



Cocoa and Coconut Live in Harmony

Jnanadevan.R

Dy. Director (Retd.), CDB, Kochi

The crop association involving coconut and cocoa proves an excellent combination to the agro ecological condition of coconut garden. It yields all the agronomic advantages in terms of sharing nutrients, smothering weeds, conservation of soil and water and enhanced growth and productivity of the coconut.

The farmer's field in Divasputhooor village, near Kerala border in Coimbatore district, Tamilnadu, where Cocoa is grown and performs excellently well as an intercrop in coconut plantations. Shri. Krishna Kumar M.N, Door No.4/160 Myladumparaikalam, Divansapudur (PO) Anaimalai Taluque has 7.5 acres of 20-25 year old 630 coconut palms planted at a distance of 7.5m x 7.5m. In his coconut garden 1500 hybrid cocoa seedlings were planted during September 2017 with financial support under the cocoa new plantation development scheme under MIDH implemented by Directorate of Cashew and Cocoa Development (DCCD) through the Department of Horticulture and Plantation Crops, Tamil Nadu. Planting was done with proper technical guidance from the Department of Horticulture. Cocoa hybrid seedlings were also arranged by the Department of Horticulture through Mondelez India Foods Pvt. Ltd. Coimbatore. Pits of size 50cm x 50cm x 50cm were taken with a plant spacing of 3m x 3m in the middle of two rows of coconut palm. Besides in between each raw of coconut plant one pit was taken. Altogether





1500 pits were taken in 7.5 acres of coconut garden for planting cocoa seedling. Before planting, pits were filled with top soil and compost mixture. Six month old seedlings showing vigorous growth were selected & planted in the center of the refilled pits after carefully removing the polythene bag without disturbing the ball of earth. 200 cocoa plants were planted in one acre of coconut garden and a total of 1500 seedlings were planted in 7.5 acres accordingly.

The seedlings were maintained with proper irrigation through drip and manures and fertilizers were provided as per recommendations of the Department of Horticulture. Proper shading and mulching in the initial years of establishment of cocoa seedlings was also taken up. The Ninety Five percentage of the seedlings planted during 2017-18 was established with vigorous growth and 5% seedlings showing stunted growth were gap filled in the second year with quality seedlings. The farmer is following regular application of organic manures and inorganic fertilizers to both the crops. He is preparing compost in his garden itself by utilizing the farm waste. By utilizing the farm waste, the farmer is preparing compost in his garden itself. The shell waste obtained after removing the beans is also utilized for preparing compost by addition of biofertilizers and cowdung. For converting 1 ton of cocoa pod waste he is adding 10 kg farm yard manure and of 10 kg each bio fertilizers viz; *Phosphobacteria*, *Pseudomonas* and *Trichoderma*. In addition to application 10 kg compost, he is providing inorganic fertilizers @500gm of Urea, 500gm of superphosphate and 450gm of muriate of per cocoa plant per year. For coconut also he is applying manures and fertilizers regularly. For each palm he is applying goat manure @ 10 kg per palm and 1.00 kg urea 2.0 Kg. super phosphate and 3.00 Kg. muriate of potash per coconut tree per year. Officers of the department of Horticulture and technical executives of Mondelez India conducted through Technical Experts from Tamil Nadu Agricultural University

extended farm level training to educate him about coca crop management, disease management and post-harvest primary processing for getting good quality cocoa beans.

During the first year he had incurred expenses at the rate of Rs. 20,000/- per acre (table 1) for establishment and maintenance of cocoa seedlings. During the second year the expenditure was Rs. 10,000/- per acre for its maintenance. During the third year the expenditure was Rs. 15,000/- acre for maintenance of cocoa for meeting the cost of manures and fertilizers, labor charges for adopting various management practices. During the fourth year onwards he is anticipating expenditure of Rs.15,000/- per acre. The cocoa trees started yielding during the third year and on an average of 15 pods per tree were harvested in the first harvest. Primary processing, i.e. braking of pods, fermentation and drying of beans were carried with in his coconut farm at farmer level and dried beans is marketing through Mondelez India Foods Pvt. Ltd. On an average he got 500gms of dry beans per tree in the third year. He is expecting 1 kg dry beans per tree in the 4th year and 2kg in the 5th year onwards. He sold cocoa beans at Rs. 180/- per kg and got a gross income of Rs. 18,000/- per acre in the third year and expecting Rs. 36,000/- in fourth year and Rs. 72,000/- in the 5th year. As such net income from cocoa per acre in 5th year onwards is Rs. 57,000/- and total net income from 7.5 acres of coconut garden in the 5th year will be Rs. 4,27,500/-. There is well established marketing system in Anamalai block. Mondelez India (Pvt.) Ltd. and Campco purchases cocoa beans and provide market support to farmers at farm gate by paying remunerative price for the dry beans produced by the farmer.

Details of cost and income from cocoa intercrop in one acre of coconut during the first 5 years (Table 1)

Year	Cost	Cocoa yield (Dry beans) in Kgs	Gross income @ Rs. 180/- per kg	Net income
First year	20,000.00	Nil -		
Second year	10,000.00	Nil -		
Third year	15,000.00	100	18,000.00	3,000.00
Forth year	15,000.00	200	36,000.00	16,000.00
Fifth year	15,000.00	400	72,000.00	57,000.00
Total	75,000.00	700	1,26,000.00	76,000.00



Every year he is spending an amount of Rs.900/- per palm for the base crop coconut. Out of which an amount of Rs.300/- per palm is for meeting the cost manures and fertilizers and Rs.600/-for labour charges for adopting management practices. On an average he is harvesting 120 nuts per tree and he sold coconut in last harvest @rs.15/- per nut and got a gross income of Rs1800/-per coconut tree and a net income of Rs.900/- per tree.

Cocoa is fetching good prize during the last 10 years and it has become a crop that can generate decent income for farmers. The estimated demand of chocolate industries in India is about 65,100 MT dry beans, whereas the present production is 23,981 MT which is only 37% of the demand. The processing sector depend on import to meet the demand. Hence introduction of this crop in potential areas is essential to reduce import. If cocoa cultivation is taken up in 5% of irrigated coconut gardens on cluster basis, the production will surpas the demand. Hence more thrust is to be given for promotion of this crop as intercrop in coconut, arecanut and oilpalm garden under the centrally sponsored programme Mission for Integrated Development of Horticulture. (MIDH)

The crop association involving coconut and cocoa proved an excellent combination to the agro ecological condition that provides in coconut garden. It yields all the agronomic advantages in terms of sharing nutrients, smothering weeds, conservation of soil and water and enhanced growth and productivity of the base crop (coconut). Due to inter cropping coconut also received regular attention, better care and management. Mr. Krishnakumar is of the view that cocoa is an ideal intercrop in coconut garden and it provides shade to the coconut basin and always maintain a cool environment in coconut garden. Besides, cocoa leaves improves health of soil by addition organic manure. Thus coconut production is maintained at higher level. He is harvesting at an average of 120 nuts/ palm. Palms giving more than 200 nuts/ ha. is also available in this garden. This piece of land exists as a living model to show the harmonious association of coconut and cocoa in a complimentary manner which is worthy for emulation by others. ■

Cost and income from Cocoa from 7.5 acres Coconut garden	
Total cost - Rs. 5,62,500/-	Cocoa population : 200 per acre
Total income - Rs. 9,45,000/-	Spacing 3m x 3m
Net profit - Rs. 3,82,500/-	Method of planting : Pit method
Variety: : cocoa hybrid (foresterro)	
Cost of cultivation per cocoa plant (first year)	
Cost of seedling	- Rs. 6/-
Cost of organic manure & Bio fertilizer	- Rs. 24/-
Labor charges	- Rs. 70/-
Total	- Rs. 100/- per plant
Cost of cultivation per cocoa plant (second year)	
Cost of organic manure & Fertilizer (Including cost of seedlings for gap filling)	- Rs. 30/-
Labor charges	- Rs. 20/-
Total	- Rs. 50/- per plant
Cost of cultivation per cocoa plant (third year)	
Cost of organic manure & Fertilizer	- Rs. 50/-
Labor charges	- Rs. 25/-
Total	- Rs. 75/- per plant
Source: : Shri. Krishnakumar M.N Door No.4/160, Myladumparaikalam, Divansapudur (PO) AnaimalaiTaluque, M NpalayamAnamalai, Coimbatore Phone 9865411115	
Note: first to third year actual expenditure incurred by the farmer, fourth and fifth year estimated expenditure and income.	