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TAPER TABLES FOR WESTERN HEMLOCK

By

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In 1947 the West Coast Forestry Procedures Committee recommended several mensuration projects, one of which called for the construction of taper tables for Western hemlock. In response the present tables were prepared. Basic data for these tables consist of measurements of 912 trees taken a number of years ago by members of the Pacific Northwest Forest & Range Experiment Station. The trees were measured at widely scattered points in western Washington and Oregon, and they represent a wide variety of sites and form classes. The method used has been described in detail by Bruce and Schumacher,^{2/} who also discuss some of the uses of taper tables. These tables are based on a 2-foot stump. They show diameters inside bark at the tops of 16.3-foot logs by 2-inch d.b.h. classes within 20-foot total height classes. To facilitate interpolations, values are given to the nearest tenth of an inch.

^{1/} Participation in this project by the staff of the State Forester of Oregon was made possible by funds derived through the Forest Research and Experimental Tax Act of 1947.

^{2/} Bruce, D. and F. X. Schumacher. Forest mensuration. 2nd ed. McGraw-Hill, N. Y. 1942. P. 316-339.

Western hemlock taper tables^{1/}

D.b.h. class (in.)	Total ht. class	Number of 16.3-foot logs								
		1	2	3	4	5	6	7	8	9
	<u>Ft.</u>	<u>D.i.b. at tops of logs - inches</u>								
6	40	5.2	4.0							
	60	5.6	4.3							
8	40	6.6	4.5							
	60	7.0	5.0							
	80	7.4	6.5	5.0						
10	60	8.4	6.2							
	80	8.8	7.6	5.5						
	100	9.5	8.6	7.3	5.6					
12	60	9.7	6.6							
	80	10.2	8.7	6.0						
	100	11.0	9.7	8.1	6.2					
	120	11.5	10.6	9.4	7.9	6.2				
14	60	11.3	8.0							
	80	11.6	9.7	6.7						
	100	12.4	11.0	9.1	6.7					
	120	12.8	11.8	10.4	8.7	6.7				
	140	13.3	12.4	11.3	10.0	8.5	6.7			
16	80	13.1	10.7	7.5						
	100	13.8	12.2	10.1	7.4					
	120	14.2	13.0	11.5	9.7	7.3				
	140	14.7	13.6	12.4	11.0	9.4	7.4			
	160	15.3	14.3	13.3	12.1	10.7	9.0	7.0		
18	100	15.2	13.3	10.9	7.9					
	120	15.6	14.2	12.5	10.4	7.8				
	140	16.0	14.8	13.5	11.9	10.1	7.9			
	160	16.7	15.6	14.5	13.2	11.6	9.8	7.6		
	180	17.2	16.2	15.1	13.9	12.5	11.1	9.3	7.2	
	200	17.5	16.7	15.7	14.6	13.3	12.0	10.4	8.5	6.4

^{1/} Prepared by Floyd A. Johnson, Pacific Northwest Forest & Range Experiment Station, and Wilbur Engstrom, Oregon State Board of Forestry. 1949.

Western hemlock taper tables (cont.)

D.b.h. class (in.)	Total ht. class Ft.	Number of 16.3-foot logs									
		1	2	3	4	5	6	7	8	9	10
		<u>D.i.b. at tops of logs - inches</u>									
20	100	16.4	14.5	11.9	8.6						
	120	17.0	15.5	13.7	11.2	8.4	5.0				
	140	17.5	16.2	14.7	12.9	10.8	8.4	5.4			
	160	18.0	16.8	15.6	14.2	12.5	10.6	8.2	5.5		
	180	18.6	17.5	16.3	15.0	13.5	11.8	9.8	7.6	5.0	
	200	19.0	18.0	17.0	15.8	14.4	12.8	11.1	9.2	7.1	5.0
22	100	17.9	15.7	12.8	9.0						
	120	18.3	16.8	14.7	12.0	8.9	5.3				
	140	18.8	17.4	15.8	13.9	11.7	8.9	5.6			
	160	19.4	18.2	16.8	15.2	13.5	11.3	8.8	5.8		
	180	20.0	18.9	17.6	16.0	14.5	12.7	10.6	8.1	5.5	
	200	20.4	19.4	18.2	16.9	15.5	13.8	11.9	9.8	7.6	
24	100	19.3	16.9	13.7	9.7						
	120	19.8	18.0	15.8	13.0	9.6	5.6				
	140	20.2	18.7	17.0	15.0	12.4	9.4	5.9			
	160	20.8	19.5	18.0	16.3	14.4	12.1	9.3	6.2		
	180	21.4	20.1	18.8	17.3	15.5	13.6	11.3	8.7	5.9	
	200	21.8	20.7	19.5	18.1	16.5	14.7	12.7	10.5	8.1	5.7
26	120	21.2	19.4	17.0	13.8	10.2	6.0				
	140	21.6	20.0	18.2	15.9	13.2	10.1	6.4			
	160	22.2	20.8	19.2	17.4	15.3	12.9	10.0	6.7		
	180	22.8	21.5	20.0	18.4	16.5	14.4	12.0	9.3	6.4	
	200	23.2	22.0	20.7	19.3	17.6	15.7	13.5	11.3	8.8	6.2
28	120	22.5	20.6	17.9	14.6	10.7	6.2				
	140	22.9	21.3	19.3	16.9	14.0	10.6	6.8			
	160	23.6	22.0	20.3	18.4	16.2	13.6	10.4	7.0		
	180	24.1	22.7	21.1	19.4	17.5	15.3	12.7	9.9	6.7	
	200	24.6	23.4	22.0	20.4	18.6	16.8	14.3	11.9	9.3	6.6

Western hemlock taper tables (cont.)

D.b.h. class (in.)	Total ht. class Ft.	Number of 16.3-foot logs										
		1	2	3	4	5	6	7	8	9	10	11
		D.i.b. at tops of logs - inches										
30	120	24.0	21.9	19.0	15.5	11.3	6.5					
	140	24.4	22.6	20.4	17.9	14.7	11.2	7.1				
	160	25.0	23.4	21.6	19.5	17.0	14.2	11.0	7.4			
	180	25.5	24.0	22.3	20.6	18.4	16.2	13.5	10.5	7.2		
	200	26.0	24.6	23.1	21.5	19.5	17.5	15.2	12.6	9.8	6.9	
	220	26.5	25.2	23.6	22.1	20.2	18.3	16.2	13.9	11.4	9.0	6.5
32	120	25.2	23.1	20.0	16.3	11.8	6.7					
	140	25.7	24.0	21.7	18.9	15.6	11.7	7.4				
	160	26.3	24.7	22.7	20.6	18.0	15.0	11.6	7.7			
	180	26.9	25.4	23.5	21.6	19.5	17.0	14.1	11.0	7.4		
	200	27.4	26.0	24.4	22.6	20.6	18.4	15.9	13.2	10.3	7.4	
	220	27.9	26.5	24.9	23.3	21.4	19.3	17.0	14.6	12.1	9.7	7.0
34	140	27.0	25.1	22.7	19.9	16.4	12.3	7.8				
	160	27.7	26.0	23.9	21.6	18.8	15.8	12.2	8.0			
	180	28.3	26.6	24.8	22.8	20.5	17.9	14.8	11.5	7.9		
	200	28.7	27.2	25.5	23.8	21.7	19.3	16.7	13.9	10.9	7.7	
	220	29.3	27.7	26.0	24.3	22.3	20.2	17.8	15.4	12.8	10.1	7.4
36	140	28.5	26.4	23.8	20.7	17.0	12.8	8.0				
	160	29.2	27.3	25.2	22.8	19.9	16.6	12.8	8.4			
	180	29.6	27.9	26.0	23.9	21.5	18.7	15.6	12.1	8.3		
	200	30.2	28.6	26.8	24.9	22.7	20.3	17.5	14.6	11.5	8.3	
	220	30.6	29.0	27.3	25.5	23.5	21.2	18.8	16.2	13.5	10.7	7.8
38	140	29.8	27.6	24.9	21.7	17.9	13.4	8.4				
	160	30.5	28.6	26.3	23.7	20.7	17.3	13.4	8.9			
	180	31.0	29.2	27.1	25.0	22.5	19.6	16.2	12.7	8.6		
	200	31.6	29.9	28.0	26.0	23.7	21.1	18.3	15.2	11.9	8.5	
	220	32.1	30.4	28.5	26.6	24.4	22.1	19.6	16.9	14.0	11.1	8.1
40	140	31.0	28.9	26.1	22.8	18.7	14.0	8.6				
	160	32.0	30.0	27.5	24.7	21.5	17.9	13.8	9.2			
	180	32.4	30.5	28.4	26.2	23.4	20.5	17.0	13.2	9.1		
	200	32.9	31.1	29.2	27.1	24.8	22.2	19.1	15.9	12.4	8.9	
	220	33.3	31.6	29.7	27.8	25.5	23.1	20.4	17.6	14.7	11.6	8.2

Western hemlock taper tables (cont.)

D.b.h. class (in.)	Total ht. class Ft.	Number of 16.3-foot logs											
		1	2	3	4	5	6	7	8	9	10	11	12
		D.i.b. at tops of logs - inches											
42	160	33.4	31.2	28.6	25.7	22.5	18.9	14.5	9.5				
	180	33.9	32.0	29.7	27.2	24.4	21.3	17.6	13.6	9.4			
	200	34.3	32.6	30.5	28.2	25.7	23.0	19.9	16.6	13.0	9.5		
	220	34.8	33.0	31.1	29.0	26.8	24.2	21.5	18.5	15.4	12.2	9.1	
44	160	34.7	32.6	30.0	27.0	23.5	19.6	15.0	9.9				
	180	35.3	33.2	30.8	28.3	25.5	22.2	18.5	14.4	9.9			
	200	35.7	34.0	31.8	29.5	26.9	24.0	20.7	17.3	13.5	9.6		
	220	36.2	34.5	32.4	30.3	27.8	25.2	22.4	19.4	16.2	13.0	9.5	
46	160	36.2	33.8	31.2	28.0	24.5	20.5	15.9	10.6				
	180	36.6	34.6	32.1	29.4	26.4	23.0	19.0	14.7	10.0			
	200	37.1	35.2	33.0	30.7	28.0	25.0	21.6	18.0	14.1	10.2		
	220	37.6	35.7	33.7	31.4	28.9	26.1	23.2	20.0	16.8	13.4	9.8	
	240	38.1	36.2	34.0	31.8	29.4	26.7	24.0	21.2	18.3	15.4	12.4	8.9
48	160	37.4	35.1	32.4	29.0	25.2	21.0	16.1	10.7				
	180	37.9	35.8	33.2	30.4	27.4	23.9	19.9	15.6	10.6			
	200	38.5	36.5	34.2	31.8	28.9	25.8	22.3	18.6	14.5	10.5		
	220	39.0	37.0	35.0	32.6	30.0	27.2	24.1	20.8	17.4	14.0	10.3	
	240	39.6	37.5	35.3	33.0	30.5	27.8	24.9	22.0	19.0	16.0	13.0	9.4
50	160	38.8	36.4	33.5	30.0	26.1	21.8	16.6	10.8				
	180	39.4	37.2	34.5	31.6	28.4	24.8	20.5	16.0	10.9			
	200	39.9	37.9	35.4	32.9	30.0	26.8	23.1	19.3	15.2	10.9		
	220	40.3	38.4	36.0	33.7	31.0	28.2	24.8	21.6	18.0	14.4	10.6	
	240	40.9	38.9	36.6	34.2	31.6	28.8	25.9	22.9	19.8	16.6	13.4	9.7
52	180	40.7	38.5	35.9	32.8	29.4	25.6	21.2	16.6	11.4			
	200	41.2	39.2	36.7	34.0	31.0	27.8	24.0	20.0	15.8	11.3		
	220	41.8	39.8	37.4	35.0	32.2	29.2	25.9	22.4	18.7	15.0	11.1	
	240	42.4	40.2	37.9	35.4	32.8	29.8	26.8	23.8	20.6	17.4	14.0	10.2
54	200	42.7	40.5	38.0	35.2	32.1	28.8	24.8	20.7	16.2	11.7		
	220	43.1	41.0	38.7	36.1	33.2	30.2	26.9	23.3	19.4	15.6	11.6	
	240	43.6	41.5	39.1	36.7	33.8	31.0	27.9	24.6	21.2	18.0	14.6	10.6
56	200	44.0	41.8	39.3	36.4	33.2	29.7	25.8	21.5	17.0	12.2		
	220	44.6	42.4	40.0	37.4	34.4	31.2	27.8	24.0	20.2	16.2	12.0	
	240	45.1	43.0	40.5	38.0	35.1	32.0	28.9	25.6	22.1	18.7	15.1	10.9