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HARDWOOD TREE GRADES FOR FACTORY LUMBER

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HARDWOOD TREE GRADES FOR FACTORY LUMBER

ABSTRACT

The Forest Service hardwood tree grades for factory lumber are described, and lumber grade yields for 11 species are presented. The yields, expressed in board feet, are based on equations in which dbh^2 and merchantable height were used as independent variables. Actual board-foot volumes by lumber grade served as dependent variables. Species included are yellow and paper birch, red and sugar maple, yellow-poplar, black cherry, basswood, and northern red, black, white, and chestnut oak.

THE SHORTAGE of high-quality hardwood timber, coupled with an overall price increase, has expanded the usefulness of tree grades for predicting tree quality. The Forest Service has approved and adopted hardwood tree grades for factory lumber (*Hanks 1971*). The lumber grade yields for the three species shown in the 1971 report have been refined, and we are now presenting them here, along with yields for eight additional species. As a result, this report supersedes the 1971 report and includes yields for yellow and paper birch, red and sugar maple, black cherry, yellow-poplar, basswood, and northern red, black, white, and chestnut oak.

This grading system is applicable to standing hardwood trees that contain a grade-3 or better butt log. The lumber grade yields will provide buyers and sellers of timber with the tools necessary for estimating the value of graded trees. The grading system may also serve as the basis for stratifying tree quality during a forest inventory.

BACKGROUND

As I stated in my 1971 paper, there have been several attempts to develop tree grades for hardwoods (*Campbell 1951, 1959; Herrick and Jackson 1957; Hyvarinen 1968; Lucas 1969; Marden 1965; Schroeder 1964*). Most of these have involved single species. The most widely used method was developed by the USDA Forest Service at Carbondale, Ill. (*Herrick and Jackson 1957*). In this system, a tree's grade is equal to the grade of the best 10-foot section of the 16-foot butt log. Another system, used in the Northeast, involves grading each log in the standing tree.

For both of these tree-grading methods, lumber-grade yields for sample trees were estimated from yields of logs sawed in earlier log-grade studies (*Vaughan and others 1966*). In other words, the same lumber-grade volumes were applied to all sections of sample trees that exhibited comparable diameter and log grade. The estimated lumber-grade yields were accepted as actual, and it was understood that variance estimates were not meaningful.

PROCEDURE AND RESULTS

The development of the hardwood tree-grading system is well documented (*Hanks 1971*). For each species we devised a sampling scheme that would result in an even distribution of dbh (diameter at breast height), merchantable height, and quality classes. Number of trees per species ranged from about 150 to 300. They were selected at various geographic locations and processed in groups of 50.

Field procedure for this study involved measuring dbh and merchantable height, estimating scalable defect in the grading section, and determining the grade of each tree. All portions of the stems that qualified as local-use or better (*Rast and others 1973*), were bucked into sawlogs, identified with a tree and log number, and processed into factory lumber. A local-use-class log must scale at least 8 inches inside bark by 8 feet long, and must be one-third sound. The lumber was numbered so that the log and tree from which it came could be identified. Each board was measured and graded by a National Hardwood Lumber Association certified inspector, and all pertinent information was recorded and punched onto data-processing cards.

Predicted dry lumber-grade yields, expressed in board feet, were developed for each species, using multiple-regression techniques. An equation was derived for each lumber grade within the three tree grades (tables 3 to 13). Dbh^2, merchantable height, and dbh^2 x merchantable height were used as independent variables. In some situations where the complete model did not perform as expected, one or more of the independent variables were deleted from the final equation. In four instances where satisfactory equations could not be found, we hand-fit curves through the actual lumber-grade volumes. Curved volumes for the various height and dbh classes were used as observations, and a final equation was derived.

All equations were solved for the desired combinations of dbh and merchantable

height, and the resulting lumber-grade volumes were accumulated into lumber-yield tables (tables 14 to 24). A few negative lumber-grade volumes existed for small trees, and these volumes were adjusted to 0.0 board feet.

Tables 25 to 35 contain the lumber-thickness distributions for each species. In most situations, the thickness pattern represents that of sawing for best grade; that is, sawing the thickest potential board, up to 8/4 inches, without lowering the board grade. A different pattern followed in sawing for grade would cause small differences in yield.

Mean lumber-grade yields, standard errors of the residuals, and correlation coefficients are included in tables 36 to 46, and table 47 contains the means and standard deviations for dbh and merchantable height.

APPLICATION

Table 1 contains the specifications of the hardwood tree grades for factory lumber. A tree's grade may be determined by following a stepwise procedure. We suggest the following:

- Measure dbh to the nearest inch.
- Establish the location of all defect indicators—"stoppers",—on the surface of the butt 16-foot log, and then locate the best 12-foot section.

Table 1.—Hardwood tree grades for factory lumber

Grade factor	Tree grade 1			Tree grade 2		Tree grade 3
Length of grading zone (feet)	Butt 16			Butt 16		Butt 16
Length of grading section[a] (feet)	Best 12			Best 12		Best 12
Dbh, minimum (inches)	16[b]			13		10
Diameter, minimum inside bark at top of grading section (inches)	13[b]	16	20	11[c]	12	8
Clear cuttings (on the 3 best faces):[d]						
Length, minimum (feet)	7	5	3	3	3	2
Number on face (maximum)		2		2	3	(*)
Yield in face length (minimum)		5/6		4/6		3/6
Cull deduction, including crook and sweep but excluding shake, maximum within grading section (percent)		9		9[f]		50

[a] Whenever a 14- or 16-foot section of the butt 16-foot log is better than the best 12-foot section, the grade of the longer section will become the grade of the tree. This longer section, when used, is the basis for determining the grading factors such as diameter and cull deduction.

[b] In basswood and ash, dib at top of grading section must be 12 inches and dbh must be 15 inches.

[c] Grade 2 trees can be 10 inches ib at top of grading section if otherwise meeting surface requirements for small grade 1s.

[d] A clear cutting is a portion of a face free of defects, extending the width of the face. A face is one-fourth of the surface of the grading section as divided lengthwise.

[e] Unlimited.

[f] Fifteen percent crook and sweep or 40 percent total cull deduction are permitted in grade 2 if size and surface of grading section qualify as grade 1. If rot shortens the required clear cuttings to the extent of dropping the butt log to grade 2, do not drop the tree's grade to 3 unless the cull deduction for rot is greater than 40 percent.

- Estimate inside bark diameter at top of the 12-foot section to the nearest inch.
- Estimate scalable defect in the 12-foot section selected previously.
- The grade of the 12-foot section becomes the tree's grade, unless the grade can be improved by using a 14- or 16-foot section.

Those already familiar with the U. S. Forest Service log grades will note that the scalable defect limitations for the tree grades differ from the log-grade limitations; that is, grade-1 logs may contain up to 40 percent defect while the grading section of grade-1 trees is limited to 9 percent defect. The reason for this difference is that, when grading trees, a large rot may be eliminated from the grading section by grading the best 12-foot section. In these situations, rot in the entire 16-foot butt log may approach 40 percent.

It should be noted that both dbh and inside-bark diameter at the top of the grading section must satisfy the minimum requirements of the assigned tree grade. By measuring these items on a number of felled trees, a relationship can be developed between dbh and inside bark diameters at 12, 14, and 16 feet above stump height. An example of this may be found in table 2. This table, however, is based on a form class of 78 and should be used only if the trees being graded meet this level of tree form.

Several factors determine the location of the best 12-foot grading section within the 16-foot grading zone. Some examples are:

1. If the deduction for rot in the butt 12 feet exceeds 9 percent, estimate rot in the top 12-foot section. The grade may go up if the estimate is 9 percent or less (fig. 1).
2. If defect indicators are clustered in the top part of the grading zone, the butt 12 feet may be the best grading section (fig. 2).
3. If the inside-bark diameter at the top of the grading zone is too small for the grade, drop back 4 feet to see if diameter has increased to the minimum for the grade (fig. 3).
4. If a crook is located near an end of the grading zone, the location of the best 12-foot section may be influenced (fig. 4).

During field demonstrations of the tree grades, questions have often arisen about how much cull is allowed in grade 2 trees. If a tree is big enough and the surface is clear enough for grade 1, but its grading section has 10 to 15 percent sweep or 10 to 40 percent total cull, it is a grade-2 tree. Examples would be a tree with a cat face (fig. 5) or a large internal rot (fig. 6).

Most surface rots, unless very shallow, and some internal rots, are considered "stoppers" in grading the surface. In those cases where the rot drops the surface of the grading section from grade 1 to grade 2, do not drop the tree to grade 3 unless the rot deduction exceeds 40 percent. Leave the tree in grade 2.

Use of the lumber-grade volume tables or equations requires the following field data for each tree:

Text continues on page 5.

Table 2. Minimum dbh required to meet dib limitations[a]

Tree grade	Position of grading section, feet			Minimum length of clear cutting
	0 - 12	2 - 14	4 - 16	
	Inches	*Inches*	*Inches*	*Feet*
1	14.5[b]	14.5[b]	14.8[b]	10
	15.5	15.6	16.1	10
	18.6	19.4	19.9	5
	23.4	24.3	25.0	3
2	12.5	12.5	12.5	[c]
	12.6	13.1	13.5	3
3	9.5	9.5	9.7	2

[a] Based on a form class of 78.
[b] For basswood and ash only.
[c] grade-1 surface.

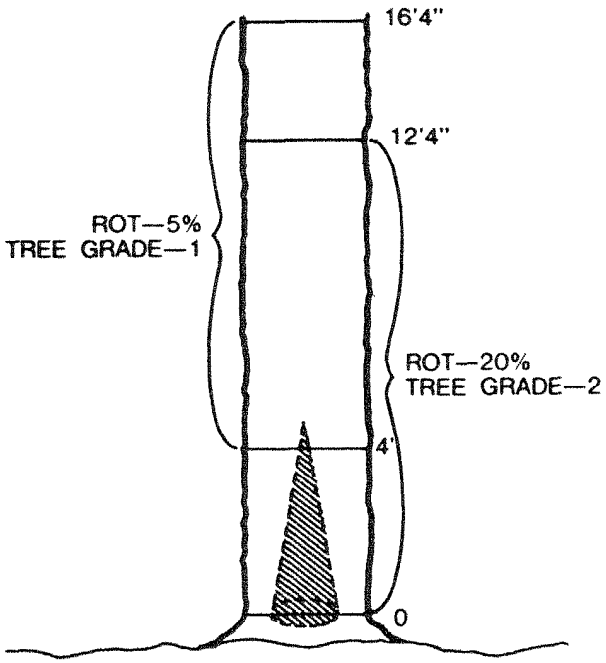

Figure 1.—Large rot at base of tree. Because of rot, the grade of the butt 12-foot section is 2. By grading the top 12-foot section, the tree's grade can be raised to 1.

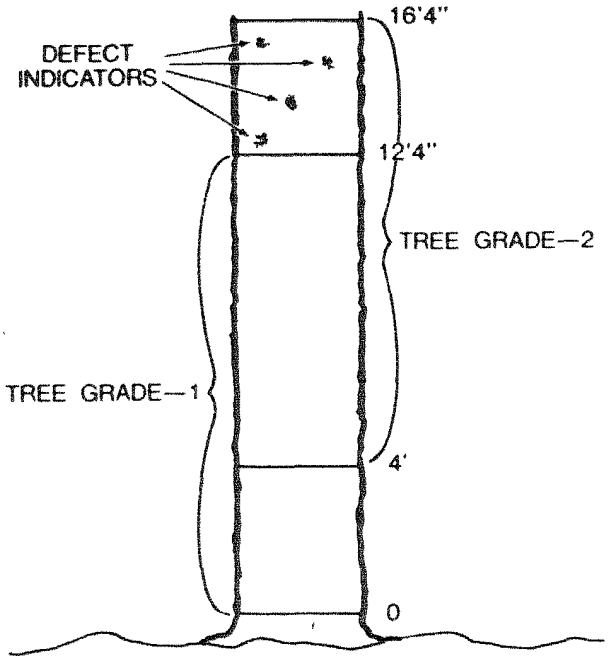

Figure 2.—Defect indicators clustered at top of grading zone. The best 12-foot section is the butt 12 feet.

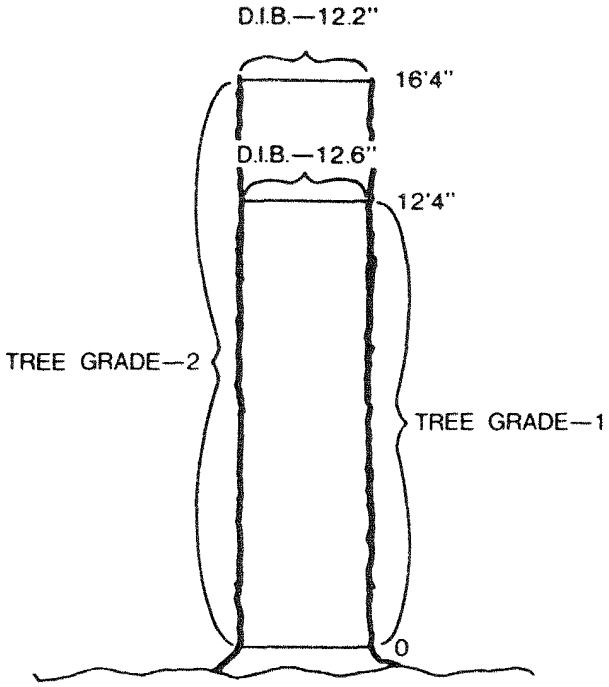

Figure 3.—Relationship between dib (diameter inside bark) and tree grade. The dib at 16 feet 4 inches above the stump is not large enough for grade 1. However, at 12 feet 4 inches the dib meets grade-1 requirements.

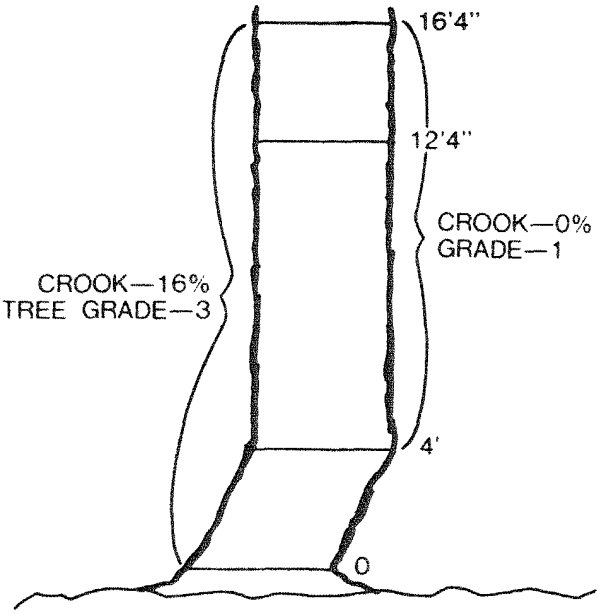

Figure 4.—Crook at base of tree. Because of crook, the butt 12-foot section is grade 3. Therefore, grade the top 12-foot section and raise the grade to 1.

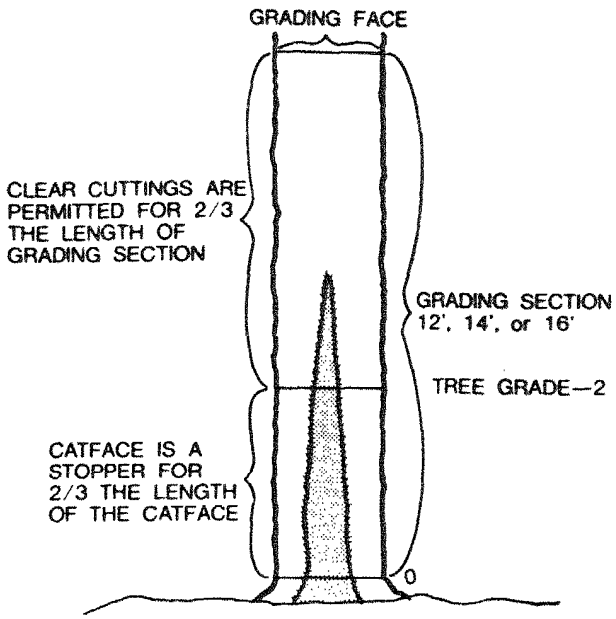

Figure 5.—Effect of catface on tree grade. Because of catface, the surface is grade 2 and not grade 1. Total cull is between 10 and 40 percent. Do not drop the tree's grade to 3; leave it at 2.

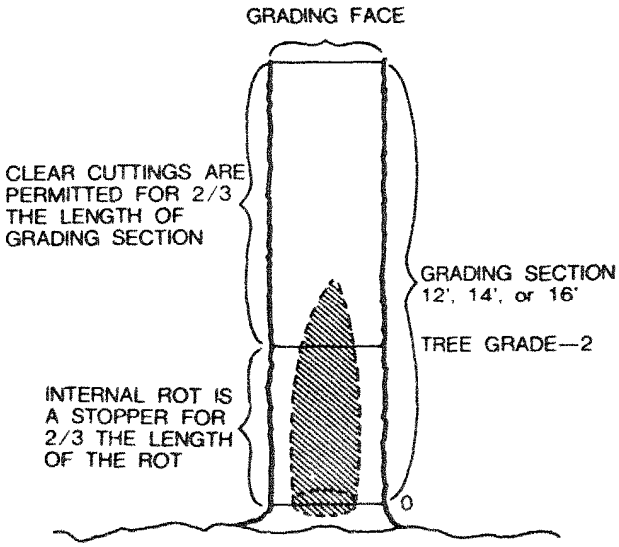

Figure 6.—Effect of internal rot on tree grade. Because of internal rot, the surface is grade 2 and not grade 1. Total cull is between 10 and 40 percent. Do not drop the tree's grade to 3; leave it at 2.

- Species
- Tree grade
- Dbh to the nearest inch
- Merchantable height to the nearest foot as measured from the top of a 1-foot stump to the point where local-use material ends. For forked trees, consider only the longest fork.

If the user is certain that prediction will be based on the tabular volumes, merchantable height should be estimated to the nearest half-log. However, if the equations are used to estimate lumber-grade volumes, accuracy can be improved if height to the nearest foot is recorded.

The predicted dry-lumber-grade volumes are net volumes derived from actual mill yields and should not be adjusted for cull or overrun.

When estimating the value of lumber contained in a tree, apply current dry-lumber prices to the estimated lumber-grade volumes and sum the values as shown below:

Species : Black Oak
Tree grade : 1
Dbh : 20 inches
Merchantable height : 32 feet

Lumber grade	*Predicted Volume* (bd. ft.)*	*Lumber price per M bd. ft.*	*Lumber value*
FAS	19.6	$370	$ 7.25
FAS1F	31.7	360	11.41
Selects	6.2	350	2.17
No. 1C	78.5	240	18.84
No. 2C	57.2	120	6.86
SW	12.2	115	1.40
No. 3A	55.8	110	6.14
No. 3B	20.5	95	1.95
Totals	281.7	— —	$56.02

*See table 16.

If desirable, a lumber-grade price may be weighted in proportion to the volume that a sawmill is producing in each lumber grade and thickness class, as in the following example (Firsts and Seconds):

Thickness class (inches)	*Percent of volume*	*Price*
4/4	50	$370/M bd. ft.
5/4	25	372/M bd. ft.
6/4	25	395/M bd. ft.
	FAS weighted price =	376.75/M bd. ft.

Interpretation and application of the tree-grade specifications will prove relatively easy for those already familiar with the hardwood log grades. However, for those who have not encountered hardwood log grading, we suggest the following publications as useful references:

1. A GUIDE TO HARDWOOD LOG GRADING (rev.). Rast, Everette D., David L. Sonderman, and Glenn L. Gammon. 1973. USDA For. Serv. Tech. Rep. NE-1. 32 p., illus. Northeast. For. Exp. Stn., Upper Darby, Pa.
2. HARDWOOD LOG GRADES FOR STANDARD LUMBER. Vaughan, C. L., A. C. Wollin, K. A. McDonald, and E. H. Bulgrin. 1966. USDA For. Serv. Res. Pap. FPL-63. 52p., illus. For. Prod. Lab., Madison, Wis.
3. GRADE DEFECTS IN HARDWOOD TIMBER. Lockard, C. R., J. A. Putnam, and R. D. Carpenter. 1963. USDA Agric. Handb. 244 39p., illus.
4. DEFECT INDICATORS IN SUGAR MAPLE. Marden, Richard M., and Charles L. Stayton. 1970. USDA For. Serv. Res. Pap. NC-37, 29p., illus. North Cent. For. Exp. Stn., St. Paul, Minn.

Those seeking a discussion of how to estimate deductions for sweep and crook are referred to reference 1 above (p. 25). Because the defect is visible, the deduction for sweep or crook in the standing tree should be comparable to that for a log on the ground.

The chore of estimating interior defect is more difficult and subjective. Some insight into the art of scaling interior cull in trees may be gained from reference 1 above and from the following:

1. ESTIMATING DEFECT IN TREE-LENGTH HARDWOODS. Nyland, Ralph D. 1970. North. Logger 18(8): 30, 54.
2. A PHOTO GUIDE TO THE PATTERNS OF DISCOLORATION AND DECAY IN LIVING NORTHERN HARDWOOD TREES. Shigo, Alex L., and Edwin vH. Larson. 1969. USDA For. Serv. Res. Pap. NE-127, 100 p., illus. Northeast. For. Exp. Stn., Upper Darby, Pa.
3. SHORTCUTS FOR CRUISERS AND SCALERS. L. R. Grosenbaugh. 1952. USDA For. Serv. South. For. Exp. Stn. Occas. Pap. 126: 14-15, South. For. Exp. Stn., New Orleans, La.

DISCUSSION

Although the hardwood tree grades presented here represent a relatively recent development, the specifications for grading the surface of the butt logs are the same that appear in the Standard Forest Service Log Grades — grades that have been used for 35 years. Furthermore, the practice of grading a tree's butt section has been used successfully by the Forest Service. Therefore we expect users to readily adapt to the application of the tree grades.

We conducted a series of 11 field trials on 7 species. This was done to demonstrate how well lumber volume and value could be predicted in tree populations outside the original sample used in yield development. Results from the field trials indicate that for groups of approximately 50 trees, actual and predicted total lumber volume may differ by 10 percent, although 5 percent was average. Actual and predicted total lumber value may differ by 14 percent, but 6 percent was average. In a few trials, volume and value differences were greater than these. However, atypical conditions existed both in the timber and in the method of sawing.

We have asked the question: Do the tree grades separate groups of trees into grades with meaningful value differences? Previous research on log- and tree-grading systems established the standard that value differences between grades should be at least 10 percent. For the 11 hardwood species, differences between tree grades 1 and 2 ranged from 5 percent to 20 percent at mean dbh and height while differences between tree grades 2 and 3 ranged from 10 percent to 27 percent. Greater value separation between grades 1 and 2 might be possible for selected species, but modifications in the tree-grade specifications would be necessary. The confusion caused by such modifications would more than offset the possible gains.

Hardwood tree grades and lumber-grade yields for 11 species are available for use when factory lumber is the end product of sawing. If a sawmill deviates from producing factory lumber, the predicted lumber volumes will not apply. Value prediction may be reasonable, but some checking is recommended to substantiate the ability to predict value.

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Table 3.—Regression equations for YELLOW BIRCH

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh²	Merchantable height	Dbh² x Merchantable height
		TREE GRADE 1		
FAS	−81.6	0.25084	0.9478	—
FAS1F	4.9	.06269	—	—
Selects	.9	.00458	.1614	—
No. 1C	42.7	−.07439	−2.2197	0.009403
No. 2C	75.0	−.13688	−1.5430	.006463
No. 3A	29.6	−.07673	−.4814	.003595
No. 3B	−16.1	.06006	.8727	−.000553
		TREE GRADE 2		
FAS	−31.3	0.10494	0.5159	−0.000243
FAS1F	−.15.9	.06511	.4257	−.000395
Selects	3.7	.00242	.0495	—
No. 1C	−52.7	.25423	1.7080	−.003374
No. 2C	−5.2	.01883	.4377	.002703
No. 3A	−16.0	.06754	1.1508	−.000963
No. 3B	−4.8	.02837	.1856	.001751
		TREE GRADE 3		
FAS	0.9	−0.00197	−0.0494	0.000301
FAS1F	−.4	.00701	−.0677	.000735
Selects	1.3	.00229	—	—
No. 1C	−35.8	.19206	.6504	—
No. 2C	.9	−.06329	.4244	.005634
No. 3A	−32.7	.15298	1.5680	−.002739
No. 3B	.2	08238	.5935	−.001215

Table 4.—Regression equations for RED MAPLE

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh^2	Merchantable height	Dbh^2 x Merchantable height
		TREE GRADE 1		
FAS	107.0	−0.32016	−3.2156	0.013067
FAS1F	−55.7	.17503	1.2690	−.001008
Selects	33.9	−.09531	−.6961	.002937
No. 1C	−58.6	.26467	.5604	−.000106
No. 2A	−59.0	.21877	1.7695	−.002140
No. 2B	23.1	—	.6110	—
No. 3A	−3.1	—	.5536	—
No. 3B	−18.8	.02797	.4187	.000139
		TREE GRADE 2		
FAS	50.1	−0.19679	−1.9356	0.009389
FAS1F	36.0	−.11245	−1.1578	.006010
Selects	7.9	−.02157	−.0667	.001043
No. 1C	−35.9	.21697	.4824	−.000330
No. 2A	−62.8	.25951	2.5908	−.004669
No. 2B	20.6	.00823	.6919	—
No. 3A	−5.6	.03546	.3150	—
No. 3B	−31.3	.12511	.4546	−.001094
		TREE GRADE 3		
FAS	−3.6	0.03176	0.0160	—
FAS1F	3.3	−.03651	−.2691	0.002968
Selects	−9.2	.03157	.3783	−.000581
No. 1C	−21.0	.18789	.1210	—
No. 2A	−17.1	.06125	.6576	.002633
No. 2B	−10.6	.02622	1.6818	—
No. 3A	−2.3	.04847	.1145	.000231
No. 3B	−2.9	.04757	—	—

Table 5.—Regression equations for BLACK OAK

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh²	Merchantable height	Dbh² x Merchantable height
		TREE GRADE 1		
FAS	−60.0	0.13438	—	0.002016
FAS1F	26.5	—	−1.1406	.003254
Selects	−5.7	.02958	—	—
No. 1C	−28.4	.11351	−.3191	.005598
No. 2C	−56.1	.10709	2.2017	—
SW	−5.3	—	.5450	—
No. 3A	−2.1	.02392	1.5106	—
No. 3B	−61.6	.02265	2.2822	—
		TREE GRADE 2		
FAS	−17.7	0.09984	—	—
FAS1F	−2.5	.06558	−0.4383	0.001269
Selects	−15.1	.03128	.4242	−.000571
No. 1C	−84.4	.30007	.2915	.003256
No. 2C	−3.3	.01344	−.0405	.005019
SW	−13.6	—	.6290	—
No. 3A	2.7	−.00256	.8560	.001574
No. 3B	11.2	−.04786	.9299	.000673
		TREE GRADE 3		
FAS	2.8	−0.01046	−0.3083	0.001659
FAS1F	−11.1	.07472	—	—
Selects	4.0	−.01437	−.1836	.000819
No. 1C	−35.9	.28699	—	—
No. 2C	−33.7	.15043	1.2812	−.000197
SW	−10.6	.04646	.7109	−.001239
No. 3A	−35.0	.21014	1.8795	−.004353
No. 3B	8.6	−.22690	1.1022	.006792

Table 6.—Regression equations for BASSWOOD

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh^2	Merchantable height	Dbh^2 x Merchantable height
		TREE GRADE 1		
FAS	109.2	−0.28506	−3.8748	0.013515
Selects	46.2	−.05390	−.6958	.003807
No. 1C	−42.6	.15964	1.4745	−.000487
No. 2C	−48.4	.27756	1.7276	−.001370
No. 3C	−94.0	.32304	1.6243	−.003752
		TREE GRADE 2		
FAS	34.4	−0.14665	−1.2592	0.006328
Selects	2.7	.02116	−.5684	.004110
No. 1C	−73.1	.19879	2.3763	−.001908
No. 2C	−31.4	.14176	2.4489	−.001547
No. 3C	37.8	−.06258	−1.7140	.006367
		TREE GRADE 3		
FAS	−5.1	0.00443	0.1479	0.000396
Selects	10.4	−.07589	−.3836	.003898
No. 1C	−27.7	.11870	.8929	—
No. 2C	−29.8	.23438	1.2059	.001412
No. 3C	14.8	−.01777	−.4513	.003582

Table 7.—Regression equations for SUGAR MAPLE

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh²	Merchantable height	Dbh² x Merchantable height
		TREE GRADE 1		
FAS	−13.7	0.04397	−0.5012	0.003110
FAS1F	−5.1	.09560	.2343	—
Selects	8.7	—	—	—
No. 1C	64.4	−.08478	−2.5900	.009585
No. 2C	−20.2	.17790	.6335	−.000416
No. 3A	17.9	−.02044	−.0217	.001842
No. 3B	−49.2	.15884	1.7636	−.002061
		TREE GRADE 2		
FAS	−1.1	0.02014	−0.1342	0.001130
FAS1F	−26.2	.10385	.5039	—
Selects	7.6	—	—	—
No. 1C	−47.9	.23097	.2012	.002139
No. 2C	−34.0	.14299	1.1578	.000284
No. 3A	−9.6	.01312	.8717	.000694
No. 3B	33.7	−.09204	−.3045	.003507
		TREE GRADE 3		
FAS	3.6	−0.01538	−0.2051	0.001103
FAS1F	−9.9	.06014	.1904	−.000541
Selects	—	.01602	—	—
No. 1C	−32.4	.19398	.4660	—
No. 2C	17.1	−.03144	−.8246	.006521
No. 3A	−40.0	.15978	1.7973	−.002380
No. 3B	.4	−.01007	1.1382	.001620

Table 8.—Regression equations for BLACK CHERRY

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh²	Merchantable height	Dbh² x Merchantable height
		TREE GRADE 1		
FAS	110.9	−0.18419	−3.4974	0.011488
Selects	−43.8	.21162	.7202	−.000161
No. 1C	−95.9	.38336	1.4001	−.001491
No. 2C	−27.5	.05552	.9407	.002457
No. 3A	−25.4	.02206	1.1106	.000837
No. 3B	67.5	−.18435	−1.5782	.005124
		TREE GRADE 2		
FAS	−3.5	−0.05135	0.0617	0.003854
Selects	−25.6	.17841	.7826	−.001686
No. 1C	37.8	−.00649	−2.2041	.009231
No. 2C	10.4	.01246	.0272	.003999
No. 3A	−11.3	—	1.2522	—
No. 3B	−13.5	.03282	.4948	−.000545
		TREE GRADE 3		
FAS	16.5	−0.05599	−0.8881	0.004326
Selects	26.9	−.09182	−1.2561	.006970
No. 1C	−5.3	.15258	−.7888	.004838
No. 2C	7.5	.00264	.0970	.004426
No. 3A	−11.3	−.00565	1.1213	.001695
No. 3B	−2.7	—	.3912	—

Table 9.—Regression equations for PAPER BIRCH

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh^2	Merchantable height	Dbh^2 x Merchantable height
		TREE GRADE 1		
FAS	2.2	0.07949	—	—
Selects	22.5	.00517	−0.6339	0.003136
No. 1C	64.0	−.09816	−2.5230	.008699
No. 2C	18.5	.03261	−.3408	.002549
No. 3A	11.2	−.06827	.0370	.003951
No. 3B	−21.7	.04683	.4569	.001223
		TREE GRADE 2		
FAS	21.5	−0.07949	−0.8054	0.004026
Selects	−4.9	.10336	—	—
No. 1C	2.7	.04559	−.3964	.003121
No. 2C	−19.8	.09414	1.0262	−.000384
No. 3A	7.9	−.03529	.4357	.002375
No. 3B	−49.6	.18132	1.7580	−.004147
		TREE GRADE 3		
FAS	1.8	−0.00536	−0.1860	0.001199
Selects	−1.8	−.00035	.1821	.000729
No. 1C	−5.6	.07005	−.1877	.002719
No. 2C	26.0	−.09513	−1.0028	.008604
No. 3A	−4.6	.06537	.4518	.000977
No. 3B	−9.8	.04146	.8444	−.000241

Table 10.—Regression equations for WHITE OAK

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh^2	Merchantable height	Dbh^2 x Merchantable height
		TREE GRADE 1		
FAS	−28.1	0.14529	—	—
FAS1F	−18.7	.11180	—	—
Selects	−22.2	.04969	0.4580	−0.000480
No. 1C	108.4	−.19983	−4.4359	.013753
No. 2C	−56.0	.09960	1.2974	.002826
SW	28.7	−.11561	−.8389	.004292
No. 3A	−45.7	.11320	1.8333	−.001263
No. 3B	12.1	−.00190	.2693	.000729
		TREE GRADE 2		
FAS	−5.9	0.04411	—	—
FAS1F	−5.4	.05429	—	—
Selects	3.9	—	—	—
No. 1C	−76.6	.31380	0.3714	0.001272
No. 2C	−16.5	.04747	−.3176	.006428
SW	−40.1	.06239	1.2224	.000041
No. 3A	10.9	−.01994	.0326	.003148
No. 3B	5.5	—	.8050	—
		TREE GRADE 3		
FAS	−3.2	0.02246	—	—
FAS1F	−2.9	.02426	—	—
Selects	−.7	—	0.0626	—
No. 1C	40.3	−.00140	−2.4347	0.007322
No. 2C	3.8	.03150	−.7755	.007095
SW	−10.0	.01386	.1206	.002470
No. 3A	−20.2	.08689	.8922	.000424
No. 3B	−17.9	.03783	1.7125	−.000545

Table 11.—Regression equations for YELLOW-POPLAR

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh^2	Merchantable height	Dbh^2 x Merchantable height
		TREE GRADE 1		
FAS	−8.2	0.02163	−0.0131	0.000215
Selects	−16.7	.03821	.1187	.000371
Saps	−5.5	.05463	—	—
No. 1C	−120.9	.64541	.4077	−.000501
No. 2A	−37.1	.31819	1.6896	−.000683
No. 2B	71.2	−.40556	−.7508	.010092
No. 3C	−15.6	.04544	.3578	−.000804
		TREE GRADE 2		
FAS	−1.2	0.00611	—	—
Selects	2.3	−.00148	−0.1785	0.000673
Saps	−7.7	.04519	.1969	−.000422
No. 1C	−105.0	.52277	.6201	.000233
No. 2A	121.6	−.25395	−2.6390	.013732
No. 2B	−34.6	−.02823	1.4237	.002825
No. 3C	−4.3	.02673	—	—
		TREE GRADE 3		
FAS	0.0	—	—	—
Selects	5.3	−0.03049	−0.1169	0.000794
Saps	−.5	.00932	—	—
No. 1C	−53.5	.38486	—	—
No. 2A	61.8	−.10816	−2.0912	0.011603
No. 2B	−113.8	.38428	2.9479	−0.002172
No. 3C	5.3	.00916	—	—

Table 12.—Regression equations for NORTHERN RED OAK

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh[2]	Merchantable height	Dbh[2] x Merchantable height
		TREE GRADE 1		
FAS	−10.6	0.13317	−1.5709	0.005175
FAS1F	−22.6	.02716	.0842	.002815
Selects	13.7	−.01711	−.3370	.001016
No. 1C	57.2	−.00508	−2.7014	.009354
No. 2C	−78.4	.10362	3.7351	−.000684
No. 3A	50.3	−.04598	−.5081	.001796
No. 3B	−8.9	.02341	.1077	.000397
		TREE GRADE 2		
FAS	−53.2	0.12214	0.9548	—
FAS1F[a]	38.0	−.06613	−1.0022	0.003832
Selects	3.7	—	—	—
No. 1C[a]	−6.1	.01520	−.8778	.008854
No. 2C	−57.2	.09975	2.4582	.000878
No. 3A	−55.0	.11825	2.3546	−.002127
No. 3B	3.5	−.00245	−.0156	.000731
		TREE GRADE 3		
FAS	5.9	−0.02210	−0.3208	0.001560
FAS1F	−5.2	.02821	.0096	.000504
Selects	2.0	—	—	—
No. 1C	−22.6	.20603	−0.0718	.000451
No. 2C	−21.1	.21713	.2132	.000399
No. 3A	−12.0	.06393	1.1422	.000741
No. 3B	−8.3	.00011	.8556	.002338

[a] Coefficients for this lumber grade were derived from a least-squares fit through hand-adjusted curves.

Table 13.—Regression equations for CHESTNUT OAK

Dependent variable: lumber grade	Independent variables			
	Constant	Dbh²	Merchantable height	Dbh² x Merchantable height
		TREE GRADE 1		
FAS[a]	22.0	−0.04870	−0.9054	0.003100
FAS-WHND	−59.1	.13433	.9518	−.000049
FAS1F	−18.6	.05098	.3654	—
FAS1F-WHND	−7.1	.03857	—	—
Selects	3.2	—	—	—
Selects-WHND	1.3	—	—	—
No. 1C[a]	2.9	.04422	−.3517	.002009
No. 1C-WHND	−29.7	.10000	−.2710	.002918
No. 2C	42.6	−.06705	−.3753	.002018
SW	−24.6	.00708	1.3434	.000921
No. 3A	−12.2	.07961	.4935	—
No. 3B	−40.0	.21600	—	—
		TREE GRADE 2		
FAS	−2.6	−0.00307	0.1836	0.000062
FAS-WHND	−28.5	.13196	—	—
FAS1F	−8.0	.04270	—	—
FAS1F-WHND	11.9	−.01829	−.5179	.001491
Selects	23.3	−.05727	−.5522	.001551
Selects-WHND	−3.3	.00708	.0624	−.000039
No. 1C	29.0	−.05431	−.4617	.002022
No. 1C-WHND	−6.8	.06449	−.7515	.003901
No. 2C	−10.4	.03866	.7905	−.000655
SW	−31.5	.02667	1.6136	—
No. 3A	30.0	−.04253	−.0981	.002108
No. 3B	−35.1	.17156	.6519	—
		TREE GRADE 3		
FAS	0.0	—	—	—
FAS-WHND	−6.5	0.04418	—	—
FAS1F	.4	−.00078	−0.0560	0.000300
FAS1F-WHND	−4.5	.01459	.0661	—
Selects	1.1	—	—	—
Selects-WHND	.4	—	—	—
No. 1C	12.8	−.08596	−.3755	.003710
No. 1C-WHND	13.6	.00870	−1.1844	.004885
No. 2C	−6.7	.03098	.3781	—
SW	−1.8	−.04001	.3506	.003510
No. 3A	−20.3	.07085	1.1497	−.000482
No. 3B	14.3	−.02160	−.9057	.007928

[a] Coefficients for this lumber grade were derived from a least-squares fit through hand-adjusted curves.

Table 14.—Lumber grade volume for YELLOW BIRCH

[In board feet]

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 1 1-1/2 LOGS				
16	5.4	20.9	5.9	28.2	42.6	20.5	16.8
17	13.6	23.0	6.1	33.1	43.2	20.8	18.4
18	22.4	25.2	6.3	38.4	43.9	21.1	20.0
19	31.7	27.5	6.4	44.0	44.5	21.5	21.7
20	41.5	30.0	6.6	49.9	45.3	21.9	23.6
21	51.8	32.5	6.8	56.1	46.0	22.3	25.5
22	62.6	35.2	7.0	62.6	46.8	22.7	27.5
23	73.8	38.1	7.2	69.5	47.6	23.1	29.6
24	85.6	41.0	7.4	76.6	48.5	23.5	31.8
25	97.9	44.1	7.6	84.0	49.4	24.0	34.1
26	110.7	47.3	7.9	91.7	50.3	24.5	36.5
			TREE GRADE 1 2 LOGS				
16	12.9	20.9	7.2	29.7	43.5	24.0	22.7
17	21.2	23.0	7.4	37.1	45.8	25.3	24.1
18	30.0	25.2	7.5	45.1	48.3	26.6	25.6
19	39.3	27.5	7.7	53.4	50.9	28.0	27.1
20	49.1	30.0	7.9	62.3	53.6	29.5	28.8
21	59.4	32.5	8.1	71.6	56.5	31.1	30.5
22	70.1	35.2	8.3	81.3	59.5	32.7	32.3
23	81.4	38.1	8.5	91.5	62.6	34.5	34.2
24	93.2	41.0	8.7	102.1	65.9	36.3	36.2
25	105.5	44.1	8.9	113.2	69.3	38.1	38.3
26	118.3	47.3	9.2	124.8	72.9	40.1	40.5
27	131.6	50.6	9.4	136.8	76.6	42.1	42.7
28	145.4	54.0	9.7	149.3	80.5	44.2	45.0
29	159.7	57.6	9.9	162.2	84.4	46.4	47.5
30	174.5	61.3	10.2	175.5	88.6	48.7	50.0
			TREE GRADE 1 2-1/2 LOGS				
16	20.5	20.9	8.5	31.2	44.4	27.5	28.5
17	28.8	23.0	8.7	41.1	48.4	29.7	29.8
18	37.6	25.2	8.8	51.7	52.7	32.1	31.1
19	46.9	27.5	9.0	62.8	57.2	34.6	32.5
20	56.6	30.0	9.2	74.6	61.9	37.2	34.0
21	66.9	32.5	9.4	87.0	66.9	39.9	35.5
22	77.7	35.2	9.6	99.9	72.2	42.8	37.2
23	89.0	38.1	9.8	113.5	77.6	45.8	38.9
24	100.8	41.0	10.0	127.7	83.3	49.0	40.7
25	113.1	44.1	10.2	142.5	89.3	52.3	42.5
26	125.9	47.3	10.5	157.9	95.5	55.7	44.5
27	139.2	50.6	10.7	173.9	102.0	59.2	46.5
28	153.0	54.0	10.9	190.5	108.6	62.9	48.6
29	167.3	57.6	11.2	207.7	115.6	66.7	50.7
30	182.1	61.3	11.5	225.5	122.8	70.7	53.0
			TREE GRADE 1 3 LOGS				
16	28.1	20.9	9.8	32.7	45.3	31.0	34.4
17	36.4	23.0	10.0	45.1	51.0	34.2	35.5
18	45.2	25.2	10.1	58.3	57.1	37.5	36.6
19	54.4	27.5	10.3	72.2	63.5	41.1	37.9
20	64.2	30.0	10.5	86.9	70.3	44.8	39.2
21	74.5	32.5	10.7	102.4	77.4	48.8	40.6
22	85.3	35.2	10.9	118.6	84.8	52.9	42.0
23	96.6	38.1	11.1	135.6	92.6	57.2	43.5

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Table 14.—Continued: YELLOW BIRCH

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
24	108.4	41.0	11.3	153.3	100.8	61.7	45.1
25	120.7	44.1	11.5	171.8	109.3	66.4	46.7
26	133.5	47.3	11.7	191.0	118.1	71.3	48.4
27	146.8	50.6	12.0	211.0	127.3	76.4	50.2
28	160.6	54.0	12.2	231.7	136.8	81.6	52.1
29	174.9	57.6	12.5	253.2	146.7	87.1	54.0
30	189.7	61.3	12.8	275.4	156.9	92.7	56.0
			TREE GRADE 2 1 LOG				
13	0.0	0.8	4.9	8.5	12.3	11.2	7.7
14	.0	2.4	5.0	13.9	14.0	12.6	9.2
15	.0	4.1	5.0	19.7	15.8	14.1	10.9
16	2.8	6.0	5.1	25.9	17.7	15.8	12.6
17	6.2	7.9	5.2	32.5	19.7	17.5	14.5
18	9.7	10.0	5.3	39.5	21.9	19.3	16.4
19	13.4	12.1	5.4	46.9	24.2	21.2	18.5
20	17.4	14.4	5.5	54.7	26.6	23.3	20.7
21	21.5	16.8	5.6	62.9	29.2	25.4	23.0
22	25.9	19.4	5.7	71.5	31.8	27.6	25.5
23	30.4	22.0	5.8	80.6	34.6	30.0	28.0
24	35.2	24.8	5.9	90.0	37.6	32.4	30.6
			TREE GRADE 2 1-1/2 LOGS				
13	0.0	3.7	5.3	17.6	19.5	19.1	11.6
14	.5	5.2	5.4	22.2	21.7	20.3	13.5
15	3.4	6.8	5.4	27.3	24.1	21.6	15.5
16	6.5	8.6	5.5	32.6	26.7	23.0	17.7
17	9.7	10.4	5.6	38.4	29.5	24.5	20.0
18	13.2	12.3	5.7	44.4	32.4	26.0	22.5
19	16.9	14.4	5.8	50.8	35.5	27.7	25.1
20	20.7	16.6	5.9	57.6	38.8	29.4	27.8
21	24.8	18.8	6.0	64.7	42.2	31.2	30.7
22	29.0	21.2	6.1	72.1	45.8	33.1	33.7
23	33.5	23.7	6.2	79.9	49.6	35.1	36.9
24	38.2	26.4	6.3	88.1	53.5	37.2	40.2
			TREE GRADE 2 2 LOGS				
13	1.6	6.6	5.7	26.7	26.6	27.0	15.4
14	4.3	8.0	5.8	30.6	29.5	28.0	17.7
15	7.1	9.5	5.8	34.9	32.5	29.1	20.1
16	10.1	11.2	5.9	39.4	35.8	30.2	22.7
17	13.3	12.9	6.0	44.2	39.2	31.4	25.5
18	16.7	14.7	6.1	49.3	42.9	32.7	28.5
19	20.3	16.7	6.2	54.8	46.8	34.1	31.6
20	24.1	18.7	6.3	60.5	50.9	35.5	34.9
21	28.1	20.9	6.4	66.5	55.3	37.0	38.4
22	32.2	23.1	6.5	72.7	59.8	38.6	42.0
23	36.6	25.5	6.6	79.3	64.5	40.3	45.8
24	41.2	27.9	6.7	86.2	69.5	42.0	49.8
			TREE GRADE 2 2-1/2 LOGS				
13	5.4	9.5	6.1	35.8	33.8	34.9	19.3
14	8.0	10.8	6.2	39.0	37.2	35.7	21.9
15	10.8	12.2	6.2	42.5	40.9	36.6	24.8
16	13.7	13.8	6.3	46.2	44.8	37.5	27.8
17	16.9	15.4	6.4	50.1	49.0	38.4	31.1

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Table 14.—Continued: YELLOW BIRCH

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
18	20.2	17.1	6.5	54.3	53.4	39.4	34.5
19	23.7	18.9	6.6	58.7	58.1	40.5	38.1
20	27.4	20.9	6.6	63.3	63.1	41.6	42.0
21	31.3	22.9	6.7	68.2	68.3	42.8	46.0
22	35.4	25.0	6.9	73.3	73.8	44.1	50.3
23	39.7	27.2	7.0	78.7	79.5	45.4	54.7
24	44.2	29.5	7.1	84.3	85.4	46.7	59.3
			TREE GRADE 2 3 LOGS				
13	9.2	12.3	6.5	44.9	40.9	42.8	23.1
14	11.7	13.6	6.6	47.4	44.9	43.4	26.1
15	14.5	14.9	6.6	50.0	49.2	44.0	29.4
16	17.3	16.3	6.7	52.9	53.8	44.7	32.9
17	20.4	17.9	6.8	56.0	58.7	45.4	36.6
18	23.7	19.5	6.9	59.2	63.9	46.1	40.5
19	27.1	21.2	6.9	62.6	69.4	46.9	44.7
20	30.8	23.0	7.0	66.2	75.2	47.8	49.1
21	34.6	24.9	7.1	70.0	81.3	48.6	53.7
22	38.6	26.9	7.2	73.9	87.7	49.6	58.5
23	42.8	28.9	7.4	78.1	94.4	50.5	63.6
24	47.2	31.1	7.5	82.4	101.4	51.5	68.9
			TREE GRADE 3 1 LOG				
10	0.4	0.4	1.5	0.0	10.4	3.3	16.0
11	.5	.8	1.6	.0	10.9	5.6	17.3
12	.5	1.2	1.6	2.3	11.6	8.1	18.8
13	.6	1.7	1.7	7.1	12.2	10.8	20.3
14	.7	2.2	1.7	12.3	13.0	13.8	22.0
15	.7	2.7	1.8	17.8	13.7	16.9	23.9
16	.8	3.3	1.9	23.8	14.6	20.3	25.8
17	.9	3.9	2.0	30.1	15.5	23.9	27.9
18	1.0	4.6	2.0	36.8	16.4	27.8	30.1
19	1.1	5.3	2.1	43.9	17.4	31.8	32.4
20	1.2	6.0	2.2	51.4	18.4	36.1	34.9
			TREE GRADE 3 1-1/2 LOGS				
10	0.2	0.4	1.5	0.0	18.3	13.7	19.8
11	.4	1.0	1.6	3.0	19.8	15.5	20.9
12	.5	1.5	1.6	7.5	21.4	17.5	22.1
13	.6	2.1	1.7	12.3	23.2	19.7	23.4
14	.7	2.8	1.7	17.5	25.2	22.0	24.9
15	.9	3.5	1.8	23.0	27.3	24.6	26.4
16	1.1	4.3	1.9	29.0	29.5	27.3	28.1
17	1.2	5.1	2.0	35.3	31.9	30.1	29.8
18	1.4	6.0	2.0	42.0	34.4	33.2	31.7
19	1.6	6.9	2.1	49.1	37.1	36.4	33.7
20	1.8	7.8	2.2	56.6	39.9	39.8	35.7
21	2.0	8.8	2.3	64.5	42.8	43.4	37.9
22	2.3	9.9	2.4	72.8	45.9	47.2	40.2
			TREE GRADE 3 2 LOGS				
10	0.1	0.5	1.5	4.2	26.2	24.0	23.5
11	.2	1.1	1.6	8.3	28.6	25.4	24.5
12	.4	1.8	1.6	12.7	31.3	26.9	25.5
13	.6	2.6	1.7	17.5	34.3	28.5	26.5
14	.8	3.4	1.7	22.7	37.4	30.3	27.7
15	1.0	4.3	1.8	28.2	40.8	32.2	29.0

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Table 14.—Continued: YELLOW BIRCH

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
16	1.3	5.2	1.9	34.2	44.4	34.2	30.3
17	1.5	6.3	2.0	40.5	48.3	36.4	31.8
18	1.8	7.3	2.0	47.2	52.4	38.6	33.3
19	2.1	8.5	2.1	54.3	56.7	41.1	34.9
20	2.4	9.6	2.2	61.8	61.3	43.6	36.6
21	2.7	10.9	2.3	69.7	66.1	46.3	38.4
22	3.0	12.2	2.4	78.0	71.1	49.1	40.2
23	3.4	13.6	2.5	86.6	76.4	52.0	42.2
24	3.7	15.0	2.6	95.6	81.9	55.1	44.2
			TREE GRADE 3 2-1/2 LOGS				
12	0.4	2.1	1.6	17.9	41.2	36.3	28.8
13	.6	3.0	1.7	22.7	45.3	37.4	29.6
14	.9	4.0	1.7	27.9	49.6	38.5	30.6
15	1.2	5.1	1.8	33.4	54.3	39.8	31.5
16	1.5	6.2	1.9	39.4	59.4	41.1	32.6
17	1.8	7.4	2.0	45.7	64.7	42.6	33.7
18	2.2	8.7	2.0	52.4	70.4	44.1	34.9
19	2.6	10.0	2.1	59.5	76.4	45.7	36.1
20	3.0	11.5	2.2	67.0	82.7	47.4	37.5
21	3.4	12.9	2.3	74.9	89.3	49.2	38.8
22	3.8	14.5	2.4	83.2	96.3	51.0	40.3
23	4.3	16.2	2.5	91.8	103.6	53.0	41.8
24	4.7	17.9	2.6	100.8	111.2	55.0	43.4

Table 15.—Lumber grade volume for RED MAPLE

[In board feet]

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2A	No. 2B	No. 3A	No. 3B
				TREE GRADE 1 2 LOGS				
16	29.2	21.6	11.3	26.2	36.1	42.7	14.6	2.9
17	32.4	26.3	11.2	34.8	41.1	42.7	14.6	4.0
18	35.8	31.3	11.2	44.0	46.3	42.7	14.6	5.1
19	39.5	36.5	11.1	53.7	51.9	42.7	14.6	6.3
20	43.3	42.1	11.1	63.8	57.7	42.7	14.6	7.6
21	47.3	48.0	11.0	74.6	63.9	42.7	14.6	8.9
22	51.5	54.1	11.0	85.8	70.4	42.7	14.6	10.3
23	55.9	60.5	10.9	97.5	77.1	42.7	14.6	11.7
24	60.5	67.2	10.9	109.8	84.2	42.7	14.6	13.3
25	65.3	74.2	10.8	122.6	91.6	42.7	14.6	14.9
26	70.3	81.5	10.7	136.0	99.2	42.7	14.6	16.5
				TREE GRADE 1 2-1/2 LOGS				
16	30.2	29.6	11.7	30.5	45.9	47.5	19.0	6.5
17	36.9	34.1	12.5	39.1	50.3	47.5	19.0	7.6
18	44.0	38.8	13.2	48.2	54.9	47.5	19.0	8.8
19	51.5	43.8	14.1	57.8	59.9	47.5	19.0	10.1
20	59.4	49.0	14.9	68.0	65.0	47.5	19.0	11.4
21	67.7	54.6	15.8	78.7	70.5	47.5	19.0	12.7
22	76.4	60.4	16.8	89.9	76.2	47.5	19.0	14.2
23	85.5	66.4	17.8	101.6	82.2	47.5	19.0	15.7
24	95.0	72.8	18.8	113.8	88.5	47.5	19.0	17.3
25	105.0	79.4	19.9	126.6	95.0	47.5	19.0	18.9
26	115.3	86.2	21.0	139.9	101.8	47.5	19.0	20.6
				TREE GRADE 1 3 LOGS				
16	31.3	37.7	12.2	34.8	55.6	52.4	23.5	10.2
17	41.4	41.9	13.7	43.3	59.5	52.4	23.5	11.3
18	52.1	46.3	15.3	52.4	63.5	52.4	23.5	12.5
19	63.5	51.0	17.0	62.0	67.8	52.4	23.5	13.8
20	75.5	56.0	18.8	72.1	72.4	52.4	23.5	15.2
21	88.1	61.2	20.6	82.8	77.1	52.4	23.5	16.6
22	101.3	66.6	22.6	93.9	82.1	52.4	23.5	18.1
23	115.1	72.3	24.6	105.6	87.3	52.4	23.5	19.6
24	129.5	78.3	26.8	117.8	92.8	52.4	23.5	21.3
25	144.6	84.5	29.0	130.5	98.5	52.4	23.5	22.9
26	160.2	90.9	31.4	143.8	104.4	52.4	23.5	24.7
				TREE GRADE 1 3-1/2 LOGS				
16	32.3	45.8	12.6	39.0	65.4	57.3	27.9	13.8
17	45.9	49.7	14.9	47.6	68.7	57.3	27.9	15.0
18	60.3	53.9	17.3	56.6	72.1	57.3	27.9	16.2
19	75.5	58.3	19.9	66.2	75.8	57.3	27.9	17.6
20	91.6	62.9	22.6	76.3	79.7	57.3	27.9	18.9
21	108.4	67.8	25.4	86.9	83.7	57.3	27.9	20.4
22	126.1	72.9	28.4	98.0	88.0	57.3	27.9	22.0
23	144.7	78.2	31.5	109.7	92.4	57.3	27.9	23.6
24	164.0	83.8	34.8	121.8	97.1	57.3	27.9	25.2
25	184.2	89.6	38.1	134.5	101.9	57.3	27.9	27.0
26	205.2	95.6	41.7	147.7	107.0	57.3	27.9	28.8

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Table 15.—Continued: RED MAPLE

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2A	No. 2B	No. 3A	No. 3B
				TREE GRADE 1 4 LOGS				
16	33.3	53.9	13.1	43.3	75.2	62.2	32.3	17.4
17	50.4	57.6	16.1	51.8	77.9	62.2	32.3	18.7
18	68.4	61.4	19.4	60.8	80.8	62.2	32.3	19.9
19	87.5	65.5	22.8	70.4	83.8	62.2	32.3	21.3
20	107.7	69.8	26.4	80.4	87.0	62.2	32.3	22.7
21	128.8	74.4	30.2	91.0	90.3	62.2	32.3	24.3
22	151.0	79.1	34.2	102.1	93.8	62.2	32.3	25.8
23	174.2	84.1	38.4	113.7	97.5	62.2	32.3	27.5
24	198.5	89.3	42.7	125.8	101.4	62.2	32.3	29.2
25	223.8	94.7	47.3	138.4	105.4	62.2	32.3	31.0
26	250.1	100.3	52.0	151.6	109.6	62.2	32.3	32.9
				TREE GRADE 2 2 LOGS				
13	5.6	12.4	7.8	14.4	38.7	44.1	10.5	0.0
14	8.4	14.6	8.1	20.0	41.7	44.4	11.4	.9
15	11.4	16.9	8.4	26.0	44.9	44.6	12.5	3.5
16	14.7	19.4	8.8	32.4	48.3	44.8	13.6	6.3
17	18.1	22.0	9.2	39.2	51.9	45.1	14.7	9.3
18	21.7	24.8	9.6	46.4	55.8	45.4	16.0	12.4
19	25.5	27.8	10.0	54.1	59.9	45.7	17.3	15.8
20	29.6	30.9	10.5	62.1	64.1	46.0	18.7	19.3
21	33.8	34.2	11.0	70.6	68.7	46.4	20.1	23.0
22	38.2	37.6	11.5	79.4	73.4	46.7	21.6	26.9
23	42.9	41.2	12.0	88.7	78.3	47.1	23.2	30.9
24	47.8	45.0	12.6	98.4	83.5	47.5	24.9	35.1
				TREE GRADE 2 2-1/2 LOGS				
13	2.9	11.3	8.6	17.8	53.1	49.7	13.0	0.6
14	7.7	14.8	9.2	23.3	55.1	49.9	14.0	2.8
15	12.9	18.5	9.8	29.2	57.2	50.1	15.0	5.2
16	18.4	22.4	10.4	35.6	59.5	50.4	16.1	7.7
17	24.3	26.7	11.1	42.3	61.9	50.7	17.2	10.4
18	30.5	31.1	11.8	49.4	64.4	50.9	18.5	13.2
19	37.1	35.9	12.5	57.0	67.1	51.2	19.8	16.3
20	44.1	40.9	13.3	64.9	69.9	51.6	21.2	19.4
21	51.4	46.1	14.1	73.3	72.9	51.9	22.6	22.8
22	59.1	51.6	15.0	82.0	76.0	52.3	24.2	26.3
23	67.2	57.4	15.9	91.2	79.3	52.6	25.8	29.9
24	75.5	63.4	16.8	100.8	82.7	53.0	27.4	33.7
				TREE GRADE 2 3 LOGS				
13	0.1	10.2	9.5	21.2	67.5	55.2	15.5	2.8
14	6.9	14.9	10.3	26.7	68.5	55.4	16.5	4.7
15	14.3	20.0	11.1	32.5	69.5	55.7	17.5	6.9
16	22.1	25.5	12.0	38.7	70.6	55.9	18.6	9.1
17	30.5	31.3	12.9	45.4	71.8	56.2	19.8	11.5
18	39.4	37.5	13.9	52.4	73.0	56.5	21.0	14.0
19	48.8	44.0	15.0	59.9	74.3	56.8	22.3	16.7
20	58.7	50.8	16.1	67.7	75.7	57.1	23.7	19.6
21	69.1	58.1	17.3	76.0	77.2	57.4	25.2	22.5
22	80.0	65.6	18.5	84.6	78.7	57.8	26.7	25.7
23	91.4	73.5	19.8	93.7	80.3	58.2	28.3	28.9
24	103.3	81.8	21.1	103.1	81.9	58.6	29.9	32.3
				TREE GRADE 3 1 LOG				
10	0.0	0.1	0.0	0.0	3.8	18.9	4.7	1.9
11	.5	.3	.0	3.7	5.9	19.5	5.8	2.9

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Table 15.—Continued: RED MAPLE

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2A	No. 2B	No. 3A	No. 3B
12	1.2	.6	.1	8.0	8.3	20.1	7.0	4.0
13	2.0	.8	.6	12.7	10.9	20.7	8.3	5.1
14	2.9	1.1	1.2	17.8	13.7	21.4	9.8	6.4
15	3.8	1.5	1.9	23.2	16.7	22.2	11.3	7.8
16	4.8	1.8	2.6	29.0	19.9	23.0	12.9	9.3
17	5.8	2.2	3.3	35.2	23.3	23.9	14.6	10.8
18	6.9	2.6	4.1	41.8	26.9	24.8	16.4	12.5
19	8.1	3.0	4.9	48.8	30.7	25.8	18.4	14.3
20	9.4	3.4	5.8	56.1	34.8	26.8	20.4	16.1
				TREE GRADE 3 1-1/2 LOGS				
10	0.0	0.3	1.6	0.7	11.1	32.4	5.8	1.9
11	.6	1.0	2.0	4.6	13.7	32.9	7.0	2.9
12	1.4	1.8	2.4	9.0	16.6	33.5	8.2	4.0
13	2.2	2.7	2.9	13.7	19.7	34.2	9.6	5.1
14	3.0	3.6	3.3	18.7	23.1	34.9	11.0	6.4
15	3.9	4.7	3.8	24.2	26.7	35.7	12.6	7.8
16	4.9	5.7	4.4	30.0	30.5	36.5	14.3	9.3
17	6.0	6.9	5.0	36.2	34.6	37.3	16.1	10.8
18	7.1	8.1	5.6	42.8	39.0	38.3	17.9	12.5
19	8.2	9.4	6.2	49.7	43.6	39.2	19.9	14.3
20	9.5	10.7	6.9	57.1	48.5	40.3	22.1	16.1
				TREE GRADE 3 2 LOGS				
10	0.1	0.5	4.2	1.7	18.5	45.8	7.0	1.9
11	.8	1.8	4.5	5.6	21.5	46.4	8.1	2.9
12	1.5	3.1	4.8	9.9	24.9	47.0	9.4	4.0
13	2.3	4.6	5.1	14.6	28.5	47.6	10.8	5.1
14	3.1	6.1	5.4	19.7	32.5	48.4	12.3	6.4
15	4.1	7.8	5.8	25.1	36.7	49.1	13.9	7.8
16	5.0	9.7	6.2	31.0	41.2	49.9	15.7	9.3
17	6.1	11.6	6.7	37.2	46.0	50.8	17.5	10.8
18	7.2	13.6	7.1	43.7	51.1	51.7	19.5	12.5
19	8.4	15.8	7.6	50.7	56.5	52.7	21.5	14.3
20	9.6	18.1	8.1	58.0	62.1	53.7	23.7	16.1
				TREE GRADE 3 2-1/2 LOGS				
10	0.2	0.8	6.8	2.6	25.9	59.3	8.1	1.9
11	.9	2.5	6.9	6.6	29.4	59.8	9.3	2.9
12	1.6	4.4	7.1	10.9	33.2	60.4	10.6	4.0
13	2.4	6.4	7.3	15.6	37.4	61.1	12.0	5.1
14	3.3	8.6	7.6	20.7	41.9	61.8	13.6	6.4
15	4.2	11.0	7.8	26.1	46.7	62.6	15.3	7.8
16	5.2	13.6	8.1	31.9	51.8	63.4	17.1	9.3
17	6.2	16.3	8.3	38.1	57.3	64.2	19.0	10.8
18	7.3	19.2	8.6	44.7	63.2	65.2	21.0	12.5
19	8.5	22.2	8.9	51.7	69.3	66.1	23.1	14.3
20	9.7	25.4	9.3	59.0	75.8	67.2	25.4	16.1
				TREE GRADE 3 3 LOGS				
10	0.3	1.0	9.3	3.6	33.2	72.7	9.2	1.9
11	1.0	3.2	9.4	7.5	37.2	73.3	10.4	2.9
12	1.7	5.6	9.5	11.9	41.5	73.9	11.8	4.0
13	2.5	8.3	9.6	16.6	46.2	74.6	13.3	5.1
14	3.4	11.2	9.7	21.6	51.2	75.3	14.9	6.4
15	4.3	14.2	9.8	27.1	56.7	76.0	16.6	7.8
16	5.3	17.5	9.9	32.9	62.5	76.8	18.4	9.3
17	6.3	21.0	10.0	39.1	68.7	77.7	20.4	10.8
18	7.5	24.7	10.2	45.7	75.3	78.6	22.5	12.5
19	8.6	28.6	10.3	52.6	82.2	79.6	24.7	14.3
20	9.9	32.8	10.4	60.0	89.5	80.6	27.0	16.1

Table 16.—Lumber grade volume for BLACK OAK

[In board feet]

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
			TREE GRADE 1 2 LOGS					
16	0.0	16.7	1.9	36.4	41.8	12.2	52.4	17.2
17	.0	20.1	2.9	46.0	45.3	12.2	53.2	18.0
18	4.4	23.7	3.9	56.3	49.1	12.2	54.0	18.8
19	11.8	27.6	5.0	67.1	53.0	12.2	54.9	19.6
20	19.6	31.7	6.2	78.5	57.2	12.2	55.8	20.5
21	27.7	35.9	7.4	90.5	61.6	12.2	56.8	21.4
22	36.3	40.4	8.7	103.1	66.2	12.2	57.8	22.4
23	45.2	45.1	10.0	116.2	71.0	12.2	58.9	23.4
24	54.6	50.0	11.4	130.0	76.0	12.2	60.0	24.5
25	64.3	55.1	12.8	144.3	81.3	12.2	61.2	25.6
26	74.5	60.4	14.3	159.3	86.7	12.2	62.4	26.7
			TREE GRADE 1 2-1/2 LOGS					
16	0.0	14.2	1.9	45.3	59.4	16.5	64.4	35.5
17	2.1	18.5	2.9	56.4	62.9	16.5	65.2	36.2
18	9.7	23.0	3.9	68.2	66.7	16.5	66.1	37.0
19	17.6	27.9	5.0	80.7	70.6	16.5	67.0	37.9
20	26.0	32.9	6.2	93.9	74.8	16.5	67.9	38.7
21	34.8	38.3	7.4	107.7	79.2	16.5	68.9	39.7
22	44.1	43.9	8.7	122.2	83.8	16.5	69.9	40.7
23	53.7	49.7	10.0	137.4	88.6	16.5	71.0	41.7
24	63.9	55.8	11.4	153.2	93.7	16.5	72.1	42.7
25	74.4	62.2	12.8	169.8	98.9	16.5	73.3	43.8
26	85.4	68.9	14.3	187.0	104.4	16.5	74.5	45.0
27	96.7	75.8	15.9	204.9	110.0	16.5	75.8	46.2
28	108.6	82.9	17.5	223.4	115.9	16.5	77.1	47.4
29	120.8	90.3	19.2	242.7	122.0	16.5	78.4	48.7
30	133.5	98.0	21.0	262.6	128.3	16.5	79.9	50.1
			TREE GRADE 1 3 LOGS					
16	0.0	11.7	1.9	54.2	77.0	20.9	76.5	53.7
17	6.8	16.9	2.9	66.8	80.5	20.9	77.3	54.5
18	14.9	22.4	3.9	80.2	84.3	20.9	78.2	55.3
19	23.4	28.1	5.0	94.3	88.2	20.9	79.0	56.1
20	32.5	34.2	6.2	109.2	92.4	20.9	80.0	57.0
21	41.9	40.6	7.4	124.9	96.8	20.9	81.0	57.9
22	51.9	47.3	8.7	141.3	101.4	20.9	82.0	58.9
23	62.3	54.4	10.0	158.5	106.2	20.9	83.1	59.9
24	73.1	61.7	11.4	176.5	111.3	20.9	84.2	61.0
25	84.5	69.4	12.8	195.2	116.5	20.9	85.4	62.1
26	96.3	77.3	14.3	214.7	122.0	20.9	86.6	63.3
27	108.5	85.6	15.9	235.0	127.7	20.9	87.8	64.5
28	121.2	94.2	17.5	256.0	133.5	20.9	89.2	65.7
29	134.4	103.1	19.2	277.8	139.6	20.9	90.5	67.0
30	148.0	112.3	21.0	300.3	146.0	20.9	91.9	68.3
31	162.1	121.9	22.8	323.6	152.5	20.9	93.4	69.7
32	176.7	131.7	24.6	347.7	159.2	20.9	94.9	71.1
33	191.7	141.8	26.6	372.6	166.2	20.9	96.5	72.6
34	207.2	152.3	28.5	398.2	173.4	20.9	98.1	74.1
			TREE GRADE 1 3-1/2 LOGS					
16	3.3	9.3	1.9	63.1	94.6	25.3	88.6	72.0
17	11.5	15.3	2.9	77.2	98.1	25.3	89.4	72.7
18	20.1	21.7	3.9	92.1	101.9	25.3	90.2	73.5

CONTINUED

Table 16.—Continued: BLACK OAK

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
19	29.3	28.4	5.0	107.9	105.9	25.3	91.1	74.4
20	38.9	35.5	6.2	124.6	110.0	25.3	92.1	75.3
21	49.0	43.0	7.4	142.1	114.4	25.3	93.0	76.2
22	59.7	50.8	8.7	160.4	119.0	25.3	94.1	77.2
23	70.8	59.0	10.0	179.7	123.8	25.3	95.1	78.2
24	82.4	67.6	11.4	199.7	128.9	25.3	96.3	79.2
25	94.5	76.5	12.8	220.7	134.1	25.3	97.4	80.4
26	107.2	85.8	14.3	242.4	139.6	25.3	98.7	81.5
27	120.3	95.5	15.9	265.1	145.3	25.3	99.9	82.7
28	133.9	105.5	17.5	288.5	151.2	25.3	101.2	84.0
29	148.0	115.9	19.2	312.9	157.3	25.3	102.6	85.3
30	162.5	126.6	21.0	338.1	163.6	25.3	104.0	86.6
31	177.6	137.7	22.8	364.1	170.1	25.3	105.5	88.0
32	193.2	149.2	24.6	391.0	176.9	25.3	107.0	89.4
33	209.3	161.1	26.6	418.8	183.8	25.3	108.5	90.9
34	225.9	173.3	28.5	447.4	191.0	25.3	110.1	92.4
				TREE GRADE 2 1-1/2 LOGS				
13	0.0	3.3	0.0	0.0	18.4	1.5	29.2	28.2
14	1.9	5.9	.0	.0	22.0	1.5	30.2	27.4
15	4.8	8.6	.0	7.7	25.9	1.5	31.2	26.4
16	7.9	11.6	.0	19.5	30.1	1.5	32.3	25.5
17	11.2	14.8	.2	31.9	34.5	1.5	33.5	24.4
18	14.7	18.1	.8	45.2	39.2	1.5	34.7	23.3
19	18.4	21.7	1.5	59.2	44.1	1.5	36.0	22.1
20	22.3	25.4	2.2	73.9	49.3	1.5	37.4	20.9
21	26.4	29.4	2.9	89.4	54.8	1.5	38.8	19.6
22	30.7	33.5	3.6	105.7	60.6	1.5	40.3	18.2
23	35.2	37.8	4.4	122.7	66.6	1.5	41.9	16.8
24	39.9	42.3	5.3	140.5	72.9	1.5	43.6	15.3
				TREE GRADE 2 2 LOGS				
13	0.0	1.5	0.7	0.0	24.9	6.6	38.2	36.6
14	1.9	4.3	1.1	4.2	29.6	6.6	39.5	35.8
15	4.8	7.4	1.5	15.9	34.6	6.6	40.9	35.1
16	7.9	10.7	1.9	28.5	40.0	6.6	42.4	34.3
17	11.2	14.2	2.3	41.8	45.8	6.6	44.0	33.4
18	14.7	17.9	2.7	56.0	51.8	6.6	45.6	32.5
19	18.4	21.9	3.2	70.9	58.3	6.6	47.4	31.5
20	22.3	26.0	3.7	86.7	65.1	6.6	49.3	30.5
21	26.4	30.4	4.3	103.3	72.2	6.6	51.2	29.4
22	30.7	34.9	4.8	120.6	79.7	6.6	53.3	28.3
23	35.2	39.7	5.4	138.8	87.5	6.6	55.4	27.1
24	39.9	44.7	6.0	157.8	95.7	6.6	57.7	25.8
25	44.7	49.9	6.7	177.6	104.2	6.6	60.0	24.6
26	49.8	55.3	7.3	198.3	113.1	6.6	62.5	23.2
27	55.1	60.9	8.0	219.7	122.3	6.6	65.0	21.8
28	60.6	66.8	8.7	241.9	131.9	6.6	67.6	20.4
				TREE GRADE 2 2-1/2 LOGS				
13	0.0	0.0	3.3	0.0	31.3	11.6	47.2	44.9
14	1.9	2.8	3.6	11.7	37.1	11.6	48.8	44.3
15	4.8	6.2	3.8	24.1	43.3	11.6	50.6	43.7
16	7.9	9.8	4.1	37.5	50.0	11.6	52.5	43.1
17	11.2	13.6	4.4	51.7	57.0	11.6	54.4	42.4
18	14.7	17.7	4.7	66.7	64.5	11.6	56.6	41.7
19	18.4	22.0	5.0	82.7	72.5	11.6	58.8	40.9
20	22.3	26.6	5.3	99.4	80.8	11.6	61.1	40.1
21	26.4	31.3	5.6	117.1	89.6	11.6	63.6	39.2
22	30.7	36.3	6.0	135.6	98.8	11.6	66.2	38.3
23	35.2	41.6	6.4	154.9	108.4	11.6	68.9	37.4

CONTINUED

Table 16.—Continued: BLACK OAK

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
24	39.9	47.0	6.8	175.2	118.5	11.6	71.8	36.4
25	44.7	52.7	7.2	196.3	129.0	11.6	74.7	35.4
26	49.8	58.7	7.6	218.2	139.9	11.6	77.8	34.3
27	55.1	64.8	8.1	241.0	151.3	11.6	81.0	33.2
28	60.6	71.2	8.5	264.7	163.1	11.6	84.3	32.0
				TREE GRADE 2 3 LOGS				
13	0.0	0.0	6.0	6.8	37.8	16.6	56.2	53.3
14	1.9	1.3	6.1	19.1	44.7	16.6	58.1	52.8
15	4.8	5.0	6.2	32.3	52.0	16.6	60.3	52.4
16	7.9	8.9	6.3	46.5	59.9	16.6	62.5	51.9
17	11.2	13.1	6.4	61.5	68.3	16.6	64.9	51.4
18	14.7	17.5	6.6	77.5	77.2	16.6	67.5	50.8
19	18.4	22.2	6.7	94.4	86.6	16.6	70.2	50.3
20	22.3	27.1	6.9	112.2	96.5	16.6	73.0	49.7
21	26.4	32.3	7.0	130.9	107.0	16.6	76.0	49.0
22	30.7	37.7	7.2	150.5	117.9	16.6	79.2	48.4
23	35.2	43.4	7.4	171.1	129.4	16.6	82.5	47.7
24	39.9	49.4	7.5	192.5	141.3	16.6	85.9	46.9
25	44.7	55.6	7.7	214.9	153.8	16.6	89.5	46.2
26	49.8	62.0	7.9	238.1	166.7	16.6	93.2	45.4
27	55.1	68.7	8.1	262.3	180.2	16.6	97.0	44.5
28	60.6	75.7	8.3	287.4	194.2	16.6	101.1	43.7
29	66.3	82.9	8.6	313.4	208.7	16.6	105.2	42.8
30	72.2	90.4	8.8	340.4	223.7	16.6	109.5	41.9
				TREE GRADE 3 1 LOG				
10	0.0	0.0	1.0	0.0	1.6	3.5	9.2	14.5
11	.0	.0	1.0	.0	4.7	4.0	12.1	12.0
12	.2	.0	.9	5.5	8.1	4.7	15.4	9.3
13	.6	1.6	.9	12.7	11.7	5.3	18.9	6.3
14	1.1	3.6	.9	20.4	15.7	6.0	22.7	3.1
15	1.5	5.8	.8	28.7	20.0	6.8	26.7	.0
16	2.0	8.1	.8	37.6	24.5	7.6	31.1	.0
				TREE GRADE 3 1-1/2 LOGS				
10	0.0	0.0	0.2	0.0	11.7	8.2	20.7	28.7
11	.0	.0	.3	.0	14.7	8.5	22.9	27.4
12	.0	.0	.4	5.5	18.1	8.9	25.4	25.9
13	.4	1.6	.5	12.7	21.7	9.3	28.0	24.3
14	1.2	3.6	.7	20.4	25.7	9.8	30.9	22.6
15	2.1	5.8	.8	28.7	29.9	10.3	33.9	20.7
16	3.0	8.1	1.0	37.6	34.4	10.8	37.2	18.7
17	3.9	10.5	1.2	47.1	39.2	11.3	40.7	16.6
18	5.0	13.2	1.4	57.1	44.3	11.9	44.4	14.4
19	6.0	15.9	1.6	67.8	49.7	12.6	48.3	12.0
20	7.2	18.8	1.8	78.9	55.4	13.2	52.4	9.5

CONTINUED

Table 16.—Continued: BLACK OAK

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
				TREE GRADE 3 2 LOGS				
12	0.0	0.0	0.0	5.5	28.1	13.2	35.4	42.5
13	.2	1.6	.2	12.7	31.7	13.4	37.2	42.3
14	1.3	3.6	.5	20.4	35.6	13.5	39.1	42.0
15	2.6	5.8	.8	28.7	39.8	13.7	41.1	41.8
16	3.9	8.1	1.2	37.6	44.2	13.9	43.3	41.5
17	5.3	10.5	1.6	47.1	49.0	14.2	45.7	41.2
18	6.8	13.2	2.0	57.1	54.0	14.4	48.1	40.8
19	8.4	15.9	2.4	67.8	59.4	14.7	50.8	40.5
20	10.0	18.8	2.9	78.9	65.0	14.9	53.5	40.1
21	11.8	21.9	3.4	90.7	70.9	15.2	56.4	39.7
22	13.6	25.1	3.9	103.1	77.1	15.5	59.5	39.3
23	15.5	28.5	4.4	116.0	83.6	15.8	62.7	38.9
24	17.5	32.0	5.0	129.5	90.4	16.1	66.0	38.4
				TREE GRADE 3 2-1/2 LOGS				
16	4.8	8.1	1.4	37.6	54.1	17.1	49.5	64.2
17	6.7	10.5	2.0	47.1	58.8	17.0	50.6	65.7
18	8.6	13.2	2.7	57.1	63.8	16.9	51.9	67.2
19	10.7	15.9	3.3	67.8	69.1	16.8	53.2	68.9
20	12.9	18.8	4.1	78.9	74.6	16.6	54.6	70.6
21	15.2	21.9	4.8	90.7	80.5	16.5	56.1	72.5
22	17.6	25.1	5.6	103.1	86.6	16.4	57.7	74.4
23	20.1	28.5	6.4	116.0	93.0	16.3	59.3	76.4
24	22.7	32.0	7.3	129.5	99.7	16.1	61.0	78.5
25	25.5	35.6	8.2	143.5	106.7	16.0	62.7	80.7
26	28.3	39.5	9.1	158.2	114.0	15.8	64.6	83.0
27	31.3	43.4	10.1	173.4	121.5	15.6	66.5	85.4
28	34.3	47.5	11.1	189.2	129.3	15.5	68.5	87.8

Table 17.—Lumber grade volume for BASSWOOD

[In board feet]

Dbh (inches)	FAS	Selects	No. 1C	No. 2C	No. 3C
		TREE GRADE 1 1-1/2 LOGS			
15	25.0	37.9	26.1	48.1	0.0
16	26.3	39.1	30.7	55.7	4.6
17	27.6	40.3	35.5	63.8	12.3
18	28.9	41.6	40.7	72.3	20.5
19	30.4	43.0	46.2	81.4	29.1
20	31.9	44.5	52.0	90.9	38.2
		TREE GRADE 1 2 LOGS			
15	18.4	39.2	37.0	59.5	3.6
16	22.9	41.3	41.5	66.7	9.9
17	27.8	43.6	46.2	74.4	16.6
18	33.0	45.9	51.3	82.6	23.7
19	38.4	48.5	56.6	91.3	31.3
20	44.2	51.1	62.2	100.4	39.2
		TREE GRADE 1 2-1/2 LOGS			
15	11.7	40.5	47.9	70.8	9.9
16	19.6	43.6	52.3	77.7	15.2
17	28.1	46.8	56.9	85.1	21.0
18	37.0	50.2	61.8	92.9	27.0
19	46.5	53.9	67.0	101.1	33.4
20	56.4	57.7	72.4	109.8	40.2
21	66.9	61.8	78.2	118.9	47.2
22	77.9	66.0	84.2	128.5	54.7
23	89.4	70.4	90.5	138.5	62.5
24	101.4	75.0	97.1	149.0	70.6
		TREE GRADE 1 3 LOGS			
15	5.0	41.8	58.8	82.2	16.1
16	16.3	45.8	63.1	88.7	20.6
17	28.3	50.0	67.6	95.7	25.3
18	41.0	54.5	72.3	103.1	30.3
19	54.5	59.3	77.4	111.0	35.6
20	68.7	64.3	82.7	119.2	41.1
21	83.6	69.6	88.3	127.9	47.0
22	99.2	75.2	94.1	137.0	53.2
23	115.6	81.0	100.3	146.6	59.6
24	132.7	87.0	106.7	156.5	66.3
25	150.5	93.3	113.3	166.9	73.3
26	169.0	99.9	120.3	177.7	80.6
		TREE GRADE 1 3-1/2 LOGS			
15	0.0	43.1	69.8	93.5	22.4
16	13.0	48.0	73.9	99.8	25.9
17	28.6	53.3	78.2	106.4	29.6
18	45.1	58.8	82.9	113.4	33.5
19	62.5	64.7	87.8	120.8	37.7
20	80.9	71.0	92.9	128.7	42.1
21	100.3	77.5	98.3	136.9	46.8
22	120.6	84.3	104.0	145.6	51.6
23	141.8	91.5	110.0	154.6	56.7
24	164.0	99.0	116.2	164.0	62.0
25	187.1	106.8	122.7	173.9	67.5
26	211.1	114.9	129.5	184.1	73.3

CONTINUED

Table 17.—Continued: BASSWOOD

Dbh (inches)	FAS	Selects	No. 1C	No. 2C	No. 3C
		TREE GRADE 1 4 LOGS			
15	0.0	44.4	80.7	104.9	28.6
16	9.7	50.2	84.7	110.8	31.2
17	28.8	56.5	88.9	117.0	33.9
18	49.1	63.1	93.4	123.7	36.8
19	70.6	70.2	98.1	130.7	39.9
20	93.2	77.6	103.2	138.1	43.1
21	116.9	85.3	108.4	145.9	46.5
22	141.9	93.5	113.9	154.1	50.1
23	168.0	102.0	119.7	162.6	53.8
24	195.2	111.0	125.8	171.5	57.7
25	223.7	120.3	132.1	180.8	61.8
26	253.2	129.9	138.6	190.5	66.0
		TREE GRADE 2 1-1/2 LOGS			
13	5.1	9.3	9.8	45.1	11.9
14	5.2	12.5	13.9	47.9	14.3
15	5.4	16.0	18.4	50.9	17.0
16	5.5	19.7	23.1	54.2	19.8
17	5.7	23.7	28.1	57.6	22.7
18	5.9	27.9	33.5	61.3	25.9
19	6.1	32.3	39.2	65.1	29.2
20	6.3	37.0	45.1	69.2	32.8
		TREE GRADE 2 2 LOGS			
13	3.5	10.3	26.2	62.6	6.8
14	5.1	14.4	29.9	65.0	10.6
15	6.7	18.9	33.9	67.7	14.7
16	8.4	23.6	38.2	70.6	19.1
17	10.2	28.6	42.7	73.6	23.7
18	12.2	34.0	47.6	76.9	28.7
19	14.3	39.6	52.7	80.3	33.9
20	16.4	45.6	58.0	83.9	39.4
21	18.7	51.8	63.7	87.6	45.2
22	21.1	58.4	69.6	91.6	51.3
		TREE GRADE 2 2-1/2 LOGS			
13	2.0	11.3	42.6	80.1	1.7
14	4.9	16.3	46.0	82.2	6.9
15	8.0	21.7	49.5	84.5	12.5
16	11.3	27.5	53.3	87.0	18.4
17	14.8	33.6	57.3	89.6	24.8
18	18.5	40.1	61.6	92.4	31.5
19	22.5	47.0	66.2	95.4	38.6
20	26.6	54.2	70.9	98.5	46.1
21	31.0	61.8	76.0	101.8	54.0
22	35.6	69.8	81.2	105.2	62.2
		TREE GRADE 2 3 LOGS			
16	14.2	31.3	68.4	103.4	17.7
17	19.4	38.5	71.9	105.7	25.8
18	24.9	46.2	75.7	108.0	34.3
19	30.7	54.3	79.7	110.5	43.3
20	36.8	62.8	83.8	113.1	52.7
21	43.2	71.7	88.2	115.9	62.7
22	50.0	81.1	92.9	118.8	73.2
23	57.1	91.0	97.7	121.9	84.1

CONTINUED

Table 17.—Continued: BASSWOOD

Dbh (inches)	FAS	Selects	No. 1C	No. 2C	No. 3C
		TREE GRADE 2 3-1-2 LOGS			
16	17.1	35.2	83.5	119.9	17.1
17	23.9	43.5	86.5	121.7	26.8
18	31.2	52.3	89.8	123.6	37.1
19	38.9	61.6	93.2	125.6	47.9
20	47.0	71.4	96.7	127.8	59.4
21	55.5	81.7	100.5	130.0	71.5
22	64.4	92.5	104.5	132.4	84.1
23	73.8	103.8	108.6	134.9	97.3
		TREE GRADE 3 1 LOG			
10	0.0	2.9	0.0	15.2	11.5
11	.0	2.6	.9	20.6	12.4
12	.0	2.3	3.7	26.5	13.3
13	.0	2.0	6.6	32.9	14.3
14	.0	1.6	9.9	39.9	15.3
15	.0	1.2	13.3	47.3	16.5
16	.0	.8	17.0	55.3	17.7
17	.4	.4	20.9	63.8	19.0
18	.8	.0	25.0	72.8	20.4
		TREE GRADE 3 1-1/2 LOGS			
10	0.0	3.0	5.6	26.0	10.8
11	.1	3.3	8.1	31.6	12.2
12	.5	3.7	10.8	37.8	13.8
13	.8	4.2	13.8	44.5	15.5
14	1.2	4.7	17.0	51.7	17.3
15	1.6	5.2	20.4	59.5	19.3
16	2.0	5.7	24.1	67.8	21.4
17	2.5	6.3	28.0	76.7	23.7
18	3.0	6.9	32.2	86.1	26.1
19	3.5	7.6	36.6	96.0	28.6
20	4.0	8.3	41.2	106.4	31.2
21	4.6	9.0	46.1	117.4	34.0
22	5.2	9.7	51.2	129.0	37.0
23	5.8	10.5	56.5	141.1	40.0
		TREE GRADE 3 2 LOGS			
10	1.3	3.0	12.7	36.7	10.0
11	1.7	4.0	15.2	42.6	12.1
12	2.1	5.2	18.0	49.0	14.3
13	2.5	6.4	20.9	56.0	16.7
14	3.0	7.7	24.1	63.6	19.3
15	3.5	9.1	27.6	71.7	22.2
16	4.0	10.6	31.3	80.4	25.2
17	4.6	12.2	35.2	89.6	28.3
18	5.2	14.0	39.3	99.4	31.7
19	5.8	15.8	43.7	109.7	35.3
20	6.5	17.7	48.4	120.6	39.1
21	7.2	19.7	53.2	132.1	43.1
22	7.9	21.8	58.3	144.1	47.2
23	8.7	24.0	63.7	156.7	51.6

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Table 17.—Continued: BASSWOOD

Dbh (inches)	FAS	Selects	No. 1C	No. 2C	No. 3C
		TREE GRADE 3 2-1/2 LOGS			
10	2.8	3.1	19.9	47.5	9.3
11	3.3	4.7	22.4	53.6	11.9
12	3.7	6.6	25.1	60.3	14.8
13	4.2	8.6	28.1	67.6	18.0
14	4.8	10.7	31.3	75.4	21.3
15	5.4	13.1	34.7	83.9	25.0
16	6.0	15.5	38.4	92.9	28.9
17	6.7	18.2	42.3	102.5	33.0
18	7.4	21.0	46.5	112.7	37.4
19	8.1	23.9	50.9	123.4	42.1
20	8.9	27.1	55.5	134.8	47.0
21	9.8	30.3	60.4	146.7	52.1
22	10.6	33.8	65.5	159.2	57.5
23	11.5	37.4	70.8	172.3	63.1
		TREE GRADE 3 3 LOGS			
10	4.3	3.1	27.0	58.3	8.6
11	4.8	5.4	29.5	64.6	11.8
12	5.4	8.0	32.3	71.6	15.3
13	6.0	10.8	35.2	79.1	19.2
14	6.6	13.8	38.4	87.3	23.4
15	7.3	17.0	41.9	96.1	27.8
16	8.0	20.5	45.5	105.4	32.6
17	8.8	24.1	49.5	115.4	37.7
18	9.6	28.0	53.6	126.0	43.1
19	10.5	32.1	58.0	137.2	48.8
20	11.4	36.5	62.6	148.9	54.8
21	12.3	41.0	67.5	161.3	61.1
22	13.3	45.8	72.6	174.3	67.8
23	14.4	50.8	78.0	187.9	74.7

Table 18.—Lumber grade volume for SUGAR MAPLE

[In board feet]

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 1 1-1/2 LOGS				
16	4.6	25.0	8.7	39.4	38.0	23.5	21.1
17	8.5	28.2	8.7	44.2	43.6	24.2	24.7
18	12.7	31.5	8.7	49.3	49.4	25.1	28.6
19	17.1	35.0	8.7	54.7	55.7	26.0	32.6
20	21.7	38.8	8.7	60.3	62.2	26.9	36.9
21	26.6	42.7	8.7	66.3	69.1	27.9	41.4
			TREE GRADE 1 2 LOGS				
16	7.0	26.9	8.7	38.3	42.2	27.1	31.0
17	11.7	30.0	8.7	45.7	47.7	28.3	34.1
18	16.8	33.4	8.7	53.4	53.4	29.7	37.3
19	22.1	36.9	8.7	61.6	59.5	31.1	40.8
20	27.7	40.6	8.7	70.3	65.9	32.6	44.4
21	33.5	44.6	8.7	79.4	72.7	34.2	48.2
22	39.7	48.7	8.7	88.9	79.8	35.8	52.2
23	46.2	53.0	8.7	98.9	87.2	37.6	56.4
24	52.9	57.5	8.7	109.4	94.9	39.4	60.7
25	59.9	62.1	8.7	120.2	103.0	41.3	65.3
26	67.3	67.0	8.7	131.6	111.4	43.2	70.0
27	74.9	72.1	8.7	143.3	120.1	45.3	75.0
			TREE GRADE 1 2-1/2 LOGS				
16	9.4	28.7	8.7	37.2	46.4	30.7	40.9
17	14.9	31.9	8.7	47.1	51.8	32.4	43.4
18	20.8	35.2	8.7	57.6	57.4	34.3	46.1
19	27.0	38.8	8.7	68.6	63.4	36.3	48.9
20	33.6	42.5	8.7	80.2	69.7	38.3	51.9
21	40.5	46.4	8.7	92.5	76.3	40.5	55.0
22	47.7	50.5	8.7	105.3	83.2	42.8	58.3
23	55.3	54.8	8.7	118.8	90.5	45.2	61.8
24	63.2	59.3	8.7	132.8	98.1	47.7	65.4
25	71.5	64.0	8.7	147.4	106.0	50.3	69.1
26	80.1	68.9	8.7	162.7	114.2	53.0	73.0
27	89.0	74.0	8.7	178.5	122.8	55.8	77.0
28	98.3	79.2	8.7	194.9	131.6	58.8	81.2
29	107.9	84.7	8.7	211.9	140.8	61.8	85.6
30	117.8	90.3	8.7	229.6	150.4	64.9	90.1
			TREE GRADE 1 3 LOGS				
16	11.7	30.6	8.7	36.2	50.7	34.3	50.8
17	18.1	33.8	8.7	48.5	55.9	36.5	52.8
18	24.9	37.1	8.7	61.7	61.4	38.9	54.9
19	32.0	40.7	8.7	75.6	67.3	41.4	57.1
20	39.5	44.4	8.7	90.2	73.4	44.0	59.4
21	47.5	48.3	8.7	105.6	79.9	46.8	61.9
22	55.8	52.4	8.7	121.7	86.7	49.8	64.5
23	64.5	56.7	8.7	138.6	93.8	52.8	67.1
24	73.6	61.2	8.7	156.3	101.2	56.0	70.0
25	83.0	65.9	8.7	174.6	109.0	59.3	72.9
26	92.9	70.8	8.7	193.8	117.0	62.8	76.0
27	103.1	75.8	8.7	213.7	125.4	66.4	79.1
28	113.8	81.1	8.7	234.3	134.1	70.2	82.4
29	124.8	86.5	8.7	255.7	143.1	74.0	85.8
30	136.2	92.2	8.7	277.8	152.4	78.0	89.4

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Table 18.—Continued: SUGAR MAPLE

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 1 3-1/2 LOGS				
20	45.5	46.3	8.7	100.2	77.2	49.8	66.9
21	54.4	50.2	8.7	118.7	83.5	53.2	68.7
22	63.8	54.3	8.7	138.1	90.1	56.7	70.6
23	73.6	58.6	8.7	158.5	97.1	60.4	72.5
24	83.9	63.1	8.7	179.7	104.4	64.3	74.6
25	94.6	67.8	8.7	201.8	112.0	68.4	76.7
26	105.7	72.6	8.7	224.9	119.8	72.6	78.9
27	117.2	77.7	8.7	248.9	128.0	77.0	81.2
28	129.2	83.0	8.7	273.7	136.6	81.5	83.6
29	141.7	88.4	8.7	299.5	145.4	86.2	86.1
30	154.5	94.1	8.7	326.1	154.5	91.1	88.6
			TREE GRADE 2 1-1/2 LOGS				
13	3.7	3.4	7.6	4.6	19.1	16.4	25.1
14	4.9	6.2	7.6	12.3	23.1	17.2	24.8
15	6.3	9.3	7.6	20.4	27.5	18.0	24.6
16	7.8	12.5	7.6	29.2	32.1	18.9	24.4
17	9.3	15.9	7.6	38.5	37.1	19.9	24.1
18	11.0	19.5	7.6	48.4	42.3	21.0	23.8
19	12.7	23.4	7.6	58.8	47.9	22.1	23.6
20	14.6	27.4	7.6	69.9	53.7	23.2	23.2
21	16.5	31.7	7.6	81.4	59.9	24.5	22.9
22	18.6	36.2	7.6	93.6	66.3	25.7	22.6
23	20.7	40.8	7.6	106.3	73.0	27.1	22.2
24	22.9	45.7	7.6	119.5	80.1	28.5	21.9
25	25.2	50.8	7.6	133.4	87.4	29.9	21.5
26	27.6	56.1	7.6	147.8	95.1	31.4	21.1
27	30.1	61.6	7.6	162.7	103.0	33.0	20.7
			TREE GRADE 2 2 LOGS				
13	4.1	7.5	7.6	9.1	28.8	24.3	27.4
14	5.6	10.3	7.6	17.2	32.9	25.2	27.9
15	7.3	13.3	7.6	25.9	37.3	26.2	28.5
16	9.0	16.5	7.6	35.2	42.0	27.3	29.1
17	10.9	19.9	7.6	45.1	47.0	28.5	29.8
18	12.8	23.6	7.6	55.5	52.3	29.7	30.5
19	14.9	27.4	7.6	66.6	57.9	31.0	31.2
20	17.1	31.5	7.6	78.3	63.9	32.4	32.0
21	19.4	35.7	7.6	90.6	70.1	33.9	32.9
22	21.9	40.2	7.6	103.5	76.7	35.4	33.7
23	24.4	44.9	7.6	116.9	83.5	37.0	34.6
24	27.0	49.7	7.6	131.0	90.6	38.6	35.6
25	29.8	54.8	7.6	145.7	98.1	40.4	36.6
26	32.7	60.1	7.6	160.9	105.9	42.2	37.6
27	35.6	65.6	7.6	176.8	113.9	44.0	38.7
			TREE GRADE 2 2-1/2 LOGS				
13	4.6	11.5	7.6	13.6	38.4	32.2	29.7
14	6.3	14.3	7.6	22.2	42.6	33.3	31.0
15	8.2	17.3	7.6	31.4	47.0	34.5	32.4
16	10.3	20.5	7.6	41.2	51.8	35.7	33.9
17	12.4	24.0	7.6	51.6	56.9	37.1	35.5
18	14.7	27.6	7.6	62.7	62.3	38.5	37.1
19	17.1	31.4	7.6	74.4	68.0	40.0	38.9
20	19.7	35.5	7.6	86.8	74.1	41.6	40.8
21	22.3	39.8	7.6	99.7	80.4	43.3	42.8
22	25.2	44.2	7.6	113.3	87.0	45.1	44.9

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Table 18.—Continued: SUGAR MAPLE

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
23	28.1	48.9	7.6	127.6	94.0	46.9	47.0
24	31.2	53.8	7.6	142.5	101.2	48.8	49.3
25	34.4	58.9	7.6	158.0	108.8	50.8	51.7
26	37.7	64.2	7.6	174.1	116.7	52.9	54.1
27	41.2	69.7	7.6	190.9	124.8	55.1	56.7
			TREE GRADE 2 3 LOGS				
18	16.6	31.6	7.6	69.9	72.3	47.3	43.8
19	19.3	35.5	7.6	82.2	78.1	49.0	46.6
20	22.2	39.5	7.6	95.2	84.2	50.8	49.6
21	25.3	43.8	7.6	108.9	90.6	52.7	52.7
22	28.5	48.3	7.6	123.2	97.4	54.7	56.0
23	31.8	52.9	7.6	138.3	104.4	56.8	59.4
24	35.3	57.8	7.6	153.9	111.8	59.0	63.0
25	38.9	62.9	7.6	170.3	119.5	61.3	66.8
26	42.7	68.2	7.6	187.3	127.5	63.6	70.7
27	46.7	73.7	7.6	205.0	135.8	66.1	74.7
28	50.8	79.4	7.6	223.3	144.4	68.6	78.9
			TREE GRADE 3 1 LOG				
10	0.5	0.0	1.6	0.0	11.2	0.9	20.2
11	.6	.0	1.9	.0	12.7	3.5	20.5
12	.6	.6	2.3	3.0	14.4	6.3	20.9
13	.7	1.8	2.7	7.8	16.2	9.3	21.3
14	.8	3.2	3.1	13.1	18.2	12.6	21.7
15	.8	4.7	3.6	18.7	20.3	16.1	22.2
16	.9	6.3	4.1	24.7	22.6	19.9	22.7
17	1.0	8.0	4.6	31.1	25.0	23.9	23.2
18	1.1	9.8	5.2	37.9	27.5	28.2	23.7
19	1.1	11.7	5.8	45.1	30.2	32.7	24.3
20	1.2	13.7	6.4	52.6	33.1	37.4	25.0
21	1.3	15.9	7.1	60.6	36.1	42.4	25.6
			TREE GRADE 3 1-1/2 LOGS				
10	0.0	0.0	1.6	0.0	9.8	13.4	30.6
11	.0	.4	1.9	2.3	12.4	15.6	31.2
12	.3	1.5	2.3	6.7	15.3	17.9	31.9
13	.6	2.6	2.7	11.6	18.4	20.5	32.6
14	.9	3.9	3.1	16.8	21.8	23.3	33.4
15	1.2	5.3	3.6	22.4	25.4	26.2	34.2
16	1.5	6.7	4.1	28.4	29.3	29.4	35.1
17	1.9	8.3	4.6	34.8	33.5	32.8	36.0
18	2.3	9.9	5.2	41.6	37.8	36.4	37.1
19	2.7	11.7	5.8	48.8	42.5	40.2	38.1
20	3.1	13.5	6.4	56.4	47.3	44.2	39.2
21	3.6	15.5	7.1	64.3	52.5	48.4	40.4
22	4.0	17.5	7.8	72.7	57.8	52.8	41.7
23	4.5	19.6	8.5	81.4	63.5	57.4	43.0
24	5.1	21.8	9.2	90.5	69.3	62.3	44.3

CONTINUED

Table 18.—Continued: SUGAR MAPLE

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 3 2 LOGS				
10	0.0	0.5	1.6	1.9	8.4	25.9	41.0
11	.0	1.4	1.9	6.0	12.2	27.6	41.9
12	.0	2.4	2.3	10.4	16.2	29.6	42.8
13	.4	3.4	2.7	15.3	20.7	31.6	43.9
14	.9	4.6	3.1	20.5	25.5	33.9	45.0
15	1.5	5.8	3.6	26.2	30.6	36.3	46.2
16	2.1	7.2	4.1	32.2	36.1	38.9	47.5
17	2.8	8.6	4.6	38.6	41.9	41.7	48.9
18	3.5	10.1	5.2	45.4	48.1	44.6	50.4
19	4.2	11.7	5.8	52.5	54.7	47.7	51.9
20	5.0	13.3	6.4	60.1	61.6	51.0	53.5
21	5.8	15.1	7.1	68.1	68.9	54.4	55.2
22	6.7	16.9	7.8	76.4	76.5	58.0	57.0
23	7.6	18.8	8.5	85.1	84.5	61.7	58.9
24	8.5	20.9	9.2	94.2	92.8	65.7	60.9
25	9.5	23.0	10.0	103.7	101.5	69.8	62.9
26	10.5	25.1	10.8	113.6	110.5	74.0	65.1
27	11.6	27.4	11.7	123.9	119.9	78.5	67.3
28	12.7	29.8	12.6	134.6	129.7	83.1	69.6
			TREE GRADE 3 2-1/2 LOGS				
15	1.9	6.4	3.6	29.9	35.7	46.4	58.2
16	2.8	7.6	4.1	35.9	42.8	48.4	59.9
17	3.7	8.8	4.6	42.3	50.4	50.6	61.7
18	4.7	10.2	5.2	49.1	58.4	52.8	63.7
19	5.8	11.6	5.8	56.3	66.9	55.2	65.7
20	6.9	13.1	6.4	63.8	75.9	57.7	67.8
21	8.1	14.7	7.1	71.8	85.3	60.4	70.1
22	9.3	16.3	7.8	80.1	95.1	63.1	72.4
23	10.6	18.1	8.5	88.9	105.5	66.1	74.9
24	12.0	19.9	9.2	98.0	116.3	69.1	77.5
25	13.4	21.8	10.0	107.5	127.5	72.3	80.1
26	14.8	23.7	10.8	117.4	139.2	75.5	82.9
27	16.3	25.8	11.7	127.7	151.3	79.0	85.8
28	17.9	27.9	12.6	138.3	164.0	82.5	88.8

Table 19.—Lumber grade volume for BLACK CHERRY

[In board feet]

Dbh (inches)	FAS	Selects	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 1 1-1/2 LOGS			
16	50.5	26.7	26.7	24.4	12.1	14.0
17	53.5	33.6	38.2	28.2	13.5	11.9
18	56.7	40.8	50.4	32.2	15.0	9.8
19	60.1	48.5	63.2	36.5	16.5	7.5
20	63.6	56.6	76.8	40.9	18.2	5.1
			TREE GRADE 1 2 LOGS			
16	46.0	32.1	34.9	37.0	22.7	11.8
17	52.1	39.0	46.0	41.4	24.3	11.2
18	58.5	46.2	57.7	46.1	26.0	10.5
19	65.3	53.8	70.1	51.1	27.8	9.7
20	72.4	61.9	83.2	56.3	29.7	8.9
21	79.9	70.3	97.0	61.8	31.7	8.1
22	87.8	79.2	111.4	67.6	33.8	7.2
23	96.1	88.5	126.5	73.6	36.0	6.3
24	104.7	98.2	142.3	79.9	38.3	5.3
25	113.7	108.3	158.7	86.5	40.7	4.3
			TREE GRADE 1 2-1/2 LOGS			
16	41.6	37.6	43.0	49.6	33.3	9.7
17	50.6	44.3	53.7	54.6	35.1	10.4
18	60.3	51.5	65.0	60.0	37.1	11.1
19	70.5	59.1	77.0	65.7	39.1	11.9
20	81.2	67.1	89.6	71.7	41.3	12.7
21	92.5	75.5	102.9	78.0	43.6	13.5
22	104.3	84.4	116.8	84.6	46.0	14.4
23	116.7	93.6	131.4	91.6	48.5	15.3
24	129.7	103.2	146.6	98.8	51.1	16.3
25	143.2	113.3	162.5	106.3	53.8	17.3
			TREE GRADE 1 3 LOGS			
16	37.1	43.0	51.2	62.1	43.9	7.6
17	49.2	49.7	61.5	67.8	46.0	9.6
18	62.1	56.9	72.4	73.9	48.1	11.8
19	75.7	64.4	83.9	80.3	50.4	14.0
20	90.0	72.4	96.1	87.1	52.9	16.4
21	105.0	80.7	108.9	94.2	55.4	19.0
22	120.8	89.5	122.3	101.7	58.1	21.6
23	137.4	98.7	136.3	109.5	60.9	24.4
24	154.6	108.3	150.9	117.6	63.8	27.3
25	172.6	118.2	166.2	126.1	66.9	30.3
			TREE GRADE 2 1-1/2 LOGS			
13	5.0	16.6	21.3	29.4	18.8	1.7
14	6.1	20.3	27.1	32.4	18.8	2.2
15	7.3	24.3	33.3	35.5	18.8	2.8
16	8.6	28.6	40.0	38.9	18.8	3.4
17	9.9	33.1	47.1	42.4	18.8	4.1
18	11.4	37.9	54.6	46.2	18.8	4.8
19	12.9	43.0	62.6	50.2	18.8	5.5
20	14.5	48.4	71.0	54.5	18.8	6.3

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Table 19.—Continued: BLACK CHERRY

Dbh (inches)	FAS	Selects	No. 1C	No. 2C	No. 3A	No. 3B
21	16.2	54.1	79.8	58.9	18.8	7.1
22	18.0	60.0	89.0	63.6	18.8	7.9
23	19.8	66.2	98.7	68.5	18.8	8.8
24	21.7	72.7	108.8	73.6	18.8	9.8
			TREE GRADE 2 2 LOGS			
13	10.7	20.5	16.1	35.0	28.8	4.9
14	12.6	23.9	23.9	38.8	28.8	5.3
15	14.7	27.5	32.3	42.9	28.8	5.8
16	17.0	31.4	41.3	47.3	28.8	6.3
17	19.3	35.5	50.8	51.9	28.8	6.8
18	21.9	39.8	60.9	56.8	28.8	7.3
19	24.5	44.4	71.6	62.0	28.8	7.9
20	27.3	49.3	82.9	67.5	28.8	8.5
21	30.3	54.4	94.7	73.2	28.8	9.1
22	33.4	59.7	107.2	79.3	28.8	9.8
23	36.6	65.3	120.2	85.6	28.8	10.5
24	40.0	71.2	133.7	92.2	28.8	11.2
			TREE GRADE 2 2-1/2 LOGS			
13	16.4	24.5	11.0	40.7	38.8	8.2
14	19.2	27.5	20.8	45.3	38.8	8.5
15	22.2	30.7	31.3	50.3	38.8	8.8
16	25.3	34.2	42.6	55.7	38.8	9.1
17	28.7	37.8	54.5	61.4	38.8	9.5
18	32.3	41.7	67.2	67.4	38.8	9.9
19	36.1	45.8	80.6	73.8	38.8	10.3
20	40.2	50.2	94.8	80.5	38.8	10.7
21	44.4	54.7	109.7	87.6	38.8	11.2
22	48.8	59.5	125.3	95.0	38.8	11.6
23	53.4	64.5	141.6	102.7	38.8	12.1
24	58.2	69.7	158.6	110.8	38.8	12.6
			TREE GRADE 2 3 LOGS			
13	22.1	28.5	5.8	46.3	48.8	11.4
14	25.7	31.1	17.6	51.8	48.8	11.6
15	29.6	34.0	30.3	57.7	48.8	11.8
16	33.7	37.0	43.8	64.1	48.8	12.0
17	38.1	40.2	58.2	70.8	48.8	12.2
18	42.8	43.6	73.5	78.0	48.8	12.4
19	47.8	47.2	89.7	85.5	48.8	12.7
20	53.0	51.0	106.7	93.5	48.8	12.9
21	58.5	55.0	124.6	101.9	48.8	13.2
22	64.2	59.2	143.4	110.7	48.8	13.5
23	70.2	63.6	163.0	119.9	48.8	13.8
24	76.5	68.2	183.5	129.5	48.8	14.1
			TREE GRADE 3 1 LOG			
10	3.7	8.8	5.1	16.4	8.8	3.6
11	3.9	9.2	10.0	18.0	9.3	3.6
12	4.2	9.7	15.2	19.7	9.8	3.6
13	4.6	10.2	21.0	21.5	10.3	3.6
14	4.9	10.7	27.2	23.5	10.9	3.6
15	5.3	11.3	33.9	25.6	11.5	3.6
16	5.7	11.9	41.0	27.9	12.2	3.6
17	6.2	12.5	48.6	30.3	12.9	3.6
18	6.6	13.2	56.6	32.9	13.6	3.6
19	7.1	14.0	65.2	35.6	14.4	3.6
20	7.6	14.7	74.1	38.5	15.3	3.6

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Table 19.—Continued: BLACK CHERRY

Dbh (inches)	FAS	Selects	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 3 1-1/2 LOGS			
10	0.0	4.4	2.7	20.8	19.2	6.7
11	1.0	5.9	8.3	23.1	19.9	6.7
12	2.1	7.7	14.5	25.6	20.7	6.7
13	3.3	9.6	21.2	28.3	21.6	6.7
14	4.6	11.6	28.5	31.2	22.5	6.7
15	6.0	13.8	36.3	34.4	23.5	6.7
16	7.5	16.1	44.6	37.7	24.6	6.7
17	9.1	18.6	53.5	41.3	25.8	6.7
18	10.7	21.3	62.9	45.1	27.0	6.7
19	12.5	24.0	72.8	49.2	28.3	6.7
20	14.4	27.0	83.3	53.4	29.7	6.7
			TREE GRADE 3 2 LOGS			
10	0.0	0.0	0.2	25.1	29.5	9.9
11	.0	2.6	6.7	28.1	30.5	9.9
12	.0	5.7	13.8	31.4	31.6	9.9
13	2.1	8.9	21.5	35.0	32.8	9.9
14	4.3	12.5	29.8	38.9	34.1	9.9
15	6.7	16.3	38.7	43.1	35.6	9.9
16	9.2	20.4	48.2	47.6	37.1	9.9
17	12.0	24.7	58.3	52.3	38.7	9.9
18	14.8	29.3	69.1	57.4	40.4	9.9
19	17.9	34.1	80.5	62.7	42.2	9.9
20	21.1	39.2	92.5	68.4	44.1	9.9
			TREE GRADE 3 2-1/2 LOGS			
10	0.0	0.0	0.0	29.4	39.8	13.0
11	.0	.0	5.1	33.2	41.1	13.0
12	.0	3.6	13.0	37.3	42.5	13.0
13	.8	8.3	21.7	41.8	44.1	13.0
14	4.0	13.4	31.0	46.6	45.8	13.0
15	7.4	18.8	41.1	51.9	47.6	13.0
16	11.0	24.6	51.8	57.4	49.5	13.0
17	14.9	30.7	63.2	63.4	51.6	13.0
18	19.0	37.3	75.3	69.6	53.7	13.0
19	23.3	44.2	88.1	76.3	56.0	13.0
20	27.8	51.5	101.6	83.3	58.4	13.0
			TREE GRADE 3 3 LOGS			
13	0.0	7.7	21.9	48.6	55.4	16.1
14	3.7	14.2	32.3	54.4	57.4	16.1
15	8.0	21.3	43.5	60.6	59.6	16.1
16	12.8	28.8	55.4	67.3	61.9	16.1
17	17.8	36.8	68.1	74.4	64.4	16.1
18	23.1	45.3	81.6	81.9	67.1	16.1
19	28.7	54.3	95.8	89.9	69.9	16.1
20	34.6	63.8	110.8	98.2	72.8	16.1

Table 20.—Lumber grade volume for PAPER BIRCH

[In board feet]

Dbh (inches)	FAS	Selects	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 1 1-1/2 LOGS			
16	22.5	27.9	31.8	34.3	18.9	8.8
17	25.2	30.5	35.4	37.4	19.8	11.3
18	28.0	33.3	39.3	40.7	20.7	13.9
19	30.9	36.3	43.4	44.2	21.7	16.8
20	34.0	39.5	47.7	47.8	22.7	19.7
21	37.3	42.8	52.2	51.7	23.8	22.9
22	40.7	46.2	57.0	55.7	24.9	26.1
23	44.3	49.8	62.0	59.9	26.1	29.6
			TREE GRADE 1 2 LOGS			
16	22.5	29.2	29.4	36.8	27.3	14.9
17	25.2	32.7	35.3	40.6	29.2	17.8
18	28.0	36.4	41.7	44.6	31.2	20.8
19	30.9	40.3	48.3	48.8	33.4	24.0
20	34.0	44.4	55.3	53.3	35.6	27.3
21	37.3	48.8	62.7	57.9	38.0	30.8
22	40.7	53.3	70.5	62.9	40.5	34.5
23	44.3	58.0	78.6	68.0	43.2	38.4
			TREE GRADE 1 2-1/2 LOGS			
16	22.5	30.6	27.0	39.3	35.7	21.1
17	25.2	34.9	35.3	43.8	38.6	24.2
18	28.0	39.5	44.0	48.5	41.8	27.6
19	30.9	44.3	53.3	53.4	45.1	31.1
20	34.0	49.4	63.0	58.7	48.6	34.9
21	37.3	54.7	73.2	64.2	52.3	38.8
22	40.7	60.4	84.0	70.0	56.1	42.9
23	44.3	66.2	95.2	76.1	60.2	47.2
			TREE GRADE 2 1-1/2 LOGS			
13	5.1	12.6	13.5	19.2	22.0	6.4
14	5.5	15.4	16.8	21.5	22.6	8.6
15	6.0	18.4	20.3	23.9	23.2	11.0
16	6.6	21.6	24.0	26.6	23.9	13.5
17	7.1	25.0	28.0	29.4	24.6	16.2
18	7.7	28.6	32.2	32.3	25.4	19.1
19	8.4	32.4	36.7	35.5	26.2	22.1
20	9.0	36.4	41.4	38.8	27.0	25.3
21	9.7	40.7	46.3	42.3	27.9	28.7
			TREE GRADE 2 2 LOGS			
13	4.1	12.6	14.6	26.9	28.7	14.9
14	5.4	15.4	18.5	29.1	29.8	16.2
15	6.8	18.4	22.7	31.5	31.0	17.6
16	8.4	21.6	27.3	34.0	32.3	19.1
17	10.0	25.0	32.1	36.7	33.6	20.7
18	11.7	28.6	37.1	39.6	35.0	22.4
19	13.5	32.4	42.5	42.6	36.5	24.2
20	15.5	36.4	48.2	45.8	38.1	26.1
21	17.5	40.7	54.2	49.1	39.8	28.1

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Table 20.—Continued: PAPER BIRCH

Dbh (inches)	FAS	Selects	No. 1C	No. 2C	No. 3A	No. 3B
		TREE GRADE 2 2-1/2 LOGS				
13	3.1	12.6	15.6	34.6	35.4	23.3
14	5.3	15.4	20.2	36.7	37.0	23.7
15	7.6	18.4	25.2	39.0	38.8	24.2
16	10.2	21.6	30.5	41.4	40.6	24.7
17	12.9	25.0	36.1	44.0	42.6	25.2
18	15.7	28.6	42.1	46.8	44.7	25.7
19	18.7	32.4	48.4	49.7	46.9	26.3
20	21.9	36.4	55.0	52.8	49.2	26.9
21	25.2	40.7	62.0	56.0	51.7	27.5
		TREE GRADE 3 1 LOG				
10	0.2	2.2	2.8	14.2	10.7	7.5
11	.5	2.5	5.1	15.1	12.4	8.3
12	.8	2.7	7.7	16.1	14.3	9.1
13	1.2	3.0	10.6	17.1	16.3	10.1
14	1.5	3.3	13.7	18.3	18.5	11.1
15	1.9	3.7	16.9	19.5	20.9	12.2
16	2.4	4.0	20.5	20.8	23.4	13.3
17	2.8	4.4	24.2	22.2	26.0	14.6
18	3.3	4.8	28.2	23.7	28.9	15.9
19	3.8	5.2	32.4	25.3	31.9	17.3
20	4.4	5.6	36.8	27.0	35.0	18.8
		TREE GRADE 3 1-1/2 LOGS				
10	0.0	4.3	3.4	13.1	15.1	14.0
11	.2	4.6	6.3	15.4	17.0	14.8
12	.7	5.0	9.4	18.0	19.0	15.6
13	1.3	5.5	12.8	20.8	21.3	16.5
14	1.9	5.9	16.4	23.8	23.7	17.5
15	2.6	6.4	20.3	27.0	26.2	18.5
16	3.3	7.0	24.5	30.4	29.0	19.6
17	4.1	7.5	29.0	34.1	31.9	20.8
18	4.9	8.1	33.7	38.0	35.0	22.0
19	5.8	8.8	38.7	42.1	38.3	23.3
20	6.7	9.4	44.0	46.5	41.8	24.7
		TREE GRADE 3 2 LOGS				
10	0.0	6.3	4.1	11.9	19.5	20.6
11	.0	6.8	7.4	15.7	21.6	21.3
12	.6	7.3	11.0	19.9	23.8	22.1
13	1.4	7.9	14.9	24.4	26.2	22.9
14	2.3	8.5	19.2	29.2	28.8	23.8
15	3.3	9.2	23.7	34.5	31.6	24.8
16	4.3	9.9	28.6	40.0	34.6	25.9
17	5.4	10.7	33.8	46.0	37.8	27.0
18	6.5	11.5	39.3	52.3	41.2	28.2
19	7.8	12.3	45.1	59.0	44.7	29.4
20	9.1	13.2	51.2	66.0	48.5	30.7
		TREE GRADE 3 2-1/2 LOGS				
10	0.0	8.4	4.8	10.8	23.9	27.2
11	.0	9.0	8.5	16.0	26.1	27.8
12	.5	9.6	12.6	21.7	28.5	28.6
13	1.6	10.4	17.1	28.0	31.1	29.4
14	2.7	11.1	21.9	34.7	33.9	30.2
15	3.9	12.0	27.1	41.9	37.0	31.1
16	5.3	12.9	32.7	49.6	40.2	32.1
17	6.7	13.8	38.6	57.9	43.7	33.2
18	8.2	14.8	44.8	66.6	47.3	34.3
19	9.7	15.9	51.4	75.8	51.2	35.5
20	11.4	17.0	58.4	85.5	55.3	36.7

Table 21.—Lumber grade volume for WHITE OAK

[In board feet]

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
			TREE GRADE 1 1-1/2 LOGS					
16	9.1	9.9	0.0	35.3	18.0	5.3	19.5	22.6
17	13.9	13.6	.0	39.6	23.5	4.9	22.3	23.1
18	18.9	17.5	1.2	44.1	29.4	4.5	25.2	23.6
19	24.3	21.7	2.6	49.0	35.6	4.0	28.2	24.2
20	30.0	26.0	4.1	54.0	42.1	3.5	31.5	24.8
21	35.9	30.6	5.6	59.4	49.0	3.0	34.9	25.4
22	42.2	35.4	7.3	65.0	56.2	2.5	38.4	26.1
23	48.7	40.4	9.0	70.8	63.7	1.9	42.1	26.8
24	55.6	45.7	10.8	77.0	71.6	1.3	46.0	27.5
25	62.7	51.2	12.6	83.3	79.8	.7	50.1	28.3
26	70.1	56.9	14.6	90.0	88.3	.0	54.3	29.1
			TREE GRADE 1 2 LOGS					
16	9.1	9.9	1.2	28.0	34.2	7.4	31.6	26.2
17	13.9	13.6	2.4	35.9	40.4	8.1	34.0	26.9
18	18.9	17.5	3.6	44.3	47.1	8.9	36.5	27.7
19	24.3	21.7	4.8	53.2	54.1	9.7	39.2	28.5
20	30.0	26.0	6.2	62.6	61.5	10.5	42.1	29.3
21	35.9	30.6	7.6	72.4	69.3	11.4	45.1	30.2
22	42.2	35.4	9.1	82.7	77.5	12.4	48.2	31.1
23	48.7	40.4	10.6	93.6	86.0	13.4	51.5	32.1
24	55.6	45.7	12.2	104.8	95.0	14.4	54.9	33.1
25	62.7	51.2	13.9	116.6	104.3	15.4	58.5	34.1
26	70.1	56.9	15.7	128.9	114.0	16.5	62.2	35.2
			TREE GRADE 1 2-1/2 LOGS					
16	9.1	9.9	3.9	20.6	50.3	9.5	43.7	29.9
17	13.9	13.6	4.9	32.2	57.3	11.3	45.7	30.8
18	18.9	17.5	6.0	44.5	64.8	13.3	47.9	31.7
19	24.3	21.7	7.1	57.4	72.7	15.4	50.3	32.7
20	30.0	26.0	8.3	71.1	81.0	17.6	52.7	33.8
21	35.9	30.6	9.6	85.4	89.7	19.9	55.3	34.9
22	42.2	35.4	10.9	100.5	98.8	22.3	58.0	36.1
23	48.7	40.4	12.2	116.3	108.4	24.8	60.8	37.3
24	55.6	45.7	13.7	132.7	118.4	27.4	63.7	38.6
25	62.7	51.2	15.2	149.9	128.8	30.2	66.8	39.9
26	70.1	56.9	16.7	167.8	139.6	33.0	70.0	41.3
			TREE GRADE 1 3 LOGS					
16	9.1	9.9	6.6	13.3	66.5	11.6	55.8	33.5
17	13.9	13.6	7.5	28.5	74.3	14.6	57.5	34.6
18	18.9	17.5	8.4	44.6	82.5	17.7	59.3	35.7
19	24.3	21.7	9.4	61.7	91.2	21.1	61.3	37.0
20	30.0	26.0	10.4	79.6	100.4	24.6	63.3	38.3
21	35.9	30.6	11.5	98.5	110.0	28.3	65.5	39.6
22	42.2	35.4	12.7	118.3	120.1	32.2	67.7	41.0
23	48.7	40.4	13.9	139.0	130.7	36.3	70.1	42.5
24	55.6	45.7	15.1	160.6	141.8	40.5	72.6	44.1
25	62.7	51.2	16.4	183.2	153.3	44.9	75.2	45.7
26	70.1	56.9	17.8	206.6	165.3	49.5	77.8	47.4
27	77.8	62.8	19.2	231.0	177.8	54.3	80.6	49.2
28	85.8	69.0	20.7	256.4	190.7	59.3	83.5	51.0

CONTINUED

Table 21.—Continued: WHITE OAK

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
				TREE GRADE 1 3-1/2 LOGS				
16	9.1	9.9	9.3	6.0	82.7	13.7	67.8	37.1
17	13.9	13.6	10.0	24.8	91.2	17.8	69.2	38.4
18	18.9	17.5	10.8	44.8	100.2	22.1	70.7	39.8
19	24.3	21.7	11.7	65.9	109.7	26.8	72.3	41.2
20	30.0	26.0	12.6	88.1	119.8	31.6	74.0	42.8
21	35.9	30.6	13.5	111.5	130.4	36.7	75.7	44.3
22	42.2	35.4	14.5	136.0	141.5	42.1	77.5	46.0
23	48.7	40.4	15.5	161.7	153.1	47.7	79.4	47.8
24	55.6	45.7	16.6	188.5	165.2	53.6	81.4	49.6
25	62.7	51.2	17.7	216.5	177.8	59.7	83.5	51.5
26	70.1	56.9	18.9	245.5	191.0	66.0	85.7	53.5
27	77.8	62.8	20.1	275.8	204.6	72.7	87.9	55.6
28	85.8	69.0	21.3	307.1	218.8	79.5	90.3	57.7
29	94.1	75.3	22.6	339.6	233.5	86.6	92.7	59.9
30	102.6	81.9	24.0	373.3	248.7	94.0	95.2	62.2
				TREE GRADE 1 4 LOGS				
16	9.1	9.9	12.0	0.0	98.8	15.7	79.9	40.8
17	13.9	13.6	12.6	21.1	108.1	21.0	81.0	42.3
18	18.9	17.5	13.3	44.9	117.9	26.6	82.1	43.8
19	24.3	21.7	14.0	70.1	128.3	32.4	83.3	45.5
20	30.0	26.0	14.7	96.6	139.2	38.6	84.6	47.2
21	35.9	30.6	15.5	124.5	150.7	45.2	85.9	49.1
22	42.2	35.4	16.3	153.8	162.8	52.0	87.3	51.0
23	48.7	40.4	17.1	184.4	175.4	59.2	88.8	53.0
24	55.6	45.7	18.0	216.4	188.6	66.6	90.3	55.1
25	62.7	51.2	19.0	249.7	202.3	74.4	91.9	57.3
26	70.1	56.9	19.9	284.4	216.6	82.5	93.5	59.6
27	77.8	62.8	20.9	320.5	231.5	91.0	95.2	62.0
28	85.8	69.0	22.0	357.9	246.9	99.7	97.0	64.4
29	94.1	75.3	23.1	396.7	262.9	108.8	98.9	67.0
30	102.6	81.9	24.2	436.8	279.5	118.2	100.8	69.6
				TREE GRADE 2 1 LOG				
13	1.6	3.8	3.9	0.0	3.8	0.0	16.6	18.4
14	2.7	5.2	3.9	.0	7.9	.0	17.4	18.4
15	4.0	6.8	3.9	4.5	12.2	.0	18.3	18.4
16	5.4	8.5	3.9	14.9	16.9	.0	19.2	18.4
17	6.8	10.3	3.9	25.9	21.9	.0	20.2	18.4
18	8.4	12.2	3.9	37.6	27.1	.0	21.3	18.4
19	10.0	14.2	3.9	50.0	32.7	2.2	22.4	18.4
20	11.7	16.3	3.9	63.0	38.5	4.7	23.6	18.4
				TREE GRADE 2 1-1/2 LOGS				
13	1.6	3.8	3.9	0.0	10.0	0.0	21.1	24.8
14	2.7	5.2	3.9	.0	15.4	1.7	22.6	24.8
15	4.0	6.8	3.9	9.8	21.3	3.5	24.2	24.8
16	5.4	8.5	3.9	20.5	27.5	5.5	25.9	24.8
17	6.8	10.3	3.9	31.8	34.2	7.6	27.8	24.8
18	8.4	12.2	3.9	43.9	41.2	9.8	29.7	24.8
19	10.0	14.2	3.9	56.6	48.7	12.1	31.8	24.8
20	11.7	16.3	3.9	70.0	56.6	14.6	33.9	24.8
21	13.6	18.5	3.9	84.2	64.8	17.2	36.2	24.8
22	15.4	20.9	3.9	99.0	73.5	19.9	38.6	24.8
23	17.4	23.3	3.9	114.5	82.6	22.8	41.1	24.8

CONTINUED

Table 21.—Continued: WHITE OAK

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
			TREE GRADE 2 2 LOGS					
13	1.6	3.8	3.9	0.0	16.1	9.8	25.6	31.3
14	2.7	5.2	3.9	4.8	23.0	11.5	27.8	31.3
15	4.0	6.8	3.9	15.0	30.3	13.3	30.1	31.3
16	5.4	8.5	3.9	26.0	38.1	15.3	32.6	31.3
17	6.8	10.3	3.9	37.7	46.5	17.4	35.3	31.3
18	8.4	12.2	3.9	50.1	55.4	19.7	38.1	31.3
19	10.0	14.2	3.9	63.3	64.7	22.0	41.1	31.3
20	11.7	16.3	3.9	77.1	74.6	24.5	44.3	31.3
21	13.6	18.5	3.9	91.6	85.0	27.1	47.6	31.3
22	15.4	20.9	3.9	106.9	95.9	29.8	51.0	31.3
23	17.4	23.3	3.9	122.8	107.3	32.7	54.7	31.3
24	19.5	25.9	3.9	139.5	119.2	35.7	58.5	31.3
25	21.7	28.5	3.9	156.8	131.6	38.8	62.4	31.3
			TREE GRADE 2 2-1/2 LOGS					
13	1.6	3.8	3.9	0.0	22.3	19.6	30.1	37.7
14	2.7	5.2	3.9	9.7	30.5	21.3	33.0	37.7
15	4.0	6.8	3.9	20.3	39.3	23.2	36.0	37.7
16	5.4	8.5	3.9	31.6	48.8	25.2	39.3	37.7
17	6.8	10.3	3.9	43.6	58.8	27.3	42.8	37.7
18	8.4	12.2	3.9	56.4	69.5	29.5	46.5	37.7
19	10.0	14.2	3.9	69.9	80.8	31.9	50.5	37.7
20	11.7	16.3	3.9	84.1	92.6	34.4	54.6	37.7
21	13.6	18.5	3.9	99.1	105.1	37.0	58.9	37.7
22	15.4	20.9	3.9	114.8	118.2	39.8	63.5	37.7
23	17.4	23.3	3.9	131.2	131.9	42.7	68.3	37.7
24	19.5	25.9	3.9	148.3	146.2	45.7	73.2	37.7
25	21.7	28.5	3.9	166.2	161.2	48.8	78.4	37.7
			TREE GRADE 2 3 LOGS					
13	1.6	3.8	3.9	4.6	28.4	29.5	34.6	44.1
14	2.7	5.2	3.9	14.7	38.0	31.2	38.2	44.1
15	4.0	6.8	3.9	25.6	48.4	33.1	42.0	44.1
16	5.4	8.5	3.9	37.2	59.4	35.1	46.0	44.1
17	6.8	10.3	3.9	49.6	71.1	37.2	50.4	44.1
18	8.4	12.2	3.9	62.7	83.6	39.4	55.0	44.1
19	10.0	14.2	3.9	76.6	96.8	41.8	59.8	44.1
20	11.7	16.3	3.9	91.2	110.7	44.3	64.9	44.1
21	13.6	18.5	3.9	106.5	125.3	47.0	70.3	44.1
22	15.4	20.9	3.9	122.7	140.6	49.7	75.9	44.1
23	17.4	23.3	3.9	139.5	156.6	52.6	81.9	44.1
24	19.5	25.9	3.9	157.1	173.3	55.6	88.0	44.1
25	21.7	28.5	3.9	175.5	190.8	58.8	94.4	44.1
26	23.9	31.3	3.9	194.6	208.9	62.1	101.1	44.1
			TREE GRADE 2 3-1/2 LOGS					
13	1.6	3.8	3.9	9.3	34.6	39.3	39.1	50.6
14	2.7	5.2	3.9	19.7	45.6	41.0	43.4	50.6
15	4.0	6.8	3.9	30.8	57.4	42.9	47.9	50.6
16	5.4	8.5	3.9	42.8	70.0	44.9	52.8	50.6
17	6.8	10.3	3.9	55.5	83.5	47.0	57.9	50.6
18	8.4	12.2	3.9	68.9	97.7	49.3	63.4	50.6
19	10.0	14.2	3.9	83.2	112.8	51.7	69.2	50.6
20	11.7	16.3	3.9	98.2	128.7	54.2	75.3	50.6
21	13.6	18.5	3.9	114.0	145.4	56.9	81.7	50.6
22	15.4	20.9	3.9	130.6	162.9	59.7	88.4	50.6
23	17.4	23.3	3.9	147.9	181.2	62.6	95.4	50.6
24	19.5	25.9	3.9	166.0	200.4	65.6	102.8	50.6

CONTINUED

Table 21.—Continued: WHITE OAK

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
25	21.7	28.5	3.9	184.8	220.4	68.8	110.4	50.6
26	23.9	31.3	3.9	204.5	241.1	72.1	118.4	50.6
27	26.3	34.2	3.9	224.9	262.7	75.5	126.7	50.6
28	28.7	37.2	3.9	246.1	285.1	79.1	135.3	50.6
29	31.2	40.3	3.9	268.0	308.4	82.8	144.2	50.6
				TREE GRADE 3 1 LOG				
10	0.0	0.0	0.3	12.9	5.9	0.0	3.4	12.4
11	.0	.0	.3	15.4	8.9	.0	5.4	13.0
12	.0	.6	.3	18.0	12.3	.0	7.6	13.7
13	.6	1.2	.3	20.9	15.9	1.0	9.9	14.4
14	1.2	1.9	.3	24.0	19.8	2.4	12.4	15.2
15	1.9	2.6	.3	27.4	24.0	3.9	15.2	16.0
16	2.5	3.3	.3	31.0	28.5	5.6	18.1	17.0
17	3.3	4.1	.3	34.8	33.3	7.4	21.1	17.9
18	4.1	5.0	.3	38.8	38.4	9.2	24.4	18.9
19	4.9	5.9	.3	43.1	43.7	11.2	27.9	20.0
20	5.8	6.8	.3	47.6	49.4	13.3	31.5	21.1
21	6.7	7.8	.3	52.4	55.3	15.5	35.4	22.3
22	7.7	8.8	.3	57.4	61.6	17.8	39.4	23.6
				TREE GRADE 3 1-1/2 LOGS				
10	0.0	0.0	0.8	0.0	5.4	0.2	10.9	25.7
11	.0	.0	.8	3.0	9.6	1.7	13.0	26.2
12	.0	.6	.8	7.0	14.2	3.4	15.2	26.8
13	.6	1.2	.8	11.3	19.3	5.3	17.6	27.4
14	1.2	1.9	.8	16.0	24.7	7.2	20.2	28.1
15	1.9	2.6	.8	21.1	30.6	9.4	23.1	28.8
16	2.5	3.3	.8	26.5	36.8	11.6	26.1	29.5
17	3.3	4.1	.8	32.2	43.5	14.0	29.3	30.4
18	4.1	5.0	.8	38.3	50.6	16.6	32.7	31.2
19	4.9	5.9	.8	44.8	58.0	19.3	36.3	32.1
20	5.8	6.8	.8	51.6	65.9	22.2	40.0	33.1
21	6.7	7.8	.8	58.7	74.2	25.1	44.0	34.1
22	7.7	8.8	.8	66.2	82.8	28.3	48.2	35.2
23	8.7	9.9	.8	74.1	91.9	31.6	52.6	36.3
24	9.7	11.1	.8	82.3	101.4	35.0	57.1	37.5
				TREE GRADE 3 2 LOGS				
10	0.0	0.0	1.3	0.0	4.8	3.1	18.4	38.9
11	.0	.0	1.3	.0	10.3	5.1	20.5	39.4
12	.0	.6	1.3	.0	16.2	7.2	22.8	39.8
13	.6	1.2	1.3	1.8	22.7	9.6	25.3	40.3
14	1.2	1.9	1.3	8.0	29.7	12.1	28.0	40.9
15	1.9	2.6	1.3	14.8	37.2	14.8	31.0	41.5
16	2.5	3.3	1.3	22.0	45.2	17.6	34.1	42.1
17	3.3	4.1	1.3	29.7	53.7	20.7	37.4	42.8
18	4.1	5.0	1.3	37.9	62.8	24.0	40.9	43.5
19	4.9	5.9	1.3	46.5	72.3	27.4	44.6	44.3
20	5.8	6.8	1.3	55.6	82.4	31.0	48.5	45.1
21	6.7	7.8	1.3	65.1	93.0	34.8	52.7	45.9
22	7.7	8.8	1.3	75.1	104.1	38.8	57.0	46.8
23	8.7	9.9	1.3	85.6	115.8	43.0	61.5	47.7
24	9.7	11.1	1.3	96.5	127.9	47.4	66.2	48.6
25	10.8	12.3	1.3	108.0	140.6	51.9	71.1	49.6
26	12.0	13.5	1.3	119.8	153.8	56.7	76.3	50.7

CONTINUED

Table 21.—Continued: WHITE OAK

Dbh (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
				TREE GRADE 3 2-1/2 LOGS				
13	0.6	1.2	1.8	0.0	26.1	13.9	33.0	53.3
14	1.2	1.9	1.8	.0	34.6	16.9	35.8	53.7
15	1.9	2.6	1.8	8.5	43.7	20.2	38.9	54.2
16	2.5	3.3	1.8	17.5	53.5	23.7	42.1	54.7
17	3.3	4.1	1.8	27.1	63.9	27.4	45.5	55.2
18	4.1	5.0	1.8	37.4	74.9	31.3	49.1	55.8
19	4.9	5.9	1.8	48.1	86.6	35.5	53.0	56.4
20	5.8	6.8	1.8	59.5	98.9	39.9	57.0	57.0
21	6.7	7.8	1.8	71.5	111.8	44.5	61.3	57.7
22	7.7	8.8	1.8	84.0	125.4	49.4	65.8	58.4
23	8.7	9.9	1.8	97.1	139.6	54.4	70.4	59.1
24	9.7	11.1	1.8	110.8	154.4	59.7	75.3	59.8
25	10.8	12.3	1.8	125.1	169.8	65.2	80.4	60.6
26	12.0	13.5	1.8	140.0	185.9	71.0	85.7	61.4
				TREE GRADE 3 3 LOGS				
14	1.2	1.9	2.3	0.0	39.5	21.7	43.6	66.6
15	1.9	2.6	2.3	2.2	50.3	25.6	46.8	66.9
16	2.5	3.3	2.3	13.0	61.8	29.7	50.1	67.3
17	3.3	4.1	2.3	24.6	74.1	34.1	53.6	67.7
18	4.1	5.0	2.3	36.9	87.1	38.7	57.4	68.1
19	4.9	5.9	2.3	49.8	100.9	43.6	61.3	68.5
20	5.8	6.8	2.3	63.5	115.4	48.8	65.5	69.0
21	6.7	7.8	2.3	77.8	130.7	54.2	69.9	69.4
22	7.7	8.8	2.3	92.9	146.7	59.9	74.5	69.9
23	8.7	9.9	2.3	108.6	163.4	65.8	79.4	70.5
24	9.7	11.1	2.3	125.1	180.9	72.1	84.4	71.0
25	10.8	12.3	2.3	142.2	199.1	78.6	89.7	71.6
26	12.0	13.5	2.3	160.1	218.1	85.3	95.1	72.2
				TREE GRADE 3 3-1/2 LOGS				
16	2.5	3.3	2.8	8.6	70.1	35.7	58.1	79.9
17	3.3	4.1	2.8	22.1	84.3	40.7	61.7	80.1
18	4.1	5.0	2.8	36.4	99.3	46.1	65.6	80.4
19	4.9	5.9	2.8	51.5	115.2	51.7	69.7	80.6
20	5.8	6.8	2.8	67.4	131.9	57.6	74.0	80.9
21	6.7	7.8	2.8	84.2	149.5	63.9	78.6	81.2
22	7.7	8.8	2.8	101.7	167.9	70.4	83.3	81.5
23	8.7	9.9	2.8	120.1	187.2	77.3	88.3	81.9
24	9.7	11.1	2.8	139.3	207.4	84.4	93.5	82.2
25	10.8	12.3	2.8	159.4	228.4	91.9	98.9	82.6
26	12.0	13.5	2.8	180.2	250.3	99.6	104.6	82.9

Table 22.—Lumber grade volume for YELLOW-POPLAR

[In board feet]

Dbh (inches)	FAS	Selects	SAPS	No. 1C	No. 2A	No. 2B	No. 3C
			TREE GRADE 1 2 LOGS				
16	0.0	0.0	8.5	53.3	92.8	26.0	0.9
17	.0	1.6	10.3	74.0	102.6	23.3	1.6
18	.6	3.3	12.2	96.1	113.0	20.4	2.2
19	1.7	5.2	14.2	119.4	124.0	17.3	3.0
20	2.8	7.1	16.4	143.9	135.5	14.1	3.7
21	4.0	9.2	18.6	169.7	147.7	10.7	4.5
22	5.2	11.3	20.9	196.8	160.4	7.2	5.4
23	6.5	13.6	23.4	225.1	173.7	3.5	6.3
24	7.8	16.0	26.0	254.7	187.7	.0	7.2
25	9.2	18.4	28.6	285.5	202.2	.0	8.2
26	10.7	21.0	31.4	317.6	217.3	.0	9.2
			TREE GRADE 1 2-1/2 LOGS				
16	0.0	1.6	8.5	55.5	105.0	40.7	2.1
17	.0	3.4	10.3	76.2	114.6	40.6	2.6
18	1.1	5.2	12.2	98.0	124.7	40.6	3.0
19	2.2	7.2	14.2	121.2	135.5	40.5	3.5
20	3.4	9.3	16.4	145.6	146.8	40.4	4.0
21	4.6	11.5	18.6	171.2	158.8	40.3	4.6
22	5.9	13.7	20.9	198.1	171.3	40.3	5.1
23	7.3	16.1	23.4	226.2	184.4	40.2	5.7
24	8.7	18.6	26.0	255.6	198.0	40.1	6.4
25	10.2	21.2	28.6	286.3	212.3	40.0	7.0
26	11.7	23.9	31.4	318.2	227.1	39.9	7.7
			TREE GRADE 1 3 LOGS				
16	0.0	3.4	8.5	57.8	117.1	55.3	3.3
17	.4	5.2	10.3	78.3	126.5	57.9	3.6
18	1.5	7.2	12.2	100.0	136.5	60.7	3.8
19	2.7	9.2	14.2	123.0	147.1	63.6	4.1
20	4.0	11.4	16.4	147.2	158.2	66.7	4.3
21	5.3	13.7	18.6	172.7	169.9	69.9	4.6
22	6.6	16.1	20.9	199.4	182.2	73.3	4.9
23	8.1	18.6	23.4	227.4	195.0	76.9	5.2
24	9.6	21.3	26.0	256.6	208.4	80.6	5.5
25	11.1	24.0	28.6	287.0	222.4	84.4	5.9
26	12.8	26.9	31.4	318.7	237.0	88.5	6.2
27	14.5	29.8	34.3	351.7	252.1	92.6	6.6
28	16.2	32.9	37.3	385.8	267.8	97.0	7.0
29	18.0	36.1	40.4	421.2	284.0	101.5	7.3
			TREE GRADE 1 3-1/2 LOGS				
16	0.0	5.1	8.5	60.0	129.2	70.0	4.6
17	.8	7.0	10.3	80.4	138.4	75.3	4.6
18	2.0	9.1	12.2	102.0	148.2	80.9	4.6
19	3.2	11.3	14.2	124.8	158.6	86.8	4.6
20	4.5	13.6	16.4	148.9	169.5	93.0	4.6
21	5.9	16.0	18.6	174.2	181.0	99.5	4.6
22	7.4	18.5	20.9	200.7	193.0	106.4	4.6
23	8.9	21.2	23.4	228.5	205.6	113.6	4.7
24	10.5	23.9	26.0	257.5	218.8	121.1	4.7
25	12.1	26.8	28.6	287.8	232.5	128.9	4.7
26	13.8	29.8	31.4	319.3	246.8	137.0	4.7

CONTINUED

Table 22.—Continued: YELLOW-POPLAR

Dbh (inches)	FAS	Selects	SAPS	No. 1C	No. 2A	No. 2B	No. 3C
			TREE GRADE 1 4 LOGS				
16	0.0	6.8	8.5	62.2	141.3	84.7	5.8
17	1.2	8.8	10.3	82.5	150.4	92.6	5.6
18	2.4	11.0	12.2	103.9	160.0	101.0	5.4
19	3.7	13.3	14.2	126.6	170.1	109.9	5.1
20	5.1	15.7	16.4	150.6	180.9	119.3	4.9
21	6.6	18.2	18.6	175.7	192.1	129.1	4.7
22	8.1	20.9	20.9	202.1	203.9	139.5	4.4
23	9.7	23.7	23.4	229.7	216.3	150.3	4.1
24	11.4	26.6	26.0	258.5	229.2	161.6	3.8
25	13.1	29.6	28.6	288.6	242.6	173.3	3.6
26	14.9	32.8	31.4	319.8	256.6	185.6	3.2
			TREE GRADE 2 2 LOGS				
13	0.0	0.0	4.0	4.4	68.5	21.5	0.2
14	.0	.5	4.8	18.8	73.5	23.2	.9
15	.2	1.1	5.7	34.1	78.9	25.0	1.7
16	.4	1.7	6.7	50.6	84.6	26.9	2.5
17	.6	2.4	7.8	68.1	90.8	28.9	3.4
18	.8	3.1	8.9	86.6	97.2	31.1	4.4
19	1.0	3.8	10.0	106.3	104.1	33.4	5.3
20	1.2	4.6	11.3	126.9	111.3	35.8	6.4
21	1.5	5.4	12.6	148.7	118.9	38.4	7.5
22	1.8	6.3	13.9	171.5	126.9	41.1	8.6
23	2.0	7.2	15.4	195.3	135.3	43.9	9.8
24	2.3	8.1	16.9	220.3	144.0	46.8	11.1
25	2.6	9.1	18.4	246.2	153.1	49.8	12.4
26	2.9	10.1	20.0	273.3	162.5	53.0	13.8
			TREE GRADE 2 2-1/2 LOGS				
13	0.0	0.0	5.0	9.7	66.0	36.7	0.2
14	.0	.1	5.7	24.1	73.9	39.0	.9
15	.2	.9	6.5	39.5	82.5	41.4	1.7
16	.4	1.7	7.4	56.0	91.6	44.1	2.5
17	.6	2.5	8.4	73.6	101.4	46.9	3.4
18	.8	3.4	9.4	92.2	111.7	49.8	4.4
19	1.0	4.3	10.4	111.9	122.7	53.0	5.3
20	1.2	5.3	11.5	132.6	134.2	56.3	6.4
21	1.5	6.4	12.7	154.5	146.3	59.7	7.5
22	1.8	7.5	13.9	177.3	159.0	63.4	8.6
23	2.0	8.6	15.2	201.3	172.3	67.2	9.8
24	2.3	9.8	16.5	226.3	186.1	71.2	11.1
25	2.6	11.0	17.9	252.4	200.6	75.3	12.4
26	2.9	12.3	19.3	279.5	215.7	79.7	13.8
			TREE GRADE 2 3 LOGS				
13	0.0	0.0	6.0	15.0	63.4	51.9	0.2
14	.0	.0	6.6	29.4	74.3	54.8	.9
15	.2	.6	7.4	44.9	86.1	57.9	1.7
16	.4	1.6	8.1	61.5	98.7	61.2	2.5
17	.6	2.6	9.0	79.1	112.0	64.8	3.4
18	.8	3.7	9.8	97.8	126.2	68.5	4.4
19	1.0	4.8	10.8	117.5	141.2	72.5	5.3
20	1.2	6.0	11.7	138.3	157.0	76.7	6.4
21	1.5	7.3	12.8	160.2	173.6	81.1	7.5
22	1.8	8.6	13.8	183.2	191.0	85.7	8.6
23	2.0	10.0	14.9	207.2	209.3	90.6	9.8
24	2.3	11.5	16.1	232.3	228.3	95.6	11.1
25	2.6	13.0	17.3	258.5	248.2	100.9	12.4
26	2.9	14.5	18.6	285.7	268.8	106.3	13.8

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Table 22.—Continued: YELLOW-POPLAR

Dbh (inches)	FAS	Selects	SAPS	No. 1C	No. 2A	No. 2B	No. 3C
			TREE GRADE 2 3-1/2 LOGS				
15	0.2	0.4	8.2	50.3	89.7	74.4	1.7
16	.4	1.5	8.9	66.9	105.7	78.4	2.5
17	.6	2.7	9.6	84.6	122.7	82.7	3.4
18	.8	4.0	10.3	103.3	140.7	87.3	4.4
19	1.0	5.3	11.1	123.2	159.7	92.1	5.3
20	1.2	6.8	12.0	144.0	179.8	97.1	6.4
21	1.5	8.2	12.8	166.0	200.9	102.5	7.5
22	1.8	9.8	13.8	189.1	223.1	108.0	8.6
23	2.0	11.4	14.7	213.2	246.3	113.9	9.8
24	2.3	13.1	15.7	238.4	270.5	120.0	11.1
25	2.6	14.9	16.8	264.6	295.7	126.4	12.4
26	2.9	16.8	17.9	291.9	322.0	133.0	13.8
			TREE GRADE 2 4 LOGS				
16	0.4	1.5	9.6	72.3	112.7	95.6	2.5
17	.6	2.9	10.2	90.1	133.3	100.6	3.4
18	.8	4.3	10.8	108.9	155.2	106.0	4.4
19	1.0	5.9	11.5	128.8	178.3	111.6	5.3
20	1.2	7.5	12.2	149.8	202.7	117.6	6.4
21	1.5	9.2	12.9	171.8	228.3	123.8	7.5
22	1.8	11.0	13.7	194.9	255.2	130.4	8.6
23	2.0	12.8	14.5	219.1	283.3	137.2	9.8
24	2.3	14.8	15.4	244.4	312.6	144.4	11.1
25	2.6	16.8	16.3	270.7	343.3	151.9	12.4
26	2.9	19.0	17.2	298.2	375.1	159.7	13.8
			TREE GRADE 3 1-1/2 LOGS				
10	0.0	1.3	0.4	0.0	28.6	0.0	6.2
11	.0	1.1	.6	.0	32.2	.0	6.4
12	.0	.8	.8	1.9	36.1	4.8	6.6
13	.0	.6	1.1	11.5	40.4	13.1	6.8
14	.0	.3	1.3	21.9	45.0	22.1	7.1
15	.0	.0	1.6	33.1	49.9	31.7	7.4
			TREE GRADE 3 2 LOGS				
10	0.0	1.0	0.4	0.0	21.2	12.0	6.2
11	.0	.9	.6	.0	26.7	18.6	6.4
12	.0	.8	.8	1.9	32.8	25.9	6.6
13	.0	.7	1.1	11.5	39.4	33.7	6.8
14	.0	.6	1.3	21.9	46.5	42.2	7.1
15	.0	.4	1.6	33.1	54.1	51.4	7.4
16	.0	.3	1.9	45.0	62.3	61.1	7.6
17	.0	.1	2.2	57.7	70.9	71.5	7.9
18	.0	.0	2.5	71.2	80.1	82.5	8.3
			TREE GRADE 3 2-1/2 LOGS				
12	0.0	0.8	0.8	1.9	29.4	46.9	6.6
13	.0	.8	1.1	11.5	38.3	54.4	6.8
14	.0	.9	1.3	21.9	47.9	62.4	7.1
15	.0	.9	1.6	33.1	58.3	71.0	7.4
16	.0	.9	1.9	45.0	69.3	80.3	7.6
17	.0	1.0	2.2	57.7	81.0	90.1	7.9
18	.0	1.0	2.5	71.2	93.5	100.5	8.3
19	.0	1.1	2.9	85.4	106.7	111.5	8.6
20	.0	1.1	3.2	100.4	120.5	123.1	9.0
21	.0	1.2	3.6	116.2	135.1	135.3	9.3

CONTINUED

Table 22.—Continued: YELLOW-POPLAR

Dbh (inches)	FAS	Selects	SAPS	No. 1C	No. 2A	No. 2B	No. 3C
			TREE GRADE 3 3 LOGS				
13	0.0	1.0	1.1	11.5	37.3	75.0	6.8
14	.0	1.2	1.3	21.9	49.4	82.6	7.1
15	.0	1.4	1.6	33.1	62.4	90.7	7.4
16	.0	1.6	1.9	45.0	76.3	99.4	7.6
17	.0	1.9	2.2	57.7	91.1	108.6	7.9
18	.0	2.2	2.5	71.2	106.8	118.4	8.3
19	.0	2.4	2.9	85.4	123.4	128.8	8.6
20	.0	2.7	3.2	100.4	140.9	139.7	9.0
21	.0	3.0	3.6	116.2	159.3	151.2	9.3
22	.0	3.4	4.0	132.8	178.6	163.2	9.7
23	.0	3.7	4.4	150.1	198.8	175.8	10.1
24	.0	4.1	4.9	168.2	219.9	189.0	10.6
			TREE GRADE 3 3-1/2 LOGS				
15	0.0	1.9	1.6	33.1	66.6	110.4	7.4
16	.0	2.3	1.9	45.0	83.4	118.5	7.6
17	.0	2.8	2.2	57.7	101.2	127.2	7.9
18	.0	3.3	2.5	71.2	120.2	136.4	8.3
19	.0	3.8	2.9	85.4	140.2	146.1	8.6
20	.0	4.3	3.2	100.4	161.3	156.3	9.0
21	.0	4.9	3.6	116.2	183.6	167.1	9.3
22	.0	5.5	4.0	132.8	206.8	178.4	9.7
23	.0	6.1	4.4	150.1	231.2	190.2	10.1
24	.0	6.8	4.9	168.2	256.7	202.6	10.6
			TREE GRADE 3 4 LOGS				
15	0.0	2.4	1.6	33.1	70.7	130.1	7.4
16	.0	3.0	1.9	45.0	90.4	137.7	7.6
17	.0	3.7	2.2	57.7	111.3	145.8	7.9
18	.0	4.4	2.5	71.2	133.5	154.3	8.3
19	.0	5.1	2.9	85.4	157.0	163.4	8.6
20	.0	5.9	3.2	100.4	181.7	173.0	9.0
21	.0	6.8	3.6	116.2	207.8	183.0	9.3
22	.0	7.6	4.0	132.8	235.0	193.6	9.7
23	.0	8.6	4.4	150.1	263.6	204.6	10.1
24	.0	9.5	4.9	168.2	293.4	216.1	10.6

Table 23.—Lumber grade volume for NORTHERN RED OAK

[In board feet]

Dbh (inches)	FAS	FAS1F	Select	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 1 1-1/2 LOGS				
16	17.6	3.7	7.5	48.5	32.3	37.4	2.1
17	26.1	6.8	7.7	55.8	35.1	37.3	3.2
18	35.1	10.1	8.0	63.5	37.9	37.2	4.4
19	44.6	13.6	8.2	71.6	41.0	37.1	5.6
20	54.6	17.3	8.5	80.1	44.2	37.0	6.9
21	65.2	21.2	8.8	89.1	47.6	36.8	8.2
22	76.3	25.3	9.1	98.6	51.1	36.7	9.6
23	87.8	29.5	9.5	108.4	54.8	36.6	11.1
24	99.9	34.0	9.8	118.7	58.7	36.4	12.7
25	112.6	38.6	10.2	129.5	62.7	36.3	14.3
26	125.7	43.5	10.5	140.7	66.9	36.2	16.0
27	139.3	48.5	10.9	152.3	71.3	36.0	17.7
28	153.5	53.7	11.3	164.4	75.8	35.9	19.5
29	168.1	59.1	11.7	176.9	80.5	35.7	21.4
30	183.3	64.7	12.2	189.8	85.4	35.5	23.3
			TREE GRADE 1 2 LOGS				
16	15.6	10.1	6.9	46.1	60.4	37.0	3.8
17	25.5	14.0	7.4	55.8	62.9	37.4	5.0
18	35.9	18.1	7.9	66.1	65.5	37.8	6.2
19	47.0	22.4	8.5	77.0	68.3	38.2	7.6
20	58.6	27.0	9.1	88.5	71.3	38.6	9.0
21	70.9	31.8	9.7	100.5	74.3	39.1	10.5
22	83.7	36.8	10.4	113.2	77.6	39.6	12.0
23	97.2	42.1	11.1	126.4	81.0	40.1	13.7
24	111.2	47.6	11.8	140.2	84.5	40.7	15.3
25	125.9	53.4	12.5	154.7	88.2	41.2	17.1
26	141.1	59.3	13.3	169.7	92.0	41.8	19.0
27	156.9	65.6	14.1	185.3	96.0	42.4	20.9
28	173.4	72.0	15.0	201.4	100.2	43.1	22.9
29	190.4	78.7	15.9	218.2	104.5	43.7	24.9
30	208.0	85.6	16.8	235.6	108.9	44.4	27.0
31	226.2	92.8	17.7	253.5	113.5	45.1	29.3
32	245.1	100.1	18.7	272.1	118.3	45.8	31.5
33	264.5	107.8	19.7	291.2	123.2	46.6	33.9
34	284.5	115.6	20.7	310.9	128.2	47.3	36.3
35	305.1	123.7	21.8	331.2	133.4	48.1	38.8
			TREE GRADE 1 2-1/2 LOGS				
16	13.6	16.5	6.2	43.6	88.5	36.6	5.5
17	24.9	21.2	7.0	55.8	90.7	37.4	6.8
18	36.8	26.1	7.8	68.7	93.1	38.4	8.1
19	49.4	31.2	8.7	82.4	95.6	39.3	9.6
20	62.6	36.7	9.6	96.8	98.3	40.3	11.1
21	76.6	42.4	10.6	111.9	101.1	41.4	12.7
22	91.2	48.4	11.6	127.8	104.0	42.5	14.4
23	106.5	54.7	12.7	144.4	107.1	43.7	16.2
24	122.5	61.3	13.8	161.7	110.3	44.9	18.0
25	139.2	68.1	14.9	179.8	113.7	46.1	20.0
26	156.5	75.2	16.1	198.6	117.1	47.5	22.0
27	174.5	82.7	17.4	218.2	120.8	48.8	24.1
28	193.3	90.3	18.7	238.5	124.5	50.3	26.2
29	212.6	98.3	20.0	259.5	128.4	51.7	28.5
30	232.7	106 6	21.4	281.3	132.4	53.3	30.8
31	253.5	115.1	22.8	303.8	136.6	54.8	33.2
32	274.9	123.9	24.3	327.1	140.9	56.5	35.6
33	297.0	133.0	25.8	351.1	145.3	58.1	38.2
34	319.8	142.3	27.4	375.8	149.9	59.9	40.8
35	343.3	152.0	29.0	401.3	154.6	61.7	43.5

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Table 23.—Continued: NORTHERN RED OAK

Dbh (inches)	FAS	FAS1F	Select	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 1 3 LOGS				
16	11.7	23.0	5.6	41.2	116.5	36.2	7.1
17	24.3	28.3	6.7	55.8	118.6	37.5	8.5
18	37.6	34.0	7.8	71.4	120.7	38.9	10.0
19	51.7	40.0	9.0	87.8	123.0	40.4	11.6
20	66.6	46.4	10.2	105.1	125.4	42.0	13.3
21	82.3	53.0	11.5	123.3	127.9	43.7	15.0
22	98.7	60.0	12.8	142.4	130.5	45.4	16.8
23	115.8	67.3	14.3	162.4	133.3	47.2	18.7
24	133.8	74.9	15.8	183.2	136.1	49.1	20.7
25	152.5	82.9	17.3	205.0	139.1	51.1	22.8
26	171.9	91.1	18.9	227.6	142.2	53.1	25.0
27	192.2	99.7	20.6	251.1	145.5	55.2	27.2
28	213.1	108.7	22.3	275.6	148.9	57.4	29.6
29	234.9	117.9	24.1	300.9	152.3	59.7	32.0
30	257.4	127.5	26.0	327.1	156.0	62.1	34.5
31	280.7	137.4	27.9	354.1	159.7	64.6	37.1
32	304.7	147.6	29.9	382.1	163.5	67.1	39.8
33	329.5	158.2	32.0	411.0	167.5	69.7	42.5
34	355.1	169.0	34.1	440.7	171.6	72.4	45.4
35	381.4	180.2	36.3	471.3	175.8	75.2	48.3
			TREE GRADE 1 3-1/2 LOGS				
20	70.6	56.0	10.7	113.4	152.4	43.7	15.4
21	88.0	63.6	12.4	134.7	154.6	45.9	17.3
22	106.1	71.6	14.1	157.0	157.0	48.3	19.2
23	125.2	79.9	15.9	180.3	159.4	50.7	21.3
24	145.1	88.6	17.7	204.7	161.9	53.3	23.4
25	165.8	97.6	19.7	230.1	164.6	56.0	25.7
26	187.4	107.0	21.7	256.6	167.3	58.8	28.0
27	209.8	116.8	23.8	284.1	170.2	61.6	30.4
28	233.0	127.0	26.0	312.6	173.2	64.6	32.9
29	257.1	137.5	28.3	342.2	176.3	67.8	35.5
30	282.1	148.4	30.6	372.8	179.5	71.0	38.2
31	307.9	159.7	33.1	404.4	182.8	74.3	41.0
32	334.6	171.4	35.6	437.1	186.2	77.8	43.9
33	362.0	183.4	38.2	470.8	189.7	81.3	46.8
34	390.4	195.7	40.8	505.6	193.3	85.0	49.9
35	419.6	208.5	43.6	541.4	197.1	88.7	53.0
			TREE GRADE 1 4 LOGS				
20	74.6	65.7	11.3	121.7	179.5	45.4	17.5
21	93.6	74.2	13.3	146.1	181.4	48.2	19.5
22	113.6	83.1	15.3	171.6	183.4	51.2	21.6
23	134.5	92.5	17.5	198.3	185.5	54.3	23.8
24	156.3	102.2	19.7	226.2	187.7	57.5	26.1
25	179.1	112.4	22.1	255.3	190.0	60.9	28.5
26	202.8	122.9	24.5	285.6	192.4	64.4	31.0
27	227.4	133.9	27.1	317.0	194.9	68.1	33.6
28	252.9	145.3	29.7	349.7	197.5	71.8	36.3
29	279.4	157.1	32.4	383.5	200.2	75.8	39.0
30	306.8	169.4	35.3	418.5	203.0	79.8	41.9
31	335.1	182.0	38.2	454.7	205.9	84.1	44.9
32	364.4	195.1	41.2	492.1	208.8	88.4	48.0
33	394.6	208.6	44.3	530.7	211.9	92.9	51.2
34	425.7	222.5	47.5	570.5	215.0	97.5	54.4
35	457.7	236.8	50.8	611.4	218.3	102.3	57.8

CONTINUED

Table 23.—Continued: NORTHERN RED OAK

Dbh (inches)	FAS	FAS1F	Select	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 2 1-1/2 LOGS				
13	0.0	18.3	3.7	11.3	22.2	12.9	5.7
14	.0	19.0	3.7	17.5	25.5	14.7	6.1
15	.0	19.8	3.7	24.1	29.0	16.6	6.5
16	1.0	20.6	3.7	31.1	32.7	18.7	7.0
17	5.0	21.4	3.7	38.6	36.7	20.9	7.5
18	9.3	22.3	3.7	46.6	40.9	23.3	8.0
19	13.8	23.3	3.7	55.0	45.4	25.8	8.6
20	18.6	24.3	3.7	63.9	50.1	28.4	9.2
21	23.6	25.3	3.7	73.2	55.1	31.1	9.8
22	28.8	26.5	3.7	83.0	60.3	34.0	10.4
23	34.3	27.6	3.7	93.3	65.7	37.1	11.1
24	40.1	28.8	3.7	104.0	71.4	40.2	11.8
25	46.1	30.1	3.7	115.1	77.3	43.5	12.6
26	52.3	31.4	3.7	126.8	83.5	46.9	13.3
27	58.8	32.8	3.7	138.8	89.9	50.5	14.1
28	65.5	34.2	3.7	151.3	96.5	54.2	15.0
29	72.4	35.7	3.7	164.3	103.4	58.0	15.8
30	79.6	37.2	3.7	177.8	110.5	62.0	16.7
			TREE GRADE 2 2 LOGS				
13	0.0	15.5	3.7	16.3	43.1	28.8	6.5
14	1.3	17.0	3.7	24.3	46.5	30.2	7.1
15	4.8	18.6	3.7	33.0	50.2	31.6	7.7
16	8.6	20.4	3.7	42.2	54.2	33.2	8.4
17	12.7	22.3	3.7	52.1	58.4	34.9	9.1
18	16.9	24.2	3.7	62.5	62.9	36.6	9.8
19	21.4	26.3	3.7	73.6	67.6	38.5	10.6
20	26.2	28.5	3.7	85.2	72.6	40.4	11.4
21	31.2	30.8	3.7	97.5	77.8	42.5	12.2
22	36.5	33.3	3.7	110.3	83.3	44.6	13.1
23	42.0	35.8	3.7	123.7	89.1	46.9	14.1
24	47.7	38.5	3.7	137.8	95.1	49.3	15.1
25	53.7	41.2	3.7	152.4	101.4	51.7	16.1
26	59.9	44.1	3.7	167.6	107.9	54.3	17.2
27	66.4	47.1	3.7	183.4	114.7	56.9	18.3
28	73.1	50.2	3.7	199.9	121.7	59.7	19.4
29	80.1	53.4	3.7	216.9	129.0	62.6	20.6
30	87.3	56.8	3.7	234.5	136.5	65.5	21.8
			TREE GRADE 2 2-1/2 LOGS				
13	5.6	12.6	3.7	21.2	63.9	44.8	7.4
14	8.9	15.0	3.7	31.2	67.6	45.7	8.1
15	12.5	17.5	3.7	41.9	71.5	46.6	8.9
16	16.3	20.2	3.7	53.3	75.7	47.7	9.7
17	20.3	23.1	3.7	65.5	80.1	48.8	10.6
18	24.6	26.1	3.7	78.5	84.8	49.9	11.6
19	29.1	29.4	3.7	92.1	89.8	51.2	12.5
20	33.8	32.8	3.7	106.5	95.1	52.5	13.6
21	38.9	36.3	3.7	121.7	100.6	53.8	14.7
22	44.1	40.1	3.7	137.6	106.4	55.2	15.8
23	49.6	44.0	3.7	154.2	112.5	56.7	17.0
24	55.3	48.1	3.7	171.5	118.8	58.3	18.3
25	61.3	52.4	3.7	189.6	125.4	59.9	19.6
26	67.6	56.8	3.7	208.5	132.3	61.6	21.0
27	74.0	61.4	3.7	228.1	139.4	63.4	22.4
28	80.7	66.2	3.7	248.4	146.9	65.2	23.9
29	87.7	71.2	3.7	269.4	154.6	67.1	25.4
30	94.9	76.3	3.7	291.2	162.5	69.0	27.0

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Table 23.—Continued: NORTHERN RED OAK

Dbh (inches)	FAS	FAS1F	Select	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 2 3 LOGS				
18	32.2	28.1	3.7	94.4	106.8	63.3	13.3
19	36.7	32.4	3.7	110.7	112.0	63.9	14.5
20	41.5	37.0	3.7	127.8	117.6	64.5	15.8
21	46.5	41.8	3.7	145.9	123.4	65.1	17.1
22	51.7	46.9	3.7	164.8	129.5	65.8	18.5
23	57.2	52.2	3.7	184.6	135.9	66.6	20.0
24	63.0	57.8	3.7	205.3	142.5	67.3	21.6
25	69.0	63.5	3.7	226.9	149.5	68.1	23.1
26	75.2	69.5	3.7	249.3	156.7	68.9	24.8
27	81.7	75.8	3.7	272.7	164.2	69.8	26.5
28	88.4	82.3	3.7	296.9	172.0	70.7	28.3
29	95.4	89.0	3.7	322.0	180.1	71.6	30.2
30	102.6	95.9	3.7	347.9	188.5	72.6	32.1
31	110.0	103.1	3.7	374.8	197.2	73.5	34.1
32	117.7	110.5	3.7	402.5	206.1	74.6	36.2
33	125.6	118.2	3.7	431.1	215.3	75.6	38.3
34	133.8	126.1	3.7	460.6	224.8	76.7	40.5
35	142.3	134.2	3.7	491.0	234.6	77.8	42.7
			TREE GRADE 3 1 LOG				
10	1.1	0.0	2.0	0.0	4.7	13.9	9.1
11	1.1	.0	2.0	2.1	9.4	15.4	9.9
12	1.2	.2	2.0	7.0	14.5	17.2	10.8
13	1.3	1.1	2.0	12.3	20.1	19.1	11.7
14	1.3	2.1	2.0	18.0	26.1	21.1	12.7
15	1.4	3.1	2.0	24.2	32.6	23.3	13.8
16	1.5	4.2	2.0	30.8	39.5	25.7	15.0
			TREE GRADE 3 1-1/2 LOGS				
10	0.0	0.0	2.0	0.0	6.7	23.6	17.9
11	.1	.0	2.0	1.9	11.4	25.3	19.0
12	.4	.8	2.0	6.9	16.7	27.2	20.3
13	.8	1.8	2.0	12.3	22.3	29.2	21.7
14	1.2	2.9	2.0	18.2	28.5	31.4	23.3
15	1.7	4.1	2.0	24.5	35.0	33.8	24.9
16	2.1	5.3	2.0	31.2	42.1	36.3	26.6
17	2.6	6.7	2.0	38.3	49.5	39.0	28.5
18	3.2	8.1	2.0	45.9	57.5	41.9	30.5
19	3.7	9.6	2.0	54.0	65.9	44.9	32.5
20	4.3	11.2	2.0	62.4	74.7	48.1	34.7
21	5.0	12.8	2.0	71.3	84.0	51.4	37.0
22	5.6	14.5	2.0	80.6	93.7	55.0	39.4
23	6.3	16.4	2.0	90.4	103.9	58.6	42.0
24	7.0	18.2	2.0	100.6	114.6	62.5	44.6
25	7.8	20.2	2.0	111.2	125.7	66.5	47.4

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Table 23.—Continued: NORTHERN RED OAK

Dbh (inches)	FAS	FAS1F	Select	No. 1C	No. 2C	No. 3A	No. 3B
			TREE GRADE 3 2 LOGS				
10	0.0	0.0	2.0	0.0	8.7	33.3	26.6
11	.0	.5	2.0	1.8	13.5	35.2	28.1
12	.0	1.5	2.0	6.8	18.8	37.2	29.9
13	.3	2.6	2.0	12.4	24.6	39.4	31.7
14	1.1	3.8	2.0	18.3	30.8	41.7	33.8
15	1.9	5.1	2.0	24.7	37.4	44.3	35.9
16	2.8	6.5	2.0	31.5	44.6	47.0	38.3
17	3.7	7.9	2.0	38.8	52.2	49.9	40.7
18	4.6	9.5	2.0	46.5	60.2	52.9	43.4
19	5.7	11.1	2.0	54.7	68.7	56.2	46.1
20	6.8	12.8	2.0	63.3	77.7	59.6	49.0
21	7.9	14.7	2.0	72.3	87.1	63.2	52.1
22	9.1	16.6	2.0	81.8	97.0	67.0	55.3
23	10.4	18.6	2.0	91.7	107.3	70.9	58.7
24	11.7	20.6	2.0	102.1	118.1	75.0	62.2
25	13.0	22.8	2.0	112.9	129.4	79.3	65.9
			TREE GRADE 3 2-1/2 LOGS				
14	1.0	4.7	2.0	18.4	33.1	52.0	44.3
15	2.1	6.1	2.0	24.9	39.9	54.7	47.0
16	3.4	7.6	2.0	31.9	47.1	57.6	49.9
17	4.7	9.2	2.0	39.3	54.8	60.7	53.0
18	6.1	10.9	2.0	47.1	62.9	64.0	56.3
19	7.6	12.6	2.0	55.4	71.6	67.5	59.7
20	9.2	14.5	2.0	64.2	80.7	71.1	63.4
21	10.8	16.5	2.0	73.3	90.2	75.0	67.2
22	12.6	18.6	2.0	83.0	100.2	79.0	71.2
23	14.4	20.8	2.0	93.1	110.7	83.2	75.5
24	16.3	23.0	2.0	103.6	121.7	87.6	79.9
25	18.3	25.4	2.0	114.6	133.1	92.2	84.4
			TREE GRADE 3 3 LOGS				
16	4.0	8.7	2.0	32.2	49.6	68.3	61.5
17	5.8	10.4	2.0	39.8	57.4	71.6	65.2
18	7.6	12.2	2.0	47.7	65.7	75.1	69.2
19	9.6	14.2	2.0	56.1	74.4	78.7	73.3
20	11.6	16.2	2.0	65.0	83.6	82.6	77.7
21	13.8	18.4	2.0	74.4	93.3	86.7	82.3
22	16.0	20.6	2.0	84.1	103.5	91.0	87.1
23	18.4	23.0	2.0	94.4	114.1	95.5	92.2
24	20.9	25.4	2.0	105.1	125.2	100.1	97.5
25	23.5	28.0	2.0	116.3	136.8	105.0	103.0

Table 24.—Lumber grade volume for CHESTNUT OAK

[In board feet]

TREE GRADE 1
1-1/2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
16	6.8	0.0	3.2	2.8	3.2	1.3
17	7.7	2.2	4.9	4.0	3.2	1.3
18	8.6	6.9	6.7	5.4	3.2	1.3
19	9.5	11.8	8.6	6.8	3.2	1.3
20	10.6	17.0	10.6	8.3	3.2	1.3
21	11.6	22.5	12.7	9.9	3.2	1.3
22	12.7	28.2	14.8	11.6	3.2	1.3
23	13.9	34.2	17.1	13.3	3.2	1.3
24	15.1	40.4	19.5	15.1	3.2	1.3

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
16	18.1	7.3	28.8	15.1	20.0	15.3
17	21.2	12.9	28.2	16.1	22.7	22.4
18	24.4	18.9	27.6	17.1	25.4	30.0
19	27.8	25.2	26.9	18.2	28.4	38.0
20	31.4	31.8	26.1	19.3	31.5	46.4
21	35.2	38.8	25.4	20.5	34.8	55.3
22	39.2	46.1	24.6	21.8	38.2	64.5
23	43.4	53.7	23.7	23.1	41.8	74.3
24	47.7	61.7	22.9	24.5	45.5	84.4

TREE GRADE 1
2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
16	6.0	5.3	6.1	2.8	3.2	1.3
17	7.6	9.7	7.8	4.0	3.2	1.3
18	9.4	14.4	9.6	5.4	3.2	1.3
19	11.3	19.3	11.5	6.8	3.2	1.3
20	13.2	24.5	13.5	8.3	3.2	1.3
21	15.3	29.9	15.6	9.9	3.2	1.3
22	17.5	35.6	17.8	11.6	3.2	1.3
23	19.7	41.6	20.1	13.3	3.2	1.3
24	22.1	47.8	22.5	15.1	3.2	1.3
25	24.6	54.3	25.0	17.0	3.2	1.3
26	27.2	61.1	27.6	19.0	3.2	1.3
27	29.8	68.1	30.3	21.0	3.2	1.3

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
16	19.4	11.1	30.0	27.7	24.0	15.3
17	23.0	17.5	29.9	29.0	26.6	22.4
18	26.8	24.3	29.8	30.2	29.4	30.0
19	30.8	31.4	29.7	31.6	32.3	38.0
20	35.0	39.0	29.6	33.0	35.4	46.4
21	39.5	46.9	29.5	34.5	38.7	55.3
22	44.2	55.2	29.4	36.1	42.1	64.5
23	49.0	63.9	29.3	37.7	45.7	74.3
24	54.1	73.0	29.2	39.4	49.4	84.4
25	59.5	82.5	29.0	41.2	53.3	95.0
26	65.0	92.4	28.9	43.1	57.4	106.0
27	70.7	102.6	28.8	45.0	61.6	117.5

CONTINUED

Table 24.—Continued: CHESTNUT OAK

TREE GRADE 1
2-1/2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
16	5.1	12.9	9.1	2.8	3.2	1.3
17	7.5	17.2	10.7	4.0	3.2	1.3
18	10.2	21.9	12.5	5.4	3.2	1.3
19	13.0	26.8	14.4	6.8	3.2	1.3
20	15.9	31.9	16.4	8.3	3.2	1.3
21	19.0	37.3	18.5	9.9	3.2	1.3
22	22.2	43.0	20.7	11.6	3.2	1.3
23	25.6	49.0	23.0	13.3	3.2	1.3
24	29.2	55.2	25.4	15.1	3.2	1.3
25	32.8	61.7	27.9	17.0	3.2	1.3
26	36.7	68.5	30.5	19.0	3.2	1.3
27	40.7	75.5	33.2	21.0	3.2	1.3

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
16	20.7	14.9	31.1	40.4	27.9	15.3
17	24.8	22.1	31.5	41.8	30.5	22.4
18	29.2	29.7	32.0	43.4	33.3	30.0
19	33.8	37.7	32.5	45.0	36.3	38.0
20	38.7	46.1	33.1	46.7	39.4	46.4
21	43.8	55.0	33.6	48.5	42.6	55.3
22	49.1	64.4	34.2	50.4	46.1	64.5
23	54.7	74.1	34.8	52.4	49.7	74.3
24	60.6	84.3	35.5	54.4	53.4	84.4
25	66.7	94.9	36.1	56.6	57.3	95.0
26	73.0	106.0	36.8	58.8	61.4	106.0
27	79.7	117.4	37.6	61.2	65.6	117.5

TREE GRADE 1
3 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
16	4.2	20.4	12.0	2.8	3.2	1.3
17	7.5	24.7	13.7	4.0	3.2	1.3
18	11.0	29.3	15.5	5.4	3.2	1.3
19	14.7	34.2	17.3	6.8	3.2	1.3
20	18.6	39.4	19.3	8.3	3.2	1.3
21	22.7	44.8	21.4	9.9	3.2	1.3
22	27.0	50.5	23.6	11.6	3.2	1.3
23	31.5	56.4	25.9	13.3	3.2	1.3
24	36.2	62.6	28.3	15.1	3.2	1.3
25	41.1	69.1	30.8	17.0	3.2	1.3
26	46.2	75.8	33.4	19.0	3.2	1.3
27	51.5	82.8	36.1	21.0	3.2	1.3

CONTINUED

Table 24.—Continued: CHESTNUT OAK

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
16	22.0	18.7	32.2	53.0	31.9	15.3
17	26.7	26.7	33.2	54.7	34.5	22.4
18	31.6	35.1	34.2	56.5	37.3	30.0
19	36.8	44.0	35.3	58.4	40.2	38.0
20	42.3	53.3	36.5	60.4	43.3	46.4
21	48.0	63.2	37.7	62.5	46.6	55.3
22	54.1	73.5	39.0	64.7	50.0	64.5
23	60.4	84.3	40.4	67.0	53.6	74.3
24	67.0	95.6	41.8	69.4	57.3	84.4
25	73.9	107.3	43.2	71.9	61.2	95.0
26	81.1	119.6	44.7	74.6	65.3	106.0
27	88.6	132.3	46.3	77.3	69.5	117.5

TREE GRADE 1
3-1/2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
20	21.3	46.8	22.3	8.3	3.2	1.3
21	26.4	52.2	24.3	9.9	3.2	1.3
22	31.7	57.9	26.5	11.6	3.2	1.3
23	37.4	63.8	28.8	13.3	3.2	1.3
24	43.2	70.0	31.2	15.1	3.2	1.3
25	49.4	76.4	33.7	17.0	3.2	1.3
26	55.7	83.2	36.3	19.0	3.2	1.3
27	62.3	90.1	39.0	21.0	3.2	1.3

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
20	45.9	60.5	40.0	74.1	47.3	46.4
21	52.3	71.3	41.9	76.5	50.5	55.3
22	59.1	82.6	43.8	79.0	54.0	64.5
23	66.1	94.5	45.9	81.7	57.5	74.3
24	73.5	106.8	48.1	84.4	61.3	84.4
25	81.2	119.8	50.3	87.3	65.2	95.0
26	89.2	133.2	52.7	90.3	69.3	106.0
27	97.5	147.1	55.1	93.4	73.5	117.5

TREE GRADE 2
1 LOG

Dbh (Inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
13	0.0	0.0	0.0	4.6	9.0	0.0
14	.0	.0	.4	4.7	8.1	.0
15	.0	1.2	1.6	4.9	7.2	.0
16	.0	5.3	2.9	5.0	6.2	.0
17	.0	9.6	4.3	5.2	5.1	.0
18	.0	14.3	5.8	5.4	3.9	.0
19	.0	19.1	7.4	5.6	2.7	.0
20	.0	24.3	9.1	5.8	1.5	.3
21	.0	29.7	10.8	6.1	.2	.5
22	.0	35.4	12.7	6.3	.0	.8

CONTINUED

Table 24.—Continued: CHESTNUT OAK

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
13	17.9	2.6	7.0	0.0	26.9	4.3
14	17.3	6.0	7.8	.0	26.7	9.0
15	16.7	9.7	8.6	.3	26.4	13.9
16	16.0	13.7	9.5	1.1	26.2	19.2
17	15.3	17.9	10.4	2.0	25.9	24.9
18	14.5	22.3	11.4	3.0	25.6	30.9
19	13.7	27.0	12.4	3.9	25.3	37.3
20	12.8	31.9	13.5	5.0	24.9	44.0
21	11.9	37.1	14.7	6.1	24.5	51.0
22	11.0	42.6	15.9	7.2	24.2	58.4

TREE GRADE 2
1-1/2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
13	1.5	0.0	0.0	2.4	6.7	0.0
14	1.5	.0	.4	2.9	6.1	.0
15	1.5	1.2	1.6	3.4	5.5	.0
16	1.4	5.3	2.9	4.0	4.9	.0
17	1.3	9.6	4.3	4.5	4.3	.0
18	1.3	14.3	5.8	5.1	3.6	.2
19	1.2	19.1	7.4	5.8	2.8	.4
20	1.2	24.3	9.1	6.5	2.0	.7
21	1.1	29.7	10.8	7.2	1.2	.9
22	1.0	35.4	12.7	7.9	.3	1.2
23	1.0	41.3	14.6	8.7	.0	1.5
24	.9	47.5	16.6	9.6	.0	1.7
25	.8	54.0	18.7	10.4	.0	2.0
26	.7	60.7	20.9	11.3	.0	2.4

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
13	16.9	1.9	12.4	11.7	29.0	9.5
14	16.8	6.2	13.1	12.5	29.2	14.2
15	16.6	10.7	13.7	13.2	29.5	19.1
16	16.4	15.6	14.4	14.1	29.7	24.5
17	16.2	20.9	15.2	14.9	30.0	30.1
18	16.0	26.4	16.0	15.9	30.3	36.1
19	15.8	32.2	16.9	16.9	30.6	42.5
20	15.6	38.4	17.7	17.9	30.9	49.2
21	15.4	44.9	18.7	19.0	31.2	56.2
22	15.1	51.7	19.7	20.1	31.5	63.6
23	14.9	58.8	20.7	21.3	31.9	71.3
24	14.6	66.2	21.8	22.6	32.3	79.4
25	14.3	74.0	22.9	23.9	32.7	87.8
26	14.0	82.0	24.1	25.3	33.1	96.5

CONTINUED

Table 24.—Continued: CHESTNUT OAK

TREE GRADE 2
2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
13	3.1	0.0	0.0	0.3	4.3	0.0
14	3.1	.0	.4	1.1	4.1	.0
15	3.0	1.2	1.6	1.9	3.9	.0
16	3.0	5.3	2.9	2.9	3.7	.2
17	3.0	9.6	4.3	3.8	3.4	.4
18	2.9	14.3	5.8	4.9	3.2	.6
19	2.9	19.1	7.4	6.0	2.9	.8
20	2.8	24.3	9.1	7.1	2.6	1.0
21	2.8	29.7	10.8	8.3	2.3	1.3
22	2.7	35.4	12.7	9.6	1.9	1.5
23	2.7	41.3	14.6	10.9	1.6	1.8
24	2.6	47.5	16.6	12.3	1.2	2.1
25	2.6	54.0	18.7	13.7	.9	2.3
26	2.5	60.7	20.9	15.2	.5	2.6
27	2.5	67.7	23.1	16.8	.1	3.0
28	2.4	75.0	25.5	18.4	.0	3.3
29	2.4	82.5	27.9	20.1	.0	3.6
30	2.3	90.3	30.4	21.8	.0	4.0

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
13	16.0	1.1	17.9	24.6	31.1	14.8
14	16.3	6.3	18.4	25.4	31.7	19.4
15	16.6	11.7	18.9	26.1	32.5	24.4
16	16.9	17.6	19.4	27.0	33.2	29.7
17	17.2	23.9	20.0	27.8	34.1	35.3
18	17.6	30.5	20.6	28.8	34.9	41.3
19	18.0	37.5	21.3	29.8	35.9	47.7
20	18.4	44.9	22.0	30.8	36.8	54.4
21	18.8	52.6	22.7	31.9	37.9	61.4
22	19.3	60.8	23.5	33.0	38.9	68.8
23	19.7	69.3	24.3	34.2	40.0	76.5
24	20.2	78.2	25.1	35.5	41.2	84.6
25	20.7	87.5	26.0	36.8	42.4	93.0
26	21.3	97.1	26.9	38.2	43.7	101.7
27	21.8	107.2	27.8	39.6	45.0	110.8
28	22.4	117.6	28.8	41.0	46.4	120.3
29	23.0	128.4	29.8	42.6	47.8	130.0
30	23.6	139.5	30.8	44.1	49.3	140.2

CONTINUED

Table 24.—Continued: CHESTNUT OAK

TREE GRADE 2
2-1/2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
13	4.6	0.0	0.0	0.0	2.0	0.1
14	4.6	.0	.4	.0	2.1	.3
15	4.6	1.2	1.6	.5	2.3	.4
16	4.6	5.3	2.9	1.8	2.4	.6
17	4.6	9.6	4.3	3.1	2.6	.8
18	4.6	14.3	5.8	4.6	2.8	1.0
19	4.5	19.1	7.4	6.1	2.9	1.2
20	4.5	24.3	9.1	7.7	3.1	1.4
21	4.5	29.7	10.8	9.4	3.3	1.6
22	4.5	35.4	12.7	11.2	3.5	1.9
23	4.4	41.3	14.6	13.1	3.7	2.1
24	4.4	47.5	16.6	15.0	4.0	2.4
25	4.4	54.0	18.7	17.0	4.2	2.7
26	4.3	60.7	20.9	19.1	4.4	2.9
27	4.3	67.7	23.1	21.3	4.7	3.2
28	4.3	75.0	25.5	23.6	5.0	3.5
29	4.2	82.5	27.9	26.0	5.2	3.8
30	4.2	90.3	30.4	28.4	5.5	4.2

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
13	15.0	0.4	23.3	37.6	33.1	20.0
14	15.7	6.4	23.7	38.3	34.3	24.6
15	16.5	12.8	24.0	39.0	35.5	29.6
16	17.3	19.6	24.4	39.9	36.8	34.9
17	18.2	26.9	24.8	40.8	38.2	40.6
18	19.1	34.6	25.3	41.7	39.6	46.6
19	20.1	42.8	25.7	42.7	41.2	52.9
20	21.2	51.4	26.2	43.7	42.8	59.6
21	22.2	60.4	26.7	44.8	44.5	66.6
22	23.4	69.9	27.3	46.0	46.3	74.0
23	24.6	79.8	27.8	47.2	48.2	81.7
24	25.8	90.2	28.4	48.4	50.1	89.8
25	27.1	101.0	29.0	49.7	52.2	98.2
26	28.5	112.2	29.6	51.1	54.3	107.0
27	29.9	123.9	30.3	52.5	56.5	116.0
28	31.4	136.0	31.0	54.0	58.8	125.5
29	32.9	148.6	31.7	55.5	61.2	135.3
30	34.4	161.6	32.4	57.0	63.7	145.4

CONTINUED

Table 24.—Continued: CHESTNUT OAK

TREE GRADE 2
3 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
13	6.2	0.0	0.0	0.0	0.0	0.6
14	6.2	.0	.4	.0	.2	.7
15	6.2	1.2	1.6	.0	.7	.9
16	6.2	5.3	2.9	.7	1.2	1.0
17	6.2	9.6	4.3	2.4	1.8	1.2
18	6.2	14.3	5.8	4.3	2.4	1.4
19	6.2	19.1	7.4	6.3	3.0	1.6
20	6.2	24.3	9.1	8.4	3.7	1.8
21	6.2	29.7	10.8	10.5	4.4	2.0
22	6.2	35.4	12.7	12.8	5.1	2.2
23	6.2	41.3	14.6	15.2	5.9	2.5
24	6.2	47.5	16.6	17.7	6.7	2.7
25	6.2	54.0	18.7	20.3	7.5	3.0
26	6.1	60.7	20.9	23.1	8.4	3.2
27	6.1	67.7	23.1	25.9	9.3	3.5
28	6.1	75.0	25.5	28.8	10.3	3.8
29	6.1	82.5	27.9	31.9	11.2	4.1
30	6.1	90.3	30.4	35.0	12.3	4.4

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
13	14.1	0.0	28.8	50.5	35.2	25.2
14	15.2	6.5	29.0	51.2	36.8	29.8
15	16.5	13.8	29.2	52.0	38.5	34.8
16	17.8	21.6	29.4	52.8	40.3	40.1
17	19.2	29.9	29.6	53.7	42.2	45.8
18	20.7	38.7	29.9	54.6	44.3	51.8
19	22.3	48.0	30.2	55.6	46.5	58.1
20	23.9	57.8	30.4	56.6	48.8	64.8
21	25.7	68.1	30.7	57.7	51.2	71.8
22	27.5	79.0	31.0	58.9	53.7	79.2
23	29.5	90.3	31.4	60.1	56.3	86.9
24	31.5	102.1	31.7	61.3	59.1	95.0
25	33.6	114.5	32.1	62.6	61.9	103.4
26	35.7	127.3	32.4	64.0	64.9	112.2
27	38.0	140.6	32.8	65.4	68.0	121.3
28	40.4	154.5	33.2	66.9	71.3	130.7
29	42.8	168.8	33.6	68.4	74.6	140.5
30	45.3	183.7	34.0	70.0	78.1	150.6

TREE GRADE 3
1 LOG

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
10	0.0	0.0	0.0	0.0	1.1	0.4
11	.0	.0	.0	.0	1.1	.4
12	.0	.0	.1	.0	1.1	.4
13	.0	1.0	.2	.0	1.1	.4
14	.0	2.2	.3	.0	1.1	.4
15	.0	3.4	.4	.0	1.1	.4
16	.0	4.8	.5	.3	1.1	.4
17	.0	6.3	.7	.8	1.1	.4
18	.0	7.8	.8	1.3	1.1	.4
19	.0	9.4	1.0	1.8	1.1	.4
20	.0	11.2	1.1	2.4	1.1	.4

CONTINUED

Table 24.—Continued: CHESTNUT OAK

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
10	4.1	3.3	2.4	5.4	4.4	10.3
11	3.6	5.2	3.1	5.8	5.7	12.5
12	3.0	7.2	3.8	6.1	7.2	15.0
13	2.3	9.3	4.6	6.5	8.8	17.6
14	1.6	11.7	5.4	7.0	10.5	20.4
15	.8	14.2	6.3	7.4	12.3	23.5
16	.0	16.9	7.3	7.9	14.3	26.8
17	.0	19.8	8.3	8.5	16.3	30.2
18	.0	22.8	9.4	9.0	18.6	33.9
19	.0	26.0	10.5	9.6	20.9	37.8
20	.0	29.4	11.7	10.3	23.4	41.9

TREE GRADE 3
1-1/2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
10	0.0	0.0	0.0	0.0	1.1	0.4
11	.0	.0	.0	.0	1.1	.4
12	.0	.0	.0	.0	1.1	.4
13	.0	1.0	.1	.0	1.1	.4
14	.0	2.2	.3	.0	1.1	.4
15	.0	3.4	.5	.4	1.1	.4
16	.0	4.8	.7	.8	1.1	.4
17	.0	6.3	.9	1.3	1.1	.4
18	.0	7.8	1.1	1.8	1.1	.4
19	.0	9.4	1.4	2.4	1.1	.4
20	.0	11.2	1.6	2.9	1.1	.4
21	.0	13.0	1.9	3.5	1.1	.4
22	.0	14.9	2.2	4.1	1.1	.4
23	.0	16.9	2.5	4.8	1.1	.4
24	.0	18.9	2.8	5.5	1.1	.4

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
10	4.1	0.0	5.5	11.0	13.2	9.4
11	4.2	.4	6.1	12.0	14.5	13.0
12	4.2	3.3	6.8	13.0	15.8	16.9
13	4.3	6.5	7.6	14.1	17.3	21.1
14	4.4	9.9	8.4	15.3	18.9	25.6
15	4.5	13.5	9.3	16.6	20.6	30.5
16	4.6	17.4	10.3	17.9	22.5	35.7
17	4.7	21.6	11.3	19.4	24.4	41.3
18	4.8	26.0	12.4	20.9	26.5	47.2
19	4.9	30.6	13.6	22.6	28.7	53.5
20	5.0	35.6	14.8	24.3	31.0	60.0
21	5.1	40.7	16.0	26.1	33.4	66.9
22	5.3	46.1	17.4	28.0	36.0	74.2
23	5.4	51.8	18.8	30.0	38.7	81.8
24	5.6	57.7	20.2	32.1	41.4	89.7

CONTINUED

Table 24.—Continued: CHESTNUT OAK

TREE GRADE 3
2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
10	0.0	0.0	0.0	0.0	1.1	0.4
11	.0	.0	.0	.0	1.1	.4
12	.0	.0	.0	.0	1.1	.4
13	.0	1.0	.1	.1	1.1	.4
14	.0	2.2	.3	.5	1.1	.4
15	.0	3.4	.6	.9	1.1	.4
16	.0	4.8	.9	1.4	1.1	.4
17	.0	6.3	1.2	1.8	1.1	.4
18	.0	7.8	1.5	2.3	1.1	.4
19	.0	9.4	1.8	2.9	1.1	.4
20	.0	11.2	2.1	3.5	1.1	.4
21	.0	13.0	2.5	4.0	1.1	.4
22	.0	14.9	2.9	4.7	1.1	.4
23	.0	16.9	3.3	5.3	1.1	.4
24	.0	18.9	3.7	6.0	1.1	.4
25	.0	21.1	4.1	6.7	1.1	.4
26	.0	23.4	4.6	7.5	1.1	.4

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
10	4.1	0.0	8.5	16.7	22.0	8.5
11	4.7	.0	9.1	18.2	23.2	13.4
12	5.5	.0	9.9	19.8	24.5	18.7
13	6.3	3.6	10.6	21.6	25.9	24.5
14	7.2	8.0	11.5	23.6	27.4	30.8
15	8.2	12.8	12.4	25.7	29.0	37.5
16	9.2	17.9	13.3	27.9	30.7	44.7
17	10.3	23.4	14.4	30.3	32.5	52.4
18	11.4	29.2	15.4	32.8	34.4	60.5
19	12.6	35.3	16.6	35.5	36.5	69.1
20	13.9	41.7	17.8	38.3	38.7	78.2
21	15.2	48.5	19.1	41.3	40.9	87.7
22	16.6	55.6	20.4	44.4	43.3	97.7
23	18.1	63.0	21.8	47.7	45.8	108.1
24	19.7	70.8	23.2	51.1	48.4	119.0
25	21.3	78.8	24.8	54.6	51.1	130.4
26	22.9	87.3	26.3	58.3	54.0	142.2

TREE GRADE 3
2-1/2 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
12	0.0	0.0	0.0	0.2	1.1	0.4
13	.0	1.0	.1	.6	1.1	.4
14	.0	2.2	.4	1.0	1.1	.4
15	.0	3.4	.7	1.4	1.1	.4
16	.0	4.8	1.0	1.9	1.1	.4
17	.0	6.3	1.4	2.4	1.1	.4
18	.0	7.8	1.8	2.9	1.1	.4
19	.0	9.4	2.2	3.4	1.1	.4
20	.0	11.2	2.6	4.0	1.1	.4
21	.0	13.0	3.1	4.6	1.1	.4
22	.0	14.9	3.6	5.2	1.1	.4
23	.0	16.9	4.1	5.9	1.1	.4
24	.0	18.9	4.6	6.5	1.1	.4

CONTINUED

Table 24.—Continued: CHESTNUT OAK

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
12	6.8	0.0	12.9	26.7	33.1	20.6
13	8.3	.7	13.7	29.2	34.4	28.0
14	10.0	6.2	14.5	31.9	35.8	36.0
15	11.8	12.1	15.4	34.8	37.3	44.6
16	13.8	18.5	16.4	37.9	38.9	53.7
17	15.8	25.2	17.4	41.2	40.6	63.5
18	18.0	32.4	18.5	44.8	42.4	73.8
19	20.3	39.9	19.6	48.5	44.3	84.8
20	22.8	47.9	20.8	52.4	46.3	96.3
21	25.3	56.2	22.1	56.5	48.4	108.4
22	28.0	65.0	23.4	60.8	50.6	121.1
23	30.8	74.2	24.8	65.3	53.0	134.4
24	33.7	83.8	26.3	70.0	55.4	148.3

TREE GRADE 3
3 LOGS

Dbh (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND
12	0.0	0.0	0.0	0.8	1.1	0.4
13	.0	1.0	.0	1.1	1.1	.4
14	.0	2.2	.4	1.5	1.1	.4
15	.0	3.4	.8	2.0	1.1	.4
16	.0	4.8	1.2	2.4	1.1	.4
17	.0	6.3	1.6	2.9	1.1	.4
18	.0	7.8	2.1	3.4	1.1	.4
19	.0	9.4	2.6	3.9	1.1	.4
20	.0	11.2	3.2	4.5	1.1	.4

Dbh (inches)	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
12	8.0	0.0	15.9	33.5	41.8	22.5
13	10.3	.0	16.7	36.7	42.9	31.5
14	12.8	4.4	17.5	40.2	44.2	41.2
15	15.5	11.5	18.4	43.9	45.6	51.6
16	18.4	19.0	19.4	47.9	47.1	62.7
17	21.4	27.0	20.4	52.2	48.7	74.6
18	24.6	35.5	21.5	56.7	50.3	87.1
19	28.0	44.5	22.6	61.4	52.1	100.4
20	31.6	54.0	23.8	66.4	54.0	114.4

Table 25.—Thickness distribution by lumber grade for YELLOW BIRCH, in percent

Lumber thickness (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
3/8	—	—	—	—	—	0.1	0.2
2/4	—	—	0.1	—	—	—	.1
5/8	0.1	—	—	—	—	—	.3
3/4	.7	0.8	2.9	2.3	1.6	2.9	3.5
4/4	44.4	43.2	56.8	64.5	69.0	71.8	66.3
5/4	40.6	35.4	32.0	27.4	25.3	19.4	10.4
6/4	5.9	11.2	7.2	4.3	2.3	.3	.2
8/4	—	—	—	.1	1.2	5.2	17.9
10/4	8.3	9.4	1.0	1.4	.6	.3	1.1

Table 26.—Thickness distribution by lumber grade for RED MAPLE, in percent

Lumber thickness (inches)	FAS	FAS1F	Selects	No. 1C	No. 2A	No. 2B	No. 3A	No. 3B
3/8	—	—	—	—	—	—	0.1	—
5/8	—	—	—	—	—	—	.1	—
3/4	0.2	0.1	—	1.0	1.4	2.4	1.1	4.1
4/4	52.4	58.1	59.2	71.3	64.0	78.7	67.6	82.9
5/4	11.7	18.2	8.9	11.3	12.7	18.1	3.6	13.0
6/4	18.4	16.8	19.1	10.6	1.8	.4	.3	—
7/4	—	.5	—	—	.1	—	.1	—
8/4	17.3	6.3	12.8	5.8	10.6	.4	18.0	—
10/4	—	—	—	—	9.4	—	9.1	—

Table 27.—Thickness distribution by lumber grade for BLACK OAK, in percent

Lumber thickness (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
2/4	0.1	0.1	—	—	0.1	—	—	—
3/4	.7	—	0.5	0.8	.8	1.0	0.6	0.1
4/4	7.6	13.4	26.2	32.9	57.2	64.1	57.9	36.2
5/4	91.2	85.8	71.1	64.6	32.6	15.4	7.7	2.1
6/4	.4	.7	—	.3	.3	—	.2	—
7/4	—	—	—	.1	—	.5	—	.2
8/4	—	—	2.2	1.2	8.4	18.2	27.9	36.2
10/4	—	—	—	—	—	—	3.4	22.5
12/4	—	—	—	.1	.6	.8	2.3	2.7

Table 28.—Thickness distribution by lumber grade for BASSWOOD, in percent

Lumber thickness (inches)	FAS	Selects	No. 1C	No. 2C	No. 3C
3/4	4.0	1.3	2.7	2.6	2.4
4/4	63.0	73.5	72.2	74.3	64.6
5/4	16.4	6.0	13.9	10.7	6.8
6/4	2.6	6.4	2.2	.3	.1
8/4	14.0	11.7	8.8	7.5	5.2
9/4	—	1.1	.2	4.6	20.9

Table 29.—Thickness distribution by lumber grade for SUGAR MAPLE, in percent

Lumber thickness (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
3/4	0.1	0.3	0.7	0.3	0.7	0.6	1.8
4/4	10.2	11.5	40.6	22.5	36.6	49.2	53.7
5/4	73.7	60.7	52.9	60.2	48.1	36.9	13.7
6/4	.5	—	—	.3	.4	.4	.3
8/4	15.5	27.5	5.8	16.7	14.2	12.9	29.5
10/4	—	—	—	—	—	—	1.0

Table 30.—Thickness distribution by lumber grade for BLACK CHERRY, in percent

Lumber thickness (inches)	FAS	Selects	No. 1C	No. 2C	No. 3A	No. 3B
3/4	0.3	0.2	0.2	0.2	0.8	0.9
4/4	49.7	58.5	79.7	90.3	70.7	85.0
5/4	1.9	3.1	2.0	3.3	.6	.4
6/4	20.9	17.5	11.5	2.8	1.5	.4
8/4	27.2	20.7	6.6	3.3	24.2	12.3
12/4	—	—	—	.1	2.2	1.0

Table 31.—Thickness distribution by lumber grade for PAPER BIRCH, in percent

Lumber thickness (inches)	FAS	Selects	No. 1C	No. 2C	No. 3A	No. 3B
2/4	—	—	0.1	—	—	0.1
5/8	—	—	—	0.8	0.1	—
3/4	0.4	1.0	1.1	1.9	3.3	4.5
4/4	99.6	98.8	98.8	97.2	96.4	95.3
5/4	—	.2	—	.1	.2	.1

Table 32.—Thickness distribution by lumber grade for WHITE OAK, in percent

Lumber thickness (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	SW	No. 3A	No. 3B
3/4	0.7	1.0	0.6	1.3	1.9	1.7	3.1	2.7
4/4	25.1	27.2	45.5	45.8	71.6	65.8	78.9	71.4
5/4	45.7	38.1	28.3	38.2	20.5	14.0	4.7	1.1
6/4	28.5	33.7	25.6	14.5	4.1	3.1	.4	.1
8/4	—	—	—	.2	1.9	15.4	12.9	24.7

Table 33.—Thickness distribution by lumber grade for YELLOW-POPLAR, in percent

Lumber thickness (inches)	FAS	Selects	Saps	No. 1C	No. 2A	No. 2B	No. 3C
2/4	—	—	—	—	0.1	0.1	0.1
5/8	—	0.7	0.1	0.1	.1	—	—
3/4	4.9	1.0	1.7	1.6	1.9	2.6	2.6
4/4	81.6	87.5	67.2	87.5	86.8	84.4	81.9
5/4	.5	3.3	2.8	.2	1.0	2.2	2.5
6/4	11.8	6.2	19.4	9.7	4.7	.4	3.4
8/4	1.2	1.3	8.9	.9	5.4	10.3	9.5

Table 34.—Thickness distribution by lumber grade for NORTHERN RED OAK, in percent

Lumber thickness (inches)	FAS	FAS1F	Selects	No. 1C	No. 2C	No. 3A	No. 3B
5/8	0.1	—	—	0.1	0.1	0.2	0.2
3/4	.3	0.5	0.2	.8	1.2	2.0	2.2
4/4	26.2	37.6	53.2	57.8	86.8	93.6	92.3
5/4	61.9	56.3	46.1	39.7	11.4	3.6	2.6
6/4	11.5	5.6	.5	1.6	.2	.1	.4
8/4	—	—	—	—	.3	.5	2.3

Table 35.—Thickness distribution by lumber grade for CHESTNUT OAK, in percent

Lumber thickness (inches)	FAS	FAS WHND	FAS1F	FAS1F WHND	Selects	Selects WHND	No. 1C	No. 1C WHND	No. 2C	SW	No. 3A	No. 3B
1/2	—	—	0.1	—	—	—	0.1	—	0.1	0.1	0.1	—
5/8	—	—	—	—	—	—	.2	0.2	.1	—	.1	—
3/4	0.9	0.3	.1	0.2	0.6	—	.5	.5	1.4	1.4	2.9	2.4
4/4	31.5	25.2	28.7	24.6	60.0	76.2	51.8	56.2	90.0	78.2	93.6	94.8
5/5	25.0	18.3	20.4	22.2	28.3	7.2	18.8	21.0	5.6	13.1	1.7	1.9
6/4	42.6	56.2	50.7	53.0	11.1	16.6	28.6	22.1	2.8	7.2	1.6	.9

Table 36.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for YELLOW BIRCH

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 63 Trees)		
FAS	74.3	43.2	0.73
FAS1F	35.0	20.6	.56
Selects	9.1	9.2	.20
No. 1C	97.9	47.6	.86
No. 2C	71.0	31.9	.71
No. 3A	41.2	19.3	.76
No. 3B	35.1	21.6	.45
	TREE GRADE 2 (Basis: 69 Trees)		
FAS	19.6	21.8	0.56
FAS1F	16.3	13.7	.51
Selects	6.1	7.7	.08
No. 1C	53.6	27.6	.62
No. 2C	46.8	18.5	.73
No. 3A	34.2	17.9	.42
No. 3B	31.4	17.7	.64
	TREE GRADE 3 (Basis: 61 Trees)		
FAS	1.2	2.9	0.34
FAS1F	4.6	6.6	.54
Selects	1.9	4.1	.07
No. 1C	27.9	14.0	.86
No. 2C	37.7	16.0	.84
No. 3A	27.7	14.2	.70
No. 3B	27.7	13.3	.48

Table 37.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for RED MAPLE

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 66 Trees)		
FAS	63.7	43.3	0.68
FAS1F	53.0	24.6	.55
Selects	17.7	11.7	.55
No. 1C	66.7	27.5	.73
No. 2A	65.5	32.3	.47
No. 2B	48.8	23.2	.21
No. 3A	20.3	14.4	.33
No. 3B	12.2	9.5	.56
	TREE GRADE 2 (Basis: 79 Trees)		
FAS	21.9	22.3	0.66
FAS1F	26.6	16.7	.68
Selects	10.9	9.6	.34
No. 1C	38.4	19.5	.71
No. 2A	57.3	30.0	.42
No. 2B	49.1	34.3	.16
No. 3A	16.1	16.2	.27
No. 3B	8.7	11.9	.56
	TREE GRADE 3 (Basis: 118 Trees)		
FAS	3.8	7.3	0.36
FAS1F	8.1	10.3	.57
Selects	5.8	5.7	.43
No. 1C	23.6	14.8	.75
No. 2A	36.4	24.0	.62
No. 2B	49.4	28.6	.46
No. 3A	13.5	13.5	.38
No. 3B	7.3	13.2	.30

Table 38.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for BLACK OAK

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 71 Trees)		
FAS	55.0	35.5	0.80
FAS1F	53.5	30.7	.75
Selects	11.8	14.0	.43
No. 1C	185.1	72.6	.81
No. 2C	111.7	48.1	.62
SW	20.5	25.1	.22
No. 3A	83.7	31.6	.49
No. 3B	59.9	45.3	.48
	TREE GRADE 2 (Basis: 62 Trees)		
FAS	25.1	24.1	0.66
FAS1F	29.9	16.7	.80
Selects	4.9	6.7	.38
No. 1C	108.5	32.9	.93
No. 2C	83.8	31.9	.84
SW	9.8	11.0	.44
No. 3A	60.0	28.6	.61
No. 3B	37.0	38.5	.31
	TREE GRADE 3 (Basis: 48 Trees)		
FAS	7.6	11.8	0.59
FAS1F	13.1	13.7	.77
Selects	3.0	5.1	.57
No. 1C	57.2	27.9	.92
No. 2C	53.1	23.0	.85
SW	12.5	12.6	.37
No. 3A	42.2	26.5	.61
No. 3B	47.3	39.1	.57

Table 39.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for BASSWOOD

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 51 Trees)		
FAS	53.7	30.4	0.85
Selects	59.0	25.9	.60
No. 1C	74.8	32.4	.59
No. 2C	107.8	40.4	.61
No. 3C	33.2	25.2	.59
	TREE GRADE 2 (Basis: 44 Trees)		
FAS	13.7	10.2	0.82
Selects	35.5	20.5	.79
No. 1C	52.0	23.7	.77
No. 2C	83.6	28.0	.69
No. 3C	29.4	18.5	.79
	TREE GRADE 3 (Basis: 53 Trees)		
FAS	3.6	6.0	0.49
Selects	10.2	10.0	.67
No. 1C	27.8	22.4	.60
No. 2C	72.4	22.9	.85
NO. 3C	23.1	15.1	.63

Table 40.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for SUGAR MAPLE

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 58 Trees)		
FAS	49.4	45.7	0.62
FAS1F	49.9	27.7	.54
Selects	8.7	8.4[a]	(*)
No. 1C	111.3	52.1	.79
No. 2C	82.9	28.0	.75
No. 3A	43.3	24.9	.53
No. 3B	55.9	27.6	.56
	TREE GRADE 2 (Basis: 61 Trees)		
FAS	20.0	21.6	0.51
FAS1F	35.2	24.1	.65
Selects	7.6	7.3[a]	(*)
No. 1C	89.5	29.9	.89
No. 2C	69.5	25.2	.79
No. 3A	36.7	17.8	.64
No. 3B	37.9	23.1	.57
	TREE GRADE 3 (Basis: 60 Trees)		
FAS	4.4	9.3	0.44
FAS1F	9.7	13.2	.52
Selects	5.3	6.1	.43
No. 1C	46.0	35.8	.73
No. 2C	52.6	25.3	.84
No. 3A	40.7	27.1	.65
No. 3B	48.3	33.5	.51

[a] For this lumber grade, the mean lumber volume was used instead of a regression equation. Therefore, standard deviation has been substituted for standard error, and the multiple correlation coefficient has been omitted.

Table 41.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for BLACK CHERRY

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 78 Trees)		
FAS	75.3	26.5	0.79
Selects	55.0	26.7	.65
No. 1C	70.6	28.0	.79
No. 2C	60.8	22.9	.72
No. 3A	38.2	19.9	.58
No. 3B	12.7	13.9	.39
	TREE GRADE 2 (Basis: 49 Trees)		
FAS	22.3	16.4	0.65
Selects	37.4	16.7	.60
No. 1C	58.1	18.3	.90
No. 2C	58.0	16.4	.79
No. 3A	33.8	19.4	.42
No. 3B	8.1	9.6	.31
	TREE GRADE 3 (Basis: 71 Trees)		
FAS	6.3	9.0	0.74
Selects	15.5	15.6	.73
No. 1C	33.6	19.5	.87
No. 2C	40.0	18.3	.77
No. 3A	37.4	17.2	.70
No. 3B	9.8	10.9	.29

Table 42.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for PAPER BIRCH

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 36 Trees)		
FAS	28.2	15.2	0.31
Selects	38.3	17.2	.43
No. 1C	43.6	17.8	.63
No. 2C	46.8	20.1	.40
No. 3A	36.4	12.9	.62
No. 3B	24.3	15.1	.48
	TREE GRADE 2 (Basis: 61 Trees)		
FAS	8.4	7.9	0.61
Selects	20.7	11.8	.54
No. 1C	27.0	11.1	.75
No. 2C	35.6	13.0	.57
No. 3A	34.5	12.7	.58
No. 3B	20.5	12.8	.39
	TREE GRADE 3 (Basis: 61 Trees)		
FAS	2.4	5.9	0.40
Selects	7.9	6.4	.45
No. 1C	19.3	11.3	.74
No. 2C	28.8	13.9	.74
No. 3A	27.8	12.9	.59
No. 3B	22.0	14.0	.44

Table 43.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for WHITE OAK

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 108 Trees)		
FAS	34.5	32.5	0.61
FAS1F	29.4	23.8	.61
Selects	11.5	12.2	.47
No. 1C	93.9	45.6	.90
No. 2C	112.8	47.2	.81
SW	24.3	42.5	.50
No. 3A	61.6	32.5	.54
No. 3B	39.3	31.6	.35
	TREE GRADE 2 (Basis: 121 Trees)		
FAS	8.2	13.2	0.41
FAS1F	12.0	15.2	.43
Selects	3.9	7.4*	(*)
No. 1C	51.1	36.3	.81
No. 2C	59.6	32.3	.83
SW	22.3	33.5	.45
No. 3A	40.8	21.4	.68
No. 3B	33.5	28.8	.29
	TREE GRADE 3 (Basis: 75 Trees)		
FAS	2.2	7.5	0.43
FAS1F	3.0	7.1	.48
Selects	1.4	3.3	.20
No. 1C	23.4	28.5	.81
No. 2C	44.8	33.2	.84
SW	17.1	32.0	.56
No. 3A	43.1	24.1	.72
No. 3B	45.8	32.4	.49

* For this lumber grade, the mean lumber volume was used instead of a regression equation. Therefore, standard deviation has been substituted for standard error, and the multiple correlation coefficient has been omitted.

Table 44.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for YELLOW-POPLAR

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 63 Trees)		
FAS	3.5	10.3	0.43
Selects	10.8	15.3	.52
Saps	17.9	17.3	.43
No. 1C	164.7	57.8	.85
No. 2A	169.0	62.2	.62
No. 2B	81.1	51.7	.71
No. 3C	4.2	7.4	.19
	TREE GRADE 2 (Basis: 50 Trees)		
FAS	1.0	4.5	0.20
Selects	3.5	8.6	.49
Saps	9.2	13.2	.27
No. 1C	89.4	50.1	.84
No. 2A	124.9	61.6	.77
No. 2B	67.6	45.7	.63
No. 3C	5.3	7.0	.51
	TREE GRADE 3 (Basis: 46 Trees)		
FAS	0.0	0.0	[a]
Selects	2.3	8.5	0.25
Saps	1.9	4.7	.24
No. 1C	42.6	45.2	.70
No. 2A	76.5	47.4	.77
No. 2B	84.2	56.6	.72
No. 3C	8.1	14.8	.08

[a] For this lumber grade, the mean lumber volume was 0.0. Therefore, the multiple correlation coefficient has been omitted.

Table 45.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for NORTHERN RED OAK

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 95 Trees)		
FAS	151.4	65.7	0.80
FAS1F	87.0	40.3	.74
Selects	17.1	19.2	.39
No. 1C	221.2	64.6	.86
No. 2C	134.6	36.2	.75
No. 3A	52.3	26.6	.42
No. 3B	24.0	31.2	.33
	TREE GRADE 2 (Basis: 58 Trees)		
FAS	51.4	48.0	0.62
FAS1F	38.7	[a]	[a]
Selects	3.7	5.8[b]	[b]
No. 1C	164.2	[a]	[a]
No. 2C	111.4	33.1	.86
No. 3A	53.6	28.5	.52
No. 3B	17.7	17.4	.50
	TREE GRADE 3 (Basic: 66 Trees)		
FAS	5.3	9.5	0.51
FAS1F	8.9	14.4	.50
Selects	2.0	3.9[b]	[b]
No. 1C	42.2	28.3	.80
No. 2C	56.1	24.0	.87
No. 3A	50.2	23.1	.73
No. 3B	41.0	28.6	.63

[a] Meaningful standard errors and multiple correlation coefficients for this lumber grade were not obtained.

[b] For this lumber grade, the mean lumber volume was used instead of a regression equation. Therefore, standard deviation has been substituted for standard error and the multiple correlation coefficient has been omitted.

Table 46.—Mean lumber volumes, standard errors of the residuals, and correlation coefficients for CHESTNUT OAK

Lumber grade	Mean lumber volume (board feet)	Standard error of the residual (board feet)	Multiple correlation coefficient
	TREE GRADE 1 (Basis: 82 Trees)		
FAS	20.7	[a]	[a]
FAS-WHND	49.0	49.2	0.57
FAS1F	20.6	22.5	.43
FAS1F-WHND	11.6	17.5	.35
Selects	3.2	4.4[b]	[b]
Selects-WHND	1.3	3.3[b]	[b]
No. 1C	43.0	[a]	[a]
No. 1C-WHND	66.5	34.3	.81
No. 2C	35.5	25.8	.38
SW	50.7	33.9	.56
No. 3A	46.1	29.8	.48
No. 3B	64.9	50.5	.59
	TREE GRADE 1 (Basic: 99 Trees)		
FAS	3.3	7.7	0.20
FAS-WHND	20.0	23.3	.71
FAS1F	8.9	16.5	.49
FAS1F-WHND	6.3	8.8	.58
Selects	2.9	3.8	.43
Selects-WHND	1.1	4.7	.27
No. 1C	18.9	18.2	.23
No. 1C-WHND	40.6	27.5	.80
No. 2C	22.7	22.0	.23
SW	33.9	22.8	.51
No. 3A	37.7	21.7	.35
No. 3B	50.3	36.6	.65
	TREE GRADE 3 (Basis: 75 Trees)		
FAS	0.0	0.0[b]	[b]
FAS-WHND	5.5	9.3	0.50
FAS1F	1.0	4.1	.26
FAS1F-WHND	1.5	5.2	.34
Selects	1.1	3.4[b]	[b]
Selects-WHND	.4	1.6[b]	[b]
No. 1C	9.2	10.9	.52
No. 1C-WHND	20.5	18.2	.74
No. 2C	13.4	13.4	.34
SW	28.8	25.8	.53
No. 3A	30.4	21.0	.45
No. 3B	47.3	25.9	.76

[a] Meaningful standard errors and multiple correlation coefficients for this lumber grade were not obtained.

[b] For this lumber grade, the mean lumber volume was used instead of a regression equation. Therefore, standard deviation has been substituted for standard error and the multiple correlation coefficient has been omitted.

Table 47.—Means and standard deviations for dbh and merchantable height, by species and tree grade

Species	Tree grade	Dbh (inches)		Merchantable height (feet)	
		Mean	Standard deviation	Mean	Standard deviation
Yellow birch	1	21.4	4.6	37.3	7.9
	2	18.4	3.7	32.6	7.5
	3	15.0	3.5	27.7	7.6
Red maple	1	19.5	2.5	42.2	9.1
	2	16.4	2.6	38.0	7.7
	3	14.4	2.8	32.3	8.1
Black oak	1	23.9	4.5	47.4	9.9
	2	20.2	4.7	37.9	9.2
	3	15.5	5.1	28.9	9.9
Basswood	1	18.5	3.0	46.9	9.5
	2	16.4	2.9	35.6	10.0
	3	14.7	3.1	32.2	10.1
Sugar maple	1	21.7	4.0	38.6	9.0
	2	20.1	4.2	34.6	8.3
	3	17.6	5.0	29.6	8.5
Black cherry	1	19.2	2.7	38.8	7.9
	2	17.1	2.8	36.0	7.1
	3	15.4	3.6	30.5	7.9
Paper birch	1	18.0	1.6	35.7	6.2
	2	15.6	2.2	34.5	7.1
	3	14.0	2.6	29.4	7.6
White oak	1	21.8	4.1	42.1	11.4
	2	18.9	3.6	34.2	10.7
	3	17.4	4.9	33.6	10.8
Yellow-poplar	1	20.4	3.5	50.3	10.9
	2	18.6	3.9	49.1	11.7
	3	17.1	3.1	45.1	10.6
Northern red oak	1	25.4	4.4	46.0	10.7
	2	22.0	5.3	36.2	8.8
	3	16.8	4.8	30.8	9.4
Chestnut oak	1	21.7	3.8	39.8	9.7
	2	18.7	4.3	34.4	7.6
	3	16.1	3.4	30.9	7.2