b>				
Softwood	13,297	15,882	<b>+2,565</b>	<b>+19.3</b>
Hardwood	8,972	8,752	-220	-2.5
Total	22,289	24,814	<b>+2,345</b>	<b>+10.5</b>
<b>Composite panels</b>				
Softwood	0	83	<b>+63</b>	- -
Hardwood	0	45	<b>+45</b>	- -
Total	0	108	<b>+108</b>	- -
<b>Other industrial</b>				
Softwood	315	779	<b>+464</b>	<b>+147.3</b>
Hardwood	348	1,882	<b>+1,516</b>	<b>+436.2</b>
Total	881	2,841	<b>+1,980</b>	<b>+299.5</b>
<b>All industrial</b>				
softwood	21,828	27,233	<b>+5,607</b>	<b>+25.9</b>
Hardwood	30,707	27,453	-3,254	-10.8
Total	52,333	54,888	<b>+2,353</b>	<b>+4.5</b>

-- = negligible.

\* Includes roundwood that was delivered to non-pulpmill and then chipped and sold to pulpmills (909,000 cubic feet in 1989 and 499,000 cubic feet in 1992).

Table 20-- Roundwood timber products output, by county, product and species group, Northern Piedmont of Virginia, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood <sup>a</sup>		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	<i>Thousand cubic feet</i>											
Albemarle	2,333	2379	1,324	1,364	0	6	0	0	1,009	979	0	0
Amherst	1,614	4,365	663	3,119	1	6	0	0	739	1,270	0	0
Arlington	12	0	0	0	0	0	0	0	12	0	0	0
Culpeper	693	1,439	1%	1,209	0	21	0	0	715	114	70	95
Fairfax	431	205	0	70	0	0	0	0	431	1%	0	0
Fauquier	3%	1,030	60	669	0	21	0	0	3%	120	0	0
Fluvanna	3,483	1,491	1.2%	146	0	73	0	0	219.4	1,066	0	179
Goochland	1,590	900	405	454	0	18	0	0	1,135	4%	0	0
Greene	282	441	65	437	0	0	0	0	6	4	211	0
Loudoun	107	1,050	24	970	0	56	0	0	63	24	0	0
Louisa	9,069	4,223	4,256	1,973	0	6	0	0	4,828	665	5	1384
Madison	49.2	1,334	46	1,252	0	50	0	0	9.4	32	352	0
Nelson	1,846	4,076	219	1,277	2	50	63	45	1,562	2,704	0	0
Orange	1,336	1,358	79.5	948	0	69	0	0	402	240	141	101
Prince William	277	304	109	116	0	0	0	0	1%	1%	0	0
Rappahannock	27	1,114	27	1,060	0	26	0	0	0	6	0	0
Spotsylvania	2,320	920	616	4%	0	12	0	0	1,704	372	0	103
Stafford	734	789	300	39.2	0	12	0	0	434	133	0	0
All counties	27,233	27,453	10,526	16,361	3	433	63	45	15,662	8,752	779	1,662

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (499,000 cubic feet in 1992).

**Table 21 – Roundwood timber products output, by product and species group, Northern Mountains of Virginia, 1989 and 1992**

Product and species group	Year		Change	Percent change
	1989	1992		
Thousand <i>cubic feet</i>				
<b>saw logs</b>				
softwood	1,273	1,368	+95	+7.5
Hardwood	12,995	11,846	-1,149	-8.8
Total	14,268	13,214	-1,054	-7.4
<b>Veneer logs</b>				
Softwood	0	2	+2	- -
Hardwood	226	283	+57	+25.2
Total	226	205	+59	+26.1
<b>Pulpwood*</b>				
Softwood	2,519	2,572	+53	+2.1
Hardwood	9,347	9,247	-100	-1.1
Total	11,866	11,819	-47	-0.4
<b>Composite panels</b>				
softwood	0	0	0	- -
Hardwood	0	0	0	- -
Total	0	0	0	- -
<b>Other industrial</b>				
softwood	0	0	0	- -
Hardwood	102	47	-55	-53.9
Total	102	47	-55	-53.9
<b>All industrial</b>				
softwood	3,792	3,942	+150	+4.0
Hardwood	22,670	21,423	-1,247	-5.5
Total	26,462	25,365	-1,097	-4.1

-- = negligible.

\* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (395,000 cubic feet in 1989 and 438,000 cubic feet in 1992).



table 22-- Roundwood timber products output, by county, product and **species** group, Northern Mountains of Virginia, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood <sup>a</sup>		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	<i>Thousand cubic feet</i>											
<b>Alleghany</b>	<b>500</b>	<b>2,845</b>	241	1,077	0	0	0	0	<b>259</b>	<b>1,768</b>	0	0
<b>Augusta</b>	414	<b>3,399</b>	255	<b>2,636</b>	0	0	0	0	<b>159</b>	745	0	15
<b>Bath</b>	<b>169</b>	<b>1,733</b>	<b>93</b>	754	0	0	0	0	75	<b>999</b>	0	0
<b>Botetourt</b>	<b>693</b>	<b>2,865</b>	<b>131</b>	<b>1,050</b>	0	0	<b>0</b>	0	552	<b>1,835</b>	0	0
<b>Clarke</b>	0	<b>98</b>	0	<b>98</b>	0	0	0	0	0	0	0	0
<b>Craig</b>	<b>309</b>	1,416	145	557	0	210	0	0	154	<b>849</b>	0	0
<b>Frederick</b>	510	<b>900</b>	0	<b>590</b>	0	14	0	0	<b>510</b>	<b>298</b>	0	0
<b>Highland</b>	<b>39</b>	1,442	7	<b>1,023</b>	0	0	0	0	<b>32</b>	419	0	0
<b>Page</b>	4	<b>128</b>	4	127	0	0	0	0	0	<b>1</b>	0	0
<b>Roanoke</b>	52	505	52	95	0	0	0	0	<b>30</b>	410	0	0
<b>Rockbridge</b>	557	<b>3,552</b>	<b>328</b>	<b>2,236</b>	2	0	<b>0</b>	0	<b>307</b>	<b>1,299</b>	0	17
<b>Rockingham</b>	575	1,147	<b>113</b>	555	0	0	0	0	255	495	0	15
<b>Shenandoah</b>	<b>163</b>	915	<b>19</b>	<b>790</b>	0	0	0	0	<b>144</b>	125	0	0
<b>Warren</b>	54	457	0	<b>396</b>	0	<b>59</b>	0	0	<b>64</b>	2	0	0
<b>All counties</b>	3,942	21,425	<b>1,368</b>	11,546	2	253	0	0	<b>2,572</b>	9,247	0	47

- Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (498,000 cubic feet in 1992).

**Table 23-- Roundwood timber products output, by product and species group, Southern Mountains of Virginia, 1989 and 1992**

Product and species group	Year		Change	Percent change
	1989	1992		
<i>Thousand cubic feet</i>				
<b>Saw logs</b>				
softwood	8,089	7,249	-840	-10.4
Hardwood	28,182	21,821	-4,581	-17.4
<b>Total</b>	34,271	28,870	-5,401	-15.8
<b>Veneer logs</b>				
softwood	0	0	0	- -
Hardwood	1,525	2,388	+841	+55.1
<b>Total</b>	1,525	2,366	+841	+55.1
<b>Pulpwood<sup>a</sup></b>				
softwood	89	51	-38	-42.7
Hardwood	8,785	7,285	+520	+7.7
<b>Total</b>	8,854	7,338	+482	+7.0
<b>Composite panels</b>				
Softwood	0	441	+441	- -
Hardwood	3,696	1,848	-2,050	-55.5
<b>Total</b>	3,696	2,087	-1,809	-43.5
<b>Other industrial</b>				
softwood	84	0	-84	-100.0
Hardwood	92	0	-92	-100.0
<b>Total</b>	178	0	-178	-100.0
<b>All industrial</b>				
<b>Softwood</b>	8,282	7,741	-521	-8.3
Hardwood	38,280	32,918	-5,342	-14.0
<b>Total</b>	48,522	40,859	-5,883	-12.8

-- = negligible.

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (180,000 cubic feet in 1989 and 412,000 cubic feet in 1992).

**Table 24--Roundwood timber products output, by county, product and species group, Southern Mountains of Virginia, 1992**

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood <sup>a</sup>		Other industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	<i>Thousand cubic feet</i>											
Bland	467	1,002	397	830	0	0	83	59	7	113	0	0
Buchanan	0	1,047	0	715	0	244	0	85	0	a	0	0
Carroll	2,730	3,744	2,654	2,680	0	222	83	36	13	808	0	0
Dickenson	0	1,778	0	1,534	0	0	0	85	0	159	0	0
Floyd	1,741	3,484	1,726	3,054	0	389	0	0	15	21	0	0
Giles	139	1,047	123	829	0	0	0	0	18	216	0	0
Grayson	1,858	1,811	1,795	1,361	0	222	83	45	0	183	0	0
Lee	0	2,411	0	1,347	0	0	0	154	0	910	0	0
Montgomery	921	839	258	810	0	0	83	0	0	29	0	0
Pulaski	88	451	25	202	0	178	83	0	0	71	0	0
Russell	0	2,358	0	1,675	0	178	0	17	0	488	0	0
Scott	0	3,434	0	1,274	0	178	0	548	0	1,434	0	0
Smyth	109	1,005	48	448	0	178	63	59	0	322	0	0
Tazewell	0	1,241	0	1,150	0	0	0	0	0	91	0	0
Washington	28	2,591	28	927	0	355	0	308	0	941	0	0
Wise	0	2,823	0	1,397	0	0	0	188	0	1,238	0	0
Wythe	260	1,992	197	1,390	0	222	83	82	0	258	0	0
<b>All counties</b>	<b>7,741</b>	<b>32,918</b>	<b>7,249</b>	<b>21,621</b>	<b>0</b>	<b>2,366</b>	<b>441</b>	<b>1,646</b>	<b>61</b>	<b>7,285</b>	<b>0</b>	<b>0</b>

<sup>a</sup> Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulp mills (412,000 cubic feet in 1992).

**Johnson, Tony G.** 1994. Virginia's timber industry: an assessment of timber product output and use, 1992. Resour. Bull. SE-145. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 32 pp.

In 1992, volume of roundwood products removed from Virginia's forests totaled 436 million cubic feet-about the same as in 1989. Mill byproducts generated from primary manufacturers increased 5 percent to 168 million cubic feet. Almost all of the plant residues were used, mostly for fuel and fiber products. Saw logs was the leading roundwood product at 206 million cubic feet; pulpwood ranked second at 189 million cubic feet; veneer logs were third with 18 million cubic feet. The number of primary processing plants declined from 369 in 1989 to 311 in 1992. Total receipts declined 2 percent to nearly 470 million cubic feet.

**KEYWORDS:** Roundwood, residues, pulpwood, saw logs, veneer logs, wood movement.

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