

EFFECT OF SPACING ON THE GROWTH OF *DALBERGIA SISOO* (SHISHAM)

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Dalbergia sissoo (Shisham) is the major species planted in the irrigated plantations and riverain forests over a period of time. It can be regenerated from root suckers, from coppice and by planting root-shoot cuttings. For the last one hundred years the tree has been planted at a conventional spacing of 6 x 10 ft. To release the congestion and depending on the condition of the crop, first thinning is done in the 6th year, the second in the 12th, another in the 18th year if need be, and the final felling at the age of 20-22 years.

In order to find out the effect of spacing on the pattern of growth, a study was laid out in the Pakistan Forest Institute Research Garden in January, 1978.

Design of the experiment. Root and shoot cuttings were planted at three spacings viz 4 x 4, 3 x 3 and 2 x 2 m with 12, 20 and 35 plants in each plot replicated four times. In all 268 plants were planted in a block of 84 x 21 m, 12 plots in all, each plot 14 x 10.5 m.

Plantation was given fortnightly irrigation, 10 cm water depth in one irrigation. No irrigation was given during winter months. There was 10% failure in the first year which were replaced.

Data were collected and analysed when the crop was 4 years old.

Diameter (cm) and height (m) under different spacing.

Reps.	4 x 4		3 x 3		2 x 2	
	Dia.	Ht.	Dia.	Ht.	Dia.	Ht.
I	13.6	9.2	9.5	8.5	8.0	8.6
II	11.2	8.0	11.0	9.0	9.3	9.0
III	9.8	7.8	10.6	8.4	8.2	8.0
IV	10.7	8.4	9.1	8.8	8.8	9.0
Total	45.3	33.4	40.2	34.7	34.3	34.6
Average	11.3	8.4	10.1	8.7	8.6	8.7

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Analysis of the above data has indicated that statistically the spacing have no significant effect. Maximum volume available in the closest spacing is due to comparatively more number of trees per unit area. A point of further study would be to see the behaviour of the crop after first thinning especially in the closest spacing which of course would yield more fire-wood as compared to the other two spacings. Some other measurements were also quite interesting:

Spacing (m)	Length of clear bole (m)	Branches No.	Branch thickness (cm)	Av. length of branch (m)
4 x 4	1.9	10	3.8	3.3
3 x 3	2.3	8	3.2	2.8
2 x 2	2.7	5	2.7	2.5

It is evident that spacing did have an effect on the straightness of the bole, number of branches, their thickness and length.

Conclusion. Two conclusions can be drawn from this study. By planting at a close spacing more volume of wood per unit area can be obtained and, 2 straight and clean butt logs can be obtained which would fetch better price as timber. This crop can be opened after 5 years to allow it to grow at a faster rate of catch up with the plants planted at wider spacings.