

DISEASES ON BETEL VINE IN POONAMALEE, CHINGLEPUT DISTRICT.

By

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Important Betel-vine growing villages lie to the east of Poonamalee. They are Managadupattu, Kattupakkam, Koovur, and Sennerikuppam.

Cultivation.—The land in these villages is chiefly owned by rich absentee landlords. It is leased out to middlemen who sublet to actual cultivators. No one individual undertakes to cultivate more than a third of an acre with betel-vine, and usually each tenant owns three strips in three distinct stages. Betel-vine is followed by betel-vine without any intermediate crop or by a long fallow. This system of cropping has resulted from two causes:—
1. the enormous profit this crop brings to the cultivator and
2. the application of organic manure which prevents to some extent the depletion of soil fertility and renders the necessity for rotation less obvious. A single crop of paddy may sometimes be sown between the ridges after betel vine is removed. Considerable attention is paid to its cultivation from beginning to end. The land is thrown into ridges three to three and a half feet wide and three feet high. This ensures perfect drainage. On the ridges agathi seeds are dibbled and occupy four lines. Sowing is done in January or July there being two seasons for planting this crop. *Thagarai* seeds are also sometimes sown with agathi. When the agathi crop is four months old the betel-vine is planted. The vine cuttings which are the topmost nodes of the third year plants are planted under the agathis, the first nodes being pressed into the soil and covered with wet earth. The agathi plants which are now about four feet tall are bent and tied together so as to form an arch over the ridges.

Irrigation and Drainage.—The crop is not directly irrigated but water is splashed on it from the trenches with the aid of wooden scoops. Watering is done thrice a day during the first three months and once a day thereafter. Drainage is satisfactory as trenches are usually deep. In dry weather wells supply water for irrigation and during the rains, tanks.

Manures.—Manuring is done on three occasions, first, when the crop is three to six months old, a second time after another half year, and the last time in the beginning of the third year. The manure applied is powdered well-rotten horse dung, except on the second occasion when tannery refuse is also added on.

Coiling.—When the plantation is nine months old the free ends of vines are taken down, wound up in a coil and covered over with wet earth. This serves as a sort of layering and new shoots come up.

Harvesting.—Leaves are plucked once a month from the beginning of the second year, and the yield gradually increases from month to month till it reaches a maximum until the rains of the north east monsoon cease, after which it again goes down. The profits from this year's harvest enable the cultivator to pay his rent and meet cultivation expenses, besides furnishing him with means of subsistence from day to day. The third year's harvest generally counts for his margin of profit.

Diseases.—The vines are attacked in this locality by two kinds of diseases, both of fungal origin. 1. *Phytophthora*. 2. *Sclerotium rolfsii*.

1. *Phytophthora.*—Local enquiries show that this disease made its appearance only three years ago and, has gradually spread until this season it is seen in all villages and is more or less firmly established. It has caused much loss. Whole gardens have been laid bare and the cultivation is being abandoned. The disease attacks the crop in all stages of growth. Once in a garden it spreads rapidly increasing in virulence and intensity after a spell of rainy weather. The first symptoms are shown by the sudden drooping of the tender upper shoots. The leaves lose their turgidity, become flaccid, droop and gradually turn yellow. The whole plant rapidly wilts, first turning yellow and later brown. Near the soil at the base of the vine, that is, at the region of the collar are sometimes seen dark water soaked spots which get softened. The whole region rots and becomes completely shredded. In most plants however, the roots, long before the rot sets in, become completely deteriorated and the plant dies.

2. *Sclerotium rolfsii*.—This disease is of equal if not of greater virulence. This is not apparently a new disease as the ryots seem to have been familiar with it. It is locally called "Purnam" by the cultivators. On the basal portion of the vines especially in the coiled portion is seen a growth of thick web of longitudinal white—fibre likethings which spread and completely cover the whole base. The portion affected rapidly rots. The connection between the roots and the stem is severed and the plant dies. This disease is confined to moist portions chiefly the coiled portion attacking them just before they strike root. The loss due to this disease is also considerable.

Remedial measures.—Since in both cases infection spreads from the ground and the fungi presumably live in the soil, treatment of the soil is indicated as a remedial measure. Since the attack begins and in most cases ends in the collar region a protective fungicidal coating in this region also seems necessary. A trial has been made this season to find out if spraying would be useful. Bordeaux mixture (1 in 2 strength), along with resin and soda, fish oil soap and chestnut compound (or a mixture of copper sulphate and ammonium carbonate) have been sprayed. The results will be watched. Ryots in this locality have also been advised to adopt the following methods:—

1. Liming the soil 2. Judicious rotation 3. Lopping of agathi branches to admit more of sunlight.

(As this crop is grown in all parts of this Presidency though in small areas and as these diseases may escape the notice of the ryots in the initial stages it is presumed they will carefully note the symptoms mentioned above and communicate with the Government Mycologist, Coimbatore for advice—(Editor).
