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Study on Work Distribution Pattern with Man-days Used and Constraints Perceived by Large Scale Dairy Farmers in Murshidabad District of West Bengal, India

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Abstract

The study focuses on the significance of dairy development in India as a strategic approach to eradicating rural poverty and improving the nutritional status of the population. Given India's position as the world's largest milk producer, the research specifically investigates the work distribution patterns and labour dynamics in dairy farming within Murshidabad district, West Bengal. Utilizing a purposive sampling method, 120 farmers with at least 10 dairy animals were randomly selected, and data were collected via structured interviews in late 2023. The findings reveal distinct gender roles, with males predominantly engaging in tasks like selling milk and grazing, while females mainly manage feeding, health care, and maintaining hygiene. On an average, the total daily time spent on dairy activities was 30.72 hours, with male workers averaging 9.93 hours per day. The study also found that 3.84 man-days were produced in a large scale dairy farm. Major constraints faced by dairy farmers, including high feed costs, lack of remunerative prices of milk and lack of veterinary services in appropriate time, were identified, highlighting the need for targeted interventions to enhance productivity and profitability in the dairy sector. These insights align with existing literature on the challenges and labour dynamics in dairy farming across various states in India.

Keywords: Dairy, Work distribution, Man-days, Constraints, Farming

Introduction:

Dairy development in India is the basic strategy for eradicating the rural poverty and bringing the rural poor above the poverty line. The main thrust of dairy development is to provide opportunities and generate more income for the betterment of weaker section in the society in particular and to improve the nutritional status of human beings by providing milk to consumers in general. Dairy is an instrument of changing the life style of rural households. It provides to rural people employment throughout the year. Dairy enterprise, next to agriculture, not only provides gradually increasing income, improves dietary standards of family, but also supplements the income and reduces unemployment to a large number of the rural poor. India owns the largest livestock population in the world, accounting for nearly 57 percent of the world buffalo population and 16 % of the cattle population. Livestock requires sufficient land area for their sustenance, particularly grazing land consisting of permanent meadows and pastures. India has the lowest per unit amount grazing land per unit of livestock. India has too many units of livestock, depending upon too small a patch of land. India is the world's largest milk producing country with a share of about 24 % in the world milk production in 2021-2022 according to Ministry of Fisheries, Animal Husbandry and Dairying. Milk has achieved a unique status in terms of its output value and the exceeding Rs. 1, 00,000 in terms of number of milk producer and quantity of milk produced. Over the last two decades, while both population and food grain production grew at around two %, milk production grew at around more than double the growth of the population, resulted in an increasing per capita availability of milk. The states like Gujarat, Maharashtra, Uttar Pradesh, Haryana, Rajasthan, Andhra Pradesh, Karnataka and Tamil Nadu are surplus in milk production.

As per 20th livestock census, 2019 India (GOI-2020) is bestowed with a vast diversity of livestock with a population of 535.78 million with a significant increase of 4.6% over 19th livestock census, 2012. The bovine population was recorded to be 302.79 million showing an increase of 1% over the previous one. Bovine population includes 192.49 million of cattle population and 109.85 million of buffalo population. The cow population was seen to be 145.12 million, showed an increase of 18%. Increase is seen in numbers of both crossbred and indigenous female cattle with 26.9% and 10% respectively. A decline of 6% is observed in the total indigenous cattle over the previous census. 6% increase is seen in the population of total milch animals. The state of West Bengal has the highest cattle population accounting

to 20th livestock census is about 19 million cattle (GOWB, 2020).

To enhance the production potential of our milch animals spread over the length and breadth of the country the only way is to develop superior technologies for mass adoption and to create the critical and necessary infrastructural facilities vital for adoption of the animal husbandry practices. This is a stupendous task which needs dedicated and skilled workers to produce the desirable impact. Impacts also depend upon knowledge and adopted scientific practices in Animal Husbandry sector. Accordingly, Rogers and Shoemaker (1971) defined adoption is a decision to make full use of an innovation as the best course of action available.

Materials and Methods:

The study was carried out in the State of West Bengal. The district Murshidabad coming from alluvial zone have been selected purposively considering the importance of dairy animals acts in the rural economy. Two blocks were selected purposively depending on highest number of dairy cattle populations from Murshidabad district namely Burwan and Khargram. In this way, a list of farmers having at least 10 numbers of dairy animals was prepared with the help of the officials working under Department of Animal Resource Development in Burwan and Khargram blocks. Thereafter from each block a number of 60 farmers were selected randomly from the list, in this process total 120 numbers of respondents were selected for the study. Using interview schedules created for the study, the data were gathered direct face to face interview methods in September to November of 2023. The respondent was shown the schedule, and their responses were gathered in accordance. The collected data were tabulated and analysis was done by using IBM SPSS 21.0 through mean, frequency, percentages and ranking analysis for conclusion from the investigative study.

Results and Discussion:

Work distribution pattern and man-days used in dairy farming

Table 1 shows the distribution of respondents according to their work distribution pattern of dairy farming. It was found that males were involved in activities like selling of milk and milking, health care, grazing and fodder chopping. Whereas female/women members of the family were involved in activities like providing health care, cleaning of shed, providing feed and water. Study also showed that labours were mostly engaged for milking activities of the dairy animals.

It was evident from the above study that maximum female workers (75.83%) involved in providing feed and water followed by man workers (49.16%) and labours 10.00%. Table 1 also depicted the percentage of respondents involved in cleaning of dairy shed mostly female workers 91.66% followed by male workers 10.00% and labours 6.66%. It was also evident from the above study that maximum male workers 87.5% involved in grazing and green fodder collection activity followed by child workers 10.8 % and labours 8.33%. Similarly, table shows the percentage of respondents involved in fodder chopping activity mostly male workers 80% followed by female workers 19.16%, labours 8.33% and child workers 4.16 %. It was also evident from the above study that maximum male workers 99.2% involved in selling of milk followed by child workers 1.66%. It was also evident from the above study that maximum male workers 52.50 % in milking followed by labours 49.16 %. From the study also revealed that male and female always actively participated health care of their dairy animals in 98.33% and 99.2%, respectively followed by labours 3.33 % and child workers 1.66 %. This finding is in accordance with the findings of Pinzke (2016) was found that 54.4% of male and 45.6% of female farmers were the contribution in dairy farming practices. The most time was devoted on grazing and milking for man worker, whereas women worker dominated on feeding cattle and keep clear the housing activities. Other findings are in agreement with the findings of Utami et al. (2021) and Hogan et al. (2022). From the table concluded that in large scale dairy farming activity by all family members acted very sincerely with the help of labour support for running successfully of their dairy farm.

It was also evident from the above study that maximum average time was expended for green fodder collection with grazing activity 6.31 hr/day followed by milking 5.32 hr/day, fodder chopping 4.72 hr/day and health care 4.66 hr/day whereas minimum time was expended for selling of milk 1.57 hr/day. The study also indicated that overall maximum average time was expended by the male members9.93 hrs per day followed by labour, female and children were expended 9.39 hr/day, 6.48 hr/day and 4.92 hr/day in their dairy farming activity, respectively.

Total average time was expended for this job was 30.72 hrs/ day for different activities of large scale dairy farming. From the study was found average man-days used in large scale dairy farm was 3.84 in a day. A study was done by Panda and Samanta (2018) reported that the total time taken for various operations in milking, care of pregnant and dry animals is 38.64±0.73, 27.00±1.04 and 17.90±0.44 man-minutes per animal per day respectively. The time spent on miscellaneous works of calves and heifers was 0.29±0.30 and 1.22±0.34 man-minutes per animal per day, respectively.

Constraints faced by the respondents

Table 2 shows the ranking pattern of different constraints faced by large scale dairy farmers. The constraints like high feed cost, lack of remunerative price for milk, high cost of medicine, non-availability of feed (dry and green fodder), lack of grazing land, non- availability of veterinary services when need for necessity, lack of credit facility, epidemic of animal disease, lack of training facilities and lack of marketing facilities was ranked I to X, respectively. Thus, necessary steps for formulate proper action plan must be taken to help dairy farmers tackle these constraints to gain more profit from their produce. Similar types of the study was conducted by Choudhary (2010) reported that high cost of feed, low price of milk, non-availability of green fodder, credit loan, labour; lack of technical guidance, proper training, transport facilities, knowledge; insufficient veterinary aid, high cost of medicines, water scarcity, physical fatigue and drudgery, social norms and taboos were found to be the major constraints faced by respondents involved in livestock farming. Another few studies ware accordance with the findings of Rathod et al. (2011), Urassa, J.K. and Raphel (2011), Patel et al. (2012), Rajavi (2012) and Uddin et al. (2013) in different states of India.

Conclusion:

The study highlights the critical role of dairy development in alleviating rural poverty in India by providing sustainable income and employment opportunities, particularly for marginalized communities. It underscores the necessity for improved technologies and infrastructure to enhance dairy production, as well as identifying significant constraints faced by farmers that must be addressed to optimize the benefits of dairy farming.

Conflicts of Interest:

No conflict of interest among the authors.

Data availability:

Data will be available on request.

Authors' contributions:

All authors contributed for the study as and when they have required their need.

Ethical approval:

Not applicable.

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Table 1: Distribution of respondents according to their work distribution and man-days used in large scale dairy farming.

Sl. No	Activities	Involvement of family members and others indicating their frequency and Percentages				Average time expended for this job (in hr/day)				Total average time expended for this job (In hr/day)
		Male	Female	Child	Labour	Male	Female	Child	Labour	
1.	Providing feed and water	59 (49.16%)	91 (75.83%)	00	12 (10%)	1.14	1.29	0.00	1.71	4.14
2.	Cleaning of cattle/buffalo shed	12 (10%)	110 (91.66%)	00	08 (6.66%)	1.12	1.46	0.00	1.43	4.01
3.	Grazing and green fodder collection	105 (87.5%)	00	13 (10.8%)	10 (8.33%)	2.34	0.00	2.07	1.90	6.31
4.	Fodder chopping	96 (80.00%)	23 (19.16%)	05 (4.16%)	10 (8.33%)	1.31	1.10	1.10	1.20	4.71
5.	Selling of milk	119 (99.2%)	00	02 (1.66%)	00	0.82	0.00	0.75	0.00	1.57
6.	Milking	63 (52.5%)	02 (1.66%)	00	59 (49.16%)	2.05	1.50	0.00	1.77	5.32
7.	Health care	118 (98.33%)	119 (99.2%)	02 (1.66%)	04 (3.33%)	1.15	1.13	1.00	1.38	4.66
Overall average time expended (In hr/day)						9.93	6.48	4.92	9.39	30.72
We know, one man-days = 8 hr. So, Average man-days = (30.72/8) = 3.84Man-days / day used by dairy farmers										

Table 2: Constraints faced by large scale dairy farmers

Sl. No.	Constraints	Averages	Rank
1.	High cost of feed.	11.30	I
2.	Non-availability of green and dry fodder.	7.69	IV
3.	Lack of transportation facility.	2.88	XI
4.	Lack of marketing facility.	3.89	X
5.	Lack of credit facility.	5.94	VII
6.	High cost of veterinary medicine.	9.38	III
7.	Non-availability of veterinary services.	6.31	VI
8.	Lack of training facilities.	5.36	IX
9.	Lack of grazing land	6.42	V
10	Lack of remunerative price for milk	10.40	II
11.	Lack of input (live animal).	1.34	XII
12.	Lack of electricity	1.16	XIII
13.	Epidemic of animal disease.	5.80	VIII

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