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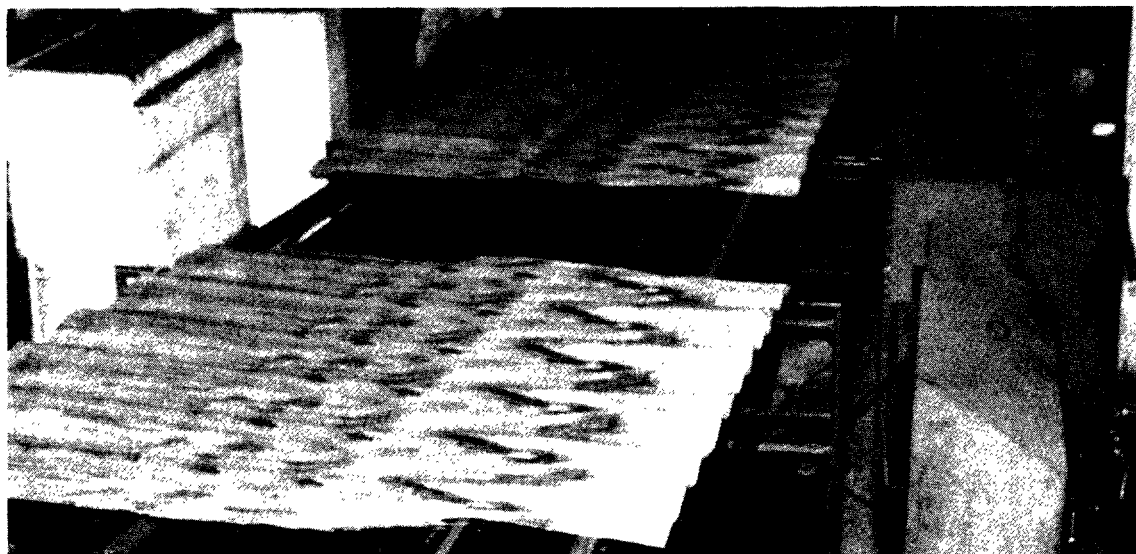
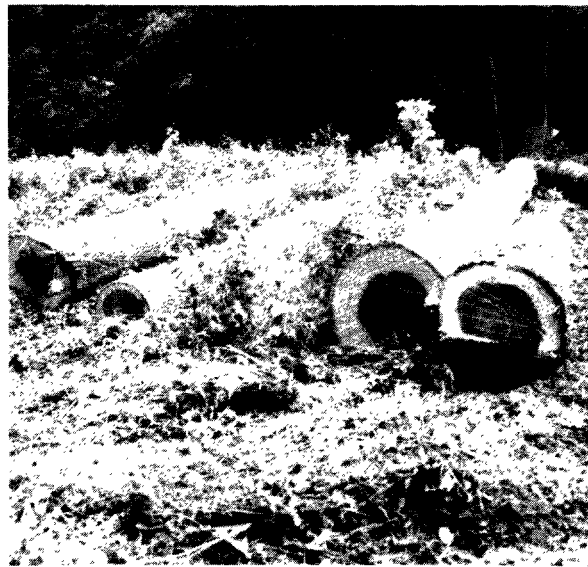
**Northeastern Forest
Experiment Station**

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Forest Products Industries of the Southern Middle-Atlantic States, 1985 – 1986

Eric H. Wharton
Kevin Mullarkey



COVER PHOTOS

Some very important products to the timber industries of the southern Middle-Atlantic states. Softwood pulpwood—while pulpwood production in Delaware declined, Sussex county remained one of the largest producers of northeastern pulpwood, even without a pulpmill in the State. Hardwood sawlogs—more than 90 percent of the timber harvest in New Jersey was sawlogs, most of which were hardwood species. Softwood veneer—while not the leading roundwood product in Maryland, the volume harvested had increased more than any other product.

THE AUTHORS

ERIC H. WHARTON is a forester and KEVIN MULLARKEY is a forest technician, Forest Inventory and Analysis Unit, U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station, Radnor, Pennsylvania.

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U.S. Department of Agriculture, Forest Service
Northeastern Forest Experiment Station
5 Radnor Corporate Center, Suite 200
100 Matsonford Road, Radnor, PA 19087-4585

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Abstract

Almost 52 million cubic feet of industrial roundwood recently was produced from timberlands in the southern Middle-Atlantic region—44 million cubic feet from Maryland, 5 million cubic feet from Delaware, and 3 million cubic feet from New Jersey. This was a decrease from previous surveys 10 to 15 years earlier, when production exceeded 59 million cubic feet. Most of the decrease occurred as the production of pulpwood and other products declined. Maryland production remained relatively stable, primarily because of increases in the manufacture of products such as veneer, poles, posts, and mine timbers. The region's sawmills generated a total of 25 million cubic feet of bark and wood manufacturing residues, nearly all of which was used for fiber, fuel, and agriculture. Only 78 thousand cubic feet were unused.

Introduction

The Forest and Rangeland Renewable Resources Planning Act of 1974 and other, more current legislation authorize the U.S. Department of Agriculture, Forest Service, to conduct periodic forest resource inventories of all states. These inventories provide a wealth of information about timber and other forest-related resources of the Nation. All fourteen states now included within the northeastern region delineated by the Forest Service have been inventoried at least three times.

The fourth inventory of Maryland timberlands was completed in 1986 (Frieswyk and DiGiovanni 1988). The previous inventory was completed 10 years earlier, in 1976. The inventory for Delaware was completed in 1986, for New Jersey in 1987—they were the third such inventories for each state. It has been 14 to 15 years since the forest resources of these latter two states were last inventoried, which occurred in 1972 for each state.

Along with the resource inventory, the USDA Forest Service also conducts studies on the impact that forest-product use has had on timberlands. With assistance from state forest service agencies, the

extent and degree to which timberlands produce forest products are determined from canvasses of all primary wood manufacturers. Canvasses were conducted in 1985 for Maryland and Delaware, and in 1986 for New Jersey; assisted by the Maryland Forest and Park Service, the Delaware Department of Agriculture's Forestry Section, and the New Jersey Bureau of Forest Management.

The statistics published in this report are a result of the canvasses in each state. The mills were identified from a list of all known primary wood manufacturing firms located inside each state, and from mills in other states that might have used industrial roundwood from timberlands within the three states. Assistance in compiling the list of manufacturers was provided by the three state forest service agencies. Data from pulp mills were gathered from an annual survey of all northeastern pulpwood producers.

The primary wood manufacturers in Maryland, Delaware, and New Jersey, as well as out-of-state manufacturers, were first contacted through a questionnaire mailed by the Northeastern Station. Any nonresponding manufacturers were sent additional questionnaires or contacted by state forestry personnel. The mills were asked to estimate the volume of roundwood they received during the year: by species, product, and source of the wood; and to estimate the volume of residues generated during manufacturing.

Each of the state canvasses was conducted separately. But the proximity of the states and the years in which they were canvassed offered an opportunity to provide a regional analysis of forest-product use. Statistics for Maryland and New Jersey are reported by geographic units—Figure 1 shows the counties that are contained within the boundaries of each of these units.

The information presented is intended to detail the situation of forest-product use in the three southern Middle-Atlantic states at the time of the most recent study. It also is intended to highlight the changes that have occurred since previous industry studies conducted in 1975 for Maryland (Bones and Brodie 1977), and in 1970 for Delaware and New Jersey (Bones 1973).

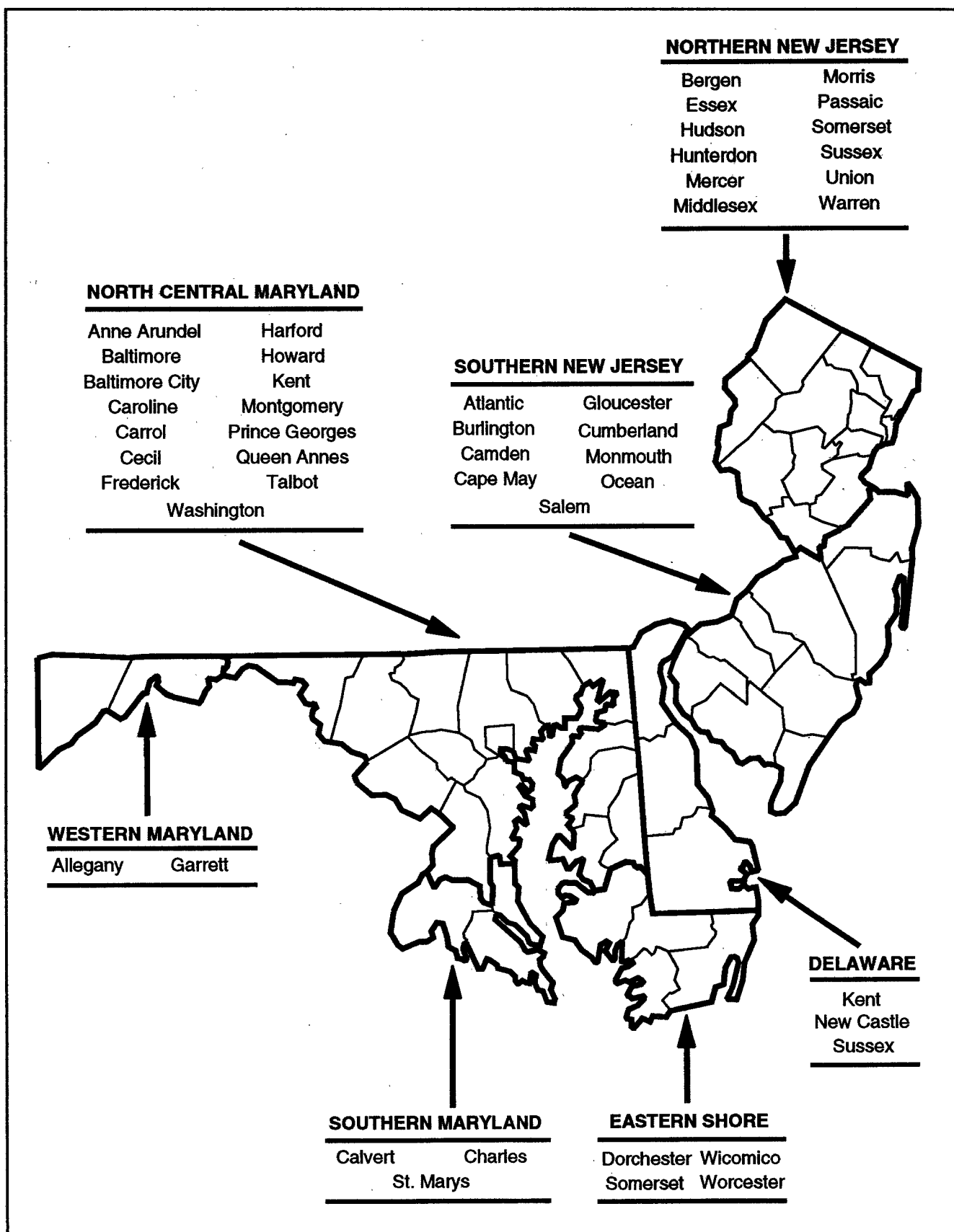


Figure 1 – The southern Middle-Atlantic region, showing counties by geographic units.

Most Significant Changes in Pulpwood and Other Products

Pulpwood production decreased more than any product in Delaware and New Jersey. As recently as 1980, at least eight mills drew heavily from the region—three in New Jersey, two in Maryland, and three in nearby Pennsylvania and Virginia (Nevel and Widmann 1982). By 1986, all three mills in New Jersey had closed, causing production to drop in the Garden State by almost 100 percent.

These mills also drew raw material from Delaware. Over the years, more pulpwood has been harvested in Sussex County, Delaware, than in most Northeastern counties (Nevel and Wharton 1991). In the region, only Allegany county in Maryland supplied substantially more, and that was because a pulp mill was located in the county. But by 1986, Sussex county supplied only 8 percent of pulpwood production in the southern Middle-Atlantic states (Widmann 1987) as total pulpwood production in Delaware declined two-thirds.

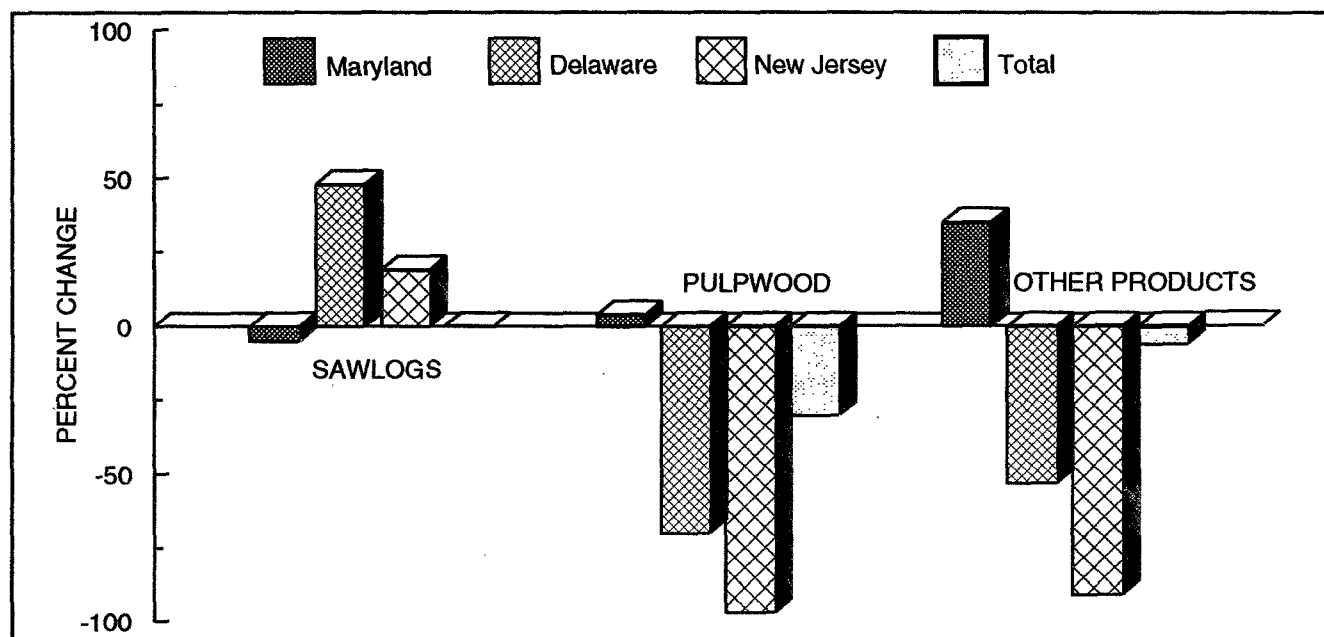
Pulpwood production in Maryland increased, due in large part to the steady demand from the mills that remained within the state and from nearby Pennsylvania and Virginia.

The production of other products—veneer, fencing, and pilings—followed much the same trend as pulpwood production. A dramatic decrease in the fencing industry in New Jersey went hand-in-hand with the closure of five veneer mills in the State, all of which helped reduce the production of other products by 90 percent.

Delaware mirrored New Jersey, as veneer and piling production dropped to less than half their 1970 production levels. Maryland, again, was saved by continued production from its larger veneer mills, which resulted in a 57 percent increase. The production of other products in New Jersey and Delaware was primarily from smaller veneer mills and fencing businesses (often family-run), many of which shouldered the burden of the hard economic downturn of the 1980's.

Sawlog production, on the other hand, was more stable. A small decline in Maryland's production was offset by increases in New Jersey and Delaware. Smaller logs and bolts, normally earmarked for pulp mills, were finding their way into mills manufacturing pallets and small dimension; and to lumber manufacturers accepting smaller-size sawlogs.

Percent change of major forest products, by state



Main Product is Hardwood Sawlogs

Total production in the region generally declined. During previous canvasses conducted in the region, hardwood sawlogs were harvested the most, more than 21 million cubic feet. Softwood pulpwood production was a close second at 17 million cubic feet. But as pulpwood declined, softwood sawlogs production increased.

Previously, softwood sawlogs occupied a small portion of the total softwood harvest. Of the 29 million cubic feet of softwoods harvested, only 7 million cubic feet were harvested for sawlogs—22 percent of the total softwood production. Veneer logs added an additional 11 percent of the total. By the time of the most recent canvass, the proportion of total sawlog production increased to almost 30 percent, and the proportion of veneer log production to 20 percent: almost half the softwood roundwood production was for sawlogs and veneer logs.

Softwood sawlogs, primarily pine sawlogs, have been relatively scarce over the years even though demand remains high. As pulp mills in the region closed, much of the pine harvested for pulp was diverted into lumber and veneer mills because demand for these products continued.

Like softwood sawlog and veneer log production, production of hardwood veneer logs also increased, due primarily to the strength of veneer manufacturing in Maryland. Veneer mills in the region traditionally manufactured baskets. But as demand for baskets declined, coupled with rising costs, these mills were forced to close. In New Jersey and Delaware, no operating veneer mills were present to ameliorate declines in the basket industry. Basket mills in Maryland also closed over the years, but other veneer mills in the state that manufactured face veneer and plywood were able to increase their production. Using wood from inside the State and importing hardwoods, these mills accounted for most of the hardwood production previously accounted for by basket manufacturers.

Hardwood sawlogs continued to lead all production levels. Declines of hardwood sawlogs occurred, but were minimized by increased demand for oak sawlogs, particularly in Delaware and New Jersey. By the times of the most recent canvasses in each state of the region, hardwood sawlog production accounted for 73 percent of the hardwood harvest and 40 percent of the total harvest.

Change in roundwood production, by major product and species group

(thousand ft³)

Product	Softwoods		Hardwoods		All species	
	Previous	Current	Previous	Current	Previous	Current
Sawlogs	6,592	6,705	21,025	20,916	27,617	27,621
Veneer logs	3,268	4,623	1,422	1,543	4,690	6,166
Pulpwood	17,082	10,246	6,161	6,057	23,243	16,303
Piling	1,454	930	716	282	2,170	1,212
Other products ^a	701	548	882	38	1,583	586
All products	29,097	23,052	30,206	28,836	59,303	51,888

^aIncludes cooperage, poles, posts, poles, piling, fencing, mine timbers, and metallurgical wood. See individual state tables for products harvested during each inventory date.

Most Sawlogs are Oak, Yellow-poplar, or Yellow Pine

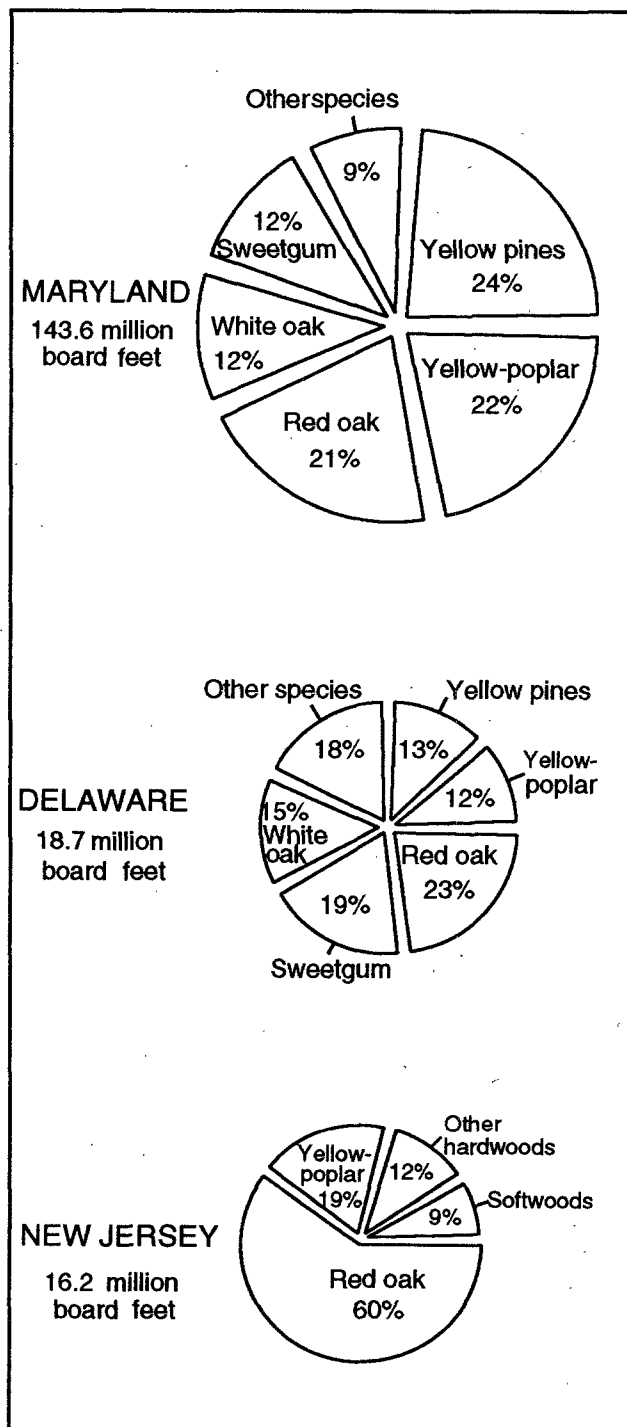
Over the years, markets for hardwoods—primarily oaks—have shifted. Traditional furniture markets for hardwoods have been augmented by another industry that began to grow a decade ago—the manufacture of pallets. Throughout the hardwood-producing Northeast, pallet manufacturing has grown to become the primary market for hardwood lumber. While certainly not a high-quality or a high value-added product, the pallet industry has, nevertheless, supported much of the timber industry through recent hard economic decades.

The most commonly harvested species in the most recent canvass support this shift. Red and white oaks, harvested heavily, are no longer primarily the high-quality, large-size trees. In Maryland alone, the proportion of oak sawtimber in the better log grades declined while the proportion in the poorer log grades increased (Frieswyk and DiGiovanni 1988). Between 1972 and 1986, the proportion of oak sawtimber volume in log grade 1 declined from 13 percent to 7 percent—log grade 2 declined from 22 percent to 17 percent. The proportion in log grade 3 essentially remained unchanged, but the proportion of oak sawtimber volume in log grade 4 increased, from 25 percent to 35 percent.

Yellow-poplar and sweetgum also are harvested copiously. These species exhibit similar resource characteristics of high volume, and more low-quality grade material—very useful as pallet stock and for small dimension stock.

Most of the softwoods harvested were yellow pine, accounting for 90 percent of the softwood harvest. Stiff competition for pine sawlogs has induced heavy cutting and resulted in localized shortages, most notably in Delaware. The most recent inventory of the forest resources of Delaware (Frieswyk and Digiovanni 1989) show that the volume of sawtimber for loblolly and yellow pines other than Virginia pine continued to decline between 1972 and 1986. In Maryland, however, the sawtimber volume of all the yellow pines has increased substantially, by 35 percent. This explains why yellow pines form the bulk of the Maryland's sawlog harvest.

Distribution of sawlog production, by species





Maryland Supplies Most of the Sawlogs

North Central the most hardwoods, Eastern Shore the most softwoods

Timber harvesters in Maryland removed more sawlogs than did those in New Jersey and Delaware combined. If sufficient demand exists, species will be harvested in relation to resource supplies. In North-central Maryland, hardwoods predominate, accounting for almost 90 percent of the total resource. Consequently, North-central Maryland led the region in producing the most hardwoods, the majority of which stayed within the unit.

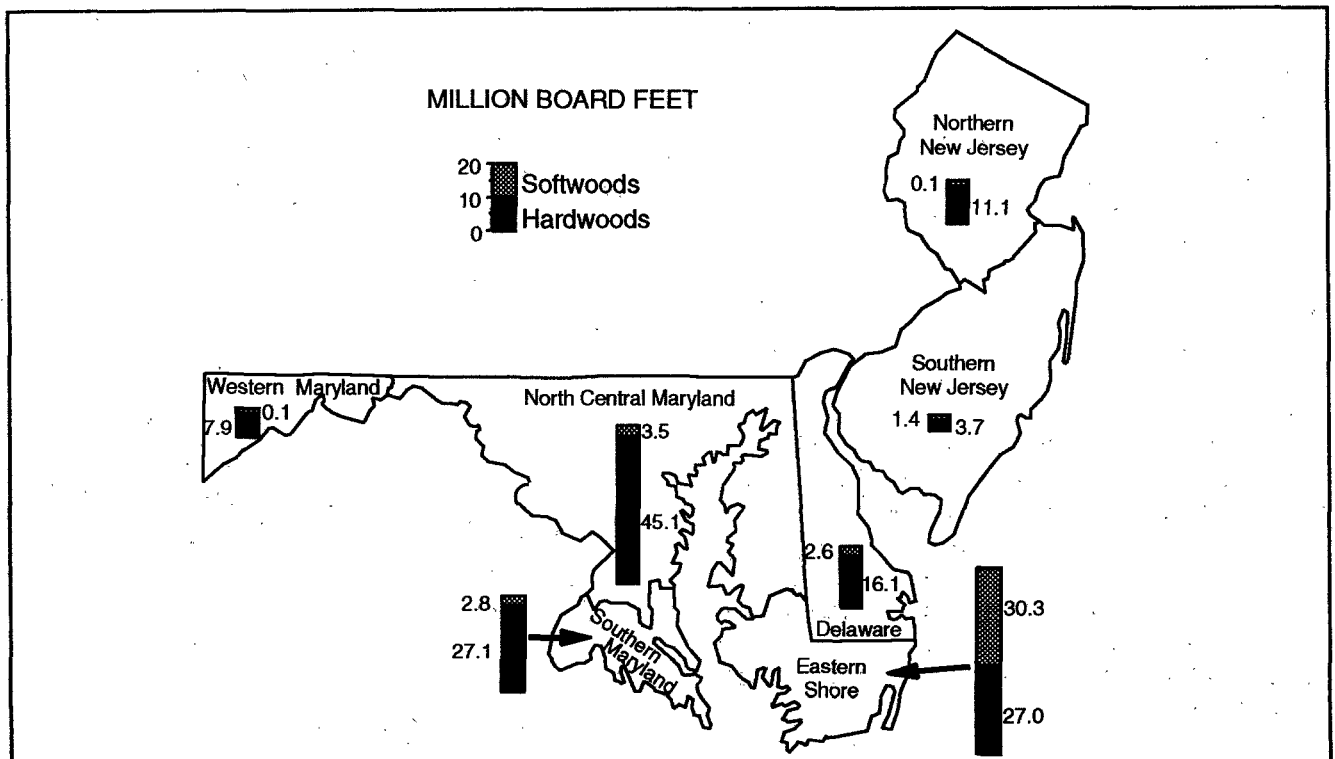
In the previous canvass conducted in 1975, more than half (56 percent) the volume harvested for hardwood sawlogs in the unit was shipped to other units in Maryland or to other states. Pennsylvania mills were the largest importer of oak sawlogs at that time, largely due to the demand for prime oak in furniture.

As the quality of oak sawlogs declined, many new mills using lower quality material located close to

the resource supply. By 1986, approximately 81 percent of the hardwood volume was being used within the unit. Hardwood sawlog harvesting remains strong in the North-central unit, but the harvest remains in the unit, most to be manufactured into pallets and small dimension stock.

In terms of softwood production, the Eastern Shore of Maryland substantially surpassed production in New Jersey, Delaware, and the remainder of Maryland. Most of the softwood production was yellow pine. The southern yellow pine resource extends up through the Eastern Shore unit of Maryland, Delaware, and into southern New Jersey. But with declining housing construction over the last decade, yellow pine has been used more often to manufacture plywood and to provide furnish for pulp that have remained strong in Maryland, but which have declined in Delaware and New Jersey.

Sawlog production, by unit and species group



Maryland a Net Importer, Other States are Net Exporters

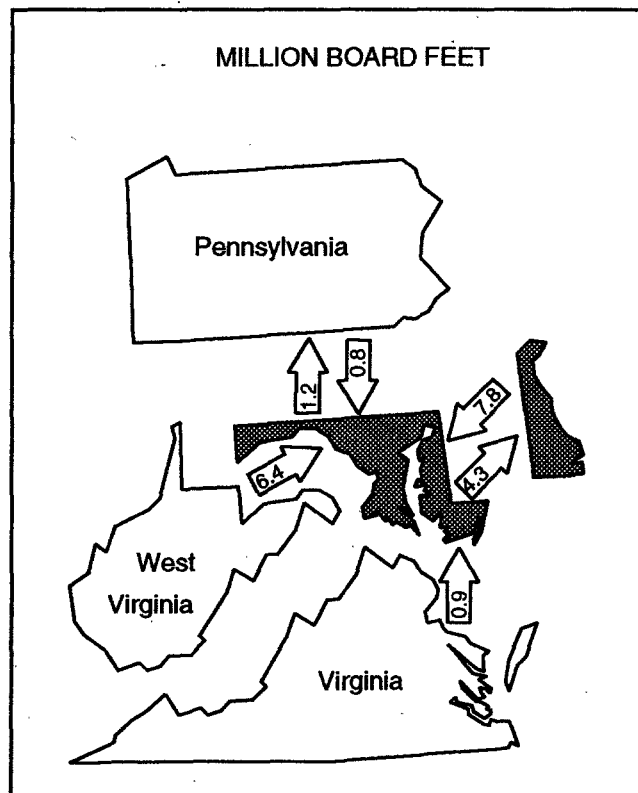
Of the wood that Maryland mills imported from other states, most came from West Virginia and Delaware. Delaware alone contributed 2.5 million board feet of softwoods to Maryland pulp mills, and an additional 5.3 million board feet of hardwoods. Delaware harvesters were supplying mostly sweetgum, red and white oak, and yellow-poplar; most probably to pallet manufacturers. Wood coming from West Virginia was primarily pulpwood heading to the pulp mill located in western Maryland.

More wood was exported from Delaware than was imported. Of the 7.8 million board feet exported to Maryland, almost 32 percent was softwoods. Delaware mills made very little use of softwoods harvested from Delaware timberlands, since barely 2 percent of the softwoods harvested in Delaware

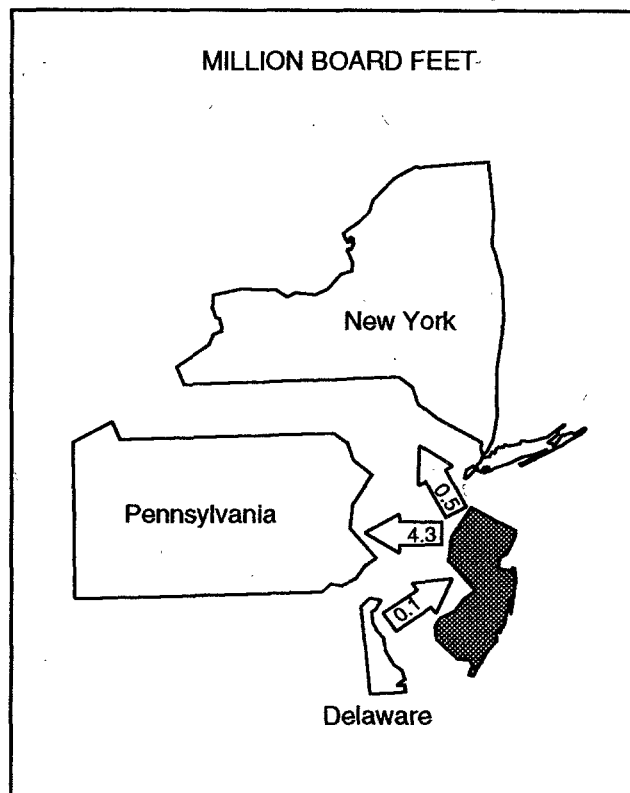
was retained inside the State (Table 18). They made better use of their hardwood resource, harvesting and using about 11 million board feet within the state, and importing only 4.3 million board feet. Most of what was imported was sweetgum and red oak—the two species most used by Delaware manufacturers.

New Jersey exported a substantial volume of wood. Of the 16.2 million board feet harvested from New Jersey timberlands, 4.7 million board feet—almost 30 percent—left the State (Table 27). Timber harvesters in New Jersey were supplying Pennsylvania mills with red oak, presumably to be manufactured into furniture parts. Very little wood came into New Jersey. What manufacturers in the state used was harvested primarily from within the state.

**Sawlog exports and imports,
by origin and destination of shipments,
Maryland and Delaware, 1985**



**Sawlog exports and imports,
by origin and destination of shipments,
New Jersey, 1986**



Veneer Log Production Increases in Maryland

Yellow pines used, now more than ever

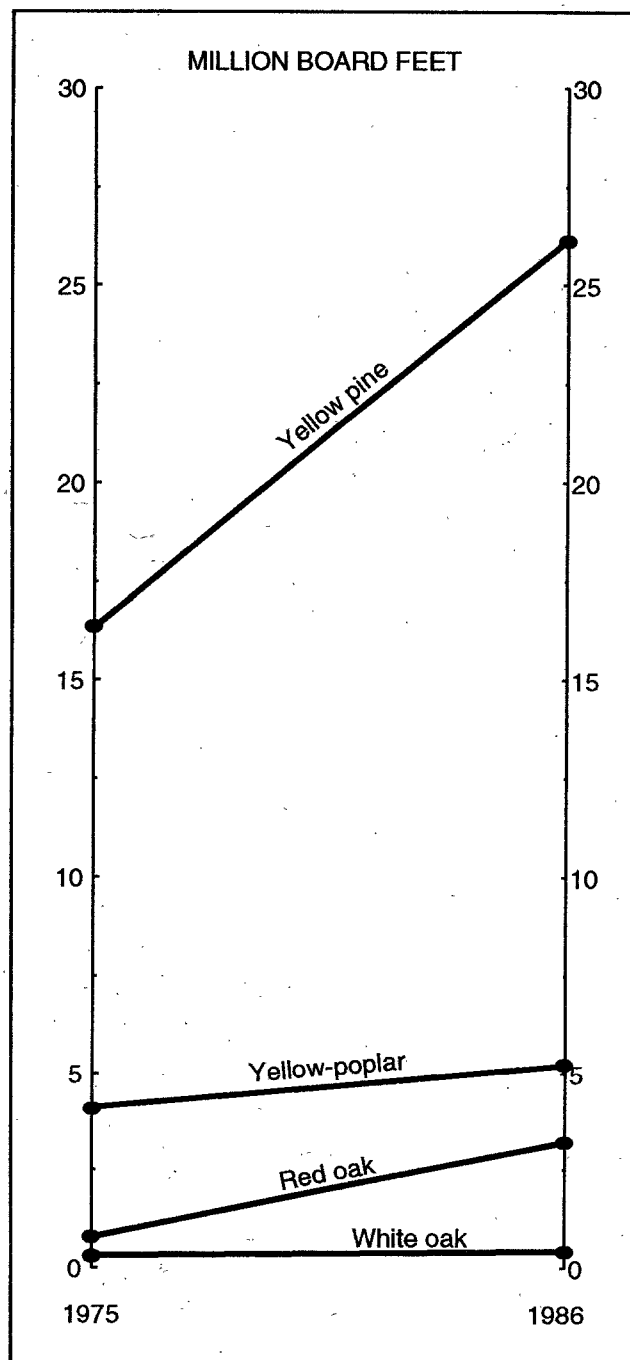
In 1916, 28 basket companies consumed 6.6 million board feet of mostly red gum logs (Beasley and Dorrance 1919). By 1963, there were only five veneer mills in the state, only two of which were producing baskets. Two mills were producing face veneer, and the other was a plywood mill. By 1973, only three veneer mills remained—the face veneer and plywood mills. All of the basket mills had closed.

A change in the species used for veneer followed suit. Red gum no longer was being used for veneer logs. The face veneer and plywood mills that remained drew heavily on the yellow pine resource. In 1975, just after the last of the basket mills closed, yellow pine was the leading species. The 16 million board feet of yellow pine harvested for veneer represented a long-term shift in the species used for veneer, as the demand for yellow pine veneer continued to increase.

These increases occurred at a time when markets for most veneer products were not particularly strong, especially for hardwood face veneer and plywood. Foreign dominance of the hardwood plywood market in the 1970's and 1980's hurt the hardwood veneer industry throughout much of the Northeast (Nevel and Wharton 1987). Many domestic hardwood veneer mills closed, and some relocated their manufacturing facilities overseas.

Mills in the southern Middle-Atlantic region, particularly veneer mills in Maryland, faced less of the intense competition from foreign manufacturers than had the hardwood plywood manufacturers. And, as the housing industry faltered and manufacturers of other, highly specialized products, like fencing in New Jersey, closed, competition for yellow pine lessened somewhat. The larger veneer mills in Maryland increased production as supplies of raw material became more available and markets for their product expanded. By 1986, yellow pine veneer log production had increased to 26 million board feet, accounting for 74 percent of the veneer production.

**Change in veneer log production,
by species, Maryland, 1975-1986**



Pulpwood Production Remains Stable

Most woodpulp manufactured from chipped residue

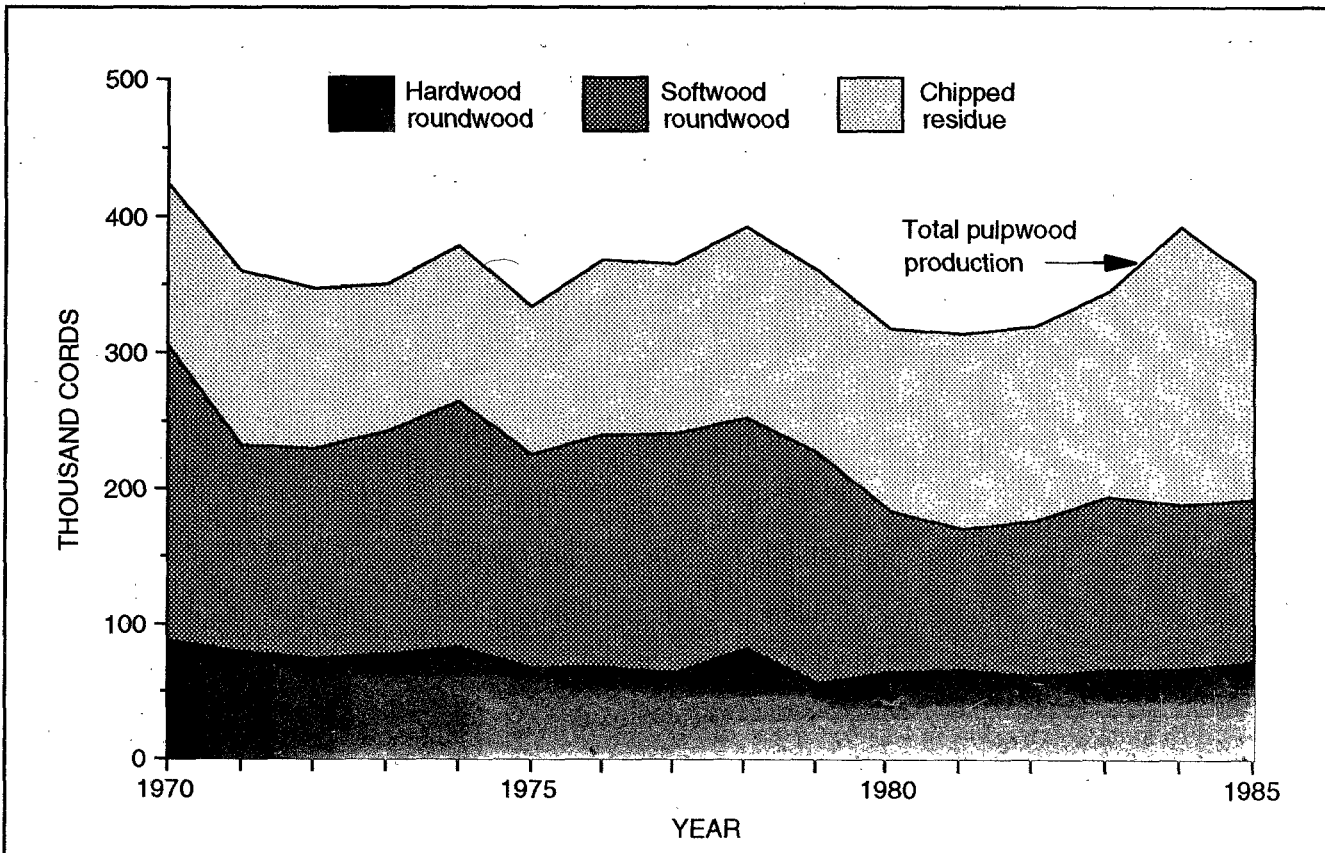
Through the last two decades, the volume of material used for pulp, both roundwood and chipped residue, has remained essentially constant. Trends in the three-state region reflect the degree of pulp used from Maryland since this state supplies the bulk of the material. Pulpwood production in both Delaware and New Jersey has steadily declined during this period (Tables 19 and 29).

When making woodpulp in 1965, processors used less chipped residues than roundwood, which includes whole-tree chips. Most of what was used then was softwood roundwood. Over the years, the volume of chipped residues used in the pulping

process has increased and is now the major source of pulpwood.

Pulp processors are aided by continued sawlog and veneer log production, which makes residue available. In the region, sawlog production essentially has remained unchanged, but use of residues has increased. To increase the amount of chipped residue consumed as pulp, sawlog production must rise, or processors must provide a more attractive price to sawmills. The use of chipped residues dropped between 1985 and 1986 probably due to this fact, but the amount being used represents a long-term trend that has continued since the mid 1970's, and will more than likely continue in the future.

Annual pulpwood production, by source of material



Less Unused Mill Residues

More used for fiber, fuel, and agricultural uses

Mills in the Middle-Atlantic region have shown a dramatic decrease in the proportion of residue left following manufacturing. During the most recent canvass, the unused amount accounts for 1 percent or less of total manufacturing residue. The most significant decline occurred in Delaware, where the proportion of unused residues dropped from 9 percent to less than 1 percent.

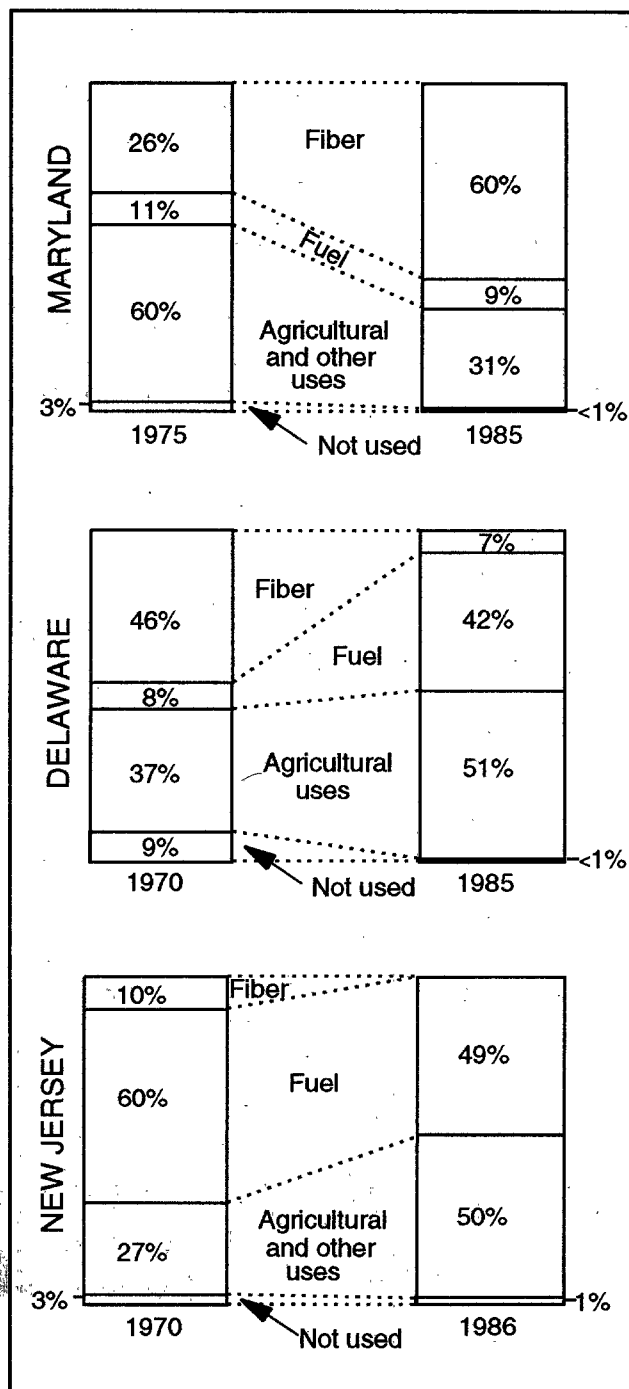
The use of unused residue is a response by many mills to find environmentally safe ways to dispose of them. Once, mill residues were either dumped, burned on-site, or given away—mostly to farmers as livestock bedding. Regulations today prohibit disposing of residues by burning or dumping, and economic conditions dictate a competitive market structure for disposing of manufacturing residue.

In Delaware and New Jersey, mill residue is used for fuel and agricultural uses such as livestock bedding, horticultural mulch, and in Delaware, chicken litter. Of the residues used for fuel, most is used for residential fuel, in fireplaces and wood stoves for heating homes; although a significant amount also finds its way into wood-fired boilers as mills strive for more energy self-sufficiency.

Almost equal amounts of residue were used for fuel and agricultural uses. Agricultural use increased about the same in both states. But while fuel use increased substantially in Delaware, the opposite occurred in New Jersey. The market had become equitable for both fuel and agricultural uses, all at the expense of manufacturing residue used for fiber. As pulp mills in the region closed, the fiber markets for manufacturing residue dried up, fuel and agriculture markets taking up the slack.

In Maryland, fuel use remained the same. However, with operating pulp mills in the State, agricultural uses dropped as substantially more of the manufacturing residue was being diverted into fiber products. Fiber use in Maryland increased from 28 percent to 60 percent, while agricultural and other uses congruently declined.

**Change in final end use
of mill residue**



More Use Made of Coarse Residues

Fiber products are the biggest end use

More than 25 million cubic feet of residue was generated by manufacturing of primary wood products in the Middle-Atlantic region during the most recent canvass. Of this amount, almost 4 million cubic feet, or 15 percent, was bark. An additional 13 million cubic feet of coarse residue suitable for chipping and 8 million cubic feet of fine residue too small to be chipped were generated. Together, these latter two kinds of woody residue accounted for 85 percent of all manufacturing residue in the region.

Bark and fine residue are used primarily for agricultural uses. Bark generally is used as a horticultural mulch, and fine residues are used for livestock bedding—chicken litter, and so on. Coarse residues, since they can be chipped or handled more easily,

are used primarily for fiber products and for industrial, commercial, or residential fuel.

Coarse and fine manufacturing residue continue to supply raw furnish to regional pulp mills, and accounted for the largest use. Almost 14 million cubic feet, 63 percent of all the uses made of coarse and fine residue, was for fiber. In the previous canvasses conducted in each state, fiber accounted for only 43 percent. A little more than 7 million cubic feet was used for fiber (186 thousand cubic feet from Delaware, 150 thousand cubic feet from New Jersey, and 6.7 thousand cubic feet from Maryland). Not only has the proportion of manufacturing residue used for fiber increased, so has the total volume.

End use of mill residues, by type of residue

(thousand ft³)

End use	Type of residue ^a			All types
	Bark	Coarse	Fine	
Fiber ^b	—	10,467	3,210	13,677
Fuel	1,062	2,096	17	3,175
Agricultural uses ^c	2,569	631	4,905	8,105
Other uses ^d	143	—	70	213
All uses	3,774	13,194	8,202	25,170
Not used	39	18	21	78

^aWoody mill residue types are based on their suitability as wood chips. Coarse residues can be chipped—they include slabs, edgings, trimmings, miscuts, and veneer cores and clippings. Fine residues cannot be chipped—they include sawdust, shavings, and pulp screening.

^bIncludes wood pulp and composite materials.

^cIncludes livestock bedding, chicken litter, and farm or horticultural mulch.

^dIncludes miscellaneous uses such as small dimension and specialty items.

Definitions¹

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

Bolt—A primary forest product harvested in short, primarily 4- or 6-foot lengths. No clear distinction can be drawn between bolt, billet, and block.

Coarse residue—Manufacturing residue that can be chipped; such as slabs, edgings, trimmings, miscuts, and veneer cores and clippings.

Commercial fuelwood—A roundwood product, with or without bark, used to generate energy at non-manufacturing facilities such as schools, correctional institutions, or electric generating plants.

Composite product—A roundwood product reduced by mechanical means to wood chips, curls, flakes, shavings, sawdust, and so on. The particles of wood are combined with a synthetic resin or other suitable binder to make a broad generic group of panels such as flakeboard, oriented strand board, particleboard, and waferboard.

Consumption—The total volume of roundwood received at primary wood-using mills within the boundaries of a specified area, regardless of where harvested. Consumption is the sum of timber harvested and used within the area, plus all roundwood imported.

Cooperage—A roundwood product from which containers are made, consisting of two round heads and a body composed of staves held together by hoops, such as barrels and kegs. Cooperage is manufactured into two kinds of containers. Slack cooperage consists of containers used for dry, semi-dry, or solid products whose staves are not closely fitted together. Tight cooperage are containers used for liquids, semi-solids, and heavy solids whose staves are held tightly together.

Cord equivalent—A unit of measure applied to forms of wood other than roundwood. It relates to chips, slabs, edgings, and other manufacturing residues equal to 85 cubic feet of solid wood or 1 standard cord.

Dimension stock—A roundwood product sawn into material of varying sizes to make optimum use of the raw material.

Exports—The total volume of roundwood consumed outside the boundaries of a specified area that originated from within those boundaries.

Fine residue—Manufacturing residue that cannot be chipped; such as sawdust, shavings, and pulp screening.

Hardwoods—Dicotyledonous trees, usually broad-leaved and deciduous.

Imports—The total volume of roundwood consumed within the boundaries of a specified area that originated from outside those boundaries.

Industrial forest product—Roundwood supplied to primary wood-using mills. Does not include roundwood harvested for industrial or commercial fuelwood, or for personal use such as residential fuelwood.

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

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 this form, a 1/4 inch of kerf is assumed. The mathematical formula for 4-foot sections is:

$$V = (0.22D^2 - 0.71D)(0.904762)$$

where V = board-foot volume and D = diameter inside bark at the small end of the log section. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

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

Log rule—Tables or formulas that estimate or calculate the amount of lumber in board feet that can be sawn from logs of given length and top diameter inside the bark. Also called log scale.

¹Sources include Ford-Robertson (1971), Simmons (1979), and U.S. Department of Agriculture (1971, 1979).

Manufacturing residue—Bark and woody material generated when roundwood is processed. The woody material is either coarse or fine, depending on its suitability for wood chips. If these residues are used, they are referred to as a plant byproduct.

Metallurgical wood—Roundwood, whole-tree chips, or manufacturing plant residues used as a reducing agent in the smelting of metal-bearing ores.

Mine timber—A roundwood product, rough-hewn or sawn, used as structural support in underground mining activities.

Nonindustrial forest product—Roundwood harvested for industrial or commercial fuel production or for personal use such as firewood.

Piling—A roundwood product, relatively slender, used as structural support, driven into or otherwise buried in the ground to provide vertical or lateral support in building foundations, bridges, docks, and other such structures that are built on soft, wet, or submerged sites.

Plant byproduct—A wood product, such as pulp chips, recycled from manufacturing residue.

Pole—A roundwood product used as structural support, driven into or otherwise buried in the ground to provide vertical or lateral support for electric power and telephone transmission lines.

Post—A roundwood product, relatively short and usually very straight, used to support fence structures.

Primary forest product—Roundwood harvested for industrial forest products or for personal use.

Primary wood-using mill—A manufacturing facility that converts roundwood into wood products such as lumber, pulp, veneer, cooperage, and dimension products. The final product may be used as manufactured or sent to a secondary wood-using mill for further manufacture.

Production—The total volume of roundwood harvested from land within the boundaries of a specified area, regardless of where consumed. Production is the sum of timber harvested and used within the area, plus all roundwood exported.

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.

Residential fuelwood—A roundwood product, usually with bark, used in fireplaces, wood stoves, and home wood-fired boilers for heat.

Roundwood—Logs, bolts, and other round, split, or chipped timber products generated by harvesting trees for industrial or consumer use.

Sawlog—A roundwood product from which products such as lumber are sawn. It is cut to standard sizes and meets minimum standards of diameter and length (including a minimum 8-foot length), and meets maximum standards for combinations of size and defect specified in regional standards. Products from sawlogs are manufactured by sawing, resawing, passing lengthwise through a standard planing machine, crosscutting to length, or matching to produce different kinds of lumber.

Softwoods—Coniferous trees, usually evergreen and having needles or scale-like leaves.

Standard cord—A unit of 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 the Northeast, this usually translates to 80 cubic feet of solid wood for fuelwood and 85 cubic feet of solid wood for pulpwood, since pulpwood is more uniform. A standard cord often is referred to as a cord, but should not be confused with a face cord commonly used in firewood marketing.

Veneer—A roundwood product from which a thin layer or sheet of wood of uniform thickness is produced by peeling (rotary-cut), slicing, or sawing. It is manufactured into glued wood panels made up of crossbanded layers, or plies, that generally are at right angles to each other. Veneer is a broad generic group that includes a variety of single- and multi-ply products such as composite panels, containers, interior and exterior plywood, face veneer, and specialty products.

Whole-tree chips—Unbarked wood chips generated by harvesting and chipping some portion of aboveground tree components.

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CONVERSION FACTORS

1 M bd ft softwood sawlogs and veneer logs = 149.1 ft³
 1 M bd ft hardwood sawlogs and veneer logs = 141.3 ft³
 1 M bd ft softwood and hardwood other products = 140.4 ft³
 1 standard cord pulpwood = 85 ft³ solid wood
 1 green ton softwoods = 37.037 ft³
 1 green ton hardwoods = 30.303 ft³
 1 ft³ = 0.0283 m³

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Table 1.—Industrial roundwood production, by major product and species group, Maryland, 1985
(in standard units)

Product	Standard unit ^a	Softwoods	Hardwoods	All species
Sawlogs	Thousand board feet	36,673	106,972	143,645
Veneer logs	Thousand board feet	26,005	9,080	35,085
Pulpwood	Standard cords	101,796	70,079	171,875
Cooperage logs	Thousand board feet	—	79	79
Piling	Thousand lineal feet	1,625	183	1,808
Other products ^b	Thousand cubic feet	461	12	473
All products ^c	Thousand cubic feet	20,224	23,661	43,885

^aVolumes reported in board feet are based on International 1/4-inch rule.

^bIncludes poles, posts, and mine timbers.

^cAll volumes have been converted to cubic feet using factors supplied in this report.

Table 2.—Industrial roundwood production, by major product and species group, Maryland, 1975 and 1985

(in thousand cubic feet)

Product	Softwoods		Hardwoods		All species	
	1975	1985	1975	1985	1975	1985
Sawlogs	5,300	6,055	18,300	16,219	23,600	22,274
Veneer logs	2,800	4,293	800	1,373	3,600	5,666
Pulpwood	8,800	8,653	5,200	5,957	14,000	14,610
Cooperage logs	^a	—	200	^a	200	^a
Piling	1,000	762	200	100	1,200	862
Other products ^b	100	461	100	12	200	473
All products	18,000	20,224	24,800	23,661	42,800	43,885

^aLess than 50,000 cubic feet.

^bIncludes poles, posts, and mine timbers.

Table 3.—Sawlog production, by species and destination of shipments, WESTERN Maryland, 1985

(in thousand board feet)

Species	Retained within the unit	In-state production		Total production	
		Exported to other units	Total	Exported to other states	Total
Hemlock	34	—	34	44	78
Loblolly pine	—	2	2	—	2
White pine	41	—	41	11	52
Other softwoods	10	—	10	—	10
Total softwoods	85	2	87	55	142
Ash	17	—	17	125	142
Black cherry	142	—	142	255	397
Hard maple	129	—	129	192	321
Soft maple	91	—	91	224	315
Red oak	1,106	4	1,110	3,443	4,553
White oak	348	1	349	1,082	1,431
Yellow-poplar	14	1	15	388	403
Other hardwoods ^a	45	—	45	165	210
Total hardwoods	1,892	6	1,898	5,874	7,772
All species	1,977	8	1,985	5,929	7,914

^aIncludes basswood, black gum, and hickory.

Table 4. — Sawlog consumption, by species and origin of shipments, WESTERN Maryland, 1985
(in thousand board feet)

Species	Retained within the unit	In-state consumption		Total consumption	
		Imported from other units	Total	Imported from other states	Total
Hemlock	34	—	34	—	34
White pine	41	—	41	—	41
Other softwoods	10	—	10	—	10
Total softwoods	85	—	85	—	85
Ash	17	—	17	35	52
Black cherry	142	—	142	897	1,039
Hard maple	129	—	129	612	741
Soft maple	91	—	91	993	1,084
Red oak	1,106	—	1,106	1,330	2,436
White oak	348	—	348	827	1,175
Yellow-poplar	14	—	14	750	764
Other hardwoods ^a	45	—	45	282	327
Total hardwoods	1,892	—	1,892	5,726	7,618
All species	1,977	—	1,977	5,726	7,703

^aIncludes basswood, black gum, and hickory.

Table 5.—Sawlog production, by species and destination of shipments, NORTH-CENTRAL Maryland, 1985

(in thousand board feet)

Species	Retained within the unit	In-state production		Total production	
		Exported to other units	Total	Exported to other states	Total
Loblolly pine	114	2,990	3,104	—	3,104
Virginia pine	—	55	55	—	55
White pine	305	—	305	12	317
Other softwoods	—	—	—	14	14
Total softwoods	419	3,045	3,464	26	3,490
Ash	159	111	270	76	346
Black cherry	78	51	129	15	144
Sweetgum	3,668	670	4,338	151	4,489
Hard maple	290	230	520	81	601
Soft maple	776	225	1,001	153	1,154
Red oak	12,420	1,079	13,499	799	14,298
White oak	5,629	806	6,435	484	6,919
Yellow-poplar	12,640	2,864	15,504	285	15,789
Black walnut	71	52	123	3	126
Other hardwoods ^a	917	16	933	274	1,207
Total hardwoods	36,648	6,104	42,752	2,321	45,073
All species	37,067	9,149	46,216	2,347	48,563

^aIncludes ash, beech, black gum, hickory, locust, paulownia, and sycamore.

Table 6.—Sawlog consumption, by species and origin of shipments, NORTH-CENTRAL Maryland, 1985

(in thousand board feet)

Species	Retained within the unit	In-state consumption		Total consumption	
		Imported from other units	Total	Imported from other states	Total
Loblolly pine	114	614	728	100	828
White pine	305	—	305	—	305
Total softwoods	419	614	1,033	100	1,133
Ash	159	—	159	6	165
Black cherry	78	—	78	—	78
Sweetgum	3,668	3,013	6,681	426	7,107
Hard maple	290	—	290	14	304
Soft maple	776	463	1,239	123	1,362
Red oak	12,420	2,422	14,842	1,397	16,239
White oak	5,629	1,198	6,827	620	7,447
Yellow-poplar	12,640	5,186	17,826	894	18,720
Black walnut	71	—	71	—	71
Other hardwoods ^a	917	—	917	1,663	2,580
Total hardwoods	36,648	12,282	48,930	5,143	54,073
All species	37,067	12,896	49,963	5,243	55,206

^aIncludes ash, beech, black gum, hickory, locust, paulownia, and sycamore.

Table 7.—Sawlog production, by species and destination of shipments, SOUTHERN Maryland, 1985

(in thousand board feet)

Species	Retained within the unit	In-state production		Total production	
		Exported to other units	Total	Exported to other states	Total
Loblolly pine	1,390	863	2,253	53	2,306
Virginia pine	304	—	304	—	304
Other softwoods	145	—	145	—	145
Total softwoods	1,839	863	2,702	53	2,755
Ash	269	—	269	—	269
Black cherry	80	—	80	—	80
Sweetgum	1,778	838	2,616	—	2,616
Hard maple	621	—	621	14	635
Soft maple	836	100	936	—	936
Red oak	4,803	516	5,319	81	5,400
White oak	4,511	562	5,073	13	5,086
Yellow-poplar	8,623	3,010	11,633	—	11,633
Black walnut	141	—	141	—	141
Other hardwoods ^a	240	—	240	46	286
Total hardwoods	21,902	5,026	26,928	154	27,082
All species	23,741	5,889	29,630	207	29,837

^a Includes beech, black gum, hickory, and sycamore.

Table 8.—Sawlog consumption, by species and origin of shipments, SOUTHERN Maryland, 1985

(in thousand board feet)

Species	Retained within the unit	In-state consumption		Total consumption	
		Imported from other units	Total	Imported from other states	Total
Loblolly pine	1,390	337	1,727	23	1,750
Virginia pine	304	55	359	6	365
Other softwoods	145	—	145	—	145
Total softwoods	1,839	392	2,231	29	2,260
Ash	269	111	380	1	381
Black cherry	80	51	131	—	131
Sweetgum	1,778	670	2,448	7	2,455
Hard maple	621	230	851	—	851
Soft maple	836	225	1,061	16	1,077
Red oak	4,803	1,079	5,882	69	5,951
White oak	4,511	806	5,317	74	5,391
Yellow-poplar	8,623	2,864	11,487	543	12,030
Black walnut	141	52	193	1	194
Other hardwoods ^a	240	16	256	4	260
Total hardwoods	21,902	6,104	28,006	715	28,721
All species	23,741	6,496	30,237	744	30,981

^aIncludes beech, black gum, hickory, and sycamore.

Table 9.—Sawlog production, by species and destination of shipments, EASTERN SHORE
Maryland, 1985

(in thousand board feet)

Species	Retained within the unit	In-state production		Total production	
		Exported to other units	Total	Exported to other states	Total
Hemlock	1,531	—	1,531	—	1,531
Loblolly pine	26,383	—	26,383	—	26,383
Virginia pine	2,372	—	2,372	—	2,372
Total softwoods	30,286	—	30,286	—	30,286
Sweetgum	6,738	2,175	8,913	1,090	10,003
Soft maple	2,135	363	2,498	590	3,088
Red oak	3,541	1,902	5,443	832	6,275
White oak	2,823	635	3,458	232	3,690
Yellow-poplar	866	2,175	3,041	238	3,279
Other hardwoods ^a	361	—	361	349	710
Total hardwoods	16,464	7,250	23,714	3,331	27,045
All species	46,750	7,250	54,000	3,331	57,331

^aIncludes beech, black gum, cottonwood, and hickory.

Table 10.—Sawlog consumption, by species and origin of shipments, EASTERN SHORE Maryland, 1985

(in thousand board feet)

Species	Retained within the unit	In-state consumption		Total consumption	
		Imported from other units	Total	Imported from other states	Total
Hemlock	1,531	—	1,531	—	1,531
Loblolly pine	26,383	2,904	29,287	2,966	32,253
Virginia pine	2,372	—	2,372	200	2,572
White pine	—	—	—	828	828
Other softwoods	—	—	—	1,476	1,476
Total softwoods	30,286	2,904	33,190	5,470	38,660
Sweetgum	6,738	—	6,738	1,634	8,372
Soft maple	2,135	—	2,135	477	2,612
Red oak	3,541	—	3,541	881	4,422
White oak	2,823	—	2,823	655	3,478
Yellow-poplar	866	—	866	135	1,001
Other hardwoods ^a	361	—	361	—	361
Total hardwoods	16,464	—	16,464	3,782	20,246
All species	46,750	2,904	49,654	9,252	58,906

^aIncludes beech, black gum, cottonwood, and hickory.

Table 11.—Sawlog production, by species and destination of shipments, Maryland, 1985

(in thousand board feet)

Species	Retained within the state	Exported				Total production
		Delaware	Pennsylvania	Virginia	West Virginia	
Hemlock	1,565	—	—	—	44	1,609
Loblolly pine	31,742	—	—	53	—	31,795
Virginia pine	2,731	—	—	—	—	2,731
White pine	346	—	21	2	—	369
Other softwoods	155	—	10	4	—	169
Total softwoods	36,539	—	31	59	44	36,673
Ash	556	—	65	11	125	757
Black cherry	351	—	5	10	255	621
Sweetgum	15,867	1,240	—	1	—	17,108
Hard maple	1,270	—	25	70	192	1,557
Soft maple	4,526	731	10	2	224	5,493
Red oak	25,371	1,067	365	435	3,288	30,526
White oak	15,315	467	448	72	824	17,126
Yellow-poplar	30,193	379	217	4	311	31,104
Black walnut	264	—	—	3	—	267
Other hardwoods	1,579	394	30	245	165	2,413
Total hardwoods	95,292	4,278	1,165	853	5,384	106,972
All species	131,831	4,278	1,196	912	5,428	143,645

Table 12. — Sawlog consumption, by species and origin of shipments, Maryland, 1985

(in thousand board feet)

Species	Retained within the state	Imported				Total consumption
		Delaware	Pennsylvania	Virginia	West Virginia	
Hemlock	1,565	—	—	—	—	1,565
Loblolly pine	31,742	1,003	—	2,086	—	34,831
Virginia pine	2,731	—	—	206	—	2,937
White pine	346	—	—	828	—	1,174
Other softwoods	155	1,476	—	—	—	1,631
Total softwoods	36,539	2,479	—	3,120	—	42,138
Ash	556	—	6	1	35	598
Black cherry	351	—	15	—	882	1,248
Sweetgum	15,867	1,250	—	816	—	17,933
Hard maple	1,270	14	—	—	612	1,896
Soft maple	4,526	346	—	271	993	6,136
Red oak	25,371	1,734	174	465	1,304	29,048
White oak	15,315	913	14	421	828	17,491
Yellow-poplar	30,193	1,023	289	299	711	32,515
Black walnut	264	—	—	1	—	265
Other hardwoods	1,579	25	319	598	1,007	3,528
Total hardwoods	95,292	5,305	817	2,872	6,372	110,658
All species	131,831	7,784	817	5,992	6,372	152,796

Table 13. — Pulpwood production, by type of pulpwood, Maryland, 1970 to 1986
(in thousand rough cords^a)

Year	Roundwood			Chipped residues ^b	All types
	Softwoods	Hardwoods	Total		
1970	120,300	75,900	196,200	116,600	312,800
1971	79,200	75,400	154,600	124,200	278,800
1972	83,000	70,800	153,800	114,900	268,700
1973	105,600	70,000	175,600	101,500	277,100
1974	104,000	73,500	177,500	107,900	285,400
1975	104,000	61,200	165,200	100,900	266,100
1976	111,900	61,700	173,600	108,300	281,900
1977	120,900	58,300	179,200	106,100	285,300
1978	114,900	71,100	186,000	127,100	313,100
1979	127,600	48,400	176,000	125,100	301,100
1980	85,800	61,400	147,200	133,100	280,300
1981	74,400	61,700	136,100	143,000	279,100
1982	83,400	59,600	143,000	141,700	284,700
1983	93,000	62,000	155,000	150,500	305,500
1984	93,600	64,900	158,500	202,800	361,300
1985	101,800	70,100	171,900	159,600	331,500
1986	98,500	71,500	170,000	179,700	349,700

^a 128 cubic feet of wood, bark, and air space—85 cubic feet of solid wood.

^b Rough-cord equivalents.

Table 14. — Veneer log production^a, by species and destination of shipments, Maryland, 1985
(in thousand board feet)

Species	Retained within the state	Exported				Total production
		North Carolina	Pennsylvania	Virginia	West Virginia	
Loblolly pine	26,005	—	—	—	—	26,005
Ash	—	—	62	—	145	207
Red oak	—	1,224	1,499	30	435	3,188
White oak	—	218	—	17	132	367
Yellow-poplar	640	4,293	—	224	—	5,157
Other hardwoods ^b	—	65	72	3	21	141
All species	26,645	5,800	1,633	274	733	35,085

^a Veneer logs handled by brokers for overseas shipments are not included.

^b Includes sweetgum and black walnut.

Table 15. — Production and disposition of mill residues, by end use, type of residue, and industry source, Maryland, 1985

(in thousand cubic feet)

End use	Type of residue ^a			All types
	Bark	Coarse	Fine	
----- LUMBER -----				
Fiber ^b	—	6,609	—	6,609
Industrial fuel	8	140	—	148
Residential fuel	110	1,209	—	1,319
Agricultural uses ^c	2,344	386	4,099	6,829
Other uses ^d	143	—	70	213
All uses	2,605	8,344	4,169	15,118
Not used	6	16	10	32
----- OTHER INDUSTRIES ^e -----				
Fiber	—	3,747	3,210	6,957
Industrial fuel	630	4	—	634
Residential fuel	1	3	—	4
Agricultural uses	21	—	40	61
All uses	652	3,754	3,250	7,656
Not used	33	—	—	33
----- ALL INDUSTRIES -----				
Fiber	—	10,356	3,210	13,566
Industrial fuel	638	144	—	782
Residential fuel	111	1,212	—	1,323
Agricultural uses	2,365	386	4,139	6,890
Other uses	143	—	70	213
All uses	3,257	12,098	7,419	22,774
Not used	39	16	10	65

^a Woody mill residue types are based on their suitability as wood chips. Coarse residues can be chipped—they include slabs, edgings, trimmings, miscuts, and veneer cores and clippings. Fine residues cannot be chipped—they include sawdust, shavings, and pulp screening.

^b Includes wood pulp and composite materials.

^c Includes livestock bedding, chicken litter, and farm or horticultural mulch.

^d Includes miscellaneous uses such as small dimension and specialty items.

^e Includes manufacturers of veneer, poles, posts, and mine timbers.

Table 16.—Industrial roundwood production, by major product and species group, Delaware, 1985
(in standard units)

Product	Standard unit ^a	Softwoods	Hardwoods	All species
Sawlogs	Thousand board feet	2,525	16,149	18,674
Veneer logs	Thousand board feet	2,000	741	2,741
Pulpwood	Standard cords	17,261	1,171	18,432
Piling	Thousand lineal feet	280	303	583
Poles	Thousand cubic feet	35	—	35
All products ^b	Thousand cubic feet	2,417	2,842	5,259

^aVolumes reported in board feet are based on International 1/4-inch rule.

^bAll volumes have been converted to cubic feet using factors supplied in this report.

Table 17.—Industrial roundwood production, by major product and species group, Delaware, 1970 and 1985

(in thousand cubic feet)

Product	Softwoods		Hardwoods		All species	
	1970	1985	1970	1985	1970	1985
Sawlogs	952	417	979	2,448	1,931	2,865
Veneer logs	468	330	407	112	875	442
Pulpwood	5,020	1,467	270	100	5,290	1,567
Piling	420	168	283	182	703	350
Other products ^a	48	35	138	—	186	35
All products	6,908	2,417	2,077	2,842	8,985	5,259

^aIncludes cooperage, poles, and posts in 1970; poles in 1985.

Table 18.—Sawlog production and consumption, by species and destination or origin of shipments, Delaware, 1985

(in thousand board feet)

Species	Retained within the state	Exported	Total production	Imported	Total consumption
		Maryland		Maryland	
Hemlock	21	—	21	—	21
Loblolly pine	—	1,003	1,003	—	—
Other yellow pines	25	1,476	1,501	—	25
Total softwoods	46	2,479	2,525	—	46
Sweetgum	2,390	1,250	3,640	1,240	3,630
Soft maple	1,906	346	2,252	731	2,637
Red oak	2,477	1,734	4,211	1,067	3,544
White oak	1,872	913	2,785	467	2,339
Yellow-poplar	1,227	1,023	2,250	379	1,606
Other hardwoods ^a	968	39	1,007	394	1,362
Total hardwoods	10,840	5,305	16,145	4,278	15,118
All species	10,886	7,784	18,670	4,278	15,164

^aIncludes beech, hickory, locust, hard maple, and black walnut.

Table 19. — Pulpwood production, by type of pulpwood, Delaware, 1970 to 1986
(in thousand rough cords^a)

Year	Roundwood			Chipped residues ^b	All types
	Softwoods	Hardwoods	Total		
1970	59,100	3,200	62,300	1,500	63,800
1971	43,900	1,900	45,800	3,500	49,300
1972	45,700	2,500	48,200	1,100	49,300
1973	33,900	6,100	40,000	1,000	41,000
1974	39,800	6,300	46,100	—	46,100
1975	31,800	5,100	36,900	—	36,900
1976	38,400	5,300	43,700	12,600	56,300
1977	31,400	3,800	35,200	13,200	48,400
1978	27,800	9,500	37,300	9,200	46,500
1979	23,900	6,100	30,000	1,300	31,300
1980	26,800	1,400	28,200	—	28,200
1981	24,100	1,700	25,800	—	25,800
1982	26,100	400	26,500	1,500	28,000
1983	26,400	1,600	28,000	500	28,500
1984	22,900	1,600	24,500	1,100	25,600
1985	17,200	1,200	18,400	1,300	19,700
1986	15,800	—	15,800	1,400	17,200

^a 128 cubic feet of wood, bark, and air space—85 cubic feet of solid wood.

^b Rough-cord equivalents.

Table 20. — Production and disposition of mill residues, by end use, type of residue, Delaware, 1985
(in thousand cubic feet)

End use	Type of residue ^a			All types
	Bark	Coarse	Fine	
Fiber ^b	—	111	—	111
Fuel	206	482	—	688
Agricultural uses ^c	119	181	523	823
All uses	325	774	523	1,622
Not used	—	1	6	7

^a Woody mill residue types are based on their suitability as wood chips. Coarse residues can be chipped—they include slabs, edgings, trimmings, miscuts, and veneer cores and clippings. Fine residues cannot be chipped—they include sawdust, shavings, and pulp screening.

^b Includes wood pulp and composite products.

^c Includes livestock bedding, chicken litter, and farm or horticultural mulch.

Table 21.—Industrial roundwood production, by major product and species group, New Jersey, 1986

(in standard units)

Product	Standard unit ^a	Softwoods	Hardwoods	All species
Sawlogs	Thousand board feet	1,411	14,834	16,245
Veneer logs ^b	Thousand board feet	—	375	375
Pulpwood	Standard cords	1,488	—	1,488
Other products ^c	Thousand cubic feet	52	26	78
All products ^d	Thousand cubic feet	411	2,333	2,744

^aVolumes reported in board feet are based on International 1/4-inch rule.^bVeneer logs handled by brokers for overseas shipment are not included—an estimated 1,706,000 board feet of paulownia, red oak, and white oak were exported to Japan and other countries.^cIncludes poles, fencing, and metallurgical wood.^dAll volumes have been converted to cubic feet using factors supplied in this report.

Table 22.—Industrial roundwood production, by major product and species group, New Jersey 1970 and 1986

(in thousand cubic feet)

Product	Softwoods		Hardwoods		All species	
	1970	1986	1970	1986	1970	1986
Sawlogs	340	233	1,746	2,249	2,086	2,482
Veneer logs	—	—	215	58	215	58
Pulpwood	3,262	126	691	—	3,953	126
Piling	34	—	233	—	267	—
Other products ^a	553	52	444	26	997	78
All products	4,189	411	3,329	2,333	7,518	2,744

^aIncludes cooperage, poles, and posts in 1979; poles, fencing, and metallurgical wood in 1986.

Table 23. — Sawlog production, by species and destination of shipments, NORTHERN New Jersey, 1986

(in thousand board feet)

Species	Retained within the unit	In-state production		Total production	
		Exported to other units	Total	Exported to other states	Total
Pitch pine	29	17	46	—	46
White cedar	—	7	7	—	7
Total softwoods	29	24	53	—	53
Ash	107	233	340	174	514
Sweetgum	—	13	13	—	13
Maple	34	62	96	149	245
Red oak	1,034	3,359	4,393	3,170	7,563
White oak	43	88	131	433	564
Yellow-poplar	399	934	1,333	897	2,230
Total hardwoods	1,617	4,689	6,306	4,823	11,129
All species	1,646	4,713	6,359	4,823	11,182

Table 24. — Sawlog consumption, by species and origin of shipments, NORTHERN New Jersey, 1986

(in thousand board feet)

Species	Retained within the unit	In-state consumption		Total consumption	
		Imported from other units	Total	Imported from other states	Total
Pitch pine	29	17	46	—	46
Total softwoods	29	17	46	—	46
Ash	107	160	267	—	267
Maple	34	62	96	—	96
Red oak	1,034	2,146	3,180	—	3,180
White oak	43	88	131	—	131
Yellow-poplar	399	623	1,022	—	1,022
Total hardwoods	1,617	3,079	4,696	—	4,696
All species	1,646	3,096	4,742	—	4,742

Table 25.—Sawlog production, by species and destination of shipments, SOUTHERN New Jersey, 1986

(in thousand board feet)

Species	Retained within the unit	In-state production		Total production	
		Exported to other units	Total	Exported to other states	Total
Pitch pine	106	304	410	—	410
White cedar	694	197	891	—	891
Other softwoods	19	38	57	—	57
Total softwoods	819	539	1,358	—	1,358
Ash	48	1	49	—	49
Sweetgum	130	213	343	—	343
Maple	30	61	91	—	91
Red oak	1,306	925	2,231	—	2,231
White oak	46	89	135	—	135
Yellow-poplar	502	343	845	—	845
Other hardwoods	11	—	11	—	11
Total hardwoods	2,073	1,632	3,705	—	3,705
All species	2,892	2,171	5,063	—	5,063

Table 26.—Sawlog consumption, by species and origin of shipments, SOUTHERN New Jersey, 1986

(in thousand board feet)

Species	Retained within the unit	In-state consumption		Total consumption	
		Imported from other units	Total	Imported from other states	Total
Pitch pine	103	307	410	6	416
White cedar	694	204	898	—	898
Other softwoods	16	41	57	6	63
Total softwoods	813	552	1,365	12	1,377
Ash	48	74	122	—	122
Sweetgum	119	237	356	11	367
Maple	30	61	91	—	91
Red oak	1,242	2,202	3,444	105	3,549
White oak	40	95	135	12	147
Yellow-poplar	485	671	1,156	23	1,179
Other hardwoods	11	—	11	—	11
Total hardwoods	1,975	3,340	5,315	151	5,466
All species	2,788	3,892	6,680	163	6,843

Table 27.—Sawlog production, by species and destination of shipments, New Jersey, 1986
(in thousand board feet)

Species	Retained within the state	Exported		Total production
		New York	Pennsylvania	
Pitch pine	456	—	—	456
Atlantic white cedar	898	—	—	898
Other softwoods	57	—	—	57
Total softwoods	1,411	—	—	1,411
Ash	389	75	99	563
Sweetgum	356	—	—	356
Maple	187	50	99	336
Red oak	6,624	199	2,971	9,794
White oak	266	162	271	699
Yellow-poplar	2,178	37	860	3,075
Other hardwoods	11	—	—	11
Total hardwoods	10,011	523	4,300	14,834
All species	11,422	523	4,300	16,245

Table 28.—Sawlog consumption, by species and origin of shipments, New Jersey, 1986

(in thousand board feet)

Species	Retained within the state	Imported		Total consumption
		Delaware	Maryland	
Pitch pine	456	3	3	462
Atlantic white cedar	898	—	—	898
Other softwoods	57	3	3	63
Total softwoods	1,411	6	6	1,423
Ash	389	—	—	389
Sweetgum	356	11	—	367
Maple	187	—	—	187
Red oak	6,624	64	41	6,729
White oak	266	6	6	278
Yellow-poplar	2,178	17	6	2,201
Other hardwoods	11	—	—	11
Total hardwoods	10,011	98	53	10,162
All species	11,422	104	59	11,585

Table 29. — Pulpwood production, by type of pulpwood, New Jersey, 1970 to 1986
(in thousand rough cords^a)

Year	Roundwood			Chipped residues ^b	All types
	Softwoods	Hardwoods	Total		
1970	38,400	8,100	46,500	900	47,400
1971	29,200	2,000	31,200	400	31,600
1972	26,200	1,100	27,300	1,800	29,100
1973	25,600	1,000	26,600	5,700	32,300
1974	37,900	2,800	40,700	6,200	46,900
1975	21,900	1,000	22,900	7,600	30,500
1976	21,400	1,100	22,500	7,500	30,000
1977	25,200	1,000	26,200	5,400	31,600
1978	27,800	1,300	29,100	4,100	33,200
1979	19,600	1,000	20,600	7,000	27,600
1980	7,000	1,500	8,500	900	9,400
1981	6,700	2,100	8,800	600	9,400
1982	5,700	1,500	7,200	—	7,200
1983	9,400	1,800	11,200	—	11,200
1984	5,300	—	5,300	—	5,300
1985	1,700	—	1,700	—	1,700
1986	1,500	—	1,500	—	1,500

^a 128 cubic feet of wood, bark, and air space—85 cubic feet of solid wood.

^b Rough-cord equivalents.

Table 30. — Production and disposition of mill residues, by end use, type of residue, New Jersey, 1986
(in thousand cubic feet)

End use	Type of residue ^a			All types
	Bark	Coarse	Fine	
Residential fuel	98	243	2	343
Industrial fuel	9	15	15	39
Agricultural uses ^b	85	64	243	392
All uses	192	322	260	774
Not used	—	1	5	6

^a Woody mill residue types are based on their suitability as wood chips. Coarse residues can be chipped—they include slabs, edgings, trimmings, miscuts, and veneer cores and clippings. Fine residues cannot be chipped—they include sawdust, shavings, and pulp screening.

^b Includes livestock bedding, chicken litter, and farm or horticultural mulch.

Wharton, Eric H.; Mullarkey, Kevin. 1993. **Forest products Industries of the southern Middle-Atlantic states, 1985 – 1986.** Resour. Bull. NE-129. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 40 p.

Evaluates regional timber output of Maryland, Delaware, and New Jersey. Results are based on a survey of primary processing mills located in these states and of mills in other states that used wood from the region. Contains statistics on industrial timber production and mill receipts and the production and final end use of manufacturing residues. Comparisons are made between historical and current data, and trends in industrial wood output are noted. Contains graphics and statistical tables.

Keywords: Forest survey, production, consumption, industrial forest products, manufacturing residue.

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