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Constraints of beneficiary and non-beneficiary ATMA dairy farmers in adoption of scientific dairy farming practices in North Gujarat

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Abstract

Dairy farming has proven to be a highly promising sector, serving key income source for unemployed person. It plays a vital role in enhancing food supply, generating employment, and improving nutritional levels. To boost productivity, it is crucial to adopt advanced scientific dairy farming practices. However, farmers encounter various challenges in implementing these practices. Identifying these constraints is essential for planners and administrators to pinpoint the underlying issues and address any gaps, ultimately helping to increase profitability. This study was undertaken to examine the constraints faced by both ATMA beneficiaries and non-beneficiary dairy farmers in adopting scientific dairy farming practices. A random sample of 300 respondents was selected from the Banaskantha, Sabarkantha, and Patan districts of North Gujarat, India. Data were gathered through face-to-face interviews and analyzed using frequency and percentage methods. Farmers were asked open-ended questions to identify the challenges they were encountering. The data revealed that the major constraints faced by both ATMA beneficiary and non-beneficiary dairy farmers included the 'non-availability of sufficient time,' 'high cost of animals,' and 'concentrate ration.' Other significant issues included the 'forced rearing of male calves' and 'low productivity of dairy animals.' Additionally, ATMA non-beneficiary dairy farmers faced challenges such as 'no extra incentives for clean milk production,' 'government schemes not reaching the real beneficiaries,' and 'lack of knowledge about recommended animal husbandry practices,' ranked second, third, fourth, and fifth, respectively.

Keywords: ATMA beneficiary and ATMA non-beneficiary, constraints, dairy farmers

Introduction

India has made significant progress, evolving from a situation of "living from hand to mouth" to achieving food self-sufficiency. Globally, India ranks as the seventh-largest country by geographic area, covering 3.28 million square kilometres having 140 million hectares of cultivated land (48.8 percent of its total area) and 60 million hectares of net irrigated land, India boasts a cropping intensity of 138 percent. Approximately 58 percent of its population depends on agriculture for their livelihood. Livestock plays a crucial role as a key sub-sector of agriculture. The livestock sector has great potential, especially in the rural economy, and is more stable than crop production, requiring less investment. It has proven to be a lifesaver during times of distress.

Dairy farming, in particular, has been a promising sector, with the care of milch animals being an integral part of agriculture. Majority of the rural population income source can come through dairying. Dairy farming has contributed significantly to enhancing food supply, generating employment, and improving nutritional levels.

India is home to 536.76 million total livestock, including 193.46 million cattle and 109.85 million buffaloes (BAHS, 2023) [4]. Milk production has increased by 58 percent over the past nine years, from 2014-15 to 2022-23. India is the world's largest milk producer, producing 230.58 million tonnes of milk in 2022-23, contributing 24.64 percent of global milk production (BAHS, 2023) [4]. The per capita availability of milk in India is 459 grams per day, surpassing the global average of 322 grams per day in 2022 (Food Outlook, June 2023).

India's dairy product exports totalled 108,711.27 metric tonnes, with a growth rate of 19.45%. The export value reached \$471 million during the financial year 2022-23, compared to \$395 million in the same period of 2021-22. The major export destinations in 2021-22 included Bangladesh, the United Arab Emirates, Bahrain, Malaysia, Saudi Arabia, and Qatar. In 2022-23, India exported 67,572.99 metric tonnes of dairy products worth ₹2,269.85 crores (or 284.65 million USD) (APEDA, 2022) [2].

However, per animal productivity in India is relatively low per lactation. The low productivity of dairy animals is mainly due to breed deterioration, chronic shortages of feed and fodder, poor management practices, reliance on traditional dairy farming, and the failure to adopt modern, scientific practices. Numerous researchers and reports have highlighted these issues.

Adoption of improved scientific dairy farming practices, can increase productivity and generate higher income of the farmers. However, farmers face several challenges in adopting these practices. Identifying these constraints is essential for planners and administrators to address the underlying problems, identify potential solutions, and ultimately enhance profitability. The investigation was taken to identify the constraints faced by ATMA beneficiaries and non-beneficiaries in adopting scientific dairy farming practices.

Materials and Methods

The investigation was conducted in three ATMA blocks located in the North Gujarat region, specifically in Vadgam (Banaskantha), Vadali (Sabarkantha), and Siddhpur (Patan), which were purposively selected. From each ATMA block, five villages with a higher number of participants were purposively chosen. In each village, ten beneficiary respondents were selected randomly, total of 50 beneficiaries from each ATMA block. This led to a total of 150 ATMA beneficiaries. To create a comparison group, the same villages were selected, and from each, at least ten ATMA non-beneficiary farmers were chosen, totalling 150 non-beneficiary respondents. Therefore, the final sample size for the study included 150 ATMA beneficiaries and 150 ATMA non-beneficiaries, making a total of 300 respondents.

The study aimed to identify the constraints faced by both ATMA beneficiaries and non-beneficiaries in adopting scientific dairy farming practices. Farmers were asked open-ended questions to list the challenges they encountered. While these constraints are ongoing and multifaceted, they can be minimized if understood by policymakers and planners. During the investigation, the dairy farmers identified several constraints, which were grouped into four categories: (i) Personal constraints, (ii) Economic constraints, (iii) Technical constraints, and (iv) Institutional constraints. These constraints were ranked based on the responses provided by the dairy farmers.

Results and Discussion

The findings in Table 1 reveal that, among the four major categories of constraints included in the study, economic and personal constraints were the primary challenges perceived by both ATMA beneficiary and non-beneficiary dairy farmers in adopting scientific dairy farming practices. ATMA beneficiaries faced technical and institutional constraints as secondary challenges while ATMA non-beneficiaries identified institutional and technical constraints as the next most significant issues.

Regarding personal constraints, both ATMA beneficiaries and non-beneficiaries agreed that the most serious issue was the non-availability of sufficient time to engage in activities other than agriculture and dairy farming, with 100 percent of both groups reporting this challenge. The second most serious personal constraint, reported by 38.66 percent of ATMA beneficiaries and 42.00 percent of non-beneficiaries, was a non-conducive socio-economic atmosphere. Additionally, 19.33 percent of ATMA beneficiaries and 28.66 percent of non-beneficiaries reported facing problems with a lack of support from family members. These findings suggest that the respondents' primary occupation is agriculture, with dairying as a secondary occupation, and they typically manage their dairy farming activities without the help of family members. As a result, they struggle to find sufficient time to care for their animals according to recommended practices.

In terms of economic constraints, the majority of both ATMA beneficiaries and non-beneficiaries ranked 'high cost of concentrate feed', 'high cost of animals' and 'forced rearing of male calves' as the most serious issues. Other economic constraints included 'high investment for cattle sheds and buildings', 'acute shortage of water for irrigation and fodder cultivation', and 'lack of loan facilities'. These constraints are likely due to financial limitations, which prevent farmers from addressing these challenges effectively. The inability to cull male calves, in particular, results in increased financial strain as farmers must care for these animals, adding to their financial burdens.

As for technological constraints, ATMA beneficiaries identified 'low productivity of dairy animals' as the most significant issue, while ATMA non-beneficiaries viewed the 'lack of knowledge about recommended animal husbandry practices' as the most serious technological constraint (Rank V). Both groups considered poor adaptability of high-yielding animals and unsatisfactory results from technology as the least important constraints. The technical challenges appear to stem from traditional farming methods and a lack of knowledge about scientific rearing practices, which contribute to low productivity.

Among institutional constraints, ATMA beneficiaries identified the 'lack of training facilities' as the most significant issue (Rank V), while ATMA non-beneficiaries perceived the 'absence of extra incentives for clean milk production' (Rank III) and the 'failure of government schemes to reach the real beneficiaries' (Rank IV) as more pressing constraints. Both groups ranked 'lack of veterinary services and expert advice' and 'lack of awareness and access to government schemes' as the least serious institutional constraints. Similar findings was also reported by Biswas *et al.* (2005) [5], Patel *et al.* (2016) [8], Ashwar *et al.* (2017) [3], Chaurasiya *et al.* (2017) [6], Panchbhai *et al.* (2017) [9], Adhikari (2018) [11] and Pawar *et al.* 2019 [10] and Kholiya and Bhardwaj (2024) [7] who reported that 'lack of knowledge about recommended animal husbandry practices and lack of awareness and access to government schemes' was the constraints faced by the dairy farmers.

Institutional constraints may arise from the insufficient training provided to ATMA beneficiaries, while non-beneficiaries are often excluded from training on scientific rearing practices, further hindering their adoption of improved farming methods.

Conclusions

Based on the results of the investigation, it can be concluded that the key constraints perceived by both ATMA

beneficiaries and non-beneficiaries in adopting scientific dairy farming practices include: 'non-availability of sufficient time', 'high cost of animals', 'high cost of concentrate feed,' 'forced rearing of male calves', 'low productivity of dairy animals', 'government schemes not reaching the real

beneficiaries', 'lack of training facilities', 'lack of awareness and access to government schemes', and 'no extra incentives for clean milk production'. These were identified as the major obstacles to the adoption of improved dairy farming practices.

Table 1: Constraints experienced by ATMA beneficiary and ATMA non-beneficiary dairy farmers in adoption of scientific dairy farming, (N=300)

Sr. No.	Constraints	ATMA Beneficiaries (N=150)	Rank	ATMA Non-Beneficiaries (N=150)	Rank
[I]	Personal Constraints				
1	Non-availability of sufficient time	150 (100)	I	150 (100)	I
2	Non-conducive socio-economic atmosphere	58 (38.66)	XVI	63 (42.00)	XI
3	Lack of support from family member	29 (19.33)	XVIII	43 (28.66)	XII
[II]	Economic Constraints				
1	High cost of concentrate feed	147 (98.00)	II	150 (100)	I
2	High cost of animal	143 (95.33)	III	150 (100)	I
3	Forced rearing of male calf	127 (84.66)	IV	137 (91.33)	II
4	High investment for cattle shed and building	97 (64.66)	VIII	107 (71.33)	VI
5	Acute shortage of water for irrigation and fodder cultivation.	82 (54.66)	XI	112 (74.66)	V
6	Lack of loan facilities	61 (40.66)	XV	87 (58.00)	IX
[III]	Technical Constraints				
1	Low productivity of dairy animals	108 (72.00)	VI	82 (54.66)	X
2	Lack of knowledge about scientific rearing practices.	73 (48.66)	XII	112 (74.66)	V
3	Poor adaptability of high yielding animals	69 (46.00)	XIV	87 (58.00)	IX
4	Unsatisfactory results of technology	39 (26.00)	XVII	21 (14.00)	XIII
[IV]	Institutional Constraints				
1	Failure of government schemes to reach the real beneficiaries	89 (59.33)	IX	113 (75.33)	IV
2	Lack of training facilities	123 (82.00)	V	98 (65.33)	VII
3	Lack of awareness and access to government schemes	85 (56.66)	X	107 (71.33)	VI
4	Lack of veterinary service and expert advice	72 (48.00)	XIII	97 (64.66)	VIII
5	Absence of extra incentives for clean milk production	106 (70.66)	VII	117 (78.00)	III

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