

Direct Single Node Propagation of Black Pepper (*Piper nigrum* L.)\*

The traditional method of propagation of black pepper (*Piper nigrum*) is by planting 2 or 3 noded cuttings in polythene bags filled with potting mixture and transplanting them in the field after rooting and sprouting. Of late, bamboo split method of rapid multiplication is gaining importance as a quick propagation technique (Bavappa and Gunasinghe, 1978). This note deals with propagation of black pepper from single node cuttings directly taken from the field.

The experiment was conducted at the National Research Centre for Spices, Research Farm, Peruvamanuzzi, Calicut during November-February 1989-90. A pit of 2m x 1m x 0.5m was prepared under a cool shaded area in the farm. Single node cuttings without any phytohormone treatment, single node cuttings treated with Seradix B (200 ppm IBA) and three noded cutting (control) of the variety Karimunda were used. Hormone was applied by dipping the cut ends in the Seradix powder. Single node with approximately 8-10 cm length and 3 noded control obtained from the runner shoots were planted in polythene bags (25 x 15 cm, 200 gauge) having 3 perforations at the lower half, filled with a potting mixture of sand, soil, coir dust and cowdung (1:1:1:1). A total of 65 single noded cuttings each were tried in the hormone free and Seradix treatments. Out of the 65 single nodes in the hormone free group, 15 were planted after removing the leaf. The single node cuttings were planted in the bags with their leaf axil resting above the potting mixture. Fifteen 3 noded cuttings were used as control. The polythene bags were arranged in the pit and covered with a polythene sheet. The cuttings were watered

with a rose can 5 times a day and was covered immediately after watering. The cuttings were drenched with Fytolan (2g/litre) two times as a phytosanitary measure. Observations were recorded on 12 plants each from the single noded cuttings and 5 plants from the 3 noded control. After rooting was observed the frequency of watering was reduced to 3 times a day and also the pit was kept open atleast for 1 hr per day for acclimatization of the cuttings.

Root and shoot development was observed in the single nodes without hormone and 3 noded control after 2 weeks of planting. However, in the case of the Seradix treatment (200 ppm IBA) only root development was observed by this time (Fig. 1). Rooting success, mean shoot and root length, mean root and leaf number after 2 months of planting are presented in Table 1. Rooting success was very good in all the 3 types of treatments. The percentage success was 82.2, 92.3 and 86.6 respectively, for single node without Seradix, with Seradix and 3 nodes. Test of significance by 't' test revealed no significant difference in shoot and root length as well as for the number of leaves in the shoot between the treatments. However, there was a significant difference for the number of roots between the two single node treatments. Only about 20% of the single noded cuttings treated with Seradix produced sprouts after 3 months. These sprouts were less than 0.5 cm length. Sukumara Pillai, Muhammed Ali and Chandy (1982) have observed that such set back in shoot growth of IBA treated cuttings might be due to the utilisation and resultant exhaustion of stored carbohydrates

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Fig. 1. Single node without Seradix (left) single node with Seradix (middle) and three noded control (right) after two months

for the vigorous production and development of roots.

Bavappa and Gunasinghe (1978) observed only 12% success in rooting of single nodes planted from the field. They also reported poor shoot and root development in such cuttings as compared to pre-rooted and non-rooted single nodes from the bamboo method. Similar result was also reported by Irulappan et al., (1981) in black pepper var. Panniyur-1. The same authors observed a good response to IBA treatments in rooting success of single nodes. However, Sridhar, Syam Singh and Shivadhar Singh (1989) have observed an increase in rooting success of single nodes from 7.5 to 21.2% by just altering the constitution of the rooting media.

The high rooting success observed in the present study might be due to the effect of the potting mixture coupled with the specific environment provided. After about 4 months the single noded cuttings (without Seradix) produced 2-3 nodes and looked very normal and had well developed root system.

The success of establishment in the field depends upon the quantum of roots

Table 1. Rooting success, mean shoot and root length, mean leaf and root number in single and 3 noded pepper cuttings two months after planting

Characters	Single node without Seradix	Single node with Seradix	3 nodes	t value	
				Single nodes	Single node without Seradix VS 3 node
Rooting success(%)	82.2	92.3	86.6	---	---
Length of shoot (cm)	13.39	---	9.36	---	1.68
Number of leaves in the shoot	2.0	---	1.6	---	0.61
Number of roots	8.92	39.08	9.20	3.93*	0.98
Root length (cm)	12.12	13.45	8.92	0.40	1.94

\* P 0.01

developed at the time of planting. In the present method, by giving proper environment, the development of adequate root mass is achieved which is comparable to the rapid multiplication techniques. For generating limited number of rooted pepper cuttings, for the small and marginal farmers, this method is ideally suited while the rapid multiplication technique (Bavappa and Gunasinghe, 1978) is suited for large scale multiplication and distribution of planting

material. Thus the present technique is better than the traditional method as this makes a saving of the planting material and quicker than the bamboo method as cuttings are ready for field planting after about 4 months.

All the 15 single nodes without leaf in the hormone free group died after initial sprouting. The study has been repeated with same success rate.

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