Dairy industry in Varanasi district of Uttar Pradesh: management issues and prospects

Abhilash Payasi and Amrita Poonia

Received: 26 September 2014 / Accepted: 17 May 2015

Abstract On the basis of convenience sampling and accessibility total 110 respondents were selected. The respondents indicated 19 different issues and these issues were considered as study variables. With the help of statistical analysis these issues were merged into five major dimensions or major issues affecting the growth of dairy sector in the area under study. These issues came out to be as production issues of the dairy sector, education & information issues, infrastructural issues investment & compensation, inadequate government policies and social awareness. Then the information was collected on seven point continuum i.e. 'strongly disagree', 'disagree', 'slightly disagree', 'average', 'slightly agree', 'agree' and 'strongly agree' and score values of 1, 2,3,4,5,6 and 7 were awarded, respectively. The total mean for these issues were 5.23, 5.38, 5.13, 5.13 and 5.03, respectively. In order to increase the competitiveness of Indian dairy industry, efforts should be made to reduce cost of production, increasing productivity of animals, better health care and breeding facilities and management of dairy animals can reduce the cost of milk production.

Keywords : Management issues, dairy industry, milch animal, Varanasi, unorganized sector

Introduction

Dairy farming in India is more of a subsidiary activity represented by plurality of small holder dairy farmers Rs. 35 thousand crores and livestock contributes nearly 5 per cent to National GDP accounting for more than 25 per cent of agricultural GDP (Planning Commission, 2010). In India, dairying is an important sector of agriculture as it utilizes low valued agricultural by-products and under employed labour force for production of milk, which provides nutrition and sustainable livelihood to large chunk of our society.

Uttar Pradesh is the largest milk producing state of India contributing 18 % of the total milk production of country. In the year 2011-2012, the total milk production in the state was 22,556 thousand tonnes (NDDB, 2012). Large proportion of breedable buffaloes in Uttar Pradesh compared to the country as whole, suggested that buffaloes were the major milch animals in the state. The milk yield per cow was 1.83 litres and that of buffalo 3.15 litres per day was also more than the national average for the country as a whole. The per capita availability of milk in the state was 310 gm per day in 2011-12, as against 290 gm for the country (NDDB, 2012). In Uttar Pradesh, majority of milk producers are dependent on the milk vendors/ shops for marketing of milk, who exploit them by not paying remunerative prices, thereby leaving the milk producers with no incentive to increase their production. A good marketing system, thus, is essential to stimulate milk production and growth of dairy in the state.

With the commencement of the white revolution in Uttar Pradesh, the previous record of 250 litres of milk witnessed a quick upsurge to 86,000 litres to the national capital New Delhi. In the long run, the white revolution will prove to give great impetus to fully develop the Uttar Pradesh claim that their yield will raise manifold in a short span of time with the coming of the white revolution. But instead of this white revolution and large number of the milch animals, our per capita milk availability is less and the quality of the milk is also very poor. So, it is necessary to find out the issues and problems of this region which are affecting the growth of the dairy industry.
Materials and Methods

Sampling

Scope of the study was confined to the eight blocks of Varanasi region. Keeping this in view respondents were identified from each block representing different sectors namely milk-producers, veterinary doctors, sweets makers/chhana makers/dahi or curd makers/paneer makers, intermediaries (middleman), cream makers, small dairy farm employees, academicians researchers, small milk collection centre employees, milk officers and agricultural officers.

On the basis of convenience and accessibility, respondents selected for the study included 28 milk-producers, 14 veterinary doctors, 10 sweet shops owners, 6 intermediaries (middleman), 2 cream maker, 10 small dairy farm employees, 14 academicians or researchers, 16 small milk collection centre employees, 6 officers of dairy department, 4 state government agricultural officers looking after agriculture department in the district. Thus, total 110 respondents were selected through convenience sampling.

To develop valid instrument secondary data, previous findings and popular articles were relied initially. It was observed that sufficient literature on the specific problem/issues of dairy industry in Varanasi region of Uttar Pradesh was not available. So, professionals working in dairy sector and experts were interviewed for the initial feedback on points like status of dairy industry/overview of Indian dairy industry, issues of milk and milk processing business of India, milk and milk processing business in comparison to western counterpart and issues of milk and milk processing business of Varanasi district. Data was collected through a close ended structured questionnaire by judgmental and convenience sampling. Questionnaire having 20 questions was structured on the basis of important issues related to dairy industry reported in literature or narrated by experts of the region during personal interaction. Then the information were collected on seven point continuum i.e. 'strongly disagree,' 'disagree,' 'slightly disagree,' 'average,' 'slightly agree,' 'agree' and 'strongly agree' and score values of 1, 2, 3, 4, 5, 6 and 7 were awarded, respectively. The respondents were interviewed for the initial feedback on understated points: Status of Indian dairy industry/overview of Indian dairy industry, Issues of milk and milk processing business of India, questionnaire issues, Issues of milk and milk processing business of Varanasi district. The Questionnaire was also tested for its reliability on the basis of Cronbach Alpha Value which was found to be 0.778 which is more than the assumed value 0.6 and proves the reliability of the Questionnaire.

Research Design

The research design used in the study was exploratory till the identification of issues and perspective of the industry. Later it became descriptive when it came to evaluate the major issues/problems affecting the growth of dairy sector in Varanasi. The nineteen variables were reduced to five principal components or dimensions through varimax rotation. Statistical Package for Social Science (SPSS) software version 16.0 was used for data analyses to summarize the nineteen variables into smaller sets that preserved most of the information in the original data set. The data was subjected to principal component analysis. Regarding the pre analysis testing of the entire sample for factor analysis, the Kaiser - Meyer - Olkin measure of sampling adequacy was 0.677 and the Bartlett's test of sphericity was 282.829 significant at p<0.001, thus indicating that the sample was suitable for factor analytic procedures. According to analysis, five factors with eigenvalues greater than 1.0 were obtained.

Results and Discussion

The respondents indicated 19 different issues pertaining to state of affairs of dairy industry in Varanasi district. These 19 issues were considered as study variables and were merged into five major dimensions. As the respondents have reported many constraints, details of variables, dimensions and their mean are shown in (Table 1). Details of individual dimension and weightage are discussed separately as under:

1 Dimension: Production issues of the dairy sector

Mean response for the dimension entitled 'Production issues of the dairy sector' was found to be 5.23. On seven points ranking level of agreement for this mean score can be ranked above average. Per cent weightage of the issue for effecting the growth of dairy industry in Varanasi was calculated as 74.80%. Individual effect of components under dimension I can be seen in (Fig.1). There were three components closely associated with dimension I. Mean response of these components varied between 5.58 and 4.89. Variable entitled 'unorganized dairy sector in Varanasi district' was valued with highest mean score (5.58) by the respondents. Within the issue this component can be designated as the main variable. Score for this variable was above the slightly agree level on rank scale of agreement. Mean value of rest two variables being above four indicated that the variable is reaching slightly agreement zone. Ray (2000) studied different issues and key points related to dairy industry in three villages in the Jaipur district. His key observations were the role of middlemen, lack of awareness of consumers and the lack of regulation allows middlemen (and sweet shop owners) to make substantial gains absence/low presence of facilities like credit, procurement, services in formal sector creates a situation where it pushes/compels the small farmer into arrangements with middlemen that are not necessarily beneficial Kalsi (1992) found that the unorganized sector usually scores over the organized sector on account of the consumers' confidence,
the richness of milk as indicated by "Malai" on milk, the freshness of their products, their ability to give credit and the low overheads. Shah et al. (1990) conducted a study on the marketing of milk in organised and unorganised sectors of Bulandshahr district of Uttar Pradesh and indicated that middlemen offer lowest price. Samajdhar et al. (2003) conducted a survey to study the livestock husbandry of the Vangujjars of Uttaranchal also observed that even though they possess sound experience about various aspects of animal husbandry, they were vulnerable to and open for exploitation by the middleman to whom they sell milk despite the existence of cooperatives in that area. They were often riddled with debt and stand marginalized. The study recommended that the cooperatives should come forward to find out the reasons for Vangujjars' apathy towards cooperatives and involve them as society members.

II. Dimension: Education and information issues

The data given in (Table 1) revealed that mean response of the dimension entitled Education and information issues was 'found to be 5.38'. Thus on seven point ranking levels of agreement for this dimension can be said above slightly agree. Per cent weightage of the issue for effecting the growth of dairy industry in Varanasi was calculated as 76.88%. Individual effect of components under this dimension can be seen in (Fig. 2). There were four components closely associated with II dimension. Mean response of these components varied between 5.16 and 5.61. Variable entitled 'No link between farmer and consumer' was valued with highest mean (5.61) by the respondents, among the components. Within the issue this component can be designated as main variable and was above slightly agree on rank scale of agreement. Mean value of rest three variables was found between 5 and 6 on the seven point rank scale.

The farmers in the region were mostly illiterate and they are unconscious and unaware about processing, value addition of milk and milk products and current trends in dairy industry. So they do not get proper profit from their milk production. The variables indicated under this dimension were found affecting the growth in dairy business in Varanasi more than the other listed in Table 1.

III. Dimension: Infrastructural issues

Among Infrastructural issues the mean was 'found to be 5.13'. Thus on seven point ranking level of agreement for this dimension can be said above average. Per cent weightage of the issue for effecting the growth of dairy industry in Varanasi was calculated as 73.40%. Individual effect of components under dimension III can be seen in (Fig.3). There were five

### Table 1: Major dimensions and their mean values

<table>
<thead>
<tr>
<th>Dimensions (Factors)</th>
<th>Variables</th>
<th>Mean</th>
<th>Total mean</th>
<th>Gravity of the issues (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Production issues of the dairy sector</td>
<td>Unorganized dairy sector in Varanasi district</td>
<td>5.58</td>
<td>5.23</td>
<td>74.80</td>
</tr>
<tr>
<td></td>
<td>Very less and scattered milk production in remote areas/village</td>
<td>5.24</td>
<td>4.89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No facilities for collection of milk at village level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Education and information issues</td>
<td>Lack of education in Eastern Varanasi region</td>
<td>5.50</td>
<td>5.38</td>
<td>76.88</td>
</tr>
<tr>
<td></td>
<td>No link between farmer and consumer</td>
<td>5.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of knowledge of economical and scientific housing</td>
<td>5.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No information provided about the profit of dairy industry during education</td>
<td>5.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III. Infrastructural issues</td>
<td>No availability of good fodder and cattle yard for animals</td>
<td>5.50</td>
<td>5.13</td>
<td>73.40</td>
</tr>
<tr>
<td></td>
<td>Lack of veterinary facilities for cattle's</td>
<td>5.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of good roads between village and city</td>
<td>4.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of transportation for taking milk out from village</td>
<td>4.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of chilling facilities at village level</td>
<td>5.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV. Investment and compensation issues</td>
<td>Producers are not getting good rate for milk according to their hard work</td>
<td>5.74</td>
<td>5.13</td>
<td>73.35</td>
</tr>
<tr>
<td></td>
<td>Lack of investment for larger scale milk production</td>
<td>5.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of finance for buffalo management practices through scientific methods</td>
<td>5.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High cost of cold storage facilities of milk at village level</td>
<td>5.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of investment for larger scale milk production</td>
<td>4.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V. Inadequate government policies and social awareness issues</td>
<td>Inadequate of government policies for dairy industry</td>
<td>5.34</td>
<td>5.03</td>
<td>71.94</td>
</tr>
<tr>
<td></td>
<td>There is no information about conversion of milk to Indigenous milk product</td>
<td>4.73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

636
components closely associated with III dimension. Mean response of these components varied between 4.52 and 5.50. Variable entitled 'No availability of good fodder and cattle yard for animals' was valued with highest mean (5.50) by the respondents, among the components. Within the issue this component can be designated as main variable, score being above the slightly agree level on rank scale of agreement. Mean values of rest four variables being above 4 indicated that the variable is reaching in fair slightly agreement. Most of milk is produced in rural areas. Though there was existing dairy cooperative network in the region but it does not seem to have good impact to improve the milk collection practices. As the farmer was still not finding a quick collection and payment of his product. Milk is highly perishable. Without milk storage and chilling facilities, it was difficult to flourish good dairy business this region. These findings are in
agreement with the findings of Sharma et al., 2010. Shroti (1986) reported that the key challenges for dairy industry were hygiene/inadequacies of sourcing/collection, hygiene/, limited cold chain during transportation, affected shelf life of the milk. Synthetic/adulterated milk by unscrupulous middlemen/dudhwalas and poor level of processing were the main problems. Shrivastava (2003) conducted a study to find out the impact of milk processing on income and employment on small farms of Damoh district, Madhya Pradesh and to examine the problems faced by the small milk processing farms and suggest measures thereon. Twenty small milk processing farms mainly producing deshi ghee and 20 non-milk processing farms were selected. The study concludes that the processing of milk definitely increased income and employment of the small milk processing units compared to non-milk processing units which sold directly to other vendors. The major problems faced by the processing farms are non availability of good quality of milch animals, inefficient management of feeding and breeding of animals, lack of proper organized market system (farmers did not receive remunerative prices every time), lack of storage facilities, technical and infrastructure support system and packaging facilities. To overcome these problems the study suggests that since the processing units are looked after by household workers, good training programmers for managing these units be developed for manufacturing low cost packaging material and dairy feed formulations at the village level. The collection centres must be established on co-operative basis. Sufficient financial assistance by the government credit agencies at cheaper rates of interest must be provided to encourage the small producers and infrastructure facilities and extension activities must be developed.

IV. Dimension: Investment and compensation issues

Critical appraisal of data about investment and compensation constraints revealed that it is an important issue which affects growth of dairy sector in Varanasi district and gravity of this issue was 73.40%. Mean response of for the above said issues was ‘found to be 5.13’. Thus on seven point ranking level of agreement for this dimension can be said above average. Individual effect of components under dimension one can be seen in (Fig. 4). There were five components closely associated with IV dimension. Mean response of these components varied between 4.34 and 5.74. Variable entitled 'Producers not getting good rate for milk according to their hard work' was valued with highest mean (5.74) by the respondents, than the other components. Within the issue this component can be designated as main variable. Singh et al., (2009) reported marketing manners of milk producing units in Purvanchal region of Uttar Pradesh. It was reported that there are miles to go in the direction of marketing. People are generally not aware of the fact that marketing can add to the performance. They have no marketing strategies. Marketing variables are playing negative role in determination of value of output. The significant variable that emerges in such determination is the quantity of output.

V. Dimension: Inadequate government policies and social awareness issues

It is apparent from the data given in (Table 1) that 'Inadequate government policies and social awareness issues' was 'found to be 5.03' which signified above slightly agree response.
indicating that many respondents were agreed with that this was a major issue and agreement level of this issue was 71.94%. Individual effect of components under dimension V can be seen in (Fig. 5). There were two components closely associated with 5th dimension. Mean response of these components varied between 5.35 and 4.73. Within the issue, inadequate of government policies for dairy industry component can be designated as main variable. All the variables under the dimension, being between 4 and 5, were above average on rank scale of agreement. The milk producers in the region are not getting actual price matching to hard work in comparison to market value due to unscrupulous middlemen/dudhwalas. These factors can be addressed by establishing organized dairy sector in Varanasi. Rajput and Yadav (2004) studied the economics and identify the constraints relating to crossbred cow milk production in Indore district of Madhya Pradesh. Specifically, it examines the cost and returns per year, the net return, cost of milk production per litre and benefit cost ratio on small, medium and large size groups of cross bred cow farms. Multi stage stratified random design was used for the selection of the ultimate unit of the sample. Indore block of the Indore district was selected for the study and five villages were selected randomly from Indore Block. In all 50 milk producer households were selected for one allocation period covering the agricultural year 2003-2004 and the data was collected by survey method. The results of the study revealed that, on average, the total cost of maintenance of a cross bred cow per annum was worked out to Rs. 21,657.76. After deducting the income received from cross bred cow dung and sale of the young stock, the average net cost of maintenance came to Rs. 19,942.15 per cross bed cow. The farmers of large size groups had incurred higher expenditure on the maintenance of a cross-bred cow as they had maintained cross-bred cows of relatively better breed and had made higher investment on fodder and concentrates for maintaining them. However, large number of cross bred cow dairy entrepreneurs complained that the weak financial status, cost factor and management difficulties were the main constraints in not maintaining good quality of animals on the farms. The respondent's farm families strongly expressed the dire need for finance for the purchase of animals and also for feed, fodder and veterinary aid. A large number of commercial cross bred cow dairy entrepreneurs reported insufficient storage facilities on their farms. Milk and milk products fall under highly perishable group of commodities and have to be stored under controlled conditions of temperature and humidity in cold storage and deep freezers. Rajarajan (2006) opined that the combined effects of both domestic reforms and WTO commitments in the last decade have changed the environment in which the Indian dairy industry will operate in future. A term of trade is a significant indicator of gains from trade and efficiency of domestic industry. In average terms, the terms of trade of Indian dairy products have declined in the post-liberalization period compared to pre-liberalization years. The year-wise trend is unstable with wide fluctuations in post-liberalization years. The real effects of trade liberalization will unfold only when the WTO provisions are properly implemented.

Chauhan et al., (2005) studied the system of domestic milk marketing in India and the export potential of Indian milk and milk products. Data on milk production, marketed surplus and disposal pattern of milk were collected from milk producer in rural Haryana (primary data), statistical data collected by Indian agencies during 1998 (secondary data), as well internet sites, were also used. They revealed that the contribution of large farmers was maximum, at 49.83%. The disposal of milk was highest in milk vendors (48%), followed by consumers (19%) and shop keepers (14%), milk procurement by organized and unorganized sectors was 15 and 85%, respectively.

Inference

Varanasi does not produce high quantity of milk matching to its potential. Lack of high milk yielding cattle breeds, good veterinary facilities and nutritious feed are some reasons for this. Thus variables under this dimension are important for the growth of dairy industry in Varanasi.

Implications

The government should generate various schemes & policy for milk producers/farmers who have poor economic condition. Almost 80% of milk flows into unorganized sector, which needs to be properly channelized. Thus to tackle these problems technically skilled human resource is required or in other words it can be said that human resource available in rural areas be trained for skill up gradation. The milk producer should be directly connected with the district dairy cooperative sector like Gujarat dairy cooperative (Amul) so that they can omit middle man/dudhwala's and increase their profit share. There is also a need to educate farmers regarding processing and value addition of milk and production of various milk products which could increase their profitability and raise their standard of living. Milk is a highly perishable commodity thus there is a high call for centralized milk collection, storage and chilling centre. Good transportation facilities are required to ensure better utilization of the produce. High milk yielding breeds of cattle should be introduced among farmers, as well as, cattle/animals should be provided with good quality fodder and good veterinary care. Provided the above we will be able to increase good quality milk production in the area.

Conclusions

From the major issues emerged in the study it is clear that producers and farmers in the region are poor in awareness on the latest state of art of milk production as business. The
region was also suffered from availability of low milk yielding variety of milch animals. Thus there is a need of intensive breed improvement program in the region. The government and dairy industry can play a vital role in this direction. If India has to emerge as an exporting country, it is imperative that we should develop proper production, processing and marketing infrastructure, which is capable of meeting international quality requirements. The factors constraining dairy business in the study area are low price of milk offered by private organizations, irregular supply and high cost of cattle feed, lack of purchasing power to buy crossbred cows, low price of milk, distantly located Artificial Insemination (AI) centres, non-availability of crossbred milch bovines and good quality fodder availability. These factors must be addressed with proper planning to improve and expand the dairying in large scale in Varanasi.

References


Kalsi BS (1992) Let's All Do It- Market More Milk. Indian Dairyman 44:393-400


