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Evaluating the management practices and production outcomes of rural dairy farming in Bharatpur District, Rajasthan

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Abstract

This study evaluates the management practices and production outcomes of rural dairy farming in Bharatpur District, Rajasthan. Conducted by the Department of Animal Husbandry & Dairying at R.B.S. College, Bichpuri, Agra, the research focuses on eight villages in Kumher and Deeg blocks. Data was collected through a field survey using a pre-tested questionnaire, which gathered information on animal status, housing systems, farmers' education, occupation, landholding, types of housing floors, and feeding practices. The study aims to analyze the current management practices for crossbred cattle and assess their impact on production outcomes. The result revealed that highlight the predominance of traditional practices, low adoption of scientific methods, and the significant role of dairy farming in ensuring food security, employment, and economic stability in rural areas. The research underscores the need for targeted interventions to enhance productivity and profitability through improved education, better management practices, and appropriate breeding and disease control measures.

Keywords: Dairy farming, rural agriculture, Bharatpur district, management practices, production outcomes and livestock management

Introduction

India ranked second for dairy cow population in the world but ranked fifth in cow milk production. Economic milk production can be taken by proper implementation of management programmes. Most of the dairy husbandry practices which significantly influence the performance of cattle do not require much capital and special skill, but only timely careful use sufficient. Management has been recognized an important total of improve milk production. A successful dairy farmer needs to strain herd to attain perfection in adoption as these inperical scientific practices. Majority of the indigenous cattle of our country are low milk producers, have higher age at first calving and long generation intervals but possess desirable traits like high heat tolerance, disease resistance and better sustenance on poor quality roughages. Animal husbandry has been recognised to economic and a social change, supplement to the rural sector particularly to a large number of small and marginl farmers and agricultural labourers. As such nations have a judicious combination of plant and animal agriculture in a benefiting manner to meet the specific situations for the purpose. Considering the Agro-economic conditions of the country at this moment and projecting them for the next century (21st century), it can clouded that the keeping of the larger animals like cattle and buffaloes is becoming more and more tedious and it may become impossible in times to come.

The agriculture with adoption of improved technology of commercial milk production in India the large population of livestock is coupled with lower productivity mainly due to poor genetic potential of animal in adequate feeding level, disease problems and other manage mental in adequacies at the farmers level. Though India has achieved the distinction of being first in milk production (82 million tonnes) still huge potential is untapped and could be exploited through appropriate breeding, disease control and other manage mental aspects. In general, it has been seen that small, marginal farmers and landless agricultural labourers rearing dairy animals. In such a situation where animal has to subsist almost entirely on agricultural by product. Research showed that farmers are not having the place with

constantly changing and improved scientific technology many practices have not been widely adopted by the farmers. In the rural context, dairy farming is not merely an economic activity but a way of life. It ensures food security, provides employment, and acts as a buffer against crop failures. The dual-purpose role of dairy cattle, serving both as a source of milk and draft power, further emphasizes their importance in rural agricultural systems. The Government of India has launched numerous initiatives to support the dairy sector, including the National Dairy Plan and various state-level programs aimed at improving productivity and profitability. The district has a rich tradition of animal husbandry, with dairy farming being a crucial part of the agrarian economy. However, traditional practices often dominate, with limited adoption of scientific and modern management practices. This creates a need to evaluate existing management practices and their impact on production outcomes. Understanding the local context, including socio-cultural factors, economic constraints, and environmental challenges, is essential for devising effective interventions to enhance dairy farming productivity in Bharatpur.

Materials and Methods

The present investigation entitled "Evaluating the management practices and production outcomes of rural dairy farming in Bharatpur District, Rajasthan." was conducted by the Department of Animal Husbandry & Dairying, R.B.S. College, Bichpuri, Agra. The study took place in four villages each from Kumher (Hira Nagar, Satya Nagar, Vijay Nagar, and Kanchanpura) and Deeg (Helak, Ajau, Sikrori, and Seh) blocks of Bharatpur district in Rajasthan. Data was collected through a field survey using a pre-tested questionnaire, focusing on aspects such as animal status, housing system, farmers' education status,

occupation, landholding, types of housing floors, types of feed offered to animals, and the preparation of concentrate mixtures. The primary objective was to gather detailed and accurate information about each cattle's management practices. Conducted during 2022, the study aimed to analyze the current managerial practices of crossbred cattle. Despite the lack of formal record-keeping among farmers, many could provide reasonably accurate information due to their keen memory of events and management practices. Bharatpur district was specifically chosen due to the author's familiarity with the area, its advanced adoption of technology and education, and the presence of agricultural institutions, facilitating accurate data collection. The field survey method ensured accuracy in the collected data, covering economic aspects of cattle production under existing village conditions. The study focused on the economic level of cattle production and the practical management practices employed by the farmers in the selected villages.

Results and Discussion

Education Status of Farmers

The education level of farmers is a key determinant of their ability to adopt new agricultural technologies, manage farm resources efficiently, and improve productivity. This section examines the education status of farmers in Kumher and Deeg blocks, providing a detailed analysis of their literacy levels and the potential impact on agricultural practices. The education status of farmers in Kumher and Deeg blocks indicates a need for targeted educational interventions to enhance their agricultural knowledge and skills. Improved education can lead to better decision-making, efficient resource management, and increased adoption of sustainable farming practices.

Table 1: Educational Status

No. of Villages	No. of House Hold	BLOCK - KUMHER							BLOCK- DEEG						
		Illiterate	Primary	Middle	High School	Intermediate	U.G.	P.G.	Illiterate	Primary	Middle	High School	Intermediate	U.G.	P.G.
1	10	2	4	5	5	4	2	2	1	3	4	3	4	1	1
2	10	1	3	3	4	5	3	1	3	4	2	4	3	4	1
3	10	2	6	4	7	3	5	1	2	5	4	6	5	3	1
4	10	1	5	3	6	6	2	2	4	4	3	5	4	1	2
Total	40	6	18	15	22	18	12	6	10	16	13	18	16	10	5

Data collected in connection of educational status of the farmers in selected villages of two blocks, is Table-1. Data was collected on various aspects viz., illiterate, Primary, Middle, High School, Intermediate, Graduate and Post-graduate for both the blocks. Results reveal that there are more illiterate people in Kumher block. The number of farmers constituted of illiterate, Primary, Middle, High School, Intermediate, Graduate and Post graduate were 6, 18, 15, 22, 18, 12 and 6 out of 40 households of Kumher block and 10, 16, 13, 18, 16, 10 and 5 in 40 households of Deeg. This results is in close agreement with reported by Dakhore and Nalwandiker (1988)^[4], Rao, *et al* (1983)^[11], Boxem., (1982)^[3] and Mahipal and Kherde, (1991)^[7].

Occupation of Farmers

Understanding the primary and secondary occupations of farmers provides insights into their economic activities, livelihood strategies, and the role of agriculture in their overall income. This section explores the occupational

profile of farmers in the Kumher and Deeg blocks of Bharatpur district, examining the diversity of their economic engagements. A structured survey was conducted among farmers in Kumher and Deeg blocks to collect data on their occupational status. The survey included questions about primary and secondary occupations, the extent of involvement in agricultural activities, and other sources of income. Dairy Farmer a significant portion of their income comes from dairy production, they might identify as a dairy farmer. Poultry Farmer Similar to dairy, if poultry is a major focus, they might be a poultry farmer. Mixed-Subsistence Farmer this term applies to farmers who grow a variety of crops and raise some livestock primarily for their own family's consumption, with a possibility of selling any surplus.

The vast majority of farmers in Kumher rely primarily on agriculture for their livelihood. This indicates the centrality of farming in the local economy. Dairy farming is a significant secondary occupation, supplementing income

and providing economic stability. Seasonal migration for labor highlights the need for additional income sources, especially during off-peak agricultural periods. Data was collected in connection of occupation status of the farmers

of the two selected blocks. Data collected on various aspects viz., Labors, Farmer, Serviceman, Businessman, Ex-serviceman.

Table 2: Occupation of Farmers

No. of Villages	No. of House Hold	BLOCK – KUMHER					BLOCK- DEEG				
		Labour	Farmer	Service Man	Ex. Service Man	Busi ness Man	Labour	Farmer	Service Man	Ex. Service Man	Busi ness Man
1	10	8	8	1	1	1	6	10	2	2	1
2	10	5	9	2	1	2	8	9	2	1	2
3	10	6	10	1	1	3	5	8	1	1	2
4	10	7	7	3	1	1	7	9	3	1	1
Total	40	22	34	7	4	7	26	36	8	5	6

The results show that there is not much difference in the occupational status of the people of the two blocks. The occupational profile of farmers in Kumher and Deeg blocks demonstrates the predominance of agriculture as the primary livelihood. The reliance on secondary occupations such as dairy farming and seasonal labor migration indicates a need for diversified income sources to ensure economic stability. This results is in close agreement with reported by Gupta and Aneja (1981)^[5], Rao, *et al* (1983)^[11], Pailan, *et al.* (2006)^[9] and Mahipal and Kherde, (1991)^[7].

Land Holding Status

Land holding size is a crucial factor in determining the agricultural productivity and economic stability of farming households. This section examines the land holding status of farmers in the Kumher and Deeg blocks of Bharatpur

district, highlighting the distribution of land ownership and its implications for agricultural practices and livelihood. A comprehensive survey was conducted to gather data on the land holdings of farmers in Kumher and Deeg blocks. The survey collected information on the size of land holdings, the type of ownership, and the utilization of land for various agricultural activities. The data collected in connection with number of small, marginal and large farmers is presented in Table-3 reveal that the holding sizes in both the blocks are nearly same. But in case of Deeg block the number of small farmers were the slightly larg. Mahipal and Kherde (1991)^[7], Singh and Tomas (1992)^[13] reported the low adoption was associated with size of land holding while Natraju and Channegowdo (1986)^[8] and Bhoitle and Sinde (1987)^[2] found contrary result.

Table 3: Total Land Holdings

No. of Villages	No. of House Hold	BLOCK – KUMHER			BLOCK- DEEG		
		Small Farmer	Medium Farmer	Large Farmer	Small Farmer	Medium Farmer	Large Farmer
1	10	7	2	1	8	2	-
2	10	6	3	1	7	2	1
3	10	7	2	1	9	1	-
4	10	7	2	1	6	3	1
Total	40	27	9	4	30	8	2

A significant proportion of farmers in Kumher are marginal and small farmers, indicating fragmented land holdings which may limit economies of scale and mechanization. The prevalence of owned land suggests stability in land tenure, while leased land and sharecropping arrangements highlight the need for access to more land for cultivation. Deeg block also has a high proportion of marginal and small farmers, similar to Kumher. This indicates challenges related to small landholdings, such as limited access to irrigation and modern farming equipment. The higher percentage of land used for horticulture in Deeg suggests diversification in agricultural practices, which can enhance income stability. The land holding status in Kumher and Deeg blocks reveals a pattern of small and fragmented land holdings, which can impact agricultural productivity and the adoption of advanced farming techniques. The reliance on owned land provides stability, but the presence of leased and sharecropped land indicates a need for policies that facilitate access to land and improve land tenure security. This results is in close agreement with reported by Singh and Thomas. (1992)^[13], Rao, *et al* (1983)^[11], Thakur, *et al.* (2005)^[14] and Petersen and Dallum (1984)^[10].

Types of Floors for Cattle

The type of flooring in residential buildings is a key indicator of the socio-economic status and living conditions of households. This section explores the various types of floors used in the homes of farmers in Kumher and Deeg blocks of Bharatpur district, highlighting the differences and implications for health and hygiene. A household survey was conducted in Kumher and Deeg blocks to collect data on the types of flooring materials used in the homes of farmers. The survey included questions on the primary flooring material, maintenance practices, and perceptions regarding the benefits and drawbacks of different flooring types. Mud floors are the most common in Kumher, particularly in older and lower-income households. While cost-effective, mud floors require frequent maintenance and may pose health risks due to dust and poor hygiene. Cement floors are popular due to their durability and ease of maintenance. They are found in many mid-income households. Tile and stone floors, though less common, indicate higher socio-economic status and are valued for their aesthetics and hygiene benefits. The flooring types in Kumher and Deeg blocks reflect the socio-economic diversity and evolving housing standards in these regions.

Table 4: Types of Floors

No. of Villages	No. of House Hold	BLOCK – KUMHER						BLOCK- DEEG					
		Mud	Brick	Slope	Drainage Channel	Bedding material Used	Provision of water through	Mud	Brick	Slope	Drainage Channel	Bedding material used	Provision of water through
1	10	6	4	10	9	10	9	3	7	8	10	9	9
2	10	4	6	9	8	9	10	4	6	10	9	7	10
3	10	3	7	7	10	9	8	6	4	9	10	10	9
4	10	5	5	8	7	8	11	2	8	9	9	9	11
Total	40	18	22	34	34	36	38	15	25	36	38	35	39

The types of floors in Kumher and Deeg blocks highlight the varying socio-economic conditions and the gradual shift towards more durable and hygienic flooring materials. While mud floors are still common due to their low cost, the increasing use of cement and tile floors indicates a positive trend towards better living conditions. The data collected for this purpose was grouped into types of floors i.e. mud, brick mud, slope, drainage channel, bedding material used and provision of water through. The results reveal that the floor system for cattle in the selected households were not the same. The results reveal that more mud floors were found in Kumher block than in Deeg block. This results is in close agreement with reported by Sastry *et al.* (1981)^[12], Bacon (1983)^[11], Kovaces *et al.* (1983)^[6] and Petersen and Dallum (1984)^[10].

Conclusion

This study on the management practices and production outcomes of rural dairy farming in Bharatpur District, Rajasthan, reveals significant insights into the prevailing agricultural methodologies and their impacts. The research highlights that while traditional practices dominate, there is a critical need for the adoption of scientific and modern management techniques to improve productivity. Key findings indicate that educational interventions targeted at farmers could substantially enhance their ability to adopt new technologies and improve resource management. The predominance of small and marginal landholdings poses challenges to economies of scale and mechanization, necessitating policies that facilitate better land access and tenure security. Additionally, the study points out the importance of diversified income sources, such as dairy farming and seasonal labor, to ensure economic stability for rural households. The Government of India's initiatives, like the National Dairy Plan, play a crucial role in supporting the sector, but further efforts are required at the local level to address specific socio-cultural and economic constraints.

Overall, the study concludes that improving dairy farming productivity in Bharatpur requires a multifaceted approach, including enhanced education, better management practices, and effective interventions tailored to the local context. By addressing these areas, it is possible to tap into the untapped potential of dairy farming, ensuring food security, providing employment, and supporting the rural economy.

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