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Ohio Timber Products Output--1983

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Abstract

The total industrial harvest in Ohio was over 82 million cubic feet in 1983. This was up 17 percent since 1978. Sawlogs accounted for 57 percent of the total and pulpwood accounted for 36 percent. During this 5-year period, sawlog production was up 7 percent to 318.3 million board feet, and total pulpwood production was up 24 percent to 461.8 thousand cords. Consumption of sawlogs at Ohio mills rose 19 percent with 17 percent of the receipts coming from neighboring states. The use of manufacturing residues produced at Ohio mills increased from 79 percent to 93 percent. The largest use of residues was for fuel.

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Cover Photo: Sawlogs are the major product harvested from Ohio's forests. Here a large oak is being felled on a farmer's woodlot in northern Ohio.

Contents

Page

Background.....	1
Study Method.....	1
Total Harvest.....	2
Sawlog Production and Receipts.....	3
Pulpwood Production.....	4
Veneer Log Production.....	7
Cooperage Production.....	7
Miscellaneous Products.....	7
Manufacturing Residues.....	7
Literature Cited.....	8
Appendix.....	9
Definition of Terms.....	9
Conversion Factors.....	10
Index to Tables.....	11

Background

The forests of Ohio are an important part of the maturing hardwood resource in the Northeastern United States. Productive timberland¹ covers 26 percent of the State or 6.9 million acres.

Three million of these acres are in valuable sawtimber stands; the predominant forest type is oak/hickory. In 1978, it was estimated that 19.5 billion board feet of timber were growing in Ohio with 37 percent of this volume in log grades 1 and 2. At that time it was also estimated that the net annual growth was more than twice the annual removals.

This forest resource supplies raw materials for a viable forest products industry that includes 318 sawmills, 6 veneer mills, and 5 pulpmills. Ohio is well known for its production of high-grade lumber and veneers. Sawmills and veneer mills use the higher quality logs for fine furniture and export, while the lower quality logs are used to supply the pallet mills, the pulpmills, and a variety of other uses. Pulpmills also use a considerable quantity of residues produced by sawmills.

¹This term and others are defined in the definition of terms.

Forest products are used by many industries in Ohio. Railroad ties are used to maintain the State's extensive rail system, pallets and dunnage are used extensively to ship Ohio products, wood chips are used by the metallurgical industry in the smelting of some ores, mine props are used for the underground mining of coal, lumber and fencing are important to agriculture, and the production of woodpulp supplies the needs of many secondary manufacturers in the paper products industry.

Study Method

The Forest Service of the U.S. Department of Agriculture periodically surveys the primary wood products industries to provide up-to-date information on the Nation's timber supply. This study was conducted jointly with the Ohio Division of Forestry. Information in this 1983 report updates a similar study conducted by the Northeastern Forest Experiment Station and the Ohio Division of Forestry in 1978. The information in this report was obtained by canvassing all primary wood-product manufacturers that were operating in Ohio in 1983. The list of firms operating during 1983 was assembled by the Ohio Division of Forestry. The primary manufacturers were initially contacted by a mailed questionnaire. Probable out-of-state consumers of Ohio roundwood also received questionnaires. After three mailings, those mill owners in Ohio who did not respond were contacted in person by Ohio Division of Forestry personnel; nonresponding out-of-state primary manufacturers were contacted by telephone.

In compiling the tables in this report an improved conversion factor was used to convert mill receipts reported in the Doyle Log Rule to the International 1/4-inch Log Rule. During the 1978 survey, a general factor for the northeastern states was used (Nevel and Redett 1980). It was found subsequently that the average log in Ohio was much larger in diameter than the average log in the Northeast, so a more specific

conversion factor was used for the 1983 study.

The conversion factor was developed from the measurements of over 1,500 logs measured by the Forest Service during a utilization study conducted in Ohio. During this study it was found that the average sawlog in Ohio had an inside bark diameter at the small end of the log of 14.38 inches. Using this average diameter and a length of 12 feet, we calculated that 1 board foot Doyle was equivalent to 1.2826 board feet International. To make comparisons between this study and the 1978 study more accurate, the 1978 figures in this report have been converted using the new conversion factor.

Total Harvest

The industrial roundwood harvest includes sawlogs, veneer logs, pulpwood, cooperage logs, mine timbers, posts, metallurgical chips, and wood used by other miscellaneous primary wood users. Over 82 million cubic feet of wood was harvested from Ohio timberlands during 1983. Hardwoods were the major species group harvested making up over 98 percent of the harvest. Total production was up 17 percent from 1978 production, with most of the gain occurring in the pulpwood segment. This represented a return to the higher levels of production in the past and was above the 1973 level of 80 million cubic feet (Bones and Redett 1976) (Fig. 1).

MILLION CUBIC FEET

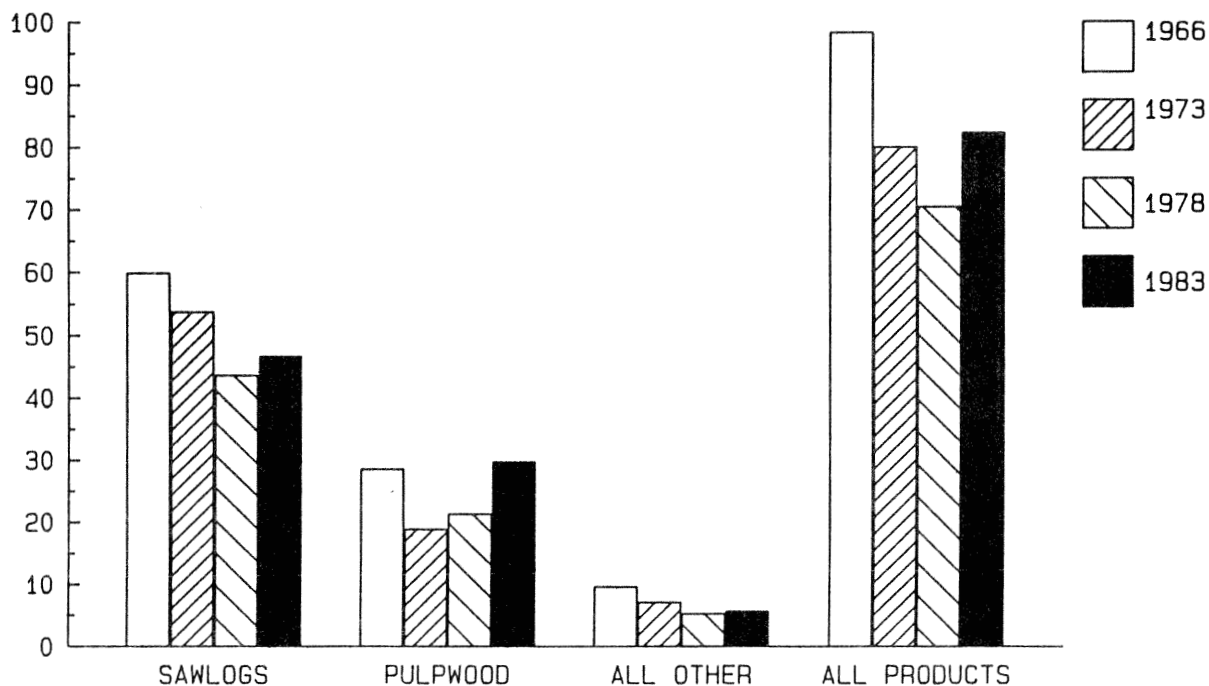


Figure 1.--Trend in industrial harvest in Ohio for selected years, by product.

Since 1973, emphasis has been shifting between sawlog production and pulpwood production. Although sawlogs are still the most important roundwood product, pulpwood has been slowly increasing its share of the total. Sawlog roundwood accounts for 57 percent of the 1983 production (Fig. 2). This was down from the 62 percent share in 1978 and the 67 percent share in 1973. At the same time, pulpwood increased its share advancing from 24 percent in 1973 to 30 percent in 1978, then to 36 percent in 1983. All other products combined made up 7 percent of the total harvest with little change over the years.

The Hill Country of Ohio (South-Central, Southeastern, and East-Central units) produced 78 percent of Ohio's timber (Fig. 3). This area comprises the 28 counties in the unglaciated portion of the state. The South-Central Unit has

always had the highest roundwood harvest and in 1983, produced over half of Ohio's pulpwood and 23 percent of the sawlog harvest.

The Northeastern and Western units of Ohio produced the remaining 22 percent of the harvest. This is the glaciated region of the State where agriculture is the predominant land use. Although this area grows a relatively small part of the total harvest, 56 percent of the veneer logs harvested in the state were grown here.

Sawlog Production and Receipts

Sawlog production in 1983 was 318.3 million board feet. This is a 7 percent (21 million board feet) increase since 1978, but still 33 million board feet short of the 1973 sawlog harvest. We believe that the 1983 production level

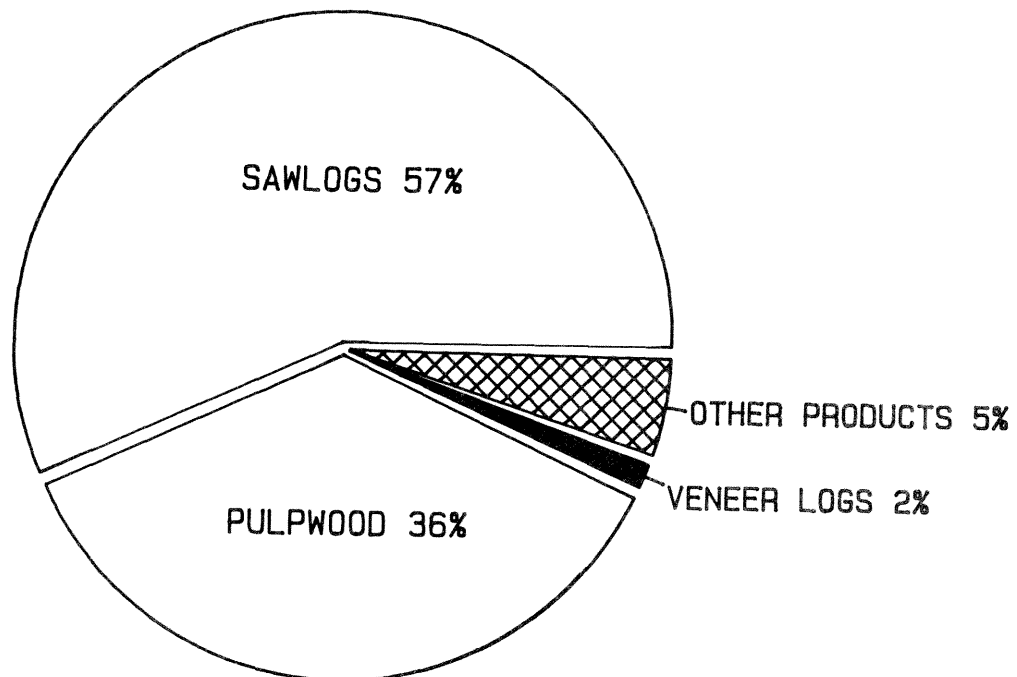


Figure 2.--Ohio timber harvest, 1983. Note: Other products include cooperage, mine timbers, and misc. products.

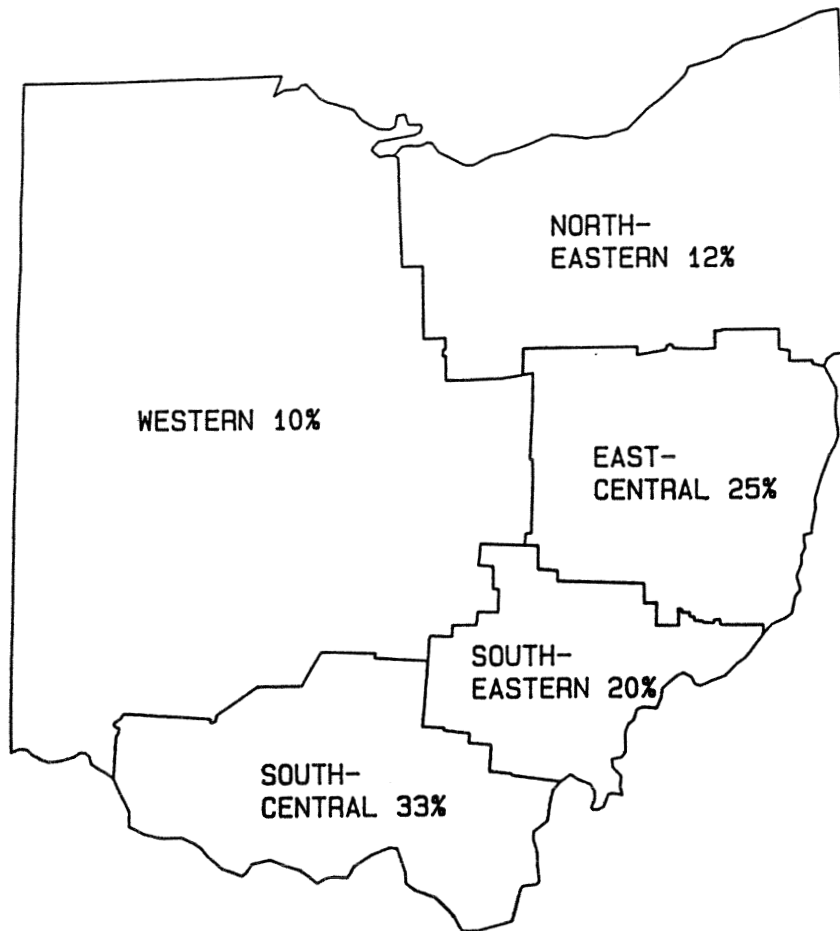


Figure 3.--Geographic units of Ohio and percent of total harvest.

represents the end of the downward trend in production and production has stabilized at this level.

A wide variety of species make up the sawlog harvest; however, the oaks are the predominant species group (Fig. 4). Oaks comprise 52 percent of the sawlog harvest. Northern red oak leads all other species with 52.5 million board feet cut followed by white oak with 48.5 million board feet. Other major species and their production are: yellow-poplar with 31.3 million board feet; ash with 22.0 million board feet, and sugar maple with 19.8 million board feet.

The receipts of sawlogs at the 318 sawmills in Ohio climbed 19 percent to reach 376.5 million board feet. Over half of this increase came from receipts of logs from neighboring states. These imports more than tripled, rising from

20 million in 1978 to 62.3 million in 1983. The largest exporter of logs to Ohio was West Virginia, shipping 23 million board feet into the State. The remainder of the imports were divided between Indiana, Kentucky, and Pennsylvania. Imports accounted for 17 percent of the sawlogs consumed at Ohio mills, and 70 percent of these in-shipments were oak species. This large volume of oak logs coming into the State indicates the high demand for oak logs by Ohio mills. Oak lumber is desirable for both its appearance for fine furniture and its strength for pallets. Also, higher prices paid by Ohio mills have allowed wood to be drawn to Ohio from greater distances.

Pulpwood Production

Pulpwood production rose 24 percent in Ohio since 1978, to total 461,800 cords

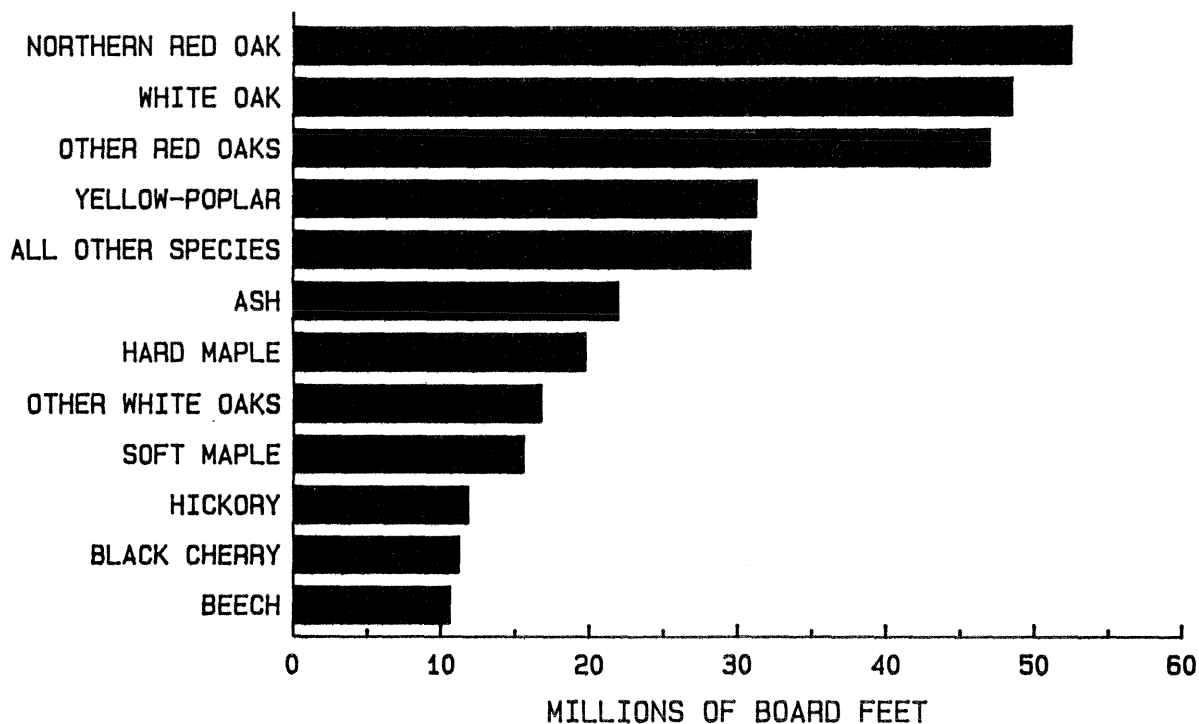


Figure 4.--Ohio sawlog production in 1983 by species.

(Fig. 5). All of this increase came from increased roundwood production. The roundwood harvest for pulpwood increased 99,100 cords reaching 350,900 cords and now accounts for 36 percent of all the roundwood harvested in the State (Widmann 1985). This is up from the 30 percent share of the harvest that pulpwood held in 1978.

Between 1978 and 1983, the use of manufacturing residues for pulp declined 7 percent to 110,900 cords to account for 24 percent of the pulpwood production (Fig. 6). These residues are generally coarse materials produced by sawmills such as slabs and edgings that are suitable for chipping. With increases in sawlog receipts by sawmills, residue use for pulpwood would be expected to increase. However, this did not occur because these residues are going to other uses such as fuel. In

recent years, there have been more uses and increased competition for residues. As residue receipts at pulpmills fell, they were replaced by roundwood. This accounts for some of the increase in roundwood production.

From 1978-83, roundwood pulpwood production steadily increased, without the large fluctuations seen in the past. The production of pulpwood has provided a reliable market for logs of small diameter, low quality, and less desirable species. The increased use of whole-tree chippers has allowed more of the smaller trees and upper stem portion of sawtimber trees to be utilized. Pulpwood can be produced economically with whole-tree chippers from material that was unused previously. In 1983, 83 percent of Ohio's pulpwood roundwood was in the form of whole-tree chips. Although the chipping of trees in the

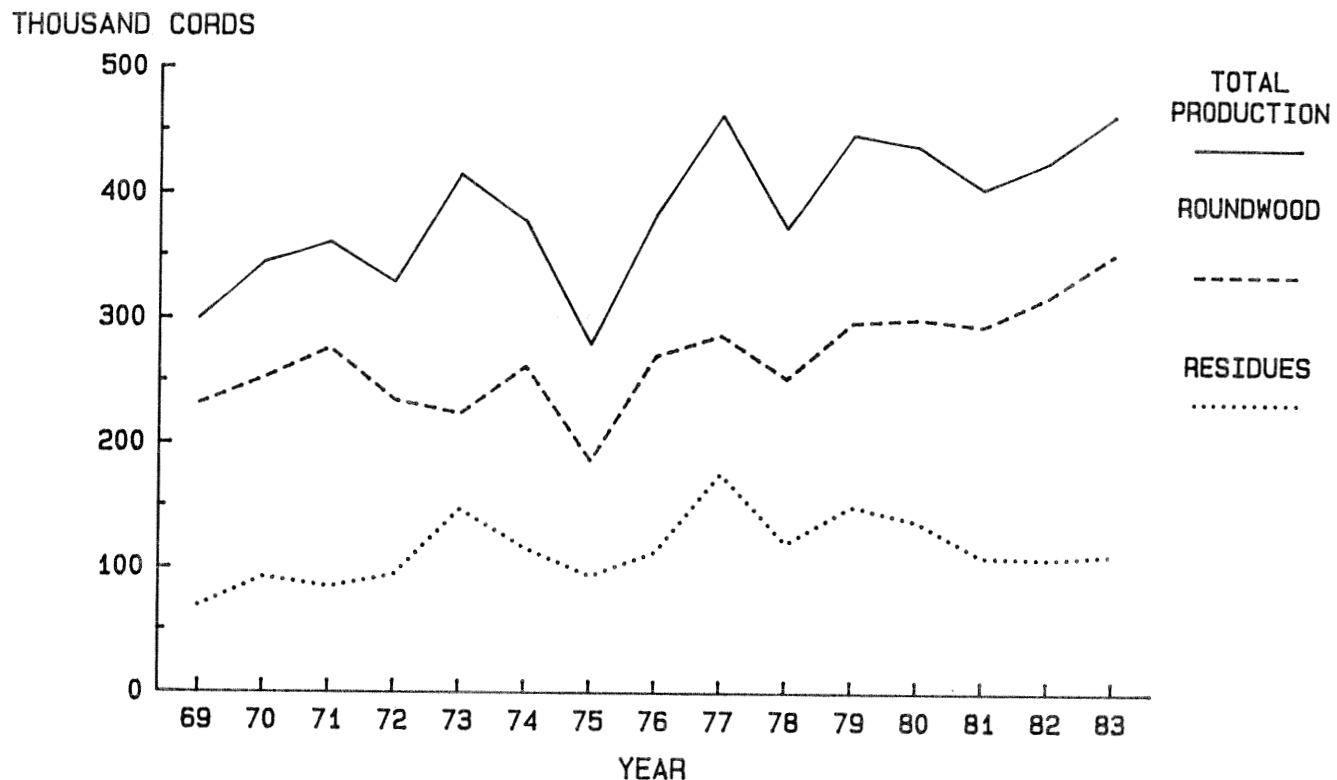


Figure 5.--Pulpwood production, by source, Ohio, 1969-1982.

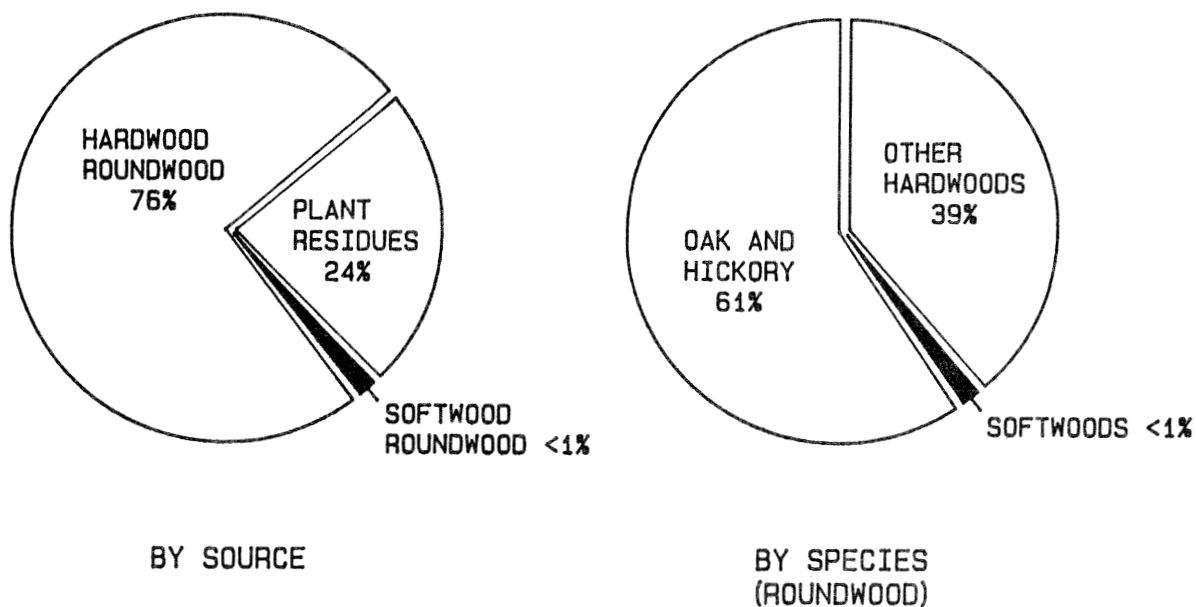


Figure 6.--Ohio pulpwood production in 1983.

woods increased during this 5-year period, the demand for these chips by pulpmills has probably leveled off. This is because of increased emphasis on producing higher quality pulps, which is more difficult when whole-tree chips are used.

Veneer Log Production

Veneer log production was up by 1.6 million board feet (21 percent) between 1978 and 1983 to total 9.4 million board feet. This represents a 10-year high for veneer production. The primary species was white oak, which represents 48 percent of the veneer harvest. Other important species harvested were black walnut and northern red oak, each with 1.3 million board feet harvested or 14 percent of the total.

Ohio remained a net importer of veneer logs in 1983. Imports into the State totaled 5.1 million board feet, while exports totaled 4.8 million board feet. Indiana and Michigan were the source of 61 percent of Ohio's veneer imports. Indiana was the destination of 82 percent of the exports. This high volume in interstate shipments is an indicator of the high value and high demand for these logs. Veneer mills hundreds of miles apart compete with one another for these high-quality logs. Interstate shipments are also encouraged by different species and quality requirements of individual mills.

Cooperage Production

Receipts of white oak logs at Ohio stave mills continued to decline. After reaching a peak of 17.3 million board feet in 1964, the number of mills and log receipts has fallen dramatically. In 1983, receipts were down to 4.5 million board feet, about two-thirds of which were harvested in Ohio. This sharp decline in the cooperage industry has been caused by a change in regulations permitting the reuse of bourbon barrels and a decline in bourbon production.

Miscellaneous Products

A variety of small wood-using industries used 3.9 million cubic feet of roundwood, 5 percent of the 1983 harvest in Ohio. Although these industries consume a relatively small amount of wood, they produce products that are needed by other industries in the State. Approximately 919,000 cubic feet of wood were used for mine props and shoring by the underground coal mining industry. This was a 9 percent decrease from 1978 production. The commercial production of posts and poles consumed 618,000 cubic feet, 70 percent of which was produced in Ohio. Ninety-six percent of these posts and poles were produced from softwood species. The production of cabin logs consumed 16,000 cubic feet. This was a new use for Ohio roundwood and has a potential for growth. Most of these logs were softwood species, but a small amount of yellow-poplar was used. Expansion of the cabin log industry could provide an opportunity to use more yellow-poplar, now an underutilized species.

The harvest of ash logs for use as handle stock was 1,074,000 cubic feet or 7.3 million board feet in 1983. Seventy-two percent of this production was received at the three handle plants in Ohio. In 1983, 2 million board feet of ash logs were shipped to out-of-state mills, and almost 2 million were received from other states for use as handle stock. The remaining 1,280,000 cubic feet of wood in the miscellaneous category was used for metallurgical wood and molded wood pallets.

Manufacturing Residues

Primary wood manufacturers produced over 37 million cubic feet of residues in the conversion of roundwood into lumber and other wood products. Ninety-three percent of these residues were used, while only 7 percent went unused (Fig. 7). The majority of the residues were consumed as fuel with 17 percent used for domestic fuel and 21 percent used

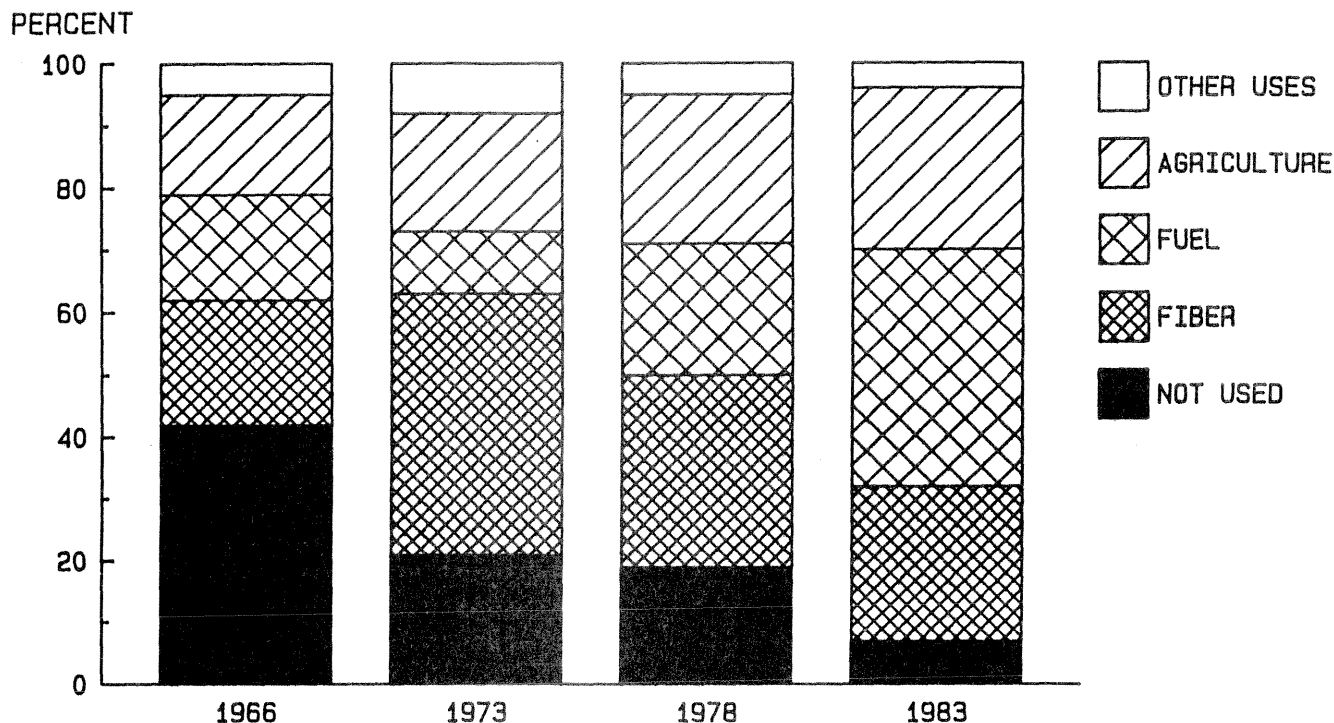


Figure 7.--Trends in manufacturing residue use in Ohio, 1966, 1973, 1978, and 1983.

for industrial fuel. Since 1978, residues have been diverted from use as fiber and the unused category to fuel. During 1978, 31 percent of the residues were used by pulpmills. This declined to 25 percent in 1983. Also, during this period the unused portion of residues fell from 19 percent to only 7 percent. This shift was the result of the rise in oil prices that made burning wood waste a feasible alternative to burning oil. The 7 percent that is currently unused provides little opportunity for increased use. These unused residues are in small quantities, spread across the State. Future changes will probably be shifts to higher value uses for residues that are already being used.

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Appendix

Definition of Terms

Cabin logs. Relatively slender round timber products cut to standard sizes and meeting specifications of strength, straightness, and soundness, finished for use in constructing cabins, barns, and other buildings.

Coarse residues. Manufacturing residues, suitable for chipping, such as slabs, edgings, and veneer cores.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

Harvest. The aggregate volume of timber produced for industrial or consumer uses.

Industrial timber harvest. Total production of round timber for conversion into wood products, except fuelwood.

Manufacturing plant residues. Wood materials, such as sawmill slabs and edgings, sawdust, veneer clippings and cores, post and pole trimming, and pulp screening generated from the manufacture of roundwood products.

Net growth. The change, resulting from natural causes, in growing-stock volume over a period of time. Components of net growth are ingrowth plus accretion minus mortality and cull increment.

Plant byproducts. Wood products such as pulp chips, recycled from manufacturing plant residues.

Piles (piling). Round timber products cut to the maximum length possible within top-circumference and other specifications of strength, straightness, and soundness to be driven or otherwise introduced into the soil, usually to provide vertical or lateral support in buildings, foundations, and other structures.

Poles. Round timber products cut to standard sizes and meeting specifications of strength, straightness, and soundness to be driven into the soil, usually to provide vertical or lateral support for electric power and telephone transmission lines.

Pulpwood. Roundwood, whole-tree chips, or manufacturing plant residues that are used for the production of woodpulp.

Pulpwood imports. Pulpwood receipts originating from outside the State.

Pulpwood production. Roundwood and manufacturing plant residues used to make woodpulp. These are either harvested or generated in the state.

Roundwood products. Logs, bolts, total-tree chips, mine timbers, fenceposts, poles, and similar timber products generated by harvesting trees for industrial or consumer use.

Posts. Short, round timber products to be used in the upright position to support fence structures.

Primary wood-manufacturing plant. A plant that converts roundwood (round timber) to wood products such as woodpulp, lumber, veneer, cooperage, and dimension.

Roundwood receipts. The roundwood (round timber) products, such as logs and bolts, received by primary wood-manufacturing plants for conversion into wood products.

Sawlog. A roundwood product, from which products such as lumber are sawn, and which meets certain minimum standards of diameter, length, and defect, including a minimum 8-foot length and combination of size and defect specified in regional standards.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. In the Northeast, the measure refers to a stack of wood containing 85 cubic feet, or 2.41 cubic meters, of

solid wood. A standard cord commonly is referred to as a cord, as in this report. This is not the same as a face cord, commonly used in firewood marketing.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization. Formerly known as commercial forest land.

Timber products output. Includes roundwood (round timber) products harvested from growing stock on commercial forest land; from other sources, such as cull trees, salvable dead trees, limbs and tops, and saplings; from trees on noncommercial and nonforest lands; and from manufacturing plant byproducts.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered for use.

Veneer log or bolt. A roundwood product from which veneer is sliced or sawn that usually meets certain minimum standards of diameter, length, and defect.

Whole-tree chips. Unbarked wood chips generated from the aboveground portion of a tree, including bolewood, limbs, and leaves.

Conversion Factors

Softwood logs: M bf (international 1/4-inch rule) = $154.0 \text{ ft}^3 = 4.36 \text{ m}^3$

Hardwood logs: M bf (International 1/4-inch rule) = $146.8 \text{ ft}^3 = 4.16 \text{ m}^3$

1 board foot Doyle Rule = 1.2826
International 1/4 rule

Pulpwood: 1 standard cord = $85 \text{ ft}^3 = 2.41 \text{ m}^3$

1 green ton aspen--yellow-poplar = 0.5263 cords

1 green ton oak-hickory = 0.3571 cords

1 green ton other hardwoods = 0.3846 cords

Index to Tables

<u>Table No.</u>	<u>Page</u>
1. Volume of industrial roundwood, by product harvested, Ohio, 1983...	12
2. Change in timber products output, Ohio, 1978-83.....	13
3. Industrial timber harvest, by geographic unit, softwoods and hardwoods, and products, Ohio, 1983.....	14
4. Number of operating sawmills, by geographic unit and annual production class, Ohio, 1973, 1978, and 1983.....	15
5. Sawlog production and receipts relationships, by geographic unit, Ohio, between 1978 and 1983.....	15
6. Sawlog production, by softwoods and hardwoods, geographic unit and destination of shipment, Ohio, 1983.....	16
7. Sawlog receipts, by softwoods and hardwoods, geographic unit and origin of shipment, Ohio, 1983.....	17
8. Sawlog production and receipts in the South-Central geographic unit, by species, and destination and origin of shipment, Ohio, 1983.....	18
9. Sawlog production and receipts in the Southeastern geographic unit, by species, and destination and origin of shipment, Ohio, 1983.....	19
10. Sawlog production and receipts in the East-Central geographic unit, by species, and destination and origin of shipment, Ohio, 1983.....	20
11. Sawlog production and receipts in the Northeastern geographic unit, by species, and destination and origin of shipment, Ohio, 1983.....	21

Table No.

Page

12. Sawlog production and receipts in the Western geographic unit, by species, and destination and origin of shipment, Ohio, 1983.....	22
13. Sawlog production and receipts, by species and destination and origin of shipment, Ohio, 1983.....	23
14. Pulpwood production, by source Ohio, 1964-83.....	24
15. Pulpwood harvest, by softwoods and hardwoods, and geographic unit, Ohio, 1969-83.....	25
16. Veneer log production in Ohio by species and consuming state, 1983.....	26
17. Veneer log receipts in Ohio, by species and consuming state 1983.....	27
18. Veneer log production and receipts in Ohio, for selected years, 1956-83.....	28
19. White oak cooperage log and bolt production and receipts and number of operating plants in Ohio, for selected years 1958-83.....	28
20. Production and disposition of manufacturing residues, by type of use and type of residue, Ohio, 1983.....	29

Table 1.--Volume of industrial roundwood, by product harvested, Ohio, 1983

Product	Standard unit	Volume in standard units		
		Softwoods	Hardwoods	All species
Sawlogs	M board feet ^a	2,108	316,145	318,253
Pulpwood	Standard cords ^b	1,100	349,800	350,900
Veneer logs	M board feet ^a	~	9,374	9,374
Cooperage logs	M board feet ^a	~	3,093	3,093
Mine timbers	M cubic feet	75	844	919
Misc. products ^c	M cubic feet	660	2,328	2,988

Product	Roundwood volume			Roundwood volume		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Thousand cubic feet			Thousand cubic meters		
Sawlogs	325	46,410	46,735	9.2	1,314.2	1,323.4
Pulpwood	93	29,733	29,826	2.6	841.9	844.5
Veneer logs	~	1,376	1,376	~	39.0	39.0
Cooperage logs	~	454	454	~	12.9	12.9
Mine timbers	75	844	919	2.1	23.9	26.0
Misc. products	660	2,328	2,988	18.7	65.9	84.6
Total	1,153	81,145	82,298	32.6	2,297.8	2,330.4

^aInternational 1/4-inch rule.^bRough wood basis equivalent to 85 ft³ of solid wood.^cIncludes guardrails, handle stock, metallurgical wood, poles, posts and roundwood chips used for molded pallets.

Table 2.--Change in timber products output, Ohio, 1978-83

Product	1966	1973	1978 ^a	1983	Change
	<u>Thousand cubic feet</u> ^b				<u>Percent</u>
Sawlogs	59,960	53,858	43,702	46,735	+ 7
Pulpwood	28,619	18,937	21,403	29,826	+39
Veneer logs	1,032	786	1,133	1,376	+21
Cooperage logs	1,697	933	1,033	454	-56
Mine timbers	1,010	1,306	1,010	919	- 9
Misc. products	5,946	4,181	2,192	2,988	+36
Total	98,264	80,001	70,473	82,298	+17

^a1978 sawlog totals are based on the 1983 conversion factor.

^bInternational 1/4-inch rule.

Table 3.--Industrial timber harvest, a by geographic unit,
softwoods and hardwoods, and products, Ohio, 1983

(In thousands of cubic feet)

Geographic unit and species group	Sawlogs	Pulpwood	Other products ^b	All products
South-Central				
Softwoods	72	-	151	223
Hardwoods	10,666	15,580	696	26,942
Total	10,738	15,580	847	27,165
Southeastern				
Softwoods	190	93	217	500
Hardwoods	7,394	7,718	918	16,030
Total	7,584	7,811	1,135	16,530
East-Central				
Softwoods	6	-	240	246
Hardwoods	12,635	5,517	1,981	20,133
Total	12,641	5,517	2,221	20,379
Northeastern				
Softwoods	24	-	31	55
Hardwoods	9,111	510	532	10,153
Total	9,135	510	563	10,208
Western				
Softwoods	33	-	96	129
Hardwoods	6,604	408	875	7,887
Total	6,637	408	971	8,016
All units				
Softwoods	325	93	735	1,153
Hardwoods	46,410	29,733	5,002	81,145
Total	46,735	29,826	5,737	82,298

^aDoes not include fuelwood or removals that were not manufactured into industrial products.

^bIncludes guardrails, handle stock, metallurgical wood, poles, posts, and round-wood chips used for molded pallets.

Table 4.--Number of operating sawmills, by geographic unit and annual production class, Ohio, 1973, 1978, and 1983

Geographic unit	Production class ^a							
	More than 1 million board feet				Between 100 thousand and 1 million board feet			
	1973		1978		1973		1978	
	1973	1978	1973	1978	1973	1978	1973	1978
South-Central	18	26	16	16	18	55	21	13
Southeastern	18	21	20	20	8	8	9	7
East-Central	18	17	22	16	27	14	17	27
Northeastern	17	27	20	9	32	28	21	21
Western	15	29	15	20	37	19	34	30
All units	86	120	93	108	122	106	102	98
							119	119
							310	310
							326	326
							318	318

^aBased on sawlog receipts or reported annual lumber production capacity.

^bThis class includes all custom mills in the 1973 and 1978 figures.

Table 5.--Sawlog production and receipts relationships, by geographic unit, Ohio, between 1978 and 1983

Geographic unit	Production				Receipts			
	1978 ^a		1983		1978		1983	
	Change		Change		Change		Change	
	Percent		Percent		Percent		Percent	
	Million ^b board feet		Million ^b board feet		Million ^b board feet		Million ^b board feet	
South-Central	78.8	73.1	- 7	- 7	85.1	72.9	-14	-14
Southeastern	51.0	51.6	+ 1	+ 1	66.8	86.2	+29	+29
East-Central	70.7	86.2	+ 1	+ 1	75.0	89.7	+ 9	+ 9
Northeastern	39.0	62.2	+53	+53	44.5	77.8	+74	+74
Western	57.7	45.2	-22	-22	44.5	49.9	+12	+12
All units	297.2	318.3	+ 7	+ 7	315.9	376.5	+19	+19

^a1978 sawlog totals are based on the 1983 conversion factor.

^bInternational 1/4-inch rule.

Table 6.—Sawlog production, by softwoods and hardwoods, geographic unit and destination of shipment, Ohio, 1983

(In millions of board feet)^a

Species group and geographic unit	Retained in unit	Logs shipped to:		Total production
		Other units	Other states	
Softwoods				
South-Central	0.3	0.2	~	0.5
Southeastern	1.2	~	~	1.2
East-Central	.1	~	~	.1
Northeastern	.1	~	~	.1
Western	*	.2	~	.2
Total softwoods	1.7	0.4	~	2.1
Hardwoods				
South-Central	53.1	19.0	0.5	72.6
Southeastern	44.0	6.0	.4	50.4
East-Central	62.1	23.6	.4	86.1
Northeastern	48.2	13.2	.7	62.1
Western	31.2	11.7	2.1	45.0
Total hardwoods	238.6	73.5	4.1	316.2
All species	240.3	73.9	4.1	318.3

^aInternational 1/4-inch rule.

*Less than 50 mbf.

Table 7.—Sawlog receipts, by softwoods and hardwoods, geographic unit and origin of shipment, Ohio, 1983

(In millions of board feet)^a

Species group and geographic unit	Where produced			Total receipts
	In unit	In state	In other states	
Softwoods				
South-Central	0.3	~	~	0.3
Southeastern	1.2	0.4	~	1.6
East-Central	.1	~	~	.1
Northeastern	.1	~	0.1	.2
Western	*	~	~	*
Total softwoods	1.7	0.4	0.1	2.2
Hardwoods				
South-Central	53.1	2.7	16.8	72.6
Southeastern	44.0	28.1	12.5	84.6
East-Central	62.1	19.6	7.9	89.6
Northeastern	48.2	20.2	9.2	77.6
Western	31.2	2.9	15.8	49.9
Total hardwoods	238.6	73.5	62.2	374.3
All species	240.3	73.9	62.3	376.5

^aInternational 1/4-inch rule.

*Less than 50 mbf.

Table 8.--Sawlog production and receipts in the South-Central geographic unit,
by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)^a

Species	Cut and retained in unit	Out-shipsments		Total production	In-shipsments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	0.1	0.2	-	0.3	*	-	0.1
Other softwoods	.2	-	-	.2	-	-	.2
Total softwoods	0.3	0.2	-	0.5	*	-	0.3
Ash	2.8	0.6	*	3.4	0.4	0.7	3.9
Aspen	.3	*	-	.3	*	*	.3
Basswood	.7	.2	*	.9	*	.2	.9
Beech	1.2	.6	-	1.8	*	.2	1.4
Black cherry	.6	.3	-	.9	*	.3	.9
Elm	.6	.2	-	.8	*	.2	.8
Hickory	2.9	.7	-	3.6	.1	.2	3.2
Black locust	*	-	-	*	-	-	*
Hard maple	2.8	.9	-	3.7	.1	.4	3.3
Soft maple	2.0	.6	0.2	2.8	.1	.3	2.4
White oak	9.8	3.0	.1	12.9	.5	5.1	15.4
Other white oak	4.4	1.6	-	6.0	.3	1.2	5.9
Red oak	7.5	2.8	.1	10.4	.4	2.8	10.7
Other red oaks	9.4	3.2	*	12.6	.5	4.0	13.9
Sycamore	1.1	.6	-	1.7	*	.1	1.2
Black walnut	.9	.6	.1	1.6	.1	.1	1.1
Yellow-poplar	5.0	2.8	-	7.8	.2	.9	6.1
Other hardwoods	1.1	.3	*	1.4	*	.1	1.2
Total hardwoods	53.1	19.0	0.5	72.6	2.7	16.8	72.6
All species	53.4	19.2	0.5	73.1	2.7	16.8	72.9

^aInternational 1/4-inch rule.

*Less than 50 mbf.

Table 9.--Sawlog production and receipts in the Southeastern geographic unit,
by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)^a

Species	Cut and retained in unit	Out-shipsments		Total production	In-shipsments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	1.2	*	-	1.2	0.4	-	1.6
Other softwoods	-	-	-	-	-	-	-
Total softwoods	1.2	*	-	1.2	0.4	-	1.6
Ash	2.0	0.3	-	2.3	1.3	0.7	4.0
Aspen	.6	*	-	.6	*	*	.6
Basswood	.5	*	-	.5	.4	.2	1.1
Beech	1.7	.1	0.1	1.9	1.1	.3	3.1
Black cherry	.8	.3	-	1.1	.6	.4	1.8
Elm	.4	.2	-	.6	.4	*	.8
Hickory	1.9	.1	*	2.0	1.1	.6	3.6
Black locust	*	*	-	*	-	-	*
Hard maple	2.3	.2	.1	2.6	1.3	.7	4.3
Soft maple	1.7	.2	-	1.9	1.0	.4	3.1
White oak	7.2	.9	*	8.1	4.4	1.5	13.1
Other white oaks	3.6	.3	*	3.9	2.1	1.6	7.3
Red oak	6.5	.8	*	7.3	4.3	2.2	13.0
Other red oaks	7.6	.9	.1	8.6	4.2	2.4	14.2
Sycamore	.8	.1	-	.9	.7	.3	1.8
Black walnut	.6	.4	-	1.0	.4	.2	1.2
Yellow-poplar	5.0	1.1	.1	6.2	4.4	.9	10.3
Other hardwoods	.8	.1	-	.9	.4	.1	1.3
Total hardwoods	44.0	6.0	0.4	50.4	28.1	12.5	84.6
All species	45.2	6.0	0.4	51.6	28.5	12.5	86.2

^aInternational 1/4-inch rule.

*Less than 50 mbf.

Table 10.—Sawlog production and receipts in the East-Central geographic unit,
by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)^a

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	0.1	~	~	0.1	~	~	0.1
Other softwoods	~	~	~	~	~	~	~
Total softwoods	0.1	~	~	0.1	~	~	0.1
Ash	3.6	2.6	~	6.2	1.2	0.3	5.1
Aspen	.3	.1	~	.4	.2	~	.5
Basswood	.5	.3	~	.8	.1	.1	.7
Beech	2.1	.7	*	2.8	.7	*	2.8
Black cherry	4.3	.9	~	5.2	1.3	.8	6.4
Elm	1.0	.3	~	1.3	.4	.2	1.6
Hickory	1.7	.5	*	2.2	.6	.1	2.4
Black locust	.1	*	~	.1	*	~	.1
Hard maple	3.6	1.6	*	5.2	1.1	.4	5.1
Soft maple	3.0	1.1	~	4.1	1.1	.2	4.3
White oak	8.6	4.5	0.1	13.2	2.3	.9	11.8
Other white oaks	1.7	.6	.1	2.4	.5	.2	2.4
Red oak	10.1	5.0	*	15.1	3.4	1.5	15.0
Other red oaks	10.5	2.8	.1	13.4	2.5	1.7	14.7
Sycamore	.8	*	~	.8	.2	.1	1.1
Black walnut	1.0	.5	~	1.5	.3	.1	1.4
Yellow-poplar	7.9	1.8	.1	9.8	3.1	1.1	12.1
Other hardwoods	1.3	.3	~	1.6	.6	.2	2.1
Total hardwoods	62.1	23.6	0.4	86.1	19.6	7.9	89.6
All species	62.2	23.6	0.4	86.2	19.6	7.9	89.7

^aInternational 1/4-inch rule.

*Less than 50 mbf.

Table 11.--Sawlog production and receipts in the Northeastern geographic unit,
by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)^a

Species	Cut and retained in unit	Out-shipsments		Total production	In-shipsments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	0.1	~	~	0.1	~	0.1	0.2
Other softwoods	~	~	~	~	~	~	~
Total softwoods	0.1	~	~	0.1	~	0.1	0.2
Ash	3.9	1.0	~	4.9	2.2	0.4	6.5
Aspen	.6	.2	~	.8	.2	.1	.9
Basswood	.7	.1	~	.8	.3	.1	1.1
Beech	2.3	.5	~	2.8	.5	.3	3.1
Black cherry	2.5	.9	~	3.4	.7	.5	3.7
Elm	.8	.1	~	.9	.2	.2	1.2
Hickory	1.5	.5	~	2.0	.2	.2	1.9
Black locust	.2	*	~	.2	*	~	.2
Hard maple	4.6	.8	~	5.4	1.7	.6	6.9
Soft maple	3.7	.8	~	4.5	1.1	.6	5.4
White oak	6.4	1.6	~	8.0	3.9	1.0	11.3
Other white oaks	1.3	.5	*	1.8	.5	.4	2.2
Red oak	9.1	2.2	0.1	11.4	4.4	2.0	15.5
Other red oaks	5.1	1.9	.6	7.6	2.2	1.3	8.6
Sycamore	.4	.2	~	.6	.1	.1	.6
Black walnut	.8	.1	~	.9	.5	.2	1.5
Yellow-poplar	3.4	1.4	~	4.8	1.2	1.0	5.6
Other hardwoods	.9	.4	~	1.3	.3	.2	1.4
Total hardwoods	48.2	13.2	0.7	62.1	20.2	9.2	77.6
All species	48.3	13.2	0.7	62.2	20.2	9.3	77.8

^aInternational 1/4-inch rule.

*Less than 50 mbf.

Table 12.—Sawlog production and receipts in the Western geographic unit,
by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)^a

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	*	0.2	~	0.2	~	~	*
Other softwoods	*	~	~	*	~	~	*
Total softwoods	*	0.2	~	0.2	~	~	*
Ash	4.1	0.8	0.3	5.2	0.2	0.6	4.9
Aspen	1.0	.1	~	1.1	*	*	1.0
Basswood	1.0	.2	~	1.2	*	.1	1.1
Beech	.8	.5	.1	1.4	.1	*	.9
Black cherry	.4	.3	~	.7	.1	*	.5
Elm	.2	.2	~	.4	*	*	.2
Hickory	1.6	.3	.2	2.1	.1	*	1.7
Black locust	*	~	~	*	~	~	*
Hard maple	2.0	.8	.1	2.9	.1	.4	2.5
Soft maple	1.7	.6	*	2.3	*	.1	1.8
White oak	4.4	1.5	.4	6.3	.4	13.4	18.2
Other white oaks	2.1	.5	.1	2.7	.1	*	2.2
Red oak	5.7	2.2	.4	8.3	.5	.4	6.6
Other red oaks	3.5	1.1	.2	4.8	.5	.1	4.1
Sycamore	1.0	.2	~	1.2	.1	.1	1.2
Black walnut	.6	.3	.3	1.2	.6	.5	1.7
Yellow-poplar	.8	1.9	~	2.7	.1	.1	1.0
Other hardwoods	.3	.2	~	.5	*	~	.3
Total hardwoods	31.2	11.7	2.1	45.0	2.9	15.8	49.9
All species	31.2	11.9	2.1	45.2	2.9	15.8	49.9

^aInternational 1/4-inch rule.

*Less than 50 mbf.

Table 13.--Sawlog production and receipts, by species and destination and origin of shipment, Ohio, 1983

Species	Cut and retained in state	Exported to:			Total production	Imported from:			Total receipts		
		Indiana		Kentucky		West Virginia		Pennsylvania		Kentucky	West Virginia
		Indiana	Kentucky			West Virginia	Pennsylvania				
(In millions of board feet) ^a											
Pine	1.9	-	-	-	1.9	-	-	0.1	-	2.0	
Other softwoods	.2	-	-	-	.2	-	-	-	-	.2	
Total softwoods	2.1	-	-	-	2.1	-	-	0.1	-	2.2	
Ash	21.7	0.3	-	-	22.0	0.2	0.6	0.6	1.3	24.4	
Aspen	3.2	-	-	-	3.2	-	-	.1	-	3.3	
Basswood	4.2	*	-	-	4.2	-	.1	.2	.4	4.9	
Beech	10.5	.2	-	*	10.7	-	.1	.4	.3	11.3	
Black cherry	11.3	-	-	-	11.3	-	.1	.9	1.0	13.3	
Elm	4.0	-	-	-	4.0	-	.1	.2	.3	4.6	
Hickory	11.7	.1	-	0.1	11.9	.1	.1	.2	.7	12.8	
Black locust	.3	-	-	-	.3	-	-	-	-	.3	
Hard maple	19.6	.1	-	.1	19.8	.1	.2	1.1	1.1	22.1	
Soft maple	15.4	.1	0.1	-	15.6	.1	.1	.7	.7	17.0	
White oak	47.9	.5	-	.1	48.5	13.1	4.6	1.2	3.0	69.8	
Other white oaks	16.6	.1	-	.1	16.8	-	.9	.5	2.0	20.0	
Red oak	51.9	.5	-	.1	52.5	.4	1.9	2.6	4.0	60.8	
Other red oaks	46.0	.2	-	.8	47.0	-	3.0	1.8	4.7	55.5	
Sycamore	5.2	-	-	-	5.2	.1	.1	.1	.4	5.9	
Black walnut	5.8	.4	-	-	6.2	.3	.2	.2	.4	6.9	
Yellow-poplar	31.1	-	-	.2	31.3	-	.4	1.2	2.4	35.1	
Other hardwoods	5.7	*	-	-	5.7	-	.1	.2	.3	6.3	
Total hardwoods	312.1	2.5	.1	1.5	316.2	14.4	12.6	12.2	23.0	374.3	
All species	314.2	2.5	.1	1.5	318.3	14.4	12.6	12.3	23.0	376.5	

^aInternational 1/4-inch rule.

*Less than 50 mbf.

Table 14.--Pulpwood production, by source, Ohio, 1964-83

(In thousands of rough cords)

Year	Roundwood	Manufacturing residues	All sources
1964	232.9	99.4	332.3
1965	272.5	40.6	313.1
1966	336.7	38.8	375.5
1967	281.1	54.9	336.0
1968	232.6	33.5	266.1
5-year total	1,355.8	267.2	1,623.0
1969	230.9	68.5	299.4
1970	251.8	92.0	343.8
1971	276.0	84.1	360.1
1972	233.8	94.1	327.9
1973	222.8	146.5	369.3
5-year total	1,215.3	485.2	1,700.5
1974	261.2	115.6	376.8
1975	185.7	93.4	279.1
1976	270.3	112.7	383.0
1977	286.7	175.6	462.3
1978	251.8	119.8	371.6
5-year total	1,255.7	617.1	1,872.8
1979	296.9	149.5	446.4
1980	299.6	137.1	436.7
1981	293.8	109.1	402.9
1982	317.4	107.5	424.9
1983	350.9	110.9	461.8
5-year total	1,558.6	614.1	2,172.7

Table 15.--Pulpwood harvest, by softwoods and hardwoods, and geographic unit, Ohio, 1969-83

(In thousands of rough cords)

Species group and geographic unit	1969	1970	1971	1972	1973	1974	1975	1976
Softwoods								
South-Central	8.9	8.9	6.6	4.8	4.2	1.9	1.7	1.5
Southeastern	2.4	4.3	3.1	.9	.4	.9	.7	2.3
East-Central	*	*	-	*	.2	-	-	-
Northeastern	.6	.2	-	.7	-	1.3	1.9	2.5
Western	.3	-	-	-	-	-	-	-
Total softwoods	12.2	13.4	9.7	6.4	4.8	4.1	4.3	6.3
Hardwoods								
South-Central	136.1	128.4	115.7	115.1	109.6	113.5	71.5	122.3
Southeastern	27.9	55.2	59.2	56.3	43.6	50.0	44.8	65.1
East-Central	33.3	26.7	56.1	26.3	39.4	69.9	51.2	60.1
Northeastern	6.6	8.0	10.7	9.5	5.0	8.0	1.9	2.4
Western	14.8	20.1	24.6	20.2	20.4	15.7	12.0	14.1
Total hardwoods	218.7	238.4	266.3	227.4	218.0	257.1	181.4	264.0
All species	230.9	251.8	276.0	233.8	222.8	261.2	185.7	270.3
Species group and geographic unit	1977	1978	1979	1980	1981	1982	1983	All years
Softwoods								
South-Central	1.2	1.0	0.5	0.1	-	-	-	41.3
Southeastern	1.4	.6	-	.3	-	1.2	1.1	19.6
East-Central	-	-	-	-	-	-	-	.2
Northeastern	2.4	2.8	1.7	-	-	-	-	14.1
Western	-	-	-	-	-	-	-	.3
Total softwoods	5.0	4.4	2.2	0.4	-	1.2	1.1	75.5
Hardwoods								
South-Central	119.5	102.5	106.9	112.4	122.2	134.6	183.3	1,793.6
Southeastern	82.7	78.8	116.0	95.6	90.0	89.4	90.8	1,045.4
East-Central	56.4	48.5	59.9	63.8	60.4	70.8	64.9	787.7
Northeastern	2.6	3.1	6.8	8.4	9.0	12.9	6.0	100.9
Western	20.5	14.5	5.1	19.0	12.2	8.5	4.8	226.5
Total hardwoods	281.7	247.4	294.7	299.2	293.8	316.2	349.8	3,954.1
All species	286.7	251.8	296.9	299.6	293.8	317.4	350.9	4,029.6

*Less than 50 cords.

Table 16.—Veneer log production in Ohio, by species and consuming state, 1983
(In thousands of board feet)^a

Species	Cut and retained in state	Exported to:				Total production
		Indiana	Kentucky	West Virginia	Canada	
Ash	180	75	-	64	5	324
Aspen	97	-	-	-	-	97
Basswood	37	-	-	-	-	37
Beech	236	-	-	-	-	236
Black cherry	116	18	-	-	-	134
Elm	64	-	-	-	-	64
Hickory	51	57	-	-	-	108
Hard maple	369	39	-	-	-	408
Soft maple	110	-	-	-	-	110
White oak	1,644	2,176	52	448	199	4,519
Other white oaks	1	-	-	-	-	1
Red oak	526	694	-	-	60	1,280
Other red oaks	1	102	-	-	-	103
Sycamore	155	-	-	-	-	155
Black walnut	468	784	26	-	18	1,296
Yellow-poplar	313	-	-	-	-	313
Other species	189	-	-	-	-	189
All species	4,557	3,945	78	512	282	9,374

^aInternational 1/4-inch rule.

Table 17.--Veneer log receipts in Ohio, by species and consuming state, 1983
(In thousands of board feet)^a

Species	Cut and retained in state	Imported from:							Total receipts
		Indiana	Kentucky	Louisiana	Michigan	Mississippi	Pennsylvania	West Virginia	
Ash	180	58	~	~	40	~	~	~	278
Hard maple	369	40	~	~	382	~	128	13	932
Soft maple	110	~	~	~	~	~	~	~	110
White oak	1,644	723	94	~	589	~	249	94	3,472
Sycamore	155	49	~	~	1	~	~	~	205
Black walnut	468	186	13	~	66	~	31	20	836
Yellow-poplar	313	~	~	~	~	~	~	~	313
Beech	236	22	~	~	104	~	~	~	362
Black cherry	116	27	~	~	56	~	97	~	305
Northern red oak	526	273	52	~	153	~	590	13	1,669
Other species ^c	440	141	41	158	201	150	~	~	1,162
All species	4,557	1,519	200	158	1,592	150	1,095	127	9,644

^aInternational 1/4-inch rule.

^bIncludes Illinois, Iowa, Louisiana, Missouri, New York, and Tennessee.

^cIncludes pine, aspen, basswood, elm, hickory, pecan, other oaks and miscellaneous hardwoods such as hackberry.

Table 18.—Veneer log production and receipts in Ohio,
for selected years, 1956-83

(In thousands of board feet)^a

Year	Production	Receipts
1956	8,731	5,658
1958	8,035	6,086
1960	11,135	6,739
1963	8,449	5,000
1966	6,712	5,648
1968	7,886	4,781
1972	7,200	6,914
1973	5,866	5,874
1976	7,575	3,685
1978	7,716	4,696
1980	7,748	6,625
1983	9,374	9,644

^aInternational 1/4-inch rule.

Table 19.—White oak cooperage log and bolt production and receipts
and number of operating plants in Ohio, for selected
years 1958-83

Year	Number of plants	Production	Receipts
1958	4	8,579	8,600
1960	11	13,598	14,735
1962	10	12,427	12,654
1964	12	16,000	17,303
1966	7	11,000	12,838
1973	7	6,372	8,210
1978	4	7,037	8,780
1983	4	3,093	4,480

Table 20.--Production and disposition of manufacturing residues, by type of use and type of residue, Ohio, 1983

(In thousands of cubic feet)

Disposition	Type of residue			All types
	Bark	^a Coarse	^b Fine	
^c LUMBER				
Fiber ^d	140	7,834	651	8,625
Industrial fuel	1,231	1,707	3,801	6,739
Domestic fuel	1,400	4,520	96	6,016
Agriculture ^e	3,776	150	5,420	9,346
Other ^f	249	1,095	83	1,427
Total, used	6,796	15,306	10,051	32,153
Unused	733	586	1,162	2,481
^c VENEER				
Fiber	-	204	47	251
Industrial fuel	128	331	182	641
Domestic fuel	12	117	35	164
Agriculture	60	-	17	77
Other	-	20	-	20
Total, used	200	672	281	1,153
Unused	5	-	-	5
^g OTHER INDUSTRIES				
Fiber	5	545	-	550
Industrial fuel	104	126	143	373
Domestic fuel	22	178	2	202
Agriculture	93	1	180	274
Other	-	-	-	-
Total, used	224	850	325	1,399
Unused	30	1	7	38
ALL INDUSTRIES				
Fiber	145	8,583	698	9,426
Industrial fuel	1,463	2,164	4,126	7,753
Domestic fuel	1,434	4,815	133	6,382
Agriculture	3,929	151	5,617	9,697
Other	249	1,115	83	1,447
Total, used	7,220	16,828	10,657	34,705
Unused	768	587	1,169	2,524

^aIncludes slabs, edgings, trimmings, veneer cores, and other material suitable for chipping.

^bIncludes sawdust, shavings, and other material considered unsuitable for chipping.

^cIncludes lumber products sawn from sawlogs and boltwood.

^dIncludes woodpulp and composite products.

^eIncludes livestock bedding and farm and horticultural mulch.

^fIncludes miscellaneous uses such as small dimension and speciality items.

^gIncludes handles, guardrails, and mine timbers: excludes the woodpulp industry.

Widmann, Richard H.; Long, Michael. Ohio timber products output--1983. NE-RB-95. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1986. 29 p.

This report contains information compiled from a canvass of all sawmills and all other primary wood-product manufacturers that were operating in Ohio in 1983. The total industrial harvest in Ohio was over 82 million cubic feet in 1983. This was up 17 percent since 1978. Sawlogs accounted for 57 percent of the total and pulpwood accounted for 36 percent. Data are presented by product at two levels: state and geographic unit.

Keywords: Timber output, wood residue use, Ohio manufacturers, production statistics, sawlogs

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