

Short Communication

EFFECT OF SOWING ORIENTATION ON GERMINATION OF SAL SEED

Sal seeds generally mature between the months of April and May. It may vary according to location. The seeds fall as soon as they mature. The germination of seed starts soon after maturity and it may germinate even on the tree (Troup 1921). When germination starts, the tip (apex) of the fruits splits longitudinally (at right angle to the pedicel of the seed) and the radicle emerges from the apex of the seed.

Germination percentage is influenced by various factors. Cockburn and Wong (1969) stated that germination percentage of Sal depended on the size of seed trees and collection of seeds from the tree rather than from ground. Troup (1921) reported that sound fresh seed had a high germinative capacity. Sal seed, however, rapidly loses its viability. Depth of sowing is also an important factor in germination. Cayford and Waldron (1969) found that germination depended on sowing methods and depth of sowing. Defective sowing of Sal seed in nursery in India had led to low germination percentage (Singh et al. 1975). The present investigation was, thus, undertaken to determine the effect of sowing orientation of seed on germination.

Sal seeds were collected from four locations, viz. Salna (Dhaka), Burshijura (Sylhet), Charaljani (Mymensingh) and Hyakhoo (Chittagong). The experiment was carried out in the month of May, 1978. The seeds were collected from 30 selected mother trees. The seeds were dewinged and kept under cold water for 5-10 minutes. Then the seeds were sown in 25 cm dia round plastic sieves filled with a mixture of soil and cowdung in the ratio of 3 : 1.

Four hundred fifty seeds were taken from each mother tree. Fifty seeds were sown in plastic sieves in each of the three sowing orientations with three replications of each between 1.0-1.5 cm deep in the soil. Observations were recorded everyday until germination had ceased.

Hodgkins (1966) investigated the effect of depth of sowing. He observed that better germination was found at a depth of 1.0 to 1.6 cm. Present investigations corroborate the observation.

From Table 1 it can be seen that the germination percentage of Sal Seed was higher in upward and horizontal orientations

Table 1. Germination percentages of sal seed in three sowing orientation of four locations

Seed source	Sowing Orientation	Seed germination percentages of mother trees								Mean Germination per cent
		1	2	3	4	5	6	7	8	
Hyakhoo	Upward	50.0	52.0	62.0	54.6	60.0	52.0	53.3	62.0	55.6**
	Horizontal	52.6	56.0	61.3	61.3	56.6	54.6	62.6	57.3	57.7**
	Downward	10.0	8.6	12.0	10.0	8.0	10.0	10.6	14.0	10.4
Charaljani	Upward	58.6	64.6	57.3	53.3	58.0	60.0	59.3	61.3	59.0%*
	Horizontal	67.3	60.0	54.6	56.0	54.0	63.0	56.0	66.0	59.6**
	Downward	16.0	17.3	12.6	11.3	12.0	14.0	14.6	13.3	13.8
Salna	Upward	60.0	26.9	75.0	43.3	37.1	53.8	52.3	-	49.7**
	Horizontal	60.0	34.6	70.0	50.0	28.5	76.4	57.1	-	53.8**
	Downward	15.0	15.3	20.0	10.0	14.2	7.6	19.0	-	14.4
Burshijura	Upward	61.3	50.0	64.6	54.6	62.0	70.6	60.0	-	60.5**
	Horizontal	56.0	64.6	46.0	52.6	63.3	61.3	61.3	-	57.8**
	Downward	11.3	14.6	12.0	12.0	11.3	12.0	12.0	-	12.1

**means significant at $P=0.01$

than in downward. Zerebecor (1969) working with sprouting Acorns obtained the best germination in horizontal orientation. In the present study germination percentage in upward orientation sowing of all the four collections varied from 26.9 to 75.0 and it was almost similar with that of the horizontal sowing which varied from 28.5 to 76.4%. But in downward orientation sowing it was 7.6% to 20.0%. When the seeds were sown in downward orientation, the radicle remained in the soil but the plumule did not emerge normally. It ran in different directions producing abnormal seedling. Banik (1980) also reported that defective sowing method produced abnormal seedling in Garjan.

Moreover, analysis showed that the downward sowing orientation is significantly inferior to the upward and horizontal sowing orientation, the latter two being statistically similar.

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