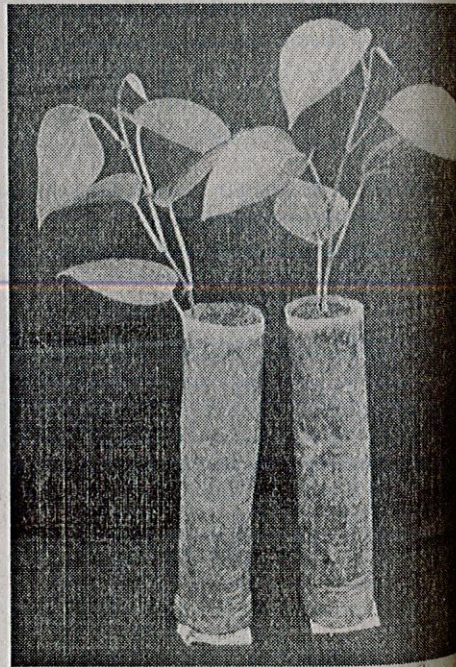


# BLACK PEPPER - RAPID MULTIPLICATION

Black pepper (*Piper nigrum* L. Family Piperaceae) is a very important spice and popularly known as 'King of Spices' and also called as 'Black Gold'. It is originated from Western Ghats now mainly cultivated in India, Brazil, Indonesia, Malaysia, Thailand, Srilanka, Vietnam, China, Madagascar and Mexico. India is a major producer (57,000 t) and exporter (33,000 t) of this spice. It is cultivated in 1.7 lakh ha. in India. Kerala, Karnataka, Tamil Nadu, Andhra Pradesh, Maharashtra, Pondicherry, Orissa, North Eastern States and Andaman and Nicobar Islands are the growing states. Kerala alone accounts for more than 80 per cent of the area and production. Black pepper can be propagated through seeds and also vegetative parts. Owing to its heterozygous nature, seedlings will not breed true to type. Hence, vegetative propagation is the rule for commercial cultivation. Grafting, budding and layering are also possible. Cuttings are easy to make and are prepared for large scale planting.

Black pepper has two types of shoots viz., erect growing main stem or leaders called as 'orthotropes' and side branches i.e. fruit bearing laterals, called 'plagiotropes'. From basal nodes a few buds develop shoots which creep on the ground called as 'runners'. It is nothing but orthotropes. Traditionally, farmers use the runner shoots for establishing plantations. Runners, depending upon its availability are made into cuttings with two to seven nodes. These cuttings are planted either directly in the field or after keeping in the nursery. The disadvantage of this conventional method is that planters will not get sufficient runners to make enough cuttings for planting large area and field establishment of these cuttings are poor due to lack of good root system. These problems could be overcome by the 'Rapid Multiplication' technique.

Nursery sheds with a size of 24 m x 6m are erected at convenient place. Roof is sufficiently transparent to allow about 70 per cent of the diffused light. In this shed, 500-600 split bamboos (arranged criss-cross at 45° angle in two rows) are accommodated. Trenches with 30 cm wide 60 cm deep are made along the length of the shed as shown in the Fig 1. The trenches are filled with soil:sand:farmyard manure

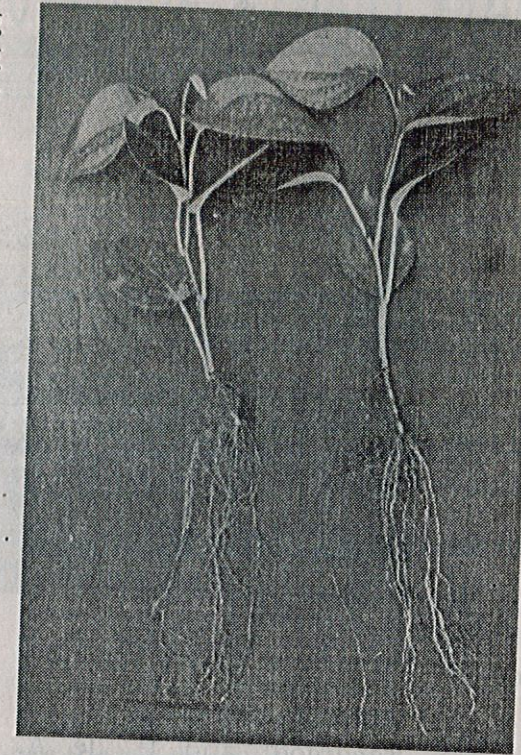


mixture (1:1:1). Add 1.5 kg lime for every metre and after 15 days, 150 g urea

100g super phosphate, 125g muriate of potash and 25g magnesium sulphate are applied. Water copiously and leave it for a week.

Select bamboos of seven-eight cm diameter, cut them into 1.5 m long pieces and split them into halves, keeping septa intact. A coating of coaltar prolongs the life of bamboo pieces. Arrange the bamboos at an angle of 45° alternatively on straight wooden poles or strong support along the length of the shed. Tie the bamboos with coir. Plant the rooted cuttings in the trench, one for each bamboo split. Instead of bamboos, split PVC pipes of approximately the same diameter fitted with artificial septa provided at 30 cm distance can be used or any other similar structure made of mud can also be used.

As the vines start growing, fill the bamboo splits with rooting mixture composed of farmyard manure: bird dust: sand in equal proportions. Tie each vine carefully to the bamboo using soft materials like banana fibre, so that every node is assured good contact with rooting medium to enable profuse rooting. For rapid growth, daily irrigation through sprinkler or hosecan is essential and also add a nutrient solution



consisting of urea (1 kg), super phosphate (0.75 kg), muriate of potash (0.5 kg) and magnesium sulphate (0.25 kg) in 250 litres of water. Drench each vine once fifteen days with one litre of this solution.

When the vines reach the top of the bamboos, nip off the tip and crush the vine at the base of 3<sup>rd</sup> or 4<sup>th</sup> node from the ground, to activate the buds present in each leaf axil. After 7-10 days, cut the vine at the crushed point and remove it from the bamboo with the roots intact and with the adhering soil. Cut vine into single noded pieces. Plant each piece in a polythene bag (30 cm x 12 cm of 300

gauge thickness) filled with the mixture consisting of soil - sand - farmyard manure (3:1:1). Keep the roots straight downward when planting.

Arrange the cuttings in a well shaded area or in a shed and give a spray of Bordeaux mixture (1%). When buds start growing transfer them to a partially shaded area. Apply fertilizer solution mentioned earlier for rapid growth. These

cuttings will be ready for field planting after two months. The following plant protection measures are to be followed strictly to ensure nematode/disease free planting materials.

- (i) For the control of leaf rot and blight of cutting caused by *Rhizoctonia solani* and the basal wilt caused by *Sclerotium rolfsii* Bavistin (0.2%) or Copper oxychloride (0.2 %) spray and drench should be given.
- (ii) During monsoon, Bordeaux mixture spray (1%), application of Bordeaux paste to the basal portion of vines in the bamboos, and

drenching the soil may be done once a month to prevent the incidence of foot-rot and other soil borne diseases.

- (iii) Application of nematocide thrice annually (Furadon 3 G @ 1g/vine or Thimet 10 G @ 0.5 g/vine) for management of nematodes in the soil.
- (iv) An occasional spray of Rogor (0.05%) can keep away pests like shoot borer, thrips, mealy bugs and scales.

After planting in the bamboo, the first crop of cuttings can be taken after 3-3½ months and subsequent harvesting at every 2-2½ months. Each rooted vine gives about 10 cuttings in one harvest and about 40 cuttings in a year. a multiplication rate 1:40 can be achieved. The mother vine at each bamboo should be replaced every two years. The nursery will serve as a perennial source for high quality planting materials. The bamboo method of rapid multiplication of black pepper was originally conceived



by Dr. K. V. Ahmed Bavappa (Former Director, CPCRI, Kasargod) and P. de A. Gurusinghe during 1978.

The black pepper varieties released from IISR, Calicut viz., Sreekara, Subhakara, Panchami and Pournami are multiplied through above method and nucleus planting material (on an average 1-1.5 lakhs per year) are distributed to developmental agencies and progressive farmers of Kerala, Karnataka, Tamil Nadu, Andhra Pradesh, Maharashtra, North Eastern States, Pondicherry and Andaman and Nicobar Islands. The nucleus plant-

ing material production of this Institute is successfully implemented with the active support of Directorate of Arecanut and Spices Development, Dept. of Agriculture and Co-operation, Ministry of Agriculture, Government of India, Calicut through its centrally sponsored "Intergrated Programme for the Development of Spices.

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