CHAPTER II

PEPPER CULTIVATION

Pepper is produced from the fruits of the pepper vine (Piper nigrum). The pepper vine is a climber and requires a support or standard to climb on. It is a perennial plant lasting for about 20 to 25 years with good yield, even though under favourable conditions it may live up to 60 years. The yield begins to decline from the 20th or 25th year after planting, if the plantation has not been well maintained. This long life of the plant calls for a suitable standard which is usually a tree in India. Usually living trees are used as standards for pepper vines in India, whereas deadwood posts or concrete poles are also used as standards in Malaysia and Indonesia. The living trees not only provide support to the vines but also give them some shade.

Pepper is a plant with a large, stout stem with many branches and a luxuriant, dark or pale green foliage.

*Source: "Pepper", 1971, Farm Information Unit, Directorate of Extension, Ministry of Food and Agriculture, New Delhi.
The main stem and the branches of the vine hold on firmly to their supports with the aid of small finger like aerial roots sprouting from the nodes of the stem and branches. There are a number of cultivated varieties of pepper peculiar to the different regions of the pepper belt. They are all known by local names.

The pepper growing belt of the south-west coast of India comprises the following regions. (1) The Travancore and Cochin region (2) The Malabar and South Kanara region and (3) The Coorg and North Kanara region.¹ There are many varieties of pepper and a constant association with them is essential to acquire the ability to distinguish between them. The more common varieties cultivated in the Travancore Cochin region are 'Cheria Kaniakadan', 'Valiakaniakadan', 'Karimunda', 'Narayakodi', 'Chola' and 'Kothanadan'. Of these, 'Karimunda' and 'Narayakodi' are gaining popularity, since these two varieties are quick growing and early bearing, but however, seldom live for more than 15 years. The outstanding varieties of pepper cultivated in the second region are 'Kalluvally', 'Balankotta', 'Kariskotta', 'Uthirankotta' and 'Cheriahkodi'. 'Kalluvally' is a very hardy variety and is capable of withstanding unfavourable weather conditions and exposed situations and is considered to be the most drought resistant and wilt-resistant pepper of the Malabar region. 'Kottavally' enjoys the greatest popularity among the south Kanara pepper

¹ Abraham, P., Pepper Cultivation in India, 1956, p.6.
growers and is grown extensively on plantation scales in Hossurg of the Kasargod taluk and North Malabar. 'Kottavally' is also grown in South Vayanad, mixed with 'Kalliswally' and 'Uthirankotta'. The varieties of pepper grown in North Kasara and the adjoining area in the Karnataka State are locally known as 'Walligasora', 'Karesmalligasora', 'Doddagya' and 'Metakara'. 'A change of environment may also bring about some changes in the characteristics of the varieties. Certain early-bearing varieties may become late bearers when planted in other localities with different environment'.

The pepper is a plant of the humid tropics, requiring adequate rainfall, high humidity and a warm climate for its growth. It thrives best in places where the annual rainfall is well over 80" and never less than 50". Pepper can come up in areas with less rainfall provided the rainfall is more evenly spread throughout the year. It can withstand wide fluctuations of temperature as the maximum and minimum temperatures in the pepper growing tracts are 104°F and 50°F respectively.

It can be grown almost from sea level up to an altitude of 3500 ft. Pepper grows best on virgin soil rich in humus content and other plant nutrients. Though clay loams are the soils best suited for the crop it is widely

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grown in red loams and sandy loams overlying the lateritic hill tops of the western ghats. It is necessary that the soil does not dry up completely during the dry months. Alluvial soils which are not subject to flood and water stagnation are also suitable for growing pepper provided the soil is well drained. It is interesting to note that the growers avoid, on slopy land, the slopes facing south, so that the vines are protected from the severe southern sun.

Propagation:

Pepper is generally propagated vegetatively from cuttings taken from runner shoots originating from the base of the vines. Cuttings from lateral shoots at the top portion of the vines may also be used for planting. These vines may not live for more than 15 years. Further, large number of cuttings from planting adversely affects the crops. As a large number of casualties occur by planting the cuttings directly in the field, planting of rooted cuttings is now gaining popularity. In Indonesia, Thailand and Malaysia it is reported that propagation is invariably resorted to by terminal shoot cuttings, and vines for the production of such terminal shoot cuttings are raised in special nurseries.

Three systems of pepper cultivation are generally present in India. The first system consists of clearance of jungle lands and large scale cultivation on the hill slopes.
This is more popular in North Kerala region and South Kanara district of Karnataka. The second system consists of mixed cropping in the home compounds and outlying areas. Under this system, pepper vines are trained on existing trees such as jack, mango, arecanut etc. growing in the gardens. The most important point to be noted in this connection is that the number of vines owned by the individual growers under this system is small and they do not generally take care of the plants. The third system of cultivation is as an inter-crop along with other plantation crops like coffee, cardamom etc. using the shade trees as standards. This is practised more in the high ranges of Kerala and Coorg and North Kanara region where there is the maximum concentration of the plantations. The second method is mostly seen in the Travancore and Cochin region.

Pepper climbs on all rough barked trees and thrives well on common trees like mango, jack, 'murikkum' (Erthyrina indica), 'payyan' (Oreoxylon incidum), tamarind, silver oak and such other trees which are mostly found in household gardens. 'Murikkum' was found to be the most suitable in pepper plantation as evidenced by the plantations of North Malabar and South Kanara. In the Travancore–Cochin region also, 'murikkum' standards are commonly used in household garden crops of pepper, but an important difference here is that only cuttings or branches of grown up 'murikkum' trees are planted as standards. The life of the standards raised from such
cuttings is short, rarely more than 12 to 15 years. The pepper growers of Central Travancore reported that 'murikku' is also subject to plant disease and falls down with the healthy vines still on it. It is a twin problem of protecting both the pepper vines and the supporters.

The Malabar and South Kanara variety of *Erythrina indica* is in all respects more suitable as a standard for pepper vine than the Travancore-Cochin variety. In household pepper gardens as in the Travancore-Cochin region it is always best to have vines growing on large trees such as mango, jack, or tamarind. Such vines are an asset to the owners and could be depended on to give a very steady annual income with very little expenditure. The use of comparatively short lived trees is found very common when extension of a household pepper garden is desired for getting quick returns or if a large-sized pepper plantation is to be raised.

The pepper vine requires little shade except when it is young. It is also desirable for the crop to have a little shade during the hottest part of the year. Regulation of shade is essential and should be attended regularly. It is generally seen that little care is taken in the shade regulation in the pepper growing regions of the west coast. This is mainly due to neglect and ignorance on the part of the growers. There is a lot of difference between the Malabar, South Kanara region and the Travancore-Cochin region
regarding soil and moisture conditions. The rain fall is much more evenly distributed in the Travancore-Cochin region than in the north. This is one of the reasons for a higher yield of pepper in the former region than in the latter one.

Until recently manuring of pepper vines was not considered important. This was so because only virgin forest land rich in humus content was generally chosen for establishing pure pepper plantations. In mixed household gardens also, the need for manuring does not generally arise since digging and manuring take place for one reason or other and the pepper vines are also benefited thereby. Now conditions have changed and the pepper growers have realised the importance of manuring pepper vines to maintain the productivity at a normal level. In the North Kanara and Coorg region where pepper is cultivated as an inter-crop along with other plantation crops the pepper vines receive the benefit of the attention bestowed on other plantation crops.

Elevation, temperature, distribution of rainfall and other climatic factors exert great influence on the flowering and fruiting of pepper vines. The yield of pepper fluctuates widely depending mainly on the seasonal conditions. Timely rainfall is an all-important factor affecting the yield. It is important to note that the pepper growers are very seriously exposed to the risks associated with the vagaries of the climatic conditions.
One of the major factors affecting the production of pepper is "Pollu" (hollow berry) caused by the Pollu Flea beetle. The beetle damages the berries by eating away the entire seed and making the berry hollow or "Pollu" (as it is popularly known). The attack is very serious especially in North Kerala region and in certain years, it is reported, that the resultant loss is as high as 30 to 40 per cent.

Where pepper is grown on plantation basis it is generally controlled by regulating the shade and spraying 0.2 per cent D.D.T., once in July and a second time in October. Another major disease affecting the crop is the "wilt". It assumes two forms viz., the "slow wilt" and the "quick wilt". The symptoms of "slow wilt" are decaying of the roots followed by yellowing and shedding of leaves and consequent gradual death of the vine. In the case of "Quick Wilt" infection usually begins on the stem at a height of 30 cm. from the base of the vine. The affected bark often peels off, the leaves turn yellow, wither and drop, leading to the sudden death of the vine.

Wilt is observed to be a major problem in the hill regions away from the coast. The disease is prevalent throughout the pepper belt of Travancore-Cochin region and the Malabar-South Kanara region. It is claimed that the slow wilt can be effectively controlled by drenching the soil around the root zone of the affected vine with 9 to 14 litres
of a solution of wet ceresan in the strength of 1 gm.
per litre of water. In the case of "Quick Wilt" either
the affected vines are rooted out if it is in small
number or 1 per cent Bordeaux mixture is applied in two
sprayings before the South-West and North-East monsoon
respectively. It is said to be desirable to drench the
soil after the South-West monsoon with wet ceresan. Appli-
cation of 1/2 to 1 kg. of lime per vine is also found to
be beneficial in checking the incidence of the disease.
Spraying operation in pepper gardens

Plate No.1.