

# ADOPTION LEVEL OF SCIENTIFIC DAIRY FARMING PRACTICES BY IVLP FARMERS IN THE COASTAL AGRO ECOSYSTEM OF KERALA

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## Abstract

*Dairy farming provides substantial supplementary income to the rural livelihood. The productive performance of cattle depends heavily on the scientific dairy farming practices. Information on the adoption level of such practices in a selected coastal agro ecosystem has wide policy implications. The sample study confined to the farmers who were assisted under the National Agricultural Technology Project (NATP) of Indian Council of Agricultural Research, viz., Institution-Village-Linkage-Programme (IVLP) undertaken by the Socio Economic Evaluation and Technology Transfer Division (SEETTD) of Central Marine Fisheries Research Institute (CMFRI). The adoption level among IVLP farmers in dairy farming is tested with respect to standard practices and also identified the major constraints.*

## INTRODUCTION

Dairy farming provides substantial employment opportunities and



supplementary income to the rural farmers. India became the highest milk producing country with 85 million tonnes during 2002-2003. But the per capita availability of milk in the country is 221 gm a day as against the world average of 285 gm a day. As per the Livestock Census 1996, the total cattle population in India stood at 205 million and Kerala got only 1.61 percent (Government of India, 1996). Though there is considerable increase in the proportion of crossbred cattle of high potential productivity in Kerala, the average milk yield realised per animal per day remained at 6 litres compared to its potential of 8-10 litres (Government of Kerala, 2000). Dairy farming is emerging as a very popular supplementary avocation in the coastal agro ecosystem. India has a coastal stretch of 8129 km with a total number of 3651 fishing villages. Though the marine sector provides direct employment opportunities to about 2.5 million fisherfolk, most of them derive only a subsistence level of income. Technological advances and the consequent intensive mechanisation and motorisation aggravate the unemployment problem among traditional fisherfolk. Disguised unemployment is rampant among them warranting alternate and supplementary livelihood options.

#### **Institution-Village-Linkage-Programme (IVLP)**

The present study was confined to the selected farmers of Elamkunnapuzha village of Vypeen, who were given assistance as part of the 'Institution-Village-Linkage-Programme (IVLP) for Technology Assessment and Refinement (TAR) in the Coastal Agro Ecosystem of Ernakulam in Kerala', a project undertaken by Central Marine Fisheries Research Institute (CMFRI) under National Agricultural Technology Project (NATP) of Indian Council of Agricultural Research (ICAR). The village identified is typical of the coastal agro ecosystem existing in Kerala characterised by poor water and soil quality, high density of population, low income-generation opportunities, vulnerability to health, social and environmental impacts. These inherent problems can only be addressed through better planning and management of the sector. Keeping in view that the potential for development, which was not been realised, especially among the poorer sections of the society, an integrated effort to fine-tune the existing aquaculture/fish farming technologies along with animal husbandry and agricultural practices already in vogue for improving productivity was undertaken.

The project broadly aimed at joint diagnostic studies of production systems for assessment and refinement of technologies. Location specific assessment and refinement of technologies is done in a holistic, inter-disciplinary and interactive manner. The scientist-farmer linkage has contributed much in enhancing the farm productivity on a sustainable basis. Scientific management of dairy cows is one of the innovations successfully implemented and refined by IVLP in the study area. The imparting of such technologies and scientific



know-how with the participation of the rural farmers reckon with the national objectives of food security, economic growth, equity, alleviation of rural poverty and the conservation of natural resources.

### **Dairy Farming in the Village**

Rearing of milch animals is considered to be 'effortless' in this homestead-farming situation (homestead denotes those areas around the house, which are used for farming and other income generating activities). Organised livestock farming is absent in the area, but keeping few animals is the common practice to meet just the household consumption of milk. Those few farmers with surplus milk production are finding hard to get consistent market outlet. The local government agencies and some financial institutions in the village provide credit facilities to cattle owners. Yet dairy husbandry has not been developed on a commercial basis due to low adoption of scientific management practices. Majority of the dairy farmers are almost ignorant about such practices. Though the villagers make use of the veterinary health cover facilities available in the village, the adoption level of scientific farming practices is found to be very low.

The interventions as part of IVLP have changed the attitude of farmers in adopting more improved practices of dairying. Studies relating to adoption behaviour of farmers involved in aquaculture/agriculture in the coastal agro ecosystem are very important, since the information available from such studies has practical relevance to policy makers, extension and other agencies engaged in the promotion of dairy innovations for integrated coastal zone development.

### **Methodology**

Under IVLP, three broad categories of interventions such as agriculture, livestock and fisheries-based are carried out after problem-identification and need assessment of Elamkunnappuzha Village through Participatory Rural Appraisal (PRA) techniques. Livestock-based interventions were carried out under the micro-farming situation of homestead animal husbandry and poultry farming system. Followed by a resource inventory of the village, 30 dairy farmers having five cows each were selected following stratified random sampling method. An interview-schedule was prepared for collecting data from the respondents. The schedule was pre-tested and necessary modifications were made. Adoption level of scientific dairy farming practices among the selected IVLP-farmers was tested with respect to standard practices. The constraints in dairy farming were also identified and analysed using simple percentage method.



## Results and Discussion

### Adoption Level of Dairy Husbandry Practices

The extent of adoption of different dairy husbandry practices in the areas of breeding, feeding, disease control and management are as follows :

#### Breeding Practices

It could be noted from Table 1 that more than three fourth of dairy farmers owned crossbred cows (83.33 per cent) and practiced artificial insemination

*Table-1*  
*Extent of adoption of different dairy husbandry practices in Elamkunnappuzha Village*

*n=30*

Dairy Husbandry Practices	Adoption Level	
	Number	Percentage
<b>A) Breeding practices</b>		
1 Own cross bred cows	25	83.33
2 Follow artificial insemination	23	76.67
<b>B) Feeding practices</b>		
1 Recommended quantity of concentrates	16	53.33
2 Green fodder/roughages	13	43.33
3 Mineral and vitamin supplementation	10	33.33
<b>C) Disease control practices</b>		
1 Regular cleaning / grooming	29	96.66
2 Vaccination against contagious diseases	27	90.00
3 Hygienic milking	25	83.33
4 Deworming of calves	10	33.33
5 Mastitis prevention measures	10	33.33
<b>D) Management practices</b>		
1 Maintenance of Dairy management records	5	16.67
2 Follow cattle insurance practices	15	50.00
3 Feed colostrums to newly born calves	28	93.33
4 Pucca cattle sheds	4	13.33



in cows (76.67 per cent). It was observed that Jersey crossbred cows are popular in this ecosystem. Brown Swiss and Holstein Friesian crosses are also not uncommon in this area. Even though crossbred cow is a 'high cost input' in dairy husbandry, farmers adopted it to a large extent as it fare better to indigenous breed. In Kerala, traditionally, dairy farming was mostly concentrated in paddy farming areas due to the reciprocal advantage of organic manure for rice cultivation and crop residues for cattle. With the shift in cropping pattern, the area under rice decreased drastically and the dependency for draught animal and dung for manure no longer exists. Paddy straw, a main source of roughage became a scarce commodity. Farmers handled the problem by replacing the large number of indigenous cows with few high yielding genotypes, by upgrading with exotic breeds. The intensive adoption of better breeding practices in the village could be a reflection of the general trend in Kerala. Artificial insemination is a 'no cost input', yet around 24 per cent of farmers follow natural practice. This might be due to their negative attitude towards artificial insemination. This fact was supported by Nataraju (1982) and Shivmurthy and Nataraju (1994). At least some farmers believe that high proportion of calves born out of artificial insemination are males and arranging natural service is relatively easy.

### Feeding Practices

Scientific feeding schedule that provides a higher plane of nutrition ensures better growth and an earlier attainment of puberty resulting in quicker economic returns. From Table 1 it is clear that majority of farmers do not follow the recommended feeding practices. Around 54 per cent of the farmers feed their cattle with concentrates but the recommended ration is not given. Mineral and vitamin is seldom supplemented in the ration. Around 43 per cent of the farmers only provide green fodder/roughages. Findings of Shivmurthy and Nataraju (1994) and Sohi and Kherde (1980) supported the above trend. Though a judicious combination of concentrates and green fodder/roughage is the approved practice, none is following this, thus resulting in imbalance in nutrition. Since there is acute scarcity of green fodder in this region, a high concentrate-low roughage ratio is fed to cattle resulting in economic losses besides making animals prone to metabolic/nutritional and reproductive problems. Some farmers resort to feeding 'uppootha', a mangrove leaf, as a substitute to green fodder, but its availability is meagre. There is scope for improving nutrition by cultivation of saline tolerant perennial fodder variety like paragrass in the hitherto unutilised marshy lands and the edge of water bodies. Constant leaching of soil coupled with inadequate availability of roughages will lead to mineral and vitamin deficiency, which to some extent can be overcome by dietary supplementation of the same.



### Disease Control Practices

Most of the farmers were found to regularly clean and groom (96.66 per cent) and vaccinate their cattle against contagious disease (90.00 per cent). Hygienic step before milking was followed by 83.33 per cent of farmers and only 33.33 per cent adopted deworming. Many farmers are not aware of mastitis preventive measures and importance of early detection and treatment of mastitis. This might be the reason why only 33.33 per cent of farmers adopted mastitis preventive measures.

The 'no cost' practices like regular cleaning, grooming of cows and other practices like preventive vaccination against contagious diseases and hygienic steps before milking were followed by majority of the farmers.

### Management Practices

It is seen that only 16.67 per cent of farmers maintained dairy management records and 50 per cent of farmers adopted cattle insurance practices (Table 1). Relatively high adoption of cattle insurance may be due to the mandatory requirement of financial agencies providing loans for purchase of animals for insurance of animals. Feeding of colostrum to newly born calves was followed by 93.33 per cent of farmers, but majority of farmers don't know the significance of timely feeding of colostrums. Lack of time to spare, low literacy rate and lack of training might have attributed to low adoption and maintenance of proper dairy records by farmers. Cattle sheds are usually thatched or covered with polythene sheets. Making pucca sheds is cost intensive and hence generally not done. This may be the reason why only 13.33 per cent of respondents owned *pucca* cattle shed.

### Constraints Faced by Dairy Farmers

Adoption is a decision making process. In this process farmers decide to adopt the innovations. For this, farmers have to face number of problems. In this study it was found that the most important constraints in the adoption of dairy innovations as expressed by dairy-farmers were salinity problems (96.67 per cent), followed by lack of capital (76.67 per cent), poor marketing outlet of milk (73.33 per cent), non-availability of labour (96.67 per cent), high cost of cattle feed (60 per cent), inadequate land for fodder cultivation (56.67 per cent) and non-availability of fodder (56.67 per cent) (Table 2).

Further analysis of the results shows that lack of knowledge of fodder production (50 per cent), poor health coverage (53.33 per cent), non-availability of roughages (36.67 per cent) and lack of grazing fields (33.33 per



Table-2  
Constraints Faced by Dairy Farmers

n=30

S.No.	Problems	Number	Percentage
1	Lack of capital	23	76.67
2	Non-availability of labour	20	66.67
3	High cost of cattle feed	18	60.00
4	Less price of milk	14	46.67
5	Lack of knowledge about fodder production	15	50.00
6	Non-availability of fodder	17	56.67
7	Inadequate land for fodder cultivation	17	56.67
8	Non availability of roughages	11	36.67
9	Poor health coverage	16	53.33
10	Lack of grazing field	10	33.33
11	Poor marketing outlet of milk	22	73.33
12	Salinity (water and soil)	29	96.67
13	Disposal of dung and shed washings	15	50.00

cent) were some of the other constraints faced by the respondents. Last but not the least, accumulation of dung and stagnation of shed washings leads to social and environmental problems especially where the holdings are small and density of population is high.

### Conclusion

There is considerable scope for dairy farming in the coastal agro ecosystem amidst various problems. A great deal of work has to be done to make dairying a viable proposition in the coastal agro-ecosystem, ranging from dung disposal and shed washing to marketing of milk. High salinity of soil and water is one of the major constraints faced by the dairy farmers. Land is not enough to spare or suitable for fodder cultivation. This could be rectified to a certain extent by way of extensive cultivation of saline tolerant perennial fodder grass in hitherto unutilised marshy and waterlogged areas. Agriculture being a low priority area in the coastal agro ecosystem the value of dung, as a good organic source of manure is not properly appreciated, instead considered as a source of pollution and environmental problem. If properly planned, succulent fodder can be raised utilizing this otherwise wasted resource. The imbalances in nutrition could thus be resolved with the adequate supply of roughages and dietary supplementation, of vitamin and mineral mixture. The high level of consistent cleaning and grooming of cattle as well as vaccination and colostrums feeding to young calves shows the health consciousness of farmers. Additional precaution should be taken for



timely deworming of animals and also to prevent incidences of mastitis in lactating animals. The marketable surplus milk is not getting a remunerative price. On the other side, there is high demand for fluid milk. Establishing collection centres, which can procure and sell locally, can solve the problem.

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