

## RESEARCH ARTICLE

## An Appraisal of The Constraints Faced by The Dairy Entrepreneurs of Pashu Vigyan Incubator During Covid Period

Anjali Choudhary<sup>1</sup>, B.P. Singh<sup>2</sup>, Shruti<sup>3</sup> and R.S. Suman<sup>4</sup>

1. Veterinary Medical Officer,  
Gantholi, Mathura,  
Uttar Pradesh

2. Head of Division, division  
of Technology Assessment and  
Capacity Building –DTAC. of  
ICAR Research Complex of  
NEH Region, Umiam

3. Scientist,

4. Principal Scientist, Division  
of Ext.Edu., ICAR-IVRI,  
Izzatnagar, Bareilly India

Corresponding author e-mail :  
[bpsingh\\_ext@rediffmail.com](mailto:bpsingh_ext@rediffmail.com)

### ABSTRACT

*During COVID-19 outbreak and the following lockdown every sector in India, including the livestock industry, has experienced an unparalleled emergency and abrupt distress. Dairy industry was one of the most delicate livestock industries since it deals with milk, a necessary but perishable item. The aim of the study was to identify the constraints faced by dairy entrepreneurs of Pashu Vigyan Incubator during COVID-19 pandemic in initiating dairy enterprise and selling milk, management of dairy, procuring feed and fodder and in attempt to reduce COVID impact. The study was conducted on the dairy entrepreneurs who attended the dairy farming and milk processing training at Pashu Vigyan Incubator at ICAR-IVRI in 2019-20 and 2020-2021. Total 91 dairy farmers constitute the sample size which were interviewed using well-structured questionnaire mailed to them followed by telephonic interview. Different constraints were ranked based on severity using Garrett ranking technique. Study revealed the difficulties that the trainees encountered in establishing their dairy farm and attempts to sell milk 'lack of fund released by the bank and NABARD in form of loan or subsidy', 'lack of transportation facilities' were perceived as 2 major constraints during COVID-19 pandemic while in the management of dairy animal 'high management cost' and 'issues of animal breeding due to limited access to the AI services' were perceived as 2 major constraints during COVID-19 pandemic. From different constraints faced by these respondents in procuring feed and fodder "lack of availability of dry fodder" "Increased price of dry forage" reported as two most important constraint. Respondent of urban areas perceived 'lack of availability of green fodder' as their main obstacle while trainees from rural background ranked it as least important constraints. Out of all constraints faced by the respondents in an attempt to deal with COVID impact 'lack of availability of loan to start new or revive the old venture' and lack sufficient knowledge of the COVID-19 hygienic guidelines for the production, preservation, transportation, and sale of milk during the lockdown' were ranked 2 most important constraint by the respondents.*

**Key words:** Constraints; COVID-19; Pashu Vigyan Incubator; Dairy.

COVID-19 the newly discovered corona virus, which was acknowledged for the first time on November 17, 2019, in Wuhan, China, ended up being a pandemic. In India, the very first COVID-19 infected case was encountered in Kerala dated back on January 27, 2020 and the number since then started increasing. As a result, the Government of India declared a nationwide lockdown on March 24, 2020, and it lasted until May 31, 2020, as a precaution against the pandemic. This resulted in strict policies like quarantines, social distancing, containment

zones, travel restrictions, etc. in addition to restricting people's ability to move across the country. Each sector of the Indian economy had been impacted by these policies, including the dairy industry which is affected majority. As India is primarily an agriculture-based country providing livelihood to majority of population which is about 58% with livestock being an important sub-sector (Indian agriculture and allied industries industry report, 2021). Contribution to Indian economy by livestock industries is gradually increasing over the years. During the last five years,

the livestock sector has grown at a compound annual growth rate (CAGR) of 8.15% in India (*Economic Survey 2021-22*). Among the livestock sector, the dairy farming has been most promising subsector, milch animal rearing is most significant source of income for landless farmers, labourers, marginal and small farmers which comprises large portion of rural population with additional benefit of least dependency on land and maximum resources flexibility (*Khode, 2018*). In light of this, the respondents of current study were evaluated for the impact of COVID-19 pandemic on dairy farmers. In present study the respondents were enquired about the constraints faced by them under sub-heading of:-

- Initiating dairy enterprise and selling milk - The prevailing section discusses the difficulties that the trainees encountered in establishing their dairy farm and attempts to sell milk. Due to the fact that all trainings were conducted in 2019 and 2020, possibilities to launch a dairy venture were severely hampered by the COVID-19 pandemic.
- Dairy management - This section comprises the various difficulties faced by the respondents in management of dairy animal like availability of farm labours, management costs (labour, transport), veterinarian visits, access to medicines, vaccination, deworming, artificial insemination and pregnancy diagnosis facilities.
- Feed and fodder procurement - This segment highlights the price, availability, and transportation issues that respondents encountered when intending to acquire feed and fodder for their animals during the COVID-19 scenario.
- Attempt to reduce COVID impact - In this portion we will discuss about the constraints perceived in an endeavour to minimise the COVID-19 impact.

## METHODOLOGY

The present study was carried out at ICAR- Indian Veterinary Research Institute in “Division of Extension Education”, Izzatnagar over trainees who attended Dairy farming and milk processing ‘Entrepreneurship development programme’ at IVRI- *Pashu Vigyan Incubator*. In conducting the present research the *one-shot case study (ex-post facto)* design of experiment was used. The respondents who constitute the sample had been listed out from large number of trainees participated in dairy entrepreneurship development programme conducted by IVRI – *Pashu Vigyan*

*Incubator* at ICAR-IVRI during 2019-20 and 2020-21. A non-probability type of sampling (purposive sampling) method had been chosen for conducting the study. The final sample size concluded to be of 91 trainees who dully filled the mailed questionnaire followed by telephonic interview. Different constraints are recognised after examining relevant literature along with those enlisted by respondents. These constraints were further graded using Garrett ranking technique. Each constraint will be measured in terms of average score and rank.

## RESULTS AND DISCUSSION

*Constraints faced by the respondents in initiating the dairy enterprise and in selling milk* : As evident from the Table 1 ‘Lack of fund released by the bank and NABARD in form of loan or subsidy’ was perceived as major constraint with rank Ist (67.80 average score according to Garrett table) which is depicted by the result discussed earlier that only 35.16 percent of trainees initiated their farm using their savings while other 64.84 percent depends on different credit institution for their start-up. The majority struggled with transportation, making it difficult to carry milk, byproducts, and crucial inputs like feed and fodder thus ranked ‘lack of transportation facilities’ as IInd important constraint. Restrictions on the movement of people are curbing farmers’ access to markets and creating labour shortages on farms. Fresh produce is accumulating, resulting in food loss. Farmers with greater herd numbers and those who sold their milk directly to customer households suffered significantly higher losses due to various challenges in transportation and paucity of long-term preservation facilities. ‘Lack of capital to carry out daily operation’ ranked IIIrd, ‘reduced consumer demand for milk’ ranked IVth while ‘increased milk production cost’ ranked Vth. ‘Decreasing number of dairy animal’ was least perceived constraints by trainees while ‘lack of consultancy services’ regarded as second least perceived constraints.

Their no significant difference perceived in rural and urban areas but trainees with established dairy enterprise faced ‘reduced consumer demand for milk’ as second most important constraints because dairy enterprise supply large quantity of milk to the hotels and restaurants which were shut down under COVID-19 restriction policies and reduced purchasing power of household due to economic burden result from losing

the job. Owner rearing dairy animal for household purpose faced 'lack of transportation facilities' as second most common difficulties thus in result they had to sell their milk at low price in nearby areas. The findings tally with Shkodra and Bajrami (2022) study revealing that personal savings serve as the primary source of financing for women farmers during the COVID 19 period and there were no other source available. *Koloma and Kemeze (2022)* also unveiled the same that because of agricultural losses from diseases and pests, greater transport and input expenditures, reduced commodity values, and decreased off-farm revenue about 33% had failed in repayments of loan, and 16% had trouble making debt repayments. This causes a decline in the financial resources accessible to farmers since only 22% of farmers had been successful in obtaining loans, implying that about 75% of farmers were unable to gain access to additional credit because of the need for elevated collateral, lowered loan amounts as well as postponed disbursements.

*Constraints faced by the respondents in dairy management* : As showcased in the Table 2 respondents primarily faced the constraints of 'high management cost' in concern with the labour and transport due to nationwide lockdown situation and majority faced II most important issues of 'animal breeding due to limited access to the AI services' with average score of 62.16. The respondents ranked 'lack of availability of labour' as III severe constraint with average score of 59.67, health issues in dairy animal resulting of 'limited visited paid by veterinarian' as IV, 'limited vaccination facilities' as V while 'lack of access to medicine' as VI. Constraint like 'impact on herd size due to selling all animal' perceived least with rank X which represents that bulk of the respondents didn't sell their animal even if it was difficult to maintain them and sell their milk during COVID. The results shows coherence with *Saravanan et al. (2021)* and *Alam et al. (2022)* who revealed that dairy entrepreneurs faced hurdles when comes to management cost of dairy animal.

Table 2 also portrays the significant difference in rural and urban areas as well as in commercial and conventional dairy farm. The respondents who were resident of urban areas faced 'lack of availability of farm labours' as primary constraints as millions of migrant workers had to deal with loss of income, food shortages and an uncertain future due to COVID-19 and as the consequences of lockdown measures in the country we witnessed an unprecedented migration of workers and

families from large urban centres to rural India.

In contrast the respondents from rural areas faced the 'problem of accessing the artificial insemination services' as major constraints because supply chain is completely hampered in rural areas because of strict restriction on movement during lockdown due to which semen straws were not avail on appropriate time which causes huge loss in dairy sector as we missed the one heat. While established dairy enterprise perceived 'lack of availability of farm labours' as major constraint as they had more labour requirement in comparison to without established dairy enterprise thus couldn't carry their dairy activities on their own and conventional dairy farmers perceived 'high management cost' as primary difficulty during COVID-19. The conclusion shows harmony with *Bhandari et al. (2020)* who observed labour scarcity as major constraints during COVID-19 scenario.

*Constraints faced by the respondents in procuring feed and fodder* : Table 3 elucidates that with an average score of 57.81, respondents identified "lack of availability of dry fodder" as the main restriction. 'Increased price of dry forage' reported as second most important constraint which might be due to movement restriction or due to decrease in green fodder availability which is further followed by 'increased concentrate feed price'. The respondents were least concerned by the 'concentrate availability' thus ranked last with average score 41.52.

Table 3 further unveils that respondent of urban areas perceived 'lack of availability of green fodder' as their main obstacle because there is no agricultural land available in urban area for fodder cultivation furthermore it was not possible due to COVID regulation to transport green fodder from nearby rural areas. Respondents in rural areas found increase in price of dry forage as chief barrier. Trainees reported that earlier the price of dry fodder is Rs. 500/quintal which than escalated to Rs. 1400-1500/quintal. There is no significant difference found between the established dairy enterprise and respondents without dairy enterprise. The outcome is in agreement with *Bhandari et al. (2020)* who identified a limitation in dairy industry during the COVID-19 scenario as a lack of fodder accessibility. Similarly according to *Haritha et al. (2022)* who noticed a decline in milk costs and a shortage of dry feed all through the pandemic.

*Constraints faced by the respondents in an attempt to deal with COVID impact* : Table 4 illustrate that

**Table 1. Constraints perceived by the trainees in initiating the dairy enterprise and in selling milk during COVID-19**

Constraints faced by dairy farmers during COVID-19	Average score		Rank	
<b>(A) Initiating dairy enterprise</b>				
Lack of transportation facilities	59.68		II	
No fund was released by the bank and NABARD as loan or subsidy	67.80		I	
Lack of consultancy services	38.25		IX	
<b>(B) In selling milk</b>				
Reduced consumer demand for milk	56.00		IV	
Reduced purchasing price of milk by dairy cooperative/milkman	50.00		VI	
Faced a general lack of capital for farming activities	56.05		III	
Increased milk production costs	53.59		V	
Dumped large quantity of milk due to insufficient storage capacity or short-term milk preservation facilities	38.94		VIII	
Decrease in number of dairy animal	36.06		X	
Decrease in overall daily milk yield on farm due to reduced feed consumption	41.63		VII	
	Rural	Urban	Rural	Urban
Lack of transportation facilities	58.53	61.43	II	II
No fund was released by the bank and NABARD as loan or subsidy	68.24	67.13	I	I
Lack of consultancy services	40.24	35.19	VIII	X
Reduced consumer demand for milk	56.82	54.75	III	IV
Reduced purchasing price of milk by dairy cooperative/milkman	51.37	47.91	VI	VI
Faced a general lack of capital for farming activities	55.96	56.19	IV	III
Increased milk production costs	53.98	53.00	V	V
Dumped large quantity of milk due to insufficient storage capacity or short-term milk preservation facilities	37.35	41.38	IX	VIII
Decrease in number of dairy animal	34.23	38.88	X	IX
Decrease in overall daily milk yield on farm due to reduced feed consumption	41.29	42.16	VII	VII
	Dairy enterprise	Without dairy enterprise	Dairy enterprise	Without dairy enterprise
Lack of transportation facilities	49.69	66.20	VI	II
No fund was released by the bank and NABARD as loan or subsidy	64.47	69.98	I	I
Lack of consultancy services	38.00	38.41	X	VIII
Reduced consumer demand for milk	57.66	54.92	II	IV
Reduced purchasing price of milk by dairy cooperative/milkman	51.09	49.29	V	VI
Faced a general lack of capital for farming activities	56.25	55.92	III	III
Increased milk production costs	53.69	53.53	IV	V
Dumped large quantity of milk due to insufficient storage capacity or short-term milk preservation facilities	44.84	35.08	VII	IX
Decrease in number of dairy animal	43.25	31.37	VIII	X
Decrease in overall daily milk yield on farm due to reduced feed consumption	39.06	43.31	IX	VII

**Table 2. Constraints perceived by the trainees in dairy management during COVID-19**

Constraints faced by dairy farmers during COVID-19	Average score		Rank	
<b>Dairy management</b>				
No availability of farm labours	59.67		III	
Higher management costs (labour, transport)	62.75		I	
Faced health problems in dairy animals due to limited visit paid by veterinarian	59.65		IV	
Faced health problems in dairy animals due to limited access to medicines	49.75		VI	
Faced health problems in dairy animals due to limited vaccination facilities	54.04		V	
Faced health problems in dairy animals due to limited deworming facilities	43.57		VIII	
Faced animal breeding problems in dairy animals due to limited access to artificial insemination facilities	62.16		II	
Faced animal breeding problems in dairy animals due to limited access to pregnancy diagnosis facilities	36.07		IX	
COVID had an impact on herd size due to decrease in average dairy herd size	47.21		VII	
COVID had an impact on herd size due to selling all their dairy animals	23.12		X	
	Rural	Urban	Rural	Urban
No availability of farm labours	55.37	66.25	IV	I
Higher management costs (labour, transport)	63.06	62.28	II	II
Faced health problems in dairy animals due to limited visit paid by veterinarian	60.14	58.91	III	IV
Faced health problems in dairy animals due to limited access to medicines	49.82	49.66	VI	VI
Faced health problems in dairy animals due to limited vaccination facilities	54.08	53.97	V	V
Faced health problems in dairy animals due to limited deworming facilities	44.08	42.78	VIII	VIII
Faced animal breeding problems in dairy animals due to limited access to artificial insemination facilities	63.12	60.69	I	III
Faced animal breeding problems in dairy animals due to limited access to pregnancy diagnosis facilities	36.71	35.09	XI	XI
COVID had an impact on herd size due to decrease in average dairy herd size	48.79	44.78	VII	VII
COVID had an impact on herd size due to selling all their dairy animals	22.82	23.59	X	X
	Dairy enterprise	Without dairy enterprise	Dairy enterprise	Without dairy enterprise
No availability of farm labours	65.41	55.92	I	IV
Higher management costs (labour, transport)	57.19	66.39	III	I
Faced health problems in dairy animals due to limited visit paid by veterinarian	56.81	61.51	IV	III
Faced health problems in dairy animals due to limited access to medicines	49.09	50.18	VI	VI
Faced health problems in dairy animals due to limited vaccination facilities	55.37	53.16	V	V
Faced health problems in dairy animals due to limited deworming facilities	42.66	44.16	VIII	VIII
Faced animal breeding problems in dairy animals due to limited access to artificial insemination facilities	60.47	63.27	II	II
Faced animal breeding problems in dairy animals due to limited access to pregnancy diagnosis facilities	34.91	36.84	XI	XI
COVID had an impact on herd size due to decrease in average dairy herd size	46.85	47.45	VII	VII
COVID had an impact on herd size due to selling all their dairy animals	29.25	19.12	X	X

**Table 3. Constraints perceived by the trainees in procuring feed and fodder during COVID-19**

Constraints faced by dairy farmers during COVID-19	Average score		Rank	
Feed and fodder procurement				
Non availability of green fodder	50.94		IV	
Non availability of dry forage	57.81		I	
Non availability of concentrate	41.52		VI	
Increased concentrate price for dairy animal	51.19		III	
Increased price of green fodder	44.06		V	
Increased price of dry forage	54.48		II	
	Rural	Urban	Rural	Urban
Non availability of green fodder	39.82	67.97	VI	I
Non availability of dry forage	56.76	59.44	II	II
Non availability of concentrate	45.94	34.75	IV	VI
Increased concentrate price for dairy animal	55.61	44.41	III	IV
Increased price of green fodder	40.551	49.44	V	III
Increased price of dry forage	61.33	44.00	I	V
	Dairy	Without	Dairy	Without
	enterprise	dairy enterprise	enterprise	dairy enterprise
Non availability of green fodder	53.09	49.53	III	IV
Non availability of dry forage	58.25	57.53	I	I
Non availability of concentrate	39.06	43.12	VI	VI
Increased concentrate price for dairy animal	50.63	51.55	IV	III
Increased price of green fodder	44.94	43.49	V	V
Increased price of dry forage	54.03	54.78	II	II

respondents reported that ‘lack of availability of loan to start new or revive the old venture’ were chief limitation with average score of 64.40 as credits are necessary for dairy farmers to switch to long-term viability products and II<sup>nd</sup> severe constraint ‘lack sufficient knowledge of the COVID-19 hygienic guidelines for the production, preservation, transportation, and sale of milk during the lockdown’. ‘Unaware about shock mitigation strategies like feed storage and reducing herd size’ ranked III<sup>rd</sup> with average score of 54.41 while ‘lack of resources to switch from short shelf-life products to longer shelf-life’ ranked last with average score of 34.41.

The Table 4 also highlighted that rural respondents had more issues in getting bank loans because the majority of them stated that banks had suspended funding because to COVID losses and many others stated that banks would not offer loans to new venture.

## CONCLUSION

Pandemic was an unexpected situation for each and every farmer and the above study reveals different constraints faced by them. Majority of respondents faced constraints like ‘lack of fund released by the bank and NABARD in form of loan or subsidy’, ‘lack

of transportation facilities’ encountered in establishing their dairy farm and attempts to sell milk during COVID-19 pandemic, ‘high management cost’ and ‘issues of animal breeding due to limited access to the AI services’ encountered in the management of dairy animal, ‘lack of availability of dry fodder’ ‘Increased price of dry forage’ reported while procuring feed & fodder and ‘lack of availability of loan to start new or revive the old venture’ and ‘lack sufficient knowledge of the COVID-19 hygienic guidelines for the production, preservation, transportation, and sale of milk during the lockdown’ faced by the respondents in an attempt to deal with COVID impact. Commercial dairy farm faced ‘reduced consumer demand for milk’ as second most important constraints because commercial dairy supply large quantity of milk to the hotels and restaurants which were shut down under COVID-19 restriction policies and reduced purchasing power of household due to economic burden result from losing the job. The respondents who were resident of urban areas faced ‘lack of availability of farm labours’ as primary constraints as millions of migrant workers had to deal with loss of income, food shortages and an uncertain future due to COVID-19 and as the consequences of lockdown measures in the country we witnessed



**Table 4. Constraints perceived by the trainee to deal with COVID-19 impact**

Constraints faced by dairy farmers during COVID-19	Av. score		Rank	
<i>In attempt to reduce COVID impact</i>				
Don't have enough information about the COVID-19 hygiene protocol for milk production, preservation, transportation, and selling during the lockdown	59.59		II	
Lack of resources to form milk products from perishable milk to increase shelf-life	48.73		IV	
Unaware about shock mitigation strategies like feed storage and reducing herd size	54.41		III	
Unaware about additional income-generating activities like starting new business or private sector job or small ruminant farming	38.47		V	
Lack of resources to switch from short shelf-life (ice cream, curd or yoghurt) products to longer shelf-life (such as butter, ghee, skimmed, or powdered milk)	34.41		VI	
Impact of COVID-19 still not decreases over time due to unavailability of bank loan for new start	64.40		I	
	Rural	Urban	Rural	Urban
Don't have enough information about the COVID-19 hygiene protocol for milk production, preservation, transportation, and selling during the lockdown	56.55	64.25	III	I
Lack of resources to form milk products from perishable milk to increase shelf-life	49.18	48.03	IV	IV
Unaware about shock mitigation strategies like feed storage and reducing herd size	56.59	51.06	II	III
Unaware about additional income-generating activities like starting new business or private sector job or small ruminant farming	38.49	38.44	V	V
Lack of resources to switch from short shelf-life (ice cream, curd or yoghurt) products to longer shelf-life (such as butter, ghee, skimmed, or powdered milk)	34.10	34.88	VI	VI
Impact of COVID-19 still not decreases over time due to unavailability of bank loan for new start	65.08	63.34	I	II
	Dairy enterprise	Without dairy enterprise	Dairy enterprise	Without dairy enterprise
Don't have enough information about the COVID-19 hygiene protocol for milk production, preservation, transportation, and selling during the lockdown	58.44	60.34	II	II
Lack of resources to form milk products from perishable milk to increase shelf-life	47.50	49.53	IV	IV
Unaware about shock mitigation strategies like feed storage and reducing herd size	55.56	53.65	III	III
Unaware about additional income-generating activities like starting new business or private sector job or small ruminant farming	39.13	38.04	V	V
Lack of resources to switch from short shelf- life (ice cream, curd or yoghurt) products to longer shelf-life(such as butter, ghee, skimmed, or powdered milk)	35.97	33.39	VI	VI
Impact of COVID-19 still not decreases over time due to unavailability of bank loan for new start	63.41	65.04	I	I

an unprecedented migration of workers and families from large urban centres to rural India. Respondents in rural areas found increase in price of dry forage as chief barrier. Trainees reported that earlier the price of dry fodder is Rs.500/quintal which than escalated to Rs.1400-1500/quintal. The findings of present study will be helpful in sensitising different programmes by government and formulating new training programme by different organisation and institution to cope up with extremely unexpected scenario like COVID-19. Along with that, this study gives a caution to the policy makers regarding the strategic arrangements for needed critical inputs and marketing to be made during such unforeseen pandemic conditions. This contingent measures will be helpful to the farmers to take their farming activity round the year even in crisis.

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