

MBM-CARI-II

Broad Bed and Furrow (BBF) system

Rationale

In Andaman and Nicobar Islands, farmers mostly grow mono crop of traditional photosensitive low yielding lodging prone cultivar (C 14-8) with very low level of inputs and poor management. As a result, the productivity is also very low (2.3 –2.5 t/ha). The unpredictable rain dependent rice farming leads to unstable production and financial risks, which cannot ensure food security for these islands. Being a non-perishable commodity, paddy can be imported from Indian mainland. Thus to meet the challenges of sustaining food security and economic growth, crop diversification through system approach in rainfed lowland environments is essentially required to meet the human and crop nutritional imbalances arising from monocropping. Such approach can reduce the risk and improve stability, efficiency and sustainably convert the resources into higher quality produces without polluting environment and ecosystems and secure higher income and employment.

Vegetables in Bay Islands are cultivated mostly on the hills in about 3400 ha with a production of 13500 t and productivity of 3.9 t ha⁻¹. The total requirement of vegetables by 2010 A.D

would be around 26000 t for an estimated population of 4.5 to 5 lakhs. The scope for horizontal expansion of vegetable area is bleak and any attempt to increase the production of this highly valuable and perishable commodity should concentrate on providing better micro-climatic conditions by manipulating the plant type or land. Besides, the islands also face major limitations in vegetable cultivation due to extensive damage by Giant African snail and bacterial wilt, post monsoon dryness, non-availability of full sunshine for vegetables in hilly land under plantations and lack of proper drainage system in the low-lying valley areas. The Broad Bed and Furrow (BBF) system offers solution to these problems during the monsoon season (May – December) in these islands.

Technical details

It is a technology identified to grow vegetables and fodders right in the midst of rice field. It involves making of broad beds (width 4 m, height 1m) and furrows (width 6 m, depth 1m) alternatively to provide drainage and standing water to the required crop *viz.*, vegetables and rice respectively. In addition to the vegetables, the BBF helps the farmer to include various IFS components like fish rearing in the furrows, fodder crops on the beds which in turn helps to include animal component in the system.

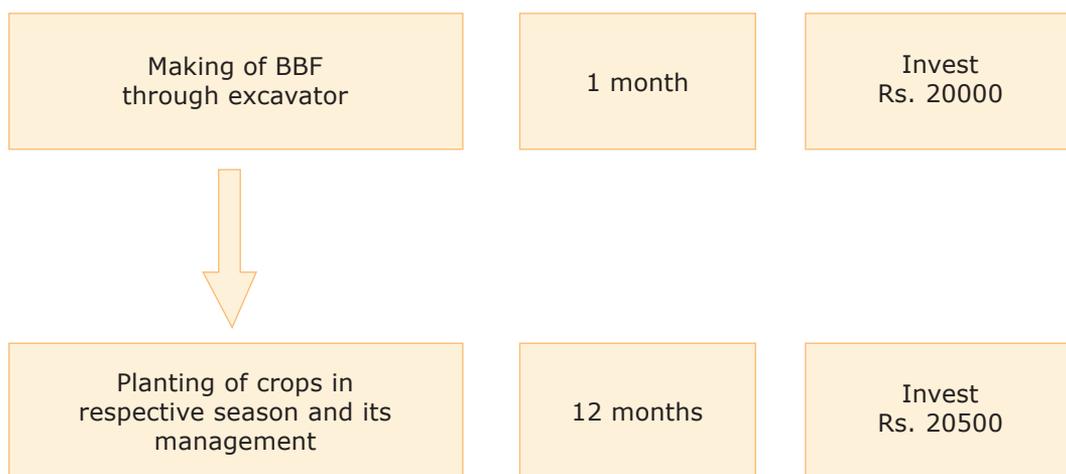
Area

AREA	:	0.2 ha (1/2 acre)	=	2000 m ²
BED	:	4m x 1m x 100m x 2 Nos.	=	800 m ²
FURROW	:	6m x 1m x 100m x 2 Nos	=	1200 m ²
Total				2000 m²

Input required & Source of availability

Input	Source of Availability
Seeds/Planting materials /Fodder seeds or cuttings	Retail seed stores/CARI/Department of Agriculture/Fisheries/Animal husbandry/near by farmers
Bio control agents like <i>Trichoderma</i> , <i>Trichogramma</i> , insect traps, lures	CARI/Department of Agriculture/ CIPMC
Fingerlings (Catla, roque, mirgal, fresh water prawn, Singhi and Magur)	Fisheries department, Andaman and Nicobar Administration
Azolla	CARI/farmers

Flow chart, Time schedule & Cash Inflow



*Total investment in 12 months : Rs. 40500

Cash Inflow

S.No.	Activities	Amount (Rs)
1.	Making of BBF (through Hitachi) 20 hours @ Rs. 1000/hour (One time investment)	20000.00
2.	Land preparation (using Power tiller) @ Rs. 250/hour for 10 hours	2500.00
3.	Cost of FYM (4 t)	3000.00
4.	Seeds / Planting Materials / Fingerlings	2000.00
5.	Intercultural operations@ Rs.100/- (80 man days)	8000.00
6.	Harvesting and transportation @ Rs.100/- (50 man days)	5000.00
	Total	40500.00

Cash Outflow (quarterly)

Gross Returns from BBF

a. Bed I (Area 400 m²)

	I	II	III
Month	July to October	November to February	March to May
Crop	Bhendi	Chillies	Coriander
Yield	180 kg	600 kg	30 kg
Income	Rs. 2700/- (@ Rs 15/kg)	Rs. 18000/- (@ Rs 30/kg)	Rs. 2100/- (@ Rs 70/kg)
Total Income (Rs.) (I + II + III)			22800/=

b. Bed II (Area 400 m²)

	I	II	III
Month	August to November	December to February	March to June
Crop	Chillies	Cauliflower	Cowpea
Yield	600 kg	235 kg	130 kg
Income	Rs. 18000/- (@ Rs 30/kg)	Rs. 3525/- (@ Rs 15/kg)	Rs. 1950/- (@ Rs 15/kg)
Total Income (Rs.) (I + II + III)			23,475/-

c. Furrow 2 Nos. (Area 1200 m²)

	I	II
Month	June to August/Sept–Nov./ Dec or Long duration July- December	June to Jan/Feb
Crop	Paddy	Catla, Rohu, Mrigal (ratio 4:3:3) 150 nos.fry
Yield	600 Kg.	25-30 kg
Income	Rs. 4800/- (@ Rs 8/kg)	Rs. 1250/- (@ Rs 50/kg)
Total Income (Rs.) (I + II)		Rs. 6050/-

d. Total Gross returns (Rs.)

Gross returns (Rs.) (a+b+c)	Rs 52325
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Net Returns from BBF (Rs.)

Particulars	Gross returns (Rs.)	Cost (Rs.)	Net returns (Rs.)*
Net income from I year	52325	40500	11825
Net income from II year onwards	52325	20500	31825

* Please note the income may vary from Rs. 30000- 50000 / year depending upon the vegetable crops taken in the beds

Net income from second year onward = Rs. 31,825 from 2000 m² area

Net income per annum per ha = Rs. 1,59,125/-

The costing includes cost of family labour and therefore, the total income to family will be much higher.

Market Linkage: Sale of farm produces in the local market & vegetable co operative society