

Primary Wood Products Output in OHIO—1966



**by James T. Bones
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COVER PHOTO: *Mountains of wood are required to supply Ohio's expanding wood-using industries. Photo credit: Ohio Department of Natural Resources.*

FOREWORD

THE FOREST SERVICE of the U.S. Department of Agriculture conducts continuing forest surveys of all states to provide up-to-date information about the timber resources of the Nation. In the Northeastern Forest Experiment Station's territory, all states have been surveyed at least once; and several have been resurveyed. In the recently completed resurvey of Ohio, statistics about timber removals were gathered.

This report is the result of a 100-percent canvass of primary wood manufacturers in Ohio by the Station's Forest Survey project and the Ohio Department of Natural Resources. Pulpwood production data were gathered as part of the Station's annual survey of woodpulp producers of the Northeast.

During the canvass the Department of Natural Resources assembled a list of all known firms and later contacted in person all non-respondents. The Experiment Station mailed questionnaires to each firm, including possible out-of-state consumers of Ohio wood, and compiled data from the completed questionnaires.

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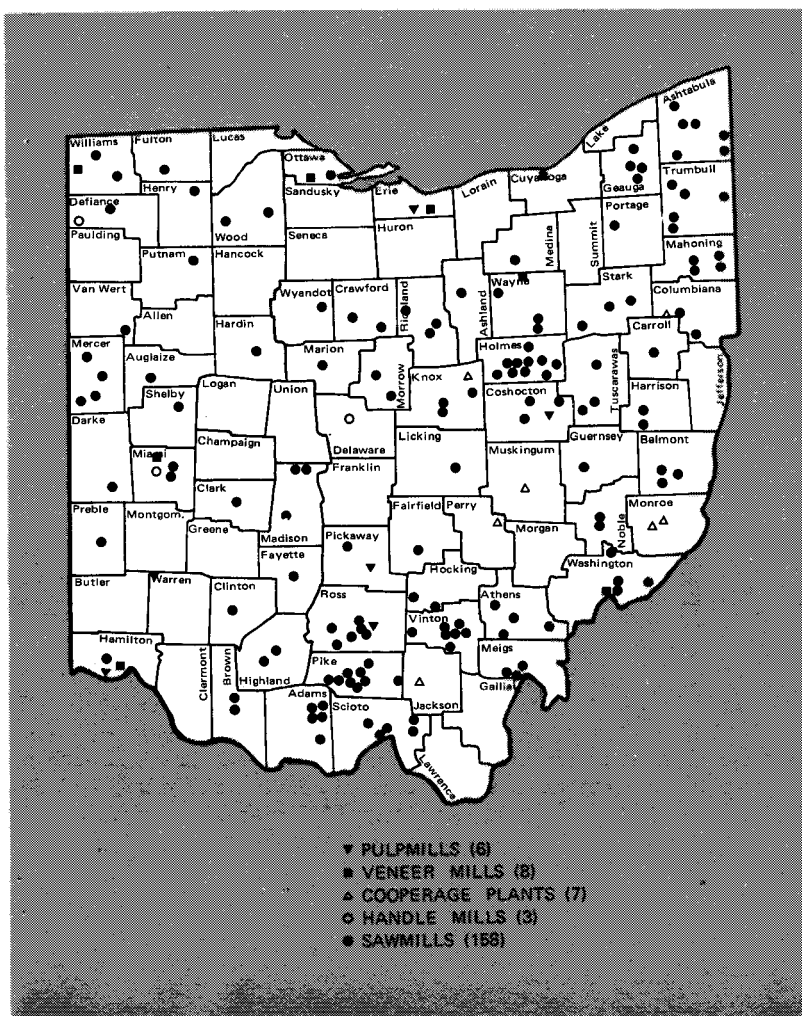


Figure 1.—The location of primary wood-using plants in Ohio. The numbers in parentheses indicate the number of plants operating in 1966. Sawmills include only operating mills that produce more than 0.5 million board feet.

Highlights

- ★ Over 96 million cubic feet of industrial roundwood were harvested from Ohio forests—up 119 percent from 1951.
- ★ Lumber production was at the highest level in past decade — nearly double that of 1960.
- ★ Internal industrial expansion caused pulpwood production to climb at an accelerated rate—up 20 percent from 1965.
- ★ Veneer log consumption went down 25 percent in the last decade, while the number of operating plants dropped by over 50 percent.
- ★ Plant residue use increased to 58 percent of the total available.
- ★ Six of the seven counties that produced over 15 million board feet of sawlogs in 1966 were in the Hill Country.

Trends in Total Output

Over 96 million cubic feet of industrial roundwood were cut from Ohio forests in 1966 (table 1). Sawlogs and pulpwood—by far the most important products—accounted for 90 percent of the total harvest.

Hardwoods accounted for 98 percent of the 1966 cut. However, small quantities of softwoods were harvested for sawlogs, pulpwood, posts, and mine timbers. All of the pole production came from softwoods.

Output of all timber products more than doubled in the past 15 years (table 2). The pulpwood manufacturing industry has been the most dynamic wood manufacturing industry in recent years. Pulpwood production between 1951 and 1966 increased 13.5 times. During the same period, sawlog production increased 83 percent. Output from softwoods increased at twice the rate of output from hardwoods.

Ohio Lumber and Sawlog Production Continued to Climb in 1966

Annual lumber production in Ohio has ranged from a high of nearly 1 billion board feet in 1899 to a low of 100 million

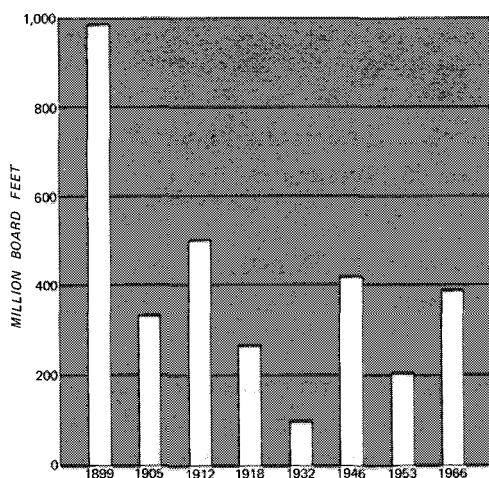
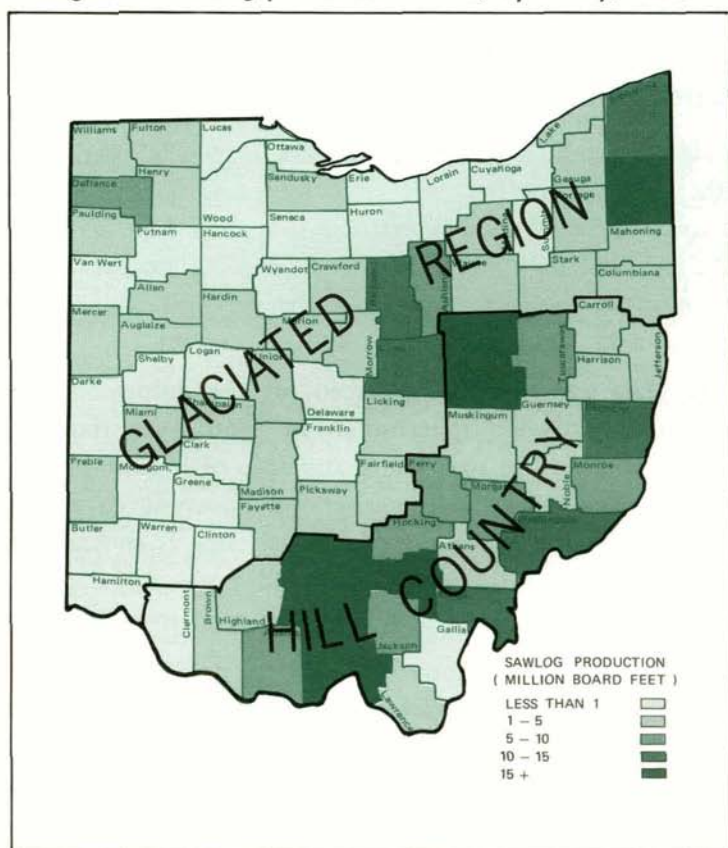


Figure 2.—Lumber production in Ohio for selected years, 1899-1966.

board feet during the depression years 1932-33 (fig. 2). More recently, highs of over 400 million board feet were recorded during World War II. During the last decade annual production climbed slowly from slightly over the 200 million board feet level to a high of 390 million board feet in 1966.

Ninety-nine percent—386 million board feet—of the sawlogs produced by Ohio timberlands in 1966 were hardwood (table 3). The oaks accounted for 43 percent of all sawlogs produced; red oak contributed nearly half of this volume. Yellow-poplar was the only other species that made up more than 10 percent of the total produced: nearly 44 million board feet of yellow-poplar sawlogs were produced during the year.

Figure 3.—Sawlog production in Ohio, by county, 1966.



Most of the sawlogs manufactured into lumber in 1966 came from Ohio forests (fig. 3). Only 7.5 million board feet of logs were purchased from other states for processing in Ohio. Red and white oaks and yellow-poplar were the major species purchased. Fifty-seven percent of the sawlog volume brought into the state came from West Virginia.

Six million board feet—1.5 percent of the total harvest — were shipped for processing to other states. Black walnut accounted for half of the volume shipped, and Indiana was the best customer.

Sixty-nine percent of Ohio's commercial forest land area and sawtimber volume is in the Hill Country. Six of the seven counties producing more than 15 million board feet of sawlogs in 1966 were located in this region.

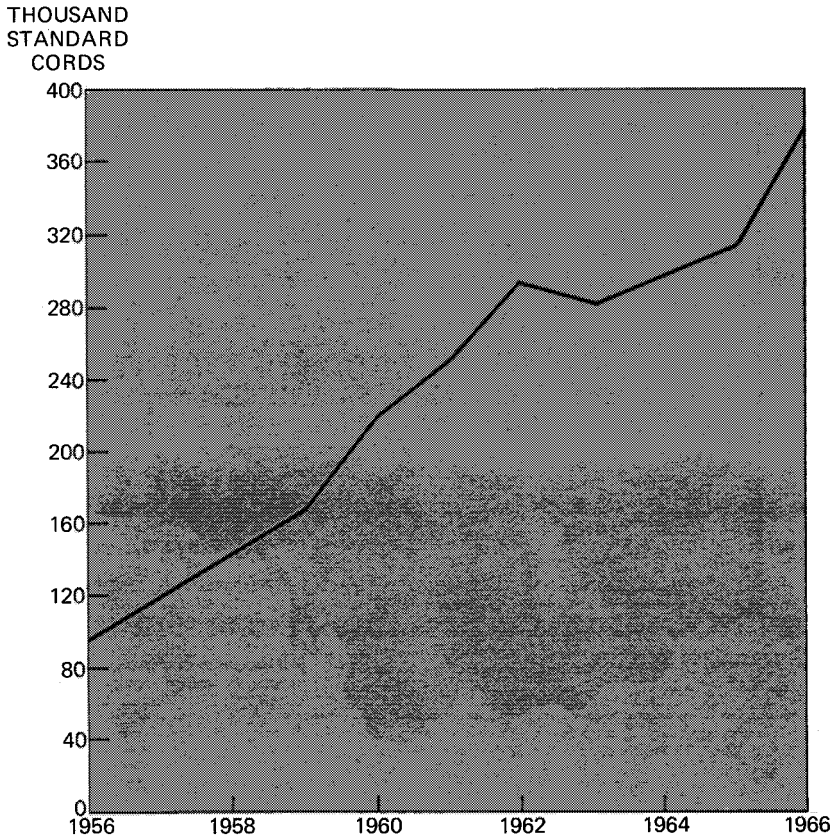
Industrial Expansion Creates Greater Pulpwood Demand

Pulpwood production in Ohio increased every year but one in the past decade (fig. 4), mainly because of the increasing demand for wood by the existing pulpmills in the State. In 1959, five woodpulp mills had a combined daily capacity of 635 tons; in 1966, the daily capacity of the six mills operating then had grown to 1,215 tons.

Ten years ago, nearly 99 percent of the pulpwood harvest came from hardwood roundwood. In 1966, even though the harvest had tripled in size, the relationship of hardwood to softwood cut remained virtually unchanged. Ninety-seven percent—326 thousand cords—of the 1966 harvest came from hardwoods. The small harvest of softwood roundwood—1,077 cords in 1956 and 10,400 cords in 1966—was shipped to mills in other states for processing.

No chips from plant residues were being processed in 1956. By 1961 chipped plant residues were being used in significant quantities in Ohio. Chip consumption jumped from 3 thousand cords in 1961 to 63 thousand cords in 1963. Ohio pulpmills

Figure 4.—Pulpwood production in Ohio, 1956-66.

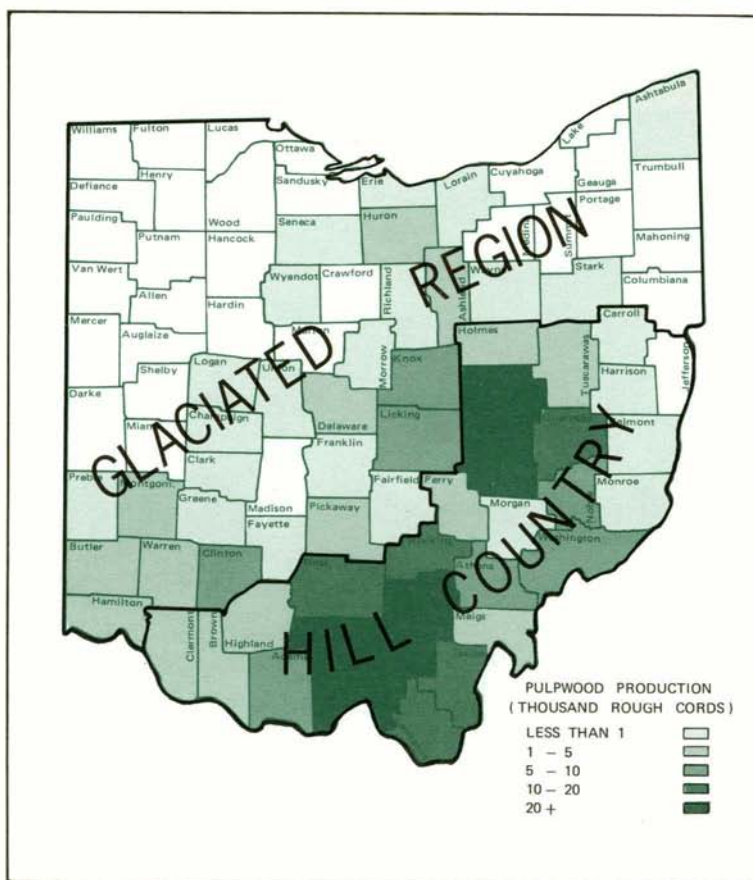


consumed 113 thousand cord-equivalents of chipped residues in 1966, 74 thousand cords of which were from other states.

Ohio has consistently obtained more pulpwood from neighboring states than it has shipped to them. In 1959 Ohio produced 84 percent of its total pulpwood requirements and brought in the remainder from Indiana, Kentucky, and West Virginia. In 1966 Ohio retained 97 percent of its roundwood harvest and all of its chipped residues for local consumption, and obtained 118.1 thousand cords of additional roundwood and woodchips from its neighbors.

Eleven counties (all in the Hill Country) produced more than 10,000 cords each of pulpwood bolts in 1966 (fig. 5). These

Figure 5.—Roundwood pulpwood production in Ohio, 1966.



11 counties produced 71 percent—240 thousand cords—of the state total (table 4).

Veneer Log Harvest Greater Than Local Needs

Ohio forests produced quantities of veneer logs in excess of local industrial needs during the past decade. While production decreased 23 percent during this period, consumption decreased 25 percent (fig. 6). Between 1958 and 1966 the small production excess remained more or less constant: production exceeded consumption by 19 percent in 1966 (tables 5 and 6).

The apparent ill-health of the veneer industry in Ohio can be traced to the type of product manufactured. Most manufacturers produce container veneer. Recently they have been under extreme pressure from competitors who use such substitute materials as plastics and corrugated paper in container construction. Between 1956 and 1966 more than half of the veneer plants went out of business.

White oak, hard maple, black walnut, elm, and beech accounted for 69 percent of the 1956 veneer-log harvest. Most of the white oak and black walnut logs were shipped to Indiana for processing into face veneer. In 1966, the same five species again accounted for 69 percent of the harvest.

The importance of black walnut as a preferred species of the Northeast hardwood veneer industry has increased over the years. In 1956, only 12 percent of the veneer log harvest in Ohio was from black walnut: in 1966, this species accounted for 38 percent of the harvest. Nearly three-fourths of the walnut volume harvested in 1966 was shipped to other states for processing.

During the decade 1956-66, white oak was replaced by beech as an important component of the annual veneer-log harvest.

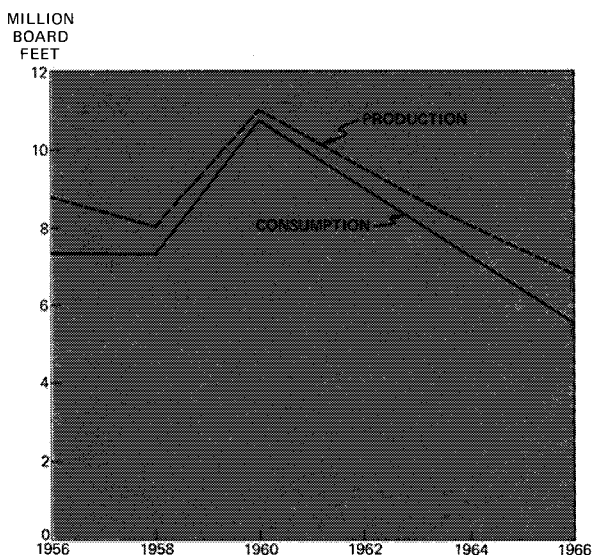


Figure 6.—Trends in veneer-log production and consumption in Ohio, 1956-66.

Although this switch in species resulted in a lower product value for the total cut because the white oak logs are sold for face veneer, manufacturers are now using a local species for container veneer that had previously been left uncut in the forest.

Cooperage and Handle Logs are High-Value Products

Cooperage logs and bolts are an insignificant part of Ohio's annual harvest. In 1966, the 11.0 million board-foot cut represented merely 1.8 percent of the harvest (table 7). However, this cut was valued at over half a million dollars at the stump, and close to a million dollars when delivered to the processing plant.

The trade differentiates between barrels constructed to hold liquids (tight cooperage) and those that hold dry materials (slack cooperage). White oak is normally used for tight cooperage; elm, gum, sycamore, and cottonwood are favored for slack cooperage. In 1958, 10 percent of Ohio's cooperage log harvest came from species used in slack cooperage. By 1966, slack cooperage production had fallen to zero because of the competition from new packaging products such as fiber boxes and drums, and paper and cotton bags. All of the 1966 harvest was from white oak.

Because most cooperage mills are portable, they tend to locate close to extensive white oak sawtimber stands. Therefore, there are very few interstate shipments of cooperage logs. During the past decade more than 90 percent of the material used in Ohio cooperage mills came from Ohio forests.

Five handle mills cut 5.2 million board feet of logs and bolts into handles and handle blanks during 1966. Consumption was up 69 percent from 1962. Over 99 percent of the handle bolts were ash, for use in shovel and rake handles.

Plant Residues Find Many Uses

More than 34 million cubic feet of wood residues were generated by Ohio primary wood manufacturers in 1966. Fifty-eight

percent—nearly 20 million cubic feet—of these residues were used (tables 8 and 9).

Thirty-five percent of the residues used went to Ohio fiber and pulpmills. The portion going to the pulpmills equaled 10 percent of their total receipts.

For many years agricultural bedding has constituted a major use of fine material (sawdust and shavings). In 1966, 41 percent of the fine material available was used; and of this, 95 percent or 5.4 million cubic feet went into agricultural bedding.

Much of the coarse residues (slabs and edgings) were converted to pulp chips or were used as domestic or industrial fuel. Charcoal plants in Ohio now use coarse plant residues almost exclusively as an inexpensive raw material.



Table 1.—Volume of industrial roundwood production in Ohio, 1966¹

Product	Volume in standard units				Roundwood volume		
	Standard units	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
					<i>Thousand cubic feet</i>		
Sawlogs	M board feet ²	389,731	3,406	386,325	59,960	521	59,439
Pulpwood	Standard cords	336,700	10,400	326,300	26,936	832	26,104
Veneer logs	M board feet ²	6,712	—	6,712	1,032	—	1,032
Cooperage logs	M board feet ²	11,041	—	11,041	1,697	—	1,697
Poles	M pieces	5	5	—	12	12	—
Posts	M pieces	1,440	190	1,250	866	146	720
Mine timbers	M cubic feet	1,010	203	807	1,010	203	807
Miscellaneous products ³	M cubic feet	5,068	—	5,068	5,068	—	5,068
Total	—	—	—	—	96,581	1,714	94,867

¹ Does not include fuelwood or metallurgical wood.

² International 1/4-inch rule.

³ Includes piling, handle stock, miscellaneous dimension stock, and hewn ties.

Table 2.—Timber products output from roundwood for Ohio, 1951 and 1966

Product	All species			Softwoods			Hardwoods		
	1951	1966	Change	1951	1966	Change	1951	1966	Change
	<i>Million cubic feet</i>		<i>Percent</i>	<i>Million cubic feet</i>		<i>Percent</i>	<i>Million cubic feet</i>		<i>Percent</i>
Sawlogs	32.8	60.0	+83	0.4	0.5	+25	32.4	59.5	+84
Pulpwood	2.0	26.9	+1,245	(¹)	.8	+700	2.0	26.1	+1,205
Veneer logs	1.8	1.0	-43	—	—	—	1.8	1.0	-43
Cooperage logs	1.9	1.7	-11	—	—	—	1.9	1.7	-11
Poles and posts	3.6	.9	-75	—	.2	—	3.6	.7	-81
Mine timbers	1.4	1.0	-29	—	.2	—	1.4	.8	-43
Miscellaneous products ²	.6	5.1	+750	(¹)	—	—	.6	5.1	+750
Total	44.1	96.6	+119	0.4	1.7	+325	43.7	94.9	+117

¹ Less than 50,000 cubic feet.² Includes piling, handle stock, miscellaneous dimension stock, and hewn ties. Does not include fuelwood or metallurgical wood.

Table 3.—Ohio sawlog production by species, 1966

Species	Production	
	<i>Million board feet</i>	<i>Percent of total</i>
Softwoods:		
Pine	1.2	0.3
Other softwoods	2.2	.6
All softwoods	3.4	0.9
Hardwoods:		
Ash	19.8	5.1
Basswood	7.8	2.0
Birch	1.2	.3
Beech	17.7	4.5
Black cherry	7.5	1.9
Elm	13.9	3.6
Gum	2.8	.7
Hickory	14.7	3.8
Hard maple	27.7	7.1
Soft maple	27.0	6.9
White oak	50.8	13.1
Chestnut oak	14.1	3.6
Red oak	78.1	20.0
Black oak	16.0	4.1
Other oak	8.9	2.3
Yellow-poplar	43.6	11.2
Walnut	19.1	4.9
Other hardwoods	15.6	4.0
All hardwoods	386.3	99.1
All species	389.7	100.0

Table 4.—*Pulpwood production from roundwood, by species groups and counties, Ohio, 1966*

[In thousands of standard cords]¹

County	All species	Softwoods	Hardwoods
Adams	6.6	—	6.6
Ashland	1.7	0.1	1.6
Ashtabula	.5	—	.5
Athens	8.0	.1	7.9
Belmont	.1	—	.1
Brown	2.4	(²)	2.4
Butler	1.4	(²)	1.4
Carroll	(²)	—	(²)
Champaign	.1	—	.1
Clark	.2	—	.2
Clermont	1.8	(²)	1.8
Clinton	5.6	.1	5.5
Coshocton	31.1	—	31.1
Delaware	1.6	—	1.6
Erie	.8	—	.8
Fairfield	.9	—	.9
Fayette	.3	—	.3
Franklin	.5	—	.5
Gallia	12.2	5.4	6.8
Greene	.9	(²)	.9
Guernsey	11.5	—	11.5
Hamilton	1.1	—	1.1
Harrison	.2	—	.2
Highland	4.9	.1	4.8
Hocking	18.2	—	18.2
Holmes	3.7	—	3.7
Horon	1.4	—	1.4
Jackson	32.1	.7	31.4
Knox	5.6	—	5.6
Lawrence	19.9	1.0	18.9
Licking	9.6	—	9.6
Logan	.1	—	.1
Lorain	.9	—	.9
Meigs	3.5	1.9	1.6
Monroe	.5	—	.5
Montgomery	1.5	(²)	1.5
Morgan	.2	—	.2
Morrow	.1	—	.1
Muskingum	20.9	—	20.9
Noble	9.6	—	9.6
Perry	4.8	—	4.8
Pickaway	1.0	—	1.0
Pike	26.6	(²)	26.6

CONTINUED

Table 4.—Continued

County	All species	Softwoods	Hardwoods
Preble	.8	.1	.7
Richland	.3	—	.3
Ross	14.2	—	14.2
Scioto	29.2	.1	29.1
Seneca	.6	—	.6
Stark	.4	—	.4
Tuscarawas	4.5	—	4.5
Union	.1	—	.1
Vinton	24.3	(²)	24.3
Warren	1.2	.1	1.1
Washington	6.3	.7	5.6
Wayne	.1	—	.1
Wyandot	.1	—	.1
Total	336.7	10.4	326.3

¹ Rough wood basis.² Less than 50 cords.Table 5.—Production of veneer logs and bolts in Ohio, by species and state where used, 1966¹

[In thousands of board feet, International 1/4-inch rule]

Species	Indiana	Kentucky	Ohio	All states
Ash	33.0	—	—	33.0
Basswood	—	—	64.7	64.7
Beech	—	—	872.3	872.3
Cherry	33.0	—	—	33.0
Elm	—	—	480.1	480.1
Gum	—	—	314.9	314.9
Hickory	46.0	—	129.6	175.6
Hard maple	108.0	—	360.5	468.5
Soft maple	—	—	259.4	259.4
White oak	264.0	—	—	264.0
Red oak	171.0	—	60.0	231.0
Yellow-poplar	188.0	—	269.6	457.6
Walnut	1,472.0	418.8	670.8	2,561.6
Other hardwoods ²	2.0	—	494.0	496.0
All species	2,317.0	418.8	3,975.9	6,711.7

¹ These statistics reflect veneer log receipts at domestic veneer plants, and therefore do not include export logs handled in log concentration yards.² Includes sycamore and cottonwood.

Table 6.—Consumption of veneer logs and bolts in Ohio, by species and state of origin, 1966¹

[In thousands of board feet, International ¼-inch rule]

Species	Illinois	Indiana	Kentucky	Michigan	Ohio	Pennsylvania	West Virginia	All states
Basswood	—	—	—	—	64.7	—	—	64.7
Beech	—	—	—	—	872.3	—	—	872.3
Elm	—	—	—	—	480.1	—	—	480.1
Gum	—	—	—	—	314.9	—	—	314.9
Hickory	—	—	—	—	129.6	—	—	129.6
Hard maple	—	108.0	—	216.0	360.5	—	12.0	696.5
Soft maple	—	—	—	—	259.4	—	—	259.4
Red oak	—	—	—	—	60.0	—	—	60.0
Yellow-poplar	—	—	—	—	269.6	—	—	269.6
Walnut	92.9	701.0	280.6	—	670.8	59.9	201.6	2,006.8
Other hardwoods ²	—	—	—	—	494.0	—	—	494.0
All species	92.9	809.0	280.6	216.0	3,975.9	59.9	213.6	5,647.9

¹ These statistics reflect veneer-log receipts at domestic veneer plants, and therefore do not include export logs handled in log-concentration yards.

² Includes sycamore and cottonwood.

Table 7.—Production of cooperage logs and bolts in Ohio, by selected years

Year	Active stave mills	Volume produced
	<i>Number</i>	<i>Million board feet¹</i>
1958	10	8.6
1960	11	13.6
1962	10	12.4
1964	12	16.0
1966	7	11.0

¹ International 1/4-inch rule.

Table 8.—Total residues from primary wood-processing plants by industrial source and type of residue, and by species groups, Ohio, 1966

[In thousands of cubic feet]

Industrial source ¹ and type of residue	All species	Softwoods	Hardwoods
Lumber industry:			
Coarse ²	19,487	171	19,316
Fine ³	12,861	112	12,749
Total	32,348	283	32,065
Veneer industry:			
Coarse	116	—	116
Fine	116	—	116
Total	232	—	232
Other primary industries:			
Coarse	988	—	988
Fine	580	—	580
Total	1,568	—	1,568
All industries:			
Coarse	20,591	171	20,420
Fine	13,557	112	13,445
Total	34,148	283	33,865

¹ Excludes woodpulp industry.

² Coarse residues include slabs, edgings, trimmings, and other material considered suitable for chipping.

³ Fine residues include sawdust, shavings, and other material unsuitable for chipping.

Table 9.—Volume of byproducts from primary wood-processing plants, by source, type of use, and species groups, Ohio, 1966

[In thousands of cubic feet]

Source ¹ industry	Type of use	All species	Softwoods	Hardwoods
Lumber	Fiber ²	6,973	13	6,960
	Fuel ³	4,962	52	4,910
	Agricultural bedding	5,182	49	5,133
	Other ⁴	1,651	—	1,651
	All uses	18,768	114	18,654
Veneer	Fiber	74	—	74
	Agricultural bedding	5	—	5
	Other	44	—	44
	All uses	123	—	123
Other industries	Fiber	43	—	43
	Fuel	649	—	649
	Agricultural bedding	183	—	183
	Other	171	—	171
	All uses	1,046	—	1,046
All industries	Fiber	7,016	13	7,003
	Fuel	5,685	52	5,633
	Agricultural bedding	5,370	49	5,321
	Other	1,866	—	1,866
	Total	19,937	114	19,823

¹ Excludes woodpulp industry.

² Includes 3,104 M cubic feet of residues for pulp along with residues for wood fiber mills.

³ Includes all residues used as domestic or industrial fuel whether sold or given away.

⁴ Includes residues used for charcoal, small dimension stock, and specialty items.





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