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Changes in Output of Industrial Timber Products in Virginia, 1987-1989

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Foreword

This report presents the findings of a 1989 canvass of all primary wood-using plants in Virginia and complements Forest Inventory and Analysis' periodic inventory of volume and removals from southeastern timberland. The canvass was made to determine the amount and source of wood receipts and annual timber product drain by county for a specific year. In addition, interstate and cross-regional movement of industrial roundwood are determined. Only primary wood-using mills are 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 panel products (oriented strand board/waferboard) or reconstituted lumber products (parallel strand lumber, laminated veneer lumber, particleboard). Mills producing products from residues generated at primary processors and secondary processors are not canvassed. Volume of whole trees chipped in the woods is not included in the estimate of timber drain, unless delivered to a primary domestic manufacturer.

A 100-percent canvass of all primary wood-processors in Virginia was conducted in 1990. 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 contact was made as

a followup to mailed questionnaire responses when additional information or clarification of response was necessary. In the event of a nonresponse, receipt data collected in previous surveys were updated based on current data collected for mills of similar size, product type, and location. These studies are a cooperative project involving the Southeastern Forest Experiment Station and the Commonwealth of Virginia, Department of Forestry.

Pulpwood production data are taken from an annual canvass of all eastern pulpmills. Medium-density fiberboard, insulating board, and hardboard plants are included in this survey. The pulpwood production survey is conducted annually in cooperation with the American Pulpwood Association. Previous surveys for other timber products have been conducted approximately every 3 years since 1965. This Bulletin reports the findings of the 1989 primary wood-users canvass and pulpwood production study in Virginia and presents changes in product output and residue use that have occurred since 1987.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the Virginia Department of Forestry in collecting mill data. Appreciation is also expressed to forest industry and mill managers for providing timber products information.

Statewide Trends

Virginia's total roundwood timber product output was 435.7 million cubic feet in 1989, a 5.6-percent increase over 1987, but 6 percent less than the record output of 1984. Both softwood and hardwood volumes have increased since 1987, softwoods by 3 percent and hardwoods by 9 percent (table 1). Hardwood product output surpassed softwood output significantly, as it has for a decade. Saw logs account for 51 percent of the roundwood production and are the leading roundwood product, as they have been since the commodity drain surveys began in 1965. Pulpwood, the second leading roundwood product, makes up 41 percent of total production. Veneer accounts for 4 percent, composite panels 3 percent, and other industrial products 1 percent of the total. Composite panels was removed from the "other industrial roundwood" category in 1989, and this change accounts for the 50-percent reduction in that category.

There were 369 primary wood-using plants operating in Virginia during 1989 (fig. 1). This was a loss of 25 mills, or a 6-percent decline since 1987. The number of sawmills declined by 32, while the number of veneer mills remained at 10, and there were 9 pulp mills. There were 3 panel mills, and the number of other miscellaneous mills increased by 5 to a total of 24 (table 2).

Virginia continues to be a net importer of roundwood, as receipts exceeded production by 43.6 million cubic feet or 10 percent. Imports of 27.8 million cubic feet of roundwood pulpwood account for 57 percent of the roundwood imported into Virginia. Imports of roundwood saw logs exceeded in-State production by 4.7 million cubic feet (table 3). The only industry not importing roundwood was other industrial (table 4). Imports exceeded exports by a margin of 2-to-1 in 1989. This was a decrease from the 3-to-1 margin of 1987 (table 5).

Plant Byproduct Production and Use

Primary wood-using mills within the State produced 159.2 million cubic feet of residues during 1989 (table 6). Use of residues continues to improve, as 96 percent were utilized in 1989 versus 93 percent used in 1987. Ninety-seven percent of bark residues were used—60 percent for fuel and 37 percent for miscellaneous uses. Coarse residues were used mainly for fiber products (83 percent); other uses were fuel and particleboard. The proportion of sawdust that was not used (8 percent) was greater than the proportion of any other residue that went unused but

amounted to only 3.4 million cubic feet. Sixty-eight percent was used for fuel, 12 percent for miscellaneous products, and 9 percent for particleboard (table 7).

Regional Trends

The Coastal Plain of Virginia (fig. 2) was the leading producer of roundwood in 1989, with 40 percent of the State's total of 435.7 million cubic feet. The Coastal Plain produced 172.9 million cubic feet of roundwood in 1989, a decline of 2 percent since 1987. Output of all products other than pulpwood declined significantly. Production of pulpwood increased by almost 29 percent. Saw logs were the leading roundwood product in both the softwood and hardwood categories. Most products came from softwood in this area (table 8).

Virginia's Southern Piedmont, with 137.4 million cubic feet of roundwood products, was second in total output. The leading product for this region is pulpwood, which makes up more than 50 percent of the total. More than half of the pulpwood was softwood. Saw logs accounted for 42 percent of the total roundwood production, with hardwoods dominating. Regional production increased by 11 percent since 1987 (table 9).

The Northern Piedmont of Virginia produced 10 percent more roundwood in 1989 than in 1987. Both saw logs and pulpwood production increased, with softwoods showing the largest gains. Table 10 shows that hardwoods continue to dominate roundwood production in this region (59 percent).

Industrial roundwood output of the Northern Mountains Region decreased 6 percent since the previous survey. This region produces less roundwood than does any other in the State. Eighty-six percent of the region's roundwood output is hardwood. Pulpwood increased by almost 7 percent to 11.9 million cubic feet and is the second leading product of the Northern Mountains (table 11).

The Southern Mountains Region saw nearly a 30-percent increase in roundwood production since 1987. Hardwood saw logs accounted for most of the increase. Output of all roundwood products other than pulpwood increased; pulpwood production fell nearly 14 percent. This region produced almost 11 percent of the State's total roundwood output in 1989 (table 12).

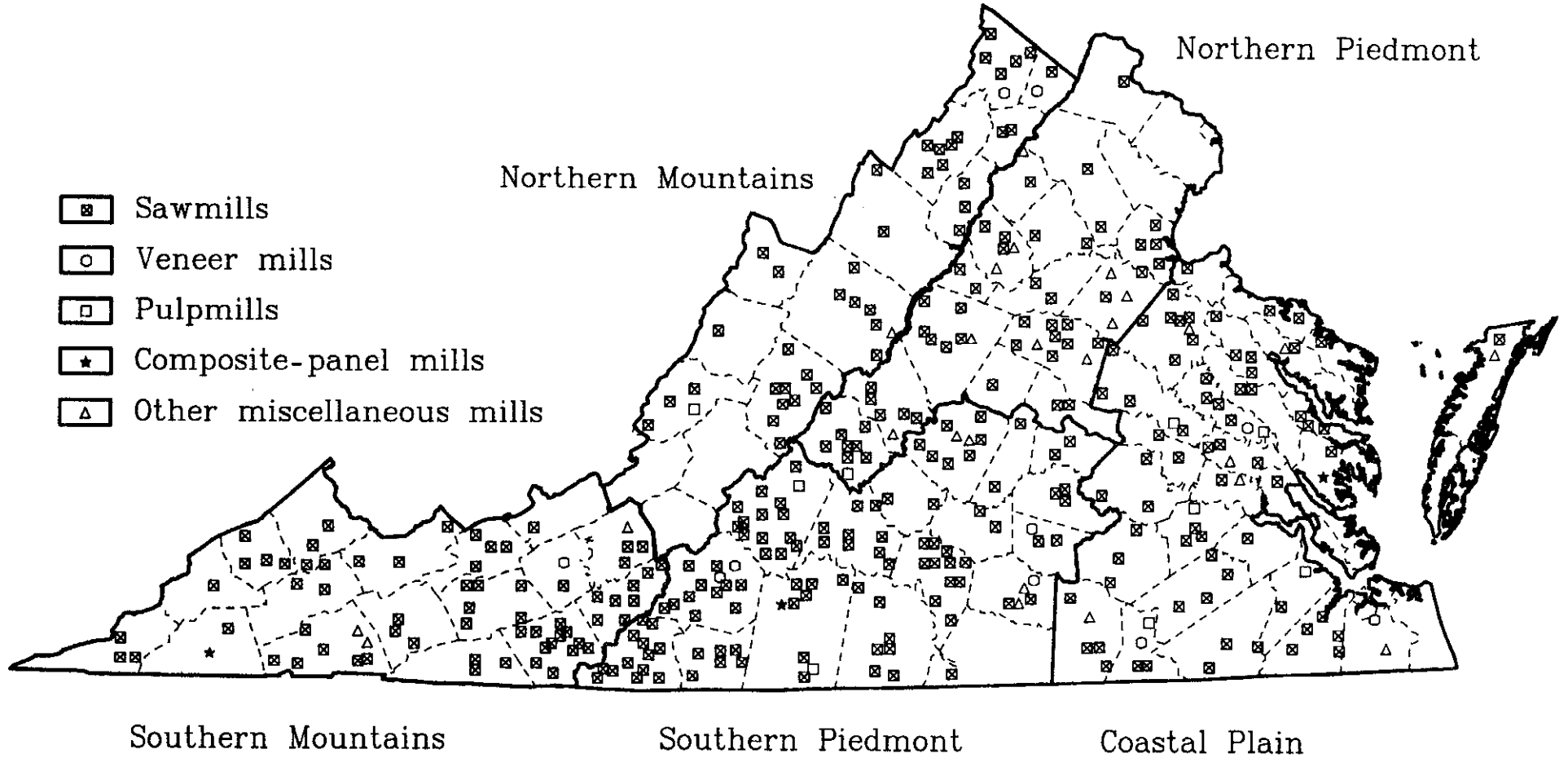


Figure 1—Location of primary wood-using plants in Virginia, 1989.

Definitions of Terms

Composite panels. Consists of structural panels (oriented strand board/waferboard), particleboard (industrial underlayment, thin panelboard), and fiberboard (medium-density fiberboard, insulation board).

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 geographic area 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 timber products. All timber products manufactured from either roundwood or plant byproducts, except firewood.

Imports. The volume of roundwood delivered to a mill or group of mills in a specific geographic area 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.

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

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

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 a minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods.

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.

Tables

Conversion Factors^a

Saw logs

Softwood 0.18793 cubic foot = 1 board foot
 5.32 board feet = 1 cubic foot

Hardwood 0.18594 cubic foot = 1 board foot
 5.38 board feet = 1 cubic foot

Veneer logs

Softwood 0.16291 cubic foot = 1 board foot
 6.14 board feet = 1 cubic foot

Hardwood 0.14599 cubic foot = 1 board foot
 6.85 board feet = 1 cubic foot

Pulpwood^b

Softwood 73.07 cubic feet/cord
Hardwood 76.37 cubic feet/cord

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

^bCubic feet of solid wood per cord.

Table 1--Roundwood timber products output, by product and species group, Virginia, 1987 and 1989

| Product and species group | Year | | Change |
|-------------------------------------|---------------------|---------|---------|
| | 1987 | 1989 | |
| | Thousand cubic feet | | Percent |
| Saw logs | | | |
| Softwood | 106,536 | 92,035 | -13.6 |
| Hardwood | 125,643 | 130,559 | +3.9 |
| Total | 232,179 | 222,594 | -4.1 |
| Veneer logs | | | |
| Softwood | 11,709 | 11,196 | -4.4 |
| Hardwood | 5,122 | 4,448 | -13.2 |
| Total | 16,831 | 15,644 | -7.1 |
| Pulpwood^a | | | |
| Softwood | 74,810 | 94,278 | +26.0 |
| Hardwood | 75,762 | 83,555 | +10.3 |
| Total | 150,572 | 177,833 | +18.1 |
| Composite panels^b | | | |
| Softwood | 0 | 4,572 | NA |
| Hardwood | 0 | 8,611 | NA |
| Total | 0 | 13,183 | NA |
| Other industrial | | | |
| Softwood | 7,329 | 3,421 | -53.3 |
| Hardwood | 5,605 | 3,002 | -46.4 |
| Total | 12,934 | 6,423 | -50.3 |
| All industrial | | | |
| Softwood | 200,384 | 205,502 | +2.6 |
| Hardwood | 212,132 | 230,175 | +8.5 |
| Total | 412,516 | 435,677 | +5.6 |

NA = not applicable.

^aIncludes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (11,903,000 cubic feet in 1987 and 12,129,000 cubic feet in 1989).

^bVolume included with other industrial prior to 1989.

Table 2--Number of primary wood-using plants, by industry, Virginia, 1987 and 1989

| Industry | Year | | Change |
|------------------------------------|---------------|------|----------------|
| | 1987 | 1989 | |
| | <u>Number</u> | | <u>Percent</u> |
| Sawmills | 355 | 323 | -9.0 |
| Veneer mills | 10 | 10 | 0 |
| Pulpmills | 9 | 9 | 0 |
| Composite-panel mills ^a | 1 | 3 | +200.0 |
| Other | 19 | 24 | +26.3 |
| All plants | 394 | 369 | -6.3 |

^aMills included with other prior to 1989.

Table 3--Roundwood receipts, by product and species group, Virginia, 1987 and 1989

| Product and species group | Year | | Change |
|-------------------------------------|----------------------------|---------|----------------|
| | 1987 | 1989 | |
| | <u>Thousand cubic feet</u> | | <u>Percent</u> |
| Saw logs | | | |
| Softwood | 107,506 | 92,998 | -13.5 |
| Hardwood | 127,077 | 134,332 | +5.7 |
| Total | 234,583 | 227,330 | -3.1 |
| Veneer logs | | | |
| Softwood | 14,646 | 13,694 | -6.5 |
| Hardwood | 4,858 | 3,559 | -26.7 |
| Total | 19,504 | 17,253 | -11.5 |
| Pulpwood^a | | | |
| Softwood | 83,536 | 92,740 | +11.0 |
| Hardwood | 94,664 | 112,896 | +19.3 |
| Total | 178,200 | 205,636 | +15.4 |
| Composite panels^b | | | |
| Softwood | 0 | 8,326 | NA |
| Hardwood | 0 | 14,630 | NA |
| Total | 0 | 22,956 | NA |
| Other industrial | | | |
| Softwood | 8,950 | 3,357 | -62.5 |
| Hardwood | 6,420 | 2,736 | -57.4 |
| Total | 15,370 | 6,093 | -60.4 |
| All industrial | | | |
| Softwood | 214,638 | 211,115 | -1.6 |
| Hardwood | 233,019 | 268,153 | +15.1 |
| Total | 447,657 | 479,268 | +7.1 |

NA = not applicable.

^aIncludes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (15,327,000 cubic feet in 1987 and 14,374,000 cubic feet in 1989).

^bVolume included with other industrial prior to 1989.

Table 4--Industrial roundwood movement by product and species group, Virginia, 1989

| Product | Species group | | | | |
|-----------------------------|----------------------------|---------|----------|---------|----------|
| | Production | Exports | Retained | Imports | Receipts |
| | <u>Thousand cubic feet</u> | | | | |
| Saw logs | | | | | |
| Softwood | 92,035 | 8,246 | 83,789 | 9,209 | 92,998 |
| Hardwood | 130,559 | 6,457 | 124,102 | 10,230 | 134,332 |
| Total | 222,594 | 14,703 | 207,891 | 19,439 | 227,330 |
| Veneer logs | | | | | |
| Softwood | 11,196 | 270 | 10,926 | 2,768 | 13,694 |
| Hardwood | 4,448 | 1,813 | 2,635 | 924 | 3,559 |
| Total | 15,644 | 2,083 | 13,561 | 3,692 | 17,253 |
| Pulpwood^a | | | | | |
| Softwood | 94,278 | 13,378 | 80,900 | 11,840 | 92,740 |
| Hardwood | 83,555 | 8,254 | 75,301 | 37,595 | 112,896 |
| Total | 177,833 | 21,632 | 156,201 | 49,435 | 205,636 |
| Composite panels | | | | | |
| Softwood | 4,572 | 0 | 4,572 | 3,754 | 8,326 |
| Hardwood | 8,611 | 0 | 8,611 | 6,019 | 14,630 |
| Total | 13,183 | 0 | 13,183 | 9,773 | 22,956 |
| Other industrial | | | | | |
| Softwood | 3,421 | 276 | 3,145 | 212 | 3,357 |
| Hardwood | 3,002 | 266 | 2,736 | 0 | 2,736 |
| Total | 6,423 | 542 | 5,881 | 212 | 6,093 |
| All products | | | | | |
| Softwood | 205,502 | 22,170 | 183,332 | 27,783 | 211,115 |
| Hardwood | 230,175 | 16,790 | 213,385 | 54,768 | 268,153 |
| Total | 435,677 | 38,960 | 396,717 | 82,551 | 479,268 |

^aIncludes roundwood chipped.

Table 5--Industrial roundwood movement, by year and species group, Virginia, 1987 and 1989

| Year | Production | Exports | Retained | Imports | Receipts |
|----------------------------|------------|---------|----------|---------|----------|
| <u>Thousand cubic feet</u> | | | | | |
| SOFTWOOD | | | | | |
| 1987 | 200,384 | 8,104 | 192,280 | 22,358 | 214,638 |
| 1989 | 205,502 | 22,170 | 183,332 | 27,783 | 211,115 |
| HARDWOOD | | | | | |
| 1987 | 212,132 | 8,131 | 204,001 | 29,018 | 233,019 |
| 1989 | 230,175 | 16,790 | 213,385 | 54,768 | 268,153 |
| ALL SPECIES | | | | | |
| 1987 | 412,516 | 16,235 | 396,281 | 51,376 | 447,657 |
| 1989 | 435,677 | 38,960 | 396,717 | 82,551 | 479,268 |

Table 6--Primary mill residue by roundwood type, species group, and residue type, Virginia, 1989

| Roundwood type and species group | Residue type | | | | |
|--|--------------|--------|--------|---------|----------|
| | All types | Bark | Coarse | Sawdust | Shavings |
| <u>Thousand cubic feet</u> | | | | | |
| Saw logs | | | | | |
| Softwood | 50,629 | 6,021 | 23,323 | 16,092 | 5,193 |
| Hardwood | 71,738 | 12,391 | 34,980 | 23,764 | 603 |
| Total | 122,367 | 18,412 | 58,303 | 39,856 | 5,796 |
| Veneer logs | | | | | |
| Softwood | 7,617 | 1,023 | 4,900 | 1,694 | 0 |
| Hardwood | 1,437 | 418 | 674 | 345 | 0 |
| Total | 9,054 | 1,441 | 5,574 | 2,039 | 0 |
| Pulpwood | | | | | |
| Softwood | 8,486 | 8,486 | 0 | 0 | 0 |
| Hardwood | 13,823 | 13,823 | 0 | 0 | 0 |
| Total | 22,309 | 22,309 | 0 | 0 | 0 |
| Composite panels | | | | | |
| Softwood | 539 | 539 | 0 | 0 | 0 |
| Hardwood | 1,349 | 1,349 | 0 | 0 | 0 |
| Total | 1,888 | 1,888 | 0 | 0 | 0 |
| Other industrial^a | | | | | |
| Softwood | 2,069 | 1,782 | 260 | 27 | 0 |
| Hardwood | 1,518 | 336 | 849 | 333 | 0 |
| Total | 3,587 | 2,118 | 1,109 | 360 | 0 |
| Total | | | | | |
| Softwood | 69,340 | 17,851 | 28,483 | 17,813 | 5,193 |
| Hardwood | 89,865 | 28,317 | 36,503 | 24,442 | 603 |
| Total | 159,205 | 46,168 | 64,986 | 42,255 | 5,796 |

^aIncludes poles, pilings, posts, and other industrial products.

Table 7--Disposal of residue at primary wood-using plants, by product, species group, and type of residue, Virginia, 1987 and 1989

| Product and species group | All types | | Bark | | Coarse | | Sawdust | | Shavings | |
|---------------------------|---------------------|---------|--------|--------|--------|--------|---------|--------|----------|-------|
| | 1987 | 1989 | 1987 | 1989 | 1987 | 1989 | 1987 | 1989 | 1987 | 1989 |
| | Thousand cubic feet | | | | | | | | | |
| Fiber products | | | | | | | | | | |
| Softwood | 28,983 | 25,661 | 0 | 0 | 28,032 | 24,521 | 136 | 290 | 815 | 850 |
| Hardwood | 26,920 | 30,144 | 0 | 0 | 26,198 | 29,222 | 577 | 922 | 145 | 0 |
| Total | 55,903 | 55,805 | 0 | 0 | 54,230 | 53,743 | 713 | 1,212 | 960 | 850 |
| Particleboard | | | | | | | | | | |
| Softwood | 8,370 | 5,674 | 8 | 0 | 2,345 | 235 | 3,331 | 2,470 | 2,686 | 2,969 |
| Hardwood | 3,337 | 1,953 | 4 | 0 | 2,225 | 576 | 688 | 1,195 | 420 | 182 |
| Total | 11,707 | 7,627 | 12 | 0 | 4,570 | 811 | 4,019 | 3,665 | 3,106 | 3,151 |
| Strand/wafer board | | | | | | | | | | |
| Softwood | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hardwood | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sawn products | | | | | | | | | | |
| Softwood | 0 | 2,192 | 0 | 0 | 0 | 2,192 | 0 | 0 | 0 | 0 |
| Hardwood | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 2,192 | 0 | 0 | 0 | 2,192 | 0 | 0 | 0 | 0 |
| Fuel | | | | | | | | | | |
| Softwood | 29,000 | 24,399 | 12,053 | 10,527 | 1,601 | 939 | 14,878 | 12,733 | 468 | 200 |
| Hardwood | 34,808 | 37,430 | 11,879 | 17,098 | 6,737 | 4,223 | 15,950 | 15,898 | 242 | 211 |
| Total | 63,808 | 61,829 | 23,932 | 27,625 | 8,338 | 5,162 | 30,828 | 28,631 | 710 | 411 |
| Miscellaneous | | | | | | | | | | |
| Softwood | 8,325 | 10,013 | 5,505 | 7,058 | 34 | 19 | 1,756 | 1,762 | 1,030 | 1,174 |
| Hardwood | 18,686 | 14,871 | 12,362 | 10,190 | 846 | 956 | 5,157 | 3,515 | 321 | 210 |
| Total | 27,011 | 24,884 | 17,867 | 17,248 | 880 | 975 | 6,913 | 5,277 | 1,351 | 1,384 |
| Not used | | | | | | | | | | |
| Softwood | 3,233 | 1,401 | 463 | 266 | 1,649 | 577 | 1,121 | 558 | 0 | 0 |
| Hardwood | 7,799 | 5,467 | 1,794 | 1,029 | 1,631 | 1,526 | 4,374 | 2,912 | 0 | 0 |
| Total | 11,032 | 6,868 | 2,257 | 1,295 | 3,280 | 2,103 | 5,495 | 3,470 | 0 | 0 |
| All products | | | | | | | | | | |
| Softwood | 77,911 | 69,340 | 18,029 | 17,851 | 33,661 | 28,483 | 21,222 | 17,813 | 4,999 | 5,193 |
| Hardwood | 91,550 | 89,865 | 26,039 | 28,317 | 37,637 | 36,503 | 26,746 | 24,442 | 1,128 | 603 |
| Total | 169,461 | 159,205 | 44,068 | 46,168 | 71,298 | 64,986 | 47,968 | 42,255 | 6,127 | 5,796 |

Table 8--Output of industrial roundwood products, by product and species group, Coastal Plain of Virginia, 1987 and 1989

| Product and species group | Year | | Change |
|-------------------------------------|---------------------|---------|---------|
| | 1987 | 1989 | |
| | Thousand cubic feet | | Percent |
| Saw logs | | | |
| Softwood | 65,641 | 50,474 | -23.1 |
| Hardwood | 40,803 | 36,681 | -10.1 |
| Total | 106,444 | 87,155 | -18.1 |
| Veneer logs | | | |
| Softwood | 8,750 | 8,453 | -3.4 |
| Hardwood | 1,825 | 1,211 | -33.6 |
| Total | 10,575 | 9,664 | -8.6 |
| Pulpwood^a | | | |
| Softwood | 32,163 | 41,333 | +28.5 |
| Hardwood | 19,632 | 25,432 | +29.5 |
| Total | 51,795 | 66,765 | +28.9 |
| Composite panels^b | | | |
| Softwood | 0 | 3,409 | NA |
| Hardwood | 0 | 3,116 | NA |
| Total | 0 | 6,525 | NA |
| Other industrial | | | |
| Softwood | 5,085 | 2,099 | -58.7 |
| Hardwood | 3,185 | 707 | -77.8 |
| Total | 8,270 | 2,806 | -66.1 |
| All industrial | | | |
| Softwood | 111,639 | 105,768 | -5.3 |
| Hardwood | 65,445 | 67,147 | +2.6 |
| Total | 177,084 | 172,915 | -2.4 |

NA = not applicable.

^aIncludes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (8,123,000 cubic feet in 1987 and 8,290,000 cubic feet in 1989).

^bVolume included with other industrial prior to 1989.

Table 9--Output of industrial roundwood products, by product and species group, Southern Piedmont of Virginia, 1987 and 1989

| Product and species group | Year | | Change |
|-------------------------------------|---------------------|---------|---------|
| | 1987 | 1989 | |
| | Thousand cubic feet | | Percent |
| Saw logs | | | |
| Softwood | 23,396 | 24,185 | +3.4 |
| Hardwood | 33,401 | 33,868 | +1.4 |
| Total | 56,797 | 58,053 | +2.2 |
| Veneer logs | | | |
| Softwood | 2,939 | 2,743 | -6.7 |
| Hardwood | 940 | 930 | -1.1 |
| Total | 3,879 | 3,673 | -5.3 |
| Pulpwood^a | | | |
| Softwood | 28,726 | 37,040 | +28.9 |
| Hardwood | 30,606 | 33,039 | +8.0 |
| Total | 59,332 | 70,079 | +18.1 |
| Composite panels^b | | | |
| Softwood | 0 | 1,163 | NA |
| Hardwood | 0 | 1,799 | NA |
| Total | 0 | 2,962 | NA |
| Other industrial | | | |
| Softwood | 1,474 | 923 | -37.4 |
| Hardwood | 2,399 | 1,755 | -26.8 |
| Total | 3,873 | 2,678 | -30.9 |
| All industrial | | | |
| Softwood | 56,535 | 66,054 | +16.8 |
| Hardwood | 67,346 | 71,391 | +6.0 |
| Total | 123,881 | 137,445 | +11.0 |

NA = not applicable.

^aIncludes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (2,861,000 cubic feet in 1987 and 2,355,000 cubic feet in 1989).

^bVolume included with other industrial prior to 1989.

Table 10--Output of industrial roundwood products, by product and species group, Northern Piedmont of Virginia, 1987 and 1989

| Product and species group | Year | | Change |
|-------------------------------------|----------------------------|--------|----------------|
| | 1987 | 1989 | |
| | <u>Thousand cubic feet</u> | | <u>Percent</u> |
| Saw logs | | | |
| Softwood | 6,926 | 8,014 | +15.7 |
| Hardwood | 18,616 | 20,833 | +11.9 |
| Total | 25,542 | 28,847 | +12.9 |
| Veneer logs | | | |
| Softwood | 0 | 0 | 0 |
| Hardwood | 751 | 556 | -26.0 |
| Total | 751 | 556 | -26.0 |
| Pulpwood^a | | | |
| Softwood | 10,723 | 13,297 | +24.0 |
| Hardwood | 9,683 | 8,972 | -7.3 |
| Total | 20,406 | 22,269 | +9.1 |
| Composite panels^b | | | |
| Softwood | 0 | 0 | 0 |
| Hardwood | 0 | 0 | 0 |
| Total | 0 | 0 | 0 |
| Other industrial | | | |
| Softwood | 767 | 315 | -58.9 |
| Hardwood | 0 | 346 | NA |
| Total | 767 | 661 | -13.8 |
| All industrial | | | |
| Softwood | 18,416 | 21,626 | +17.4 |
| Hardwood | 29,050 | 30,707 | +5.7 |
| Total | 47,466 | 52,333 | +10.3 |

NA = not applicable.

^aIncludes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (553,000 cubic feet in 1987 and 909,000 cubic feet in 1989).

^bVolume included with other industrial prior to 1989.

Table 11--Output of industrial roundwood products, by product and species group, Northern Mountains of Virginia, 1987 and 1989

| Product and species group | Year | | Change |
|-------------------------------------|----------------------------|--------|----------------|
| | 1987 | 1989 | |
| | <u>Thousand cubic feet</u> | | <u>Percent</u> |
| Saw logs | | | |
| Softwood | 2,863 | 1,273 | -55.5 |
| Hardwood | 13,749 | 12,995 | -5.5 |
| Total | 16,612 | 14,268 | -14.1 |
| Veneer logs | | | |
| Softwood | 0 | 0 | 0 |
| Hardwood | 425 | 226 | -46.8 |
| Total | 425 | 226 | -46.8 |
| Pulpwood^a | | | |
| Softwood | 1,783 | 2,519 | +41.3 |
| Hardwood | 9,314 | 9,347 | +4 |
| Total | 11,097 | 11,866 | +6.9 |
| Composite panels^b | | | |
| Softwood | 0 | 0 | 0 |
| Hardwood | 0 | 0 | 0 |
| Total | 0 | 0 | 0 |
| Other industrial | | | |
| Softwood | 0 | 0 | 0 |
| Hardwood | 19 | 102 | +436.8 |
| Total | 19 | 102 | +436.8 |
| All industrial | | | |
| Softwood | 4,646 | 3,792 | -18.4 |
| Hardwood | 23,507 | 22,670 | -3.6 |
| Total | 28,153 | 26,462 | -6.0 |

^aIncludes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (251,000 cubic feet in 1987 and 395,000 cubic feet in 1989).

^bVolume included with other industrial prior to 1989.

Table 12--Output of industrial roundwood products, by product and species group, Southern Mountains of Virginia, 1987 and 1989

| Product and species group | Year | | Change |
|-------------------------------------|---------------------|--------|----------|
| | 1987 | 1989 | |
| | Thousand cubic feet | | Percent |
| Saw logs | | | |
| Softwood | 7,710 | 8,089 | +4.9 |
| Hardwood | 19,074 | 26,182 | +37.3 |
| Total | 26,784 | 34,271 | +28.0 |
| Veneer logs | | | |
| Softwood | 20 | 0 | N/A |
| Hardwood | 1,181 | 1,525 | +29.1 |
| Total | 1,201 | 1,525 | +27.0 |
| Pulpwood^a | | | |
| Softwood | 1,415 | 89 | -93.7 |
| Hardwood | 6,527 | 6,765 | +3.6 |
| Total | 7,942 | 6,854 | -13.7 |
| Composite panels^b | | | |
| Softwood | 0 | 0 | 0 |
| Hardwood | 0 | 3,696 | NA |
| Total | 0 | 3,696 | NA |
| Other industrial | | | |
| Softwood | 3 | 84 | +2,700.0 |
| Hardwood | 2 | 92 | +4,500.0 |
| Total | 5 | 176 | +3,420.0 |
| All industrial | | | |
| Softwood | 9,148 | 8,262 | -9.7 |
| Hardwood | 26,784 | 38,260 | +42.8 |
| Total | 35,932 | 46,522 | +29.5 |

NA = not applicable.

^aIncludes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (115,000 cubic feet in 1987 and 180,000 cubic feet in 1989).

^bVolume included with other industrial prior to 1989.

Hutchins, Cecil C., Jr., 1992. Changes in output of industrial timber products in Virginia, 1987-1989. Resour. Bull. SE-129. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 18 pp.

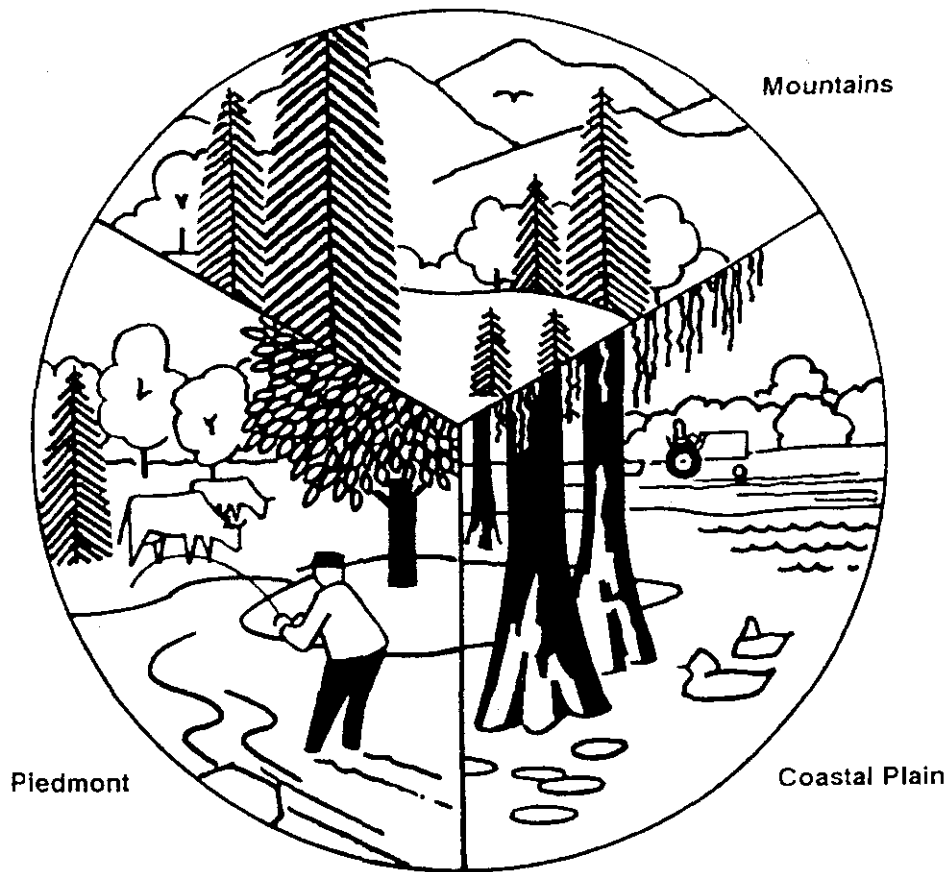
Roundwood timber product output was 435.7 million cubic feet in 1989, a 5.6-percent increase since 1987. Both softwood and hardwood volumes increased. Hardwood output was significantly greater than softwood output. Leading products were saw logs (51 percent) and pulpwood (41 percent). There were 369 primary wood-using plants operating in 1989, a decrease of 25 mills since 1987. Virginia continues to be a net importer of roundwood as imports exceeded production by 10 percent. Use of residues improved from 93 percent in 1987 to 96 percent in 1989.

Keywords: Roundwood, pulpwood, saw logs, veneer logs, drain, wood movement, mills.

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Southeastern Forest Experiment Station

Established 1921

The Southeastern Forest Experiment Station, headquartered in Asheville, North Carolina, is one of the eight regional Experiment Stations, and the Forest Products Laboratory, that make up the Forest Service research organization.

RESEARCH MISSION:

To acquire the knowledge, develop the technology, and disseminate the research findings required to manage the Southeast's forest resources in ways that satisfy demands of goods and services while maintaining a quality environment.

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