



Leguminous cover crops grown in arecanut garden

## GREEN MANURE CROPS FOR ARECANUT GARDENS

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ANNUAL application of green leaf to arecanut palm is a common practice in Karnataka and Kerala. Generally, leaf is collected from the neighbouring forest areas and applied to arecanut basin, immediately after the south-west monsoon. With the gradual decrease of forest areas, it was thought necessary to search for suitable green manure and cover crops to be grown in arecanut garden, as a substitute, for forest leaf. In addition to the manurial value of the above-ground vegetative parts alone, the leguminous green manure or cover crops have a number of other advantages, such

as fixation of N, recycling of nutrients in the soil profile, and prevention of erosion. Keeping these points in view, a field experiment was conducted to find out the green matter yielding ability of few selected green manure and cover crops and their capacity to add nutrients to the soil.

The trial was started during 1969, and continued at the CPCRI Research farms at Vittal, Hirehalli and Mohitnagar till 1972. The green manure and cover crops grown were 6 at Hirehalli, 5 at Mohitnagar and 4 at Vittal. During the initial years, the growth of many green manure and cover crops was not

satisfactory at all the stations. However, these crops established well and gave good yields in 1972.

The seeds of the leguminous crops were sown in the arecanut gardens before the onset of the monsoon. After the plants flowered, the above-ground growth was cut, weighed and added to 5 arecanut palms at 10 and 20 kg/palm/year. Analysis of soil for organic C content was carried out, periodically, till the next growing season. The experiment was conducted in a RBD, consisting of 4 replications.

Crops suitable for Vittal were *Calopogonium muconoides*, *Pueraria javanica* and *Mimosa invisa*. At Mohitnagar, the growth of *P. javanica*, *Stylosanthes gracilis* and *M. invisa* was good. Yields of *M. invisa* and *Centrocema pubescens* at Hirehalli were satisfactory. Based on the yields and nutrients removed by the above-ground portion of plants, *P. javanica* and *M. invisa* were considered suitable for arecanut gardens (Table 1).

Application of 10 kg of green matter either from *M. invisa* or *P. javanica* supplied 69-88 per cent N, 28-43 per cent  $P_2O_5$  and 29-38 per cent  $KO_2$ , required by arecanut. *P. javanica* appears to be a more suitable cover crop in arecanut garden raised on slopes. The vegetative cover not only checks erosion and nutrient losses, but also conserves moisture. *M. invisa* can be recommended in arecanut gardens grown in levelled lands.

The organic C content of soil showed that the decomposition of vegetative parts from different green manure crops was completed within 3 months after their incorporation. The rapid mineralization of green matter should be considered as an essential pre-requisite in choosing green manure crops in arecanut garden.

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