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Forest Statistics for Ohio — 1979

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Contents

Foreword

The third inventory of Ohio was directed by Carl E. Mayer, Resources Evaluation unit leader. Joseph E. Barnard was responsible for inventory design and sample selection. John R. Peters supervised the aerial-photo interpretation and data collection by field crews. He was assisted by Mark A. Cooper, III. The other field personnel were: Raymond F. Brainard, Karen J. Sykes, Edward H. Uebler, Richard H. Widmann, Judy L. Flory, Gerard A. Fontaine, Arthur L. Gaffrey, Gregory E. Baker, Herman J. Bailey, John E. Boyle, Randy L. DeMarco, Carla J. Derby, Philip E. Emery, Ellen M. Eshchuk, Robert C. Guth, Frederick J. Harris, Stanley E. Jones, Kenneth M. Maleski, Pam McIntosh, Keelin Reardon, Scott Ruxton, Lois Schimmel, Laurie L. Shortess, Roy A. Siefert, Michael A. Steiner, Richard R. Taylor, Stephen T. Warner and Eric L. Wunz.

David R. Dickson, Nancy M. Veronesi and Thomas S. Frieswyk applied FINSYS (Forest INventory SYStem), a generalized data processing system, to the specific data needs of the Ohio inventory, and produced summary tables for the state, geographic sampling units, and counties. Thomas W. Birch was instrumental in assuring that the area estimates were consistent with those from the two previous inventories, as well as in grouping the proper counties for detailed area and volume information. Teresa M. Bowers assisted in the inventory design by performing all calculations necessary for sampling-size determination and plot selection. She was responsible for the coordination of keypunching and other data preparation tasks. Anne M. Malley helped prepare and balance the statistical tables in this report.

Robert L. Nevel and Eric H. Wharton with the assistance of Robert B. Redett, Ohio Department of Natural Resources, Division of Forestry, collected and compiled the data on timber products output and timber removals.

Carmela M. Hyland was responsible for administrative and secretarial services. Catherine A. Logan typed this report.

Introduction

The USDA Forest Service inventories the forest resources of the Nation for assessment and plannng activities authorized by the Renewable Resources Planning Act (RPA) of 1974 and the Renewable Resources Research Act of 1978. These inventories are conducted periodically in each state. Results from two previous inventories conducted in Ohio were reported in 1954 and 1970. This report presents the forest resource data from the third inventory, conducted in 1977-79, a cooperative effort of the Ohio Department of Natural Resources, Division of Forestry; the Wayne-Hoosier National Forest; and the Northeastern Forest Experiment Station. Data from the most recent inventory of the Wayne National Forest were updated to the present inventory date; the Resources Evaluation unit at the Northeastern Forest Experiment Station conducted an inventory on all other land, developed the summaries of resource data, and prepared this report.

The 1977-79 inventory conducted by the Resources Evaluation project followed a sampling procedure that utilized aerial photography, partial remeasurement of ground samples from earlier inventories, and new ground sample locations. In Ohio this required remeasuring 2,759 plots, classifying 79,752 points on aerial photographs into land-use and cubic foot volume classes, and establishing 2,128 new ground measurement locations as a subsample of the photo points. The data collected were summarized according to the Sampling with Partial Replacement (SPR) design by the FINSYS computer system developed by the Northeastern Forest Experiment Station.

The resurvey of Ohio's forest resources included several companion studies and considerable analysis. Analytical reports discussing the results of the reinventory, past trends, future supply potential, and the private forest-land owner are being prepared. A publication describing Ohio's primary forest products industry is available. The forest area and timber volume statistics shown in this report are summaries of the information collected. Other information or additional summaries may be developed. If interested in additional publica-

tions or more resource data, contact the Resources Evaluation Project, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone 215-461-3037).

Highlights

Forest area

Ohio is 27 percent forested. Ninety-seven percent of the forest land, 6.9 million acres, is classified as commercial forest land; a 5.5 percent increase since the 1968 inventory.

The oak-hickory forest type group dominates Ohio, occupying 62 percent of the commercial forest land.

Twenty-eight percent of Ohio's commercial forest land is in stands with more than 5,000 board feet per acre.

Timber volume

Ohio's growing stock volume is 6.4 billion cubic feet, averaging 924 cubic feet per acre. Total growing stock volume has increased by 48 percent since 1968.

Sawtimber volume is 20.4 billion board feet, averaging 2,952 board feet per acre. Sawtimber volume has also increased by 48 percent since 1968.

Timber growth and removals

Net growth has been 3 times greater than removals for the period between surveys.

In 1978, removals pressure has been highest in the oaks and hickories, but still only half the net growth has been removed.

Reliability of the Estimates

Much of the data in this report were based on a carefully designed sample of forest conditions throughout the state. However, since we did not measure every tree or every acre in the state, the data are estimates. The effectiveness of the estimating procedure is judged by two important measures: accuracy and precision. Accuracy describes the closeness of a sample estimate to the true value, or how much is really there. Precision refers to the variation among repeated sample estimates. We are chiefly interested in the accuracy of the survey, but in most instances we can only measure its precision.

Although accuracy cannot be measured exactly, it can be checked. Drafts of the resource report are submitted to outside experts familiar with the resources in Ohio. Should questions arise, the data are reviewed and reanalyzed to resolve differences. The data are also compared with those provided by other agencies. Also, great care was taken in setting up the sample, field personnel were carefully trained, and both office and field work checked.

Because of the care exercised in the survey process, our estimates of precision afford a reasonable measure of the survey's adequacy. The precision of each estimate is described by its sampling error. Some sampling errors appear in this report, others are available on request.

Here is an example of how to use sampling errors: The estimate of total growing stock volume for Ohio is 6,394.3 million cubic feet. It has an associated sampling error of 1.3 percent, or 83.1 million cubic feet. This means that if there are no errors in procedure and we repeated the survey in the same way, the odds are 2 to 1 (66 percent probability) that the resulting estimate of growing stock volume would be between 6,311.2 and 6,477.4 million cubic feet, or 6,394.3 $\pm$ 83.1 million cubic feet. Similarly there is a 95 percent probability (19 to 1) that the estimate would be within 6,394.3 $\pm$ 166.2 million cubic feet.

Estimates are most precise or reliable at the state level; state estimates have the smallest sampling errors, followed by unit estimates and then county estimates. For example, our estimate of growing stock volume for the state has an associated sampling error of 1.3 percent; the sampling error for the South-Central Unit is 2.3 percent; and the sampling error for Adams county is 6 percent. Thus, county-level estimates are often considerably less reliable than unit or state-wide estimates. In general, as the size of an estimate decreases in relation to the total, the sampling error, expressed as a percent of the estimate, increases.

Since the 1968 survey, some definitions and procedures have changed as the result of refinements and improvements in forest inventory and data processing techniques. As a consequence, before any comparisons with the most recent information can be made, the published estimates from the previous survey must be adjusted somewhat. The adjusted area figures are shown in Table 67.

Growing stock volume adjustments are reflected in the following figures (in millions of cubic feet):

Species group	1968	1979	Change (1968-1979)
All softwoods	116.3	274.9	+158.6
Select white oaks	614.2	795.8	+181.6
Select red oaks	324.1	377.5	+ 53.4
Chestnut oak	261.0	326.5	+ 65.5
Other red oaks	447.7	560.6	+112.9
Hickory	499.8	604.7	+104.9
Hard maple	248.5	448.9	+200.4
Soft maple	235.5	364.5	+129.0
Yellow-poplar	275.3	489.2	+213.9
Elm	252.6	248.9	- 3.7
Other hardwoods	1,051.7	1,902.8	+851.1
All hardwoods	4,210.4	6,119.4	+1,909.0
All species	4,326.7	6,394.3	+2,067.6

Sawtimber volume adjustments are reflected in the following figures (in millions of board feet, International 1/4-inch rule):

Species group	1968	1979	Change (1968-1979)
Softwoods	341.2	886.3	+545.1
Hardwoods	13,474.9	19,529.6	+6,054.7
All species	13,816.1	20,415.9	+6,599.8

TO COMPARE 1979 AREA AND VOLUME ESTIMATES WITH COMPARABLE ESTIMATES FOR 1968, USE THE FIGURES IN TABLE 67 AND THE ABOVE FIGURES RATHER THAN TOSE PUBLISHED PREVIOUSLY.

To compare more detailed information than that provided above, simple arithmetic will be required to derive the proper figure for 1968. For example, to compare the 1968 data on growing stock volume in sawtimber stands with the 1979 data, take the published data for 1968 found in table 15, of Kingsley and Mayer (1970), 2,427.5 million cubic feet. This represents 58.1 percent of the total growing stock volume of 4,180.9 million cubic feet. To obtain the adjusted 1968 figure, multiply this proportion by the recalculated 1968 total growing stock volume. The calculation is: (0.581)(4326.7) = 2,513.8 million cubic feet.

This figure can then be compared with the 1979 estimate, 4,207.6 million cubic feet. Contact the Resources Evaluation unit at the Northeastern Forest Experiment Station if you need additional assistance.

LIST OF TABLES

State level

Area

Number of trees

Table 1.--Land area by land class, Ohio, 1979

Land class	Area		
		Thousand Acres	Percent
Commercial forest land		6,917.1	26
Noncommercial forest land:			
Productive reserved	119.4		1
Urban	40.5		W
Unproductive	43.1		W
Total noncommercial		203.0	1
Total forest land		7,120.1	27
Nonforest land:			
Cropland[a]	10,977.8		42
Pasture[a]	2,154.4		8
Other[b]	5,976.2		23
Total nonforest		19,108.4	73
Total land area[c]		26,228.5	100

[a]Source: U.S. Dep. Commer., Bur. Census, 1980. 1978 Census of Agriculture, preliminary report. AC78-P-39-000. p.1.
[b]Includes swampland, industrial and urban areas, other nonforest land, and 80,500 acres classed as water by Resources Evaluation standards, but defined by the Bureau of the Census as land.
[c]U.S. Dep. Commer., Census, County and City Data Book, 1972.
W-Less than 0.5 percent

Table 2.--Land area by geographic unit and land class, Ohio, 1979

(In thousands of acres)

Geographic unit	Forest land					Nonforest land	All land
	Commercial	Productive-reserved	Urban	Unproductive	Total		
South-Central	1,601.3	24.8	.2	.5	1,626.8	1,680.7	3,307.5
Southeastern	1,247.7	14.5	-	2.2	1,264.4	811.1	2,075.5
East-Central	1,657.7	12.2	-	24.2	1,694.1	1,713.3	3,407.4
Northeastern	1,240.4	44.0	31.8	15.5	1,331.7	3,783.1	5,114.8
Southwestern	470.2	15.0	6.9	-	492.1	4,319.5	4,811.6
Northwestern	699.8	8.9	1.6	.7	711.0	6,800.7	7,511.7
Total	6,917.1	119.4	40.5	43.1	7,120.1	19,108.4	26,228.5

Table 3.--Area of commercial forest land by ownership class and geographic unit, Ohio, 1979

(In thousands of acres)

Ownership class	South-Central	South-eastern	East-Central	North-eastern	South-western	North-western	Total
National Forest	68.2	78.3	12.8	-	-	-	159.3
Other federal	-	-	0.3	14.6	0.4	0.1	15.4
State	110.4	42.6	16.9	13.8	2.1	9.7	195.5
County and Municipal	0.1	-	25.2	10.4	2.4	3.9	42.0
Total public	178.7	120.9	55.2	38.8	4.9	13.7	412.2
Corporate[a]	162.3	153.0	245.2	98.5	31.8	24.9	715.7
Other private[b]	1,260.3	973.8	1,357.3	1,103.1	433.5	661.2	5,789.2
Total private	1,422.6	1,126.8	1,602.5	1,201.6	465.3	686.1	6,504.9
Total, all ownerships	1,601.3	1,247.7	1,657.7	1,240.4	470.2	699.8	6,917.1

[a]Includes all forest industry lands.
[b]Includes all farmer owned lands.

Table 4.--Area of commercial forest land by stand-size and ownership class, Ohio, 1979

(In thousands of acres)

Stand-size class	National Forest	Other public	Corporate[a]	Other private[b]	All ownerships
Sawtimber stands	87.6	158.8	227.8	2,480.4	2,954.6
Poletimber stands	47.2	31.4	134.8	1,324.5	1,537.9
Sapling-seedling stands	21.2	52.5	331.7	1,803.1	2,208.5
Nonstocked areas	3.3	10.2	21.4	181.2	216.1
Total	159.3	252.9	715.7	5,789.2	6,917.1

[a]Includes all forest industry lands.
[b]Includes all farmer owned lands.

Table 5.--Area of commercial forest land by geographic unit and stand-size class, Ohio, 1979

(In thousands of acres)

Geographic unit	Sawtimber stands	Poletimber stands	Sapling-seedling stands	Nonstocked areas	All classes
South-Central	738.9	348.2	440.8	73.4	1,601.3
Southeastern	537.9	285.4	391.9	32.5	1,247.7
East-Central	614.6	315.7	690.6	36.8	1,657.7
Northeastern	471.1	317.5	402.5	49.3	1,240.4
Southwestern	223.8	94.8	127.5	24.1	470.2
Northwestern	368.3	176.3	155.2	-	699.8
Total	2,954.6	1,537.9	2,208.5	216.1	6,917.1

Table 6.--Area of commercial forest land by stand-volume class and geographic unit, Ohio, 1979

(In thousands of acres)

Geographic unit	Stand volume per acre (board feet)[a]			All classes
	Fewer than 1,500	1,500-5,000	More than 5,000	
South-Central	510.3	511.7	579.3	1,601.3
Southeastern	457.2	466.7	323.8	1,247.7
East-Central	713.0	589.3	355.4	1,657.7
Northeastern	506.5	428.2	305.7	1,240.4
Southwestern	140.7	174.0	155.5	470.2
Northwestern	206.0	251.8	242.0	699.8
Total, all units	2,533.7	2,421.7	1,961.7	6,917.1

[a]International 1/4-inch rule.

Table 7.--Area of commercial forest by stocking-percent class of all live trees, and geographic unit, Ohio, 1979

(In thousands of acres)

Geographic unit	Stocking class (all live trees)[a]				All classes
	Over-stocked (130%+)	Fully stocked (100%-129%)	Medium stocked (60%-99%)	Poorly stocked (0%-59%)	
South-Central	330.8	892.5	268.0	110.0	1,601.3
Southeastern	286.5	622.3	262.9	76.0	1,247.7
East-Central	280.0	757.3	524.4	96.0	1,657.7
Northeastern	231.0	633.0	312.0	64.4	1,240.4
Southwestern	66.4	212.5	136.8	54.5	470.2
Northwestern	178.4	322.1	195.2	4.1	699.8
Total	1,373.1	3,439.7	1,699.3	405.0	6,917.1

[a]100 percent stocking equals approximately 75 square feet of basal area per acre.

Table 8.--Area of commercial forest by stocking-percent class of growing-stock trees, and geographic unit, Ohio, 1979
(In thousands of acres)

Geographic unit	Stocking class (growing-stock trees)[a]				All classes
	Over-stocked (130%+)	Fully stocked (100%-129%)	Medium stocked (60%-99%)	Poorly stocked (0%-59%)	
South-Central	147.8	664.7	579.3	209.5	1,601.3
Southeastern	62.6	444.9	511.4	228.8	1,247.7
East-Central	31.9	422.5	818.2	385.1	1,657.7
Northeastern	71.1	391.3	560.7	217.3	1,240.4
Southwestern	5.9	143.7	202.0	118.6	470.2
Northwestern	84.8	221.8	321.4	71.8	699.8
Total	404.1	2,288.9	2,993.0	1,231.1	6,917.1

[a]100 percent stocking equals approximately 75 square feet of basal area per acre.

Table 9.--Area of commercial forest land by potential site productivity and ownership classes, Ohio, 1979

(In thousands of acres)

Potential site productivity class[a]	National Forest	Other public	Corporate[b]	Other private[c]	All ownerships
120 - 165	10.2	78.7	12.3	496.1	597.3
85 - 119	44.7	75.9	159.7	1,497.5	1,777.8
50 - 84	85.0	65.6	435.3	3,063.1	3,649.0
20 - 49	19.4	32.7	108.4	732.5	893.0
Total	159.3	252.9	715.7	5,789.2	6,917.1

[a]Potential growth in cubic feet per acre per year.
[b]Includes all forest industry lands.
[c]Includes all farmer owned lands.

Table 10.--Area of commercial forest land by geographic unit and potential site productivity class, Ohio, 1979

(In thousands of acres)

Geographic unit	Potential site productivity class[a]				All classes
	120-165	85-119	50-84	20-49	
South-Central	152.8	441.5	813.2	193.8	1,601.3
Southeastern	36.3	360.3	702.5	148.6	1,247.7
East-Central	176.8	431.3	813.8	235.8	1,657.7
Northeastern	188.6	366.9	558.1	126.8	1,240.4
Southwestern	28.9	55.1	312.0	74.2	470.2
Northwestern	13.9	122.7	449.4	113.8	699.8
Total	597.3	1,777.8	3,649.0	893.0	6,917.1

[a]Potential growth in cubic feet per acre per year.

Table 11.--Area of commercial forest land by forest type and forest-type group, Ohio, 1979

Forest type and forest-type group	Area	Sampling error
	Thousand acres	Percent
Red pine	41.0	42
White pine	124.9	31
Total white/red pine group	165.9	25
Shortleaf pine	15.6	100
Virginia pine	74.9	27
Eastern redcedar	36.7	32
Pitch pine	12.7	71
Total hard pine group	139.9	20
Shortleaf pine/oak	7.3	100
Other oak/pine	12.2	100
Total oak/pine group	19.5	71
Post, black, or bear oak	133.5	24
Chestnut oak	251.3	16
White oak	341.5	14
Northern red oak	116.2	26
Scarlet oak	16.2	79
White oak/red oak/hickory	1,076.0	8
Yellow-poplar	457.0	12
Sweetgum/yellow-poplar	25.4	100
Black locust	411.0	13
Black walnut	99.2	29
Sassafras/persimmon	287.2	16
Hawthorn/reverting field	348.7	16
Red Maple/central hardwoods	284.7	17
Mixed central hardwoods	408.4	13
Total oak/hickory group	4,256.3	3
Black ash/American elm/red maple	607.1	11
River birch/sycamore	51.9	36
Cottonwood	27.9	49
Willow	49.5	39
Sugarberry/American elm/green ash	15.3	71
Total elm/ash/red maple group	751.7	10
Sugar maple/beech/yellow birch	613.2	10
Black cherry	280.9	17
Red maple/northern hardwoods	165.0	24
Mixed northern hardwoods	447.6	13
Total northern hardwoods group	1,506.7	6
Aspen	77.1	33
Total aspen/birch group	77.1	33
State total	6,917.1	1.0

Table 12.--Area of commercial forest land by forest-type group and ownership class, Ohio, 1979

(In thousands of acres)

Forest-type group	National Forest	Other public	Corporate[a]	Other private[b]	All ownerships
White/red pine group	9.4	17.4	43.0	96.1	165.9
Hard pine group	10.0	-	25.7	104.2	139.9
Oak/pine group	6.1	-	-	13.4	19.5
Oak/hickory group	125.5	129.9	404.1	3,596.8	4,256.3
Elm/ash/red maple group	1.7	13.2	110.3	626.5	751.7
Northern hardwoods group	6.4	92.4	132.6	1,275.3	1,506.7
Aspen/birch group	.2	-	-	76.9	77.1
Total	159.3	252.9	715.7	5,789.2	6,917.1

[a]Includes all forest industry lands.
[b]Includes all farmer owned lands.

Table 13.--Area of commercial forest land by forest-type group and stand-size class, Ohio, 1979

(In thousands of acres)

Forest-type group	Saw-timber stands	Pole-timber stands	Sapling-seedling stands	Non-stocked areas	All stands
White/red pine group	50.1	46.8	46.6	22.4	165.9
Hard pine group	48.3	29.0	62.6	-	139.9
Oak/pine group	8.6	9.9	1.0	-	19.5
Oak/hickory group	1,918.8	954.5	1,227.7	155.3	4,256.3
Elm/ash/red maple group	274.3	164.2	288.7	24.5	751.7
Northern hardwoods group	647.6	315.4	529.8	13.9	1,506.7
Aspen/birch group	6.9	18.1	52.1	-	77.1
Total	2,954.6	1,537.9	2,208.5	216.1	6,917.1

Table 14.--Area of commercial forest land by forest-type group and geographic unit, Ohio, 1979

(In thousands of acres)

Forest-type group	South-Central	South-eastern	East-Central	North-eastern	South-western	North-western	Total
White/red pine group	17.1	40.2	60.2	23.3	5.9	19.2	165.9
Hard pine group	77.8	49.8	.6	-	11.7	-	139.9
Oak/pine group	10.4	8.7	.4	-	-	-	19.5
Oak/hickory group	1,258.4	978.7	1,015.6	402.9	248.5	352.2	4,256.3
Elm/ash/red maple group	76.6	65.4	164.5	182.5	96.1	166.6	751.7
Northern hardwoods group	160.9	104.8	379.3	591.9	108.0	161.8	1,506.7
Aspen/birch group	.1	.1	37.1	39.8	-	-	77.1
Total	1,601.3	1,247.7	1,657.7	1,240.4	470.2	699.8	6,917.1

Table 15.--Number of live trees on commercial forest land by tree and diameter classes, softwoods and hardwoods, Ohio, 1979 (In thousands of trees)

Diameter class (inches at breast height)	Softwoods			Hardwoods		
	Growing-stock	Rough and rotten	Total	Growing-stock	Rough and rotten	Total
5.0 - 6.9	20,417	2,911	23,328	219,423	59,415	278,838
7.0 - 8.9	11,203	626	11,829	142,722	25,253	167,975
9.0 - 10.9	-	-	-	95,019	12,438	107,457
Total poletimber	31,620	3,537	35,157	457,164	97,106	554,270
9.0 - 10.9	6,504	217	6,721	-	-	-
11.0 - 12.9	3,169	36	3,205	53,432	8,316	61,748
13.0 - 14.9	1,230	24	1,254	34,362	3,717	38,079
Total small sawtimber	10,903	277	11,180	87,794	12,033	99,827
15.0 - 16.9	372	-	372	20,937	2,248	23,185
17.0 - 18.9	42	35	77	12,865	1,276	14,141
19.0 - 20.9	69	-	69	7,822	786	8,608
21.0 - 28.9	11	-	11	9,150	1,529	10,679
29.0 and larger	-	6	6	1,357	604	1,961
Total larger sawtimber	494	41	535	52,131	6,443	58,574
Total, all classes	43,017	3,855	46,872	597,089	115,582	712,671

Table 16.--Number of growing-stock trees on commercial forest land by species and diameter class, Ohio, 1979

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	1,122	275	235	175	30	-	-	13	--	-	1,850
White and red pine	5,864	5,519	2,005	1,190	167	80	-	-	-	-	14,825
Virginia pine	4,202	3,623	2,392	862	408	89	24	14	-	-	11,614
Other softwoods	9,229	1,786	1,872	942	625	203	18	42	11	-	14,728
Total softwoods	20,417	11,203	6,504	3,169	1,230	372	42	69	11	-	43,017
Soft maples[a]	25,504	13,485	7,088	3,175	1,644	898	570	310	464	89	53,227
Hard maples	16,941	11,084	7,906	4,413	2,438	1,607	965	634	440	50	46,478
Hickory	22,468	18,436	11,644	6,110	4,026	2,154	1,012	533	403	5	66,791
Beech	4,274	3,971	2,815	2,385	837	707	346	453	749	120	16,657
White ash	19,316	12,694	8,208	3,918	2,835	1,462	1,140	448	487	63	50,571
Black walnut	3,275	3,949	2,563	1,185	993	550	196	164	39	-	12,914
Yellow-poplar	8,798	7,884	6,035	3,922	2,427	1,911	1,054	529	746	48	33,354
Sycamore	1,724	1,574	1,618	1,068	587	367	233	209	219	62	7,661
Aspen	11,739	7,388	3,383	2,097	641	299	107	15	108	80	25,857
Black cherry	11,703	9,431	6,952	3,244	1,846	975	227	297	190	17	34,882
Select white oaks[b]	13,844	11,430	8,441	5,402	5,138	3,473	2,569	1,506	1,622	219	53,644
Select red oaks[c]	6,277	4,740	3,847	2,190	1,982	1,303	925	721	1,043	271	23,299
Chestnut oak (and post)	4,322	4,364	3,909	3,844	2,233	1,502	641	422	426	57	21,720
Other red oaks[d]	8,652	6,835	5,411	4,038	3,252	2,041	1,770	1,042	1,502	186	34,729
Black locust	6,880	3,894	3,071	978	570	289	113	-	49	12	15,856
Elm	26,139	10,742	5,359	2,076	926	284	296	144	150	-	46,116
Other hardwoods	27,567	10,821	6,769	3,387	1,987	1,115	701	395	513	78	53,333
Total hardwoods	219,423	142,722	95,019	53,432	34,362	20,937	12,865	7,822	9,150	1,357	597,089
Total, all species	239,840	153,925	101,523	56,601	35,592	21,309	12,907	7,891	9,161	1,357	640,106

[a] Includes red and silver maple.
[b] Includes white, swamp white, bur, and chinkapin oak.
[c] Entirely northern red oak.
[d] Includes scarlet, shingle, pin, and black oak.

Table 17.--Net volume of timber on commercial forest land by class of timber, softwoods and hardwoods, Ohio, 1979

Class of timber	Softwoods	Hardwoods	All species	Sampling error of total
	Million cubic feet			Percent
Sawtimber trees:				
Sawlog portion	146.2	3,232.2	3,378.4	2
Upper-stem portion	22.3	725.9	748.2	2
All sawtimber trees	168.5	3,958.1	4,126.6	2
Poletimber trees	106.4	2,161.3	2,267.7	3
All growing stock trees	274.9	6,119.4	6,394.3	1
Rough trees	10.1	396.4	406.5	5
Rotten trees	.9	95.9	96.8	12
Total, all timber	285.9	6,611.7	6,897.6	1.2

Table 18.-- Net volume of timber on commercial forest land by geographic unit and class of timber, Ohio, 1979

Geographic unit	Growing-stock trees			Rough trees	Rotten trees	All trees	Sampling error[a]
	Poletimber	Sawtimber	Total				
	Million cubic feet						Percent
South-Central	624.3	1,261.3	1,885.6	79.8	27.1	1,992.5	2.3
Southeastern	400.1	723.0	1,123.1	69.4	10.7	1,203.2	2.2
East-Central	464.9	727.7	1,192.6	102.7	21.0	1,316.3	2.6
Northeastern	424.0	637.8	1,061.8	84.0	24.7	1,170.5	3.2
Southwestern	138.5	346.0	484.5	32.0	7.8	524.3	6.0
Northwestern	215.9	430.8	646.7	38.6	5.5	690.8	5.9
Total	2,267.7	4,126.6	6,394.3	406.5	96.8	6,897.6	1.2

[a]For volume of all trees.

Table 19.--Net volume of growing stock and sawtimber on commercial forest land by geographic unit and stand-size class, Ohio, 1979

Geographic unit	Sawtimber stands	Poletimber stands	Sapling-seedling stands	Nonstocked areas	All classes	Sampling error of total
			GROWING STOCK			
			Million cubic feet			Percent
South-Central	1,297.3	420.4	167.1	0.8	1,885.6	2.3
Southeastern	736.0	265.8	120.7	.6	1,123.1	2.2
East-Central	729.6	307.2	155.3	.5	1,192.6	2.7
Northeastern	634.3	314.5	111.7	1.3	1,061.8	3.2
Southwestern	350.3	92.9	39.1	2.2	484.5	6.1
Northwestern	460.1	149.8	36.8	-	646.7	6.1
Total	4,207.6	1,550.6	630.7	5.4	6,394.3	1.3
Sampling error of total (percent)	3	7	8	51	1.3	
			SAWTIMBER			
			Million board feet[a]			Percent
South-Central	4,811.6	798.4	353.6	3.1	5,966.7	2.9
Southeastern	3,002.9	572.7	257.3	-	3,832.9	2.9
East-Central	2,612.0	628.2	382.4	-	3,622.6	3.2
Northeastern	2,301.3	527.6	205.0	-	3,033.9	4.5
Southwestern	1,412.5	172.8	103.0	-	1,688.3	7.9
Northwestern	1,938.4	266.7	66.4	-	2,271.5	8.0
Total	16,078.7	2,966.4	1,367.7	3.1	20,415.9	1.7
Sampling error of total (percent)	2	9	10	101	1.7	

[a] International 1/4-inch rule.

Table 20.--Net volume of growing stock and sawtimber on commercial forest land by geographic unit and ownership class, Ohio, 1979

Geographic unit	National Forest	Other public	Corporate[a]	Other private[b]	Total
		GROWING STOCK (Million cubic feet)			
South-Central	88.3	217.8	125.1	1,454.4	1,885.6
Southeastern	101.3	44.4	120.4	857.0	1,123.1
East-Central	16.6	28.3	145.6	1,002.1	1,192.6
Northeastern	-	26.7	93.2	941.9	1,061.8
Southwestern	-	1.5	22.0	461.0	484.5
Northwestern	-	18.1	20.2	608.4	646.7
Total	206.2	336.8	526.5	5,324.8	6,394.3
		SAWTIMBER (Million board feet)[c]			
South-Central	279.6	878.9	327.3	4,480.9	5,966.7
Southeastern	321.0	217.7	434.6	2,859.6	3,832.9
East-Central	52.5	38.0	433.2	3,098.9	3,622.6
Northeastern	-	94.3	236.7	2,702.9	3,033.9
Southwestern	-	6.6	82.7	1,599.0	1,688.3
Northwestern	-	85.7	69.3	2,116.5	2,271.5
Total	653.1	1,321.2	1,583.8	16,857.8	20,415.9

[a]Includes all forest industry lands.
[b]Includes all farmer owned lands.
[c]International 1/4-inch rule.

Table 21.--Net volume of growing stock and sawtimber on commercial forest land by forest-type group, softwoods, and hardwoods, Ohio, 1979

Forest-type group	Growing stock			Sawtimber		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Million cubic feet			Million board feet[a]		
White/red pine group	72.7	32.6	105.3	183.1	86.3	269.4
Hard pine group	106.9	25.6	132.5	350.0	72.7	422.7
Oak/pine group	6.5	5.6	12.1	16.5	13.3	29.8
Oak/hickory group	71.2	4,156.8	4,228.0	283.1	13,691.4	13,974.5
Elm/ash/red maple group	6.2	507.3	513.5	24.1	1,414.1	1,438.2
Northern hardwoods group	11.4	1,350.7	1,362.1	29.5	4,188.2	4,217.7
Aspen/birch group	-	40.8	40.8	-	63.6	63.6
Total	274.9	6,119.4	6,394.3	886.3	19,529.6	20,415.9

[a]International 1/4-inch rule.

Table 22.--Net volume of growing stock and sawtimber on commercial forest land by forest-type group and geographic unit, Ohio, 1979

Forest-type group	South-Central	South-eastern	East-Central	North-eastern	South-western	North-western	Total
			GROWING STOCK (Million cubic feet)				
White/red pine group	-	10.3	67.8	12.1	2.1	13.0	105.3
Hard pine group	65.7	55.6	-	-	11.2	-	132.5
Oak/pine group	6.7	5.4	-	-	-	-	12.1
Oak/hickory group	1,559.0	916.9	765.2	387.4	249.1	350.4	4,228.0
Elm/ash/red maple group	60.3	43.8	86.9	113.4	94.2	114.9	513.5
Northern hardwoods group	193.9	91.1	237.7	543.1	127.9	168.4	1,362.1
Aspen/birch group	-	-	35.0	5.8	-	-	40.8
Total	1,885.6	1,123.1	1,192.6	1,061.8	484.5	646.7	6,394.3
			SAWTIMBER (Million board feet)[a]				
White/red pine group	-	7.6	216.2	24.8	3.1	17.7	269.4
Hard pine group	190.6	182.1	-	-	50.0	-	422.7
Oak/pine group	19.2	10.6	-	-	-	-	29.8
Oak/hickory group	4,922.5	3,278.1	2,358.9	1,233.9	938.7	1,242.4	13,974.5
Elm/ash/red maple group	151.6	118.0	235.8	299.1	243.0	390.7	1,438.2
Northern hardwoods group	682.8	236.5	748.1	1,476.1	453.5	620.7	4,217.7
Aspen/birch group	-	-	63.6	-	-	-	63.6
Total	5,966.7	3,832.9	3,622.6	3,033.9	1,688.3	2,271.5	20,415.9

[a]International 1/4-inch rule.

Table 23.-- Net volume of growing stock on commercial forest land by species and diameter class, Ohio, 1979

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	2.1	1.4	1.6	2.4	0.4	-	-	0.7	-	-	8.6
White and red pine	12.8	24.0	17.4	16.6	3.3	2.2	-	-	-	-	76.3
Virginia pine	12.7	23.5	28.0	14.4	9.3	2.9	0.8	.9	-	-	92.5
Other softwoods	17.9	12.0	22.8	17.3	16.2	7.3	.7	2.3	1.0	-	97.5
Total softwoods	45.5	60.9	69.8	50.7	29.2	12.4	1.5	3.9	1.0	-	274.9
Soft maples[a]	53.8	69.8	63.5	45.7	33.4	25.0	19.9	12.9	27.6	12.9	364.5
Hard maples	37.9	58.6	75.2	71.1	53.0	49.1	36.4	31.0	29.5	7.1	448.9
Hickory	47.0	100.6	113.4	97.1	87.2	64.3	40.4	26.1	27.7	.9	604.7
Beech	9.0	18.8	26.9	33.4	17.1	17.8	13.3	21.1	50.0	15.5	222.9
White ash	40.0	66.4	79.3	60.4	63.5	44.6	47.0	20.4	33.3	9.1	464.0
Black walnut	6.1	21.3	25.6	17.2	19.6	15.1	6.6	6.8	2.2	-	120.5
Yellow-poplar	22.5	47.9	67.8	72.3	61.8	68.8	47.3	31.3	62.1	7.4	489.2
Sycamore	3.7	8.7	18.7	17.1	12.1	11.1	9.5	11.0	16.7	11.2	119.8
Aspen	26.3	41.8	32.6	31.6	15.5	9.9	4.0	.9	10.9	14.3	187.8
Black cherry	23.7	49.7	65.4	45.7	39.6	27.4	8.5	13.1	11.9	1.9	286.9
Select white oaks[b]	28.0	64.0	80.9	83.6	114.0	109.7	102.8	71.1	113.3	28.4	795.8
Select red oaks[c]	15.4	27.2	37.0	33.7	43.6	39.6	34.9	32.2	73.8	40.1	377.5
Chestnut oak (and post)	10.7	27.6	41.4	61.2	51.1	48.1	25.9	21.0	30.9	8.6	326.5
Other red oaks[d]	18.2	38.8	53.9	62.5	70.1	62.1	68.9	52.1	105.3	28.7	560.6
Black locust	15.1	21.2	29.4	14.8	11.7	7.4	4.0	-	2.7	1.1	107.4
Elm	52.8	53.9	49.4	31.3	20.1	9.1	12.1	7.3	12.9	-	248.9
Other hardwoods	55.0	53.9	65.5	52.9	42.4	33.3	24.4	19.9	34.1	12.1	393.5
Total hardwoods	465.2	770.2	925.9	831.6	755.8	642.4	505.9	378.2	644.9	199.3	6,119.4
Total, all species	510.7	831.1	995.7	882.3	785.0	654.8	507.4	382.1	645.9	199.3	6,394.3

[a] Includes red and silver maple.
[b] Includes white, swamp white, bur, and chinkapin oak.
[c] Entirely northern red oak.
[d] Includes scarlet, shingle, pin, and black oak.

Table 24.-- Net volume of sawtimber on commercial forest land by species and diameter class, Ohio, 1979

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	8.5	10.6	2.0	-	-	3.1	-	-	24.2
White and red pine	83.2	92.1	15.7	9.9	-	-	-	-	200.9
Virginia pine	140.2	79.3	51.0	15.7	4.3	5.1	-	-	295.6
Other softwoods	116.0	94.7	88.4	42.7	3.8	13.7	6.3	-	365.6
Total softwoods	347.9	276.7	157.1	68.3	8.1	21.9	6.3	-	886.3
Soft maples[b]	-	212.1	167.4	126.1	106.4	61.6	144.1	59.7	877.4
Hard maples	-	303.0	256.0	244.2	187.7	153.1	143.6	34.2	1,321.8
Hickory	-	422.6	438.1	330.9	213.0	138.0	143.4	4.9	1,690.9
Beech	-	169.9	96.0	96.8	67.7	114.5	273.0	84.8	902.7
White ash	-	246.8	295.7	219.0	232.6	101.4	169.7	42.1	1,307.3
Black walnut	-	74.7	97.3	67.7	34.3	29.2	10.1	-	313.3
Yellow-poplar	-	337.8	331.6	379.2	252.9	170.6	336.7	42.1	1,850.9
Sycamore	-	74.1	60.4	56.5	47.1	55.5	82.2	53.7	429.5
Aspen	-	142.1	82.6	52.4	21.4	4.7	54.7	86.0	443.9
Black cherry	-	187.7	184.8	126.8	43.0	63.4	53.4	10.3	669.4
Select white oaks[c]	-	370.1	546.1	562.9	533.3	353.4	577.1	135.8	3,078.7
Select red oaks[d]	-	159.4	228.9	219.6	182.6	179.2	389.2	211.0	1,569.9
Chestnut oak (and post)	-	266.7	241.3	238.2	124.7	97.4	156.5	42.2	1,167.0
Other red oaks[e]	-	270.3	349.5	313.9	368.7	269.9	562.9	148.2	2,283.4
Black locust	-	66.8	52.5	32.8	20.6	-	12.4	4.4	189.5
Elm	-	135.4	92.6	42.2	58.9	34.4	62.1	-	425.6
Other hardwoods	-	206.4	190.5	160.3	119.0	95.1	181.6	55.5	1,008.4
Total hardwoods	-	3,645.9	3,711.3	3,269.5	2,613.9	1,921.4	3,352.7	1,014.9	19,529.6
Total, all species	347.9	3,922.6	3,868.4	3,337.8	2,622.0	1,943.3	3,359.0	1,014.9	20,415.9

[a] International 1/4-inch rule.
[b] Includes red and silver maple.
[c] Includes white, swamp white, bur, and chinkapin oak.
[d] Entirely northern red oak.
[e] Includes scarlet, shingle, pin, and black oak.

Table 25.--Net volume of sawtimber on commercial forest land by species and standard-lumber log grade, Ohio, 1979

(In millions of board feet)[a]

Species	Grade 1	Grade 2	Grade 3	Grade 4[b]	All classes
Eastern red cedar[c]	-	-	-	-	24.2
White and red pine	2.0	7.9	148.1	42.9	200.9
Virginia pine	6.0	30.1	259.5	-	295.6
Other softwood	-	-	-	-	365.6
Total softwoods	8.0	38.0	407.6	42.9	886.3
Soft maples	54.6	158.2	410.3	254.3	877.4
Hard maples	127.7	290.5	686.5	217.1	1,321.8
Hickory	124.1	386.6	750.7	429.5	1,690.9
Beech	51.6	111.0	407.6	332.5	902.7
White ash	227.1	395.5	506.7	178.0	1,307.3
Black walnut	21.5	91.8	154.3	45.7	313.3
Yellow-poplar	350.8	378.3	787.7	334.1	1,850.9
Sycamore	68.5	103.8	204.1	53.1	429.5
Aspen	57.6	58.4	201.5	126.4	443.9
Black cherry	60.5	99.2	357.1	152.6	669.4
Select white oaks	574.1	737.7	1,129.4	637.5	3,078.7
Select red oaks	419.6	405.8	564.5	180.0	1,569.9
Chestnut oak (and post)	221.1	270.2	526.0	149.7	1,167.0
Other red oaks	337.9	500.9	752.2	692.4	2,283.4
Black locust	5.1	27.8	110.5	46.1	189.5
Elm	53.5	71.1	210.2	90.8	425.6
Other hardwoods	141.1	218.5	507.5	141.3	1,008.4
Total hardwoods	2,896.4	4,305.3	8,266.8	4,061.1	19,529.6
Percent of hardwood in each grade	15	22	42	21	100
Hardwood sampling error (in percent)	4	3	2	3	1.8

[a] International 1/4-inch rule.
[b] Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c] These species are not divided into standard-lumber grades.

Table 26.--Sampling errors for major number of trees and timber-volume classes, Ohio, 1979

(In percent)

Item	Number of trees (Table 16)	Growing-stock volume (Table 23)	Sawtimber volume (Table 24)
Species			
Eastern red cedar	39	32	36
White and red pine	30	27	32
Virginia pine	23	23	26
Other softwoods	28	21	24
Soft maples	8	8	11
Hard maples	8	8	10
Hickory	7	6	8
Beech	15	11	11
White ash	8	7	8
Black walnut	11	9	12
Yellow-poplar	10	8	9
Sycamore	16	14	16
Aspen	15	14	19
Black cherry	9	8	10
Select white oaks	8	7	7
Select red oaks	9	8	9
Chestnut oak (and post)	9	12	12
Other red oaks	9	8	8
Black locust	15	15	22
Elm	10	9	15
Other hardwoods	8	8	9
Dbh class (inches)			
5.0 to 6.9	4	5	-
7.0 to 8.9	4	4	-
9.0 to 10.9	3	4	18
11.0 to 12.9	4	4	4
13.0 to 14.9	4	4	3
15.0 to 16.9	5	4	4
17.0 to 18.9	5	5	4
19.0 to 20.9	6	5	5
21.0 to 28.9	6	6	5
29.0+	9	16	9

Table 27.--Components of average annual net change of growing stock and sawtimber on commercial forest land, by softwoods and hardwoods, Ohio, 1968-1978

Component	Softwoods	Hardwoods	All species
	GROWING STOCK (Million cubic feet)		
Accretion[a]	11.1	248.8	259.9
Ingrowth[b]	8.4	76.8	85.2
Gross growth	19.5	325.6	345.1
Cull increment	1.1	17.5	18.6
Mortality	1.9	46.0	47.9
Net growth	16.5	262.1	278.6
Removals	2.1	88.5	90.6
Inventory change	14.4	173.6	188.0
	SAWTIMBER (Million board feet)[c]		
Accretion	8.3	552.0	560.3
Ingrowth	61.4	707.3	768.7
Gross growth	69.7	1,259.3	1,329.0
Cull increment	3.0	83.8	86.8
Mortality	9.9	222.8	232.7
Net growth	56.8	952.7	1,009.5
Removals	7.2	402.3	409.5
Inventory change	49.6	550.4	600.0

[a]Growth on initial growing stock inventory including trees that were subsequently cut.
[b]Volume of trees that became 5.0 inches dbh or larger during the period between inventories.
[c]International 1/4-inch rule.

Table 28.--Annual net growth, removals, and mortality of growing stock and sawtimber on commercial forest land, by species, Ohio, 1978

Species	Growing stock			Sawtimber		
	Net growth	Timber removals	Mortality	Net growth	Timber removals	Mortality
	Million cubic feet			Million board feet[a]		
Total softwoods	25.0	4.5	3.0	80.9	7.2	14.2
Soft maple	17.4	3.7	.6	30.0	16.7	2.1
Hard maple	27.0	4.4	1.4	85.3	21.8	5.5
Hickory	17.7	7.7	2.8	80.7	26.5	13.5
Beech	11.3	4.4	.9	45.5	29.1	6.4
Yellow poplar	30.6	6.6	.5	131.9	37.9	1.0
Select white oaks	31.4	13.6	3.4	153.8	66.1	18.3
Select red oaks	12.7	7.7	1.4	79.2	38.5	10.1
Chestnut and post oak	13.2	6.9	3.5	67.4	28.4	15.2
Other red oaks	25.6	14.7	3.9	135.7	68.9	28.4
Ash, black cherry, black walnut	47.9	7.8	7.1	133.3	30.5	19.9
Other hardwoods	54.7	9.5	26.1	97.2	37.9	123.8
Total hardwoods	289.5	87.0	51.6	1,040.0	402.3	244.2
Total, all species	314.5	91.5	54.6	1,120.9	409.5	258.4

[a]International 1/4-inch rule.

Table 29.--Output of timber products, by source of material, softwoods and hardwoods, Ohio, 1978[a]

Product and species group	Standard units	Output from roundwood		Output from manufacturing residues		Total output	
		Number of units	Thousand cubic feet	Number of units	Thousand cubic feet	Number of units	Thousand cubic feet
Sawlogs							
Softwood	Mbf[b]	5,696	877	-	-	5,696	877
Hardwood	Mbf	316,117	46,398	-	-	316,117	46,398
Total	Mbf	321,813	47,275	-	-	321,813	47,275
Veneer logs and bolts							
Softwood	Mbf	-	-	-	-	-	-
Hardwood	Mbf	7,716	1,133	-	-	7,716	1,133
Total	Mbf	7,716	1,133	-	-	7,716	1,133
Pulpwood							
Softwood	Std cords[c]	4,422	374	300	26	4,722	400
Hardwood	Std cords	247,424	21,029	119,500	10,158	366,924	31,187
Total	Std cords	251,846	21,403	119,800	10,184	371,646	31,587
Cooperage logs and bolts							
Softwood	Mbf	-	-	-	-	-	-
Hardwood	Mbf	7,037	1,033	-	-	7,037	1,033
Total	Mbf	7,037	1,033	-	-	7,037	1,033
Posts (round and split)							
Softwood	M pieces	1,302	814			1,302	814
Hardwood	M pieces	-	-	-	-	-	-
Total	M pieces	1,302	814	-	-	1,302	814
Mine timbers (round)							
Softwood	Mft^3	83	83	-	-	83	83
Hardwood	Mft^3	927	927	-	-	927	927
Total	Mft^3	1,010	1,010	-	-	1,010	1,010
Other[d]							
Softwood	Mft^3		66		12		78
Hardwood	Mft^3		1,312		4,138		5,450
Total	Mft^3		1,378		4,150		5,528

Table 29.-- continued

Product and species group	Standard units	Output from roundwood		Output from manufacturing residues		Total output	
		Number of units	Thousand cubic feet	Number of units	Thousand cubic feet	Number of units	Thousand cubic feet
Total industrial products							
Softwood	Mft^3		2,214		38		2,252
Hardwood	Mft^3		71,832		14,296		86,128
Total	Mft^3		74,046		14,334		88,380
Fuelwood							
Softwood	std cords[e]	-	-	1,263	101	1,263	101
Hardwood	std cords	169,703	13,576	74,737	5,979	244,440	19,555
Total	std cords	169,703	13,576	76,000	6,080	245,703	19,656
All products[f]							
Softwood	Mft^3		2,214		139		2,353
Hardwood	Mft^3		85,408		20,275		105,683
Total	Mft^3		87,622		20,414		108,026

[a]Source of data: Nevel and Redett, 1980.
[b]International 1/4-inch rule.
[c]Rough wood basis, includes both production from roundwood and chips from manufacturing residues, equivalent to 85 ft^3 of solid wood.
[d]Includes guardrails, handle stock, metallurgical wood and wood fiber products.
[e]Rough wood basis, includes both production from roundwood and chips from manufacturing residues, equivalent to 80 ft^3 of solid wood.
[f]Does not include 140,000 cubic feet of softwood and 6,792,000 cubic feet of hardwood residues used for livestock bedding and farm and horticultural mulch.

Table 30.--Output of roundwood products, softwoods and hardwoods, Ohio, 1978[a]

(In thousands of cubic feet)

Product and species group	Growing-stock trees[b]			Rough and rotten trees[b]	Salvable dead trees[b]	Other sources[c]	All sources
	Poletimber	Sawtimber	Total				
			PRINCIPAL INDUSTRIAL PRODUCTS				
Sawlogs							
Softwood	-	814	814	-	-	63	877
Hardwood	270	41,463	41,733	1,163	647	2,855	46,398
Total	270	42,277	42,547	1,163	647	2,918	47,275
Veneer logs and bolts							
Softwood	-	-	-	-	-	-	-
Hardwood	7	1,054	1,061	-	-	72	1,133
Total	7	1,054	1,061	-	-	72	1,133
Pulpwood							
Softwood	150	181	331	-	24	19	374
Hardwood	6,368	10,952	17,320	318	342	3,049	21,029
Total	6,518	11,133	17,651	318	366	3,068	21,403
			MISCELLANEOUS INDUSTRIAL PRODUCTS				
Cooperage logs and bolts							
Softwood	-	-	-	-	-	-	-
Hardwood	6	961	967	-	-	66	1,033
Total	6	961	967	-	-	66	1,033
Piling							
Softwood	-	1	1	-	-	-	1
Hardwood	-	1	1	-	-	-	1
Total	-	2	2	-	-	-	2
Poles							
Softwood	1	3	4	-	-	1	5
Hardwood	2	3	5	-	-	1	6
Total	3	6	9	-	-	2	11
Posts (round and split)							
Softwood	247	424	671	12	13	118	814
Hardwood	-	-	-	-	-	-	-
Total	247	424	671	12	13	118	814
Mine timbers (round)							
Softwood	-	77	77	-	-	6	83
Hardwood	281	483	764	14	15	134	927
Total	281	560	841	14	15	140	1,010
Other							
Softwood	18	31	49	1	1	9	60
Hardwood	395	680	1,075	20	21	189	1,305
Total	413	711	1,124	21	22	198	1,365

Table 30.-- continued

(In thousands of cubic feet)

Product and species group	Growing-stock trees[b]			Rough and rotten trees[b]	Salvable dead trees[b]	Other sources[c]	All sources
	Poletimber	Sawtimber	Total				
			TOTAL INDUSTRIAL PRODUCTS				
Softwood	416	1,531	1,947	13	38	216	2,214
Hardwood	7,329	55,597	62,926	1,515	1,025	6,366	71,832
Total	7,745	57,128	64,873	1,528	1,063	6,582	74,046
			NONINDUSTRIAL PRODUCTS				
Fuelwood[c]							
Softwood	-	-	-	-	-	-	-
Hardwood	1,979	3,404	5,383	e	4,419	3,774	13,576
Total	1,979	3,404	5,383	e	4,419	3,774	13,576
			ALL PRODUCTS				
Softwood	416	1,531	1,947	13	38	216	2,214
Hardwood	9,308	59,001	68,309	1,515	5,444	10,140	85,408
Total	9,724	60,532	70,256	1,528	5,482	10,356	87,622

[a]Source of data: Nevel and Redett, 1980.
[b]On commercial forest land.
[c]Includes trees less than 5.0 inches in diameter, tree tops and limbs from commercial forest areas, or any material from noncommercial forest land or nonforest land such as fence rows and suburban areas.
[d]Source of roundwood products from personal communication with Paul Wheeling, Economic and Statistic Service, Broomall, Pa., 1981.
[e]Included under salvable dead trees.

Table 31.--Timber removals from growing stock and sawtimber on commercial forest land, by item, softwoods and hardwoods, Ohio, 1978[a]

Item	Growing stock			Sawtimber		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	--------Thousand cubic feet--------			------Thousand board feet[b]------		
Roundwood products:						
Sawlogs	814	41,733	42,547	3,725	219,292	223,017
Veneer logs and bolts	-	1,061	1,061	-	5,574	5,574
Pulpwood	331	17,320	17,651	1,223	65,342	66,565
Cooperage logs and bolts	-	967	967	-	5,083	5,083
Piling	1	1	2	4	4	8
Poles	4	5	9	11	11	22
Posts	671	-	671	1,600	-	1,600
Mine timbers	77	764	841	352	2,555	2,907
Other	49	1,075	1,124	117	2,565	2,682
Fuelwood	-	5,383	5,383	-	20,308	20,308
All products	1,947	68,309	70,256	7,032	320,734	327,766
Logging residues	110	13,631	13,741	89	47,132	47,221
Land clearing[c]	24	3,199	3,223	86	14,612	14,698
Land reclassification	-	4,328	4,328	-	19,768	19,768
Total removals	2,081	89,467	91,548	7,207	402,246	409,453

[a]Source of data: Nevel and Redett, 1980.
[b]International 1/4-inch rule.
[c]Unused portion.

Table 32.--Volume of unused residues from primary manufacturing plants, by industry and type of residue, softwoods and hardwoods, Ohio, 1978[a]

(In thousands of cubic feet)

Species group and type of residue	Lumber	Veneer and plywood	Other[b]	All industries
Softwoods				
Coarse	4	-	-	4
Fine	19	-	-	19
Total	23	-	-	23
Hardwoods				
Coarse	922	-	375	1,297
Fine	2,921	-	149	3,070
Total	3,843	-	524	4,367
All species				
Coarse	926	-	375	1,301
Fine	2,940	-	149	3,089
Total	3,866	-	524	4,390

[a]Source of data: Nevel and Redett, 1980.
[b]Includes 83,000 cubic feet of cooperage residues.

Table 33.--Number of growing-stock trees on commercial forest land by species and diameter class, South-Central Unit, Ohio, 1979
(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	1,122	275	235	175	30	-	-	13	-	-	1,850
White and red pine	3	34	20	31	-	-	-	-	-	-	88
Virginia pine	2,242	1,677	809	258	214	57	-	14	-	-	5,271
Other softwoods	2,789	939	991	553	301	123	2	-	1	-	5,699
Total softwoods	6,156	2,925	2,055	1,017	545	180	2	27	1	-	12,908
Soft maples[a]	4,862	2,762	1,602	519	466	254	104	43	34	-	10,646
Hard maples	4,614	3,546	2,192	1,599	692	561	257	139	143	18	13,761
Hickory	6,130	4,950	2,994	1,790	919	796	307	123	94	5	18,108
Beech	716	503	301	276	140	3	4	33	112	8	2,096
White ash	2,930	2,245	1,199	790	423	193	259	46	82	5	8,172
Black walnut	142	504	737	240	140	101	35	24	-	-	1,923
Yellow-poplar	3,611	1,605	1,720	1,296	717	661	439	287	272	14	10,622
Sycamore	458	316	371	289	122	80	84	32	37	10	1,799
Aspen	1,513	69	-	73	-	-	-	-	-	5	1,660
Black cherry	1,022	861	139	197	170	89	41	20	-	8	2,547
Select white oaks[b]	5,824	4,736	3,451	2,020	2,152	1,658	822	405	376	29	21,473
Select red oaks[c]	1,245	880	916	416	430	291	260	114	242	92	4,886
Chestnut oak (and post)	2,755	3,529	2,394	2,276	1,373	849	383	272	233	32	14,096
Other red oaks[d]	3,204	1,741	1,569	1,567	1,021	899	490	325	353	31	11,200
Black locust	1,396	546	421	29	81	62	18	-	11	-	2,564
Elm	2,669	1,960	1,005	302	93	35	46	42	37	-	6,189
Other hardwoods	9,092	3,549	1,940	852	535	356	152	72	126	15	16,689
Total hardwoods	52,183	34,302	22,951	14,531	9,474	6,888	3,701	1,977	2,152	272	148,431
Total all species	58,339	37,227	25,006	15,548	10,019	7,068	3,703	2,004	2,153	272	161,339

[a]Includes red and silver maple.
[b]Includes white, swamp white, bur, and chinkapin oak.
[c]Entirely northern red oak.
[d]Includes scarlet, shingle, pin, and black oak.

Table 34.-- Net volume of growing stock on commercial forest land by species and diameter class, South-Central Unit, Ohio, 1979

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	2.1	1.4	1.6	2.4	0.4	-	-	0.7	-	-	8.6
White and red pine	-	.2	.2	.5	-	-	-	-	-	-	.9
Virginia pine	7.3	11.9	10.7	4.5	5.2	2.0	-	.9	-	-	42.5
Other softwoods	6.0	7.8	13.2	10.9	9.1	4.7	0.1	-	0.1	-	51.9
Total softwoods	15.4	21.3	25.7	18.3	14.7	6.7	0.1	1.6	0.1	-	103.9
Soft maples[a]	11.4	17.2	15.9	9.3	11.3	8.3	3.9	2.0	2.7	-	82.0
Hard maples	10.1	20.0	22.6	28.0	17.3	19.3	11.6	7.8	10.0	2.4	149.1
Hickory	13.9	32.3	33.0	31.6	23.3	26.2	13.1	6.9	8.2	.9	189.4
Beech	1.8	2.8	3.3	4.7	3.2	.1	.2	2.4	9.2	1.3	29.0
White ash	7.6	14.1	13.1	13.3	10.8	7.0	11.5	2.0	5.5	.6	85.5
Black walnut	.2	3.7	8.1	4.0	3.4	3.4	1.3	1.1	-	-	25.2
Yellow-poplar	9.7	11.3	21.2	26.1	20.5	24.9	21.7	17.1	23.1	2.2	177.8
Sycamore	1.0	2.2	4.1	5.0	3.0	3.2	3.8	1.4	3.0	2.6	29.3
Aspen	4.0	.6	-	1.0	-	-	-	-	-	.9	6.5
Black cherry	2.4	5.7	1.4	2.7	4.4	3.3	1.7	1.5	-	1.0	24.1
Select white oaks[b]	12.7	28.8	36.6	34.5	50.8	55.3	35.2	21.1	28.0	4.1	307.1
Select red oaks[c]	3.2	6.2	9.8	7.0	10.8	10.2	11.4	6.1	19.2	15.1	99.0
Chestnut oak (and post)	7.0	22.8	27.3	38.5	33.1	28.1	15.3	13.8	16.3	4.0	206.2
Other red oaks[d]	6.7	12.3	18.3	26.0	25.5	29.3	21.0	18.0	26.9	4.8	188.8
Black locust	3.0	3.1	4.4	.4	1.9	1.6	.4	-	.6	-	15.4
Elm	7.0	11.5	11.3	4.6	2.7	1.0	1.9	2.1	3.2	-	45.3
Other hardwoods	21.4	20.5	19.0	14.3	12.8	11.3	6.3	4.2	9.7	2.5	122.0
Total hardwoods	123.1	215.1	249.4	251.0	234.8	232.5	160.3	107.5	165.6	42.4	1,781.7
Total, all species	138.5	236.4	275.1	269.3	249.5	239.2	160.4	109.1	165.7	42.4	1,885.6

[a] Includes red and silver maple.
[b] Includes white, swamp white, bur, and chinkapin oak.
[c] Entirely northern red oak.
[d] Includes scarlet, shingle, pin, and black oak.

Table 35.-- Net volume of sawtimber on commercial forest land by species and diameter class, South-Central Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	8.5	10.6	2.0	-	-	3.1	-	-	24.2
White and red pine	.8	2.2	-	-	-	-	-	-	3.0
Virginia pine	56.4	24.5	29.0	10.4	-	5.1	-	-	125.4
Other softwoods	67.1	58.9	48.8	26.1	0.6	-	0.5	-	202.0
Total softwoods	132.8	96.2	79.8	36.5	0.6	8.2	0.5	-	354.6
Soft maples[b]	-	42.8	55.6	44.0	22.1	9.4	15.3	-	189.2
Hard maples	-	109.1	80.5	87.9	60.3	38.4	48.0	10.5	434.7
Hickory	-	129.8	114.3	127.7	58.6	35.0	43.7	4.9	514.0
Beech	-	18.2	19.0	.3	.7	14.2	46.0	5.9	104.3
White ash	-	51.1	49.9	36.0	54.4	10.7	25.1	3.8	231.0
Black walnut	-	17.9	15.8	16.2	5.9	3.4	-	-	59.2
Yellow-poplar	-	113.5	106.8	134.1	110.3	86.6	122.8	10.5	684.6
Sycamore	-	17.9	15.4	16.8	19.4	7.9	15.7	12.2	105.3
Aspen	-	4.7	-	-	-	-	-	2.4	7.1
Black cherry	-	11.4	23.4	17.1	9.4	10.9	-	5.5	77.7
Select white oaks[c]	-	143.0	239.6	267.2	175.2	94.8	132.6	14.5	1,066.9
Select red oaks[d]	-	31.7	53.4	51.9	56.8	32.0	92.6	76.0	394.4
Chestnut oak (and post)	-	157.9	153.0	129.5	70.3	59.5	74.3	17.6	662.1
Other red oaks[e]	-	103.9	125.6	144.7	107.4	88.3	135.0	22.3	727.2
Black locust	-	1.5	9.0	6.4	1.2	-	2.0	-	20.1
Elm	-	17.8	11.5	3.5	8.7	10.5	16.0	-	68.0
Other hardwoods	-	53.4	52.4	53.5	27.1	20.3	47.3	12.3	266.3
Total hardwoods	-	1,025.6	1,125.2	1,136.8	787.8	521.9	816.4	198.4	5,612.1
Total, all species	132.8	1,121.8	1,205.0	1,173.3	788.4	530.1	816.9	198.4	5,966.7

[a] International 1/4-inch rule.
[b] Includes red and silver maple.
[c] Includes white, swamp white, bur, and chinkapin oak.
[d] Entirely northern red oak.
[e] Includes scarlet, shingle, pin, and black oak.

Table 36.--Net volume of sawtimber on commercial forest land by species and standard-lumber log grade, South-Central Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Grade 1	Grade 2	Grade 3	Grade 4[b]	All classes
Eastern red cedar[c]	-	-	-	-	24.2
White and red pine	-	-	2.3	0.7	3.0
Virginia pine	6.0	27.5	91.9	-	125.4
Other softwoods[c]	-	-	-	-	202.0
Total softwoods	6.0	27.5	94.2	0.7	354.6
Soft maples	4.0	46.1	99.9	39.2	189.2
Hard maples	45.7	86.8	242.5	59.7	434.7
Hickory	60.1	140.4	224.0	89.5	514.0
Beech	5.3	26.5	54.6	17.9	104.3
White ash	41.7	70.4	91.3	27.6	231.0
Black walnut	6.6	20.4	27.2	5.0	59.2
Yellow-poplar	183.1	145.8	270.9	84.8	684.6
Sycamore	16.8	20.0	58.5	10.0	105.3
Aspen	-	-	6.3	.8	7.1
Black cherry	12.4	10.2	39.4	15.7	77.7
Select white oaks	159.4	304.6	433.9	169.0	1,066.9
Select red oaks	111.9	114.7	133.8	34.0	394.4
Chestnut oak (and post)	116.4	148.9	311.6	85.2	662.1
Other red oaks	94.5	208.5	250.5	173.7	727.2
Black locust	-	5.1	11.8	3.2	20.1
Elm	17.2	18.5	22.7	9.6	68.0
Other hardwoods	49.2	62.1	121.0	34.0	266.3
Total hardwoods	924.3	1,429.0	2,399.9	858.9	5,612.1
Percent of hardwood in each grade	16	26	43	15	100
Hardwood sampling error (in percent)	8	5	4	5	3.0

[a] International 1/4-inch rule.
[b] Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c] These species are not divided into standard-lumber grades.

Table 37.--Sampling errors for major number of trees and timber-volume classes, South-Central Unit, Ohio, 1979

(In percent)

Item	Number of trees (Table 33)	Growing-stock volume (Table 34)	Sawtimber volume (Table 35)
Species			
Eastern red cedar	39	32	36
White and red pine	100	99	98
Virginia pine	40	35	38
Other softwoods	44	37	36
Soft maples	18	18	29
Hard maples	13	15	20
Hickory	12	11	15
Beech	25	23	28
White ash	15	15	19
Black walnut	24	20	27
Yellow-poplar	22	16	16
Sycamore	33	23	25
Aspen	76	54	59
Black cherry	27	25	34
Select white oaks	12	11	12
Select red oaks	17	13	14
Chestnut oak (and post)	19	16	17
Other red oaks	17	12	13
Black locust	29	27	37
Elm	20	18	28
Other hardwoods	15	15	23
Dbh class (inches)			
5.0 to 6.9	8	8	-
7.0 to 8.9	6	7	-
9.0 to 10.9	6	6	34
11.0 to 12.9	7	6	7
13.0 to 14.9	7	6	6
15.0 to 16.9	9	7	7
17.0 to 18.9	10	9	9
19.0 to 20.9	11	10	10
21.0 to 28.9	11	10	10
29.0+	21	21	21

Table 38.--Number of growing-stock trees on commercial forest land by species and diameter class, Southeastern Unit, Ohio, 1979
(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	1,328	949	134	44	-	-	-	-	-	-	2,455
Virginia pine	1,960	1,821	1,305	431	131	17	10	-	-	-	5,675
Other softwoods	3,719	607	783	352	252	80	16	-	1	-	5,810
Total softwoods	7,007	3,377	2,222	827	383	97	26	-	1	-	13,940
Soft maples[a]	3,936	1,347	723	233	154	87	42	3	9	7	6,541
Hard maples	2,504	1,386	635	506	288	199	94	91	11	6	5,720
Hickory	4,145	2,644	2,181	833	631	244	149	94	30	-	10,951
Beech	922	200	306	488	206	159	71	80	27	13	2,472
White ash	2,208	917	972	158	26	94	68	26	6	4	4,479
Black walnut	867	400	227	224	201	59	-	8	7	-	1,993
Yellow-poplar	2,646	2,584	1,767	1,070	826	626	211	123	165	22	10,040
Sycamore	669	211	499	142	116	47	26	45	23	4	1,782
Aspen	2,119	1,582	757	478	124	118	13	-	-	-	5,191
Black cherry	651	1,159	541	161	115	38	15	26	16	5	2,727
Select white oaks[b]	1,601	2,008	2,222	1,343	1,329	814	652	257	246	40	10,512
Select red oaks[c]	1,346	1,557	539	537	392	293	168	149	213	40	5,234
Chestnut oak	585	513	973	1,098	534	374	177	113	116	12	4,495
Other red oaks[d]	1,392	998	913	596	597	420	286	221	208	26	5,657
Black locust	655	275	287	155	44	57	14	-	-	-	1,487
Elm	2,392	1,693	986	187	216	-	68	23	7	-	5,572
Other hardwoods	5,611	1,901	2,227	672	379	240	85	55	39	-	11,209
Total hardwoods	34,249	21,375	16,755	8,881	6,178	3,869	2,139	1,314	1,123	179	96,062
Total, all species	41,256	24,752	18,977	9,708	6,561	3,966	2,165	1,314	1,124	179	110,002

[a]Includes red and silver maple.
[b]Includes white, bur, and chinkapin oak.
[c]Entirely northern red oak.
[d]Includes scarlet, shingle, and black oak.

Table 39.-- Net volume of growing stock on commercial forest land by species and diameter class, Southeastern Unit, Ohio, 1979

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	2.8	4.5	1.4	0.6	-	-	-	-	-	-	9.3
Virginia pine	5.4	11.0	14.1	7.0	2.7	0.5	0.3	-	-	-	41.0
Other softwoods	7.0	2.9	8.5	6.0	5.7	2.6	.6	-	0.1	-	33.4
Total softwoods	15.2	18.4	24.0	13.6	8.4	3.1	0.9	-	0.1	-	83.7
Soft maples[a]	7.5	7.2	6.3	3.9	3.4	3.0	1.3	0.2	0.5	1.1	34.4
Hard maples	6.1	7.6	6.4	7.4	6.5	6.0	3.8	4.8	1.0	.8	50.4
Hickory	8.9	15.6	21.5	13.9	14.5	7.3	5.7	4.9	2.2	-	94.5
Beech	1.8	1.1	3.1	7.1	4.2	4.9	2.9	3.9	2.0	1.4	32.4
White ash	5.2	4.6	9.2	2.2	.5	3.1	2.8	1.2	.7	.6	30.1
Black walnut	1.2	2.1	2.3	3.3	4.0	1.8	-	.4	.4	-	15.5
Yellow-poplar	6.5	15.3	18.8	18.5	20.2	21.2	10.3	7.8	14.7	3.8	137.1
Sycamore	1.2	1.0	5.7	2.4	2.9	1.7	1.0	2.7	1.9	.3	20.8
Aspen	5.7	9.4	7.6	7.9	3.1	3.6	.7	-	-	-	38.0
Black cherry	1.7	6.5	5.0	2.1	2.7	1.2	.7	1.3	.9	.3	22.4
Select white oaks[b]	4.3	12.5	22.1	22.5	30.7	27.0	26.5	11.9	17.3	4.4	179.2
Select red oaks[c]	3.9	9.5	5.3	8.5	8.9	9.1	6.9	7.5	16.2	4.9	80.7
Chestnut oak	1.4	2.4	9.8	16.2	11.4	11.1	7.4	5.5	7.7	1.9	74.8
Other red oaks[d]	3.4	5.8	9.0	10.2	14.0	13.3	12.4	11.6	15.2	3.0	97.9
Black locust	1.4	1.6	2.9	2.4	1.0	1.3	.5	-	-	-	11.1
Elm	6.2	9.4	8.9	3.3	4.7	-	2.9	1.3	.8	-	37.5
Other hardwoods	12.2	10.8	21.6	11.4	9.4	7.6	3.5	3.2	2.9	-	82.6
Total hardwoods	78.6	122.4	165.5	143.2	142.1	123.2	89.3	68.2	84.4	22.5	1,039.4
Total, all species	93.8	140.8	189.5	156.8	150.5	126.3	90.2	68.2	84.5	22.5	1,123.1

[a]Includes red and silver maple.
[b]Includes white, bur, and chinkapin oak.
[c]Entirely northern red oak.
[d]Includes scarlet, shingle, and black oak.

Table 40.-- Net volume of sawtimber on commercial forest land by species and diameter class, Southeastern Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-
White and red pine	6.3	2.4	-	-	-	-	-	-	8.7
Virginia pine	67.8	38.7	14.5	3.4	1.8	-	-	-	126.2
Other softwoods	45.0	34.1	32.7	16.5	3.1	-	0.6	-	132.0
Total softwoods	119.1	75.2	47.2	19.9	4.9	-	0.6	-	266.9
Soft maples[b]	-	21.5	19.8	17.0	7.1	0.8	2.8	7.1	76.1
Hard maples	-	33.3	34.7	32.7	18.9	25.3	4.8	2.5	152.2
Hickory	-	65.0	72.4	41.7	32.9	28.1	12.1	-	252.2
Beech	-	37.1	25.9	27.2	14.6	21.9	11.7	7.7	146.1
White ash	-	12.2	1.8	15.5	13.7	5.2	1.7	3.3	53.4
Black walnut	-	15.7	24.2	8.5	-	1.5	2.8	-	52.7
Yellow-poplar	-	91.1	112.0	122.6	57.5	46.9	88.4	23.6	542.1
Sycamore	-	13.7	15.6	8.0	5.7	15.1	9.6	1.8	69.5
Aspen	-	36.1	18.5	19.5	4.2	-	-	-	78.3
Black cherry	-	8.4	14.0	4.7	3.4	6.1	5.1	1.9	43.6
Select white oaks[c]	-	104.0	161.4	152.9	144.2	66.2	93.5	24.5	746.7
Select red oaks[d]	-	39.7	49.8	51.2	37.0	46.1	91.8	25.3	340.9
Chestnut oak	-	78.3	58.6	64.5	39.4	30.4	43.8	9.3	324.3
Other red oaks[e]	-	52.0	73.5	71.1	69.9	60.0	85.1	15.4	427.0
Black locust	-	10.0	4.6	6.9	2.4	-	-	-	23.9
Elm	-	14.1	22.8	-	14.8	5.2	3.5	-	60.4
Other hardwoods	-	43.9	43.9	37.5	19.8	16.3	15.2	-	176.6
Total hardwoods	-	676.1	753.5	681.5	485.5	375.1	471.9	122.4	3,566.0
Total, all species	119.1	751.3	800.7	701.4	490.4	375.1	472.5	122.4	3,832.9

[a]International 1/4-inch rule.
[b]Includes red and silver maple.
[d]Entirely northern red oak.
[e]Includes scarlet, shingle, and black oak.

Table 41.--Net volume of sawtimber on commercial forest land by species and standard-lumber log grade, Southeastern Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Grade 1	Grade 2	Grade 3	Grade 4[b]	All classes
Eastern red cedar[c]	-	-	-	-	-
White and red pine	-	-	6.5	2.2	8.7
Virginia pine	-	-	126.2	-	126.2
Other softwoods[c]	-	-	-	-	132.0
Total softwoods	-	-	132.7	2.2	266.9
Soft maples	8.4	14.4	39.6	13.7	76.1
Hard maples	10.1	39.4	78.4	24.3	152.2
Hickory	18.5	57.9	113.3	62.5	252.2
Beech	1.8	18.4	78.9	47.0	146.1
White ash	6.7	13.6	23.7	9.4	53.4
Black walnut	-	19.5	26.5	6.7	52.7
Yellow-poplar	68.4	113.8	246.1	113.8	542.1
Sycamore	10.3	18.8	31.2	9.2	69.5
Aspen	-	14.1	44.3	19.9	78.3
Black cherry	4.5	7.3	25.6	6.2	43.6
Select white oaks	113.5	187.3	282.6	163.3	746.7
Select red oaks	88.6	92.5	131.0	28.8	340.9
Chestnut oak	57.0	80.9	147.1	39.3	324.3
Other red oaks	88.2	122.3	142.0	74.5	427.0
Black locust	-	1.9	15.0	7.0	23.9
Elm	4.4	5.8	30.7	19.5	60.4
Other hardwoods	14.6	40.1	104.4	17.5	176.6
Total hardwoods	495.0	848.0	1,560.4	662.6	3,566.0
Percent of hardwood in each grade	14	24	44	18	100
Hardwood sampling error (in percent)	10	6	5	7	3.6

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 42.--Sampling errors for major number of trees and timber-volume classes, Southeastern Unit, Ohio, 1979

(In percent)

Item	Number of trees (Table 38)	Growing-stock volume (Table 39)	Sawtimber volume (Table 40)
Species			
Eastern red cedar	-	-	-
White and red pine	84	90	100
Virginia pine	28	33	38
Other softwoods	40	35	37
Soft maples	18	18	33
Hard maples	16	16	20
Hickory	14	13	19
Beech	20	21	24
White ash	22	21	32
Black walnut	27	28	37
Yellow-poplar	16	15	19
Sycamore	36	32	38
Aspen	28	25	33
Black cherry	21	23	33
Select white oaks	12	11	12
Select red oaks	14	11	13
Chestnut oak	17	18	20
Other red oaks	16	14	16
Black locust	38	52	78
Elm	19	19	29
Other hardwoods	16	19	26
Dbh class (inches)			
5.0 to 6.9	8	9	-
7.0 to 8.9	7	7	-
9.0 to 10.9	6	6	29
11.0 to 12.9	7	7	9
13.0 to 14.9	7	6	6
15.0 to 16.9	10	9	8
17.0 to 18.9	10	9	8
19.0 to 20.9	13	12	11
21.0 to 28.9	16	14	13
29.0+	19	52	19

Table 43.--Number of growing-stock trees on commercial forest land by species and diameter class, East-Central Unit, Ohio, 1979

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	1,720	2,095	1,108	933	103	21	-	-	-	-	5,980
Virginia pine	-	-	-	-	-	-	-	-	-	-	-
Other softwoods	385	150	59	2	1	-	-	-	-	-	597
Total softwoods	2,105	2,245	1,167	935	104	21	-	-	-	-	6,577
Soft maples[a]	6,853	3,103	2,231	1,159	492	251	205	101	131	29	14,555
Hard maples	2,486	1,788	1,700	535	356	168	200	132	21	11	7,397
Hickory	3,519	2,486	1,817	874	604	292	75	93	38	-	9,798
Beech	958	769	544	655	201	340	51	168	260	47	3,993
White ash	2,843	1,171	1,384	379	392	179	122	60	65	14	6,609
Black walnut	1,074	1,228	436	217	62	84	75	44	11	-	3,231
Yellow-poplar	2,121	2,439	1,886	1,354	724	517	359	105	175	5	9,685
Sycamore	308	470	52	67	-	72	41	38	21	15	1,084
Aspen	2,665	2,499	1,546	1,194	413	69	18	4	4	3	8,415
Black cherry	3,243	2,952	1,729	1,297	735	335	38	98	93	-	10,520
Select white oaks[b]	2,942	1,252	649	501	511	197	352	162	187	38	6,791
Select red oaks[c]	1,618	1,362	1,034	607	314	193	157	71	152	54	5,562
Chestnut oak	768	322	457	431	124	173	18	-	11	-	2,304
Other red oaks[d]	683	1,305	1,150	672	837	298	455	167	247	48	5,862
Black locust	3,198	1,906	1,532	619	362	130	64	-	10	12	7,833
Elm	6,858	3,150	1,427	910	217	91	140	49	52	-	12,894
Other hardwoods	3,358	1,632	826	426	203	171	60	57	45	-	6,778
Total hardwoods	45,495	29,834	20,400	11,897	6,547	3,560	2,430	1,349	1,523	276	123,311
Total, all species	47,600	32,079	21,567	12,832	6,651	3,581	2,430	1,349	1,523	276	129,888

[a]Includes red and silver maple.
[b]Entirely white oak.
[c]Entirely northern red oak.
[d]Includes scarlet, shingle, pin and black oak.

Table 44.-- Net volume of growing stock on commercial forest land by species and diameter class, East-Central Unit, Ohio, 1979

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	3.2	10.6	9.6	13.1	2.1	0.4	-	-	-	-	39.0
Virginia pine	-	-	-	-	-	-	-	-	-	-	-
Other softwoods	.8	1.0	.7	-	-	-	-	-	-	-	2.5
Total softwoods	4.0	11.6	10.3	13.1	2.1	0.4	-	-	-	-	41.5
Soft maples[a]	13.7	14.6	18.5	14.6	8.9	6.0	6.7	3.2	8.6	3.5	98.3
Hard maples	7.0	8.3	16.1	8.0	6.9	5.3	7.8	6.3	1.3	1.9	68.9
Hickory	7.7	13.1	17.5	13.5	12.3	9.0	3.1	4.1	2.6	-	82.9
Beech	1.7	3.3	5.8	9.4	3.7	8.3	1.8	6.7	16.9	6.7	64.3
White ash	5.0	6.6	12.9	5.3	8.5	5.3	5.6	3.5	3.8	2.3	58.8
Black walnut	3.2	7.4	4.3	3.0	1.3	1.8	2.6	1.6	.8	-	26.0
Yellow-poplar	5.3	15.0	21.4	24.4	17.4	19.3	13.3	5.6	12.3	.6	134.6
Sycamore	.9	1.9	.5	1.2	-	2.4	1.5	2.5	1.6	1.8	14.3
Aspen	7.3	16.6	15.4	17.8	9.9	3.1	.6	.2	.4	.2	71.5
Black cherry	7.4	14.1	17.2	18.8	14.7	8.3	1.3	3.9	5.6	-	91.3
Select white oaks[b]	5.6	6.8	5.6	6.9	9.5	5.5	12.6	6.4	11.7	3.1	73.7
Select red oaks[c]	4.6	7.3	9.8	8.6	6.4	6.1	5.4	3.3	11.2	8.2	70.9
Chestnut oak	1.6	2.4	3.6	5.8	2.3	5.7	.5	-	.6	-	22.5
Other red oaks[d]	1.2	6.3	9.3	10.1	15.8	8.3	16.6	7.5	14.8	8.0	97.9
Black locust	6.7	10.9	14.0	9.3	7.3	3.5	2.4	-	.6	1.1	55.8
Elm	15.3	15.3	13.9	13.7	4.5	2.8	5.7	2.4	3.6	-	77.2
Other hardwoods	5.8	6.6	7.0	6.1	3.7	5.1	2.3	3.0	2.6	-	42.2
Total hardwoods	100.0	156.5	192.8	176.5	133.1	105.8	89.8	60.2	99.0	37.4	1,151.1
Total, all species	104.0	168.1	203.1	189.6	135.2	106.2	89.8	60.2	99.0	37.4	1,192.6

[a]Includes red and silver maple.
[b]Entirely white oak.
[c]Entirely northern red oak.
[d]Includes scarlet, shingle, pin and black oak.

Table 45.-- Net volume of sawtimber on commercial forest land by species and diameter class, East-Central Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-
White and red pine	45.7	73.5	9.0	2.0	-	-	-	-	130.2
Virginia pine	-	-	-	-	-	-	-	-	-
Other softwoods	2.1	.2	.1	.1	0.1	-	0.1	-	2.7
Total softwoods	47.8	73.7	9.1	2.1	0.1	-	0.1	-	132.9
Soft maples	-	66.8	44.1	26.0	37.6	15.7	44.9	15.0	250.1
Hard maples	-	37.8	35.9	27.6	44.3	31.4	5.0	11.0	193.0
Hickory	-	61.6	59.5	45.2	16.2	19.3	13.6	-	215.4
Beech	-	49.3	20.7	46.5	9.3	34.7	93.8	35.6	289.9
White ash	-	20.9	40.8	24.4	27.9	20.5	19.8	9.6	163.9
Black walnut	-	10.3	6.6	6.6	14.4	7.2	2.9	-	48.0
Yellow-poplar	-	120.4	92.5	104.8	74.9	33.4	69.8	3.5	499.3
Sycamore	-	5.7	-	11.6	7.6	12.9	9.2	8.4	55.4
Aspen	-	80.1	53.2	15.5	3.4	.7	1.7	.9	155.5
Black cherry	-	81.2	68.6	38.8	6.0	18.1	25.4	-	238.1
Select white oaks	-	32.7	40.1	31.2	64.6	29.7	57.3	13.1	268.7
Select red oaks	-	42.1	30.8	35.0	26.9	18.8	66.0	45.8	265.4
Chestnut oak (and post)	-	26.3	11.0	28.5	1.8	-	3.4	-	71.0
Other red oaks	-	45.6	75.1	39.4	86.1	37.0	74.4	45.2	402.8
Black locust	-	44.9	32.9	15.0	13.4	-	3.4	4.4	114.0
Elm	-	63.0	22.6	12.3	27.4	11.9	19.9	-	157.1
Other hardwoods	-	23.9	18.5	24.9	8.8	11.3	14.7	-	102.1
Total hardwoods	-	812.6	652.9	533.3	470.6	302.6	525.2	192.5	3,489.7
Total, all species	47.8	886.3	662.0	535.4	470.7	302.6	525.3	192.5	3,622.6

[a] International 1/4-inch rule.
[b] Includes red and silver maple.
[c] Entirely white oak.
[d] Entirely northern red oak.
[e] Includes scarlet, shingle, pin and black oak.

Table 46.--Net volume of sawtimber on commercial forest land by species and standard-lumber log grade, East-Central Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Grade 1	Grade 2	Grade 3	Grade 4[b]	All classes
Eastern red cedar[c]	-	-	-	-	-
White and red pine	-	6.2	85.4	38.6	130.2
Virginia pine	-	-	-	-	-
Other softwoods[c]	-	-	-	-	2.7
Total softwoods	-	6.2	85.4	38.6	132.9
Soft maples	22.1	43.7	127.0	57.3	250.1
Hard maples	20.8	45.0	94.9	32.3	193.0
Hickory	10.1	44.6	98.4	62.3	215.4
Beech	19.5	28.5	149.8	92.1	289.9
White ash	19.0	50.7	75.5	18.7	163.9
Black walnut	9.8	8.1	24.4	5.7	48.0
Yellow-poplar	70.8	88.8	227.2	112.5	499.3
Sycamore	19.6	15.4	17.1	3.3	55.4
Aspen	4.3	9.0	95.8	46.4	155.5
Black cherry	14.7	32.1	148.9	42.4	238.1
Select white oaks	43.3	53.0	111.1	61.3	268.7
Select red oaks	88.9	60.2	89.9	26.4	265.4
Chestnut oak	15.3	8.3	34.0	13.4	71.0
Other red oaks	69.1	69.9	173.1	90.7	402.8
Black locust	2.9	15.8	70.5	24.8	114.0
Elm	15.4	26.5	86.0	29.2	157.1
Other hardwoods	14.9	16.7	52.8	17.7	102.1
Total hardwoods	460.5	616.3	1,676.4	736.5	3,489.7
Percent of hardwood in each grade	13	18	48	21	100
Hardwood sampling error (in percent)	10	6	5	6	3.6

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 47.--Sampling errors for major number of trees and timber-volume classes, East-Central Unit, Ohio, 1979

(In percent)

Item	Number of trees (Table 43)	Growing-stock volume (Table 44)	Sawtimber volume (Table 45)
Species			
Eastern red cedar	-	-	-
White and red pine	41	40	43
Virginia pine	-	-	-
Other softwoods	100	93	92
Soft maples	16	15	20
Hard maples	19	16	20
Hickory	17	13	14
Beech	22	19	19
White ash	17	18	23
Black walnut	23	20	28
Yellow-poplar	18	13	14
Sycamore	34	33	42
Aspen	26	27	32
Black cherry	13	13	17
Select white oaks	19	15	18
Select red oaks	17	14	18
Chestnut oak	43	48	50
Other red oaks	18	14	14
Black locust	23	22	30
Elm	17	16	24
Other hardwoods	19	17	22
Dbh class (inches)			
5.0 to 6.9	8	8	-
7.0 to 8.9	8	7	-
9.0 to 10.9	7	7	46
11.0 to 12.9	9	7	8
13.0 to 14.9	9	7	8
15.0 to 16.9	10	9	9
17.0 to 18.9	11	11	10
19.0 to 20.9	12	12	12
21.0 to 28.9	12	12	11
29.0+	20	20	19

Table 48.--Number of growing-stock trees on commercial forest land by species and diameter class, Northeastern Unit, Ohio, 1979
(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	1,817	428	377	105	53	59	-	-	-	-	2,839
Virginia pine	-	-	-	-	-	-	-	-	-	-	-
Other softwoods	1,825	90	-	35	31	-	-	42	9	-	2,032
Total softwoods	3,642	518	377	140	84	59	-	42	9	-	4,871
Soft maples[a]	8,234	4,801	1,261	676	308	164	159	68	158	27	15,856
Hard maples	4,743	3,756	2,223	1,155	654	355	170	173	171	15	13,415
Hickory	2,443	1,842	1,247	875	540	149	67	56	63	-	7,282
Beech	735	1,631	1,010	687	247	129	131	122	198	12	4,902
White ash	4,271	4,117	1,727	687	779	295	265	100	199	27	12,467
Black walnut	778	307	174	81	30	119	17	31	-	-	1,537
Yellow-poplar	420	758	325	202	140	49	16	14	134	-	2,058
Sycamore	-	151	47	64	24	-	19	16	27	15	363
Aspen	4,998	2,395	786	170	53	25	-	11	19	5	8,462
Black cherry	5,873	2,993	3,862	1,109	668	440	105	82	61	4	15,197
Select white oaks[b]	1,028	1,944	1,354	747	646	397	258	279	212	37	6,902
Select red oaks[c]	1,360	666	896	450	359	227	92	125	213	28	4,416
Chestnut oak	111	-	47	-	24	-	-	-	-	-	182
Other red oaks[d]	2,448	1,764	1,087	487	342	246	263	185	375	35	7,232
Black locust	895	428	475	114	55	40	17	-	28	-	2,052
Elm	3,917	984	684	363	65	24	-	-	12	-	6,049
Other hardwoods	3,522	1,485	756	770	332	63	102	35	138	22	7,225
Total hardwoods	45,776	30,022	17,961	8,637	5,266	2,722	1,681	1,297	2,008	227	115,597
Total, all species	49,418	30,540	18,338	8,777	5,350	2,781	1,681	1,339	2,017	227	120,468

[a] Includes red and silver maple.
[b] Includes white, swamp white, and bur oak.
[c] Entirely northern red oak.
[d] Includes scarlet, shingle, pin, and black oak.

Table 49.-- Net volume of growing stock on commercial forest land by species and diameter class, Northeastern Unit, Ohio, 1979

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	5.1	2.0	3.8	1.7	1.0	1.8	-	-	-	-	15.4
Virginia pine	-	-	-	-	-	-	-	-	-	-	-
Other softwoods	3.1	.3	-	.4	.7	-	-	2.3	0.8	-	7.6
Total softwoods	8.2	2.3	3.8	2.1	1.7	1.8	-	2.3	0.8	-	23.0
Soft maples[a]	17.8	23.6	10.8	9.8	5.8	4.2	5.7	2.9	8.1	5.8	94.5
Hard maples	9.3	19.0	20.9	18.5	13.9	11.2	6.1	8.7	11.7	2.0	121.3
Hickory	5.0	11.0	13.8	14.2	12.6	4.9	3.0	2.3	4.3	-	71.1
Beech	1.9	8.3	9.8	8.9	5.2	3.4	4.7	5.9	11.5	1.6	61.2
White ash	8.9	21.3	17.7	11.1	17.9	9.7	10.8	5.0	13.7	3.8	119.9
Black walnut	1.0	1.4	2.0	.9	.6	3.1	.6	1.1	-	-	10.7
Yellow-poplar	1.0	4.1	3.8	3.3	3.2	1.8	.7	.8	12.0	-	30.7
Sycamore	-	1.2	.6	1.1	.6	-	.8	.8	2.8	2.8	10.7
Aspen	8.5	11.1	6.5	2.6	1.4	.6	-	.7	2.9	.7	35.0
Black cherry	10.8	15.8	36.5	15.9	13.9	12.2	3.6	3.6	4.1	.6	117.0
Select white oaks[b]	1.8	9.6	12.1	10.5	14.0	11.3	11.1	14.2	14.7	5.3	104.6
Select red oaks[c]	2.5	2.9	8.2	6.8	8.4	7.0	3.2	6.2	14.0	4.0	63.2
Chestnut oak	.4	-	.4	-	.6	-	-	-	-	-	1.4
Other red oaks[d]	5.2	10.3	11.6	6.9	7.1	6.8	10.0	9.5	28.7	4.6	100.7
Black locust	1.6	2.4	4.7	1.7	.9	1.0	.7	-	1.5	-	14.5
Elm	6.3	4.0	6.2	4.8	1.2	.8	-	-	1.0	-	24.3
Other hardwoods	6.0	6.3	7.6	11.6	6.4	1.9	4.2	2.0	8.7	3.3	58.0
Total hardwoods	88.0	152.3	173.2	128.6	113.7	79.9	65.2	63.7	139.7	34.5	1,038.8
Total, all species	96.2	154.6	177.0	130.7	115.4	81.7	65.2	66.0	140.5	34.5	1,061.8

[a] Includes red and silver maple.
[b] Includes white, swamp white, and bur oak.
[c] Entirely northern red oak.
[d] Includes scarlet, shingle, pin, and black oak.

Table 50.-- Net volume of sawtimber on commercial forest land by species and diameter class, Northeastern Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-
White and red pine	17.4	9.4	5.3	7.9	-	-	-	-	40.0
Virginia pine	-	-	-	-	-	-	-	-	-
Other softwoods	-	1.5	3.7	-	-	13.7	5.1		24.0
Total softwoods	17.4	10.9	9.0	7.9	-	13.7	5.1	-	64.0
Soft maples[b]	-	42.9	26.0	18.3	27.9	12.8	40.9	24.5	193.3
Hard maples	-	80.5	60.8	57.3	29.1	39.6	58.9	10.2	336.4
Hickory	-	58.8	57.7	22.9	15.2	9.3	19.2	-	183.1
Beech	-	47.0	26.2	16.1	23.3	29.5	61.7	8.7	212.5
White ash	-	45.1	76.5	43.2	51.0	24.1	68.7	19.1	327.7
Black walnut	-	3.9	1.9	13.0	3.1	3.9	-	-	25.8
Yellow-poplar	-	12.8	18.0	9.6	3.5	3.7	55.7	-	103.3
Sycamore	-	5.8	3.1	-	3.3	3.9	11.9	12.5	40.5
Aspen	-	12.1	5.7	2.7	-	4.0	9.3	1.3	35.1
Black cherry	-	60.8	60.3	54.4	17.8	15.0	17.3	2.9	228.5
Select white oaks[c]	-	47.1	64.1	55.6	51.7	66.3	72.0	23.0	379.8
Select red oaks[d]	-	33.8	47.5	40.1	19.4	31.4	69.7	19.7	261.6
Chestnut oak	-	-	2.4	-	-	-	-	-	2.4
Other red oaks[e]	-	25.7	37.4	36.0	56.1	57.0	162.2	24.1	398.5
Black locust	-	6.5	3.8	4.5	3.6	-	7.0	-	25.4
Elm	-	20.5	4.7	3.7	-	-	5.4	-	34.3
Other hardwoods	-	46.3	30.1	9.0	21.8	11.3	51.1	12.1	181.7
Total hardwoods	-	549.6	526.2	386.4	326.8	311.8	711.0	158.1	2,969.9
Total, all species	17.4	560.5	535.2	394.3	326.8	325.5	716.1	158.1	3,033.9

[a] International 1/4-inch rule.
[b] Includes red and silver maple.
[c] Includes white, swamp white, and bur oak.
[d] Entirely northern red oak.
[e] Includes scarlet, shingle, pin, and black oak.

Table 51.--Net volume of sawtimber on commercial forest land by species and standard-lumber log grade, Northeastern Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Grade 1	Grade 2	Grade 3	Grade 4[b]	All classes
Eastern red cedar[c]	-	-	-	-	-
White and red pine	2.0	1.0	36.6	0.4	40.0
Virginia pine	-	-	-	-	-
Other softwoods[c]	-	-	-	-	24.0
Total softwoods	2.0	1.0	36.6	0.4	64.0
Soft maples	9.0	27.9	80.1	76.3	193.3
Hard maples	36.3	68.1	172.1	59.9	336.4
Hickory	1.1	30.0	79.4	72.6	183.1
Beech	1.5	12.4	76.7	121.9	212.5
White ash	54.8	96.6	121.5	54.8	327.7
Black walnut	-	8.2	12.0	5.6	25.8
Yellow-poplar	25.2	23.9	36.8	17.4	103.3
Sycamore	12.7	9.1	15.4	3.3	40.5
Aspen	2.1	4.3	17.3	11.4	35.1
Black cherry	19.7	32.3	111.3	65.2	228.5
Select white oaks	74.4	88.4	107.1	109.9	379.8
Select red oaks	47.4	78.4	106.7	29.1	261.6
Chestnut oak	-	1.8	.5	.1	2.4
Other red oaks	51.6	33.5	70.1	243.3	398.5
Black locust	2.2	5.0	9.7	8.5	25.4
Elm	3.3	2.7	16.6	11.7	34.3
Other hardwoods	24.1	25.4	96.7	35.5	181.7
Total hardwoods	365.4	548.0	1,130.0	926.5	2,969.9
Percent of hardwood in each grade	12	19	38	31	100
Hardwood sampling error (in percent)	15	8	6	8	4.7

[a] International 1/4-inch rule.
[b] Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c] These species are not divided into standard-lumber grades.

Table 52.--Sampling errors for major number of trees and timber-volume classes, Northeastern Unit, Ohio, 1979

(In percent)

Item	Number of trees (Table 48)	Growing-stock volume (Table 49)	Sawtimber volume (Table 50)
Species			
Eastern red cedar	-	-	-
White and red pine	55	49	59
Virginia pine	-	-	-
Other softwoods	82	65	86
Soft maples	17	15	19
Hard maples	16	15	20
Hickory	21	20	23
Beech	30	23	23
White ash	18	14	14
Black walnut	34	28	35
Yellow-poplar	37	38	47
Sycamore	62	58	63
Aspen	29	25	49
Black cherry	15	16	19
Select white oaks	25	26	28
Select red oaks	24	18	21
Chestnut oak	100	100	100
Other red oaks	21	21	23
Black locust	47	38	52
Elm	24	24	38
Other hardwoods	17	18	21
Dbh class (inches)			
5.0 to 6.9	9	10	-
7.0 to 8.9	8	8	-
9.0 to 10.9	8	8	66
11.0 to 12.9	7	7	10
13.0 to 14.9	10	9	10
15.0 to 16.9	12	10	10
17.0 to 18.9	15	13	13
19.0 to 20.9	15	15	14
21.0 to 28.9	13	14	12
29.0+	22	23	22

Table 53.--Number of growing-stock trees on commercial forest land by species and diameter class, Southwestern Unit, Ohio, 1979
(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	-	245	38	-	-	-	-	-	-	-	283
Virginia pine	-	125	278	173	63	15	14	-	-	-	668
Other softwoods	511	-	39	-	40	-	-	-	-	-	590
Total softwoods	511	370	355	173	103	15	14	-	-	-	1,541
Soft maples[a]	233	453	308	167	132	60	-	45	78	13	1,489
Hard maples	919	446	460	258	209	107	112	15	61	-	2,587
Hickory	2,314	836	392	441	209	101	43	61	24	-	4,421
Beech	123	52	79	-	43	17	-	27	81	18	440
White ash	2,179	1,730	1,239	732	364	277	240	89	96	13	6,959
Black walnut	135	587	235	183	315	107	69	57	21	-	1,709
Yellow-poplar	-	-	96	-	20	19	29	-	-	7	171
Sycamore	289	291	504	204	122	74	14	34	60	18	1,610
Aspen	-	180	186	97	-	22	12	-	16	16	529
Black cherry	119	469	394	266	74	73	28	24	20	-	1,467
Select white oaks[b]	444	378	164	203	199	143	188	140	156	25	2,040
Select red oaks[c]	-	136	80	117	132	45	23	35	39	13	620
Chestnut oak	103	-	38	39	178	106	63	37	66	13	643
Other red oaks[d]	164	295	172	196	68	99	66	44	92	40	1,236
Black locust	549	601	264	61	28	-	-	-	-	-	1,503
Elm	3,563	1,199	598	257	149	23	15	30	42	-	5,876
Other hardwoods	2,134	1,695	525	362	225	80	47	58	77	13	5,216
Total hardwoods	13,268	9,348	5,734	3,583	2,467	1,353	949	696	929	189	38,516
Total, all species	13,779	9,718	6,089	3,756	2,570	1,368	963	696	929	189	40,057

[a] Includes red and silver maple.
[b] Includes white, swamp white, bur, and chinkapin oak.
[c] Entirely northern red oak.
[d] Includes scarlet, pin, and black oak.

Table 54.-- Net volume of growing stock on commercial forest land by species and diameter class, Southwestern Unit, Ohio, 1979

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	-	0.7	0.3	-	-	-	-	-	-	-	1.0
Virginia pine	-	.6	3.2	2.9	1.4	0.4	0.5	-	-	-	9.0
Other softwoods	1.0	-	.4	-	.7	-	-	-	-	-	2.1
Total softwoods	1.0	1.3	3.9	2.9	2.1	0.4	0.5	-	-	-	12.1
Soft maples[a]	0.6	2.3	3.1	2.4	2.5	1.5	-	2.8	5.5	1.3	22.0
Hard maples	2.2	2.7	4.4	4.5	4.5	3.2	3.9	.7	3.5	-	29.6
Hickory	4.5	4.0	4.1	7.7	4.2	3.1	2.1	3.8	1.3	-	34.8
Beech	.2	.3	.6	-	.8	.3	-	1.3	5.1	1.8	10.4
White ash	4.6	9.2	12.1	12.7	8.3	9.1	10.2	4.0	7.4	1.8	79.4
Black walnut	.2	3.3	2.7	3.3	6.5	3.3	2.1	2.6	1.0	-	25.0
Yellow-poplar	-	-	1.1	-	.5	.6	1.3	-	-	.8	4.3
Sycamore	.6	2.0	6.7	4.1	2.7	2.2	.7	1.5	4.2	3.7	28.4
Aspen	-	1.2	2.1	1.4	-	.9	.8	-	1.1	2.0	9.5
Black cherry	.3	3.6	3.7	4.1	2.1	2.4	1.2	1.0	1.3	-	19.7
Select white oaks[b]	1.1	2.3	1.2	2.7	4.4	4.3	8.9	7.8	17.7	4.5	54.9
Select red oaks[c]	-	.7	.8	1.8	2.8	1.2	.7	1.8	2.9	2.3	15.0
Chestnut oak	.3	-	.3	.7	3.7	3.2	2.7	1.7	6.3	2.7	21.6
Other red oaks[d]	.2	1.1	1.8	2.8	1.3	2.9	2.9	2.1	8.7	7.3	31.1
Black locust	1.9	2.7	2.7	1.0	.6	-	-	-	-	-	8.9
Elm	6.7	6.1	4.5	4.1	3.0	.9	.6	1.5	4.3	-	31.7
Other hardwoods	4.4	8.2	6.8	5.7	5.3	2.3	1.5	3.5	6.2	2.2	46.1
Total hardwoods	27.8	49.7	58.7	59.0	53.2	41.4	39.6	36.1	76.5	30.4	472.4
Total, all species	28.8	51.0	62.6	61.9	55.3	41.8	40.1	36.1	76.5	30.4	484.5

[a]Includes red and silver maple.
[b]Includes white, swamp white, bur, and chinkapin oak.
[c]Entirely northern red oak.
[d]Includes scarlet, pin, and black oak.

Table 55.-- Net volume of sawtimber on commercial forest land by species and diameter class, Southwestern Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-
White and red pine	1.3	-	-	-	-	-	-	-	1.3
Virginia pine	16.0	16.1	7.5	1.9	2.5	-	-	-	44.0
Other softwoods	1.8	-	3.1	-	-	-	-	-	4.9
Total softwoods	19.1	16.1	10.6	1.9	2.5	-	-	-	50.2
Soft maples[b]	-	11.2	13.7	8.1	-	15.9	27.9	6.1	82.9
Hard maples	-	19.7	23.4	16.5	19.0	3.0	15.6	-	97.2
Hickory	-	34.6	18.4	16.6	12.5	21.9	6.4	-	110.4
Beech	-	-	4.2	.9	-	7.2	26.8	10.0	49.1
White ash	-	54.1	42.2	47.9	53.6	19.7	40.2	6.3	264.0
Black walnut	-	13.8	30.2	14.1	10.9	13.2	4.4	-	86.6
Yellow-poplar	-	-	2.3	3.3	6.7	-	-	4.5	16.8
Sycamore	-	16.0	10.9	9.9	3.1	6.8	19.0	18.8	84.5
Aspen	-	5.6	-	5.1	3.6	-	5.4	12.3	32.0
Black cherry	-	16.5	9.6	11.8	6.4	3.9	5.6	-	53.8
Select white oaks[c]	-	11.8	19.9	22.6	54.4	44.1	96.2	19.1	268.1
Select red oaks[d]	-	7.3	12.8	5.9	3.0	7.1	14.5	11.6	62.2
Chestnut oak	-	4.2	16.3	15.7	13.2	7.5	35.0	15.3	107.2
Other red oaks[e]	-	12.3	6.1	13.9	14.6	10.7	47.3	36.8	141.7
Black locust	-	3.9	2.2	-	-	-	-	-	6.1
Elm	-	16.3	12.6	4.7	2.5	6.8	17.3	-	60.2
Other hardwoods	-	22.9	20.2	10.9	6.4	15.5	29.4	10.0	115.3
Total hardwoods	-	250.2	245.0	207.9	209.9	183.3	391.0	150.8	1,638.1
Total, all species	19.1	266.3	255.6	209.8	212.4	183.3	391.0	150.8	1,688.3

[a]International 1/4-inch rule.
[b]Includes red and silver maple.
[c]Includes white, swamp white, bur, and chinkapin oak.
[d]Entirely northern red oak.
[e]Includes scarlet, pin, and black oak.

Table 56.--Net volume of sawtimber on commercial forest land by species and standard-lumber log grade, Southwestern Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Grade 1	Grade 2	Grade 3	Grade 4[b]	All classes
Eastern red cedar[c]	-	-	-	-	-
White and red pine	-	0.7	0.5	0.1	1.3
Virginia pine	-	2.6	41.4	-	44.0
Other softwoods[c]	-	-	-	-	4.9
Total softwoods	-	3.3	41.9	0.1	50.2
Soft maples	11.1	14.5	31.8	25.5	82.9
Hard maples	3.6	31.8	46.4	15.4	97.2
Hickory	12.9	23.1	42.1	32.3	110.4
Beech	5.2	8.4	23.6	11.9	49.1
White ash	62.0	73.7	94.3	34.0	264.0
Black walnut	5.1	24.4	46.1	11.0	86.6
Yellow-poplar	3.3	6.0	2.8	4.7	16.8
Sycamore	4.1	21.8	42.1	16.5	84.5
Aspen	4.3	9.6	4.5	13.6	32.0
Black cherry	6.2	11.1	28.5	8.0	53.8
Select white oaks	84.8	54.5	75.9	52.9	268.1
Select red oaks	10.8	16.2	27.3	7.9	62.2
Chestnut oak	32.4	30.3	32.8	11.7	107.2
Other red oaks	17.5	32.1	53.6	38.5	141.7
Black locust	-	-	3.5	2.6	6.1
Elm	6.1	7.6	33.5	13.0	60.2
Other hardwoods	9.3	27.2	59.6	19.2	115.3
Total hardwoods	278.7	392.3	648.4	318.7	1,638.1
Percent of hardwood in each grade	17	24	40	19	100
Hardwood sampling error (in percent)	15	10	9	11	8.3

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 57.--Sampling errors for major number of trees and timber-volume classes, Southwestern Unit, Ohio, 1979

(In percent)

Item	Number of trees (Table 53)	Growing-stock volume (Table 54)	Sawtimber volume (Table 55)
Species			
Eastern red cedar	-	-	-
White and red pine	100	101	102
Virginia pine	80	81	80
Other softwoods	76	63	72
Soft maples	35	32	32
Hard maples	26	29	35
Hickory	25	19	28
Beech	44	31	30
White ash	20	17	22
Black walnut	24	21	23
Yellow-poplar	56	51	52
Sycamore	34	34	39
Aspen	47	34	43
Black cherry	23	24	35
Select white oaks	25	18	18
Select red oaks	47	32	33
Chestnut oak	48	46	45
Other red oaks	34	35	39
Black locust	39	41	80
Elm	30	27	44
Other hardwoods	24	23	29
Dbh class (inches)			
5.0 to 6.9	15	17	-
7.0 to 8.9	13	14	-
9.0 to 10.9	11	13	83
11.0 to 12.9	11	11	14
13.0 to 14.9	12	11	13
15.0 to 16.9	13	11	12
17.0 to 18.9	16	14	15
19.0 to 20.9	16	15	15
21.0 to 28.9	19	17	15
29.0+	26	48	25

Table 58.--Number of growing-stock trees on commercial forest land by species and diameter class, Northwestern Unit, Ohio, 1979
(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	996	1,768	328	77	11	-	-	-	-	-	3,180
Virginia pine	-	-	-	-	-	-	-	-	-	-	-
Other softwoods	-	-	-	-	-	-	-	-	-	-	-
Total softwoods	996	1,768	328	77	11	-	-	-	-	-	3,180
Soft maples[a]	1,386	1,019	963	421	92	82	60	50	54	13	4,140
Hard maples	1,675	162	696	360	239	217	132	84	33	-	3,598
Hickory	3,917	5,678	3,013	1,297	1,123	572	371	106	154	-	16,231
Beech	820	816	575	279	-	59	89	23	71	22	2,754
White ash	4,885	2,514	1,687	1,172	851	424	186	127	39	-	11,885
Black walnut	279	923	754	240	245	80	-	-	-	-	2,521
Yellow-poplar	-	498	241	-	-	39	-	-	-	-	778
Sycamore	-	135	145	302	203	94	49	44	51	-	1,023
Aspen	444	663	108	85	51	65	64	-	69	51	1,600
Black cherry	795	997	287	214	84	-	-	47	-	-	2,424
Select white oaks[b]	2,005	1,112	601	588	301	264	297	263	445	50	5,926
Select red oaks[c]	708	139	382	63	355	254	225	227	184	44	2,581
Chestnut oak	-	-	-	-	-	-	-	-	-	-	-
Other red oaks[d]	761	732	520	520	387	79	210	100	227	6	3,542
Black locust	187	138	92	-	-	-	-	-	-	-	417
Elm	6,740	1,756	659	57	186	111	27	-	-	-	9,536
Other hardwoods	3,850	559	495	305	313	205	255	118	88	28	6,216
Total hardwoods	28,452	17,841	11,218	5,903	4,430	2,545	1,965	1,189	1,415	214	75,172
Total, all species	29,448	19,609	11,546	5,980	4,441	2,545	1,965	1,189	1,415	214	78,352

[a]Includes red and silver maple.
[b]Includes white, swamp white, bur, and chinkapin oak.
[c]Entirely northern red oak.
[d]Includes scarlet, shingle, pin, and black oak.

Table 59.-- Net volume of growing stock on commercial forest land by species and diameter class, Northwestern Unit, Ohio, 1979

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-	-	-
White and red pine	1.7	6.0	2.1	0.7	0.2	-	-	-	-	-	10.7
Virginia pine	-	-	-	-	-	-	-	-	-	-	-
Other softwoods	-	-	-	-	-	-	-	-	-	-	-
Total softwoods	1.7	6.0	2.1	0.7	0.2	-	-	-	-	-	10.7
Soft maples[a]	2.8	4.9	8.9	5.7	1.5	2.0	2.3	1.8	2.2	1.2	33.3
Hard maples	3.2	1.0	4.8	4.7	3.9	4.1	3.2	2.7	2.0	-	29.6
Hickory	7.0	24.6	23.5	16.2	20.3	13.8	13.4	4.1	9.1	-	132.0
Beech	1.6	3.0	4.3	3.3	-	.8	3.7	.9	5.3	2.7	25.6
White ash	8.7	10.6	14.3	15.8	17.5	10.4	6.1	4.7	2.2	-	90.3
Black walnut	.3	3.4	6.2	2.7	3.8	1.7	-	-	-	-	18.1
Yellow-poplar	-	2.2	1.5	-	-	1.0	-	-	-	-	4.7
Sycamore	-	.4	1.1	3.3	2.9	1.6	1.7	2.1	3.2	-	16.3
Aspen	.8	2.9	1.0	.9	1.1	1.7	1.9	-	6.5	10.5	27.3
Black cherry	1.1	4.0	1.6	2.1	1.8	-	-	1.8	-	-	12.4
Select white oaks[b]	2.5	4.0	3.3	6.5	4.6	6.3	8.5	9.7	23.9	7.0	76.3
Select red oaks[c]	1.2	.6	3.1	1.0	6.3	6.0	7.3	7.3	10.3	5.6	48.7
Chestnut oak	-	-	-	-	-	-	-	-	-	-	-
Other red oaks[d]	1.5	3.0	3.9	6.5	6.4	1.5	6.0	3.4	11.0	1.0	44.2
Black locust	.5	.5	.7		-	-	-	-	-	-	1.7
Elm	11.3	7.6	4.6	.8	4.0	3.6	1.0	-	-	-	32.9
Other hardwoods	5.2	1.5	3.5	3.8	4.8	5.1	6.6	4.0	4.0	4.1	42.6
Total hardwoods	47.7	74.2	86.3	73.3	78.9	59.6	61.7	42.5	79.7	32.1	636.0
Total, all species	49.4	80.2	88.4	74.0	79.1	59.6	61.7	42.5	79.7	32.1	646.7

[a] Includes red and silver maple.
[b] Includes white, swamp white, bur, and chinkapin oak.
[c] Entirely northern red oak.
[d] Includes scarlet, shingle, pin, and black oak.

Table 60.-- Net volume of sawtimber on commercial forest land by species and diameter class, Northwestern Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Eastern red cedar	-	-	-	-	-	-	-	-	-
White and red pine	11.7	4.6	1.4	-	-	-	-	-	17.7
Virginia pine	-	-	-	-	-	-	-	-	-
Other softwoods	-	-	-	-	-	-	-	-	-
Total softwoods	11.7	4.6	1.4	-	-	-	-	-	17.7
Soft maples[b]	-	26.9	8.2	12.7	11.7	7.0	12.3	7.0	85.8
Hard maples	-	22.6	20.7	22.2	16.1	15.4	11.3	-	108.3
Hickory	-	72.8	115.8	76.8	77.6	24.4	48.4	-	415.8
Beech	-	18.3	-	5.8	19.8	7.0	33.0	16.9	100.8
White ash	-	63.4	84.5	52.0	32.0	21.2	14.2	-	267.3
Black walnut	-	13.1	18.6	9.3	-	-	-	-	41.0
Yellow-poplar	-	-	-	4.8	-	-	-	-	4.8
Sycamore	-	15.0	15.4	10.2	8.0	8.9	16.8	-	74.3
Aspen	-	3.5	5.2	9.6	10.2	-	38.3	69.1	135.9
Black cherry	-	9.4	8.9	-	-	9.4	-	-	27.7
Select white oaks[c]	-	31.5	21.0	33.4	43.2	52.3	125.5	41.6	348.5
Select red oaks[d]	-	4.8	34.6	35.5	39.5	43.8	54.6	32.6	245.4
Chestnut oak	-	-	-	-	-	-	-	-	-
Other red oaks[e]	-	30.8	31.8	8.8	34.6	16.9	58.9	4.4	186.2
Black locust	-	-	-	-	-	-	-	-	-
Elm	-	3.7	18.4	18.0	5.5	-	-	-	45.6
Other hardwoods	-	16.0	25.4	24.5	35.1	20.4	23.9	21.1	166.4
Total hardwoods	-	331.8	408.5	323.6	333.3	226.7	437.2	192.7	2,253.8
Total, all species	11.7	336.4	409.9	323.6	333.3	226.7	437.2	192.7	2,271.5

[a] International 1/4-inch rule.
[b] Includes red and silver maple.
[c] Includes white, swamp white, bur, and chinkapin oak.
[d] Entirely northern red oak.
[e] Includes scarlet, shingle, pin, and black oak.

Table 61.--Net volume of sawtimber on commercial forest land by species and standard-lumber log grade, Northwestern Unit, Ohio, 1979

(In millions of board feet)[a]

Species	Grade 1	Grade 2	Grade 3	Grade 4[b]	All classes
Eastern red cedar[c]	-	-	-	-	-
White and red pine	-	-	16.8	.9	17.7
Virginia pine	-	-	-	-	-
Other softwoods[c]	-	-	-	-	-
Total softwoods	-	-	16.8	.9	17.7
Soft maples	-	11.6	31.9	42.3	85.8
Hard maples	11.2	19.4	52.2	25.5	108.3
Hickory	21.4	90.6	193.5	110.3	415.8
Beech	18.3	16.8	24.0	41.7	100.8
White ash	42.9	90.5	100.4	33.5	267.3
Black walnut	-	11.2	18.1	11.7	41.0
Yellow-poplar	-	-	3.9	.9	4.8
Sycamore	5.0	18.7	39.8	10.8	74.3
Aspen	46.9	21.4	33.3	34.3	135.9
Black cherry	3.0	6.2	3.4	15.1	27.7
Select white oaks	98.7	49.9	118.8	81.1	348.5
Select red oaks	72.0	43.8	75.8	53.8	245.4
Chestnut oak	-	-	-	-	-
Other red oaks	17.0	34.6	62.9	71.7	186.2
Black locust	-	-	-	-	-
Elm	7.1	10.0	20.7	7.8	45.6
Other hardwoods	29.0	47.0	73.0	17.4	166.4
Total hardwoods	372.5	471.7	851.7	557.9	2,253.8
Percent of hardwood in each grade	16	21	38	25	100
Hardwood sampling error (in percent)	15	10	9	13	7.9

[a] International 1/4-inch rule.
[b] Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c] These species are not divided into standard-lumber grades.

Table 62.--Sampling errors for major number of trees and timber-volume classes, Northwestern Unit, Ohio, 1979

(In percent)

Item	Number of trees (Table 58)	Growing-stock volume (Table 59)	Sawtimber volume (Table 60)
Species			
Eastern red cedar	-	-	-
White and red pine	78	70	101
Virginia pine	-	-	-
Other softwoods	-	-	-
Soft maples	34	39	36
Hard maples	37	35	43
Hickory	20	15	20
Beech	55	45	54
White ash	18	15	21
Black walnut	31	26	30
Yellow-poplar	71	73	104
Sycamore	50	43	46
Aspen	42	37	45
Black cherry	38	26	37
Select white oaks	28	23	24
Select red oaks	36	35	36
Chestnut oak	-	-	-
Other red oaks	37	37	41
Black locust	00	81	-
Elm	29	32	77
Other hardwoods	33	22	25
Dbh class (inches)			
5.0 to 6.9	14	16	-
7.0 to 8.9	16	16	-
9.0 to 10.9	12	12	101
11.0 to 12.9	14	13	15
13.0 to 14.9	14	12	14
15.0 to 16.9	14	12	12
17.0 to 18.9	17	16	17
19.0 to 20.9	18	18	16
21.0 to 28.9	22	21	18
29.0+	29	30	27

Table 63.--Land area by county, geographic unit, and land class, Ohio 1979

County and geographic unit	Forest land			Nonforest land	Total land[b]	Proportion commercial[c]
	Noncommercial[a]	Commercial				
		Public	Private			
	Thousand acres					Percent
Adams	4.1	11.9	182.1	177.6	375.7	52
Brown	.1	.2	82.3	231.0	313.6	26
Clermont	3.8	.8	92.8	195.7	293.1	32
Gallia	.1	10.6	161.3	129.4	301.4	57
Highland	2.3	2.2	62.7	284.2	351.4	18
Jackson	1.9	5.2	167.5	93.6	268.2	64
Lawrence	3.6	51.6	161.8	74.8	291.8	73
Pike	2.0	10.0	167.3	104.2	283.5	63
Ross	3.0	22.5	146.3	267.9	439.7	38
Scioto	4.6	63.7	198.5	122.3	389.1	67
South-Central Unit	25.5	178.7	1,422.6	1,680.7	3,307.5	48
Athens	2.7	13.5	178.3	128.1	322.6	59
Hocking	3.1	26.5	141.9	97.9	269.4	63
Meigs	.7	2.3	185.0	91.0	279.0	67
Morgan	1.7	4.7	130.2	132.2	268.8	50
Perry	3.0	23.3	125.0	111.1	262.4	57
Vinton	3.0	24.6	165.0	70.4	263.0	72
Washington	2.5	26.0	201.4	180.4	410.3	55
Southeastern Unit	16.7	120.9	1,126.8	811.1	2,075.5	60
Belmont	4.2	3.4	176.6	157.6	341.8	53
Carroll	.4	3.9	111.3	134.0	249.6	46
Coshocton	.1	5.2	162.1	192.3	359.7	47
Guernsey	5.4	1.1	163.7	167.7	337.9	49
Harrison	.6	9.9	132.5	113.6	256.6	55
Holmes	9.5	.2	77.0	184.7	271.4	28
Jefferson	.9	4.0	130.4	127.7	263.0	51
Monroe	.9	14.6	172.6	103.7	291.8	64
Muskingum	4.3	8.4	176.1	227.9	416.7	44
Noble	9.5	3.1	139.3	102.8	254.7	56
Tuscarawas	.6	1.4	160.9	201.3	364.2	45
East-Central Unit	36.4	55.2	1,602.5	1,713.3	3,407.4	49
Ashland	0.4	2.7	49.8	218.5	271.4	19
Ashtabula	4.6	-	187.9	255.5	448.0	42
Columbiana	2.8	1.8	128.5	208.7	341.8	38
Cuyahoga	34.2	-	-	257.6	291.8	0
Erie	.4	.5	18.4	149.7	169.0	11
Geauga	6.4	2.0	122.2	129.9	260.5	48
Huron	.7	1.0	37.6	278.7	318.0	12
Lake	3.7	.7	39.7	103.7	147.8	27
Lorain	1.6	.1	44.5	270.6	316.8	14
Mahoning	2.2	1.0	68.8	193.6	265.6	26
Medina	1.4	.2	58.0	212.4	272.0	21
Portage	6.6	11.1	79.1	220.0	316.8	28
Richland	.4	3.2	60.8	253.0	317.4	20
Stark	.3	1.2	61.5	305.6	368.6	17
Summit	5.4	7.1	50.2	198.4	261.1	22
Trumbull	20.0	5.0	136.2	227.9	389.1	36
Wayne	.2	1.2	58.4	299.3	359.1	17
Northeastern Unit	91.3	38.8	1,201.6	3,783.1	5,114.8	24

County and geographic unit	Forest land			Nonforest land	Total land[b]	Proportion commercial[c]
	Noncommercial[a]	Commercial				
		Public	Private			
	Thousand acres					Percent
Butler	4.6	0.2	32.2	264.4	301.4	11
Clark	.1	W	17.2	240.0	257.3	7
Clinton	1.9	.4	16.1	244.0	262.4	6
Darke	.1	.1	28.9	358.1	387.2	7
Fairfield	.6	.1	49.0	273.5	323.2	15
Fayette	.4	.2	9.5	248.5	258.6	4
Franklin	.5	.4	24.4	319.0	344.3	7
Greene	1.9	.5	20.9	242.3	265.6	8
Hamilton	4.1	.3	45.4	215.2	265.0	17
Licking	.8	.3	105.6	332.3	439.0	24
Madison	.5	.1	9.2	286.5	296.3	3
Miami	.1	W	14.7	245.7	260.5	6
Montgomery	2.1	.6	23.2	267.9	293.8	8
Pickaway	.5	.3	15.9	305.9	322.6	5
Preble	1.9	.7	26.5	244.2	273.3	10
Warren	1.8	.7	26.6	232.0	261.1	10
Southwestern Unit	21.9	4.9	465.3	4,319.5	4,811.6	10
Allen	0.1	W	13.2	249.1	262.4	5
Auglaize	W	0.1	17.4	238.5	256.0	7
Champaign	.4	.2	15.0	260.9	276.5	5
Crawford	W	.6	24.2	233.8	258.6	10
Defiance	.6	1.4	41.6	220.1	263.7	16
Delaware	1.4	1.0	38.8	246.8	288.0	14
Fulton	.6	1.0	27.6	231.3	260.5	11
Hancock	.2	.3	28.2	311.8	340.5	8
Hardin	.1	.7	26.5	271.6	298.9	9
Henry	.6	.6	16.7	248.3	266.2	6
Knox	.2	.5	85.3	253.8	339.8	25
Logan	.5	.4	28.0	265.5	294.4	10
Lucas	.6	.9	24.4	193.6	219.5	12
Marion	1.3	.6	21.2	236.1	259.2	8
Mercer	.1	W	16.1	268.0	284.2	6
Morrow	1.3	1.0	38.0	217.6	257.9	15
Ottawa	.1	.1	7.3	159.5	167.0	4
Paulding	.7	.8	22.7	242.7	266.9	9
Putnam	.1	W	12.7	298.2	311.0	4
Sandusky	.2	.2	11.2	250.2	261.8	4
Seneca	.2	.3	28.2	323.9	352.6	8
Shelby	.4	.5	34.3	225.9	261.1	13
Union	.4	.2	15.0	262.2	277.8	5
Van Wert	.1	W	10.9	250.8	261.8	4
Williams	.7	1.7	48.6	218.4	269.4	19
Wood	.3	.2	16.7	379.0	396.2	4
Wyandot	W	.4	16.3	243.1	259.8	6
Northwestern Unit	11.2	13.7	686.1	6,800.7	7,511.7	9
All counties	203.0	412.2	6,504.9	19,108.4	26,228.5	26

[a]Includes productive-reserved, urban, and unproductive forest land.
[b]Source: U.S. Dep. Commer., Census, County and City Data Book, 1972.
[c]Percentage of total land area that is in commercial forest.
W-Less than 500 acres.

Table 64.--Area of commercial forest land by county, geographic unit and stand-size class, Ohio, 1979

County[a] and geographic unit	Sawtimber stands	Poletimber stands	Other stands	All classes	Sampling error[b]
	Thousand acres				Percent
Adams	69.7	50.2	74.1	194.0	5
Brown	34.5	14.0	34.0	82.5	10
Clermont	34.1	8.5	51.0	93.6	4
Gallia	35.5	54.7	81.7	171.9	6
Highland	35.2	8.2	21.5	64.9	6
Jackson	65.3	21.1	86.3	172.7	4
Lawrence	86.9	39.6	86.9	213.4	3
Pike	118.6	29.4	29.3	177.3	2
Ross	103.7	29.0	36.1	168.8	4
Scioto	155.4	93.5	13.3	262.2	2
South-Central Unit	738.9	348.2	514.2	1,601.3	1.3
Athens	81.5	50.5	59.8	191.8	4
Hocking/Perry	144.8	64.0	107.9	316.7	2
Meigs	70.9	43.2	73.2	187.3	4
Morgan/Washington	159.5	76.7	126.1	362.3	5
Vinton	81.2	51.0	57.4	189.6	4
Southeastern Unit	537.9	285.4	424.4	1,247.7	2.0
Belmont	76.5	20.4	83.1	180.0	4
Carroll	48.4	37.5	29.3	115.2	8
Coshocton	60.8	52.9	53.6	167.3	3
Guernsey	54.7	33.6	76.5	164.8	6
Harrison	67.3	15.3	59.8	142.4	9
Holmes	59.0	10.5	7.7	77.2	9
Jefferson	44.8	30.8	58.8	134.4	6
Monroe	85.4	42.7	59.1	187.2	5
Muskingum	70.0	26.0	88.5	184.5	5
Noble	4.2	20.7	117.5	142.4	10
Tuscarawas	43.5	25.3	93.5	162.3	7
East-Central Unit	614.6	315.7	727.4	1,657.7	2.0
Ashland/Richland	62.1	31.0	23.4	116.5	7
Ashtabula	54.1	50.7	83.1	187.9	3
Columbiana	29.9	33.0	67.4	130.3	4
Cuyahoga	-	-	-	-	-
Erie/Huron	13.3	33.9	10.3	57.5	16
Geauga/Lake	77.5	23.3	63.8	164.6	7
Lorain/Medina	43.8	17.3	41.7	102.8	11
Mahoning	41.9	13.6	14.3	69.8	6
Portage/Summit	58.3	13.1	76.1	147.5	14
Stark/Wayne	41.5	58.9	21.9	122.3	10
Trumbull	48.7	42.7	49.8	141.2	8
Northeastern Unit	471.1	317.5	451.8	1,240.4	2.8
Butler/Hamilton	32.7	19.5	25.9	78.1	15
Clark/Darke/Miami	43.5	5.2	12.2	60.9	11
Clinton/Greene/ Montgomery/Preble/Warren	47.1	24.4	44.7	116.2	14
Fairfield/Licking	87.2	33.4	34.4	155.0	6
Fayette/Franklin/Madison/ Pickaway	13.3	12.3	34.4	60.0	21
Southwestern Unit	223.8	94.8	151.6	470.2	5.5

Table 64.-- continued

County[a] and geographic unit	Sawtimber stands	Poletimber stands	Other stands	All classes	Sampling error[b]
	Thousand acres				Percent
Allen/Auglaize/Mercer/ Putnam/Van Wert	42.2	18.3	9.9	70.4	19
Champaign/Logan/Shelby/Union	41.1	52.5	-	93.6	15
Crawford/Hardin/Wyandot	34.3	11.6	22.8	68.7	17
Defiance/Fulton/Henry/Lucas Paulding/Williams	99.0	37.5	51.5	188.0	7
Delaware/Marion/Morrow	66.6	-	34.0	100.6	10
Hancock/Ottawa/Sandusky/ Seneca/Wood	46.8	24.7	21.2	92.7	15
Knox	38.3	31.7	15.8	85.8	6
Northwestern Unit	368.3	176.3	155.2	699.8	4.6
All counties	2,954.6	1,537.9	2,424.6	6,917.1	1.0

[a]Multi-county groupings are used for counties with too few forested field plots or with other sampling anomalies. This is done in order to minimize sampling errors when presenting more detailed county-level data.
[b]For commercial forest land.

Table 65.--Area of commercial forest land by county, geographic unit and major forest type, Ohio, 1979
(In thousands of acres)

County[a] geographic unit	Softwood types[b]	Oak types[c]	Elm/ash red maple types	Northern hardwood types[d]	All types
Adams	30.3	126.5	7.3	29.9	194.0
Brown	-	40.8	13.9	27.8	82.5
Clermont	-	51.1	25.5	17.0	93.6
Gallia	21.1	131.6	12.7	6.5	171.9
Highland	-	56.7	-	8.2	64.9
Jackson	26.1	128.6	4.7	13.3	172.7
Lawrence	10.5	193.0	.2	9.7	213.4
Pike	-	170.5	-	6.8	177.3
Ross	-	126.9	7.4	34.5	168.8
Scioto	6.9	243.1	4.9	7.3	262.2
South-Central Unit	94.9	1,268.8	76.6	161.0	1,601.3
Athens	1.4	162.4	21.2	6.8	191.8
Hocking/Perry	28.1	224.3	18.6	45.7	316.7
Meigs	18.8	145.1	5.4	18.0	187.3
Morgan/Washington	41.6	272.7	20.2	27.8	362.3
Vinton	.1	182.9	-	6.6	189.6
Southeastern Unit	90.0	987.4	65.4	104.9	1,247.7
Belmont	-	100.8	19.4	59.8	180.0
Carroll	6.3	62.6	2.0	44.3	115.2
Coshocton	7.1	121.4	7.9	30.9	167.3
Guernsey	7.0	98.3	34.0	25.5	164.8
Harrison	7.6	90.2	15.3	29.3	142.4
Holmes	10.5	25.5	10.1	31.1	77.2
Jefferson	-	82.8	7.2	44.4	134.4
Monroe	10.4	139.7	.2	36.9	187.2
Muskingum	-	139.0	25.7	19.8	184.5
Noble	4.2	56.5	34.9	46.8	142.4
Tuscarawas	7.7	99.2	7.8	47.6	162.3
East-Central Unit	60.8	1,016.0	164.5	416.4	1,657.7
Ashland/Richland	7.8	15.5	23.2	70.0	116.5
Ashtabula	-	72.3	25.2	90.4	187.9
Columbiana	-	64.5	-	65.8	130.3
Cuyahoga	-	-	-	-	-
Erie/Huron	-	-	13.3	44.2	57.5
Geauga/Lake	-	16.0	8.0	140.6	164.6
Lorain/Medina	-	17.3	16.3	69.2	102.8
Mahoning	7.1	42.6	13.6	6.5	69.8
Portage/Summit	-	48.5	28.1	70.9	147.5
Stark/Wayne	8.4	55.1	33.7	25.1	122.3
Trumbull	-	71.1	21.1	49.0	141.2
Northeastern Unit	23.3	402.9	182.5	631.7	1,240.4
Butler/Hamilton	-	39.3	19.3	19.5	78.1
Clark/Darke/Miami	-	26.7	12.2	22.0	60.9
Clinton/Greene/ Montgomery/Preble/Warren	6.3	49.8	36.4	23.7	116.2
Fairfield/Licking	11.3	89.6	11.3	42.8	155.0
Fayette/Franklin/Madison/ Pickaway	-	43.1	16.9	-	60.0
Southwestern Unit	17.6	248.5	96.1	108.0	470.2

Table 65.-- continued

(In thousands of acres)

County[a] geographic unit	Softwood types[b]	Oak types[c]	Elm/ash red maple types	Northern hardwood types[d]	All types
Allen/Auglaize/Mercer/ Putnam/Van Wert	-	50.6	19.8	-	70.4
Champaign/Logan/Shelby/Union	-	53.9	-	39.7	93.6
Crawford/Hardin/Wyandot	-	45.5	11.6	11.6	68.7
Defiance/Fulton/Henry/Lucas Paulding/Williams	3.3	105.9	45.6	33.2	188.0
Delaware/Marion/Morrow	-	24.2	34.6	41.8	100.6
Hancock/Ottawa/Sandusky/ Seneca/Wood	-	30.8	26.4	35.5	92.7
Knox	15.9	41.3	28.6	-	85.8
Northwestern Unit	19.2	352.2	166.6	161.8	699.8
All counties	305.8	4,275.8	751.7	1,583.8	6,917.1

[a]Multi-county groupings are used for counties with too few field plots or with other sanpling anomalies. This is done to minimize sampling errors when more detailed county-level data are presented.
[b]Includes white/red pine and hard pine groups.
[c]Includes oak/pine and oak/hickory groups.
[d]Includes northern hardwoods and aspen/birch groups.

Table 66.--Net volume of growing stock and sawtimber on commercial forest land by county, geographic unit, and major species group, Ohio, 1979

County[a] and geographic unit	Oaks	Other	Total	Sampling error	Oaks	Other	Total	Sampling error
	Million cubic feet			Percent	Million board feet			Percent
Adams	89.8	139.0	228.8	6	300.7	405.7	706.4	8
Brown	23.5	49.6	73.1	14	89.7	129.7	219.4	17
Clermont	12.3	78.3	90.6	10	51.9	242.3	294.2	12
Gallia	64.4	106.4	170.8	9	221.2	242.9	464.1	12
Highland	18.5	53.1	71.6	12	71.4	156.8	228.2	14
Jackson	50.9	110.0	160.9	8	177.2	347.1	524.3	9
Lawrence	81.1	161.2	242.3	8	277.6	454.5	732.1	9
Pike	95.6	123.8	219.4	6	343.9	374.6	718.5	8
Ross	99.6	122.3	221.9	7	361.6	363.5	725.1	9
Scioto	265.4	140.8	406.2	5	955.4	399.0	1,354.4	6
South-Central Unit	801.1	1,084.5	1,885.6	2.3	2,850.6	3,116.1	5,966.7	2.9
Athens	81.2	85.0	166.2	5	324.2	243.3	567.5	6
Hocking/Perry	83.6	199.7	283.3	5	328.1	600.7	928.8	6
Meigs	53.3	90.9	144.2	5	212.9	280.1	493.0	7
Morgan/Washington	130.0	208.0	338.0	5	592.4	596.5	1,188.9	6
Vinton	84.5	106.9	191.4	5	381.3	273.4	654.7	7
Southeastern Unit	432.6	690.5	1,123.1	2.2	1,838.9	1,994.0	3,832.9	2.9
Belmont	24.5	102.4	126.9	8	100.0	307.1	407.1	9
Carroll	31.7	54.3	86.0	10	95.5	131.0	226.5	13
Coshocton	20.0	114.0	134.0	8	86.6	309.5	396.1	9
Guernsey	32.0	81.3	113.3	8	130.2	211.9	342.1	9
Harrison	23.0	55.0	78.0	12	70.9	138.3	209.2	15
Holmes	12.0	60.3	72.3	10	33.6	209.3	242.9	12
Jefferson	21.4	83.9	105.3	9	72.3	224.0	296.3	12
Monroe	30.8	145.1	175.9	7	126.2	482.0	608.2	8
Muskingum	29.6	104.4	134.0	8	129.4	276.7	406.1	10
Noble	8.9	56.9	65.8	11	49.3	141.2	190.5	13
Tuscarawas	31.1	70.0	101.1	10	113.9	183.7	297.6	12
East-Central Unit	265.0	927.6	1,192.6	2.7	1,007.9	2,614.7	3,622.6	3.2
Ashland/Richland	19.4	90.4	109.8	11	58.4	232.7	291.1	15
Ashtabula	42.4	99.3	141.7	9	199.7	185.8	385.5	14
Columbiana	26.0	59.0	85.0	9	90.1	141.5	231.6	14
Cuyahoga	-	-	-	-	-	-	-	
Erie/Huron	21.0	46.7	67.7	14	60.6	127.6	188.2	20
Geauga/Lake	9.0	148.1	157.1	9	36.1	425.1	461.2	12
Lorain/Medina	12.2	82.9	95.1	12	45.9	221.4	267.3	17
Mahoning	24.4	38.5	62.9	10	100.4	103.4	203.8	14
Portage/Summit	37.5	94.7	132.2	10	155.5	256.8	412.3	13
Stark/Wayne	23.9	69.0	92.9	12	121.8	159.9	281.7	15
Trumbull	54.1	63.3	117.4	7	173.8	137.4	311.2	12
Northeastern Unit	269.9	791.9	1,061.8	3.2	1,042.3	1,991.6	3,033.9	4.5
Butler/Hamilton	17.1	58.7	75.8	19	83.1	146.0	229.1	28
Clark/Darke/Miami	16.9	45.6	62.5	19	60.2	147.0	207.2	25
Clinton/Greene/ Montgomery/Preble/Warren	27.0	112.8	139.8	12	139.6	380.7	520.3	14
Fairfield/Licking	40.0	114.8	154.8	9	170.2	356.3	526.5	12
Fayette/Franklin/Madison/ Pickaway	21.6	30.0	51.6	20	126.1	79.1	205.2	21
Southwestern Unit	122.6	361.9	484.5	6.1	579.2	1,109.1	1,688.3	7.9

Table 66.-- continued

County[a] and geographic unit	Oaks	Other	Total	Sampling error	Oaks	Other	Total	Sampling error
	Million cubic feet			Percent	Million board feet			Percent
Allen/Auglaize/Mercer/ Putnam/Van Wert	26.2	58.5	84.7	18	127.4	173.9	301.3	25
Champaign/Logan/Shelby/Union	9.9	59.9	69.8	14	49.0	195.6	244.6	17
Crawford/Hardin/Wyandot	16.2	56.2	72.4	18	80.0	183.4	263.4	23
Defiance/Fulton/Henry/Lucas/ Paulding/Williams	43.2	107.8	151.0	13	161.7	348.4	510.1	18
Delaware/Marion/Morrow	8.2	74.4	82.6	17	42.2	249.9	292.1	24
Hancock/Ottawa/Sandusky/ Seneca/Wood	27.8	69.4	97.2	17	128.2	191.1	319.3	21
Knox	37.7	51.3	89.0	14	191.6	149.1	340.7	17
Northwestern Unit	169.2	477.5	646.7	6.1	780.1	1,491.4	2,271.5	8.0
All counties	2,060.4	4,333.9	6,394.3	1.3	8,099.0	12,316.9	20,415.9	1.7

[a]Multi-county groupings are used for counties with too few field plots or with other sampling anomalies. This is done to minimize sampling errors when more detailed county-level data are presented.

Table 67.--Area of commercial forest land by county and geographic unit, Ohio, 1968 and 1979

County[a] and geographic unit	1968	1979[b]	Change	Change	Sampling Error for 1968
	--------Thousand acres--------			--------Percent------	
Adams	197.2	194.0	- 3.2	- 2	4
Brown	74.6	82.5	+ 7.9	+11	11
Clermont	85.1	93.6	+ 8.5	+10	7
Gallia	164.6	171.9	+ 7.3	+ 4	2
Highland	75.8	64.9	-10.9	-14	18
Jackson	148.1	172.7	+24.6	+17	6
Lawrence	199.0	213.4	+14.4	+ 7	6
Pike	180.6	177.3	- 3.3	- 2	2
Ross	172.4	168.8	- 3.6	- 2	6
Scioto	262.7	262.2	- .5	W	3
South-Central Unit	1,560.1	1,601.3	+41.2	+ 2.6	1.9
Athens	215.1	191.8	-23.3	-11	7
Hocking	178.8	168.4	-10.4	- 6	7
Meigs	182.3	187.3	+ 5.0	+ 3	3
Morgan	118.6	134.9	+16.3	+14	7
Perry	120.6	148.3	+27.7	+23	9
Vinton	197.1	189.6	- 7.5	- 4	7
Washington	238.6	227.4	-11.2	- 5	5
Southeastern Unit	1,251.1	1,247.7	- 3.4	- .3	2.4
Belmont	173.1	180.0	+ 6.9	+ 4	4
Carroll	105.2	115.2	+10.0	+10	8
Coshocton	171.8	167.3	- 4.5	- 3	8
Guernsey	156.4	164.8	+ 8.4	+ 5	9
Harrison	148.5	142.4	- 6.1	- 4	10
Holmes	72.3	77.2	+ 4.9	+ 7	10
Jefferson	126.8	134.4	+ 7.6	+ 6	8
Monroe	178.5	187.2	+ 8.7	+ 5	8
Muskingum	172.2	184.5	+12.3	+ 7	6
Noble	136.6	142.4	+ 5.8	+ 4	11
Tuscarawas	144.2	162.3	+18.1	+13	7
East-Central Unit	1,585.6	1,657.7	+72.1	+ 4.5	2.5
Ashland/Richland	95.9	116.5	+20.6	+21	14
Ashtabula	192.2	187.9	- 4.3	- 2	8
Columbiana	118.0	130.3	+12.3	+10	11
Cuyahoga	-	-	-	-	-
Erie/Huron	59.2	57.5	- 1.7	- 3	30
Geauga/Lake	119.3	164.6	+45.3	+38	23
Lorain/Medina	95.3	102.8	+ 7.5	+ 8	18
Mahoning	61.2	69.8	+ 8.6	+14	19
Portage/Summit	131.1	147.5	+16.4	+13	21
Stark/Wayne	121.6	122.3	+ .7	+ 1	12
Trumbull	136.0	141.2	+ 5.2	+ 4	12
Northeastern Unit	1,129.8	1,240.4	+110.6	+ 9.8	5.0

Table 67.-- continued

County[a] and geographic unit	1968	1979[b]	Change	Change	Sampling Error for 1968
	-------Thousand acres----------			------Percent-------	
Butler/Hamilton	73.9	78.1	+ 4.2	+ 6	24
Clark/Darke/Miami	53.9	60.9	+ 7.0	+13	17
Clinton/Greene/ Montgomery/Preble/Warren	103.0	116.2	+13.2	+13	19
Fairfield/Licking	120.3	155.0	+34.7	+29	19
Fayette/Franklin/Madison/ Pickaway	61.7	60.0	- 1.7	- 3	24
Southwestern Unit	412.8	470.2	+57.4	+13.9	9.5
Allen/Auglaize/Mercer/ Putnam/Van Wert	58.1	70.4	+12.3	+21	29
Champaign/Logan/Shelby/Union	86.4	93.6	+ 7.2	+ 8	26
Crawford/Hardin/Wyandot	63.0	68.7	+ 5.7	+ 9	31
Defiance/Fulton/Henry/Lucas Paulding/Williams	145.5	188.0	+42.5	+29	15
Delaware/Marion/Morrow	95.2	100.6	+ 5.4	+ 6	14
Hancock/Ottawa/Sandusky/ Seneca/Wood	77.6	92.7	+15.1	+19	21
Knox	89.6	85.8	- 3.8	- 4	17
Northwestern Unit	615.4	699.8	+84.4	+13.7	7.7
All counties	6,554.8	6,917.1	+362.3	+ 5.5	1.6

[a]Multi-county groupings are used for counties with too few field plots or with other sampling anomalies. This is done to minimize sampling errors when more detailed county-level data are presented.
[b]For sampling errors for 1979 area, see Table 64.
W-Less than 0.5 percent.

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APPENDIX

Definition of terms

Accretion. The estimated net growth of growing-stock trees that were measured during the previous inventory, divided by the length of the period between surveys. It includes the growth on trees that were cut during the period, plus those trees that died and were used.

Annual mortality trend-level. The estimated mortality of growing stock or sawtimber for a specific year (1978 for Ohio) based on average rates of diameter growth and mortality for the period. This estimate is consistent with the average annual change during the period between surveys and with the current inventory.

Annual net growth trend-level. The estimated mortality of growing stock or sawtimber for a specific year (1978 for Ohio) based on average rates of diameter growth and mortality for the period. This estimate is consistent with the average annual change during the period between surveys and with the current inventory.

Annual removals trend-level. The estimated removals of growing stock or sawtimber for a specific year (1978 for Ohio) obtained from a trend line for the period. This line is established by fitting a curve to actual removals data for several years during the period. The actual removals for the year given can vary from the trend estimate because of fluctuations in market conditions and other factors.

Average annual net growth. The change, resulting from natural causes, in growing-stock or sawtimber volume of sound wood in growing-stock or sawtimber trees during the period between surveys, divided by the length of the period. Components of average annual net growth include the increment in net volume of trees that are present at the beginning of the period and that survive to the end (accretion), plus average annual ingrowth, minus average annual mortality, and minus the net volume of trees that became rough or rotten during the period (cull increment).

Average annual removals. The net growing-stock or sawtimber volume of trees harvested or killed in logging, cultural operations (such as timber stand improvement), or land clearing, and also the net growing-stock or sawtimber volume of trees neither harvested nor killed but growing on land that was reclassified from commercial forest land to noncommercial forest land during the period between surveys. This volume is divided by the length of the period.

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent.

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

Commercial forest land. 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.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically small size, poor form, or inferior quality, such as hawthorn and sumac.

County and municipal lands. Lands owned by counties and local public agencies or municipalities or leased to them for 50 years or more.

Cull increment. The net volume of growing-stock trees on the previous inventory that became rough or rotten trees in the current inventory, divided by the length of the period between surveys.

Diameter at breast height (dbh). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground.

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not. Excludes land leased by farm operators from nonfarm owners.

Federal lands. Lands (other than National Forests) administered by Federal agencies.

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

Forest industry lands. Lands owned by companies or individuals operating primary wood-using plants.

Forest land. Land at least 10 percent stocked with trees of any size or that formerly had such tree cover and is not currently developed for nonforest use. The minimum area for classification of forest land is 1 acre.

Forest type. A classification of forest land based on the species forming a plurality of live-tree stocking. The many forest types in Ohio were combined into the following major forest-type groups:

a. White/red pine--forests in which white pine or red pine, singly or in combination, make up a plurality of the stocking; in Ohio common associates include yellow-poplar, red maple, oak, black walnut and black cherry.

b. Hard pine--forests in which Virginia, shortleaf, or pitch pines or eastern redcedar, singly or in combination make up a plurality of the stocking; in Ohio common associates include red maple, oak, white or red pine, white ash, black walnut, and sycamore.

c. Oak/pine--forests in which hardwoods (usually hickory or oak) make up a plurality of the stocking but where shortleaf or Virginia pine or eastern redcedar make up 25 to 50 percent of the stocking.

d. Oak/hickory--forests in which upland oaks, hickory, yellow-poplar, black locust, black walnut, sweetgum, sassafras, persimmon, or red maple (when associated with central hardwoods), singly or in combination, make up a plurality of the stocking and in which shortleaf or Virginia pines, or eastern redcedar make up less than 25 percent of the stocking; in Ohio common associates include white ash, sugar maple, and black cherry.

e. Elm/ash/red maple--forests in which elm, river birch, sycamore, willow, cottonwood, or red maple (when growing on wet sites), singly or in combination, make up a plurality of the stocking; in Ohio common associates include white ash, sugar maple, oak, hickory, yellow-poplar, and black cherry.

f. Northern hardwoods--forests in which sugar maple, beech, yellow birch, black cherry, or red maple (when associated with northern hardwoods), singly or in combination, make up a plurality of the stocking; in Ohio common associates include white ash, hickory, yellow-poplar, white oak, and red oaks.

g. Aspen/birch--forests in which aspen is a plurality of the stocking; in Ohio common associates include red maple, black cherry, red oaks, and beech.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of commercial species except rough and rotten trees.

Growing-stock volume. Net volume, in cubic feet of growing-stock trees 5.0 inches dbh and larger, from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. Net volume equals gross volume, less deduction for cull.

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

Industrial wood. All roundwood products except fuelwood.

Ingrowth. The estimated net volume of growing stock trees that became 5.0 inches dbh or larger during the period between inventories, divided by the length of the period between surveys.

International 1/4-inch rule. A log rule, or formula, for estimating the board-foot volume of logs. The mathematical formula is:

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

for 4-foot sections, where D = diameter inside bark at the small end of the section. This rule is used as the USDA Forest Service Standard Log rule in the eastern United States.

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area. (b). Resources Evaluation: same as (a) except that the minimum width of streams, etc., is 120 feet, and the minimum size of lakes, etc., is 1 acre

Logging residues. The unused portions of growing-stock trees harvested or killed in the process of logging.

Manufacturing plant residues. Wood materials that are generated when round timber (roundwood) is converted into wood products. This includes slabs, edgings, trimmings, bark, miscuts, sawdust, shavings, veneer cores and clippings, and pulp screening. If these residues are used, they are referred to as plant byproducts.

Miscellaneous private lands. Privately owned lands other than forest-industry and farmer-owned lands.

Mortality. The estimated net volume of growing-stock trees on the previous inventory that died from natural causes before the current inventory, divided by the length of the period between surveys.

National Forest lands. Federal lands legally designated as National Forests or purchase units and other lands administered as part of the National Forest System by the USDA Forest Service.

Noncommercial forest land. Productive-reserved, urban, and unproductive forest land.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, residential areas, and highways.

Nonstocked areas. Commercial forest land that is stocked with less than 10 percent of minimum full stocking with growing-stock trees.

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

Poletimber stands. Stands stocked with at least 10 percent of minimum full stocking with growing-stock trees, with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of poletimber exceeds that of sawtimber.

Poletimber trees. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in dbh, but smaller than sawtimber trees.

Productive-reserved forest land. Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Primary wood manufacturing plant. A plant that converts round timber into wood products such as woodpulp, lumber, veneer, cooperage, and dimension products.

Pulpwood. Roundwood converted into 4- or 5-foot lengths or chips, and chipped plant byproducts that are prepared for manufacture into woodpulp.

Rotten trees. Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and do not meet regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume in a tree is rotten.

Rough trees. (a) The same as rotten trees, except that rough trees do not meet regional specifications for freedom from defect primarily because of roughness or poor form, and (b) all live trees of noncommercial species.

Roundwood products. Logs, bolts, total tree chips, or other round timber generated by harvesting trees for industrial or consumer uses.

Saplings. Live trees 1.0 through 4.9 inches dbh.

Sapling-seedling stands. Stands stocked with at least 10 percent of minimum full stocking with growing-stock trees with half or more of such stocking in saplings or seedlings or both.

Sawlog. A log meeting regional standards of diameter, length, and defect, including a minimum 8-foot length and a minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods. (See specifications under Log Grade Classification.)

Sawlog portion. That part of the bole of a sawtimber tree between the stump and the sawlog top; that is, the merchantable height.

Sawlog top. The point on the bole of a sawtimber tree above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches diameter outside bark (dob) for softwoods and 9.0 inches dob for hardwoods.

Sawtimber stands. Stands stocked with at least 10 percent of minimum full stocking with growing-stock trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber.

Sawtimber trees. Live trees of commercial species at least 9.0 inches dbh for softwoods or 11.0 inches for hardwoods containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, International 1/4-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Seedlings. Live trees less than 1.0 inch dbh that are expected to survive.

Site class. A classification of forest land in terms of inherent capacity to grow crops of industrial wood. Classifications are based on the mean annual growth of growing-stock trees attainable in fully stocked natural stands at culmination of mean annual increment.

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Stand. A group of forest trees growing on forest land.

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber, or sawtimber) of growing-stock trees in the area.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. Fuelwood cord estimates can be derived from cubic-foot estimates of growing stock by applying an average factor of 80 cubic feet of solid wood per cord. For pulpwood, a conversion of 85 cubic feet of solid wood per cord is used because of the more uniform character of pulpwood.

State lands. Lands owned by the State or leased to the State for 50 years or more.

Stocking. The degree of occupancy of land by trees, measured by basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to fully use the growth potential of the land (or the stocking standard). In the eastern United States this standard is 75 square feet of basal area per acre for trees 5.0 inches dbh and larger, or its equivalent in numbers of trees per acre for seedlings and saplings.

Two categories of stocking are used:

All live trees - these are used to classify forest land and forest types.

Growing-stock trees - these are used to classify stand-size classes.

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

Timber removals. The growing-stock or sawtimber volumes of trees removed from the inventory for roundwood products, plus logging residues, volume destroyed during land clearing, and volume of standing trees growing on land that was reclassified from commercial forest land to noncommercial forest land. (See Table 29).

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Unproductive forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions.

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

Upper-stem portion. That part of the main stem or fork of a sawtimber tree above the sawlog top to a diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

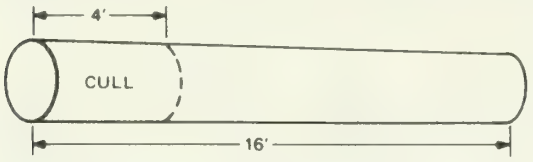
Urban forest land. Noncommercial forest land within urban areas that is completely surrounded by urban development (not parks), whether commercial, industrial, or residential.

LOG-GRADE CLASSIFICATION

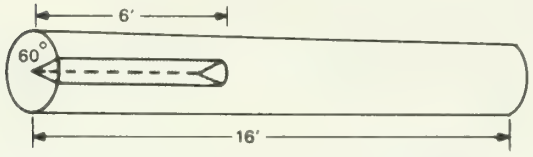
Log grades are a classification of logs based on external characteristics as indicators of quality or value. The log-grade standards and grading systems for softwoods and hardwoods used in this forest survey are shown in the following specifications:

Methods of determining scaling deduction.

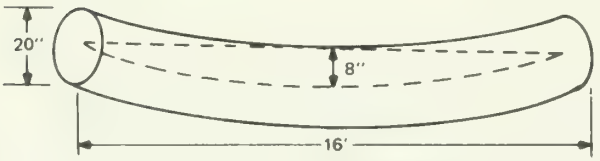
(Examples based on a 16-foot log with 20-inch scaling diameter)



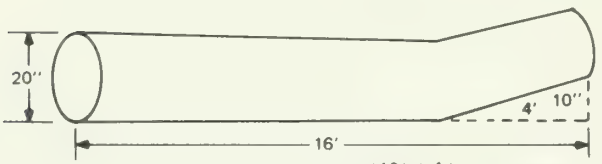
Defect section (rule 1): Percent deduction = $\frac{4}{16}$ = 25%



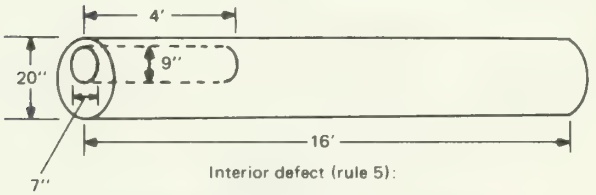
Defect section (rule 2): Percent deduction = $\left(\frac{6}{16}\right)\left(\frac{60}{360}\right)$ = 6-1/4%



Sweep (rule 3): Percent deduction = $\frac{8 \cdot 2}{20}$ = 30%



Crook (rule 4): Percent deduction = $\left(\frac{10}{20}\right)\left(\frac{4}{16}\right)$ = 12-1/2%



Interior defect (rule 5):

Percent deduction = $\frac{(8)\ (10)}{(20-1)^2} \times \frac{4}{16}$ = 5-5/9%

In practice each elipse axis can be divided by (20—1)

Thus $\frac{8}{19}$ = .4, $\frac{10}{19}$ .5, and (.4) (.5) $\left(\frac{4}{16}\right)$ = 5%

From: Grosenbaugh, L.R. 1952. Shortcuts for cruisers and scalers. U.S. Dep, Agric. For. Serv. South. For Exp. Stn. Occas. Pap. 126.

STANDARD GRADES FOR HARDWOOD FACTORY LUMBER LOGS

Grading Factors		Log grades							
		F1			F2				F3
Position in tree		Butts only	Butts & uppers		Butts & Uppers				Butts & uppers
Scaling diameter, inches		13-15[a]	16-19	20+	11+[b]	12+			8+
Length without trim, feet		10+			10+	8-9	10-11	12+	8+
Required clear cuttings[c] of each of 3 best faces[d]	Min. length, feet	7	5	3	3	3	3	3	2
	Max. number	2	2	2	2	2	2	3	No limit
	Min. proportion of log length required in clear cutting	5/6	5/6	5/6	2/3	3/4	2/3	2/3	1/2
Maximum sweep & crook allowance	For logs with less than ¼ of end in sound defects	15%			30%				50%
	For logs with more than ¼ of end in sound defects	10%			20%				35%
Maximum scaling	deduction	40%[e]			50%[f]				50%

End defects although not visible in standing trees, are important in grading cut logs. Instructions for dealing with this factor are contained in Forest Prod. Lab. Rpt. D 1737.

[a]Ash and basswood butts can be 12 inches if they otherwise meet requirements for small #1's.
[b]Ten-inch logs of all species can be #2 if they otherwise meet requirements for small #1's.
[c]A clear cutting is the portion of a face, extending the width of the face, that is free of defects.
[d]A face is ¼ of the surface of the log as divided lengthwise.
[e]Otherwise #1 logs with 41-60% deductions can be #2.
[f]Otherwise #2 logs with 51-60% deductions can be #3.

From: Vaughan, C. L., A. C. Wollin, K. A. McDonald, and E. H. Bulgrin. 1966. Hardwood log grades for standard lumber. USDA For. Serv. Res. Pap. FPL-63.

STANDARD SPECIFICATIONS FOR HARDWOOD CONSTRUCTION LOGS.[a]

Position in tree		Butt & upper
Min. diameter, small end		8 inches +
Min. length, without trim		8 feet
Clear cuttings		No requirements.
Sweep allowance, absolute		1/4 diameter small end for each 8 feet of length.
Sound surface defects	Single knots	Any number, if no one knot has an average diameter above the callus in excess of 1/3 of log diameter at point of occurrence.
	Whorled knots	Any number if sum of knot diameters above the callus does not exceed 1/3 of log diameter at point of occurrence.
	Holes	Any number provided none has a diameter over 1/3 of log diameter at point of occurrence, and none extends over 3 inches into included timber.[b]
Unsound surface defects		Same requirements as for sound defects if they extend into included timber.[b] No limit if they do not.
End defects	Sound	No requirements.
	Unsound	None allowed; log must be sound internally, but will admit 1 shake not to exceed 1/4 the scaling diameter and a longitudinal split not extending over 5 inches into the contained timber.

[a]These specifications are minimum for the class. If, from a group of logs, factory logs are selected first, thus leaving only non-factory logs from which to select construction logs, then the quality range of the construction logs so selected is limited, and the class may be considered a grade. If selection for construction logs is given first priority, then it may be necessary to subdivide the class into grades.
[b]Included timber is always square, and dimension is judged from small end.

From: Rast, E. D., D. L. Sonderman, and G. L. Gammon. 1973. A guide to hardwood log grading (Revised). USDA For. Serv. Gen. Tech. Rep. NE-1.

EASTERN WHITE PINE SAWLOG GRADE SPECIFICATIONS

GRADING FACTOR	LOG GRADE 1	LOG GRADE 2	LOG GRADE 3	LOG GRADE 4
(1) MINIMUM SCALING DIAMETER (inches)	14[1]	6	6	6
(2) MINIMUM LOG LENGTH (feet)	10[2]	8	8	8
(3) MAXIMUM WEEVIL INJURY (number)	None	None	2 injuries[3]	No limit
(4) MINIMUM FACE REQUIREMENTS	Two full length or four 50% length good faces.[4] (In addition, log knots on balance of faces shall not exceed size limitations of grade 2 logs.)	No GOOD FACES REQUIRED. Maximum diameter of log knots on three best faces		Includes all logs not qualifying for No. 3 or better and judged to have at least one-third of their gross volume in sound wood suitable for manufacture into standard lumber
		SOUND RED KNOTS not to exceed 1/6 scaling diameter and 3 inch maximum.	SOUND RED KNOTS not to exceed 1/3 scaling diameter and 5 inch maximum.	
		DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/12 scaling diameter and 1½ inch maximum.	DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/6 scaling diameter and 2½ inch maximum.	
(5) MAXIMUM SWEEP OR CROOK ALLOWANCE (percent)	20	30	40	66⅔
(6) MAXIMUM TOTAL SCALING DEDUCTION (percent)	50	50	50	66⅔

After the tentative log grade is established from face examination, the log will be reduced in grade whenever the following defects are evident

(7) CONKS, PUNK KNOTS, AND PINE BORER DAMAGE ON BARK SURFACE[5]

Degrade one grade if present on one face.
Degrade two grades if present on two faces.
Degrade three grades if present on three or more faces.

(8) LOG END DEFECTS: RED ROT, RING SHAKE, HEAVY STAIN AND PINE BORER DAMAGE OUTSIDE HEART CENTER OF LOG[5]

Consider log as having a total of 8 quarters (4 on each end) and degrade as indicated below:
Degrade one grade if present in 2 quarters of log ends.
Degrade two grades if present in 3 or 4 quarters of log ends.
Degrade three grades if present in 5 or more quarters of log ends.

[1]12 and 13 inch logs with four full length good faces are acceptable
[2]8 foot logs with four full length good faces are acceptable
[3]8 foot No. 3 logs limited to one weevil injury
[4]Minimum 50% length good face must be at least 6 feet
[5]Factors 7 and 8 are not cumulative (total degrade based on more serious of the two). No log to be degraded below grade 4 if net scale is at least one-third gross log scale

From: Ostrander, M. D., and R. L. Brisbin, 1971. Sawlog grades for eastern white pine. USDA For. Serv. Res. Pap. NE-205.

SOUTHERN PINE SAWLOGS

Grade 1. Logs with 3 or 4 clear faces.[1] Code 1.

Grade 2. Logs with 1 or 2 clear faces. Code 2.

Grade 3. Logs with no clear faces. Code 3.

After the tentative log grade is established from above, the log will be degraded one grade for each of the following, except that no log can be degraded below grade 3.

1. *Sweep.* Degrade any tentative 1 or 2 log one grade if sweep amounts to 3 or more inches and equals or exceeds one third (1/3) the diameter inside bark at small end. This is the final grade if there is no evidence of heart rot.

2. *Heart rot.* Degrade any tentative 1 or 2 log one grade if conk, massed hyphae, or other evidence of advanced heart rot is found anywhere in it.

[1] A face is one-fourth of the circumference in width extending full length of the log. Clear faces are those free of: knots measuring more than one-half inch in diameter, overgrown knots of any size, holes more than one-fourth inch in diameter. The faces may be rotated if necessary to obtain the maximum number of clear ones.

From: Schroeder, J. G., R. A. Campbell, and R. C. Rodenbach. 1968. Southern pine sawlogs for yard and structural lumber. USDA For. Serv. Res. Pap. SE-39.

Commercial tree species of Ohio

Scientific Name[a]	Common Name	Occurrence[b]
Softwoods		
Juniperus virginiana	eastern redcedar	c
Picea abies	Norway spruce	vr
Pinus echinata	shortleaf pine	r
P. resinosa	red pine	vr
P. rigida	pitch pine	r
P. strobus	eastern white pine	r
P. sylvestris	Scotch pine	vr
P. virginiana	Virginia pine	c
Thuja occidentalis	northern white-cedar	vr
Tsuga canadensis	eastern hemlock	r
Hardwoods		
Acer nigrum	black maple	r
A. rubrum	red maple (soft)	vc
A. saccharinum	silver maple	c
A. saccharum	sugar maple (hard)	vc
Aesculus glabra	Ohio buckeye	vr
Betula alleghaniensis	yellow birch	r
B. lenta	sweet birch (black)	r
B. nigra	river birch	vr
Carya spp.	hickory	vc
Castanea dentata	American chestnut	vr
Celtis occidentalis	hackberry	r
Cornus florida	flowering dogwood	c
Diospyros virginiana	common persimmon	r
Fagus grandifolia	American beech	c
Fraxinus americana	white ash	vc
F. nigra	black ash	r
F. pennsylvanica	green ash	r
F. quadrangulata	blue ash	vr
Gleditsia triacanthos	honeylocust	r
Gymnocladus dioicus	Kentucky coffeetree	vr
Juglans cinerea	butternut	r
J. nigra	black walnut	c
Liquidambar styraciflua	sweetgum (red gum)	r
Liriodendron tulipifera	yellow-poplar (tulip tree)	vc
Magnolia spp.	magnolia spp.	vr
Magnolia acuminata	cucumber tree	vr
Nyssa sylvatica	blackgum (black tupelo)	c
Platanus occidentalis	American sycamore	c
Populus balsamifera	balsam poplar	vr
P. deltoides	eastern cottonwood	r
P. grandidentata	bigtooth aspen	c
P. tremuloides	quaking aspen	r
Prunus serotina	black cherry	vc
Quercus alba	white oak	vc
Q. bicolor	swamp white oak	c
Q. coccinea	scarlet oak	c
Q. imbricaria	shingle oak	r
Q. macrocarpa	bur oak	r
Q. muehlenbergii	chinkapin oak	r
Q. palustris	pin oak	c
Q. prinus	chestnut oak	c
Q. rubra	northern red oak	c
Q. stellata var. stellata	post oak	r

Tree species continued

Q. velutina	black oak	c
Robinia pseudoacacia	black locust	c
Salix spp.	willow spp.	r
Sassafras albidum	sassafras	c
Tilia spp.	basswood	c
Ulmus spp.	elm	vc

[a] Names according to: Little, Elbert L., Jr. 1979. Checklist of United States trees (native and naturalized). For. Serv., U.S. Dep. Agric. Agric. Handb. 541. Washington, D.C., 375 p.

[b] Occurrence is based on the frequency of tally of commercial species 5.0 inches dbh or larger on forest survey field plots: vr - very rare (<0.05%), r - rare (0.05 to 0.49%), c - common (0.5 to 4.9%), and vc - very common (>5.0%).

Metric equivalents of units used in this report

1 acre = 4,046.86 square meters or 0.404686 hectares
1,000 acres = 404.686 hectares
1,000,000 acres = 404,686 hectares
1,000 board feet = 3.48 cubic meters[a]
1 cubic foot = 0.028317 cubic meters
1,000 cubic feet = 28.317 cubic meters
1,000,000 cubic feet = 28,317 cubic meters
1 cord (wood, bark, and airspace) = 3.6246 cubic meters
1 cord (solid wood, pulpwood) = 2.4069 cubic meters
1 cord (solid wood, other than pulpwood) = 2.2654 cubic meters
1,000 cords (pulpwood) = 2,406.9 cubic meters
1,000 cords (other products) = 2,265.4 cubic meters
1 inch = 2.54 centimeters or 0.0254 meters
1 foot = 30.48 centimeters or 0.3048 meters
Breast height = 1.4 meters above ground level
1 mile = 1.609 kilometers
1 square foot = 929.03 square centimeters or 0.0929 square meters
1 square foot per acre basal area = 0.229568 square meters per hectare

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[a] Although 1,000 board feet is theoretically equivalent to 2.36 cubic meters, this is true only when a board foot actually has a volume 1/12 of a cubic foot. The International 1/4-inch log rule is used by the USDA Forest Service in the East to estimate the product potential in board feet. The reliability of the estimate, using a conversion, will vary with the size of the log measure. The conversion given here, 3.48 cubic meters, is based on the cubic volume of a log 16 feet long and 15 inches in diameter inside bark (dib) at the small end. This conversion could be used for average comparisons when accuracy of 10 percent is acceptable. Because the board foot unit is not a true measure of wood volume and since products other than dimension lumber are increasingly important, this unit may eventually be replaced by the cubic meter.

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Dennis, Donald F., and Thomas W. Birch. Forest Statistics for Ohio--1979. Broomall, PA: Northeast. For. Exp. Stn.; 1981; USDA For. Serv. Resour. Bull. NE-68. 79 p.

A statistical report on the third forest survey of Ohio conducted in 1978 and 1979. Statistical findings are based on data from remeasured and new 10-point variable-radius plots. The current status of forest-land area, timber volume, and annual growth and removals is presented. Timber products output by timber industries, based on a 1978 updated canvass of manufacturers is presented.

ODC 905.1(748)

Keywords: Forest survey, area, volume, growth, removals, counties.

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Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories and research units are maintained at:

- Amherst, Massachusetts, in cooperation with the University of Massachusetts.
- Beltsville, Maryland.
- Berea, Kentucky, in cooperation with Berea College.
- Burlington, Vermont, in cooperation with the University of Vermont.
- Delaware, Ohio.
- Durham, New Hampshire, in cooperation with the University of New Hampshire.
- Hamden, Connecticut, in cooperation with Yale University.
- Morgantown, West Virginia, in cooperation with West Virginia University, Morgantown.
- Orono, Maine, in cooperation with the University of Maine, Orono.
- Parsons, West Virginia.
- Princeton, West Virginia.
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