SHORT COMMUNICATION

ECONOMICS OF FISH PRODUCTION UNDER DIFFERENT MANAGEMENT REGIMES IN VILLAGE POND OF DHAMTARI DISTRICT OF CHHATTISGARH

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Abstract: The present study is based on sample unit was 2, 2 and 2 individual, self help group and fish co-operative society management regimes, respectively selected from four village of Kurud block namely, Marod, Nawagaon, Bagdehi and G.Jamgaon The study revealed that among different management regimes of fish production and marketing. The extent of material input use and the efforts for pond preparation and production package received significant attention in the case of fish co-operative society and self help group fishermen. The cost, returns and yield level were found highest in case of fish co-operative regimes and lowest for individual fishermen. Total cost of individual fisherman is 18379.16 Rs./ha., fish co-operative is 24997.56 Rs./ha. and self-help group is 20076.24 Rs./ha. Total cost of individual fisherman is 18379.16 Rs./ha., fish co-operative is 24997.56 Rs./ha. And self-help group is 20076.24 Rs./ha. Table reveals that the highest fish yield level was achieved by the fish co-operative fish farmer to the level of 28.80 quintal per hectare and lowest (20.59 quintal) while the figure of gross return from fish were estimated as Rs.61755.15, Rs.86400.00 and Rs.68326.27, respectively at these regims. Net return per hectare was Rs.43375.98 in case of individual fisherman as against Rs.48250.03 and 61402.44 earned by fish co-operative, which was much higher, then the individual fisherman and self help group regimes. The benefit-cost ratio ranged from 2.36 to 2.46 under the case of all the regimes.

Keywords: Fish, pond, Chhattishgarh

INTRODUCTION

Fish is one of the important items of food all over the world. Due to the steady growth of the Indian population and increasing problems of malnutrition, considerable attention need to be given to enrich the biological value of different food item. Indian fisheries constitute on important sector of our national economics. Government of India and Chhattisgarh Government have implemented various scheme/programs to minimize the gap between and actual productivity of fish especially with reference to inland aquaculture. This most valuable input in fish production was collected earlier, through natural breeding coupled with infrastructure facilities for spawning hatching; nursing was developed during late fifties which reached to perfection during seventies with the assistance from World Bank. National Fish Seed Programme was launched and a number of fish seed farms/hatcheries were established in the country. Through to increase the production of fish is quite important looking to the high risk with its production due to its perishable in nature, marketing is also equally important as production of the fish as the development of any such produce depend on efficient marketing.

MATERIAL AND METHOD

The study is confined to Dhamtari district of Chhattisgarh. Dhamtari district has four blocks namely, Dhamtari, Kurud, Nagari and Magarlod. Kurud block is selected purposively because the below has highest water spread area (village pond) as compared to other block of district. Kurud block comprises of 134 villages. Four village i.e. Marod, Nawagaon, Bagdehi and G.Jamgaon selected purposively. The primary data will be collected from different management regimes of village pond fish culture. For these purpose 2 individual fish farmers, 2 fisheries co-operative society and 2 Self-Help Groups (fish culture) will be selected purposively for the study. These selected ponds are perennial in nature and suitable for fish cultivation of different management regimes. The required primary data were collected from the sample respondents by survey method in the year 2006-07.

RESULT AND DISCUSSION

Economics of village pond fish culture

Economics of cost of fish production was worked out separately for different management regimes i.e. individual, fish co-operative and self help group are presented in the Table 1. The total cost of cultivation of fish production were grouped in to variable cost and fixed cost per hectare of water spread area. It was observed from the table that the total operational expenses alone accounted for more than three fourth (64.98 to 72.14 per cent) of the total cost in fish production for each category of management regimes. It absolute term it was highest in case of fish co-operatives society (Rs.16244.03) fishermen followed by self help groups (Rs.14482.17) and lowest in individuals (Rs.13254.34). The fixed cost accounted for nearly 27.86 per cent of total cost in case of fishermen self help group to 35.02 per cent in fish co-operative society which should be reduced by the adoption of improved technology resulting into higher level of production per unit of area and by readjusting the fixed costs.

A perusal of this table reveals that fish produced under different management regimes require labour

in varying magnitude. Though, family labour is the main source of total human labour requirements some hired human labour is also required as many of the operations are to be finished in stipulated time hence, it can be inferred that human labour shared about one forth (16.21 per cent) of the total cost in case of self help group followed by fish cooperative society (13.26 per cent) and individual (15.83 per cent). Thus, fish culture under self help group management regimes requires more number of human labour days (272) costing Rs.3255.30 followed by co-operative society (Rs.3313.26). The variation in total human labour requirement among different management regimes is due to difference in the style of culture practices. The highest material cost is incurred by the fish co-operative fish farmers with an investment of Rs.11190.11 followed by SHG (Rs. 9672.21) and individual (Rs.8925.25).

Table 1. Economics of fish production under different management regimes (Rs/ha)

S. No.	Particulars	Different Management Regimes		
		Individual Fisherman	**Fish Co-operative**	**Self-Help Group**
1	**Variable cost**			
	a. Labour cost			
	Family labour	341.28 (1.86)	1260.20 (5.04)	1045.55 (5.21)
	Hired labour	2567.71 (13.97)	2053.29 (8.21)	2209.75 (11.01)
	Total	2908.99 (15.83)	3313.49 (13.26)	3255.30 (16.21)
	b. Material cost			
	Seed/Fingerlings	2031.42 (11.05)	2340.37 (9.36)	2118.64 (10.55)
	Manure & fertilizer	4878.66 (26.54)	6266.92 (25.07)	5388.14 (26.84)
	Lime	920.91 (5.01)	1104.18 (4.42)	979.87 (4.88)
	Medicine	119.18 (0.65)	230.44 (0.92)	158.90 (0.79)
	Silt removal	216.68 (1.18)	336.05 (1.34)	264.83 (1.32)
	c. Miscellaneous expenses	758.40 (4.13)	912.15 (3.65)	764.83 (3.81)
	d. Interest on working capital @12% P.A.	1420.11 (7.73)	1740.43 (6.96)	1551.66 (7.73)
	Sub-total	**13254.34(72.12)**	**16244.03** (64.98)	**14482.17** (72.14)
2	**Fixed cost**			
	a. Lease rent	1162.95 (6.33)	1382.62 5.53)	1287.08 (6.41)
	b. Net	3412.78 (18.57)	5040.81 (20.17)	3707.63 (18.47)
	c. Depreciation of boat	-	576.09 (2.30)	0.00 -
	d. Depreciation of building	-	816.13 (3.26)	-
	e. Interest on fixed capital @12% P.A.	549.09 (2.99)	937.88 (3.75)	599.36 (2.99)
	Sub-total	5124.82 (27.88	8753.53 (35.02)	5594.07 (27.86)
3	**Total cost (1+2)**	18379.16 (100.00)	24997.56 (100.00)	20076.24 (100.00)

Note: Figures in parentheses indicate percentage to total cost

Among material cost, seed cost alone shared 9.36 to 11.55 per cent of total material cost followed by manure and fertilizer 25.07 to 26.54 per cent of material cost and lime (4.42 to 5.01 per cent). All fish producers under different management regimes do use non-conventional medicine inputs to protect the fish from diseases.

Operation wise cost of production

Table 2 gives the necessary information of operation wise cost of production under different management regimes.

Table 2. Operation-wise cost incurred in fish in different management regimes (Rs/ha)

S. No.	Particulars	Different Management Regimes		
		Individual Fisherman	Fish Co-operative	Self-Help Group
1.	Pond preparation	1721.56 (12.99)	2831.49 (17.43)	2305.08 (15.92)
2.	Seed stocking	2031.42 (15.33)	2340.37 (14.41)	2118.64 (14.63)
3.	Manuring	4878.66 (36.81)	6266.92 (38.58)	5388.14 (37.21)
4.	Watchman	1430.12 (10.79)	1008.16 (6.21)	1408.90 (9.73)
5.	Medicine expenses	119.18 (0.90)	230.44(1.42)	158.90(1.10)
6.	Miscellaneous	758.40(5.72)	912.15(5.62)	764.83(5.28)
7.	Netting	894.91 (6.75)	914.07 (5.63)	786.02 (5.43)
8.	Interest on working capital @12 P.A.	1420.11 (10.71)	1740.43 (10.71)	1551.66 (10.71)
	Total cost	**13254.34 (100.00)**	**16244.03 (100.00)**	**14482.17 (100.00)**

Note: Figures in parentheses indicate percentage to total cost

It may be noted from the table in all the management regimes, expenditure on manuring and fertilizers was the major item accounted (36.58 per cent to 38.58 per cent) of the total cost followed by seed stocking (14.41 per cent to 15.33 per cent), pond preparation (12.99 per cent to 17.43 per cent), watchman (6.21 per cent to 10.79 per cent). It is understandable from the table that the fish farmers of individual fish co-operative and self help groups management regimes invest amount on medicine (0.90 per cent to 1.42 per cent) and watching (6.21 per cent to 10.79 per cent). Operation thus, conclusion may be drawn that there is variation in operation wise investment and total investment from various management regimes, due to variation in style of operation and quality and cost of material inputs used. This trend is true where new technology of fish cultivation have not taken root in the study area. Thus, it is suggested that a planned impetus be given to extension agencies involved in the field of aquaculture to introduce the new technology of fish production in the area and also the whole state of Chhattisgarh.

Gross return, net return and benefit-cost ratio of fish production

Per quintal per hectare costs, returns and benefit-cost ratio of fish production has been computed on prevailing market rates in the study area. The gross

and net returns of fish production under different management regimes is presented in Table 03. Table reveals that the highest fish yield level was achieved by the fish co-operative fish farmer to the level of 28.80 quintal per hectare and lowest (20.59 quintal) being in individual property regimes, indicating the intensive cultivation practices used by fish co-operative fish farmers. The yield per hectare was 22.78 quintal in case of self help group regime which was quite reasonable.

Table 3. Gross return, net return and benefit-cost ratio of village pond fish production in different management regime

S. No.	Particulars	Different Management Regimes		
		Individual Fisherman	Fish Co-operative	Self-Help Group
1.	Total fish production (qt/ha)	20.59	28.80	22.78
2.	Average selling price (Rs./qt)	3000.00	3000.00	3000.00
3.	Gross return (Rs./ha)	61755.15	86400.00	68326.27
4.	Total cost (Rs./ha)	18379.16	24997.56	20076.24
5.	Net return (Rs./ha)	43375.98	61402.44	48250.03
6.	Benefit-cost ratio	2.36	2.46	2.40
7.	Cost of production	892.84	867.97	881.49

When physical output are converted into monetary terms, the gross return from fish under individual, fish co-operative and self help group regimes are Rs.61755.15, Rs.86400.00 and Rs.68326.27, respectively. The share of gross return Rs./ha from fish production is highest in case of fish co-operative and lowest from individual management regimes. Net return per hectare was Rs.43375.98 in case of individual fisherman as against Rs.48250.03 and 61402.44 earned by fish co-operative, which was much higher, then the individual fisherman and self help group regimes. The benefit-cost ratio ranged from 2.36 to 2.46 under the case of all the regimes. It shows that all the management regimes incurred sufficient amount of input resources for the production of fish cultivation and also received a good selling price in the different marketing channel. The cost of fish production per quintal per hectare varied from Rs.867.77 to 892.84 from various management regimes. It can be said that the difference was not quite extra-ordinary between the different regimes.

CONCLUSION

The present study concluded that the the cost, returns and yield level were found higher in case of fish co-operative regimes and l
the level of 28.80 quintal per hectare and lowest (20.59 quintal). The gross return from fish under individual, fish co-operative and self help group regimes were estimated as Rs.61755.15, Rs.86400.00 and Rs.68326.27, respectively. Net return per hectare was Rs.43375.98 in case of individual fisherman as against Rs.48250.03 and 61402.44 earned by fish co-operative, which was much higher, then the individual fisherman and self help group regimes. The benefit-cost ratio ranged from 2.36 to 2.46 under the case of all the regimes.

REFERENCES

Acharya, S.S. and Agrawal, N.L. (1998). Agriculture Marketing in India. Oxford and IBH Publishing Co. Pvt. Ltd, pp.305-316.

Bhuyan, P.C. and Naik, D. (2004). Economics Analysis of Fish Culture Practice in Dibrugarh, Assam, *Journal of Eco-biology*. 16 (5): 345-349.

Chhattisgarh Fisheries Statistics (2007). Directorate of Fisheries, Government of Chhattisgarh, Raipur, pp.1-70.

Hand Book of Fisheries and Aquaculture (2006), ICAR Published, New Delhi.

Vardia, H.K. (2003). Cooperation in Aquaculture: A New Perspective, *Yojana*, 38(3):72-82.