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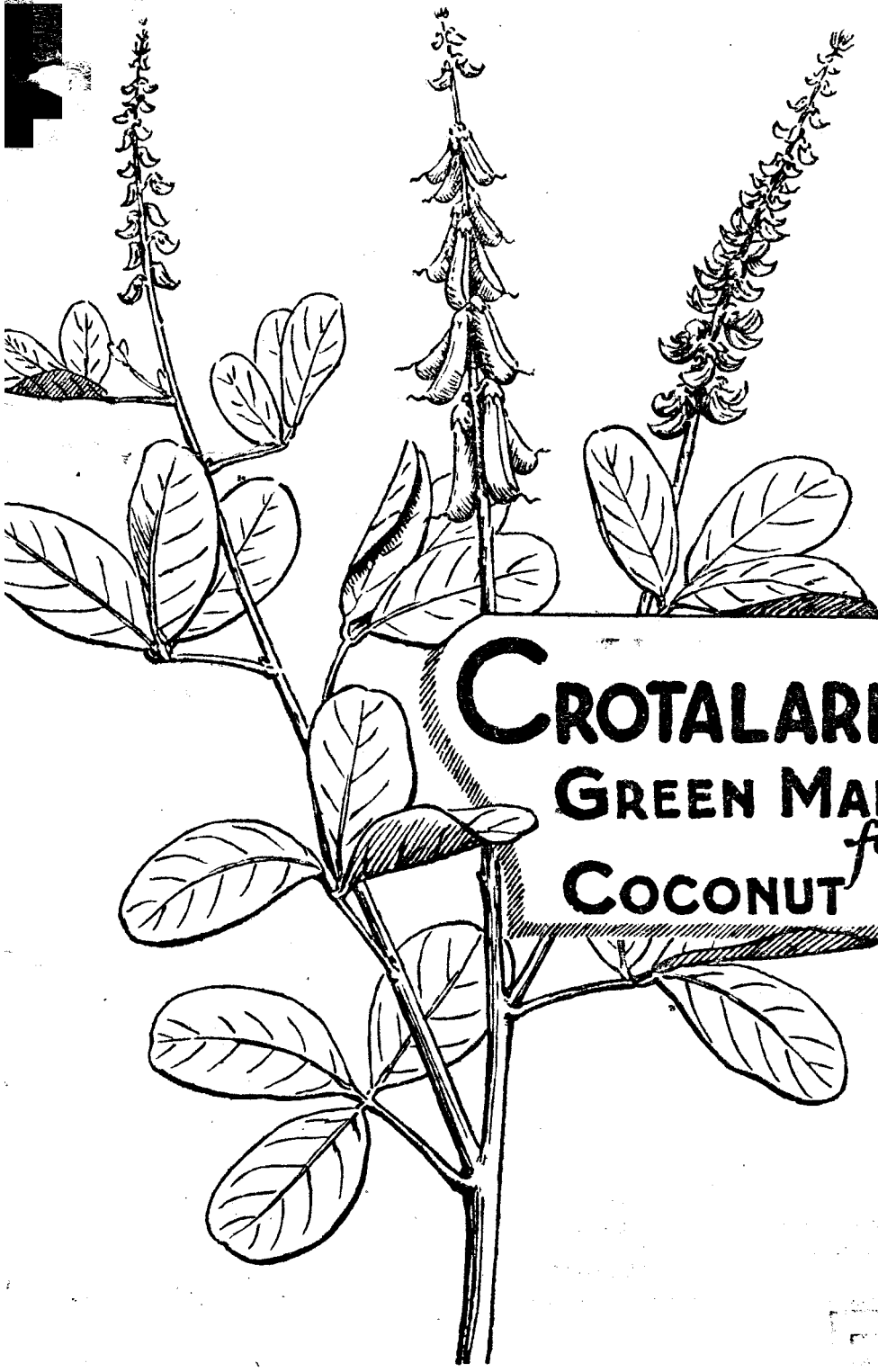

CROTALARIA STRIATA
GREEN MANURE CROP for COCONUT PLANTATIONS

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By

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Introduction

IT is now a well established fact that manuring with a green manure crop grown *in situ* bestows many beneficial effects on the soil and thereby enhances soil fertility and crop production. This system of manuring has become fairly popular in the cultivation of crops like rice, sugarcane etc. With regard to the coconut, however, the growers have not fully taken advantage of the benefits of this technique, mainly for want of a suitable green manure crop that would grow well in the shade of the coconut and yield a good tonnage of green matter. Trials carried out with different green manure plants at the coconut research stations in the Madras State over a decade, have shown that *Crotalaria striata* has many desirable qualities and is well adapted for growing in coconut gardens. This crop is now well known to many progressive coconut growers who have appreciated its usefulness and have begun to grow it in their gardens. In order to introduce the crop to a wider circle of growers and enable them to grow and utilize it in the best manner possible, a short account of growing it *in situ* in coconut gardens is given hereunder.

The Plant

Crotalaria striata or 'wild sunn-hemp' as it is now popularly known (Malayalam -- *Kilukkampatti;* Tamil -- *Kattuchanappu*) is found growing wild in waste and uncultivated lands in almost all the major coconut tracts of India. It is a hardy and herbaceous leguminous plant growing to a height of five feet or more under favourable conditions. The plant is easily distinguished by its bushy nature and the conspicuous terminal inflorescences with closely set yellow flowers which finally develop into drooping pods. It can thrive in a variety of soils including slightly saline soils and when established is capable of withstanding extremes of rainfall and drought. Under favourable conditions, it grows luxuriantly and bushes out well under the shade of the coconut. Unlike most other green manure plants, it is not eaten by cattle or goats though the latter have been noticed to brouse the young tender inflorescences. No serious pest or disease has been observed to affect the crop, although the pods are sometimes found attacked by pod-boring caterpillars in certain seasons.

Preparatory Cultivation

The land where *Crotalaria striata* is

proposed to be grown should be prepared properly and the soil brought to good tilth by giving necessary ploughings or digging with mammotty. In gardens which do not receive regular intercultivation, it would be necessary to start the preparation of the land with the receipt of summer showers sufficiently in advance of the sowing time. The plots should be ploughed twice and grass and other weeds should be collected and either buried in the field if there is sufficient moisture to facilitate rotting or burnt in the field itself. Another course of ploughing may be given prior to the sowing.

Seeds and Sowing

The sowing should be taken up as soon as heavy pre-monsoon showers are received. Although manuring is not essential, a liberal supply of ash and farmyard manure, if available at the time of sowing, has been observed to promote good growth of the green manure crop. Indirectly, this manuring will benefit the coconut trees also.

On the West Coast the best time for sowing is soon after the receipt of the first heavy showers in April-May so that by the time the South-West monsoon sets in, the plants would have sufficiently grown up to withstand the monsoon rains. The receipt of continuous heavy rains immediately after germination or in the young seedling stage may seriously affect the young crop and result in uneven stand. The sowing time has, therefore, to be adjusted carefully so that the young crop is not damaged. It is even desirable to sow the seeds early in April-May in anticipation of the receipt of rains.

About 20 to 25 pounds of seeds would be necessary to sow an acre. The seeds are sown broadcast and covered by working a wooden or country plough. Germination of the seeds in some cases has been found to be rather slow and prolonged. It is possible to promote quicker and better germination by pounding the seeds lightly with sand in a wooden mortar just before sowing. In some localities, it takes two or three years for the crop to establish and repeated attempts have, therefore, to be made for two or three years.

Slashing and Incorporation

The seeds will normally germinate within five days after sowing. Although the growth of the plant is rather slow in the early stages, it would bush out after about 45 days and be ready for cutting in about four months after sowing. Maximum vegetative growth would have been attained when the early formed branches have put forth inflorescences and are in good flush. This is the most suitable stage for the crop to be cut for incorporation into the soil. If the crop is allowed to grow still further, the stem and branches will become more woody and may not decompose well when buried in the soil.

When the crop is ready for burying into the soil, the plants would have grown fully and it will not be possible

A FULL-GROWN CROTALARIA STRIATA CROP

to plough them in, as such. The plants are, therefore, better slashed or pulled out and spread and covered with an iron plough. They may also be buried in shallow basins round the base of the trees or in shallow trenches dug in between rows of trees. If the plants are buried in trenches and not in the entire field, it would be desirable to alter the position of the trenches from year to year so that in the course of a few years almost the entire portion of the garden receives the green manure. It is important to bury the crop when there is sufficient moisture in the soil as then only will the decomposition of the green matter proceed satisfactorily.

Yield

The yield of green stuff may vary according to the stand of plants, their growth and the stage when they are cut. Though high yields upto 30,000 lb. per acre have been obtained under favourable conditions at the Coconut Research Station, Kasaragod, an average yield of 7,000 to 10,000 lb. per acre can normally be expected under less favourable conditions. The green matter contains about 2.2 per cent nitrogen on moisture free basis and is easily decomposed if the crop is cut at the proper stage of growth and buried properly.

Seed Collection

As already mentioned, the crop is best cut for green manure when the plants have bushed out and most of the branches are in flower. Any delay in this, either with the intention of collecting seeds or due to other causes will adversely affect the quantity and quality of the green matter. It is thus obvious, that it is not desirable to retain the crop sown for green manure for the collection of seeds. Still, at the time the crop is actually cut, a few mature pods will be available for picking from the first formed inflorescences. For obtaining more seeds it will be necessary to allow a narrow belt of plants to grow along the borders of fields. These may be pulled out when sufficient quantity of seeds has been gathered.

Regular supply of seeds can however be obtained if the plants are properly raised in the borders of plantations or in waste lands nearby and allowed to grow without disturbance. The plants are found to come up well under such conditions and to yield seeds throughout the year for two years at least.

For obtaining good seeds, it is necessary to pick the pods when they are fully mature and the seeds rattle inside on shaking. The picking of pods is better done after a spell of sunshine when the pods are not wet with the rains. The picked pods should be dried well for a few days and the seeds extracted. The seeds may be further dried for two or three days, and cleaned and stored properly. About 100 lb. of seeds can be obtained from an acre.

Recommendations

(1) Prepare the land sufficiently in

advance of the sowing time by ploughing or digging. Remove all grasses and other weeds and keep the soil in good tilth.

(2) Sow good seeds, preferably after pounding with sand soon after the premonsoon rains in April-May to ensure quick and better germination.

(3) Adopt a seed rate of 20 to 25 lb. per acre. A second sowing may be attempted if the early sown crop fails to establish.

(4) Apply a liberal dose of ash and farmyard manure, if available, to the fields at the time of sowing the seeds.

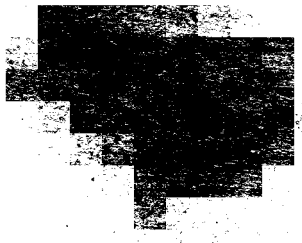
(5) Cut or pull out the plants after about 4 months' growth in August-September when they are in full flush and incorporate them into the soil by ploughing or burying them in shallow basins dug round the trees or in shallow trenches dug in between rows of trees.

(6) The above operations should be carried out when there is sufficient moisture in the soil.

(7) The crop intended for incorporation as green manure should not be retained for collection of seeds. Seeds required for raising subsequent crops can be obtained by leaving some plants in the borders of fields or by growing them in uncultivated or waste lands or in borders of plantations.

(8) Pick pods for seed purposes only when the pods are fully mature and the seeds rattle. The seeds should be dried well and properly before storing.

Green manure your gardens for better soil conditions and increased yields. Green manure by itself is very good. But fuller benefits can be obtained, if it is supplemented by regular and systematic intercultivation and manuring with other manures.



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