

# Intensified inter/mixed cropping in areca garden — the need of the day

K. SHAMA BHAT

Central Plantation Crops Research Institute,  
Regional Station, Vittal, South Kanara, Karnafaka.

Multiple cropping, relay cropping, overlap cropping, intercropping and mixed cropping are some of the terms that are being more widely used by the agricultural scientists in recent years. All these, in reality, mean an intensive land use to take two, three, or even more, crops either simultaneously or successively each year. These systems not only increase the productivity per unit area and per unit time but also provide additional work to the agricultural labour. They have been advocated mostly for cereals, pulses and such other annuals.

The practice of intercropping or mixed cropping in arecanut gardens has been in vogue even in early times. But the objective in those days was not intensive cropping. The long pre-bearing age of 5 to 8 years, the low income in the early years of bearing, the fluctuation in the yield of the crop due to pests and diseases (which had no proper control measures in early years) and seasonal conditions forced the planter to take up to intercropping. It is at times the location at which the growers were placed that made them to grow intercrops. They had no markets near about or they were sometimes cut off from the marketing centres due to lack of communication or transport (as in interior 'Malnad' of Karnataka State). The farmers were therefore compelled to grow their day to day requirements of vegetables and fruits in the areca gardens.

Further, the income from arecanut gardens is restricted to a few months in a year. The intercrops when raised can provide additional income during the off seasons.

The crops chosen as intercrop or mixed crop also vary from tract to tract, though a crop like banana may be more universally grown. If growers at Sirsi (Karnataka) prefer cardamon and pepper as intercrops, the planters at South Kanara select pepper and yam as best suited to that locality. Again, the areca grower in Assam has selected citrus whereas the crops grown in several parts of Kerala are Dioscorea, yams and tapioca.

The basic concept of farming is now changing from subsistence farming to business farming based on sound principles of economics and technology. The grower is not raising crops to meet the demands of his family alone. Every item of input like land, water, fertilizer, labour, capital etc., has to be considered in terms of the additional gain that can be achieved from the crop raised. The crop or crops for intercropping are to be chosen more carefully, especially when one of the partners is a perennial crop like arecanut. The intercrops chosen should create only minimum problems of soil exhaustion and pest build-up, while ensuring at the same time maximum production or maximum returns per unit input to the farmer. The intercrop selected

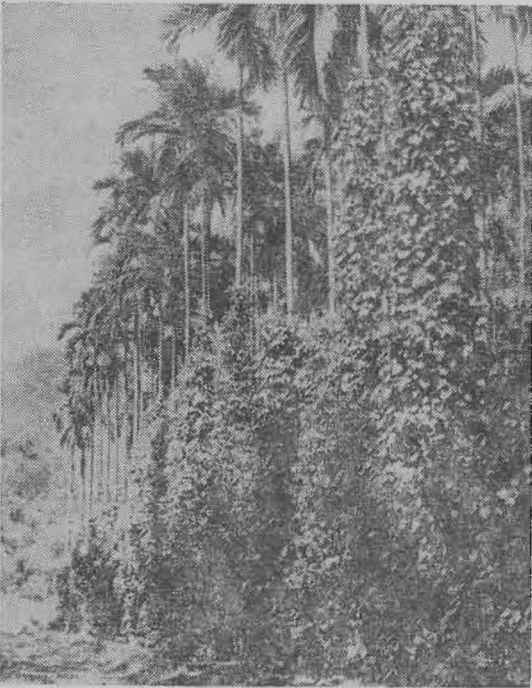
INTERCROPS IN ARECANUT GARDENS



**Yam**



**Pineapple**



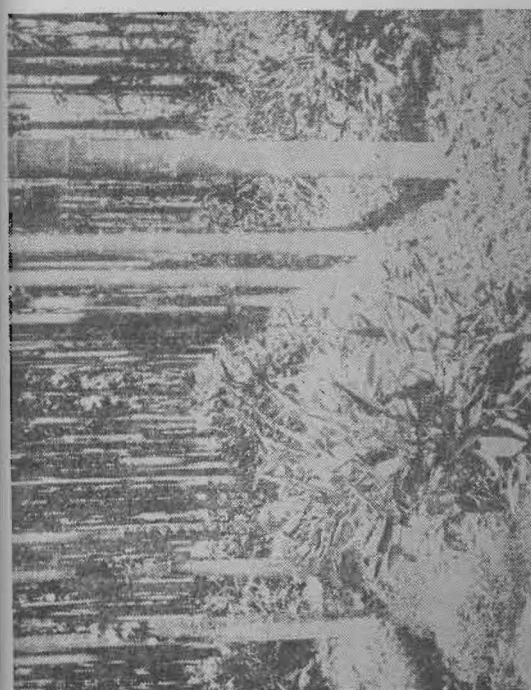
**Pepper**



**Cocoa**



**Banana**



**Arrowroot**



should be compatible and able to co-exist with the arecanut crop, under the partial shade conditions prevailing in arecanut gardens. It should be able to utilize and harness efficiently the limited light that is intercepted through the crown of areca trees. The crop selected should have a rooting pattern different from that of the main crop of arecanut so that this crop can utilize the water and nutrients which are not utilized by the arecanut. Thus the kind of intercrop chosen will vary depending upon several factors like the agro-climatic condition of the area, the demands and preferences of the local market, and the personal likings and needs of the farmer.

It is in the above background that a number of field experiments were initiated at the Regional and sub-stations of the Central Plantation Crops Research Institute using the different crops commonly grown in the particular area. The recommendations based on the trials conducted are described

in the following pages of this *Bulletin*. Though several crops are listed, they can be broadly grouped into two categories, the first coming under the group of money or cash crops like pepper, cardamom and ginger having an export potential and the second falling under the category of food crops like banana, elephant-foot-yam, and pineapple. It is for the farmer to choose the variety or crops found best from the 'cafeteria' of alternate crops. Yet under the present scarcity conditions for food prevailing in the country it is considered a bounden duty and responsibility of the grower to raise food crops of high caloric value. The experiments conducted show that the production of calories per hectare by certain intercrops compare well with that of a double crop of paddy.

TABLE: Estimated number of calories produced and additional income expected from one hectare each of certain intercrops

<i>Mixed Crop</i> Intercrop	Yield (kg)	Food value Calories in million	Additional income expected.* Rs.
Banana	4000	6.12	1500 to 1800
Pineapple	8000	4.00	700 to 1000
Elephant-foot-yam	12000	12.00	1400 to 1700
Arrowroot	4000	14.20	1000 to 1200
Cocoa	750	4.50	3000 to 3500
Pure crop paddy (Double crop)	4000	10.26	

\*Based on market rates during 1973.

Alternatively, if the intention of the areca grower is to get additional income in view of the recent fall in the price of arecanut, he may choose a mixed crop like

pepper or cardamom depending upon the agro-climatic region in which the garden is located. These crops will give an additional income of Rs. 800-1000/ hectare per annum.

However, it has to be understood that inter or mixed cropping with a perennial crop like arecanut is to be considered primarily as a safeguard against the uncertainties of returns from the produce of pure or monoculture gardens due to reasons beyond the control of the planters. Raising two or three crops in the same area will help to stabilize the income of the small holders

like that of areca cultivators. Selection of the secondary crop on profit motive alone will not always be possible or predictable since it will again depend on the market price which may be highly fluctuating. One should choose only such crops that are not only non-detrimental to the main (arecanut) crop but can also co-exist to the benefit of both of them.

