Extension Folder No. 3

Rapid Multiplication of Pepper

भाकृअनुप
ICAR

CENTRAL PLANTATION CROPS RESEARCH INSTITUTE
Kasaragod 670 124, Kerala, India

The need for rapid multiplication

For increasing the pepper production in the country, large scale replanting of the senile and poor yielding vines, and also extensive new plantings are required. The improved varieties emerging from breeding programmes also need large scale multiplication to meet the demand. All these programmes require production of planting materials in the shortest time possible.

The conventional method

The conventional method of production of planting materials in pepper involves use of 2–3 noded cuttings of runner shoots raised in the polybags in the nursery. The disadvantages of the method are: (i) need to have large quantities of planting materials; (ii) low sprouting; (iii) poor root development; and (iv) poor field establishment.

A new method for rapid multiplication of pepper developed in the UNDP/FAO Project in Sri Lanka (KVA Bavappa and P. De. S. Gurusinghe, 1978, *J. Plant. Crops*, **6**: 92–95) during early eighties was appropriately modified to suit conditions in our country.

THE NEW METHOD

Pepper vines (both runner and terminal shoots) are grown over the rooting medium filled in a bamboo split piece. As the vines grow, the nodes get rooted, and each of these nodes is later separated and planted in individual poly bags.

How to do it?

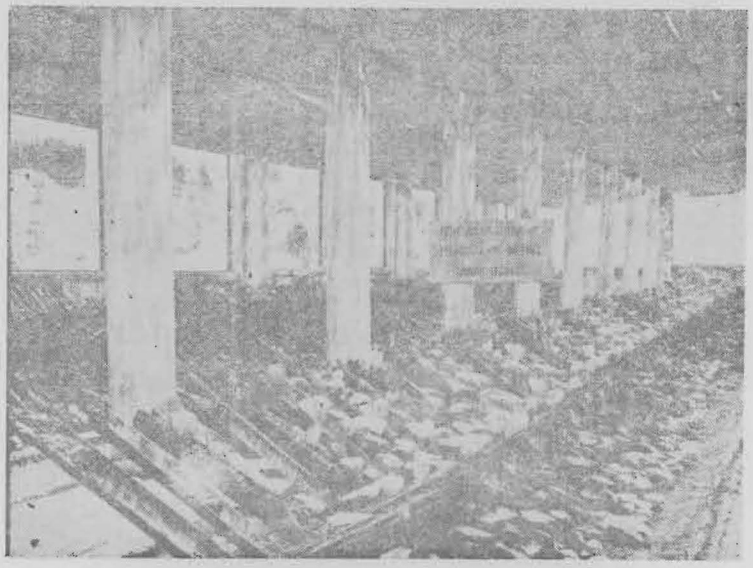
Select a suitable area having good drainage. Provide shade either by putting coir mats (nursery mat) or by growing shade trees like Subabul.

Take trenches 40 cm wide, 60 cm deep and to the convenient length. Fill it with soil-sand-compost mixture (5:1:1). Add for every meter 1.5 kg lime and after 15 days 150 g urea, 100 g superphosphate, 125 g muriate of potash and 25 g magnesium sulphate. Water copiously and leave it for a week.

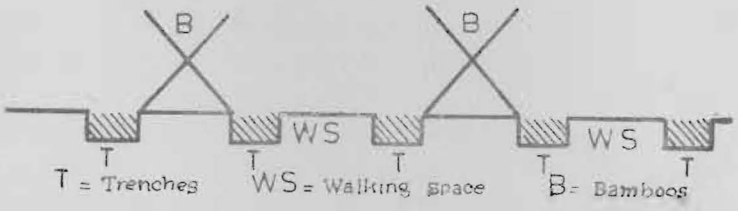
Select bamboos of 7-8 cm diameter, cut them into 1.5 m long pieces and split them into halves, keeping the septa intact. A coating of coal tar prolongs the life of bamboo pieces. Arrange the bamboos at an angle of 45° alternatively on straight wooden poles or stretched thick metal wire. Tie the bamboos 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 can be used. For septa, plastic bottle caps (like that of the Horlicks bottle) can be cut into halves and fixed inside the pipe. PVC pipes will last much longer, though more expensive.

As the vines start growing, fill the bamboo splits with rooting mixture composed of cowdung–coirdust–sand in equal proportions. Tie each vine carefully to the bamboo using banana fibre, so that every node is in contact with the rooting medium. For rapid growth, add a nutrient solution consisting

A general view of the nursery



Arrangements of bamboos



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

When the vines reach the top of the bamboo, nip off the tip and crush the vine at the base of 3rd or 4th node from the ground, to activate the buds. 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 the vine into single noded pieces. Plant each piece in a polythene bag or sleeve (open at both ends) filled with the mixture, soil-sand-cowdung (3:1:1). Keep the roots straight downward when planting.

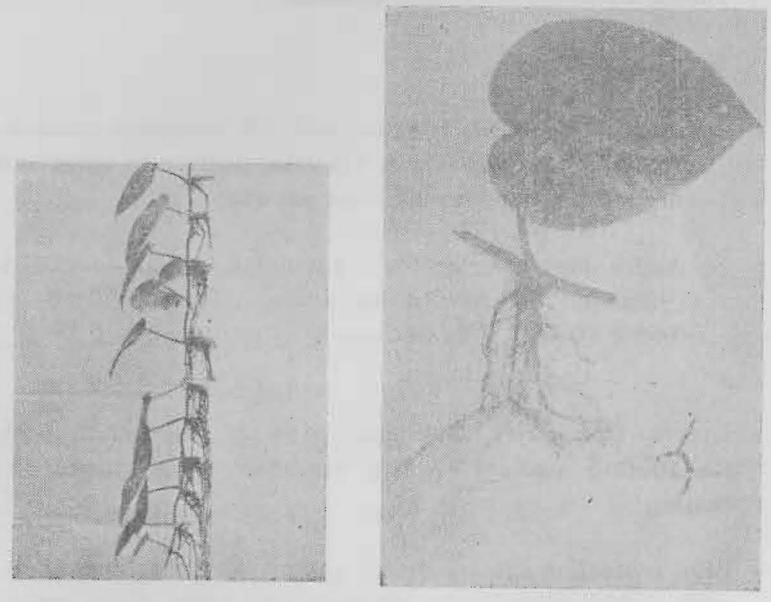
Arrange the cuttings in a well shaded area or in a shed and give a spray of 0.1% copper oxychloride or 1.0% Bordeaux mixture. Cover the cuttings with thin polythene sheet (either use ready-made iron frames or improvised chambers made of bamboo pieces or wooden planks).

Remove the polythene sheet when buds start growing. Transfer them to a partially shaded area. Apply the fertilizer solution mentioned earlier for rapid growth. These cuttings will be ready for field planting after two months.

Advantages of the technique

After planting in the bamboo, the first crop of cuttings can be taken after 3-3½ months, and the subsequent harvesting at every 2-2½ months.

A. Vine with well developed root system
B. A single noded-cutting



A B

Each rooted cutting can give about 10 cuttings in one harvest, and about 40 cuttings in a year. A multiplication rate of 1;40 can be achieved on an average. From one hectare of a plot an estimated 1:5-2 millions of rooted cuttings in one year can be obtained.

The nursery will form a perennial source for high quality planting materials.

The cost of production of a single rooted cutting works out to about 0.50 paise.

PRECAUTIONS

* Ensure adequate shade and drainage

* Give timely plant protection

  Just before monsoon spray with 1% Bordeaux mixture. Apply Bordeaux paste to the basal portion of vines and drench the soil with 0.1% copper oxychloride.

  Apply any one of the nematicide, thrice annually (Furadan 3 G @ 1g per vine: Thimet 10 G or Temik 10 G @ 0.5g per vine).

* Ensure that every emerging node is in touch with the rooting medium on the bamboo. It is crucial for rooting.

* Give protection against insect pests. An occasional spray with 0.05% dimethoate (Rogor) can keep away shoot borer, thrips, mealy bugs and scales.

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K. V. AHAMED BAVAPPA
Director
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Kasaragod 670 124, Kerala, India

Text prepared by:
K. Sivaraman and P. N. Ravindran

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