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Forest Department.

Volume Measurements
of
Standing Trees.

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VOLUME MEASUREMENTS OF STANDING TREES.

The following information has been prepared to enable the volume of timber in the round contained in standing Jarrah and Karri trees, to be worked out by means of the same tables as are used to ascertain the volume of mill logs on log landings. The standard tables which are drawn up in accordance with Regulation 32 (c) are based on two measurements—

- (a) The length of log.
- (b) The measurement of girth under bark at the centre of the log.

The following methods will be used to obtain these measurements in the case of standing trees :—

(a) LENGTH OF LOG.

The instrument used will be the Abney level or other form of hypsometer set at an angle of 45 degrees. The reading must be taken from a position in which the eye of the observer is on the same level as the scarf which will be caused in felling the tree. With a reading of 45 degrees to a point where it is considered the tree will be cross cut after felling, the distance of the observer from the tree will be equivalent to the length of log in the tree.

(b) MID GIRTH MEASUREMENT.

In the case of a tree with reasonably cylindrical butt, the girth over bark will be measured at breast height (4ft. 3in.), but in the case of trees with swollen bases, spurs or faulty butts, the measurement should be taken at such greater height as is necessary to avoid the swelling.

To facilitate the calculation necessary to ascertain the mid girth under bark from this measurement, at the base over bark the deduction covering both taper and bark for various length logs has been set out in the tabular statement hereunder.

In the case of Jarrah the deduction is less for trees between 6ft. and 9ft. girth, breast high, than for trees over 9ft., B.H., and care must be taken that the deduction necessary is ascertained from the correct column in the case of Jarrah. This is explained in the following examples :—

- (i) Length of log 52ft., girth B.H. over bark 7ft. 8in., subtraction for a tree of 52ft. in length in the smaller girth class is 2ft. 10in., giving by subtraction a mid girth under bark of 4ft. 10in. The volume of the log from standard tables is then read off as 96·67 cubic feet. To convert to loads this must be divided by 50 : equals 1·93 loads.
- (ii) Length of log, 68ft., girth over bark 10ft. 6in., allowance for bark and taper according to table for trees over 9ft. is 4ft. 11in., giving by subtraction a mid girth under bark of 5ft. 7in. The volume may then be read off from the standard table as 168·69 cubic feet. To convert to loads this must be divided by 50 : equals 3·37 loads.

In the case of Karri the method is the same, except that there is no distinction in the allowance to be made on large and small sized trees.

JARRAH.

Length of Log.	Subtraction to be made from Girth B.H. over bark to give Mid Girth under bark.		Length of Log.	Subtraction to be made from Girth B.H. over bark to give Mid Girth under bark.	
	Trees 72in.-108in., G.B.H. over bark.	Trees over 108in., G.B.H. over bark.		Trees 72in.-108in., G.B.H. over bark.	Trees over 108in., G.B.H. over bark.
Feet.	Ft. in.	Ft. in.	Feet.	Ft. in.	Ft. in.
10	1 1	1 4	51	2 10	3 10
11	1 2	1 4	52	2 10	3 11
12	1 2	1 5	53	2 11	4 0
13	1 3	1 6	54	2 11	4 1
14	1 3	1 7	55	3 0	4 1
15	1 4	1 7	56	3 0	4 2
16	1 4	1 8	57	3 1	4 3
17	1 5	1 9	58	3 1	4 4
18	1 5	1 10	59	3 2	4 4
19	1 6	1 10	60	3 2	4 5
20	1 6	1 11	61	3 3	4 6
21	1 7	2 0	62	3 3	4 7
22	1 7	2 1	63	3 4	4 7
23	1 8	2 1	64	3 4	4 8
24	1 8	2 2	65	3 5	4 9
25	1 9	2 3	66	3 5	4 10
26	1 9	2 4	67	3 6	4 10
27	1 10	2 4	68	3 6	4 11
28	1 10	2 5	69	3 7	5 0
29	1 11	2 6	70	3 7	5 1
30	1 11	2 7	71	3 8	5 1
31	2 0	2 7	72	3 8	5 2
32	2 0	2 8	73	3 9	5 3
33	2 1	2 9	74	3 9	5 4
34	2 1	2 10	75	3 10	5 4
35	2 2	2 10	76	3 10	5 5
36	2 2	2 11	77	3 11	5 6
37	2 3	3 0	78	3 11	5 7
38	2 3	3 1	79	4 0	5 8
39	2 4	3 1	80	4 0	5 8
40	2 4	3 2	81	4 1	5 9
41	2 5	3 3	82	4 1	5 10
42	2 5	3 4	83	4 2	5 10
43	2 6	3 4	84	4 2	5 11
44	2 6	3 5	85	4 3	6 0
45	2 7	3 6	86	4 3	6 0
46	2 7	3 7	87	4 4	6 1
47	2 8	3 8	88	4 4	6 2
48	2 8	3 8	89	4 5	6 3
49	2 9	3 9	90	4 5	6 4
50	2 9	3 10			

KARRI.

Table to show the Subtractions from Girth B.H. over bark, to obtain Mid Girth under bark.

Length.	Subtraction.	Length.	Subtraction.	Length.	Subtraction.	Length.	Subtraction.
Feet. 20 ...	Ft. in. 1 6	Feet. 50 ...	Ft. in. 2 9	Feet. 80 ...	Ft. in. 4 0	Feet. 110 ...	Ft. in. 5 3
21 ...	1 7	51 ...	2 10	81 ...	4 1	111 ...	5 4
22 ...	1 7	52 ...	2 10	82 ...	4 1	112 ...	5 4
23 ...	1 8	53 ...	2 11	83 ...	4 2	113 ...	5 5
24 ...	1 8	54 ...	2 11	84 ...	4 2	114 ...	5 5
25 ...	1 9	55 ...	3 0	85 ...	4 3	115 ...	5 6
26 ...	1 9	56 ...	3 0	86 ...	4 3	116 ...	5 6
27 ...	1 10	57 ...	3 1	87 ...	4 4	117 ...	5 7
28 ...	1 10	58 ...	3 1	88 ...	4 4	118 ...	5 7
29 ...	1 11	59 ...	3 2	89 ...	4 5	119 ...	5 8
30 ...	1 11	60 ...	3 2	90 ...	4 5	120 ...	5 8
31 ...	2 0	61 ...	3 3	91 ...	4 6	121 ...	5 9
32 ...	2 0	62 ...	3 3	92 ...	4 6	122 ...	5 9
33 ...	2 1	63 ...	3 4	93 ...	4 7	123 ...	5 10
34 ...	2 1	64 ...	3 4	94 ...	4 7	124 ...	5 10
35 ...	2 2	65 ...	3 5	95 ...	4 8	125 ...	5 11
36 ...	2 2	66 ...	3 5	96 ...	4 8	126 ...	5 11
37 ...	2 3	67 ...	3 6	97 ...	4 9	127 ...	6 0
38 ...	2 3	68 ...	3 6	98 ...	4 9	128 ...	6 0
39 ...	2 4	69 ...	3 7	99 ...	4 10	129 ...	6 1
40 ...	2 4	70 ...	3 7	100 ...	4 10	130 ...	6 1
41 ...	2 5	71 ...	3 8	101 ...	4 11	131 ...	6 2
42 ...	2 5	72 ...	3 8	102 ...	4 11	132 ...	6 2
43 ...	2 6	73 ...	3 9	103 ...	5 0	133 ...	6 3
44 ...	2 6	74 ...	3 9	104 ...	5 0	134 ...	6 3
45 ...	2 7	75 ...	3 10	105 ...	5 1	135 ...	6 4
46 ...	2 7	76 ...	3 10	106 ...	5 1	136 ...	6 4
47 ...	2 8	77 ...	3 11	107 ...	5 2	137 ...	6 5
48 ...	2 8	78 ...	3 11	108 ...	5 2	138 ...	6 5
49 ...	2 9	79 ...	4 0	109 ...	5 3	139 ...	6 6
						140 ...	6 6

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112 1/2

BASIS FOR COMPUTATION OF THE ABOVE TABLES.

Measurements of a large number of felled trees were taken and the average taper from B.H. to mid girth determined. For Jarrah the tables have been constructed on a base of lin. decrease in girth per foot of length for trees whose girth B.H. is between 72in. and 108in., and $1\frac{1}{2}$ in. decrease per foot of length for trees over 108in. girth B.H.

For Karri an allowance of lin. in girth per foot of length has been made for all girth classes, but it should be understood that this applies to reasonably mature trees in virgin forest only.

The average subtraction required to convert over bark to under bark measurement was found to be 8in. for both Jarrah and Karri, and is constant, irrespective of the size of log.

SAMPLE ACRES.

[illegible]

SAMPLE ACRES.

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SAMPLE ACRES.

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