



# VIRGINIA DIVISION OF FORESTRY

DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT



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## Comparative Growth and Yield of Loblolly and Shortleaf Pine in a Mixed Plantation

The Woolridge mixed loblolly - shortleaf pine plantation located in Buckingham County was hand planted by W.P.A. labor using a 6 foot by 6 foot spacing during the spring of 1937. The pines were planted on an abandoned eroded field the soil type of which is classified as Manteo silt loam.

Since being planted in 1937 the Woolridge plantation has received two thinnings --- the first thinning at age 19 years and the second one at age 24 years.

Vast differences in growth between loblolly and shortleaf pine within the Woolridge plantation has provided graphic evidence of the more rapid initial growth of loblolly versus shortleaf pine. These differences are reflected in the following tables the data for which was obtained from permanent plots located within the plantation (tabular data on a per acre basis):

	First Thinning (Age 19 years)			Second Thinning (Age 24 years)		
	<u>Before</u>	<u>Cut</u>	<u>Leave</u>	<u>Before</u>	<u>Cut</u>	<u>Leave</u>
<u>No. Trees</u>						
Loblolly	210	86	128	126	48	78
Shortleaf	844	500	340	324	252	72
Totals	1054	586	468	450 <sup>1/</sup>	300	150
<u>Volume (Cords)</u>						
Loblolly	16.10	3.06	13.04	22.32	6.95	15.37
Shortleaf	12.43	4.40	8.03	12.82	8.95	3.87
Totals	28.53	7.46 <sup>2/</sup>	21.07	35.14	15.90	19.24
<u>Basal Area (Sq. Ft.)</u>						
Loblolly	76.53	17.30	59.23	81.08	26.03	55.05
Shortleaf	89.06	37.19	51.87	63.18	45.58	17.60
Totals	165.59	54.49	111.10	144.26	71.61	72.65

1/ Lesser number of trees due to mortality between thinnings.

2/ Included is 1.42 cords of post volume.

Calculated Stand Production  
(Standard Cords)

	<u>Total Growth Added</u> (Age 19 to 24 yrs.)	<u>Avg. Annual Growth</u>		<u>Avg. Annual Growth</u> (Age 19 to 24 yrs.)
		<u>19 yrs.</u>	<u>24 yrs.</u>	
		Loblolly	9.28	
Shortleaf	<u>4.79</u>	<u>0.65</u>	<u>0.72</u>	<u>0.96</u>
Totals	14.07	1.50	1.78	2.82

Diameter and Height Comparisons

	<u>Avg. DBH</u> <sup>1/</sup>	<u>Avg. Tot. Ht.</u> <sup>2/</sup>
	(Inches)	(Feet)
Before First Thinning (19 years)		
Loblolly	8.1	44 <sup>43/</sup>
Shortleaf	<u>4.4</u>	<u>37</u> <sup>40/</sup>
Differences	3.7	7
Before Second Thinning (24 years)		
Loblolly	10.9	60 <sup>27/</sup>
Shortleaf	<u>6.0</u>	<u>49</u> <sup>13/</sup>
Differences	4.9	11

Remarks

The more rapid early growth of loblolly pine compared to shortleaf pine is very apparent in the Woolridge plantation and is clearly reflected in growth data collected from the plantation.

It will be noticed from the first table that after the second thinning the number of loblolly pines per acre exceeds that of shortleaf yet at time of planting shortleaf out-numbered loblolly 4 to 1.

Volume contributions made by both species differs appreciably. Loblolly has produced 8 cords per acre more (up to age 24 years) than shortleaf and has had a far lesser number of trees to do so.

Another economic factor to be reckoned with is that shortleaf proved to be poor "trainers" for loblolly pines. Within the Woolridge plantation loblolly pine gained an early dominance over shortleaf and from all indications will maintain it.

1/ Diameter at breast height.

2/ Based on random measurements, all merchantable diameter classes included.

43/ Basis or number

W. F. Custard  
R. L. Marler