Perceived Constraints in Livestock Service Delivery by Dairy Cooperatives: A Case Study of Western Maharashtra, India

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Livestock service delivery by Dairy Cooperatives in developing countries like India is getting attention from the past decade. However, due to competitive market players, these cooperatives are able to handle only about 17 per cent of the marketable milk surplus. Hence, there is an urgent need to study the factors hindering availability and effectiveness of livestock service delivery. Keeping this in view, an earnest effort was made to study the perceived constraints of farmers and cooperative staff in livestock service delivery of Dairy Cooperatives in Western Maharashtra. To obtain the suggestions in this regards, the study also summarized the Strengths, Weaknesses, Opportunities and Threats (SWOT) of Gokul Dairy Cooperative. A pretested interview schedule was used to collect data from 150 dairy producer members and 35 cooperative staff which included veterinarians, para-veterinarians and secretaries of village level cooperatives. The study reported that Gokul Dairy Union delivered 46 livestock services under seven heads, viz. animal health care, breeding, production and management, feed and fodder production, extension, marketing and other services. Dairy farmers and cooperative staff perceived that constraints in livestock service delivery included human resource, financial, policy related and administrative constraints. Among various constraints, high cost of concentrates, non remunerative price for milk, procedural complications for insurance and subsidy and high cost of medicine and treatment were the major constraints in service delivery. SWOT Analysis revealed that, the cooperative had strong and weak sides with respect to livestock service delivery. Hence, to expand proven initiatives and strengthen good practice there is a need to improve upon the quality of the services and reduction in cost of services delivered so that farmers would be more content with the services of dairy cooperatives.

Keywords: Constraints, dairy cooperative, livestock service delivery, Western Maharashtra

INTRODUCTION

The demand for livestock and livestock products is increasing because of increase in population and improved livelihoods. However, poor health of livestock, with consequent high mortality and high costs of veterinary services represent significant constraints to livestock keeping (Fuller, 2003). An effective and efficient livestock service delivery system is of paramount importance to mitigate these effects. A major challenge for delivery of livestock services in India is the provision of adequate services of an acceptable standard or quality.

The plethora of studies (Ravikumar et al., 2007; Jagadeeshwary 2003; and Rajashree 2000) has indicated State Department of Animal Husbandry and Veterinary Services as the main and primary provider of livestock services apart from other private and cooperative service providers. However, due to public finance constraints the availability and effectiveness of public services has been limited which has led to shift in services towards the private and cooperative sector (Schillhorn, 1999). Presently, 1.2 lakh village dairy cooperatives are federated into about 170 district milk unions which are subsequently federated into 22 state cooperative dairy federations (Government of India, 2006). Livestock service delivery by Dairy Cooperatives in developing countries are getting attention from the past decade since they are very helpful in overcoming access barriers to assets, information, services and the markets within which small-holders wish to produce high-value items (Jaffee, 1994), but, due to competitive
market players, these cooperatives are able to handle only about 17 per cent of the marketable milk surplus. The cooperatives are also facing various constraints like human resource, financial, policy-related and administrative constraints which have reduced the effective and efficient service delivery. Keeping this in view, an earnest effort was made to study the perceived constraints of farmers and cooperative staff in livestock service delivery of Dairy Cooperatives in Western Maharashtra. To obtain the suggestions in this regards, the study also summarized the Strengths, Weaknesses, Opportunities and Threats (SWOT) of Gokul Dairy Cooperative.

MATERIALS AND METHODS
Out of the six regions in Maharashtra, Western Maharashtra (Pune region) was selected for study due to the presence of highest livestock population, maximum milk production and procurement as compared to other divisions (Government of Maharashtra, 2009). Gokul Dairy cooperative is considered to be the biggest and advanced Dairy cooperative in this region, both in terms of number of members and volume of production. The Dairy Cooperative namely “Kolhapur Zilla Dudh Utapadak Sangh Limited, Kolhapur” functioning in the brand name “Gokul” was purposively selected due to its landmarks in milk procurement which can presently handle 11.25 Lakh litres of milk per day. This milk union covers 3788 village level dairy cooperatives on 238 milk routes for procurement every day.

The data were collected from 150 member farmers and 35 dairy cooperative staff which included veterinarians, para-veterinarians and secretaries of village level cooperatives. Multistage random sampling was applied for selecting the respondents from 10 villages for the study which were under the perview of the selected Dairy cooperative. Fifteen respondents from each village were randomly selected based on the fact that farmers reared dairy animals making the sample size of 150 farmers. A pretested closed structured interview schedule was used for the farmers while, an open and closed schedule was used for the cooperative staff. The constraints were studied in 4 categories as human resource, financial, policy-related and administrative constraints based on discussion with experts and various review of literatures.

Following the completion of data collection, the collected data were coded, tabulated, classified and further categorized using frequency and percentage for farmers. For cooperative staff, rotated component matrix method was used to study various constraints under four major constraint factors. Only variables with loadings of 0.40 and above (10% overlapping variance; Comrey, 1962) were used in depicting the factors. The group discussions with respondents, staff members, key informants and product buyers were also conducted to summarize the Strengths, Weaknesses, Opportunities and Threats (SWOT) of Gokul Dairy Cooperative.

RESULTS AND DISCUSSION
Livestock Services Delivered by Gokul Dairy Cooperative
The study revealed that 46 livestock services were delivered by Gokul Dairy cooperative under the following seven heads.

Delivery of animal health care service: Gokul Milk Union provided services for animal health care through 37 mobile veterinary routes with a team of 60 qualified and experienced veterinarians. The services were available for round the clock at the farmers door step. The cooperative covered 3788 village co-operative societies in 1506 villages and provided various health care services which included first aid, arranging deworming camps in the villages apart from various curative services. The union also undertook disease surveillance and disease eradication programmes. The survey report is in resonance with the findings of Alderman et al. (1987).

Delivery of breeding service: The breeding service included performing AI and conducting animal breeding and infertility camps. The staff of cooperative conducted pregnancy diagnosis and carried out treatment of gynecological and obstetrical cases. During the year 2010 around two lakh cases were reported under 387 mobile AI centres. The village level AI workers who were well trained by the union also worked as fulltime AI technicians in order to get higher fertility rates by inseminating in appropriate time. In a similar study, Uotila and Dhanapala (1994) also reported similar findings.

Delivery of production and management service: Discussion with the respondents
revealed that, cooperative fulfilled members’ demand of feed supply with limited resources in the form of products like mineral mixture, milk replacer and calf starter. The staff of the union educated the farmers about the importance of balanced feeding and effective housing management. Apart from the above mentioned services, the cooperative also educated farmers for care and management of livestock. Similar findings were also reported by Barsati Lal (1992).

**Delivery of feed and fodder production service:**
Gokul Milk Union has addressed the farmers' needs of increasing livestock productivity by fodder development programmes. Considering the feasibility of cultivation and existing season, the cooperative provided improved varities of fodder seeds like Lucerne, Gajaraj etc. and also educated the farmers. The union also provided indigenous chaff cutters for utilizing fodder and to minimize fodder losses. The fodder production services delivered by the dairy cooperatives were previously reported by Barsati Lal (1992) and Schillhorn (1999). Further, the union supplied balanced concentrate feed produced from its own feed processing plant under the brand name- "Mahalaxmi" at a reasonable price and good quality. Apart from two varieties of concentrate feeds, the union also supplied Bypass Protein feed for high yielding animals for minimizing the cost of milk production. Similar findings were also reported by Dakurah Henry et al. (2005).

**Delivery of extension services:**
The study showed that significant number of competent and reliable human resource team delivered extension services effectively in the form of training, advisory service, farmers educational tour, farm visits, exhibitions etc. The cooperative staff provided advisory services and training on improved animal husbandry practices at primary society level and district level. Apart from the above services Gokul union had implemented women empowerment programmes. Refresher training programmes were also conducted for staff members at the societies and district level. In a similar study, Alderman et al. (1987) and Tefera (2008) also reported similar findings.

**Delivery of marketing services:**
The cooperative collected milk two times a day, in the morning and evening at the milk collection centers. The milk supply by farmers had increased due to establishment of milk collection centers on geographical basis. Milk collection records were maintained using computers and every regular milk supplier member of the cooperative had his/her own milk collection book/card. Members were paid on weekly basis for the milk they supplied to the society. In this regard, the respondents opined that, payment system of the cooperative was regular and excellent without any troubles. The needy respondents were provided the market information by the societies. The study is in consonance with the findings of Kaushal (1996).

**Constraints in livestock service delivery**
The constraints faced by member farmers and veterinarians were categorized into human resource, financial, policy-related and administrative constraints.

**Constraints perceived by livestock farmers**
Among human resource constraints, 56.66 per cent farmers identified that less number of veterinarians as the single most important constraint to livestock service delivery. Apart from the shortage of human resources, 45.33 members perceived that cooperative staff lacked adequate skills which were one of the key factors of human resource development. This was followed by indiscriminate practice of paraveterinarinas which was perceived by 18 per cent of farmers. The findings are in resonance with the reports of Saravan Kumar (2006).

Among the financial constraints, 92.66 per cent respondents perceived that high cost concentrates...
was a major problem followed by 89.33 per cent farmers complained about non remunerative price for milk. The study is in line with the findings of Pandey (1995). The study revealed that 80.66 per cent farmers felt that high cost of medicine and treatment was the major constraint. The study revealed that high cost of AI (62.66 %) and high cost of dairy animals (55.33 %) were the subsequent constraints in livestock service delivery. In a similar study, Turkson (2003) also reported similar findings.

Among the policy related constraints, 46 per cent farmers reported that higher incidence of disease occurrence was the major problem and is followed by low fat level in milk of local breeds (42.66 %) due to which farmers did not show interest towards local breeds. Further, the study indicated that low conception rate through AI (38.66 %) followed by low productivity of local breeds (37.33 %) and poor transport facilities (34 %) were also relatively major constraints in effective service delivery. Livestock service delivery in the study area was also constrained by lack of pharmaceutical shops in the villages (28 %) and poor adaptability of cross bred animals (21.33%). The findings are in consonance with the reports of Acharya (1991) and Biradar (2009).

Among the administrative constraints, 81.33 per cent farmers opined that complex procedure for getting insurance and subsidy was the major constraint followed by 72.66 per cent farmers who perceived that cooperative should provide subsidies on local breeds also. The study also revealed that, 54 per cent farmers perceived that subsidy period should not be for 3 years and it should be reduced to one year. Similar findings were reported by Singh and Singh (1991). Inadequate supply of drugs and medicines (59.33 %) followed by unavailability of information booklet (33.33 %) and unawareness about the extension activities or developmental activities (23.33 %) were also the major constraints in getting livestock services. The present study is in line with the findings of Sasidhar et al. (2001) and Acharya (1991). The study also revealed that delayed feed availability (17.33 %) followed by lack of training programmes (12.66 %) and poor feed quality (6 %) were the major constraints in getting effective services. Interestingly, 7.33 per cent farmer members perceived that the milk collection centres were at the distant places while 6 per cent farmers perceived lack of credit facility as a major constraint for getting effective livestock services. In a similar study, Acharya (1991) and Tefera (2008) also reported similar findings.

**Constraints perceived by staff of Dairy Cooperative:**

The rotated component matrix method was used to study various constraints under four major constraint factors. Only variables with loadings of 0.40 and above (10% overlapping variance; Comrey, 1962) were used in depicting under four constraint factors.

The human resource constraints which are depicted in Table II are lack of skill based programmes, low payment of cooperative, lack of job satisfaction, lack of incentives/insurance and lack of adequate skilled subordinate staff. Similar constraints were also reported by Saravan Kumar (2006) and Turkson et al. (1999).

With regards to financial problems, it was noticed that low purchasing power of dairy farmers, high cost of dairy animals and high cost of medicine and treatment were the major problems in study area. In a similar study, Biradar (2009) and Turkson (2003) also observed consonant findings.

Cooperative staff perceived that livestock sector lacked financial support followed by poor coordination among various agencies, delay by farmer in bringing animal to the veterinarian and lack of pharmaceutical shops in villages (Table II) as policy related constraints during effective livestock service delivery. The study is in line with the findings of Biradar (2009) and Saravan Kumar (2006).

The administrative constraints as perceived by cooperative staff depicted in Table II include burden of administrative work, lack of proper diagnostic and cold storage facilities and lack of facilities for carrying out major surgeries. In a similar study, Pandey (1995) reported similar findings.

**SWOT Analysis**

The group discussions with respondents, staff members, key informants and product buyers were conducted to summarize the Strengths, Weaknesses, Opportunities and Threats (SWOT) of Gokul Dairy Cooperative and also to find out various suggestions for the constraints.
Strengths

Members' perspective:

- Cooperative membership encouraged members to market their milk and helped them to get sustainable market and access to knowledge about dairy production, marketing and innovations in the dairy sector.
- Significant numbers of dairy farmers including women were encouraged to participate in the cooperative, and the cooperative prioritized training and employment for women.
- The cooperative has established geographical based milk collection centers and sites for the ease of access of members to supply milk.
- The cooperative provided mobile AI, concentrate feed using its feed processing machine and animal health services.
- The weekly milk payment system of the cooperative helped members to get accumulated money for further investment.
- The presence of the cooperative helped to undertake farmer to farmer extension in dairy production and marketing.

From finance perspective:

- Developed computer assisted financial accounting system for easy accounting.

From HR and Management perspective:

- Significant number of educated and diverse experience of the board members and management bodies in the industry as well as working in the same industry for long period.

From membership perspective:

- Committed members to the organization vision and voluntarily acting members. Educated members that share their capacity and experience with each other.

Table 1. Constraints in livestock service delivery as perceived by members of Dairy Cooperative

<table>
<thead>
<tr>
<th>S.N</th>
<th>Constraints in livestock service delivery</th>
<th>f</th>
<th>%</th>
<th>RCM Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Human resource Constraints</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Less number of veterinarians/doctors</td>
<td>85</td>
<td>56.66</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td>Indiscriminate practice of para-veterinarians</td>
<td>27</td>
<td>18.0</td>
<td>0.59</td>
</tr>
<tr>
<td></td>
<td>Cooperative staff lacked skill</td>
<td>68</td>
<td>45.33</td>
<td>0.52</td>
</tr>
<tr>
<td>I</td>
<td>Financial Constraints</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non remunerative price for milk</td>
<td>0.59</td>
<td>89.33</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>High cost of medicine and treatment</td>
<td>121</td>
<td>80.66</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>High cost of AI</td>
<td>94</td>
<td>62.66</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>High cost of concentrates</td>
<td>139</td>
<td>92.66</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>High cost of dairy animals</td>
<td>83</td>
<td>55.33</td>
<td>0.54</td>
</tr>
<tr>
<td>II</td>
<td>Policy related Constraints</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of transport facilities</td>
<td>51</td>
<td>34.00</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>Low fat level in milk of local breeds</td>
<td>64</td>
<td>42.66</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>Poor adaptability of cross bred animals</td>
<td>32</td>
<td>21.33</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td>Low conception rate through AI</td>
<td>58</td>
<td>38.66</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>High incidence of diseases</td>
<td>69</td>
<td>46.00</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>Low productivity of local breeds</td>
<td>56</td>
<td>37.33</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>Lack of pharmaceutical shops in villages</td>
<td>42</td>
<td>28.00</td>
<td>0.49</td>
</tr>
<tr>
<td>III</td>
<td>Administrative Constraints</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distant location of milk collection centre</td>
<td>11</td>
<td>7.33</td>
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<tr>
<td></td>
<td>Delayed feed availability</td>
<td>26</td>
<td>17.33</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>Poor feed quality</td>
<td>09</td>
<td>6.00</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>Inadequate supply of drugs and medicines</td>
<td>89</td>
<td>59.33</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td>Lack of training programme</td>
<td>19</td>
<td>12.66</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>Unavailability of information booklet</td>
<td>50</td>
<td>33.33</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>Lack of credit facility</td>
<td>09</td>
<td>6.00</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>Procedural complication for insurance &amp; subsidy</td>
<td>122</td>
<td>81.33</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>No subsidy on local animals</td>
<td>109</td>
<td>72.66</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>Low period of subsidy</td>
<td>81</td>
<td>54.0</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>Not made aware of extension activities</td>
<td>35</td>
<td>23.33</td>
<td>0.63</td>
</tr>
</tbody>
</table>

f- Frequency           %- Percentage           RCM Values- Rotated component matrix values
From facility perspective:

- Existence of basic communication facilities to lead the daily business operation of the cooperative.
- Milk and feed processing plants with technologically flexible capacity that can produce diversified products.
- Possess strategically located milk collection centers, chilling centre, feed manufacturing and various product storage units.

Weaknesses

Members' perspective:

- Shortage of professional manpower in the provision of service by the cooperative. The veterinarian has to visit at least twice per week instead of once.
- Low price for milk as compared to other private competitors.
- Poor internal communication and mutual trust between staff and farmer members.
- Unable to provide concentrate feed according to the demand of members and the under-capacity of the feed processing machine.
- Inadequacy in providing drugs and medicines during animal health services.

- Unable to give equal chance of training and employment opportunities.
- The training provided by cooperative are theoretical oriented rather than practical based.

From HR and Management perspective:

- Lack of structured and clear benefit packages available to keep up the motivation of employees.
- Inability of the existing organizational structure to accommodate existing and new programs vis-à-vis lack of trained and skilled technical and support staff members.

From membership perspective:

- Unwillingness of some members to participate in capacity building training and unnecessary interference of some members on the management of the cooperative.

On internal policy:

- Lack of promoting members to openly communicate with the board members in giving ideas and poor management of members' data.

Opportunities

Customers need

- Reliable and continuous supply with quality.
- Affordable prices for products at convenience supply.

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<table>
<thead>
<tr>
<th>S.N.</th>
<th>Human resource Constraints</th>
<th>f</th>
<th>%</th>
<th>RCM Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of training/skill based programmes</td>
<td>26</td>
<td>74.2</td>
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</tr>
<tr>
<td></td>
<td>Low payment of cooperative</td>
<td>23</td>
<td>65.7</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>Lack of job satisfaction</td>
<td>15</td>
<td>42.8</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>Lack of incentives/insurance</td>
<td>21</td>
<td>60.0</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>Lack of adequate skilled subordinate staff</td>
<td>18</td>
<td>51.42</td>
<td>0.59</td>
</tr>
<tr>
<td>2</td>
<td>Financial Constraints</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low purchasing power of dairy farmers</td>
<td>29</td>
<td>82.85</td>
<td>0.73</td>
</tr>
<tr>
<td></td>
<td>High cost of dairy animals</td>
<td>23</td>
<td>65.7</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>High cost of medicine and treatment</td>
<td>28</td>
<td>80.0</td>
<td>0.49</td>
</tr>
<tr>
<td>3</td>
<td>Policy related Constraints</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of financial support to this sector</td>
<td>11</td>
<td>31.4</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>Lack of coordination among various agencies</td>
<td>10</td>
<td>28.5</td>
<td>0.41</td>
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<tr>
<td></td>
<td>Delay in bringing animal to the veterinarian</td>
<td>22</td>
<td>62.8</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>Lack of pharmaceutical shops in villages</td>
<td>17</td>
<td>48.5</td>
<td>0.46</td>
</tr>
<tr>
<td>4</td>
<td>Administrative Constraints</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More burden of administrative work</td>
<td>19</td>
<td>54.2</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>Lack of proper diagnostic facilities</td>
<td>22</td>
<td>62.8</td>
<td>0.73</td>
</tr>
<tr>
<td></td>
<td>Poor supply of liquid nitrogen</td>
<td>10</td>
<td>28.5</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>Lack of cold storage facilities</td>
<td>09</td>
<td>25.7</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>Lack of facilities for major surgeries</td>
<td>13</td>
<td>37.14</td>
<td>0.51</td>
</tr>
</tbody>
</table>

f- Frequency, % - Percentage, RCM Values- Rotated component matrix values
Dairy producers need

- Genuine quality measures for the supplied milk, timely and convenient mode of payment system and competitive price for the supplied milk.
- Improved field level technical support services vis-à-vis organizing intermittent dairy farm management training to members as well as providing market information.
- The infrastructure like processing machine, chilling centres and feed manufacture units will encourage members and others to supply more milk to the cooperative.
- If the feed processing machine of the cooperative expands its operation, there is an opportunity for fulfilling the demand of members and the market.

Threats

Environmental:

- Challenge to waste disposal and cleanness.
- Packing plastics are not easily decomposable.

Political:

- Lack of appropriate policy favoring the dairy sector with respect to feed policy and credit.

Technological:

- Poor dairy, feed and AI technology service delivery institutes.

CONCLUSIONS

- Gokul Dairy Union delivered 46 livestock services under seven heads, viz. animal health care, breeding, production and management, feed and fodder production, extension, marketing and other services.
- Dairy farmers and cooperative staff perceived that constraints in livestock service delivery included human resource, financial, policy related and administrative constraints.

SWOT Analysis revealed that, the cooperative had strong and weak sides with respect to livestock service delivery. Hence, to expand proven initiatives and strengthen good practice there is a need to improve upon the quality of the services and reduction in cost of services delivered so that farmers would be more content with the services of dairy cooperatives.

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REFERENCES


Kaushal, A. 1996. Role of NGOs in Animal Husbandry


