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Management practices followed by dairy farmers in Chaheru village of Punjab

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Abstract
The study was conducted in Chaheru village of Punjab. This was done to acquire first-hand information on existing breeding, feeding and housing management practices for dairy cattle. Dairy farmers were chosen randomly to know about the methods they follow. In the course of my visit, I was able to talk to the farmers at great lengths and was able to ask questions about the number of cattle they owned, their preferred breed of cattle and the reason behind preferring the particular breed, the total milk output by their dairy farm, the kind of feed they provide to their animals, their care and management, etc.
It was observed that 80.00% of the respondents resorted to natural services while 20.00% of the cattle keepers relied on artificial insemination. Regarding feeding practices, majority of the farmers (90.00%) followed group feeding and grazed in fallow or harvested fields. Home prepared concentrate mixture was prevalent (75.00%) in the area. All the cattle keepers (100.00%) had kutcha floor in shed and half of the dairy farmers (50.00%) kept their cattle near dwelling house. Double slope roof along with double row housing system was observed (15.00%) in study area. Very few of the respondents followed grooming (28.00%) practices. The results indicated that knuckling was the main method of milking (100.00%). All the respondents (100.00%) cleaned the udder and teats and washed their hands before milking. More than half of the respondents (70.00%) fed colostrum to newly born calf within 2 hours. All the respondents (100.00%) attended the calf at the time of calving and majority of the cattle keepers cut and disinfected the naval cord of calf. Only few respondents (18.00%) dehorned and castrated the calf. Regarding sick animal treatment, majority of the cattle keepers (68.00%) preferred first quacks then veterinary doctor/stock man. Majority of the respondents (58.00%) followed vaccination and deworming practice. Majority of the cattle keepers (65.00%) also isolated their sick animals from healthy animals. Water trough and manger was cleaned at weekly interval by all the respondents (100.00%), while animal shed was cleaned daily by majority (70.00%) of the cattle keepers.
I also gained valuable knowledge about the problems and issues faced by the farmers in my area. I was able to gather information about spoilage of milk due to lack of storage facilities for storage in the area. Corruption at milk co-operative companies and unavailability of veterinary doctors at the hospitals. The farmers also faced issues with fodder availability due to extreme heat and drought.
India rural household owns cattle and has been raising them since a long time ago. If our policy makers can force real change on ground and be able to contribute credit to the rural farmers, the milk scenario of our country will change dramatically. We have come a long way in terms of milk production from being a country having a scarcity of milk to the highest producer of milk in the world. The dairy farmers of developed countries have become very modern in terms of technology and thus we need to continue to protect our rural dairy farmers by providing subsidies and putting big import taxes on milk exports and milk products.

Keywords: Milk, farmers, high, production, feed, management

Introduction
A dairy is a business enterprise which has been established for the purpose of harvesting or processing (or both) of animal milk mostly from cows or buffaloes or both, but also from goats, sheep, camels for human consumption. A dairy is generally located on a dairy farm or in a mixed farm that is indulged in the harvesting of milk. The dairy business is a type of agriculture that focuses solely on the production of milk. This is quite different from raising animals that are be to be slaughtered for meat and other products.
The dairy farm sector also plays an important role in achieving food security, reducing poverty, and also helps in generating employment opportunities for women, and provide a constant regular source of income for the rural households. According to the FAO 2018 report, more than 500 million impoverished people depend on livestock, and many of them are small and marginal dairy farmers.

In the era of 1950s, India was a milk deficit country and it depended completely on its imports. In 1965, the government of India established the National Dairy Development Board to direct India's dairy sector development. In 1970, the government launched Operation Flood (OF) which was the world's largest dairy development program whose aim was to enhance the milk production of our country.

The dairy sector in our country is one of the most crucial sectors in the Indian economy that not only just provides employment to lakhs of rural households but also helps in contributing to the economy. Among the livestock products, milk products consist of the highest rate and share, and it accounted for 67.2 percent of the livestock sector in 2017.

India is sufficient in milk production because about 73 million dairy farmers are engaged in the dairy sector. Around 60% of the consumer price from the milk goes directly to the farmers which is the highest among major milk producing countries.

Material and Methodology

The present study was undertaken in Chaheru village of Punjab. Chaheru is a village in Phagwara Tehsil in Kapurthala district of Punjab state. It is located 40 kilometres from Kapurthala, 7 kilometres from Phagwara and 128 kilometres from state capital, Chandigarh. The village is administered by a Sarpanch who is an elected representative of village as per the Constitution of India and Panchayati Raj (India). Five dairy farmers were chosen randomly. The data was collected through personal interview techniques through a interview schedule.

Results and Discussions

During this whole working period, I have worked on the preparation of my student project in which I completed a total of five visits to different dairy farmers in my nearby village, Chaheru, Kapurthala. The sole purpose of these field visits was to get some practical knowledge along with some interaction with the farmer. I briefly interacted with the farmers and the bits of information that I collected during the interaction was put into a presentation which was later presented by me in the class every week.

The collected data was interpreted and compiled into a tabular form to compare among themselves to check which farmer was more sustainable and performing well in comparison to the others.

The management practices of breeding, feeding, housing, milking, calf rearing and health care management followed by all the farmers were studied and individual practice has been described in the following sections.

Existing breeding management practices: Significantly higher percentage of the cattle keepers resorted to natural services and only few of them adopted Artificial Insemination (AI). Regarding the quality of breeding bull, majority of the respondents used purebred indigenous bull followed by non-descript, crossbred and exotic bulls for insemination/ natural service of their cows. Thus, it was quite evident from the emerging results of various breeding practices followed by the cattle keepers in the study area that the majority of the cattle keepers were not adopting the recommended breeding practices. There was a wide gap in adoption of certain practices, like AI.

Table 1: Brief Introduction about the Farmers

	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5
Name	Sukhwinder	Yoginder	Yakub Ali	Balwant	Narinder
Education	12th Passout	10th Passout	Uneducated	Uneducated	Uneducated
Area Owned for Dairy	1 acre	1.5 acre	1 acre	1.5 acre	1 acre
Buffaloes	50	23	18	09	05
Cows	06	00	00	01	02
Calves	30	05	06	04	05
Milk Production	300 litres	150 litres	60 litres	10 litres	10 litres
Milk Selling Price	60/- per litre	30-50/- per litre	45-50/- per litre	60/- per litre	60/- per litre
Housing System	Double Row Housing Sys	Loose Housing Sys	Double Row Housing Sys	Loose Housing Sys	Loose Housing Sys
Location of Shed	Near Dwelling House	Near Dwelling House	Near Dwelling House	Inside Dwelling House	Inside Dwelling House
Type of Floor	Pucca Floor	Kaccha Floor	Kaccha Floor	Kaccha Floor	Kaccha and Pucca Floor
Waste Management	½ sold and ½ used in farm	½ sold and ½ used in farm	100% applied to farm	100% sold in market	100% applied to farm

The comparison data contains the name of the farmer, his educational qualification, area of land owned by the farmer for his crop cultivation as well the part of the land occupied for the establishment of the dairy farm. The report also compares the number of buffaloes and cows present in each dairy farm and the breeds to which they belong along with the number of calves they have. The first host farmer had the largest farm among the rest and also had the greatest number of buffaloes and calves.

Existing feeding management practices: All the cattle keepers stall fed their animals. When stall feeding was not sufficient, then grazing was practiced. During stall feeding, all of the respondents fed their animals in groups. About one fifth of the respondents kept some part of land as a pasture for grazing their animals for few years. After few years, the pasture land was used for crop sowing and other part of land kept for pasture without any seeding of improved grass and other practices.

Table 2: Details about existing feeding management practices

Existing practices	Percentage
Feeding of animals Stall feeding	100.00
Grazing	100.00
Method of feeding Group feeding	65.00
Individual feeding	35.00
Grazing site Common pasture land	70.00
Harvested/fallow field	30.00
Chopping of dry fodder Yes	100.00
No	0.00
Chopping of green fodder Yes	80.00
No	20.00
Cultivation of green fodder Yes	90.00
No	10.00
Type of concentrate mixture Home prepared	60.00
Readymade	20.00
Mixture of home prepared	20.00
and readymade Pre-treatment of concentrate mixture Soaking	80.00
Soaking and boiling	20.00
Feeding of common salt Yes	30.00
No	70.00
Feeding of mineral mixture Yes	20.00
No	80.00

My survey results indicated that majority of the cattle keepers fed home prepared concentrate mixture to their animals followed by readymade mixtures and mixture of home prepared and readymade. Home prepared concentrate mixture constituted crushed grains mixed with different seed cakes.

Existing housing management practices: My survey compares between the housing units used in the dairy farms as well as the type of the flooring used in the housing system and whether the housing system has a good drainage system present or not. The most housing system which was utilized was the loose housing system where the animals are left in the open in a boundary. Majority of the cattle keepers practiced using loose housing system while the large scale and few of the cattle keepers, in the meanwhile used double row housing system which is more effective and healthier for the animals. Only the very few of the cattle keepers used pucca floor for their housing systems while the rest used kaccha floor for cost cutting measures.

A considerable large percentage of the cattle keepers used bedding material during winter seasons. The bedding material consisted of spikes of sorghum, dry sand, ash and waste dry grass. Spikes of sorghum and bajra was preferred for bedding material because of its good absorbent property.

Table 3: Details about existing housing management practices

Existing practices	Percentage
Location of shed Inside dwelling house	20.00
Near dwelling house	60.00
Separate from dwelling house	20.00
Type of floor Kutcha	100.00
Pucca	0.00
Slope in floor Yes	52.00
No	48.00
Drainage channel/pit Yes	12.00
No	88.00
Features of roof of shed Flat	40.00
Single slope	30.00
Double slope	30.00
Roof material of shed Thatch	70.50
Asbestos	26.50
Stone slab	3.00
Bricks and mud	0.00
Material used in walls Thatch	4.00
Brick and lime/cement	51.75
Brick in mud	44.25
Manger Feeding Yes	100.00
No	0.00
Type of manger Kutcha	30.00
Pucca	50.00
Wooden	20.00
Grooming practice of cattle Yes	0.00
No	100.00

Results of the survey indicated that majority of the cattle keepers segregated their cows before calving. There was no separate calving box but farmers segregated their cow few days before calving from other animals in the same shed and all of the respondents provided bedding material to pregnant cows. Majority of the respondents had proper light provision in their animal sheds. It was mainly due to the abundance of electrified houses in rural areas of Chaheru district. All of the respondents washed the cow's hind quarters after drop of placenta.

The results of the present survey revealed that existing housing management practices were not according to the recommended practices. There was some lacuna specially in drainage channel, location of shed and lack of scientific cattle shed. These were attributed mainly due to poor knowledge about profit of scientific housing.

Existing milking management practices: Majority of the cattle keepers followed knuckling method of milking. Only few of them followed proper method i.e. full hand milking method. Regarding place of milking, majority of the them milked cows at the same place and the rest milked at separate and dry place. None of the respondents practiced stripping at the end of milking. All of the cattle keepers cleaned the udder and teats and washed their hands before milking. All the respondents milked their cows twice a day.

Knuckling is considered a faulty method of milking. The wrong method was practiced more by milkers in the study area. This may lead to a constant irritation of the teat canal due to pressure of knuckles which in turn, may cause mastitis in many cases and thus, it is not recommended. The calf

should be allowed to suckle only before milking to prevent any teat injury. The milking process should be performed in a clean and separate place for clean milk production. The oxytocin injection should be avoided for milk let down because it is very harmful for lactating cows as well as calves and human beings and legally, it is prohibited. Wet hand milking should be avoided for clean milk production as well as to prevent any kind of teat injury. Sealing of teat canals with proper ointment should be performed at the end of lactation, which ensures prevention of any kind of infection during dry periods.

Existing waste management practices: The survey also discusses about the waste management practices followed by the farmers. All of the farmers prepared a pit for conversion of cow dung to farm yard manure (FYM). Conversion of dung to farm yard manure takes from 6 months to 8 months which is then either used by the farmer in his own land for cultivation of crops or sold in the market for a price.

Existing health care management practices: The data collected from the cattle keepers with respect to health care management practices was also surveyed. It was observed that the majority of the respondents got treated their sick animals by quacks first and if sick animals were not recovered, then only they contacted to veterinary doctors for treatment but that time the condition of sick animals had become very serious. Only few of the cattle keepers got treated their sick animals properly by veterinary doctors. Regarding vaccination against HS, FMD, and BQ, majority of the respondents got their animals vaccinated.

My survey results revealed that majority of the cattle keepers isolated their sick animals from healthy ones. Regarding dewormed their animals regularly, majority of the cattle keepers cremated the dead body of animal outside the village as such.

It was also observed that most of the cattle keepers cleaned water through and manager at weekly intervals. Only few of the respondents cleaned the troughs and mangers on alternate day and daily, respectively. It was encouraging to note that majority of the cattle keepers cleaned their animals shed daily. Regarding measures adopted to control files, majority of the respondents use smoke of waste grass/fodder to control files/mosquitoes. Only few cattle keepers used electric fan for control of files and mosquitoes.

Conclusion

There is an excessive number of unproductive animals which directly compete with the productive dairy animals in the utilization of available feeds and fodder. The grazing area is being reduced markedly every year due to large scale industrial development resulting in a shortage of supply of feeds and fodder to the total requirement. Ever increasing gap between demand and supply in feeds and fodder limits the performance of dairy animals. Moreover, the provision of poor quality of forage to dairy cattle restricts the animal production system. The low capability of purchasing feeds and fodder by the small and marginal cattle keepers and agricultural labourers engaged in dairy development results in an inadequate feeding of animals. Non-supplementation of mineral mixture results in mineral deficiency diseases of animals. High-cost feeding is seen to increase production but reduces the profits of the dairy industry. Late maturity, in most of the Indian cattle breeds, is a common problem. There is no effective detection of heat symptoms during estrus cycle by the cattle owners. The calving interval is on the increase resulting in a reduction in efficiency of animal performance. Diseases causing abortion leads to economic loss to the industry. Minerals, hormones and other vitamin deficiencies lead to increase in fertility problems.

Veterinary health care centers are located in far off places. The ratio between cattle population and veterinary institution is wider, thus resulting in inadequate health services to animals. No regular and periodical vaccination schedule is followed, regular deworming programme is not done as per schedule, thus resulting in heavy mortality in calves, especially in buffaloes. No adequate immunity is established against various cattle diseases.

Many cattle owners do not provide proper shelter to their cattle leaving them exposed to extreme climatic conditions. Unsanitary conditions of cattle shed and milking yards, leads to mastitis conditions. Unhygienic milk production leads to a reduction in storing quality and spoilage of milk and other products.

The main challenges faced by dairy sector in India are in sourcing and logistics. This is because procurement of the fresh milk is the most important element of this business. It is not feasible to procure milk beyond a 200 kilometers radius; because of high perishability of the product. Another challenge is low productivity and yield. The cold storage facilities and supply chain infrastructure bottlenecks are ubiquitous in entire dairy farm sector in India. There is a need to develop these infrastructure facilities at least at tier-3 centers.

Despite the exponential growth of the dairy industry, India is still facing quite a lot of challenges of poor milk quality, low yield, lack of infrastructure and fragmented production. A number of infrastructure related bottlenecks are still present in both the back-end as well as front-end supply chain. There are a lot of opportunities and challenges in The Indian Dairy Industry. Dairy products are a major source of cheap and nutritious food to millions of people in our country and the only acceptable source of animal protein for a large vegetarian segment of the Indian population, particularly among the landless, small and marginal farmers and women. Dairying has always been considered as one of the important activities aimed at alleviating the poverty and unemployment, especially in the rural areas. In India, about three-fourth of the population reside in rural areas and about 38% of them are poor.

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