



ICAR-CENTRAL ISLAND AGRICULTURAL RESEARCH INSTITUTE
Sri Vijaya Puram (Port Blair)-744105, Andaman and Nicobar Islands, India

Broad Dhania Intercropping in Arecanut for the Prosperity of Island Farmers

When cultivated under open conditions, exposure of herb to the sun results into development of serrations on leaf margins and premature production of inflorescence. Cultivation as intercrop helps in avoiding both these issues as the leaf serrations get reduced drastically and production of inflorescence also gets delayed. After about four months, when the leaves attain full growth, plants could be carefully pulled out along with roots. Roots of such harvested plants should be washed in clean water before packing in banana leaves or bamboo baskets for local transport. Few plants in each bed should be allowed to produce inflorescence and set seeds as this serves as new crop and the cycle continues. Addition of farmyard manure after each harvest boosts the production of vigorous plants.

Yields and benefits

When the leaves are fully developed but soft, harvesting of the herb should be done by uprooting the plants carefully from the beds. The yields are generally low in the first harvest and 1 q/ha produce could be harvested, while higher yields of about 21 q/ha could be obtained from the second harvest. The yield gets increased in subsequent harvests due to increasing plant population from naturally fallen seeds. Seedlings germinated could be thinned out and used for planting in areas from where harvesting of plants was done so that the next cycles could continue. Arecanut yields of 35 to 42 q/ha could be obtained from such plantations. Studies done at the Institute revealed that the cost of cultivation was generally low in arecanut sole crop (₹ 3 lakh/ha), while intercropping practices increased the cost to ₹ 4 lakh/ha. But, considering the additional yields of 22 q/ha from two harvests, and premium prices fetched by culantro, incorporation of culantro in the interspaces resulted in improving the net returns by 35.8% to about 13 lakh rupees/ha with benefit: cost ratio of 3.19 when compared with arecanut alone.

Thus, incorporation of broad dhania could help in improving the profitability of the island farming, generating employment opportunities, reducing dependence on mainland supplies, better utilization of land which is a limited resource especially in the islands, and providing fresh produce to the island dwellers. Apart from the Andaman Islands, this intercropping system could also be suitable for other warm and humid areas of the country wherein arecanut plantations are available.

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Ajit Arun Waman and Pooja Bohra

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Introduction

Agriculture in the Andaman and Nicobar Islands situated in the Bay of Bengal is dominated by horticultural crops; more precisely by the plantation crops. Though coconut has been the major plantation crop of the islands, cultivation of arecanut has shown an increasing trend and many farmers are inclining towards its cultivation. This is mainly due to the better prices realized to the produce, ease of cultivation and non-prevalence of major pests and diseases in the arecanut. Arecanut is generally cultivated on the hilly uplands and the recent statistics suggests that it is being cultivated on an area of about 4,000 ha. However, considering the limited area available for cultivation in the islands (ca. 46,000 ha), adoption of cropping systems with multiple crops is desirable. This requires identification of crops, which are compatible with the main crop, regionally popular and most importantly, profitable to the island farmers.



A view of arecanut plantation on hilly upland in the islands (left) and Raised beds prepared in the interspaces of arecanut planted on the terraces (right)

Broad Dhania

Burma dhaniya (Burmese coriander) and *lamba patti dhania* (long leaved coriander) are the popular names of culantro (*Eryngium foetidum*) in the Bay Islands. The warm and humid climate and well drained soils of these islands are suitable for its cultivation. Culantro has multiple benefits to the grower as well as consumers. From farmers' point of view, the herb is hardy in nature, can tolerate high rainfall to a great extent and performs well under shaded conditions. Shelf life of the produce is much higher than the commercial coriander/ cilantro (*Coriandrum sativum*) especially as the crop is harvested and sold in the markets with roots. The superior shelf life is advantageous to both farmers as well as consumers. The crop is cultivated in isolated pockets in the islands and no exact data on its area under cultivation is available. The produce is regularly being sold at premium prices (₹ 300 to 500/- per kg) in the island's urban and suburban markets. Due to good demand of the herb by the settler

communities of the islands and increasing tourism activities, there is ample scope for promotion of this underutilized spice in the islands.

Cultural operations

Considering the hilly upland terrain of the plantations in the islands, preparation of terraces across the slope facilitates cultivation of intercrops. Improved varieties such as Samrudhi or Mangala, which are the popular arecanut varieties among island farmers should be used for getting better yields. The island farmers generally take up planting of arecanut too close or naturally fallen seeds are allowed to grow thereby making the plantations too crowded. Following recommended spacing of 2.7 m × 2.7 m for arecanut makes preparation of raised beds of optimum size (two beds of about 75 cm wide and of suitable length on each terrace) possible and facilitates interculture operations of the planted intercrops. Use of well decomposed farmyard manure (10 kg/ m²) and proper mixing of it with the top soil should be done. For planting, 4-leaf-stage seedlings of Dweep Broad Dhania 1 germinated naturally from the mother block of culantro could be collected and planted at 20 cm × 20 cm spacing as seeds do not show uniformity when used for broadcasting. Hand weeding is desirable in the initial period to maintain the area weed free especially in the initial period of crop establishment.



Seed set in culantro (left) and naturally germinated seedlings near mother plants (right)



Luxuriantly growing plants of broad dhania in the interspaces of arecanut