PEPPER.

(S. GAM-MIRIS; T. MOLAGU.)

DEPARTMENT OF AGRICULTURE, CEYLON, LEAFLET NO. 53.

THE "black" and "white" peppers of commerce are the produce of the perennial climbing shrub *Piper nigrum.*

Pepper may be found growing up to an elevation of 2,500 feet, but it thrives best at lower and mid elevations not exceeding 1,700 feet. The crop needs a warm, moist climate with an average annual rainfall of 80-100 inches fairly evenly distributed. Pepper cannot withstand periods of prolonged drought.

Naturally-drained land is most suitable. The soil should be retentive of moisture, but should not be liable to remain excessively wet. If it is intended to grow the crop on a light soil, it may be necessary to give liberal applications of organic matter. Pepper thrives on level ground along the banks of rivers, provided such land does not flood. Planting on hill tops is not desirable.

The pepper vine requires supports. The most economical arrangement is to use live trees. In its natural state, a vine will attain a height of 20-25 feet; but it is more fruitful when kept down at 15 feet. In a new clearing suitable trees should be retained for the pepper vines to run up, but in open land the necessary trees will have to be planted. The common practice, however, is to grow pepper in a permanent plantation crop such as cacao, the shade trees affording the supports for the vines. The most suitable trees for supports are jak, mango, kapok, dadap and arecanut. Arecanut and dadap planted 8 feet by 8 feet should not carry more than one vine to a tree; this would give 680 vines on an acre. The dadap should be lopped each year at the commencement of the south-west monsoon rains, and restricted to a height of 15 feet. Two vines may be run up each kapok tree planted 18 feet by 18 feet, giving 268 pepper vines on an acre. In case of large trees, such as mango and jak, which would stand 25-30 feet apart, 3 to 4 vines may be planted against each tree giving 200 vines to the acre.

PROPAGATION.

The usual method of propagating the vine is by means of cuttings. These should be 18 inches to 2 feet in length, taken from either the top of the vine or from the horizontal shoots which spring from the base of the old vines and run along the ground. These latter possess roots at the joints. Cuttings from the branches of the vines should not be taken. It is not advisable to plant cuttings *in situ* unless conditions are favourable, as a large proportion may fail. It is always safer to raise them in nurseries and transfer those that strike root into supply baskets until they are firmly established and fit to be set out in the field. Cuttings that are planted out should receive careful attention in regard to shading and watering until they have made satisfactory growth. About 5 per cent. of the cuttings put into a nursery take root, and consequently a nursery must be made some time before the plants are required for planting out. By this method failures in a nursery can be supplied until the requisite number of rooted

plants is obtained. Nurseries should be prepared at least six months before the plants are required, as cuttings may take a considerable time before becoming firmly established.

If seed is sown in a nursery, it takes at least eighteen months before the plants are ready for planting. It should be soaked for three days before it is put into the nursery.

Some growers put out cuttings direct in the field. This is done by planting them in a circular trench 1 foot wide and 3-4 inches deep round the supporting tree. One foot of the cutting is placed in the trench in a slanting position, and the free portion rested against and bound to the support. The trench is then filled with good loose soil which has been mixed with well-rotted cattle manure and burnt earth and the cuttings are carefully shaded for some time and watered daily if the weather is dry. The percentage of success by this method is usually small and in consequence planting cuttings in nurseries and then into supply baskets is recommended.

After the vines have become established an occasional application of liquid manure will be beneficial. During the first year the soil around the vines should be kept free of weeds and in a loose state. Later on the shade of the vine itself pervents the growth of weeds. In the second year it is advisable to till the ground to a depth of 3 inches and draw up the earth around the base of the vine.

The vine climbs to a height of 2 feet in the first year, and 6 feet in the second year. Between the second and third years it begins to blossom. In the rainy season following this the vine should be taken down from its support and placed in a spiral form into a hole dug in the ground close to its root leaving only the top end above ground. The vine sends up a number of shoots, and in the next season, when 8-10 feet high, it usually bears a full crop.

If the vine is too bushy at the top, it should be thinned out or pruned back. After the vine has begun to bear, two or not more than three stems should be allowed to a single root. All surplus suckers and side shoots should be removed.

CROPPING.

Pepper is in flower during the period September-November, and the berries ripen during March-May. A smaller crop may be gathered in August-September. A first crop is taken at the end of the third year, when propagation by cuttings is practised; when raised from seed not till after five years. The vines give maximum yields from the eighth to the twelfth year, after which they gradually decline. After twenty years the yields commence to fall off considerably.

At the commencement of bearing, yields will average 1 lb. per vine and this increases gradually up to a maximum of 4 lb. per vine. On the basis of 680 vines per acre, the yield would range from 6 cwt. (=19 bushels) in the third to an average of 20 cwt. (=63 bushels) from the eighth to the twelfth year. Yields as high as 30 cwt. per acre have been obtained.

HARVEST AND PREPARATION.

The fruits are at first green and then become yellowish and finally red when ripe. When the berries begin to turn red in colour, they are ready to be gathered, the whole spike being picked. As soon as the pepper is brought to the store, it should be placed in a heap and beaten with short stout sticks to remove the berries off the stalks. If only small quantities are harvested the berries can be rubbed off the spikes by hand. The stalks are separated from the berries by winnowing. On the following morning the berries should be steeped in boiling water for 10 minutes, and afterwards

spread on mats to dry. Boiling has the effect of turning the skin black in an hour. Drying should be carried out as rapidly as possible to prevent the growth of moulds. With good sun, drying is complete in 3-4 days.

The water used for boiling should be used continuously, with addition of more water as required to replace what has been used up. This ensures the retention of flavour, which otherwise may be lost.

"White" pepper is the decorticated fruit. The ripe berries are kept in moist heap for 2-3 days in order to soften the pulpy covering. The heaps are then trodden down and trampled upon in order to remove the outer skins of the berries. The stalks and pulp are separated by washing in baskets, and the seed is spread out for a day or two to dry.

PRICE AND EXPORT.

The price of pepper varies between Rs. 40 and Rs. 60 per cwt. or Rs. 12 to Rs. 20 per bushel of 35 lb.

The exports of pepper from Ceylon during the last three years have been as as follows :—

	Quantity.	Value.
	Cwt.	Rs.
1925	1,534 ...	60,876
1926	5,434 ...	240,715
1927	3,880 ...	252,668

Prospects appear to be promising. Some planting is being done, especially in the low-country, but a greater extension of the area planted with pepper can be recommended.