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Relationship between profile of the dairy farmers and their management efficiency in animal husbandry practices

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Abstract

Animal husbandry in India is an integral part of the agriculture sector and plays an important role in providing employment and income to the rural people. Total milk production in India is 239.30 million tonnes during 2023-24. India ranks 1st in the world in terms of total milk production. Dairy farmers all over the world are working as managers of their own dairy enterprise. In the present study, three districts namely; Banaskantha, Mehsana, and Sabarkantha were selected for this study. From these districts, total 6 talukas (2 from each district), 5 villages from each taluka and, 10 farmers from each village constituting total of 300 dairy farmers were selected for the study. From this study it was observed that majority of dairy farmer were found middle age group (37.00%), education up to primary school (30.33%), medium sized family (60.67%), semi medium farmers (24.33%), membership in one organisation (60.00%), farming and animal husbandry as their main occupation (77.66%), very low herd size (53.00%), medium experience (35.00%), between 11 to 20 litres/day/household of milk production (28.33%), medium level mass media exposure (44.00%), medium level of extension contact (38.33%), low level of economic motivation (53.67%), high level of scientific orientation (43.67%), medium level of performance (60.00%) and medium level of knowledge about improved animal husbandry practices (38.33%). The overall management efficiency was medium management efficiency (47.34%). From relationship, it was observed that education, land holding, social participation, herd size, milk production, mass media exposure, extension contact, economic motivation, scientific orientation and level of knowledge were positive and highly significant; Experience in dairy farming and age were found negative and non-significant; Occupation and size of family were found positive and non-significant relationship with their management efficiency, respectively.

Keywords: Dairy farmer, animal husbandry, management efficiency, correlation

Introduction

Dairy farming is an important secondary source of income that provides employment, income, and nutritious food for millions of rural families and also supply dung as organic manure to enrich the soil fertility and thus help in increasing crop production. Total milk production in India is 239.30 million tons during 2023-24. India ranks 1st in the world in terms of total milk production. The milk production has increased by 3.78% over the previous year. The per-capita availability of milk is 471 grams per day. The average yield per animal per day for exotic/crossbred is 8.43 kg/animal, and for indigenous/non-descript, it is 3.54 kg/day/animal. The milk production from exotic/crossbred cattle has increased by 5.72%, and indigenous/non-descript cattle have increased by 6.96% in 2023-24 as compared to the previous year. The milk production from buffaloes has decreased by 1.05% as compared to the previous year. The top 5 milk-producing states are Uttar Pradesh (16.21%), Rajasthan (14.51%), Madhya Pradesh (8.91%), Gujarat (7.65%), and Maharashtra (6.71%). They contribute a total of 53.99% of

total milk production in the country. (Source: Basic animal husbandry statistics-2024) (GOI, DAH & D, Krishi Bhawan, New Delhi)

Objective

1. To study the profile of the dairy farmers of Milk Producers' Cooperative Societies (MPCs)
2. To study the management efficiency of dairy farmers
3. To study the relationship between the profile of the dairy farmers and their management efficiency

Methodology

North Gujarat was comprised of seven districts. From these districts, three districts namely; Banaskantha, Mehsana, and Sabarkantha were selected for this study because these districts have district cooperative milk unions. Two talukas from each district were selected based on higher milk production. Thus, a total of 6 talukas were selected for the study. From Banaskantha district, Dhanera and Deesa talukas; from Mehsana district, Kheralu and Satlasana

talukas; and from Sabarkantha district, Idar and Himatnagar talukas were selected randomly for the study. Total of 30 villages having Milk Producers' Cooperative Societies (MPCs) were selected for the study. Ten dairy farmers were selected randomly from each Milk Producers' Cooperative Societies (MPCs). Thus, 300 dairy farmers were selected for the study. In the present study, a multistage sampling technique was used.

Results and Discussion

To study the profile of the dairy farmers of Milk Producers' Cooperative Societies (MPCs)

For present study, some important characteristics were identified and the findings regarding characteristics have been classified into four groups, viz., personal, socio-economical, communicational, and psychological characteristics.

The data found in Table 1 that maximum (37.00%) dairy farmers were belonged to the middle age group (36 to 50 years), followed by 31.67 percent with the young age (Up to 35 years) and 31.33 percent from the old age group (Above 50 years), respectively. The findings have been reported by Babu *et al.* (2023) [3]. In education, 30.33 percent of dairy farmers had education up to primary school (1st to 8th standard), followed by 23.00, 20.34, 19.00, and 7.00 percent of dairy farmers who had college/post graduation, secondary school (9th to 10th standard), higher secondary school (11th to 12th standard), and illiterate (Do not read and write), respectively. Only 0.33 percent of dairy farmers were functionally literate, respectively. The findings have been reported by Vinita *et al.* (2023) [16].

In size of family, majority (60.67%) of the dairy farmers had medium (5 to 8 members) sized families. While 33.00 percent of the dairy farmers had small (Up to 4 members) sized families, and only 6.33 percent of the dairy farmers had large (Above 8 members) sized families, respectively. This finding has been supported by findings of Mithun *et al.* (2022) [10]. For land holding, 24.33 percent of dairy farmers were semi-medium farmers (2.01 to 4 ha) and marginal farmers (0.01 to 1 ha), followed by 22.34 percent small farmers (1.01 to 2 ha), 20.33 percent medium farmers (4.01 to 10 ha), and 4.67 percent landless. Only 4.00 percent were large farmers (above 10 ha), respectively. This finding has been supported by findings of Babu *et al.* (2023) [3]. In social participation, exactly three-fifths (60.00%) of dairy farmers had membership in one organisation, followed by 28.33 percent who had membership in more than one organisation, 11.67 percent had a holding a position in an organisation, respectively. These findings have been in line with Mithun *et al.* (2022) [10]. In occupation, majority (77.66%) of the dairy farmers, were engaged in farming and animal husbandry as their main occupation, followed by 17.67 percent of the dairy farmers who were engaged in farming along with animal husbandry, business/service; 4.67 percent of the dairy farmers were engaged in only farming or with only animal husbandry, respectively. This finding is further strengthened by the result reported by Thakan *et al.* (2022) [14]. In herd size, more than half (53.00%) of dairy farmers belonged to very low herd size (Up to 3 milch animals). Whereas, 19.33 and 10.67 percent

of the dairy farmers belonged to low herd size (4 to 6 milch animals) and very high herd size (more than 12 milch animals), respectively. Only 8.67 percent and 8.33 percent of the dairy farmers were medium herd size (7 to 9 milch animals) and high herd size (10 to 12 milch animals), respectively. These findings have been reported by Vinita *et al.* (2023) [16]. Experience in dairy farming, 35.00 percent of the dairy farmers were found with medium experience (15 to 21 years), followed by 26.00 percent of dairy farmers with low experience (8 to 14 years), 19.00 percent of dairy farmers with high experience (22 to 28 years), 12.00 percent of dairy farmers with very high experience (above 28 years), and 8.00 percent of dairy farmers with very low experience (up to 7 years), respectively. This finding has been supported by the findings of Thakan *et al.* (2022) [14]. In milk production, 28.33 percent of dairy farmers were found to be in between 11 to 20 litres/day/household of milk production, followed by 25.00 percent were found more than 51 litres/day/household of milk production, (19.67 percent) less than 10 litres/day/household, (12.67 percent) between 21 to 30 litres/day/household, (8.00 percent) between 41 to 50 litres/day/household of milk production and only 6.33 percent of dairy farmers were found between 31 to 40 litres/day/household of milk production, respectively. This finding has been supported by Singh *et al.* (2021) [13].

In mass media exposure, more than two-fifths (44.00%) of the dairy farmers had medium level. Whereas, 36.00 percent of the dairy farmers had low level, 14.34 percent of the dairy farmers had high level, 5.33 percent of the dairy farmer had very low level of mass media exposure, and only 0.33 percent of the dairy farmers had very high level mass media exposure, respectively. This finding has been supported by Singh *et al.* (2021) [13]. In extension contact, less than two-fifths (38.33%) of the dairy farmers had a medium level of extension contact, followed by 33.00 percent had a low level, 15.33 percent had a high level, 11.67 percent had a very low level of extension contact, and only 1.67 percent of dairy farmers who had a very high level of extension contact, respectively. This finding had been supported by Mithun *et al.* (2022) [10].

In economic motivation, more than half (53.67%) of the dairy farmers belonged to a low level of economic motivation, followed by 36.33, 5.33, 3.67 and 1.00 percent of dairy farmers who had medium, very low, high and very high levels of economic motivation, respectively. This finding had been supported by Usadadiya (2021) [15]. In scientific orientation, 43.67 percent of the dairy farmers had a high level of scientific orientation, followed by 36.67 percent having a medium level of scientific orientation, 13.33 percent having a low, 5.67 percent having a very high, and a few dairy farmers (0.66%) having a very low level of scientific orientation, respectively. This finding has been supported by Adhikari *et al.* (2020) [1]. In level of knowledge, 38.33 percent of dairy farmers had a medium level of knowledge about improved animal husbandry practices, followed by high (36.00%), low (21.33%), very low (2.67%), and very high (1.67%) level of knowledge about improved animal husbandry practices, respectively. This finding has been supported by Garai *et al.* (2020) [6].

Table 1: Distribution of dairy farmers according to their profile

(n = 300)

| (A) Personal characteristics | | | | |
|--------------------------------------|-----------------------------|---|-----------|------------|
| Sr. No. | Independent variable | Categories | Frequency | Percentage |
| 1 | Age | Young age group (Up to 35 years) | 95 | 31.67 |
| | | Middle age group (36 to 50 years) | 111 | 37.00 |
| | | Old age group (Above 50 years) | 94 | 31.33 |
| 2 | Education | Illiterate | 21 | 07.00 |
| | | Functionally literate | 01 | 00.33 |
| | | Primary school (1 st to 8 th standard) | 91 | 30.33 |
| | | Secondary school (9 th to 10 th standard) | 61 | 20.34 |
| | | Higher secondary school (11 th to 12 th standard) | 57 | 19.00 |
| | | College/post graduation | 69 | 23.00 |
| (B) Socio-economical characteristics | | | | |
| 3 | Size of family | Small family (Up to 4 members) | 99 | 33.00 |
| | | Medium family (5 to 8 members) | 182 | 60.67 |
| | | Large family (Above 8 members) | 19 | 06.33 |
| 4 | Land holding | Landless | 14 | 04.67 |
| | | Marginal farmers (0.01 to 1.00 ha) | 73 | 24.33 |
| | | Small farmers (1.01 to 2.00 ha) | 67 | 22.34 |
| | | Semi-medium farmers (2.01 to 4.00 ha) | 73 | 24.33 |
| | | Medium farmers (4.01 to 10.00 ha) | 61 | 20.33 |
| | | Large farmers (Above 10.00 ha) | 12 | 04.00 |
| 5 | Social participation | No membership | 00 | 00.00 |
| | | Membership in one organisation | 180 | 60.00 |
| | | Membership in more than one organisation | 85 | 28.33 |
| | | Holding a position in an organisation | 35 | 11.67 |
| 6 | Occupation | Only farming or only animal husbandry | 14 | 04.67 |
| | | Farming + Animal husbandry | 233 | 77.66 |
| | | Farming + Animal husbandry + Business/Service | 53 | 17.67 |
| 7 | Herd size | Very low (Up to 3 milch animals) | 159 | 53.00 |
| | | Low (4 to 6 milch animals) | 58 | 19.33 |
| | | Medium (7 to 9 milch animals) | 26 | 08.67 |
| | | High (10 to 12 milch animals) | 25 | 08.33 |
| | | Very high (More than 12 milch animals) | 32 | 10.67 |
| 8 | Experience in dairy farming | Very low (Up to 7 years) | 24 | 08.00 |
| | | Low (8 to 14 years) | 78 | 26.00 |
| | | Medium (15 to 21 years) | 105 | 35.00 |
| | | High (22 to 28 years) | 57 | 19.00 |
| | | Very high (Above 28 years) | 36 | 12.00 |
| 9 | Milk production | Less than 10 litres/day/household | 59 | 19.67 |
| | | Between 11 to 20 litres/day/household | 85 | 28.33 |
| | | Between 21 to 30 litres/day/household | 38 | 12.67 |
| | | Between 31 to 40 litres/day/household | 19 | 06.33 |
| | | Between 41 to 50 litres/day/household | 24 | 08.00 |
| | | More than 51 litres/day/household | 75 | 25.00 |
| (C) Communicational characteristics | | | | |
| 10 | Mass media exposure | Very low (up to 4.80) | 16 | 05.33 |
| | | Low (4.81 to 9.60) | 108 | 36.00 |
| | | Medium (9.61 to 14.40) | 132 | 44.00 |
| | | High (14.41 to 19.20) | 43 | 14.34 |
| | | Very high (19.21 to 24.00) | 01 | 00.33 |
| 11 | Extension contact | Very low (up to 13.20) | 35 | 11.67 |
| | | Low (13.21 to 26.40) | 99 | 33.00 |
| | | Medium (26.41 to 39.60) | 115 | 38.33 |
| | | High (39.61 to 52.80) | 46 | 15.33 |
| | | Very high (52.81 to 66.00) | 05 | 01.67 |
| (D) Psychological characteristics | | | | |
| 12 | Economic motivation | Very low (up to 6.00) | 16 | 05.33 |
| | | Low (6.01 to 12.00) | 161 | 53.67 |
| | | Medium (12.01 to 18.00) | 109 | 36.33 |
| | | High (18.01 to 24.00) | 11 | 03.67 |
| | | Very high (24.01 to 30.00) | 03 | 01.00 |
| 13 | Scientific orientation | Very low (up to 6.00) | 02 | 00.66 |
| | | Low (6.01 to 12.00) | 40 | 13.33 |
| | | Medium (12.01 to 18.00) | 110 | 36.67 |
| | | High (18.01 to 24.00) | 131 | 43.67 |
| | | Very high (24.01 to 30.00) | 17 | 05.67 |
| 14 | Level of knowledge | Very low (up to 20.00) | 08 | 02.67 |
| | | Low (20.01 to 40.00) | 64 | 21.33 |
| | | Medium (40.01 to 60.00) | 115 | 38.33 |
| | | High (60.01 to 80.00) | 108 | 36.00 |
| | | Very high (80.01 to 100.00) | 05 | 01.67 |

To study the management efficiency of dairy farmers

Management efficiency refers to the ability to plan, make decisions, organise, and use the ideal amount of resources to achieve the highest possible results. Data regarding the overall management efficiency are presented in Table 2. Where, less than half (47.34%) of dairy farmers have

medium management efficiency, followed by 43.33 percent of dairy farmers having high management efficiency, 7.00 percent of dairy farmers having very high management efficiency, and 2.33 percent of dairy farmers having low management efficiency, respectively. This finding has been supported by Mande (2015) ^[7] and Banshilal (2016) ^[4].

Table 2: Distribution of dairy farmers according to their overall management efficiency

| (n = 300) | | | | |
|-----------|---------------------------------|-----------------|-----------|------------|
| Sr. No. | Categories | Score | Frequency | Percentage |
| 1 | Very low management efficiency | Up to 20.00 | 00 | 00.00 |
| 2 | Low management efficiency | 20.01 to 40.00 | 07 | 02.33 |
| 3 | Medium management efficiency | 40.01 to 60.00 | 142 | 47.34 |
| 4 | High management efficiency | 60.01 to 80.00 | 130 | 43.33 |
| 5 | Very high management efficiency | 80.01 to 100.00 | 21 | 07.00 |
| Total | | | 300 | 100.00 |

To study the relationship between the profile of the dairy farmers and their management efficiency

In the present investigation, it is classified into profiles of dairy farmers, likewise personal, socio-economical, communicational, and psychological. It was studied as an independent variable to know its relationship with the management efficiency of dairy farmers.

The relationship between the selected profiles of the dairy farmers is categorised into fourteen different variables, viz., age, education, size of family, land holding, social participation, occupation, herd size, experience in dairy farming, milk production, mass media exposure, extension contact, economic motivation, scientific orientation, and level of knowledge. They were included to ascertain the management efficiency of dairy farmers.

Table 3: Relationship between profile of the dairy farmers and their management efficiency

| (n = 300) | | |
|-----------|----------------------------------|-------------------------------------|
| Sr. No. | Name of the independent variable | Correlation coefficient ('r' value) |
| 1 | Age | -0.110 ^{NS} |
| 2 | Education | 0.206** |
| 3 | Size of family | 0.048 ^{NS} |
| 4 | Land holding | 0.184** |
| 5 | Social participation | 0.173** |
| 6 | Occupation | 0.078 ^{NS} |
| 7 | Herd size | 0.589** |
| 8 | Experience in dairy farming | -0.092 ^{NS} |
| 9 | Milk production | 0.563** |
| 10 | Mass media exposure | 0.623** |
| 11 | Extension contact | 0.670** |
| 12 | Economic motivation | 0.462** |
| 13 | Scientific orientation | 0.578** |
| 14 | Level of knowledge | 0.457** |

*Significant at 0.05 level of significance

NS = Non-Significant

** Significant at 0.01 level of significance

From relationship, it was observed that education (0.206**), land holding (0.184**), social participation (0.173**), herd size (0.589**), milk production (0.563**), mass media exposure (0.623**), extension contact (0.670**), economic motivation (0.462**), scientific orientation (0.578**) and level of knowledge (0.457**) were positive and highly

significant; Experience in dairy farming (-0.092^{NS}) and age (-0.110^{NS}) were found negative and non-significant; Occupation (0.078^{NS}) and size of family (0.048^{NS}) were found positive and non-significant relationship with their management efficiency, respectively. Similar findings were reported by Manivannanan and Tripathi (2007) ^[8], Nehete (2010) ^[11], Birajdar (2012) ^[5], Patel (2021) ^[12] and Mashaliya (2023) ^[9].

Conclusion

From this study it was observed that majority of dairy farmer were found middle age group (37.00%), education up to primary school (30.33%), medium sized family (60.67%), semi medium farmers (24.33%), membership in one organisation (60.00%), farming and animal husbandry as their main occupation (77.66%), very low herd size (53.00%), medium experience (35.00%), between 11 to 20 litres/day/household of milk production (28.33%), medium level mass media exposure (44.00%), medium level of extension contact (38.33%), low level of economic motivation (53.67%), high level of scientific orientation (43.67%), medium level of performance (60.00%) and medium level of knowledge about improved animal husbandry practices (38.33%). The overall management efficiency was medium management efficiency (47.34%). From relationship, it was observed that education, land holding, social participation, herd size, milk production, mass media exposure, extension contact, economic motivation, scientific orientation and level of knowledge were positive and highly significant; Experience in dairy farming and age were found negative and non-significant; Occupation and size of family were found positive and non-significant relationship with their management efficiency, respectively. The likely factors contributing to this could include a high level of education, strong economic status, access to extension services, thorough knowledge, and exposure to mass media among the milk producers.

Implication

The research helps in understanding the traits of dairy farmers, which will act as a guide for policy makers, planners and extension organisations in developing and executing programmes aimed at promoting profitable dairy farming.

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