IMPACT OF ADOPTION OF NEW FEEDING TECHNOLOGY ON MILK PRODUCTION BY THE FARMER INTEREST GROUPS OF VELLORE DISTRICT OF TAMIL NADU

D.Baskaran, B. Rajesh Kumar and A.Serma Saravana Pandian

Department of Dairy Science

Madras Veterinary College

Vepery, Chennai – 600 007

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ABSTRACT

A study was carried out on technology diffusion of dairy cattle feed computation for farmer interest groups (FIGs) with locally available feed ingredients in Vellore district. The study was conducted among the 156 farmer interest groups belonging to 12 villages one from each of the 12 blocks of Vellore district. The economics of milk production per litre of milk was calculated for old and new technology. New technology refers to feeding of dairy animals with balanced ration prepared based on the nutrient content of the locally available feed ingredients and old technology refers to the usual non-scientific unbalanced traditional feeding practice. The results revealed that the cost of milk production per litre was Rs.10.22/- for usual technology whereas it was Rs.7.61/- for new feeding technology. The effect of training program on milk production due to adoption of new feeding technology was carried out by paired 't' test. The results clearly indicated that there was 14.20% increase in milk production in new technology compared to the unbalanced ration. There was statistically a significant difference ($P<0.01$) between the milk production level by old and new feeding technology.

KEY WORDS : Milk production, Balanced ration, Impact

INTRODUCTION

Dairy sector plays a vital role in the national economy and in the socio-economic development of the people. Moreover it is important in the rural economy in supplementing family incomes and generating gainful employment in the rural sector, particularly among the landless labourers, small and marginal farmers. Tamil Nadu, the southern most state of the country occupied 8th place in milk production in the country with a production of 56.73 lakh tonnes in 2008 – 09. Vellore district contributed a quantum of milk supply about 3 lakh tones of the total milk production of the State and stood fifth during the year 2008-09. Good management of cows with good genetic potential will result in the most efficient response to good nutrition (Krober *et al*., 1998; Niels *et al.,* 2003). Balanced feeding alone can bring about an increase of 30% in milk production. Hence the present work was conducted to study the effect of adoption of new feeding technology on milk production by the farmer interest groups (FIGs) in Vellore district of Tamil Nadu.

MATERIALS AND METHODS

A study was carried out on technology diffusion of dairy cattle feed computation for farmer interest groups (FIGs) with locally available feed ingredients in Vellore district. Based on the latest Livestock Census 12 blocks were selected. From each of these blocks one village was selected by simple random sampling method. Survey work was carried out initially to find out the existing feeding practices in 12 villages.

Feed mixing and manufacturing unit was purchased and used in the study. Method demonstration was carried out in selected 12 villages for the computation and preparation of low cost cattle feed (TMR) in 100 kg quantities with the locally available feed ingredients were presented in Table 1.

Table 1

Recommended Dairy Cattle Compounded Feed (TMR) to Farmer Interest Groups (FIGs)

S.No	Feed ingredients used for Preparation of low cost Cattle Feed	Quantity (in Kgs)
1.	Maize - dry	20.00
2.	Sorghum (Jowar) – dry	10.00
3.	Cumbu (Bajra) – dry	10.00
4.	Groundnut Oil Cake (Expeller Variety)	15.00
5.	Coconut Oil Cake	15.00
6.	Wheat Bran	13.50
7.	Rice Bran	13.50
8.	Mineral Mixture (TANUVAS)	2.00
9.	Salt	1.00
	Total	**100.00**

New Technology

- Maintenance ration – 1.5 kg of TMR upto 2.5 litres of milk per day
- Additional one kg of TMR for every 2.5 litres of milk produced

Old Technology – feeding ad libitum unbalanced ration

The Feed mixing machine was stationed in each village for a period of seven days to encourage the FIGs to fabricate their own feed by involving themselves in the purchase of low cost feed stuffs from the local market, compute and feed their livestock. The above manufacturing system was monitored for a period of 15 days. Interview schedules were prepared and pretested. Relevant data were collected from the FIGs by personal interview method. The economics of milk production per litre of milk was calculated for old and new technology by different class of FIGs. New technology refers to feeding of dairy animals with balanced ration prepared based on the nutrient content of the locally available feed ingredients and old technology refers to the usual non-scientific unbalanced traditional feeding practice. Also the effect of training program on milk production due to adoption of new technology was carried out by paired 't' test (Snedecor and Cochran, 1994).

RESULTS AND DISCUSSION

Economics of milk Production by old and new technology

The economics of milk production per litre of milk was calculated for old and new technology for different class of FIGs and presented in Table 2. It has been observed that the cost of concentrate per litre of milk production was low for large farmers (Mean Rs.5.82/-), high for landless farmers (Rs.6.54/-) in old and low for large farmers (Rs.4.04/-), high for small farmers (Rs.4.49/-) in new technology. It is observed that the cost of concentrate per litre of milk for all groups of FIGs has been drastically reduced when compared to old technology. On the other hand, the cost of green fodder and labour cost per litre of milk production was higher for large farmers in both the technologies. Thus it is evident that total cost of milk production per litre of milk was higher for large farmers (Rs.10.82/- and Rs.8.62/-) and lower for landless farmers (Rs.9.88/- and Rs. 6.95/-) for old and new technologies respectively.

The net return per litre of milk was higher for landless farmers (Rs.3.61/- and Rs.6.72/-) and low for large farmers (Rs.2.30/- and Rs.4.52/-). The main contributing factor for this is due to the

Table 2 : Economics of Milk Production per Litre of Milk by Old and New Technology

(Mean Value in Rupees)

Cost components		Landless farmers (n=27)	Marginal farmers (n=77)	Small farmers (n=45)	Large farmers (n=7)	overall (n=156)
Cost of concentrate feed/ litre of milk	Old	6.54 (1.41)	6.34 (1.68)	6.47 (1.52)	5.82 (1.73)	6.38 (1.60)
	New	4.44 (0.90)	4.39 (0.79)	4.49 (0.86)	4.04 (0.71)	4.41(0.83)
Cost of green fodder/ litre of milk	Old	0.81 (0.74)	1.42 (1.10)	1.18 (0.88)	1.55 (0.86)	1.27 (1.00)
	New	1.03 (0.86)	1.67 (1.14)	1.26 (0.69)	2.40 (0.97)	1.48 (1.02)
Cost of dry fodder/ litre of milk	Old	0.37 (0.29)	0.33 (0.32)	0.45 (0.43)	0.44 (0.25)	0.37 (0.35)
	New	0.22 (0.16)	0.25 (0.24)	0.34 (0.31)	0.31 (0.20)	0.27 (0.25)
Labour cost/ litre of milk	Old	2.16 (1.18)	2.08 (1.05)	2.28 (1.44)	3.02 (1.39)	2.19 (1.21)
	New	1.26 (0.08)	1.24 (0.09)	1.25 (0.14)	1.87 (0.21)	1.41 (0.11)
Total cost of milk production/litre of milk	Old	9.88 (2.04)	10.17 (1.77)	10.38 (1.80)	10.82 (1.99)	10.22 (1.83)
	New	6.95 (1.04)	7.55 (1.36)	7.34 (1.08)	8.62 (1.25)	7.61(1.24)
Gross returns/ litre of milk	Old	13.49 (1.17)	13.14 (0.88)	13.22 (1.06)	13.13 (0.77)	13.22 (0.98)
	New	13.67 (1.24)	13.25 (1.01)	13.31 (1.20)	13.14 (0.85)	13.34 (1.10)
Net return/ litre of milk	Old	3.61 (2.25)	2.97 (1.77)	2.84 (1.97)	2.30 (1.69)	3.00 (1.91)
	New	6.72 (1.51)	5.70 (1.55)	5.97 (1.63)	4.52 (1.08)	5.73 (1.59)

(Figures with in parentheses indicates standard deviation)

The rates of components of cost of production of milk by old technology

Concentrate = Rs.16 (Old) and Rs.13.5 (New) per kg respectively

Green fodder = Rs.2 per kg (For both old and new technology)

Dry fodder = Rs.1.5 per kg (For both old and new technology)

Table 3

Impact of New Technology on the Mean Value of Milk Production (in litres)

Farmers Land Holding	By old Technology			By New Technology			t - Test	Result / Significance
	N	Mean	Standard Error	N	Mean	Standard Error		
Landless	27	8.28	0.5157	27	9.55	0.6015	5.85	**
Marginal	77	8.12	0.4157	77	9.22	0.4286	13.65	**
Small	45	8.64	0.6362	45	10.03	0.6792	12.98	**
Large	7	6.80	0.9726	7	7.78	1.0189	4.45	**
Overall	156	8.45	0.31	156	9.65	0.33	19.36	**

** - *Highly significant at 1% level*

escalated cost of labour involved in dairy farming activities among large farmers. Thus it could be concluded that the total cost of milk production has been reduced for all class of FIGs of dairy farmers who have adopted the new technology diffused across the selected blocks for the implementation of the present scheme. This reduction in the total cost of milk production has enhanced the net returns per litre of milk for the FIGs who have adopted the new technology.

Muller and Fales (1998) and Fadel Elseed *et al*. (2008) reported that some of the livestock breeders accustomed to feed their herds with unbalanced ration which are known to increase the cost of milk production due to inefficient use of diet content.

Impact of New Technology on the Mean Value of Milk Production

The impact of new technology on the mean value of milk production (in litres) in crossbred cattle is presented in Table 3. It is inferred from the table that there was a highly significant increase ($P<0.01$) in milk production on the adoption of new technology on least cost cattle feed computation with locally available feed ingredients by FIGs when compared to old feed mixing technology. The data clearly indicated that there was 14.20% increase in milk production compared to the unbalanced ration (old feeding practices carried out by FIGs). These results were in agreement with the findings of Ahmed Nabaweia *et al*. (2010) who reported that the balanced ration significantly ($P<0.05$) increased the level of cow milk production by 27% compared to that of unbalanced ration. Siregar (2001) reported an increase in milk production ability of lactating cows through improved feeding practices.

Based on the results of the present study, it was concluded that the new feeding technology decreased the cost of milk production for all classes of farmers compared with usual feeding practices and the balanced ration increased the milk production to the tune of 14.20% compared to the unbalanced ration.

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