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Production Constraints of Animal Based Farming Enterprises in Coastal India

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ABSTRACT

The present study envisaged to assess and analyse the various constraints of individual farm enterprises in coastal Tamil Nadu. The ranking was done by the farmers based on the importance or severity of the problems in eight coastal villages using Rank Based Quotient (RBQ) method. Low milk price, diseases, decreasing common grazing land in livestock production; disease and predators in poultry and lack of government support, wide price fluctuations in fisheries were ranked by farmers as major problems in individual enterprises. The major constraints in adopting integrated farming system were found to be heavy investment in the initial stage, lack of markets for the produce from different enterprises, labour unavailability and its high cost and lack of infrastructure in addition to scattered land holdings of farmers.

Farming systems evolve and change over time and in tune with the changes which occur in the society. Each individual farm has different physical, biological and human resources which are consciously manipulated by the farmers within the system. Complex agro-ecosystems change rapidly as a result of farmers decision based on their perception of opportunities and constraints. The constraints analysis helps not only farmers but also researchers to set target objectives, priorities and resource allocation in addition to formulating effective strategies for solving problems. In this connection, a study was undertaken to assess and analyse various constraints relating to production systems and integrated farming system in the coastal Tamil Nadu.

METHODOLOGY

The study was undertaken in two coastal districts of Tamil Nadu namely, Tiruvallur and Thanjavur covering 8 villages of 4 coastal blocks. The top two villages which expressed relatively higher extent of Integrated Farming System (IFS) in terms of combination of enterprises as well as number of IFS farmers in each block were selected purposively for the study. A complete list of farmers having different enterprise combinations including at least one milch animal was prepared for each of the selected villages. Based on the proportionate random sampling technique, about 150 sample IFS farmers were drawn randomly from the selected villages. The sample IFS farmers were post-stratified based on the combination of enterprises.

There are a number of major constraints affecting the development of farming systems. Many of these constraints are inter-related and exert variable limitations on the operational efficiency and more importantly, the productivity of farming systems. Since the formulation of developmental strategies aimed at reducing and/or overcoming these constraints are dependent on an understanding of the issues and the effects, constraints faced by the respondents in different production systems were assessed.

In this study, the constraints were defined as certain irresistible forces which have been impeding the adoption of particular production system within the farming systems. Before development of the schedule on constraints, an inventory of constraints was prepared by

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conducting preliminary survey of non-sample villages. It was supplemented with the discussions with few extension officers and researchers and by reviewing the available literature. Based on their views on importance and severity of each constraint, respondents were requested to rank the constraints. The Rank Based Quotient (RBQ) was adopted for the present study to anaylse the constraints for the different production systems. The order of merit thus given by the respondents was converted into RBQ value by using the following formula (Sabarathnam, 2002).

Rank Based Quotient (RBQ) = $\Sigma(Fi\ (n+1)-1)/(N \times n) \times 100$

Where, Fi – No. of respondents giving the particular point at i^{th} rank

i = i^{th} rank

N= Total no. of respondents

n= No. of ranks or constraints

The appropriate ranks were given based on the RBQ value.

RESULTS AND DISCUSSION

The results are discussed in detail and they are furnished in Table 1.

Table 1. Constraints of Farmers in Different Production Systems

Sl. No.	Constraints	RBQ value	Rank
Livestock production system (n= 150)			
1.	Low price for milk	80.545	I
2.	Occurrence of diseases	77.818	II
3.	Decreasing common grazing land	74.848	III
4.	Labour unavailability	73.697	IV
5.	Lack of availability of fodder	72.061	V
6.	Unavailability of green fodder in lean season	71.091	VI
7.	Lack of veterinary services	70.303	VII
8.	High cost of concentrate	69.818	VIII
9.	Lack of sufficient quantity of good quality water	68.424	IX
10.	Late or no conception of animals	65.879	X
11.	Non-availability of dairy cooperatives	60.909	XI
Backyard poultry production system (n= 115)			
1.	Disease incidence	81.913	I
2.	Damaging agriculture crops and cattle feed	72.522	II
3.	Problem of predators	66.783	III
4.	Low genetic potential	66.609	IV
5.	Polluting house environment	61.739	V
Fisheries production system (n=12)			
1.	Lack of government incentives	81.944	I
2.	Wide fluctuations of market price	76.389	II
3.	Inadequate infrastructure facilities	73.611	III
4.	Inadequate availability of inputs in quality and time	69.444	IV
5.	Disease incidence	68.055	V
6.	Predators problem and theft of the produce	54.166	VI
Integrated farming system as a whole (n= 150)			
1.	Heavy investment in the initial stage	78.833	I

2.	Lack of marketing for the produces from different enterprises	74.083	II
3.	Labour unavailability and its high cost	71.166	III
4.	Lack of infrastructure and scattered land holding	66.916	IV
5.	Lack of know-how on effective utilisation of farm produce	65.833	V
6.	Non-availability of improved cultivars/breeds at farm site	64.533	VI
7.	Reduced grazing land	64.083	VII
8.	Lack of input availability	59.666	VIII

Livestock production system

Majority of the farmers ranked low price of milk and lack of market as the major problem (Table 1) followed by disease occurrence, reduced availability of grazing land, labour unavailability, lack of fodder availability, unavailability of green fodder in loan season, lack of veterinary services etc. Farmers also reported about high cost of concentrate, late or no conception of animals and non-availability of dairy cooperatives. These findings were in conformity with the earlier reports of Gupta and Deepak (1989), Balakrishna (1997) and Mary (2001) who observed similar constraints related to infrastructure, marketing and supply and services in their study. Feed was the major cost that made milk production uneconomical (Pandey et al, 2002).

While urban consumers purchase even the toned milk @Rs. 17 / litre, higher price paid by the consumers is not realised by producers. Farmers in the coastal regions generally receive the price varying from Rs. 7 to 9 per kg of cow milk and Rs. 8 to 10 per kg of buffalo milk as there is no facility for value addition of milk (processing plants) and non-existence or malfunctioning of dairy cooperatives. Despite four of the study villages being nearer to Chennai city, farmers were not in a position to run dairy enterprise on profit basis as there is already a well established supply structure (Aavin) to cater to the needs of the metropolitan city by procuring milk from Villupuram district and other western districts of Tamil Nadu. The diversion of common grazing lands to establish shrimp farms and other public activities apart from encroachment by influential people in the coastal areas has significantly contributed to decline in livestock holding of individual farmers in addition to non-availability of labour for grazing the cattle. Proper maintenance of village ponds help in water conservation and recharging of groundwater which would eventually benefit rural society through improving the availability of water and consequently grazing resources (Kumar et al, 2006b). Purchasing fodder and feed from market made the dairy farming unviable as revealed by the farmers. Inappropriate location of veterinary hospitals is another lacuna which is to be handled by encouraging more private veterinary practice.

Poultry production system

Free range rearing of backyard poultry was being done with minimum supplementation of locally available ingredients. The disease incidence, damaging nearby agricultural crops, seedlings and feed and fodder on cattle shed, predator's problem, low genetic potential and polluting house environment were ranked first to fifth important constraints by poultry holders. These problems are common as the birds are allowed to scavenge outside in the field from morning to evening. Conroy et al. (2005) reported that high mortality due to predators such as wild cat, fox, kites, crows, snake and mongoose and diseases such as Newcastle disease, fowl fox and fowl cholera along with gastro- intestinal parasites and poor hatchability were the major constraints of backyard poultry in a study conducted in Trichy district of Tamil Nadu.

Fish production system

The constraints to growth of fisheries lay beginning from input supply, down to post-harvest services, processing and marketing in addition to dissemination of technology (Kumar et al, 2006a). Farmers from aquaculture production system disclosed their prioritized constraints as: lack of government support, wide fluctuation of market price, inadequate infrastructure facilities, inadequate availability of inputs both in time and quality, disease outbreak and predator's (such as frog, snake, birds) and theft of the produce (54.166). White spot disease and market fluctuations were the major problems of shrimp farmers (Ponnusamy et al., 2001). The government's lack of support in providing concessional electricity tariff, establishment of cold chains, arrangement of refrigerated vans, concessional bank loan, establishment of fish hatcheries (particularly for grass carp) etc. in fact de-motivates the farmers who are already in the production system and others who intend to enter this venture. The white spot disease attack before 90 days of

shrimp culture will result in a loss of about Rs. 80,000 per acre. Due to the perishable nature of fish commodity, farmers could not store it for long and has to be disposed in the widely fluctuating both shrimp and fish markets. The quality inspection of various inputs such as seed, feed, antibiotics etc. supplied by many private unauthorised companies need to be ensured along with timely availability of these inputs. The research support for practising the integrated farming system with fisheries component to the various agro-climatic regions is also lacking. The extension service of the department of fisheries is mostly confined to issuance of license and preparation of written records giving the knowledge and skill delivery system the go by.

Integrated farming system as a whole

The constraints as perceived and ranked by the farmers in order of priority in adoption of integrated farming system were: heavy investment in the initial stage, lack of marketing for the produce from different enterprises, labour unavailability, lack of infrastructure and scattered land holding, lack of know-how on effective utilisation of farm produce, non-availability of improved cultivars/breeds at farm site, reduced grazing land and lack of input availability. Some of the findings were in conformity with Jayanthi et al (2002) and Kumar and Jain (2002).

Starting of integrated farming system involving several enterprises is likely to incur heavy expenditure due to appropriate selection and purchase of site, inputs, accessories etc. Moreover, the farmer needs to analyse the market situation, potential and constraints for all the produce that he is producing as lack of market will make the system unviable in the long run. Absence of corresponding mechanism to ensure the higher share of prices paid by consumers to farmers has affected the viability of farming (Tuteja, 2007). The village youth preferring white collar jobs are unwilling to involve themselves in the farming. It is observed that an young man or middle-aged person wishes to earn only Rs. 40 to 50 per day in a city or town but is unwilling to work in the field as a labourer for Rs. 80 to 100 per day with a meal to top it up. The tendency of individuals in rejecting farming as a heavenly avocation is increasing even in rural areas. The scattered land holdings coupled with subdivision and fragmentation leads to poor investment, improper choice of crops and enterprises adoption and meagre profitability. Non availability of important critical inputs and lack of infrastructure facilities such as good road, storage etc. also inhibit the farmer in adopting the IFS.

CONCLUTION

It can be concluded from adopting Intigrator farming system were found to be heavy investment in the initial stage, lack of markets for the produce from different enterprises, labour availability and ib high cost and lack infrastructure in addition to scattered land holding of farmers.

IMPLICATIONS

Evaluation of various constraints of farming systems analysis with systematic quality data helped to map the perceptions of farmers so that they could readily communicate these to technology designers who need to understand the farmers' point of view about the adoption of particular farming system. The issue of fragmented land holdings in study villages warrants the consolidation of land holdings which may be facilitated by the panchayati raj institutions and state government through enacting appropriate laws and other enabling mechanisms. Establishment of agro-based industries can absorb the unutilised manpower, generate income and solve disguised unemployment in the coastal areas. Optimum enterprise combinations being highly management and input intensive proposition, availability of critical inputs, educational and extension programmes need to be given much impetus by the government. This, in turn, will make the IFS farmers aware of the scientific practices and encourage the adoption of these practices. Hence, the synergy of different enterprises, farm resources and farmers' priorities need to be maintained and the technological interventions should be designed so as to suit the farming system characteristics. Based on the constraints enumerated, it is important to reclaim the water tanks, pond, channels and canals in the villages in addition to surmounting the problems of encroachers. Community grazing lands should be developed on government lands in each village and should be maintained on cooperative basis. The constraints pertaining to rural infrastructure facilities can be ameliorated by involving Panchayati Raj Institutions (PRIs) in making roads, cooperatives, irrigation, agri-based small and tiny industries. drying yard, storage godown and local market. Rural people have the easy access to their elected representatives and can get the problems resolved locally. Government has to devolve powers and responsibilities with adequate fund to these local bodies. The end goal is not only to enhance the productivity of a particular enterprise per se, but also to enable synergistic effects among component enterprises.

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