Constraint Analysis of Dairy Farmers in Co-Operative and Non-Cooperative Milk Supply Chains in Prakasam District of Andhra Pradesh

K Vykhaneswari, K Uma Devi, G Raghundha Reddy and Sk Nafeez Umar

Department of Agricultural Economics, Agricultural College, Bapatla 522 10, Andhra Pradesh

ABSTRACT

A study was conducted in Prakasam district to identify the constraints faced by dairy farmers in production and marketing of milk. The data were analysed by using Garrett's ranking technique. The major constraints faced by both cooperative and non-cooperative dairy farmers were lack of emergency veterinary services, low average milk yield of the lactating animals, high cost of veterinary services, no or less provision for advance payment for milk by society or vendors, lack of technical guidance, lower socio-economic conditions, lack of cooperation and coordination among members, etc.

Key words: *Dairy farmer, constraints, Garrette's ranking technique, cooperative and non-cooperative channels.*

India ranks first among the world's milk producing nations since 1998. Milk production in India during the period 1950-51 to 2014-15, has increased from 17 Mt to 146.3 Mt (http://dahd.nic.in/). Dairying is considered as an integral part to India's rural economy and is emerging as one of the fast growing sectors of the country. Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities particularly for marginal and women farmers. Prakasam is the highest milk producing district with 0.873 Mt in Andhra Pradesh (A.P. socio-economic survey, 2014-15). Milk produced in the district is known for its high fat content, better keeping quality and unrivalled taste. But more and more farmers are selling their old infirm cattle in the market due to severe fodder shortage in drought hit Prakasam district during 2015-16. A preliminary survey of the district revealed that cooperative and non-cooperative dairies were involved in marketing and distribution of milk and milk products in Prakasam district. At present dairy farmers were facing many problems resulting in decline in production affecting the dairy sector as a whole and also different stakeholders involved in marketing of milk and milk products. Keeping this in view, the constraints faced by dairy farmers and the stakeholders in identified milk supply chains under both cooperative and non-cooperative dairies in the district were studied.

MATERIAL AND METHODS

Prakasam district was purposively selected for the research study as it is the highest milk producing district in Andhra Pradesh with a total milk production of 0.873 Mt during the year 2014-15. Four mandals and two villages from each mandal were selected purposively based on their highest milk production making a total of eight villages in the district for sample selection. Ten farmers from each village were selected randomly making a total of 80 dairy farmers. Out of 80 farmers, 20 farmers, selling milk to cooperative society i.e. Ongole dairy were identified in the district and remaining 60 farmers selling to non-cooperative dairies which includes traditional, private and milk collection centres were selected. Milk collection centres are setup by a single farmer where milk was collected from different dairy farmers in the surrounding areas. The selected respondents were interviewed personally with the help of well-structured interview schedule. The collected information were tabulated and analyzed using Garrette's ranking technique. The constraints as reported by the stakeholders in milk supply chains were ranked and these ranks were converted into scores by using Garrett's table.

The ranks were converted into percentage positions by using the Garrett's formula.

$$\text{Percent position} = \frac{100 * (R_{ij} - 0.50)}{N_j}$$

Where,

R_{ij} = Rank given for i^{th} constraint by j^{th} stakeholder
N_j = Number of constraints ranked by j^{th} stakeholder
The per cent position of each rank thus obtained was converted into scores and the scores of individual respondents were added and divided by the total number of respondents. Thus the mean score for all the constraints were arranged in descending order and then ranks were assigned to individual constraints.

RESULTS AND DISCUSSIONS

Constraints imply the problems or difficulties faced by dairy farmers in production and marketing of milk. Here, the constraints faced by dairy farmers were studied under different categories i.e., infrastructural, economic, marketing, technical and socio-physiological constraints. The collected data were analyzed using Garrett ranking technique.

Characteristics of households with dairy enterprises

Table 1 presents the characteristics of sample dairy farmers households in Prakasam district. Average age of the sample house hold was 49 years. 86.25 per cent of these households were male headed and remaining 13.75 per cent were female headed. Education level of the household was varied i.e. 47.50 per cent were illiterate farmers, 25 per cent primary level, 21.25 per cent secondary level and 5.25 per cent had completed intermediate. 20 years was the average experience age of all the 80 dairy farmers. The average herd size maintained by the farmers was 3. The average land holding for fodder crops was about 1.4 acres and regarding other crops, it was about 3 acres. Cooperative and non-cooperative channels were identified in Prakasam district which are shown in figure 1. The dairy plants selected for the study were one cooperative sector i.e. Ongole dairy, five private diaries and four milk collection centres.
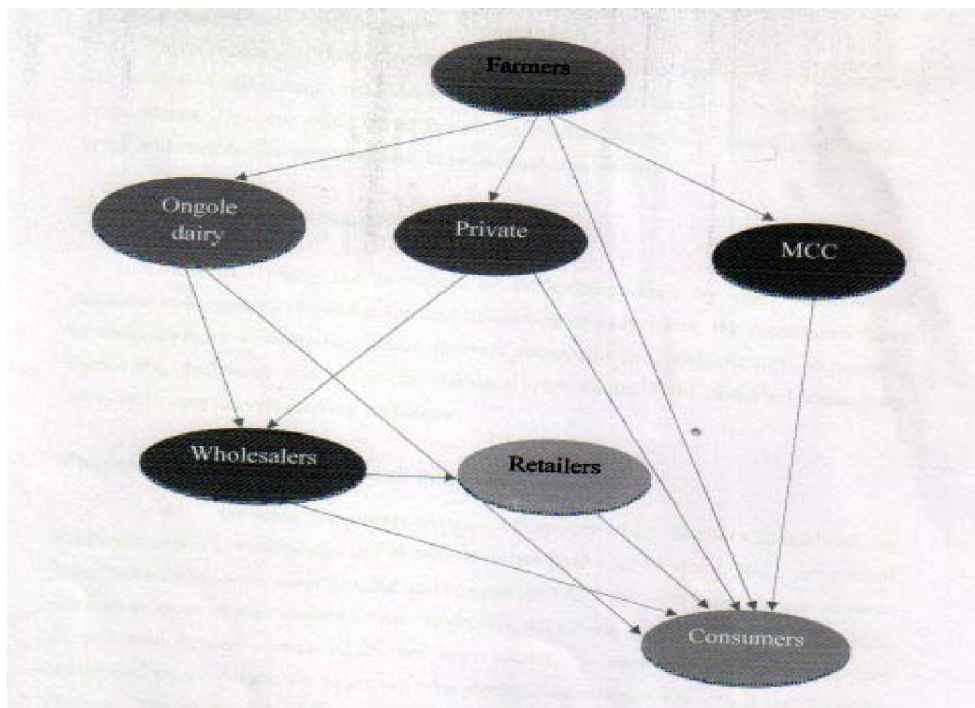
Ongole dairy

The milk collection in Prakasam district started with the commissioning of the milk chilling centres at Ongole in 1975 with an objective to procure milk from the rural farmers at remunerative price and to bring them out of the clutches of rural vendors and to supply procured milk at a reasonable price to urban consumers, under the A.P. Dairy Development Corporation limited. Majority of milk producers in the district are from the categories of landless agricultural labour, marginal and small farmers and belong to socio-economically backward classes. The average procurement of milk per day during a month was 1,00,140.5 litres.

Table 1. Characteristics of households with dairy enterprises.

Particulars of the household	Average values (N=80)
Age (years)	49
Gender (% to total)	
a)Male	86.25
b)Female	13.75
Education (% to total)	
a)Illiterate	47.50
b)Primary	25.00
c)Secondary	21.25
d)Intermediate	5.25
Dairying experience (years)	20
Herd size (No.)	3
Land holding (acres)	
a)Fodder crops	1.4
b)Other crops	3

Figure 1. Chart showing identified milk supply chains in Prakasam district.

Identified milk marketing channels in Prakasam district (Cooperative):
Channel-1: Milk producer → Ongole dairy →Consumer.
Channel-2: Milk producer → Ongole dairy → Wholesaler →Consumer.
Channel-3: Milk producer → Ongole dairy →Wholesaler →Retailer →Consumer.
Identified milk marketing channels in Prakasam district (Non-cooperative):
Channel-4: Milk producer→ Consumer.
Channel-5: Milk producer → Private dairy → Consumer.
Channel-6: Milk producer→Private dairy → Wholesaler→Consumer.
Channel-7: Milk producer → MCC →Consumer.

Private dairies

The five private dairies selected were Sri sai milk line, Indira dairy products, Gayathri milk products, Sree Ram milk products and Nandini dairy Pvt. Ltd. On an average the daily procurement of milk in each dairy was 250 LPD (Litres per day). They purchase the milk @ Rs. 38-45 per litre and sold at the price of Rs. 50 per litre.

Milk collection centres

Milk collection centres are the points which were owned by dairy farmers for collecting milk from the surrounding areas. On an average these centres collect the milk of about 100 LPD. They sold the milk @ Rs. 50 per litre.

Constraints faced by dairy farmers in non-cooperative channels

The constraints faced by the sample of all non-cooperative channel dairy farmers were studied and presented in table 2. The major infrastructural constraints perceived by respondents were unavailability of green fodder throughout the year, unavailability of cattle feed and fodder seed on credit basis and low average milk yield of lactating animals which ranked 1, 2 and 3 respectively followed by other constraints. This was mainly due to unavailability of credit throughout the year.

The major economic constraints were high cost of cattle feed and mineral mixture, low price

Table 2. Constraints faced by non-cooperative dairy farmers (N=60).

Farmers to non-cooperative	
Infrastructural constraints	**Rank**
Unavailability of emergency veterinary services	4
Infrequent visit of veterinary staff	6
Unavailability of vaccines	5
Occasional availability of semen at the AI centre	8
Lack of training facilities	7
Unsuitability of the time of delivery of milk during winters due to bitter cold in early hours of the day	9
Unavailability of green fodder throughout the year	1
Low average milk yield of the milk animals	3
Unavailability of cattle feed and fodder seed on credit	2
Economic constraints	**Rank**
Delay in payment of milk	3
Low price of milk offered	2
High cost of cross bred	6
High cost of veterinary medicines	4
High cost of cattle feed and mineral mixture	1
Low provision of loan in society or govt. for purchasing cattle	5
Low incentives or bonus for supplying milk	7
Marketing constraints	**Rank**
Irregular sell of milk to markets	3
Lack of time for marketing	2
Less knowledge about marketing strategies	1
No or less provision for advance payment for milk by society or vendors	4
Technical constraints	**Rank**
Lack of technical guidance	1
Unavailability of high generic merit bull	4
Poor conception rate through AI	5
Poor knowledge about feeding and health care	2
Lack of knowledge about cheap and scientific housing of animal	3
Socio-physiological constraints	**Rank**
Lower socio-economic conditions	1
Lack of purchasing power	3
Lack of time due to busy in domestic/agricultural work	4
Lack of cooperation and coordination among members	2

of milk and delay in payment of milk. Khoveio *et al.*, 2012 also reported low availability and high cost of concentrates as major constraints in milk production followed by lack of availability of green fodder. Similar results were found with Kashish *et al.,* in which they observed that major constraint was high cost of feed and fodder. Among marketing constraints, less knowledge about marketing strategies, lack of time for marketing and irregular sale of milk to markets followed by other constraint were identified. Lack of technical guidance, poor knowledge about feeding and health care were the technical constraints faced by dairy farmers. Major socio-physiological constraints were lower socio-economic conditions, lack of cooperation and coordination among members and lack of purchasing power which ranked 1, 2 and 3 respectively.

Table 3. Constraints faced by dairy farmers in cooperative society (N=20).

Farmers to co-operative	
Infrastructural constraints	**Rank**
Unavailability of emergency veterinary services	1
Infrequent visit of veterinary staff	3
Unavailability of vaccines	5
Occasional availability of semen at the AI centre	9
Lack of training facilities	7
Unsuitability of the time of delivery of milk during winters due to bitter cold in early hours of the day	8
Unavailability of green fodder throughout the year	4
Low average milk yield of the milk animals	2
Unavailability of cattle feed and fodder seed on credit	10
Economic constraints	**Rank**
Delay in payment of milk	3
Low price of milk offered	6
High cost of cross bred	8
High cost of veterinary medicines	1
High cost of cattle feed and mineral mixture	4
Low provision of loan in society or govt. for purchasing cattle	5
Low incentives or bonus for supplying milk	2
Marketing constraints	**Rank**
Irregular sell of milk to markets	2
Lack of time for marketing	3
Less knowledge about marketing strategies	4
No or less provision for advance payment for milk by society or vendors	1
Technical constraints	**Rank**
Lack of technical guidance	2
Unavailability of high generic merit bull	4
Poor conception rate through AI	5
Poor knowledge about feeding and health care	1
Lack of knowledge about cheap and scientific housing of animal	3
Socio-physiological constraints	**Rank**
Lower socio-economic conditions	1
Lack of purchasing power	3
Lack of time due to busy in domestic/agricultural work	4
Lack of cooperation and coordination among members	2

Constraints faced by dairy farmers in cooperative channel (Ongole dairy)

The major infrastructural constraints perceived by co-operative farmers were unavailability of emergency veterinary services, low average of milk yield of the animals and infrequent visit of veterinary staff. High cost of veterinary services, low incentives or bonus for supplying milk and delay in payment of milk were the economic constraints. Similar results were observed in cooperative sector by Debnarayan Sarkar and Bikash Kumar Ghosh (2010) and Patil *et al.,* in their study. Among marketing constraints, no or less provision for advance payment for milk by society or vendors, irregular sale of milk to markets and lack of time for marketing were the major constraints. Poor knowledge about feeding and health care, lack of technical guidance and lack of knowledge about cheap and scientific housing of animal were the major technical constraints. The

major socio-physiological constraints were lower socio-economic conditions, lack of cooperation and coordination among members and lack of purchasing power as presented in table 3.

CONCLUSIONS

The major constraints faced by cooperative sector dairy farmers were low average of milk yield, high cost of veterinary services, no or less provision for advance payment for milk by society, lack of technical guidance etc. and constraints faced by non-cooperative dairy farmers were unavailability of feed and fodder on credit basis, infrequent visit of veterinary staff etc.

LITERATURE CITED

A.P. Socio-economic survey, 2014-15.

Department of animal husbandry, dairying and fisheries – http://dahd.nic.in/

Kashish Kaur M, Sekhon M K and Dhawan V 2014 Marketed surplus, pattern and constraints faced by smallholder dairy farmer in Punjab. *Economic Affairs*, 59 (4): 641-647.

Khoveio1 L L M, Jain D K and Chauhan A K 2012 Economics of Milk Production and its Constraints in Nagaland. *Indian Journal of Dairy Science,* 65 (6): 520-526.

Patil A P, Gawande S H, Nande M P and Gobade M R 2009 Constraints faced by the dairy farmers in Nagpur district while adopting Animal Management Practices. *Veterinary World*, 2 (3): 111-112.

Sarker, D and Ghosh, B K 2010 Constraints of Milk Production: A Study on Cooperative and Non-cooperative Dairy Farms in West Bengal. *Agricultural Economics Research Review,* 23: 303-314.