

CANADA
DEPARTMENT OF FORESTRY
Forest Research Branch

VOLUME TABLES FOR PLANTATION RED PINE
(Supplement to Technical Note No. 90)

by

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Preface

The volume tables of this report are only provisional and are intended to supplement the information published in Technical Note No. 90 until additional data, which are currently being collected, will allow the publication of final, expanded tables superseding Technical Note No. 90.

The tables are based on taper curves of 102 red pine trees grown in plantations near Rockland and St. Williams, Ontario, and cover height classes 65, 70 and 75 feet and diameter classes of 6 to 12 inches.

The method of measurement and the compilation of data followed the procedure outlined in Technical Note No. 90. The break in volume table data between this report and Technical Note No. 90 is due to differences in bark thickness and form class of trees providing the data for the two sets of tables.

Table 1. Plantation Red Pine
Alternative Pole Utilization

Tree Diameter Class (d.b.h.)	Tree Height Class		
	65'	70'	75'
	Longest Pole Available (Pole Class-Length)		
6"	9 - 20'	9 - 20'	
	10 - 25'	10 - 25'	
7"	7 - 16'	7 - 16'	
	8 - 20'	8 - 20'	
	9 - 30'	9 - 30'	
8"	6 - 20'	5 - 16'	
	7 - 22'	6 - 20'	
	8 - 25'	7 - 22'	
	9 - 30'	8 - 25'	
9"	5 - 20'	4 - 18'	4 - 18'
	6 - 25'	5 - 20'	5 - 20'
	7 - 30'	6 - 25'	6 - 25'
	8 - 35'	7 - 30'	7 - 30'
10"		8 - 35'	8 - 35'
	3 - 18'	3 - 18'	3 - 18'
	4 - 22'	4 - 22'	4 - 22'
	5 - 25'	5 - 25'	5 - 25'
	6 - 30'	6 - 30'	6 - 30'
11"	7 - 35'	7 - 35'	7 - 35'
	2 - 20'	2 - 20'	2 - 20'
	3 - 22'	3 - 22'	3 - 25'
	4 - 25'	4 - 25'	4 - 30'
	5 - 30'	5 - 30'	5 - 35'
	6 - 35'	6 - 35'	6 - 40'
	7 - 45'	7 - 45'	7 - 50'
12"	2 - 20'	1 - 20'	1 - 22'
	3 - 22'	2 - 22'	2 - 25'
	4 - 25'	3 - 25'	3 - 30'
	5 - 30'	4 - 30'	4 - 35'
	6 - 35'	5 - 40'	5 - 40'
	7 - 45'	6 - 45'	6 - 50'

(Above a stump height of 6 inches)

Table 1. Population and Area
Alternative Role Utilization

Time-Weighted Class (A.1.1)		Time-Weighted Class (A.1.2)	
Area	Population	Area	Population
1	100	1	100
2	200	2	200
3	300	3	300
4	400	4	400
5	500	5	500
6	600	6	600
7	700	7	700
8	800	8	800
9	900	9	900
10	1000	10	1000
11	1100	11	1100
12	1200	12	1200
13	1300	13	1300
14	1400	14	1400
15	1500	15	1500
16	1600	16	1600
17	1700	17	1700
18	1800	18	1800
19	1900	19	1900
20	2000	20	2000
21	2100	21	2100
22	2200	22	2200
23	2300	23	2300
24	2400	24	2400
25	2500	25	2500
26	2600	26	2600
27	2700	27	2700
28	2800	28	2800
29	2900	29	2900
30	3000	30	3000

(Area = square miles of 6 inches)

Table 1a. Dimensions of Red Pine Poles¹

Length in Feet	Pole Class									
	1	2	3	4	5	6	7	8	9	10
	Minimum Top Diameter in Inches									
	8.59	7.96	7.32	6.68	6.05	5.41	4.77	4.77	4.77	3.82
	Minimum Diameter (Inches) at 6 Feet from Butt									
16					7.16	6.68	6.20	5.73	Diameter 6' from butt of class 9 and 10 poles to be less than that shown for corresponding diameter of class 8 pole of same length.	
18			8.91	8.27	7.64	7.00	6.52	6.05		
20	10.66	10.03	9.39	8.59	7.95	7.32	6.84	6.36		
22	11.14	10.50	9.71	9.07	8.43	7.80	7.16	6.68		
25	11.78	10.98	10.35	9.55	8.91	8.11	7.64	7.00		
30	12.73	11.94	11.14	10.34	9.55	8.91	8.27	7.64		
35	13.53	12.73	11.94	10.98	10.18	9.55	8.75	8.11		
40	14.32	13.53	12.57	11.62	10.82	10.03	9.39	-		
45	15.12	14.16	13.21	12.25	11.46	10.50	9.87	-		
50	15.76	14.80	13.85	12.73	11.94	10.98	10.19	-		
55	16.39	15.44	14.32	13.37	12.41	11.46	-	-		
60	17.03	15.92	14.80	13.85	12.73	11.78	-	-		
65	17.51	16.39	15.28	14.32	13.05	-	-	-		
70	17.98	16.87	15.60	14.64	13.85	-	-	-		

¹Adapted from C.S.A. Specification 015.3 1960

Table 1a. Dimensions of Red Pine Poles

Length in Feet	Pole Class						
	1	2	3	4	5	6	7
7.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
8.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
9.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
10.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
11.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
12.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
13.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
14.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
15.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
16.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
17.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
18.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
19.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
20.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
21.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
22.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
23.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
24.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
25.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
26.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
27.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
28.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
29.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
30.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
31.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
32.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
33.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
34.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
35.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
36.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
37.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
38.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
39.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
40.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
41.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
42.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
43.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
44.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
45.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
46.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
47.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
48.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
49.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11
50.0	17.98	18.87	19.80	20.84	21.91	23.00	24.11

Revised for U.S.A. Specification O.R. 3, 1950

Minimum Diameter (Inches) at 1 foot from Butt
 Diameter of class 9 and 10 poles
 to be less than that
 shown for corresponding
 diameter of class 8
 pole of same length.

Table 2. Plantation Red Pine
Reinforcing Stub Utilization

Tree Diameter Class (d.b.h.)	TREE HEIGHT CLASS						
	65		70			75	
9"	Stub Class		W		W		W
	Stub Length		10'		10'		10'
10"	Stub Class	X	W	X	W	X	W
	Stub Length	10'	11'	10'	11'	10'	11'
11"	Stub Class	X	W	X	W	X	W
	Stub Length	10'	13'	10'	13'	11'	13'
12"	Stub Class	-	-	X	W	Y	X
	Stub Length	-	-	11'	13'	10'	13'

(above a stump height of 6 inches)

Table 2. Plantation and Forest
 Reforestation and Utilization

Tree Number Class (d.b.h.)	Tree Height Class			
	100	100	100	100
100	W 100	W 100	W 100	W 100
100	X 100	W 100	W 100	X 100
100	W 100	X 100	W 100	W 100
100	W 100	W 100	X 100	W 100

(above stump height of 5 inches)

Table 2a. Dimensions of Red Pine Reinforcing Stubs¹

Length in feet	Stub Class			
	Z	Y	X	W
	Minimum Diameter (Inches) at 6 Feet from Butt			
10	12.10	10.50	8.91	7.64
11	13.69	11.94	10.19	8.75
13	15.12	13.21	11.30	9.55
15½	15.76	13.69	11.78	-
19½	17.35	14.96	13.21	-

¹ Adapted from C.S.A. Specification 015.3. 1960

Table 3. Plantation Red Pine
Total Volume

Tree Diameter Class (d.b.h.)	Tree Height Class		
	65	70	75
	Cubic Feet		
6"	6.20	6.75	
7"	8.60	9.30	
8"	11.20	12.25	
9"	14.35	15.30	16.20
10"	17.60	19.00	20.30
11"	21.30	23.15	24.90
12"		27.40	30.25

(Top and stump included)

Basis - 102 trees measured in Rockland and St. Williams, Ontario.

Table 2. Diameter of Red Pine Relationship Series

W	X	Y	Z	Level in feet
10.0	10.0	10.0	10.0	10
11.0	11.0	11.0	11.0	11
12.0	12.0	12.0	12.0	12
13.0	13.0	13.0	13.0	13
14.0	14.0	14.0	14.0	14
15.0	15.0	15.0	15.0	15

Adapted from G. A. S. Association 01.3.1960

Table 3. Relationship Red Pine

Total Volume

Tree Diameter (d.b.h.)	Tree Height Class	Volume
10.0	10.0	10.0
11.0	11.0	11.0
12.0	12.0	12.0
13.0	13.0	13.0
14.0	14.0	14.0
15.0	15.0	15.0

(Log and stump included) - LOS trees measured by Rockland and W. Williams, Ontario

Table 4. Plantation Red Pine
Merchantable Cubic Volume

Tree Diameter Class (d.b.h.)	Tree Height Class		
	65	70	75
	Cubic Feet		
6"	5.40	5.80	
7"	7.50	8.30	
8"	10.25	11.00	
9"	13.25	14.15	15.00
10"	16.50	17.60	18.90
11"	19.80	21.50	23.25
		25.80	28.30

(Volume for 50-inch bolts, to the nearest whole bolt and to a top d.i.b. of not less than 3 inches, above a stump height of 6 inches.)

Basis - 102 trees measured in Rockland and St. Williams, Ontario.

Table A. Plantation and Pine
 Marketable Cubic Volume

Tree Diameter Class (6.0-6.9)	Tree Height Class 70	Tree Height Class 70	Tree Diameter Class (6.0-6.9)
110	28.50	14.15	110
120	31.50	17.60	120
130	34.50	21.50	130
140	37.50	25.40	140
150	40.50	29.30	150
160	43.50	33.20	160
170	46.50	37.10	170
180	49.50	41.00	180
190	52.50	44.90	190
200	55.50	48.80	200
210	58.50	52.70	210
220	61.50	56.60	220
230	64.50	60.50	230
240	67.50	64.40	240
250	70.50	68.30	250
260	73.50	72.20	260
270	76.50	76.10	270
280	79.50	80.00	280
290	82.50	83.90	290
300	85.50	87.80	300
310	88.50	91.70	310
320	91.50	95.60	320
330	94.50	99.50	330
340	97.50	103.40	340
350	100.50	107.30	350
360	103.50	111.20	360
370	106.50	115.10	370
380	109.50	119.00	380
390	112.50	122.90	390
400	115.50	126.80	400
410	118.50	130.70	410
420	121.50	134.60	420
430	124.50	138.50	430
440	127.50	142.40	440
450	130.50	146.30	450
460	133.50	150.20	460
470	136.50	154.10	470
480	139.50	158.00	480
490	142.50	161.90	490
500	145.50	165.80	500

(Volume for 50-foot class, to the nearest whole unit, to a top diameter of
 not less than 5 inches, above a stump height of 6 inches.)
 Basis - 105 trees measured in Redland and St. Williams, Ontario.

Table 5. Plantation Red Pine
Board Foot and Merchantable Cubic Volume

Tree Diameter Class (d.b.h.)	TREE HEIGHT CLASS			
		65	70	75
7"	Ft. b.m.	14	15	
	Cu. ft.	4.8	5.2	
8"	Ft. b.m.	34	35	
	Cu. ft.	2.8	3.7	
9"	Ft. b.m.	53	58	59
	Cu. ft.	2.1	2.2	2.2
10"	Ft. b.m.	73	79	88
	Cu. ft.	1.2	1.6	1.6
11"	Ft. b.m.	93	101	112
	Cu. ft.	1.1	1.2	1.1
12"	Ft. b.m.		124	147
	Cu. ft.		1.0	1.1

(Board feet, Ontario Log Rule, for logs not less than 8 feet 3 inches long to a top d.i.b. of not less than 6 inches, above a stump height of 6 inches. Cubic feet for 50-inch bolts in remainder of tree, to the nearest bolt and to a top d.i.b. of not less than 3 inches.)

Basis - 91 trees measured in Rockland and St. Williams, Ontario.

Table 2. Plantation Red Pine
Board Foot and Merchandise Cubic Volume

Tree Diameter Class (d.b.h.)	Tree Weight Class		Tree Diameter Class (d.b.h.)
	65	70	
7 1/2"	14	12	7 1/2"
8"	34	32	8"
9"	73	68	9"
10"	121	108	10"
11"	171	153	11"
12"	224	196	12"

Board feet, Ontario Log Rule, for logs not less than 8 feet 3 inches long for a
 for d.b.h. of not less than 6 inches, above a diameter of 6 inches. This
 feet for 30-inch logs in remainder of trees, to the nearest half and to a top
 d.b.h. of not less than 3 inches.)
 Basis: 91 trees measured in Rockland and St. William, Ontario.