Revised Edition - April 1968

COCONUT RESEARCH INSTITUTE

LEAFLET No. 17.

COVER-CROPS FOR COCONUTS

Notes on the planting of cover crops, suitable for coconuts, and on the methods of treatment of these covers.

The principal benefits to be derived from the cultivation of leguminous cover-crop plants in association with coconuts are the prevention of loss of surface soil on undulating and hilly land, the addition of humus to the soil when the cover is periodically ploughed in, and the fixation of atmospheric nitrogen which subsequently serves as plant food for the palms.

The growing of leguminous cover crops cannot however be recommended unequivocally under all soil and climatic conditions. In the wet zone areas under heavy rainfall, particularly on sloping lands, covers should prove useful for conserving soil against erosion and in adding to its fertility. In dry areas under conditions of low rainfall, cover crops, tend to compete with the palms for moisture and can cause a set back in crops.

RECOMMENDED COVER-CROPS

Calopogonium Mucunoides

This is a quick-growing creeping plant, which thrives on a wide range of soils and forms a cover in six to eight months, if sown under suitable weather conditions. Seeds are small, somewhat flat and yellowish brown. Calopogonium is a moisture loving plant and dies back during drought and after seeding, but regenerates after the rains.

Centrosema Pubescens

This is a twining herb which ascends any support with which it comes in contact. Compared to Calopogonium, Centrosema makes slow growth in the early stages, but when properly established it forms an excellent cover. It is very hardy and does not easily die-back during drought nor after seeding. If die-back does occur, recovery after rains is very rapid. Seeds are larger than Calopogonium and are somewhat flat and dark brown in colour.

Centrosema may be considered the most suitable under general conditions as well as gravelly soils.

Pueraria Phaseoloides (Javanica)

This is a strong twining herb, which in general appearance resembles Calopogonium, but the leaves are much larger and it roots profusely at the nodes. Seeds are small, dark brown and susceptible to insect attack, and sometimes show poor germination.

Its growth is moderately rapid and it forms a dense thick cover in one to one and half years. There is a slight tendency to die-back during drought, but it recovers after a few showers.

PLANTING COVER-CROPS

Seed Bed

The importance of a seed bed, free from weeds, must be stressed if a cover is to be quickly and successfully established. The land should first be ploughed and then disc-harrowed across the plouged furrows and all weeds collected and removed. A final harrowing with a chain harrow produces an ideal surface for sowing seed and also helps in the complete removal of weeds. If a chain harrow is not available, the disc-harrowed surface should be levelled with mammoty-forks or hand rakes.

On poor soils and particularly on eroded slopes, application of a phosphatic manure (2 to 3 lbs. saphos phosphate per square) is particularly helpful in the establishment of cover crops.

Planting Covers on Husk Mounds

Covers may be easily established by planting them over trenches, in which coconut husks have been buried and afterwards covered with soil. This also assists the decay of the husks.

Seed Rates and Mixtures

A seed rate of 15 to 30 lbs. per acre may be considered sufficient under general conditions, the seed being broadcast. If seed is plentiful and comparatively cheap, a higher seed rate may be used, especially on poor sandy soils.

If planted in rows, two feet apart, a seed rate of about 8 lbs, per acre may be used. In this case it is possible to weed between rows till the cover establishes itself.

The species may be planted alone or in mixture depending on the soil type.

Treatment of Seed

Centrosema seeds which have a hard seed coat will germinate more readily if soaked overnight in water. Seeds so treated must not be allowed to dry before sowing. It is needless to mention that planting should always be done during the rainy season, preferably at the beginning of the rains.

After sowing the seed should be covered by lightly forking with mammoty-forks, hand rakes or by a chain harrow.

Seeds of Pueraria are somewhat expensive. Further, Pueraria seed often shows poor germination, and it can be more readily propagated from cuttings. Economy in seed rates in planting Pueraria can however, be effected in two ways:-

(*a*) The seeds may be germinated in a nursery on coconut husk containing a mixture of soil and dung. The seedlings may be subsequently planted along with the husks at distances of 3 × 3 feet.

(*b*) The plant may easily be propagated from cuttings which can be lifted with numerous adventitious roots. These of course should only be planted in wet weather.

TREATMENT OF COVER-CROPS

Once established the cover should not be allowed to grow rank and left permanently untreated. The following methods can be recommended.

(*a*) Harrowing once a year and even twice a year when the cover is thick but the harrowing should not be heavy.

(*b*) The cover may be ploughed in once every two years. Ploughing in a thick cover, without a preliminary harrowing, is however very difficult, and is not to be recommended.

(c) The cover may alternatively be dug over with mammoties once in two years. Digging likewise will be facilitated if the cover is first harrowed. This treatment has however, been found to be somewhat severe on Pueraria. Mammoty-digging is prohibitive today owing to high labour costs.

(d) The cover may be envelope-forked.

(e) Grazed with cattle periodically.

It must be stressed that the treatment of cover crops should only be carried out during the rains, so that the cover can quickly regenerate itself from the buried cuttings or self-sown seed.

It is also strongly recommended that alternate rows and not the entire field should be treated, because if adverse weather conditions follow the treatments and the cover fails to regenerate in the treated rows, the untreated portions can spread over into the adjacent rows, and the land will be re-covered.

Pueraria is often slow to recover and such treatment would be most advantageous in the case of this cover. A further advantage of the method of treatment of alternate rows is to check erosion on hilly land if heavy rains should follow. In this case the rows treated should be in contour strips.

Manuring of Land under Cover Crops

A suitable mixture may be chosen from the schedule given in Advisory Leaflet No. 36. The fertiliser should be broadcast in the square. The cover crop should then be turned into the soil by harrowing.

Cover-Crops on Young Plantations

Where the cover-crops are grown on young plantations it is essential that an area round the young palms up to a distance of six feet must be kept clean-weeded, otherwise the creepers tend to climb up the young palms and check their growth.

Cover-Crops as Fodder

Cover-crops may be utilised as fodder by grazing cattle lightly especially during dry weather, heavy grazing shoud be avoided or else the covers may fail to recover. Centrosema is particularly relished by cattle. Calapogonium seems to be less favoured but buffaloes are indifferent and eat all varieties equally.

Peiris Printers, Wennappuwa.