Krishi Vigyan Pathrika: Mariculture Series 8

INTEGRATED FARMING
A PROJECT PROFILE

ICAR
KRISHI VIGYAN KENDRA
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
NARAKKAL-682 505

PREPARED BY P. RADHAKRISHNAN
KRISHI VIGYAN KENDRA OF CMFRI, NARAKKAL

Published by Dr. M. M. Thomas, Officer-in-charge, Krishi Vigyan Kendra Narakkal, on behalf of the Director, Central Marine fisheries Research Institute, Cochin-31

Printed at P. L. Printers, Narakkal

INTEGRATED FARMING
A PROJECT PROFILE

A vital part of the export earnings of India is from fisheries sector. Utilization of improved crafts and gears has enhanced the production from the capture side. By late seventies culture fisheries had got attention and new technologies were perfected to bring the unutilized and underutilized water areas, both inland and brackish, under aquaculture.

In order to take the new technology to the hands of farmers and fishermen, innovative institutions like Krishi Vigyan Kendras were established. After much hesitation farmers are gradually switching over to scientific farming especially in prawn/ fish culture in the brackish water fields. They are convinced by the prospects for better income through the adoption of improved operational procedures and management techniques. The new thrust is to develop unutilized tidal flats and swamps into productive scientific farms. More and more areas are annually put into the culture system. Prawn / fish culture, with its scientific packages of practices has attained the status of an industry.

Further studies on the subject reveals that the maximum utilization of the ecosystem by combining the cultivation of vegetables. paddy, coconut, etc., with prawns and fishes will surely make the venture more lucrative.

More and more farmers, unemployed youths and fishermen are attracted by the profitable occupation of prawn / fish farming. They are able to get acquainted with the latest developments in brackish water culture through the Krishi Vigyan Kendra and other agencies. It is observed that the traditional farming has almost been converted into scientific or semiscientific ones.

The capital requirements for developing unutilized tidal flats, backwaters, swamps etc., vary according to the topography of the area. Due to the unawareness of the profit ratio many farmers are held back from the stream. A clear idea of the input requirements and profitability estimate along with the production potential will certainly draw more entrepreneurs into the field of integrated farming. A model project report for developing one hectare area into a productive farm is presented here for guiding the new entrepreneurs.

Location

This model project report is prepared, taking into account of all the aspects required for developing an area in or around Vypeen Island, Ernakulam District, the main centre of prawn/fish culture in Kerala. Since the tidal amplitude and other factors like cost of labour etc., do not differ much in other parts of southwest coast of India, it will be applicable to Kerala as a whole.

Availability of raw materials

Except the seeds of prawns and fishes, all other raw materials like seeds of vegetables, paddy, seedlings of coconut etc., are readily available locally. Prawn and fish seeds can be collected from the wild or bought from hatcheries. It is always better to get the quality seeds from near the farm. Skilled labourers are available in Ernakulam District for collecting prawn and fish seeds. Farmers trained by the Krishi Vigyan Kendra can supply the required number of prawn and fish seeds during the culture season. It is needless to say that there are prawn seed traders in Vypeen island.

Operational procedure

Excavation of $\frac{1}{2}$ meter of earth from the proposed low lying area and putting the earth on proposed bunds will make a suitable farm which can retain $\frac{1}{2}$ m of water even in lowest tide. It is advisable to construct 0.2 ha ponds with common feeder canal. The bunds will be of 3 m top width where seedlings of coconut can be planted. Turfing the bunds will help it last long. During June-October period, a crop of paddy (pokkali) can be raised. Vegetables can be cultivated over the bunds. Fish seeds can be stocked in the radiating canals and pits near the sluice gates. After the paddy harvest the fishes are left back to grow. During November-February, a crop of prawns can be taken leaving the fishes to grow along with the second crop of prawns during February-April. In rainy season paddy cultivation can be done again with fish, as before.

Preliminary expenditure and cost of production (see annexures)

Land development including the cost of construction of office-cum-store and watchman shed will require Rs. 62800.00 (Annexure III). An estimated expenditure of Rs. 13500-00 may be incurred as wages (Annexure VI) for the implementation of the programme. Seeds worth Rs. 4130-00 will be required for one year (Annexure V). Cost of equipments will be at the tune of Rs. 16250-00. The total cost of production on estimation comes to Rs. 24820-00.

Expected Income

Gross expected income amounts to Rs. 32850-00 for the first year giving Rs. 8030-00 as operating profit (Annexure IX) The profit increases gradually and it gets a boost from the fifth year of operation when coconut trees start yielding. At the tenth year the net profit will be around Rs. 18230-00.

PRODUCTION POTENTIAL

Prawn (*Penaeus indicus*)		:	680 kgs
Paddy (Pokkali)		:	2000 kgs
Coconut (in numbers)		:	10000
Vegetables		:	750 kgs
Fishes (Milk fish)	250	:	425 kgs
(Mullet)	175		

List of Annexures

I. Details of produce and sales turn-over
II. Culture operational chart
III. Particulars of land development, inculding buildings, their costs etc.,
IV. Particulars of equipments required with cost thereof.
V. Annual requirements of seeds, manure etc.,
VI. Particulars of salaries and wages.
VII. Schedule of implementation.
VIII. Estimate of working capital requirement.
IX. Cost of production and profitability estimate.

Annexure I

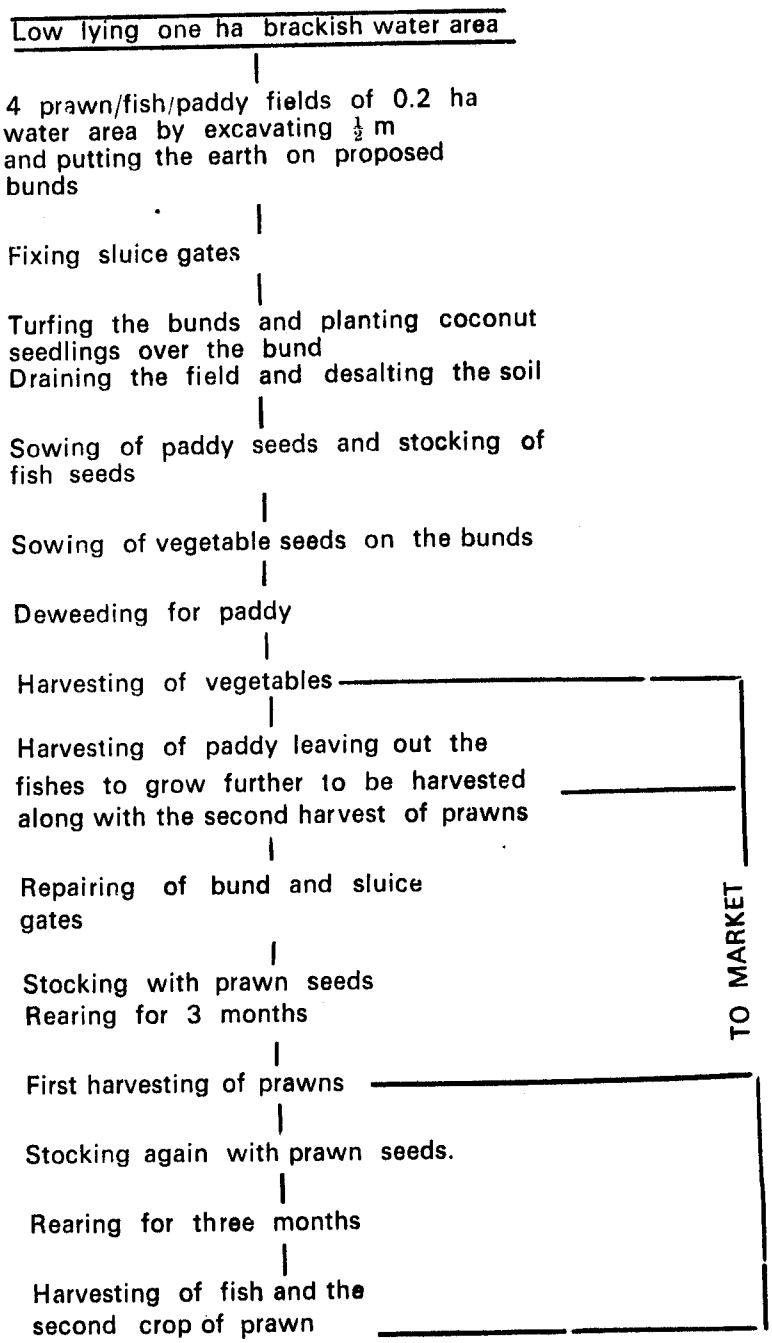
PRODUCE MIX AND SALES TURN-OVER

Sl. No.	Product	Rate	Qty.	Sales/year
1.	Prawn (*P. indicus*)	35.00	400 kgs	14000 ...
2.	-do-	20.00	280 kgs	5600 ...
3.	Paddy	18/8kg	2000 kgs	4500 ...
4.	Fish			
	Milkfish	20.00	250 kgs	5000 ...
	Mullet	15.00	175 kgs	2625 ...
5.	Vegetables	1.50	750 kgs	1125 ...
6. *	Coconut	1.00	10000 nos	10000 ...
	Net			42850 ...

* From the fifth year onwards

Annexure II

CULTURE OPERATIONAL FLOW



Annexure III

PARTICULARS OF BUILDINGS AND COST THEREOF INCLUDING LAND DEVELOPMENT

1	Office cum store and toilet	21 M^2
2	Watchman shed	6 M^2
	Total	27 M^2

Cost @ Rs. 900/M^2 = 27 x 900 = 24300-00

3 Land development

Deepening by $\frac{1}{2}$ m and putting the earth on areas specified for developing bunds of 3m width at the top — 7700 M^2

Cost @ Rs. 10/M^2 = $\frac{7700}{2}$ x 10 = 38500.00

GRAND TOTAL = 62800-00

Annexure IV

PARTICULARS OF EQUIPMENTS WITH COST

Sl. No.	Description	Rate	Qty.	Price
1	Sluice gate 3x1x1.5M with shutter planks screens etc., including installation	3500-00	4	14000-00
2	Cast nets	500-00	2	1000.00
3	Agricultural tools	LS		250-00
4	Plastic containers	LS		500-00
5	Weighing balance	LS		500-00
	TOTAL			16250-00

Annexure V

ANNUAL REQUIREMENT OF SEEDS

Sl. No.	Description	Qty.	Rate Rs.	Rate Ps.	Amount Rs.	Amount Ps.
1.	Juveniles of prawns (*p. indicus*)	100000	20/000		2000	00
2.	Fingerlings of Milkfish	700		.25	175	00
3.	Fingerlings of Mullet	1800		.25	450	00
4.	Coconut seedlings	100	12	...	1200	00
5.	Vegetable seeds	2kg	25	...	50	00
6.	Paddy seeds	65kg	3	...	195	00
	Total				4130	00

Annexure VI

PARTICULARS OF WAGES

Sl. No.	Nature of work	No	Rate Rs.	Rate Ps.	Amount	
1.	Watch and ward	1	600/month		7200	...
2.	Labour for field preparation for prawn farming; two operation	30	30		900	...
3.	Labour for prawn and fish harvesting	40	50		2000	...
4.	Labour for planting coconut seedlings	10	30		300	...
5.	For draining, repairing of bunds, raking the field in heaps	40	40		1600	...
6.	Field preparation for vegetable cultivation and seeding	5	30		150	...
7.	Harvesting of vegetables	30	5		150	...
8.	Deweeding for paddy	20	30		600	...
9.	Harvesting of paddy 1/8th of yield				600	...
	TOTAL				13500	...

Annexure VII

SCHEDULE OF IMPLEMENTATION

Sl. No.	Descripition	Period
1	(i) Draining the field, repairing of bunds, leaching the soil, and sowing of paddy seeds (ii) Planting of coconut seedlings (iii) Preparing field for vegetable cultivation and seeding (iv) Stocking fish seeds in feeder canals, radiating canals and pits near the sluice gates (v) Harvesting paddy leaving fishes (vi) Harvesting vegetables	June - October
2	Stocking prawn seeds, rearing monitoring and harvesting at the end of February leaving fishes	Nov. - Feb.
3	Restocking with prawn seeds rearing and harvesting at the end of April	Feb. - April

Annexure VIII

ESTIMATE OF WORKING CAPITAL

Sl. No.	Description	Amount
1.	Cost of 50,000 seeds of *p. indicus* @ Rs. 20/1000	1000 ...
2.	Cost of 100 seedlings of coconut @ Rs. 12.00	1200 ...
	TOTAL	2200 ...

	1 st year	2nd year	3rd year	4th year
ACTUAL PRODUCTION				
Prawn	19600	19600	19600	19600
Fish	7625	7625	7625	7625
Paddy	4500	4500	4500	4500
Vegetables	1125	1125	1125	1125
Coconut				
GROSS EXPECTED INCOME (A)	32850	32850	32850	32850
COST OF PRODUCTION				
Seeds & Seedlings	4130	2930	2930	2930
Wages	13500	13500	13500	13500
Contingency	500	500	500	500
*Depreciation:-				
Land development including construction of office, watch shed etc.	5065	5065	5065	5065
Equiments	1625	1625	1625	1625
TOTAL B	24820	23620	23620	23620
GROSS OPERATING PROFIT (A—B)	8030	9230	9230	9230
since there is no other expenditure net operating profit is the gross operating profit				
NET Profit	8030	9230	9230	9230

*Depreciation: 10% for the land

Annexure IX

PROFITABILITY ESTIMATE

5th year	6th year	7th year	8th year	9th year	10th year
19600	19600	19600	19600	19600	19600
7625	7625	7625	7625	7625	7625
4500	4500	4500	4500	4500	4500
1125	1125	1125	1125	1125	1125
5000	6000	7000	10000	10000	10000
37850	38850	39850	42850	42850	42850
2930	2930	2930	2930	2930	2930
14500	14500	14500	14500	14500	14500
500	500	500	500	500	500
5065	5065	5065	5065	5065	5065
1625	1625	1625	1625	1625	1625
24620	24620	24620	24620	24620	24620
13230	14230	15230	18230	18230	18230
13230	14230	15230	18230	18230	18230

development and 5% for the building

KRISHI VIGYAN PATHRIKA: MARICULTURE SERIES

1. Krishi Vigyan Kendra for Mariculture

1. (ക) സമുദ്ര വിഭവകൃഷിക്കു ഒരു കൃഷി വിജ്ഞാന കേന്ദ്രം

2. നാരൻ കൃഷിയിൽ ഒരു നൂതന സംരംഭം

3. കൃഷിയോഗ്യമായ കടൽ ചെമ്മീനുകൾ

4. ചെമ്മീൻ കെട്ട്

5. Grow more prawns

5 (a) Grow more prawns (Revised Edition)

6. കരിമീൻ

7. ചെമ്മീൻ കൃഷി-യുവജനങ്ങൾക്ക് തൊഴിലവസരങ്ങൾ

8. Integrated farming a Project Profile

NARAKKAL KVK LEAFLETS

1. Krishi Vigyan Kendra; concept of Lab-to-land

2. The role of women in prawn seed cllection (Mimeograph)

3. ശാസ്ത്രീയ ചെമ്മീൻ കൃഷി

4. ചെമ്മീൻകെട്ടും ശാസ്ത്രീയ ചെമ്മീൻകൃഷിയും ഒരു താരതമ്യപഠനം