Pak. J. Agri. Sci.
25(2) 84, 1988

EFFECT OF DIAMETER OF CUTTINGS ON SPROUTING AND ESTABLISHMENT *Dendrocalamus* OF *hamiltonii* (KALABAANS)

G. S. Khan Muhammad Akram and Shahid Yaqub
Department of Forestry, Range Management & Wildlife
University of Agriculture, Faisalabad

Stem cuttings having two nodes were divided into five diameter classes viz : 0 - 1, 1 - 2, 2 - 3, 3 - 4 and 4 - 5 cm and compared for their success of sprouting. There was no sprouting below 3 cm diameter of cuttings, whereas there was 65 to 75% sprouting and also desirable plant height and tillers in the case of 3 - 4 cm and 4 - 5 cm diameter classes.

INTRODUCTION

Bamboo is a plant of great economic importance and as a result of technological advances new uses of bamboo and bamboo products have been developed.

Before 1971, almost all the requirement of bamboo was being met from East Pakistan (now Bangla Desh). Immediately after 1971, acute shortage of bamboo was felt, and the need for cultivation of bamboo in Pakistan become pressing.

In Pakistan, bamboo is mostly grown through basal cane cuttings. The basal cuttings of Kala baans are very expensive and range in price from Rs. 20-80 per basal cutting. The branch cuttings were also tried for new plants but with little success. The present study was designed to find out the effect of cutting diameter on sprouting and establishment of *Dendrocalamus hamiltonii* and the findings are expected to help reduce the prices of planting material of this species.

MATERIALS AND METHODS

The experiment was conducted in the nursery of Forestry, Range Management and Wildlife Department. The field selected for this purpose was thorough-

ly prepared with tractor. *Dendrocalamus hamiltonli* locally known as "Kala baans" was collected from the Divisional Forest Office Faisalabad. About eight large sticks of bamboo were selected and were cut into pieces having two nodes in each piece (cutting). The diameter of these cuttings was measured with the help of a vernier caliper. After taking diameter these cutting were placed in the following diameter classes (treatments).

T_1 = 0 - 1 cm
T_2 = 1 - 2 cm
T_3 = 2 - 3 cm
T_4 = 3 - 4 cm
T_5 = 4 - 5 cm

The field was divided into ten equal plots of 1 x 10 meters. The above mentioned five treatments were randomly repeated twice. In each treatments ten sets of cuttings were sown. The total number of cutting were hundred. Immediately after sowing, the plots were flooded with canal water. Later, irrigations were given after every three to four days. The data collection was started after one week, but later on the data were collected after every two weeks.

RESULTS AND DISCUSSION

The results regarding sprouting and other growth parameters of bamboo are shown in Table 1.

Table 1. *Effect of diameter of cuttings on different growth parameters of Kala baans*

	T_1	T_2	T_3	T_4	T_5
Sprouting % age	0	0	0	75	65
Plant height (cm)	0	0	0	13.75	23.05
No. of tillers	0	0	0	2.15	2.25

Sprouting :

There was absolutely no sprouting in cuttings below 3 cm diameter. The sprouting % age was 75 in the case of T_4 (3-4 cm dia.) and 65 in the case of T_5 (4-5 cm dia.).

Plant height :

After two months the height was 13.75 cm in T_4 and 23.05 cm in T_5.

Number of tillers :

The number of tillers was 2.15 and 2.25 per plant in T_4 and T_5 respectively.

In most of the forest species the cutting diameter ranges from 1 to 2 cm but *D. hamiltonii* sprouted only when the cutting diameter was above 3 cm Plant height and tillering was more in T_5 than in T_4. These findings are in accordance with those of Sharma and Kanshal (1985), Prange (1974), Hassan (1972) and Noh *et al.* (1986).

It is clear from these studies that branch cuttings of *D. hamiltonii* ranging in diameter from 3 to 5 cm having 2 nodes can successfully be used for propagation. This technique will reduce the price of planting materials used at present for propagation of this species.

REFERENCES

Hassan, S. M. 1977. Studies on vegetative propagation of bamboo. For. Res. Inst., Chittagong, Bangla Desh, 6 (2) : 64-71 (Forestry Abst. 43(9) : 4434, 1982).

Noh, E. R., J. K. Ahn., Y. M. Kim, and S. B. Lee. 1986. Influence of cutting diameter on survival and height growth in *Populus nigra* P. maximowiczii, F1 clones. Journal of Korean Forestry Soc. 59:57-62.

Prange, P.W. 1974. Raising plants of *Bambusa vulgaris* var. vittata. Brasil Florestal: 5(18): 47 - 53.

Sharma, O.P., and S.K. Kanshal. 1985. Exploratory propogation of *Dendrocalamus hamiltonii* by one node culm cuttings. Indian Forester, 111(3): 135-139