

# Is Small Scale Dairy Farming Dying Out? An In-depth Study

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## Abstract

**Background:** Animal husbandry plays an important role in the Indian economy. Small scale milk producers contribute 62% of the total milk produced in the country. However, the lives and livelihoods of small dairy farmers are becoming vulnerable in India. **Objectives:** This article tried to explore the reasons of decrease in small scale dairy farms. Apart from that this article is also find out what were the challenges faced by small dairy farming families and its influence on animal health. **Methods:** A qualitative exploratory study was carried out in the peri-urban area of Hodal, Haryana. Purposive and snowball sampling were employed. Twenty-six in-depth interviews were conducted with current small scale dairy farmers, ex small scale dairy farmers, households, and other stakeholders. Results are presented in the form of core and sub-themes evolved during this process. **Results:** This study revealed that a small scale dairy farmer is present in peri-urban area, but there is a decrease in small scale dairy farming. The major reason is shrinking fringes, access to cattle provender, the tepid interest of future generation, increased cost of cattle, and cattle health. **Conclusion:** The study recommends that support (in the form of subsidy) should be provided to small scale dairy farmers for accessing land and provender. Awareness about the importance and scope of small scale dairy farming as a stable career opportunity should be spread among the young generation.

**Keywords:** Dairy challenges, one health, Peri urban area, small scale dairy farming, zoonosis

## INTRODUCTION

Dairy is currently the top-ranking commodity in India. Millions of small scale and marginal farmers who own 2–5 animals produce an average of 5 l of milk.<sup>[1]</sup> Rural small scale milk producers contribute 62% of the total milk produced in the country.<sup>[2]</sup> The National Dairy Development Board estimates that the demand for milk is likely to reach 180 million tonnes by 2022. This rapidly evolving scene is a response to a series of drivers, including population growth and urbanization, both contribute to increased demand for livestock products.<sup>[3]</sup> There is a need for increasing milk supplies as demand is raising. In the absence of sufficient required production, India will need to rely on the world market for imports. The socio and economic conditions of small scale farmers are very poor. Vulnerability in the lives and livelihoods of small farmers is increasing day by day. In India, there is no safety net for these small farmers.

Small dairy households are facing numerous challenges, which include low prices of milk, shortage of quality feed and fodder, low genetic potential of dairy animals resulting in low productivity levels, nonavailability of institutional finance, poor animal health-care facilities, poor extension

services, and poor rural infrastructure. In addition, the constraints include seasonal availability and costs of feeds, poor milk marketing and low milk price, availability of land, problems of waste disposal and pollution, disease, and shortage of capital. Thus, focusing on areas for local dairy development is critical. Small dairy farming is at risk, so there is a requirement to investigate problems faced by small-scale cattle owners around urban areas and opportunities which can make their livelihood better. This article can help to find realistic and possible solutions for small dairy farmers. Recent studies have confirmed that the increasing deregulation of India's dairy sector poses a threat to small farmers.<sup>[4]</sup> A study of root cause analysis for farm business was done to ascertain the factors that might impede the scaling up of the business. This paper tried to know "Is small scale dairy farming dying out?" and what are the challenges faced by small dairy farming families?

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## METHODS

The exploratory study was conducted among small-holding dairy farmers in the peri-urban areas of Hodal, Haryana. Review of literature, formative phase, and formal consultation with the local community of Hodal enables the study to identify relevant stakeholders at the site and refine in-depth interview guides that were used for data collection. This study was approved by the Research Ethics Committee and informed consent has been taken from participants.

### Sampling

The dual strategies of purposive sampling and snowballing were employed to identify potential respondents for the study with the help of the local community. Households were contacted to know about dairy farmers and milkmen in the area. Other stakeholders like veterinary physician were also identified. Small scale dairy farms were identified based on areas where most dairy farms were clustered and fitted the project definition of a small scale dairy farm. Three areas of small scale farms clusters were recognized.

### Interview guide

Interview guides were developed for conducting qualitative data collection through extensive review of the literature and experts' consultation to collect data on respondents' demographic profile, status of dairy farming, previous, perceived, future challenges, opportunities, experience, household requirements, and livestock health. Structured and semi-structured interview guides were used for interviewing different categories of respondents.

### Data collection

The main phase of data collection was preceded by the formative phase which allowed conducting scoping interviews with key informants and piloting the instrument. Structured face to face in-depth interviews were conducted with current and ex small scale dairy farmers. Semi-structured interviews were taken from households, Government Veterinary Hospital officials and other stakeholders. Consent was obtained from respondents before starting the interview. Interviews were conducted in the local language (Hindi). Some of the respondents were using Haryanvi local dialect. All interviews were audiorecorded and conducted by the first author who was well-versed with qualitative techniques and the local language. The interviews were open-ended and carried out in a conversational style. In addition to interviews, other data also collected throughout the study, such as comments from the other family members and neighbors. Information collected from various stakeholders included attitudes, feelings, vocal and facial expressions and other behaviors of respondents. The data consisted of interview transcripts and field notes from observations. All audio file interviews, memoranda, and field notes were entered into computer file.

Data collection at each of the field sites was carried out in successive phases for 2 months. Data collection was stopped due to saturation and constrain of time.

## Data management and analysis

All interviews were transcribed and translated into English and cross-checked against original recordings by the respective supervisor. The translated transcripts were analyzed.

Detailed field notes in field diaries were also scrutinized. This enabled the capturing of details related to key issues that emerged in each location, themes, concerns regarding fieldwork as well as any potential trends that were emerging in responses of the participants.

### Quality assurance

Interviews were conducted by the researcher only to ensure completeness, correctness and comprehensive transcription and translation of responses and labeling of recording. Thirty percent of the interviews from every site were randomly rechecked for transcription and translations by the respective supervisor and team.

### Ethical considerations

The study was reviewed and approved by the ethics committee of the International Institute of Health Management Research, Delhi. Confidentiality, voluntary participation, benefits, right to leave anytime during the study and importance of the responses were conveyed to the participants. Written consent form was assigned before start of the study.

## RESULTS

In total, twenty-six interviews (formal and informal) were carried out across the sites. This includes ten current small scale dairy farmers, seven ex small scale dairy farmers, seven household person and two other stakeholders. Site-specific stakeholders were identified in the snowballing process. Households were contacted to know about small scale dairy farmers and current small dairy farmers and the household persons informed about ex small scale farmers and other stakeholders. Other stakeholders include one veterinary physician and one veterinary and livestock development assistant (VLDA).

A content analysis was carried out to identify the main themes. After analysis of the interviews, five themes were identified.

### The results are presented in the following five core themes

1. Shrinking fringes
2. Access to cattle provender
3. Tepid interest of future generation
4. Increased cost of cattle
5. Cattle health.

The corpus of this qualitative study was shaped by the content of interviews. The verbatim quotes are summarized in Table 1.

### *Shrinking fringes*

One of the identified reasons for small scale dairy farming dying out is shrinking fringes. Understanding the community level driver, the core theme is divided into two subthemes, i.e., (a) lack of land availability to small scale dairy farmers and (b) the availability of necessary ecosystem (grazing land to cattle).

**Table 1: Themes and verbatim quotes**

**Themes and quotes**

**Shrinking Fringes**

**Lack of land availability to small scale dairy farmer**

“There is less space available and then also there is distribution of land between two brother” (Current small scale dairy farmer)

There is problem of space. Suppose you need to keep one cattle for that you need to have at least 1900 sq. feet land. Now the land is very expensive. It is difficult for people to live in small land so how will they keep cattle in small house” (Current small scale dairy farmer)

“I used to have cattle at village but when I come from village to Hodal I want to keep cattle but there is less means and less land so I was not able start small scale dairy farming again” (Ex small scale dairy farmer)

“There is less space and there is less land. People sold their land for good home.

Earlier we had 60 cows and buffalos. I used to keep it with my whole family (joint). As time passed the land is divided and given to me and my brothers. Now I can't keep cattle due to lack of land” (Ex small scale dairy farmer)

“Some keep two or four depends on the availability depends on the availability of space” (Current small scale dairy farmer)

**Availability of necessary ecosystem**

“The agricultural land is also decreasing. People are selling their agricultural land for industrialization. If this land will keep decreasing and there is less land for animals there is full chance in future that this small dairy farming become even lesser” (Current small scale dairy farmer)

“Earlier there were big grazing lands. So the buffalo can eat green fodder there” (Current small scale dairy farmer)

**Access to cattle provender**

**Increase in price of fodder**

“One container of khal cost 1500, and animal eat 4-5 kg of it daily and wit there is other kind of feed also and also the medicines so it makes the cost even more. And then the farmer is not able to get good yield of milk from cattle. In that case all burden comes to the farmer” (Current small scale dairy farmer)

“Earlier the cost of Khal is 300 and now it is 10,000” (Current small scale dairy farmer)

When the cattle will not eat properly how it will give milk” (Current small scale dairy farmer)

“Earlier people use to keep 3-4 cattle as there is cheap feed, it was not that expensive, and with one animal it is easy to take care of 1-2 calves for further growth and use. But now there is inflation of cost. And people used to keep 2-3 cattle and now cribbing calves is also expensive. Feed is very expensive” (Current small scale dairy farmer)

**Less availability in market**

“According to me the best diet of buffalo is mungfali ki khal which is not available in the market” (Current small scale dairy farmer)

As compared to earlier there is decrease in cattle. In villages it is easy to get free success to feed but places like Hodal we have to purchase the feed from market, earlier some of it was came from forests (Current small scale dairy farmer)

**Decrease in grazing land and quality of cattle food**

“There is no land available for grazing. Earlier animal used to graze at forest and that time they have access to animal food”

“The milk production will depend on the quality of feed available. If there is no food so it will not give milk” (veterinary physician)

“We used to bring cattle for grazing in forests which was good to them. After eating green fodder we used to bring cattle back for milk extraction” (Ex small scale dairy farmer)

**Tepid interest of future generation**

**Less interest and other career goals**

“The young generation, who are literate, they will say they will not keep it” (Current small scale dairy farmer)

“These children will not keep cattle in future. They want to have milk and milk products but they don't want to even give them water for drinking” (Current small scale dairy farmer)

“Today's generation is keeping fewer cattle to why will future will keep it. People want from their children to be doctor to animal husbandry” (Ex small scale dairy farmer)

“My brother in law used to keep cattles but he don't keep now as he became old and now it is difficult for him and his children don't like it as they do job” (Current small scale dairy farmer)

“The young generation will not able to do sahni or able to extract milk from cattle. Now they are literate why they will keep. Earlier people use to be illiterate they use to keep it” (Current small scale dairy farmer)

**Due to squalor**

Why will younger generation keep cattle? They will disagree to pick the cow dung it will have a foul smell” (Current small scale dairy farmer)

“The younger generation will not keep cattle as it needs to deal with a lot of foul smell and squalor”

**Increased cost of cattle**

“There is increase in price of cattle from earlier. Earlier the cost of buffalo was Rs. 10,000-20,000 and now it is Rs. 90,000 and above” (Current small scale dairy farmer)

“Once upon a time, I bought a new cow of Rs. 75,000, and the buffalo did not had good yield of milk and she have to sell it in Rs. 15,000 due to which I had a big loss” (Current small scale dairy farmer)

“Earlier people used to keep but now the price of cattle is increased. Now it is Rs. 60,000-70,000. And the rich person can purchase a buffalo of Rs. 200,000 but it is not possible for poor

It is impossible for poor to purchase a cattle as it is of Rs. 100,000-200,000” (Current small scale dairy farmer)

“There is increase in cost of cattle. The average cost of the cattle is Rs. 80,000 and there will interest of Rs. 2,000 on it” (Current small scale dairy farmer)

C3 The cattle cost is high so people is not able to keep it. If the cost of a buffalo is 100,000 so it will be sold again at Rs. 50,000 (Current small scale dairy farmer)

*Contd...*

**Table 1: Contd...****Themes and quotes****Cattle health**

“Cattle stop giving milk due to disease. They don't give milk when the cow is diseased.” “For better health vaccination is needed periodically”  
(Current small scale dairy farmer)

“Nobody wants to take the milk of diseased cattle. The quality of milk decreased due to injections” (Ex small scale dairy farmer)

“Production decreases when cattle are diseased” (VLDA)

**Other related themes****Changes with time**

“Earlier it was less animal medical facilities, now there is good amount of doctor available. And earlier it was difficult to find even a single doctor”  
(Current small scale dairy farmer)

“Now more and more dairy has been opened having 10-20 cows” (Current small scale dairy farmer)

“Earlier people use to sell cattle's dung and now people do not purchase it as now 85% people are LPG users” (Current small scale dairy farmer)

“Earlier people use cattle for other work also but now the technology has increased so” (Ex small scale dairy farmer)

VLDA: Veterinary and livestock development assistant, LPG: Liquefied petroleum gas

**Lack of land availability to small scale dairy farmer**

Majority of current small dairy farmers, ex dairy farmers and household has told about the lack of availability of land to small dairy farms. Many household members have informed that there is decrease in small scale dairy farming as there is less land to farmers. The reason for lack of availability of land is due to (a) poverty, (b) distribution of land among descendants, and (c) shift from kuccha house to Pakka house.

**Availability of necessary ecosystem**

There is less availability of land for animal grazing and animal walking. Earlier the cattles used to have the natural environment and have forest for grazing. They can walk to natural soil. But now they have to remain in one place for the whole day.

**Access to cattle provender**

Majority of respondents reported that less access of cattle provender is a challenge for small scale dairy farming. To explain various aspects, the core theme access to cattle provender is divided into three subthemes according to possible causes of less access (a) increase in price of fodder, (b) less availability in market, and (c) decrease in grazing land.

**Increase in price of fodder**

According to most of the farmers, there is cost inflation of feed. Most of the farmers compared the earlier price and current price of different types of cattle provender informing that how much price has being increased and earlier the fodder is available in cheaper price. After telling about the cost inflation of provender, farmers used to say about less feed will effect milk production.

**Less availability in market**

According to some farmers, a certain kind of cattle provender is not available in the market of the Hodal. They indicate less availability of food.

**Decrease in grazing land and quality of cattle food**

Some farmers indicate about a decrease in grazing land, and natural green fodder is one of the key issues for cattle. This has reduced the availability of free food for the cattle as well as impacted cattle health.

**Tepid interest of future generation**

Majority of farmer informed that future Generation would not like to keep cattle at their home. As they are literate, there will be foul smell due to cattle, and why would they like to become a small dairy farmer. They want to do different jobs, and they will have less time for farming. This core theme is divided into two subthemes: (a) less interest and other career prospective and (b) due to squalor.

**Less interest and other career prospective**

Majority of farmers and other stakeholders have mentioned the less interest of the young generation in small scale dairy farming. They also informed about other career goals of younger generation like job and education.

**Due to squalor**

According to most of the farmers, the future generation will not want to keep cattle due to squalor.

**Increase in cost of cattle**

Majority farmer talked about cost increase the major cause of decrease in small scale dairy farming in peri-urban area of Hodal. There is a huge increase in the price of cattle, which increase the burden on small scale dairy farmers. With the high cost, there is a risk of poor quality of cattle and poor yield of milk products. The cattle are resold at very negligible price.

**Cattle health**

Majority of farmer said the poor animal has effect on milk production. They used to not sell milk when the animal is diseased which decrease revenue. Some of the farmers indicate about the cost involved in keeping animals healthy. Some of the farmers indicated the fear of the young generation of the spread of germs by keeping cattle.

**Other issues**

Trends in small scale dairy farming had also changed with time which includes the availability of medical facilities, increased business of big dairy farms, reduction cattle dung sale, etc.

**DISCUSSION**

Small scale dairy farming is still present in peri-urban area

of Hodal, but there is a decrease in the number of small scale dairy farmers as it is indicated by many farmers during formal and informal interactions. But there is still huge demand of cow and buffalo milk in Hodal.

According to the study, shrinking fringes is one of the reasons for decreasing small scale dairy farmers. A few studies have also shown similar findings. The availability of land is one of the major problems faced by dairy farmers.<sup>[5]</sup>

Not only shrinking fringes, access to animal provender is also a big challenge for small scale dairy farmers. The cost of feeds and food shortages are happened regularly and caused the most important constraints to small scale dairy farmers.<sup>[6]</sup>

The cost of production of small scale dairy farming has increased as found by the study also. There is an increase in the cost of animal food and cattle price.

The availability of grassland to livestock does provide numerous high-quality products. It is also indicated by the study that the cattle are not able to get high quality of food as they don't have access to grazing in grasslands or forests now but earlier they had. This livestock provides milk for the use and production.<sup>[7]</sup> According to many farmers, earlier the cattle used to eat good quality feed due to the availability of grassland.<sup>[8]</sup>

The future progeny is also showing less interest in small scale dairy farming. Contemporary farming fathers see it as important to equip children with skills and competencies that are generally demanded in late modern society, with changes in the agricultural labor process being identified as influencing this change.<sup>[9]</sup> Combined with the norms of modern childhood, the "new parenting culture" strongly impacts on fathering practices for farming fathers. Livestock diseases cause dramatic losses. It reduces the volume of animal production. The current study has shown that when animal health is poor, it effects the milk production, due to which farmers are not able to sell milk on those days.

Maintaining healthy cattle life for adequate milk production is difficult and expensive for small scale dairy farmers. It makes investment cost more than the income. Further investigation is required for the challenges, threats, and opportunities and for studying the effect of reasons on small scale dairy farmers.

## CONCLUSION

Small scale dairy farming is decreasing as compared to the past. The major reasons contributing to a decrease in small scale dairy farming are shrinking. Fringes, access to cattle provender, tepid interest of future generation and increased cost inflation of cattle. It is difficult to continue in this vocation, and urban land hunger has taken away the follow land. Cattle price is going up and also needs investment which has consequent risk. Shrinking fringes has eaten up the grazing land, forcing stall feeding and fodder price growing steeply high. With all this, a new generation of youth does not want to involve in cattle farming.

## Limitation of the study

There was a time constraint for collecting the data with a lack of

resources. However, the responses from the current dairy farmer and ex dairy farmer had reached saturation prior to stopping further enrolments. Identifying a few stakeholders was also difficult. The dialect of participants created a barrier in understanding their point of view. Interference of other family members and friends biased the answer of participants for a few questions.

## Recommendation

The study recommends that government should help the farmer for the allotment of land and subsidies for fodder should be provided. Awareness about the importance of small scale dairy farming should be spread among the young generation. Camps should be organized for small scale dairy farmers to sustain dairy business and to make them aware about different innovative strategies and cattle health.

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## Conflicts of interest

There are no conflicts of interest.

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