

Institutional Level Policy Initiatives on Crisis Management during Pandemic Situation in Dairy Sector

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ABSTRACT: COVID-19 pandemic has affected not only the health but also had paralysed most of the economic and social life of people. Since, dairy sector is not an exception to this phenomena, a comprehensive study on the effect of COVID-19 on the lives of dairy farmers of Wayanad district were conducted under State Plan Research Project 2021-2022. Based on the milk production data from secondary sources, two milk producing Dairy Milk Co-operative societies were selected from three taluks of Wayanad District namely, Vythiri, Sulthan Bathery and Mananthavady. From each Dairy Milk Co-operative societies fifteen dairy farmers were randomly selected for the final study. Thus through multi-stage random sampling ninety dairy farmers were selected for the study. The study revealed that the major constraints faced by dairy farmers during COVID-19 pandemic period were regarding the marketing and transportation of milk, utilization of unsold excess milk, shortage of skilled labours which includes, milkers, labours involved in fodder crops etc., shortage of good quality fodder, feed and supplements. The result revealed that dairy farmers enrolled under well-established Dairy Milk Co-operative Societies were more satisfied with the benefit received from the society than that with smaller DCS units. Well established Dairy Milk Cooperative Societies (DCS), with huge milk turnover and having more than 2000 membership enrollment were able to support their members effectively when compared to smaller ones. The office bearers of dairy cooperative societies opined that institutional level support such as milk transportation facilities, need to be organized at government institutional level. Encouragement must be given for potential farmer level outlets for milk and milk products. For this Kudumbasrees, PRI institutions etc. must be utilized. Moreover, value addition of milk under these outlets can also be encouraged. Dairy farmers and cooperative unions were able to sell milk to First Line Treatment Centres (FLTCs) during the COVID-19 pandemic period. Setting up of local level “Livestock army” which would be helpful for dairy farmers to get technically sound labour during acute shortage of labour (pandemic or any natural disaster period). Skilled labour which includes milking, fodder field management, farm intensive labour need to be initiated under “livestock army” scheme. Another constraint emphasized by dairy farmers were the difficulty in managing the herd when the whole family got infected /quarantined with COVID-19. So, an emergency, shelter in the form of “goshala” like facility could be established during pandemic period as well as during any natural calamities or extreme weather situations.

Keywords: COVID-19 pandemic, dairy sector, Wayanad, constraints, Marketing.

INTRODUCTION

The dairy sector is an important sub-sector of Indian agriculture, contributing 28.60 per cent to the gross agricultural value added, and providing livelihood and employment to about 6.00 million people in the country (Anonym, 2019). Dairy sector in India is dominated by an informal milk distribution system, dealing with 80.00 per cent of the total milk surplus, unlike advanced countries where 90.00 per cent of the produced milk is distributed through formal organised channels (NABARD, 2016-17). With the outbreak COVID-19, lockdown was one of the common options

suggested by World Health Organisation to curb the pandemic. India has declared lockdown all over India from 25th March, 2020 for 21 days to curb the pandemic (Dev, 2020) which was further extended with some sort of relaxation in agriculture sector. The COVID-19 pandemic has affected almost all sectors unprecedentedly, and dairy is no exception. Dairying, a source of livelihood for millions of rural Indian households, faced disruptions primarily due to the breakdown of the supply chain and a fall in demand (Haritha *et al.*, 2021). Major constraints perceived during lockdown were no market opportunities to sell their milk followed by problem of transportation and

small opening hours of market (Roy, 2022). Because of all these, the demand of milk remained low and farmers were forced to sell their milk at a lower rate (Begum *et al.*, 2020).

With the lockdown imposed, due to the closure of hotels, restaurants and petty tea shops, a steep decline in demand for milk and milk products was observed and this decline in demand subsequently led to a drop in milk procurement. While most of the private dairies immediately reduced their procurement, cooperatives initially tried to procure at least the same quantity of milk as before (Rawal *et al.*, 2020; Biswal *et al.*, 2020), but ultimately owing to the dip in demand and limited infrastructural facilities, most of them were also forced to announce either milk holidays or a cut in the procurement prices. Considering these aspects in mind a study was designed with the objective of ranking constraints faced by dairy farmers during COVID-19 Pandemic period- special reference to Wayanad District and to suggestion institution level policy initiatives on crisis management during pandemic situation in Dairy sector.

MATERIALS AND METHODS

An ex-post-facto research design was used in the research. Multi-stage random sampling methods were used for selecting sample for the study. In order to identify the constraints faced by dairy farmers due to COVID-19 pandemic, an elaborate systematic research work was carried out among selected dairy farmers from three Taluks of Wayanad district, namely, Vythiri, Sultan Bathery and Manandavady which forms the first strata for the study. Based on the milk production data from secondary sources, two top Dairy milk Co-operative Societies were selected. Thereby, Theneri and Thariyodu Dairy milk Co-operative societies from Vythiri Taluk; Sultan Bathery and Meenangadi Dairy milk Co-operative societies from Sultan Bathery Taluk and Mananthavady and Kattimoola Dairy milk Co-operative societies were selected as the second strata. From each Dairy milk Co-operative Societies; fifteen dairy farmers were selected for the final study. Thus, altogether, ninety respondents were selected for the study. A well-structured, pre-tested interview schedule were prepared and used for collecting primary data. Moreover, qualitative data regarding the objective of the study were also collected through focus group discussion as well. Collected data were tabulated and evaluated using standard arithmetic operations. Objective of ranking constraints faced by dairy farmers during COVID-19 Pandemic period were done using Garrett's ranking technique and the suggestion to overcome it were collected by conducting focus group discussion with veterinary surgeons, dairy extension officers, office bearers of DCS, progressive dairy farmers and officers from competent authority concerned.

RESULT AND DISCUSSION

This part discuss about various constraints faced by the dairy farmers and the suggestions given by the experts

to coping with these constraints. The sessions were divided into various sub-heads such as (1) constraints faced by dairy farmers with regard to feed and feeding of dairy animals, (2) breeding and reproductive management, (3) dairy animal health, (4) general dairy farm management, (5) to milk production and marketing and (6) mitigation strategies to cope the constraints faced in dairy sector.

A. Constraints faced by dairy farmers with regard to feed and feeding of dairy animals

Majority of dairy farmers (89.89%) experienced shortage of fodder, concentrates etc. during COVID-19 pandemic period. High cost of fodder and concentrates are another issue faced by farmers. Similar finding were also made by Bhandari *et al.* (2021). Feed and fodder logistics across the country suffered greatly during the initial days of the lockdown owing to travel restrictions and halting of transport services. Even during normal period, India faces a net deficit of 35.6 per cent green fodder, 10.95 per cent dry crop residues and 44.00 per cent concentrate feed ingredients (IGFRI, 2013). Some of the farmers rely on Total Mixed Ration but that also suffered shortage during pandemic period. Other constraints faced were shortage of skilled labor especially for milking and farm management (Rahimi *et al.*, 2021), non-availability of fodder slits, and restriction in movement affected fodder, feed movement as well as its availability at farm level. Restriction in grazing also caused serious issues as farmers were forced to find cut fodder for the animal.

B. Constraints faced by dairy farmers with regard to breeding and reproductive management of dairy animals

Regarding breeding of dairy cows, the average number of artificial insemination (AI) required for conception showed a drastic increase over the period (Haritha, 2021). Before COVID-19 pandemic period, the average AI required were 2.0, and it got increased during COVID-19 pandemic period to 2.40 AI per conception and again showed an increased value as 3.13 AI required per conception in after COVID-19 pandemic period. Selected dairy farmers of the study expressed that they experienced difficulty in getting A.I. for dairy animals, difficulty in detecting heat in dairy cow, pregnancy diagnosis, conducting hormone therapy, basic treatment of infertility in dairy animals, and gynecological complication like prolapse, RFM and dystocia. Number of calving also reduced during and after COVID-19 pandemic period there by milk production also got severely affected. Bhandari *et al.* (2020) in their small survey on dairy farmers quoted that farmers might have failed to avail A.I. services for approximately 30.00 per cent of the breedable female bovine in the country.

C. Constraints faced by dairy farmers with regard to dairy animal health

The disease outbreak in the farm were reported less during COVID-19 pandemic period. More than one-third (34.44%) of the farmers reported outbreak of disease in the farm on before and after COVID 19 pandemic period, whereas, it was reported low

(22.22%) during the pandemic period. Most prevalent outbreaks reported were mastitis, theileriosis, E-fever, ketosis, Lumpy- skin disease, FMD and babesiosis. Average mean treatment cost per month in a dairy farm before COVID-19 pandemic period were rupees 1165.92 \pm 122.90 per month. It got increased to rupees 1382.41 \pm 145.72 per month during pandemic period. And it again showed an increasing trend as rupees 2062.39 \pm 217.50 after the COVID-19 pandemic period. The same trend was observed in case of cost of veterinary medicine purchased per treatment as well, such as rupees 595 \pm 40.74 before COVID-19 pandemic period to rupees 613.89 \pm 43.59 during COVID-19 pandemic period and rupees 744.44 \pm 51.14 after COVID-19 pandemic period respectively. Dairy farmers have expressed the constraints like unavailability of veterinary medicines, high cost of veterinary medicines, unavailability of doorstep veterinary services, unavailability of veterinary service at night time, high expenses on doorstep veterinary services, non-availability of the vaccines in time and unavailability of farm equipment's etc. Gortazar and Fuente (2020) reported that veterinary healthcare services and other animal health preventative services were greatly reduced during pandemic and caused significant delay in diagnosis and treatment of diseases.

D. Constraints faced by dairy farmers with regard to general dairy farm management

Dairy farmers expressed their difficulty in the procurement of good dairy animals especially during COVID-19 pandemic period. Other constraints expressed by farmers includes unavailability of hired labour and employees from outside states, difficulty in purchasing of disinfectants and sanitizers, unavailability of milkers due to lockdown restrictions and high hiring charge of milkers. Because of all these reasons we can see a high rate of selling of animals especially after COVID-19 pandemic period. Moreover, more than half of the respondents (56.67%) were able to sell their unproductive animals before COVID-19 pandemic period and this selling rate were drastically reduced to 24.44% during COVID-19 pandemic period. During this period, due to restriction on movement, dairy farmers were not able to sell their unproductive animals. But this trend had a drastically changed after COVID-19 pandemic period in which 64.44 per cent of the farmers were able to sell their animals and moreover, farmers were forced to sell their animals in order to cater the need of their family and also to restart their other ventures, in agriculture and also invest in other business as well. Hence, women who mostly look after the animal didn't had a say on this aspects. Other major constraints faced by farmers were that about 22.00 per cent (19 farmers) farmers and their family got affected with COVID-19 pandemic and were not able to manage the dairy unit properly. Hence, they prefer to sell their animals. Further, some of them with post COVID-19 health issue were forced to shut down their dairy unit as well. Besides that, dairy husbandry fail to

attach youth to take up as a career and this prevent even the next generation to take up dairying.

E. Constraints faced by dairy farmers with regard to milk production and marketing

Milk yield per animal per day reduced over the period especially during COVID-19 pandemic period. Family consumption increased to 1.802 \pm 0.110 litres of milk per day during COVID-19 pandemic which was actually 1.650 \pm 0.098 litres of milk per day before COVID-19 pandemic period (Bhandari *et al.*, 2021). The household consumption of milk were again reduced to 1.743 \pm 0.114 litres after COVID-19 pandemic. Regarding marketing channels of milk, majority (88.00%) of the dairy farmers pour milk in the Dairy Milk Cooperative Societies during COVID-19 pandemic period when compared to 85.56 per cent before COVID-19 pandemic period. More than one-third (35.56%) of dairy farmers apart from dairy milk society were selling their milk to outside sources like tea shops, restaurants, nearby house holds etc. before COVID-19 pandemic period. But due to pandemic, most of restaurants, tea shops were either closed or had limited opening time and that got severely affected the sale of milk as well. Since most of the respondents studied were marginal/small farmers, which from the most socially and economic vulnerable category. Other major shift happened during COVID-19 pandemic period were that dairy farmers started to make value added products with the excess milk they possessed. Many farmers started their own milk processing or value addition units also. Moreover, preference for packaged dairy products and online delivery services increased among the consumers (Modi, 2021) in the pandemic period.

F. Mitigation strategies to cope the constraints faced in dairy sector

The dairy farmers adopted different coping strategies for minimizing the losses. They searched for new consumers, other government and quasi government organisations for selling the surplus milk. In case of delay in payments, farmers preferred using their savings to meet day-to-day expenses while preparing feed mix on their own to tackle the issue related to the availability of cattle feed (Sharma and Sinha 2020; Chacko *et al.*, 2021). Another finding was that the price fluctuation of milk was not considered as a major constraint by most of the dairy farmers under study. This may be due to the fact that Dairy Milk Cooperative Societies procure milk from the farmers at a fixed price and didn't reduced the price when compared to private milk ventors, and wholesale milk buyers. Rahman and Das (2021) in their study on the effect of COVID-19 on the livestock sector in Bangladesh recommended that livestock feed and medicine, as well as livestock-originated foods such as milk, meat and eggs, should be declared as emergency goods to ensure an uninterrupted supply chain.

Table 1: Constraints faced by Dairy farmers due to COVID-19 pandemic N=90.

Sr. No.	Constraint	Score	Rank
1.	Marketing channels of milk was interrupted	73.24	I
2.	Farmer/family member were affected with COVID-19	68.27	II
3.	Unavailability and Increased cost of feed and fodder	64.91	III
4.	High treatment cost	60.12	IV
5.	Missed heat/Unable to get the cow inseminated	52.58	V
6.	Decreased milk yield	51.70	VI
7.	Lack of veterinary service during pandemic	51.28	VII
8.	Drop in milk prices	50.01	VIII
9.	Unavailability of skilled labour	48.99	IX
10.	Lack of storage facility for milk/disposal of surplus milk	42.02	X
11.	Restriction in grazing	37.61	XI
12.	Reduced procurement/sale of Milk	29.56	XII
13.	Problem of buying and selling of animals	28.78	XIII
14.	Disease outbreak	27.90	XIV

Table 2: Suggestions put forward during focus group discussion on crisis management during pandemic situation in Dairy sector.

Sr. No.	Constraint and the suggestion to solve it
1.	Utilization of unsold excess milk by preparing products like ghee, butter etc., sell it to customers/household level/other marketing channel/distributing it among neighbour/relatives/needby by selling milk to FLTCs First Line Treatment Centres (FLTC)/or other government organisations and by using the excess milk for family consumption.
2.	Establishment of cooperative marketing network or farmer producer company at society level and encourage production of packed products since preference for packaged dairy products were on the rise after COVID-19 pandemic.
3.	To deal with unavailability of cattle feed various methods like preparation of feed mix at home, use of already stored stock and use of locally available substitutes can be tried.
4.	For large farms, feed and fodder can be replaced with total mixed ration (TMR). So initiative must be taken either to procure TMR in bulk on a regular basis or preparation of it on a large scale.
5.	Shortage of good quality green and dry fodder was one of the major constraints faced by dairy farmers during the pandemic period. In order to tackle this, more emphasis must be given for fodder cultivation, utilizing waste lands and other areas and also encourage farmers to have their own fodder cultivation so that they can manage their herd at the time of emergency situations.
6.	Dairy farmers enrolled under well-established Dairy Milk Co-operative Societies (DCS) were more satisfied that with smaller DCS units. Well established Dairy Milk Cooperative Societies (DCS), with huge milk turnover and having more than 2000 membership enrolment were able to support their members effectively when compared to smaller ones. Hence, a high level integration and collaboration must be encouraged with neighbouring DCS in the area.
7.	The official's, office bearers of dairy cooperative societies opined that institutional level support such as milk transportation facilities, need to be organized at government institutional level especially during lockdown period.
8.	Setting up of local level "Livestock army" which will be helpful for dairy farmers to get technically sound labour during acute shortage of labour (pandemic or any natural disaster period). Training skilled labour which includes milking, fodder field management, farm intensive labour need to be initiated under "livestock army" scheme.
9.	Encouragement must be given for potential farmers to open outlets of milk and milk products. For this Kudumbasrees, PRI institutions etc. must be utilized. Sales of value added milk and milk products through these outlets can also be encouraged.
10.	Where ever possible, DCS must be encouraged to start their own Artificial Insemination Centre, especially in case of Dairy Milk Societies which are situated at a remote area with limited access to road and lack transportation facilities.
11.	An emergency, shelter in the form of "goshala" like facility can be thought of during pandemic period as well as during any natural calamities or extreme weather situations.

CONCLUSIONS

COVID-19 pandemic period trigger the shift from consumption of household milk sale to packed milk and milk product. It also had an impact on opening up online market for dairy product as well. Some of the feeding practice followed during COVID-19 pandemic period were altered the composition of concentrate feeding, utilize buffer stock of feed, increase utilization of alternative feed resources such as beverage waste, banana leaves etc. Disease management practices followed during COVID-19 pandemic period was through consulting veterinary doctors through

telephone. Marketing practices followed during COVID-19 pandemic period were direct selling of milk, preparation of valued added dairy products like curd, paneer etc., alter the location of milk selling place. It was suggested that procurement of milk by public and private dairy plants should be increased and the same should be utilized to produce dairy products having comparatively longer shelf life like butter, ghee, skim milk powder etc. Despite many problems faced by the co-operative sector during the lockdown, it acted as a buffer and protected the dairy food supply chain from the free market and price fluctuation of milk during COVID-19 pandemic period.

FUTURE SCOPE

The result of the present study will act as a stepping stone for future research especially in the field of crisis management and proposing developmental activities in dairy and allied sectors especially during emergency situations, like pandemics outbreaks, economic crisis, natural calamities etc. The present research will act as an important tools for officials of Animal Husbandry Department, Dairy Development Board and all other policy makers in the field of Dairy sector.

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Conflicts of Interest. None.

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