

PEPPER IN MULTILEVEL CROPPING PROGRAMME IN COCONUT GARDEN

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The interspaces in coconut gardens afford immense scope for raising a large variety of annual and perennial crops. It has been estimated that only about 25 per cent of the land in a coconut garden encompassing the effective root zone is being utilised by the palm. A major portion of the sunlight falling in a garden of below 7 to 8 years and of about 20 to 25 years also go waste. The other two constituents i.e. nutrient and moisture required for plant growth can be made available by judicious application of fertilizers and irrigation. Therefore, it is evident that about 75 per cent of the area in a coconut garden can be profitably utilised for growing other crops.

Growing a single annual crop, like tapioca, elephant foot yam, colocasia, ginger, turmeric or dry paddy in coconut garden is practised by a number of cultivators. But the productivity can be considerably increased by resorting to what is known as multistoreyed or multilevel cropping. In this system, more than one crop growing at different heights can be raised in the same area. Pepper has been found to fit in perfectly well in this type of cropping pattern. A most successful and profitable crop combination in the multilevel cropping programme is coconut-pepper-cocoa-pineapple. Among these four crops pineapple forms the floor crop. This can be replaced by any other annual crop like ginger, turmeric, cowpea etc. Cocoa planted in between rows of coconut palms and growing to a height of 4 to 6 metres is the first floor and pepper pruned to a height of 6 to 8 metres is the second floor. The palm canopy constitutes the topmost floor.

The advantages of trailing pepper on coconut palm have not been fully realised by the cultivators as a large number of them are under the impression that it may be harmful to coconut. Traditionally pepper is trailed on standards especially planted for the purpose when grown as a pure crop. But when

grown in house compounds in small holdings, it is generally trailed on any tree standing in the compound either wild or cultivated like mango, jack etc. It has been found to grow on these trees and give very good yield. Pepper utilises the standard only as a support for climbing and therefore the fear that it may adversely affect the coconut palm has no basis. In fact it is a ready made standard and the cultivators are spared of considerable expenditure and labour in establishing live standards for pepper cultivation.

How to plant pepper

Pepper comes up well in laterite, loam, sandy loam and clayed soils. Littoral sand is not well suited for pepper cultivation. Areas subjected to water logging and inundation are also unsuitable for pepper. Coconut palms of more than 25 years age and about 10 metres height can be used as standards.

Planting can be done with the onset of southwest monsoon in May-June. Pits of about 30 cm. × 30 cm. × 30 cm. should be dug about one metre away from the base of the palm on the northern side and filled with top soil **mixed with well** rotten compost or cattle manure. Two or three rooted cuttings of pepper are then planted in each pit and the soil around it pressed well. The vine should be helped to climb on the palm by providing small twigs in between the vine and the tree. The vines may also be allowed to trail along the ground till they come near the tree from where they climb the support tree. Since the trunk of the coconut palm is smooth it may not be possible for the climbing roots of the vine to effectively cling to the support. Therefore the vines should be tied to the palm at regular intervals as it grows. Care should also be taken to avoid damages to the vines on account of falling of fronds of coconut on the vine.

While taking basins for manuring coconut palm, an area of about one metre square around the base of the pepper plant should be left undisturbed. Otherwise the root portion of the vine will be exposed and the plant may dry up.

Growth of the vine should be restricted to about 6 to 8 metres to facilitate easy harvesting of coconut. Ladders should be used for climbing the tree upto the height of the vines and thereafter the tree can be climbed in the usual way.

Pepper variety for intercrop.

A trial to select the most suitable pepper variety for growing in coconut garden is in progress at the Coconut Research Station, Pilicode. Preliminary indications are that the vine Karimunda thrives well and comes to flowering earlier. The Panniyur-I hybrid of which the vegetative growth is good, takes a longer time to come to flower. The yield of Panniyur-I has also been found to be less when grown in coconut gardens. Observations made in some of the cultivators' fields have also given the same results. However, further detailed studies are required on this aspect.

Though pepper is not generally irrigated, yield can be considerably increased if irrigation is given in dry months. Pepper planted in irrigated coconut gardens will be benefited by the irrigation given to the palms. There is no need to irrigate them separately. In unirrigated gardens the vines may be given potwatering at least for a period of three years after planting.

Manure adequately

Manuring should be done separately and adequately both for coconut and pepper. To manure only one crop and neglect the other will do harm to both the crops. The application of

nutrients as per the recommended dosage should be ensured for the expression of maximum productivity.

Yield

Yield of pepper varies considerably depending upon various factors like variety, canopy area, cultural and manurial practices etc. The variation has been found to range from 0.500 kg. to 8.00 kg. dry pepper per vine. At the Coconut Research Station, Pilicode an average yield of 1.50 kg. was obtained from unirrigated vines of 5 to 10 years old. The average yield obtained at the Central Plantation Crops Research Institute, Kasaragod was 2.50 kg. from 5 year old vines while two vines recorded a maximum yield of 7.50 kg. each.

Income to small holders

The scope for establishing pure pepper plantations in our State is very limited due to scarcity of land. However we have more than 120 million coconut palms and even if one per cent of the palms are used for trailing vines, the increase in pepper production will be considerable.

It will also add to the income of the coconut growers especially small holders. Taking the yield at a moderately low level of one kg. per vine, one hectare of land having 175 trees will give an income of Rs. 2975/- at the present market rate of Rs. 17/- per kg. of pepper. This is in addition to the income from coconut and other intercrops. The expenditure involved in the maintenance of vines after establishment is only towards cost of manures and harvest which may come to a maximum of Rs. 500/-. So the cultivators can expect a minimum net income of Rs. 2475/- from pepper planted in one hectare of coconut garden.