P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating: 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 7; SP-Issue 3; March 2024; Page No. 113-117

Received: 19-12-2023
Accepted: 23-01-2024

Indexed Journal
Peer Reviewed Journal

Assessing the status and needs of dairy farmers in Uttar Pradesh

[1]Singh Prabhat, [2]Dr. Tiwari Vikas, [3]Dr. Potdar Vinod, [4]Dr. Singh Vinay Kumar, [5]Dr. Jadhav Raviraj and [6]Dr. Joshi A Sachin

[1]Associate Thematic Program Executive -ICT, BAIF Institute for Sustainable Livelihoods and Development, BAIF Bhawan, 27-A Tagore Town, Prayagraj, Uttar Pradesh, India

[2]BAIF Institute for Sustainable Livelihoods and Development, BAIF Bhawan, 27-A Tagore Town, Prayagraj, Uttar Pradesh, India

[3]BAIF Development Research Foundation, BAIF Central Research Station and Semen Freezing Laboratory Uruli Kanchan, Pune, Maharashtra, India

[4]BAIF Development Research Foundation, BAIF Bhawan, 27-A Tagore Town, Prayagraj, Uttar Pradesh, India

[5]BAIF Development Research Foundation, BAIF Bhawan, 27-A Tagore Town, Prayagraj, Uttar Pradesh, India

[6]BAIF Development Research Foundation, BAIF Central Research Station and Semen Freezing Laboratory Uruli Kanchan, Pune, Maharashtra, India

DOI: https://doi.org/10.33545/26180723.2024.v7.i3Sb.407

Corresponding Author: Singh Prabhat

Abstract

This study investigated farming practices in Uttar Pradesh, India. Researchers surveyed farmers across numerous villages, blocks, and districts within the state. The study found that a significant portion of farmers were middle-aged. Most farm families were of medium size, and the majority of farmers owned their land. However, many farmers operated small landholdings and had limited annual income. Despite this, a high percentage of respondents used ATMs for financial transactions, and many also utilized digital payment platforms. Farmers typically owned several animals, primarily for milk production, and incurred substantial expenses related to animal feed, treatment, and pesticides. The study also highlights a need for improved knowledge and adoption of advanced practices in dairy farming. Areas such as breeding, feeding, management, and healthcare require further attention from both government and social organizations to bridge the technological gap and achieve self-sufficiency in the dairy sector. The study revealed a gap in the farmers' technical knowledge and the adoption of modern dairy farming practices. However, the farmers expressed a strong desire for support, including improved infrastructure and access to experts in relevant fields. This suggests a willingness to learn and adopt new methods to enhance their farm businesses.

Keywords: Dairy farmers, age, land holding

Introduction

India continues to be the largest producer of milk in world. Total milk production in the country is 230.58 million tonnes during 2022-23. India ranks 1st in the world in terms of total milk production. (Source: FAO). The milk production has increased by 3.83% over the previous year (2021-22). The per-capita availably of milk is 459 grams per day. Top 5 Milk producing States are: Uttar Pradesh (15.72%), Rajasthan (14.44%), Madhya Pradesh (8.73%), Gujarat (7.49%), Andhra Pradesh (6.70%). They together contribute 53.08% of total Milk production in the country (Source-BasicAnimalHusbandryStatistic-2023 https://dahd.nic.in/sites/default/filess/BAHS2023.pdf). Uttar Pradesh stands tall as the undisputed leader in India's dairy sector contributing 15.72% share of total milk production of India. But the studies reveal a lack of technical knowledge and modern practices among some farmers, hindering optimal productivity. Uttar Pradesh's dairy sector presents a promising picture. With continued government efforts, advancements in technology, and increased farmer awareness, the state is well-positioned to further strengthen its leadership in the national dairy landscape. In view of the above this study was conducted with the following main objectives:

- To study socio-economic parameters of dairy farmers with respect to age, land and animal holding capacity
- To know primary and secondary occupation, different type of animal expenses, bank holding details
- To highlight facilitating factors that could help promoting dairy development to improve socio-economic status of milk producers.

Materials and Methods

The present investigation was carried out during the year 2020-21 in 15 districts 33 blocks 275 villages of Uttar Pradesh state. Objective of the study was to analyse the status of the dairy farmers with their requirement in the selected area. Average fifty farmers were selected from each district for the present study making a total sample size of

750 farmers. This survey was made for understanding the customers involved in dairy and agricultural activities. Formats were prepared for collecting the responses from the farmers. Details as of coverage area with other details are as

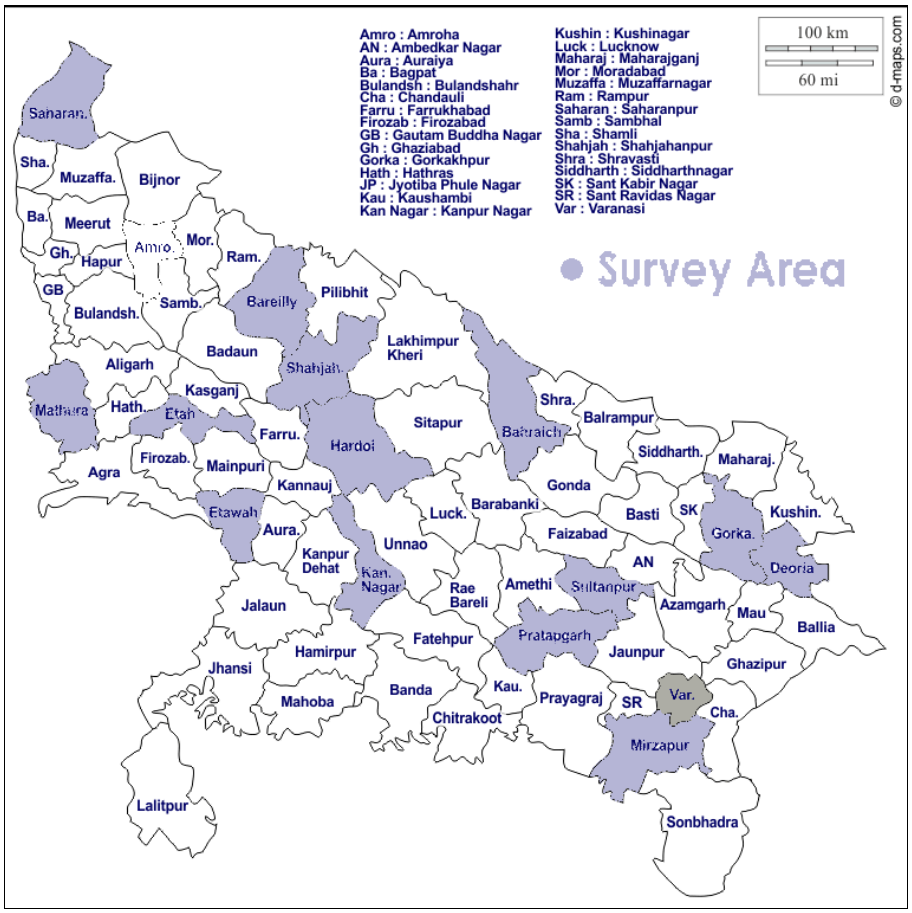

Fig 1: Coverage area

Details of District, Farmers, Block and Villages

Name of District	No. of Farmer	No. of Blocks	No. of Villages
Baharich	51	2	29
Bareilly	51	1	23
Deoria	51	4	15
Etah	50	2	22
Etawah	55	2	6
Gonda	46	1	14
Hardoi	50	1	22
Kanpur Nagar	50	2	23
Mathura	50	2	10
Mirzapur	50	3	22
Pratapgarh	52	3	28
Saharanpur	51	2	10
Shahjahanpur	55	2	14
Sultanpur	50	3	30
Varansi	50	3	7
Grand Total	762	33	275

The data was categorised and coded according to location, occupation, education, family type, landholding, parity etc. The collected data were subjected to study the effect of various factors *viz*., age, family size, land holding, Occupation, animal holding, expenses over animal treatment, pesticide, payment platform used. The descriptive statistical tools like frequency, average and percentage were used for analysis of data and the results were interpreted accordingly

Results and Discussion

Socio-Economic Profile of Farmers: The analysis of socioeconomic status of farmers under the study area revealed that the average age of dairy farmers was 48 years with range between 18-60 years. 34.78 percent of the farmers were in 46-60 age group, 17.85 percent of the farmers were from the 26-35 age group while 28.74 percent were in 36-45 age group. 5.77 percent of the farmers were from the 18-25 young age group. The remaining 12.86 were from old age group above 60 years. Potdar *et al*. (2020) [7] in his study reported majority of respondents were in middle age group.

Table 1: Age Profile of Farmers

Age of Farmers	Frequency	Percent
18-25	44	5.77
26-35	136	17.85
36-45	219	28.74
46-60	265	34.78
Above 60	98	12.86

Family Size: Majority of the farm families (55.38%) were medium (5 - 8 members/family followed by 29.00% Above 8 members /family and 15.62% percent large (Up to 4 members /family) in size across the villages. Potdar *et al.* (2020) [7] reported The average size of family in the sample was 7.66 persons with 4.12 male members and 3.53 female

members. State-wise differentials shows that on an average there were 8.74 members per household in Bihar, followed by Uttar Pradesh (6.76 members) and Maharashtra (6.17 members).

Table 2: Family Size Among the Surveyed Samples

Category	Frequency (No.)	Percent
Up to 4 members	119	15.62%
5 - 8 members	422	55.38%
Above 8 members	221	29.00%

Land Holding

More than 95% farmers having their own land Majority out of which (67.19%) of the farmers had small size of land 1 to 3 landless (4.07%), 4 to 6 (18.9%), 7 to 10 (5.91%) and 3.94% have above 10 acers land. Potdar *et al* (2020) [7] observed 90.3% farmers were those who owned land nearly 56% of the land owners were Marginal farmers (owning 0.1 -1 ha of land), 23% were small (1.1-2 ha) land owners while about 12% farmers owned above 2 ha of land. Ravinder Kumar *et al* (2020) [8] reported Maximum (35%) farmers were small (landholding up to 0.93-1.69 ha) and minimum (05.5%) were landless farmers followed by marginal (landholding 0.08-0.84 ha) farmers (33.5%), medium (landholding 1.77-2.53 ha) farmers (15.5%) and large (landholding above 2.53 ha) farmers (10.5%), respectively

Table 3: Land Holding Status of Farmers

Availability of land in acers	Frequency (No.)	Percent
Landless	31	4.07
1 to 3	512	67.19
4 to 6	144	18.9
7 to 10	45	5.91
Above 10	30	3.94

Annual Income: nearly (52.44%) surveyed families were shown their annual income below 1.5 lakh. 34.26% families were between ranges of 1.5 lakh to 3 lakh, 7.38% families between 3 lakh to 4.5 lakh while 5.93% families have income above 5 lakhs. This clearly suggests that livelihood options are limited and source for sustainable income generation are lacking among the major populace.

Table 4: Annual Income of Farmers

Category	Frequency (No.)	Percent
Above 5 lakhs	45	5.93
Below 1.5 lakhs	398	52.44
Between 1.5 lakhs to 3 lakhs	260	34.26
Between 3 lakhs to 4.5 lakhs	56	7.38

Major proportion of family income comes from primary occupation and it is noticed that agriculture was the largest type of primary occupation in the survey area. Along with the primary occupation, additional income source of the respondents. Agriculture Farmer, Dairy Farmer, Farm Labourer, Government Job, Private Job similar findings were reported by Ravinder Kumar *et al* (2020) [8] where (89%) belonged to agriculture followed by dairy (8%), service (2.5%) and business (0.5%).

Table 5: Primary & Secondary Occupation Details of Farmers

Occupation Type	Primary occupation Frequency (No.)	Percent
Agriculture Farmer	623	81.76
Dairy Farmer	91	11.94
Farm Labourer	13	1.71
Government Job	14	1.84
Private Job	21	2.76

Occupation Type	Secondary	% (N=762)
Agriculture Farmer	247	32.41
Dairy Farmer	406	53.28
Farm Labourer	49	6.43
Government Job	14	1.84
Private Job	46	6.04

Financial Awareness

(99.48%) farmers hold bank accounts in the banks as per the banks available in their respective blocks. 74.02% of the respondents holds ATM cards and use for the monetary transactions. While, 25.98% of the respondents don't have the ATM cards. 58.66% of the respondents are using the different digital payment platforms for making the transactions for their purchases, payments transfers and other bill payments. Jimmy Jose *et al*. (2021) [4] in his study shown 95% respondent were having a bank account and 74% of the respondents were educated toward the new method of payment system i.e. digital payment, 72% of the respondents were open towards the new method of payment 31% of the respondents using Google Pay and only 2% were using BHIM app which was astonishing

Table 6: The types of Payment Platform Used

Usage of Payment Platforms	Frequency (No.)	Percent
Not Using Online Payment platforms	315	41.34
Multiple payment platforms	62	8.14
Google Pay	88	11.55
Phone Pay	144	18.90
Other UPIs	153	20.08

Animals Holding: Average animal holding per family was 2 for milking cow & buffalo while 1 each for Cow & buffalo -female, male Calves, Pregnant & Dry animals. In study by Potdar *et al* (2020) [7] number of cows and buffaloes were owned by the farmers of Uttar Pradesh were 1.60 cows & 1.42 buffaloes. Ravinder Kumar *et al* (2020) [8] reported the average herd size was 2.89 dairy animals per household followed by 1.15 cattle and 1.75 buffalo per households in their study area.

Table 7: Animals Holding Details

Particulars	No. of Animals	Frequency (No.)	Percent	Average animal holding per family
Cows - Milking	1195	581	76.25	2
Cow Heifers	542	429	56.3	1
Cow Calves - female	457	416	54.59	1
Cow Calves - male	267	364	47.77	1
Cow- Pregnant	453	382	50.13	1
Cow Dry	240	315	41.34	1
Buffalo-female	1511	612	80.31	2
Buffalo- male	112	281	36.88	0
Buffalo Calves - female	575	520	68.24	1
Buffalo Calves - male	374	441	57.87	1
Buffalo Pregnant	611	442	58.01	1
Buffalo Dry	223	240	31.5	1

Monthly Expenditure on Feeding Inputs for Animals: 96.33% farmers provided their responses on the monthly expenditure on feeding inputs for animals. On average, Rs. 6,765 monthly was spend for each animal by each farmer. Vivek Pratap Singh (2017) [5] reported The annual feed cost for per milch animal estimated to Rs.19191.7. In which 11.00% of green fodder, 12.69% of dry roughages and 76.30% of concentrates.

Table 8: Monthly Feeding Expenses

Monthly Feeding Expenditure (In Rs.)	Frequency (No.)	Percent
Up to Rs. 5000	460	60.37
Rs. 5000 - Rs. 10000	150	19.69
Rs. 10000 - Rs. 15000	57	7.48
Rs. 15000 - Rs. 20000	31	4.07
Rs. 20000 - Rs. 25000	13	1.71
Above Rs. 25000	23	3.02
Don't Know	28	3.67

Monthly Expenses on Animal Treatment: 740 (97.11%) farmers answered regarding the monthly expenditure incurred on animal treatment. Further, each farmer spends approximately Rs. 933 monthly on animal treatment related expenses.

Table 9: Monthly Expenses on Animal Treatment

Monthly Expenditure (in Rs.)	Frequency (No.)	Percent
Below Rs. 500	419	54.99%
Rs. 500 - Rs. 1000	174	22.83%
Rs. 1000 - Rs. 2500	104	13.65%
Rs. 2500 - Rs. 5000	30	3.94%
Above Rs. 5000	13	1.71%
Don't know	22	2.89%

78% spends more than Rs. 1000 per month for treatment of the animals, through service providers including government veterinary services. Only, 293 (38%) of the respondents also mentioned labour related expenses. On average they spend around Rs. 5,727 on labour on monthly basis. The types of other expenditure were on vaccination, deworming, mineral mixture, artificial insemination services & purchase of new animal. Deka *et al*. (2021) [1] reported expenditure of INR 1319 (USD 19.6), INR 1638 (USD 24.4) and INR 761 (USD 11.3) for abortion, repeat breeding and retained placenta. while Panchasara et.al. from Gujarat (2012) reported expenditures for the treatment of abortion (INR 250/USD 3.7), repeat breeding (INR 506/USD 7.5) and retained placenta (INR 320/USD 4.8).

Requirements of the Livestock Based Products: 589 farmers responded for the equipment needed for livestock was Chaff Cutter, Milking Machine, Rubber mats, Cans, Weighing and measurement machines. While 756 farmers responded for the livestock based services needed Artificial Insemination Services, Animal Laboratory Services, Mobile Veterinary Services, Animal Insurance Linkages, Knowledge and Awareness based Information, Ambulatory Services, Guidance for reducing feed the cost Guidance for Improving the milk quality. Further 71% respondents told about the expenses they incurred on fertilizers annually. On average each respondents spend as much as Rs. 6,617 per annum, based on the land holding and crops undertaken. The respondents were bifurcated as per the expense range as shown in the table below.

Table 10: Fertilizers Expenses

Expenditure	Frequency (No.)	Percent
Up to Rs. 5000	144	36.46%
Rs. 5000 - Rs. 10000	54	13.67%
Rs. 10000 - Rs. 15000	30	7.59%
Above Rs. 15000	52	13.16%
Don't Know	115	29.11%

71.26% respondents told about the expenses they incurred on pesticides or insecticides annually. On average each respondents spend as much as Rs. 2996 per annum, based on the land holding and crops undertaken. The respondents were bifurcated as per the expense range as shown in the table below:

Table 11: Pesticide or Insecticide Expenses

Expenditure	Frequency (No.)	Percent
Up to Rs. 2500	425	55.77
Rs. 2500 - Rs. 5000	66	8.66
Rs. 5000 - Rs. 15000	30	3.94
Above Rs. 15000	22	2.89
Don't Know	219	28.74

Conclusion

The study highlighted a strong demand for accessible expert guidance and educational opportunities for dairy farmers in the region. It recommends regular workshops and meetings led by experts to introduce farmers to the latest technologies, management strategies, and optimized animal nutrition. Additionally, the study emphasizes the power of collaboration, noting the significant advantages self-help

groups offer dairy farmers. These groups promote income growth by reducing shared risks and ensuring fair profit sharing. The study strongly encourages the formation and active participation in such groups. Furthermore, it suggests exploring value-added activities like collective milk processing within these groups to unlock additional revenue streams. Finally, empowering women within these groups through financial management roles and access to loans could boost both their individual success and the collective well-being of the group.

Competing Interests

Authors have declared that no competing interests exist

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