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NUMBER OF 8.7 - FOOT VENEER BOLTS IN LOBLOLLY PINE TREES OF OLD-FIELD PLANTATIONS IN THE INTERIOR WEST GULF COASTAL PLAIN

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One of the products for which loblolly pine (Pinus taeda L.) may be harvested is plywood. To assist the softwood plywood industry, quantification of loblolly pine plantations in terms usable to the industry is needed.

This paper reports estimates of the number of 8.7-foot bolts realizable from planted loblolly pine trees of various sizes. Three merchantability standards were observed – 8, 7, and 6-inch top d.i.b. The only predictors needed are diameter at breast height (D) and total tree height (H).

Data for the regression analyses were obtained from randomly selected temporary sample plots measured in 158 unthinned old-field loblolly pine plantations throughout the Interior West Gulf Coastal Plain (Hasness and Lenhart, 1972). On these 158 plots, 632 trees were felled for stem analysis measurements, of which 107 contained one or more bolts to a 6" top diameter, 49 contained 7" bolts and 21 contained 8" bolts.

After regression analyses, the following equations to predict the number of 8.7-foot veneer bolts were developed:

(1) To a 6-inch top d.i.b.

$$\text{Number} = 6.0557 (\log D^2H) - 19.67723$$

$$r^2 = 0.916 \text{ and } S_{y \cdot x} = 0.385.$$

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(2) To a 7-inch top d.i.b.

Number = 6.62565 (log D^2H) - 22.65985

$r^2 = 0.932$ and $S_{y.x} = 0.381$.

(3) To an 8-inch top d.i.b.

Number = 8.03705 (log D^2H) - 29.10303

$r^2 = 0.877$ and $S_{y.x} = 0.583$.

Tables 1, 2, and 3 show numbers of 8.7-foot veneer bolts by the three merchantability classes. The predicted numbers of 8.7-foot veneer bolts are not whole numbers. At the discretion of the user the values may be either truncated down to a whole bolt or rounded to the nearest bolt.

TABLE 1. NUMBER OF 8.7 - FOOT VENEER BOLTS TO A 6-INCH TOP DIAMETER INSIDE BARK FOR LOBLOLLY PINE TREES.

D.B.H., INCHES	TOTAL HEIGHT, FEET									
	40	45	50	55	60	65	70	75	80	85
7	0.3	0.6	0.8	1.1	1.3					
8	1.0	1.3	1.5	1.8	2.0	2.2				
9	1.6	1.9	2.2	2.4	2.6	2.9				
10		2.4	2.7	3.0	3.2	3.4	3.6			
11		2.9	3.2	3.5	3.7	3.9	4.1	4.3	4.5	
12			3.7	3.9	4.2	4.4	4.6	4.7	4.9	
13			4.1	4.4	4.6	4.8	5.0	5.2	5.3	
14				4.7	5.0	5.2	5.4	5.6	5.7	5.9
15					5.3	5.5	5.7	5.9	6.1	6.3
16					5.7	5.9	6.1	6.3	6.4	6.6
17						6.2	6.4	6.6	6.7	6.9
18							6.7	6.9	7.1	7.2
19								7.2	7.3	7.5

TABLE 2. NUMBER OF 8.7 - FOOT VENEER BOLTS TO A 7-INCH TOP DIAMETER INSIDE BARK FOR LOBLOLLY PINE TREES.

D.B.H.,	TOTAL HEIGHT, FEET									
INCHES	40	45	50	55	60	65	70	75	80	85
9	0.6	0.9	1.2	1.5	1.8	2.0				
10		1.5	1.8	2.1	2.4	2.6	2.8			
11		2.1	2.4	2.7	2.9	3.2	3.4	3.6	3.7	
12			2.9	3.2	3.4	3.7	3.9	4.1	4.2	
13			3.4	3.6	3.9	4.1	4.3	4.5	4.7	
14				4.1	4.3	4.5	4.8	5.0	5.1	5.3
15					4.7	4.9	5.1	5.3	5.5	5.7
16					5.1	5.3	5.5	5.7	5.9	6.1
17						5.7	5.9	6.1	6.3	6.4
18							6.2	6.4	6.6	6.8
19								6.7	6.9	7.1

TABLE 3. NUMBER OF 8.7 - FOOT VENEER BOLTS TO A 8-INCH TOP DIAMETER INSIDE BARK FOR LOBLOLLY PINE TREES.

D.B.H., INCHES	TOTAL HEIGHT, FEET								
	45	50	55	60	65	70	75	80	85
10	0.3	0.6	1.0	1.3	1.5	1.8			
11	0.9	1.3	1.6	1.9	2.2	2.5	2.7	2.9	
12		1.9	2.2	2.5	2.8	3.1	3.3	3.5	
13		2.5	2.8	3.1	3.4	3.6	3.9	4.1	
14			3.3	3.6	3.9	4.1	4.4	4.6	4.8
15				4.1	4.4	4.6	4.9	5.1	5.3
16				4.5	4.8	5.1	5.3	5.5	5.8
17					5.2	5.5	5.7	6.0	6.2
18						5.9	6.1	6.4	6.6
19							6.5	6.7	7.0

TABLE 3. NUMBER OF 8.7 - FOOT VENEER BOLTS TO A 8-INCH TOP DIAMETER INSIDE BARK FOR LOBLOLLY PINE TREES.

D.B.H., INCHES	TOTAL HEIGHT, FEET								
	45	50	55	60	65	70	75	80	85
10	0.3	0.6	1.0	1.3	1.5	1.8			
11	0.9	1.3	1.6	1.9	2.2	2.5	2.7	2.9	
12		1.9	2.2	2.5	2.8	3.1	3.3	3.5	
13		2.5	2.8	3.1	3.4	3.6	3.9	4.1	
14			3.3	3.6	3.9	4.1	4.4	4.6	4.8
15				4.1	4.4	4.6	4.9	5.1	5.3
16				4.5	4.8	5.1	5.3	5.5	5.8
17					5.2	5.5	5.7	6.0	6.2
18						5.9	6.1	6.4	6.6
19							6.5	6.7	7.0