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Studies on different Socio-economic profile of farmers and feeding management practices of cattle in Hardoi district of Uttar Pradesh

[1]Ashwani Kumar Singh, [2]Dr. PK Upadhyay, [3]Dr. Deepak Singh, [4]Dr. Samarth Tewari, [5]Vikash Kumar, [6]Dr. Ramjee Gupta and [7]Sandeep Kumar

[1, 5, 7]Research Scholar, Department of Animal Husbandry and Dairying, College of Agriculture, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur, Uttar Pradesh, India

[2, 6]Professor, Department of Animal Husbandry and Dairying, College of Agriculture, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur, Uttar Pradesh, India

[3]Assistant Professor, Faculty of Agriculture, Guru Kashi University, Talwandi Sabo, Bathinda, Punjab, India

[4]Assistant Professor, School of Agriculture, Dev Bhoomi Uttarakhand University, Dehradoon, Uttarakhand, India

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Corresponding Author: Vikash Kumar

Abstract
The aim of this study to investigate the status of socio profile of the farmers and feeding management practices of cattle in Hardoi district of Uttar Pradesh. The data were collected from randomly selected 500 respondents through personal interview using pre-tested structured schedule. The result revealed that that majority of farmers (53.8%) belong to middle age group of 30 to 50 years and that most 69.00 per cent were educated in which metrics, high school, intermediate and graduate respondents included. Most of the 84.40 per cent male farmers were engaged with cattle rearing in the study area and 15.6 per cent female farmers were engaged with cattle rearing. Majority of farmers (66.8%), (26.6%), (26.6%), (80.2%), (72.40%), (83.6%) and (68%) of the respondents belong to other backward caste, medium sized families, nuclear family, marginal farmer category, had small herd size, practicing agriculture+ Animal husbandry and more than half of the total farmers 68 per cent had low economic status with less than 60000 Rs. Majority (78.2%) of respondents practiced both the feeding system followed by (21.8%) stall feeding and (0.0%) grazing of animals in the study area. Majority (80.0%), (67.6%), (60.4%), (76.6%) and (77.6%) of respondents practiced individual type of stall-feeding system, not grown type of fodder production, harvested/ follow fields grazing site, two time of feeding and imbalance type of feeding respectively. Majority (47.6%), (65%), (80.2%), (85.6%), (94%) and (66.6%) practiced self-prepared type of concentrate mixture, soaked concentrate mixture before feeding, did not used common salt, did noy used mineral mixture, did not used hay and silage and extra concentrate fed to pregnant cow last two months of her pregnancy. Majority (62%), (66.4%), (91.2%), (96.4%), (89%) and (79.8%) of the respondents fed 2-7 kg. concentrate, practicing feeding of concentrate during milking time, provided water free access in a day, did not practice poor-quality roughages by urea ammonization and molasses, practiced feeding of dry fodder 2-2.5 kg. per 100 kg of body weight and were practicing feeding of green fodder with quantity less than 20 kg.

Keywords: Feeding, cattle, family, fodder and roughages

Introduction

Over two-thirds of the rural population in India relies on agriculture for their living, which includes animal husbandry. A key part of the Indian economy is livestock. Animals may provide us with a variety of goods, including nutrient-rich food, draught power, organic manures, skin, and fuel for the home, as well as regular sources of income for rural households. Animals can quickly reproduce, giving us the opportunity to generate the desired progeny that is maintained in a living bank and offers insurance against crop loss and natural disasters. The livestock industry, which also employs roughly 8.8% of the country's population, generated 16 percent of the income of small farm households, compared to an average of 14 percent for all rural households. This industry makes for 25.6% of the total agricultural GDP and 4.11 percent of the overall GDP. The majority of farmers in the nation use mixed farming, also known as integrated farming, which combines crops and animals such that the output of one operation becomes the input of another, resulting in resource efficiency. Agriculture and allied sectors which include forestry and fisheries contribute over 24 per cent to the country's GVA.

Farmers may earn money from their cattle in a number of ways. Cow, buffalo, camel and goat milk are sources of revenue for farmers in times of need, such as for weddings, kid education, medical care, home repairs, etc. The owners benefit from the animals' use as moving banks and assets since it gives them financial stability, because so many people in India lack basic skills and literacy, they are entirely dependent on agriculture for their livelihood. However, due to its seasonal nature, agriculture could only offer work for a maximum of 180 days each year. Less people depend on cattle to use their labor during the lean agricultural season as there is less land available. Next to

basic crops, the livestock industry is India's second-largest contributor to the country's agricultural economy. About 25.8% of the entire agricultural, forestry and fisheries sectors. Gross Value Added (GVA) comes from the animal husbandry and dairying industries (194 assessment of livestock). Livestock management practices regarding feeding, housing, breeding and health care are the major elements in increasing dairy production. Sometimes, due to some social and local problems, farmers have to run their dairy business on traditional managemental practices.

Materials and Methods
This chapter deals with the aspect for conducting a study in order to achieve the objectives of the work program like research site and sampling, data collection techniques and tools by using interview schedule, interview guide and direct observations method and feed sample takes for observation of feed ingredients also by using laboratory method. The statistical analysis method used in concluding the present study. The materials and methods used in applied to the present study are described under the following sub- sections. The details related to research material used and methodology adopted in this investigation of work is given hereafter under the following heads. Location of the study, Climatologically description of study area, Method of sampling, Tools and techniques used in data collection, Measurement of independent variables, Measurement of dependent variables, Existing livestock management practices adopted by the respondents, Dry matter intake and estimation of proximate principles, Benefit-cost ratio (BCR) of cow milk, Tabulation of data, Statistical analysis of data, Rank based quotient (RBQ).

Table 1: Detail of surveyed area

	District Hardoi (U.P.)				
S. No.	Hardoi tehsil	Shahabad tehsil	Bilgram tehsil	Sandila tehsil	Sawayajpur tehsil
1.	Ahirori	Ambari	Sohara	Behender Kala	Bhagwantpur
2.	Badauli	Anjana	Chandpur	Hasanapur	Chanduapur
3.	Damandi	Chandauli	Balenda	Bindaura	Daulatpur
4.	Gopalpur	Fattepur	Durgaganj	Kahchari	Gurdhara
5.	Barela	Hariharpur	Shyampur	Jarha	Kaitha
6.	Dularpur	Hara	Bhengaon	Atrauli	Madnapur
7.	Govindpur	Sujauli	Harpalpur	Bahuty	Nizampur
8.	Mahimapur	Agampur	Kothawan	Baheriya	Rudrapur
9.	Akohara	Baburhai	Atwaali mardanpur	Dilawar nagar	Saidapur
10.	Barkatpur	Dariyapur	Chandauli	Dhikuhny	Semaria
11.	Dulhapur	Naseerpur	Kherwa	Balamau	Arjunpur Pansala
12.	Katarpur	Udhranpur	Kursath khurd	Nirmapur	Bhawanipur
13.	Bhawanipur	Sidhauli	Bansa	Khajohna	Dayalpur
14.	Gangapur	Anjhi	Bikapur	Terwa Dahigawan	Haraiya
15.	Malihamau	Dhawar	Herwal	Shamshpur	Mastapur
16.	Ramapur	Kapoorpur	Mahmoodpur	Atamau	Ram nagar
17.	Dadwani	Lalpur	Bagh Rai	Gahira	Shyampur
18.	Hariharpur	Nagariya	Nasirpur	Kakrauli	Surjupur
19.	Adampur	Pothwa	Saida pur	Kiratpur	Tikar
20.	Karanpur	Todarpur	Barauli	Mahatwana	Muthauli

Recording observations
In view of objectives of the study, necessary data were collected, tabulated and analysed. The findings of the study have been presented in this chapter in accordance of objectives set forth for the study. The findings are being presented under following sub heads:
1. Socio-economic profile of farmers
2. Feeding Management Practices

1. Socio-economic profile of farmers
The socio-economic profile of 500 randomly selected farmers from five different tehsils of Hardoi districts of Uttar Pradesh were surveyed to collect the information related to family profile, age, type & size of family, education, land holding profile, vocational diversification was assumed to influence the knowledge level of management practices. The distribution of respondents based on selected variables is presented in Table-3.

a. Age of farmer
The table-3 indicated that majority of farmers (53.8%) belong to middle age group of 30 to 50 years, followed by 33% belong to old age group (above 50 years) and 13.2% farmers were young age group (up to 30 years) in the study area. Among respondents 9,11,14,17 and 15 per cent belongs to young age group whereas 48,50,53,62 and 56 percent of respondent belongs to middle age and 43,39,33,21 and 29 per cent of respondents belongs to old age group in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Maximum number of young farmers observed in dairy husbandry was from Sandila tehsil (17 per cent) while least number of farmers was from Hardoi tehsil (9 per cent). Maximum number of middle age farmers observed in dairy husbandry was from Sandila tehsil (62 per cent) while least number of farmers was from Hardoi tehsil (48 per cent). Maximum number (43 per cent) of old farmers observed in dairy husbandry were from Hardoi tehsil while least number (21 per cent) of farmers was from Sandila tehsil. The result of the present study showed that middle age and old age group people are more involved in Animal Husbandry as compared to young age group experience regarding indigenous technical. Similar findings are also reported by Kumar *et al.* (2016) [15] in thar desert of Rajasthan, Dhaka *et al.* (2017) in Bundi

district of Rajasthan. The majority of the respondents belonged to middle age category of 35 to 50 years in their respective study area.

b. Education

Education of the respondents is necessary for adoptions of new innovations. The data given in table 3 indicated that most 69.00 per cent were educated and 31.00 per cent of farmers were illiterate. Study revealed that most of the farmers were illiterate (31%). Further maximum (38%) percentages of illiteracy were observed in Sawayajpur tehsil while minimum (20%) percentages were found in Bilgram. Overall, 21.80 per cent farmers were educated up to metrics level in the study area. Maximum (28%) of farmers educated up to metrics level were seen in Bilgram, while minimum (18%) were seen in Sawayajpur tehsil. Overall, 28 per cent farmers were educated up to high school level in the study area. Maximum (33%) of farmers educated up to high school level were seen in Bilgram, while minimum (23 %) were seen in Sawayajpur tehsil. Overall, 14.2 per cent farmers were educated up to intermediate level in the study area. Maximum (19%) of farmers educated up to intermediate level were seen in Sawayajpur tehsil, while minimum (11%) were seen in Bilgram and Sandila tehsils respectively. Overall, 5.00 per cent farmers were educated up to graduation or above level in study area. Maximum (8.0%) of farmers educated up to Graduation or above level were seen in Bilgram, while minimum (2.0%) were seen in Sawayajpur. These findings are in line with the study of *Bansod et al.* (2022) [12] in their respective study region.

c. Gender of farmers

Sex is one of the more important categorized to know who are more male or female highly involved in the dairy sectors. Data show in table 3 most of the 84.40 per cent male farmers were engaged with cattle rearing in the study area and 15.6 per cent female farmers were engaged with cattle rearing. Maximum 87 per cent male farmers were engaged with cattle rearing in the Sandila tehsil, while minimum 82 per cent female farmers were engaged with cattle rearing in Bilgram tehsil. Maximum 18 per cent female farmers were engaged with cattle rearing in the Bilgram tehsil, while minimum 13 per cent female farmers were engaged with cattle rearing in Sandila tehsil.

d. Caste

The table-3 indicated that majority of farmers (66.8%) belong to other backward caste followed by 16.6% belong to scheduled caste ,15.8% general category and 0.8% farmers were belonging to scheduled tribes in the study area. Among respondents 20,10,16,13 and 20 per cent belongs to general category whereas 58,69,74,71 and 62 percent of respondent belongs to other backward caste, 22,19,10,15 and 17 per cent of respondents belongs to scheduled caste and 0,2,0,1 and 1 percent of respondent belongs to scheduled tribes in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils of Hardoi district respectively. Maximum number of general category farmers observed in dairy husbandry was from Hardoi and Sawayajpur tehsils (20 per cent) respectively, while least number of general category farmers was from Shahabad tehsil (10 per cent). Maximum number of other backward caste farmers observed in dairy husbandry was from Bilgram tehsils (74 per cent), while least number of other backward caste farmers was from Hardoi tehsil (58 per cent). Maximum number of scheduled caste farmers observed in dairy husbandry was from Hardoi tehsil (22 per cent), while least number of scheduled caste farmers was from Bilgram tehsil (10 per cent). Maximum number of scheduled tribe farmers observed in dairy husbandry was from Shahabad tehsil (2 per cent), while least number of scheduled tribe farmers was from Sandila and Sawayajpur tehsil (1 per cent) respectively.

e. Family size

More than half of the total farmers 64.0 per cent had medium sized families with family members 6 to 10, while 26.6 per cent small sized with less than 5 members and 9.4 per cent large sized with more than 10 members. Overall, maximum number of farmers which had medium sized families belonged to Shahabad tehsil (67%), while least number of the farmers with medium sized family belonged to Sandila tehsil (62 per cent). Overall, maximum number of farmers which had small sized families belonged to Hardoi and Sawayajpur tehsil (30%) respectively, while least number of the farmers with small sized family belonged to Bilgram tehsil (22%). Overall, maximum number of farmers which had large sized families belonged to Bilgram tehsil (18%) respectively, while least number of the farmers with large sized family belonged to Hardoi tehsil (4%). However, overall large families were less in study area. Similar findings were also reported by Singh and Srivastava (2016) [16], they reported that majority of respondents had Large (>4) family in their respective study region.

f. Family type

Overall, more than half (73.4%) of the total farmers had nuclear and (26.6%) of respondents belongs to joint family. The results of the study revealed that the maximum percentage of farmers which had nuclear family belonged to Bilgram tehsil (78%) whereas, minimum number of farmers with nuclear family belonged to Hardoi and Sawayajpur (70%) respectively. Among respondents' maximum percentage of farmers with joint family were found in Hardoi and Sawayajpur (30%) respectively, while minimum (22%) of farmers had such type of families were observed in Bilgram tehsil. These findings were similar to the result of Mande *et al.* (2009) [17] who observed that 63.33 per cent of the dairy farmers were nuclear type of family and 36.67 per cent were joint type of family in his study at Lathur district of Maharashtra and contrary with the findings of Prasad *et al.* (2017) [18] who reported that majority (84%) of respondents belong to nuclear family in Wayanad district of Kerala.

g. Land holding

Overall, 80 per cent farmers in different districts were having marginal land holding (up to1 ha.) pattern. Maximum (84 %) numbers of small holding farmers were recorded from Hardoi and Shahabad tehsils respectively, while minimum (76%) were recorded from Bilgram tehsil. On an average 13.2 per cent of farmers of different tehsils were having small land holding (1.0-2.0 ha). Highest percentage of such farmers belongs to Sawayajpur

tehsil and lowest percentage of small land holding farmers were recorded from Shahabad tehsil. On an average 2.2 per cent of farmers of different district were having landless. Highest (4.0%) of such farmers belonged to Bilgram tehsil and lowest (1.0%) of landless farmers were recorded from Hardoi and Sawayajpur tehsils respectively. Study revealed that 1.6 per cent of farmers have large size land holding (>10 ha), maximum number of such farmers was recorded from Bilgram, Sandila and Sawayajpur tehsils (2%) respectively, while minimum farmers were seen from Hardoi and Shahabad tehsils (1%) respectively. On an average 1.6 per cent of farmers of different district were having semi-medium land holding. Highest (2.0%) of such farmers belonged to Bilgram tehsil and lowest (1.0%) of landless farmers were recorded from Hardoi, Shahabad, Sandila and Sawayajpur tehsils respectively. It was observed that overall, 1.2 per cent of farmers possess medium (4.0-10.0 ha.) land holding in the study area. Results indicated that farmers selected from different tehsils have marginal land holding followed by small, landless, semi-medium, large and medium land holdings for cultivation and supply of feed and fodder to their animals. The results are close agreement with the findings of *Mithun et al.* (2022) [19] in their study areas.

h. Animal holding/ Herd size
More than half of the total farmers 72.40 per cent had small/low sized herd with less than5 animals, while 14.0 per cent had medium sized herd with 6 to 10 animals and 13.60 per cent had large sized herd with more than 10 animals. Overall, maximum number of farmers which had small sized animals belonged to Hardoi tehsil (78%), while least number of the farmers with small sized herd belonged to Sandila tehsil (66 per cent). Overall, maximum number of farmers which had medium sized herd belonged to Shahabad tehsil (17%), while least number of the farmers with medium sized herd belonged to Sawayajpur tehsil (08%). Overall, maximum number of farmers which had large sized herd belonged to Sandila tehsil (18%) respectively, while least number of the farmers with large sized family belonged to Hardoi tehsil (8%). However, overall farmers with large size herd were less in study area.

i. Vocational diversification
The table-3 indicated that majority of farmers (83.6 per cent) comes in Agriculture + Animal Husbandry group, followed by Animal Husbandry group (10.6%) and only 5.8 per cent of respondents comes in Animal Husbandry +

Service group in the study area. Among respondents 78, 80, 89, 87 and 84 per cent respondents belongs to Agriculture + Animal Husbandry group and 13, 13, 7, 8 and 12 percent of respondent belongs to only Animal Husbandry group whereas 9, 7, 4, 5 and 4 per cent of respondents belongs to Animal Husbandry + Service group of Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Maximum number of Agriculture + Animal Husbandry farmers observed in Bilgram tehsil (89.0 per cent) while least number of farmers was from Hardoi (78.0 per cent). Maximum number of only Animal Husbandry group farmers observed in Hardoi and Shahabad (13.0 per cent) while least number of farmers were from Bilgram and Sawayajpur (4 per cent) respectively. Maximum number of Animal Husbandry + Service group farmers observed in Hardoi tehsil (9.0 per cent) while least number of farmers were from Bilgram (7 per cent). These findings are in agreement with the findings of Akila and Senthivel (2012) [3] they observed that maximum respondents belong to agriculture with dairy occupation in their survey area.

j. Economic status
Income is the most important factor that motivates and grows up an individual to participate in managing livestock producing activities. Effective and efficient management can only be possible when finance and financial support is available. If the cash is available in your hand, it is easy to make decisions for the timely achievement of inputs for the management of the dairy farms. More than half of the total farmers 68 per cent had low economic status with less than 60000 Rs., while 27.6 per cent had medium economic status with 60000 to 90000 Rs. and 4.4 per cent had high economic status with more than 90000 Rs. Overall, maximum number of farmers which had low economic status with less than 60000 Rs. belonged to Bilgram tehsil (75%), while least number of the farmers with low economic status with less than 60000 Rs. belonged to Hardoi tehsil (58 per cent). Overall, maximum number of farmers which had medium economic status belonged to Hardoi tehsil (38%), while least number of the farmers with medium economic status belonged to Bilgram tehsil (17%). Overall, maximum number of farmers which had high economic status belonged to Bilgram tehsil (8%), while least number of the farmers with high economic status belonged to Sawayajpur tehsil (2%). However, overall farmers with high economic status were less in study area.

S. No	Particulars	Hardoi (100)	Shahabad (100)	Bilgram (100)	Sandila (100)	Sawayajpur (100)	Total farmers (500)	Percent %
1.	Age group							
(a)	Young (30)	9	11	14	17	15	66	13.2
(b)	Middle (30-50)	48	50	53	62	56	269	53.8
(c)	Old (>50)	43	39	33	21	29	165	33
2.	Education							
(a)	Illiterate	33	35	20	29	38	155	31
(b)	Metrics 8th	21	19	28	23	18	109	21.8
(c)	High School	27	26	33	31	23	140	28
(d)	Intermediate	14	16	11	11	19	71	14.2
(e)	Graduate	5	4	8	6	2	25	5
3.	Gender							
(a)	Male	84	86	82	87	83	422	84.4

(b)	Female	16	14	18	13	17	78	15.6
4.	**Caste**							
(a)	General	20	10	16	13	20	79	15.8
(b)	OBC	58	69	74	71	62	334	66.8
(c)	SC	22	19	10	15	17	83	16.6
(d)	ST	0	2	0	1	1	4	0.8
5.	**Family size**							
(a)	Small (<5)	30	27	22	24	30	133	26.6
(b)	Medium (6-10)	66	67	60	62	65	320	64
(c)	Large>10	4	6	18	14	5	47	9.4
6.	**Family type**							
(a)	Joint	30	27	22	24	30	133	26.6
(b)	Nuclear	70	73	78	76	70	367	73.4
7.	**Land holding**							
(a)	Landless	1	2	4	3	1	11	2.2
(b)	Marginal (up to 1 hec.)	84	84	76	80	77	401	80.2
(c)	Small (1-2 hec)	11	10	14	13	18	66	13.2
(d)	Semi-medium (2-4 hec)	2	2	2	1	1	8	1.6
(e)	Medium (4-10 hec)	1	1	2	1	1	6	1.2
8.	**Animal holding**							
(a)	Low (<5)	78	13	7	8	12	53	10.6
(b)	Medium (6-10)	14	80	89	87	84	418	83.6
(c)	Large (>10)	8	7	4	5	4	29	5.8
9.	**Vocational diversification**							
(a)	Only A.H	13	13	7	8	12	53	53
(b)	Agriculture+ A.H	78	80	89	87	84	418	418
(c)	A.H.+ Service	9	7	4	5	4	29	29
10.	**Economic status**							
(a)	Low (<60000) Rs.	58	66	75	72	69	340	68
(b)	Medium (60000-90000) Rs.	38	31	17	23	29	138	27.6
(c)	High (<90000) Rs.	4	3	8	5	2	22	4.4

2. Feeding management practices
The feeding of animals governs the overall health and reproductive performances of the animals. Poor feeding and management leads to a number of health and reproductive problems.

a. Feeding of animal
Feeding management practices followed by dairy farmers are presented in Table 4. It was found that stall feeding was practiced by 28, 22, 16, 19 and 24 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Only grazing was practiced by 0 percent of respondents in all five tehsils of Hardoi district. Both the feeding systems were followed by 72, 78, 84, 81 and 76 per cent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (78.2%) of respondents practiced both the feeding system followed by (21.8%) stall feeding and (0.0%) grazing of animals in the study area. The present results are in conformity with the results of Kumar *et al.* (2019) [13] and contrary with the findings of Kumar *et al*. (2017).

b. Type of stall feeding
It was found that stall feeding was practiced by farmers categorized in to two categories viz. Group and Individual. It was found that stall feeding was practiced in group by 30, 20, 12, 15 and 23 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Individual type of stall feeding was practiced by 70, 80, 88, 85 and 77 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (80.0%) of respondents practiced individual type of stall-feeding system followed by (20.0%) group type of stall feeding.

c. Fodder production
It was found that fodder production was categorized in to two categories viz. grown and not grown. It was found that grown type of fodder production was practiced by 25, 33, 38, 36 and 30 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Not grown type of fodder production was practiced by 75, 67, 62, 64 and 70 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (67.6%) of respondents practiced grown type of fodder production system followed by (32.4%) non grown type of fodder production system.

d. Grazing site
It was found that grazing site was practiced by farmers categorized in to three categories viz. common pasture land, Harvested follow fields and not grazing. It was found that common pasture land of grazing site was practiced by 21, 19, 14, 17 and 21 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Harvested follow fields grazing site was practiced by 53, 60, 68, 64 and 57 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Not grazing site was practiced by 26, 21, 18, 19 and 22 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (60.4%) of respondents practiced Harvested follow fields grazing site system followed by (21.2%) Not grazing site and (18.4%) common pasture land.

e. Time of feeding

It was found that time of feeding was practiced by farmers categorized in to three categories viz. one time feeding, two time feeding and three time feeding. It was found that one time feeding was practiced by 14, 9, 8, 11 and 11 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Two-time feeding was practiced by 74,77, 80, 78 and 74 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Three-time feeding was practiced by 12, 14, 12, 11 and 15 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (76.6%) of respondents practiced Two time feeding followed by (12.8%) three time feeding and (10.6%) one time feeding.

f. Type of feeding

It was found that type of feeding was practiced by farmers categorized in to two categories viz. balance and imbalance. It was found that balance type of feeding was practiced by 21, 26, 22, 24 and 19 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Imbalance type of feeding was practiced by 79, 74, 78, 76 and 81 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (77.6%) of respondents practiced imbalance type of feeding followed by (22.4%) balance type of feeding.

g. Type of feed and fodder

It was found that type of feed and fodder was practiced by farmers categorized in to three categories viz. green fodder+ dry fodder+ concentrate, green fodder+ dry fodder and dry fodder+ concentrate. It was found that green fodder+ dry fodder+ concentrate was practiced by 50, 64, 66, 60 and 56 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Green fodder+ dry fodder was practiced by 42, 23, 18, 28 and 34 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Dry fodder+ concentrate was practiced by 8, 13, 16, 12 and 10 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (59.2%) of respondents practiced green fodder+ dry fodder+ concentrate type of feed and fodder followed by (29%) green fodder+ dry fodder and (11.8%) dry fodder+ concentrate.

h. Type of fodders

It was found that type of fodders was practiced by farmers categorized in to four categories viz. wheat straw+ paddy straw+ green grass, wheat straw+ bajra, wheat straw+ maize+ paddy and wheat straw+ maize+ grasses. It was found that wheat straw+ paddy straw+ green grass was practiced by 45, 41, 36, 39 and 38 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Wheat straw+ bajra was practiced by 4, 5, 6, 4 and 8 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Wheat straw+ maize+ paddy was practiced by 25, 30, 38, 36 and 34 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Wheat straw+

maize+ grasses was practiced by 26, 24, 20, 21 and 20 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (39.8%) of respondents practiced wheat straw+ paddy straw+ green grass type of fodders followed by (32.6%) wheat straw+ maize+ paddy, (22.2%) Wheat straw+ maize+ grasses and (5.4%) wheat straw+ bajra.

i. Chopping of dry fodders

It was found that chopping of dry fodders was practiced by farmers categorized in to two categories viz. yes and no. It was found that chopping of dry fodders in yes category was practiced by 91, 98, 96, 94 and 90 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Chopping of dry fodders in no category was practiced by 9, 12, 4, 6 and 10 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (91.8%) of respondents practiced chopping of dry fodders in yes category followed by (8.2%) respondents did not chop the dry fodders.

j. Chopping of green fodders

It was found that chopping of green fodders was practiced by farmers categorized in to two categories viz. yes and no. It was found that chopping of green fodders in yes category was practiced by 81, 80, 88, 86 and 84 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Chopping of green fodders in no category was practiced by 19, 20, 12, 14 and 16 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (83.8%) of respondents practiced chopping of green fodders in yes category followed by (16.2%) respondents did not chop the green fodders.

k. Type of concentrate mixture

It was found that 40, 54, 42, 52 and 50 percent of respondents fed self-prepared concentrates in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. About 14, 12, 18, 10 and 15 percent of respondents fed readymade cattle feed in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Whereas 46, 34, 40, 38 and 35 percent of respondents practiced feeding mixture of self-prepared+ readymade cattle feed in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall, majority (47.6%) of respondents fed self-prepared concentrates cattle feed followed by mixture of self-prepared+ readymade cattle feed (30.67%) and readymade cattle feed (13.8%) in the study area. The present findings are in line with findings of Kumar et al. (2019) [13] in Saharanpur district of Uttar Pradesh, Sourav et al. (2023) [20] in north Bihar and Choudhary et al. (2019) [21] in different districts of Haryana.

l. Method of concentrate feeding

It was found that method of concentrate feeding was practiced by farmers categorized in to two categories viz. soaked concentrate mixture before feeding and did not soaked concentrate. It was found that soaked concentrate mixture was practiced by 62, 60, 70, 68 and 65 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and

Sawayajpur tehsils respectively. Did not soaked concentrate was practiced by 38, 40, 30, 32 and 35 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils respectively. Overall majority (65%) of respondents practiced soaked concentrate mixture before feeding followed by (35%) did not soaked concentrate.

m. Feeding of common salt
It was noticed that feeding of salt was practiced by 24, 18, 22, 16 and 19 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Whereas 76, 82, 78, 84 and 81 percent of respondents did not practice feeding of salt in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall majority (80.2 %) of the farmers practiced did not practice feeding of salt and (19.8 %) of respondents feeding of salt in the study area. The present findings are in line with findings of Kumar *et al.* (2019) [13].

n. Feeding of mineral mixture
It was found that supplementation of mineral mixture was practiced by 16, 10, 18, 15 and 13 % of the farmers in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Whereas 84, 90, 82, 85 and 87 percent of respondents did not offer mineral mixture to the dairy animals in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall majority (85.6 %) of the farmers practiced did not offer mineral mixture and (14.4 %) of respondents offer mineral mixture in the study area. The present findings are in contract with the findings of Manohar *et al.* (2014) [14].

o. Preparation of hay and silage
It was found that preparation of hay and silage was practiced by 9, 3, 11, 2 and 5 % of the farmers in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Whereas 91, 97, 89, 98 and 95 percent of respondents did not practice preparation of hay and silage to the dairy animals in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall majority (94 %) of the farmers practiced did not practice preparation of hay and silage and (6%) of respondents practice preparation of hay and silage in the study area.

p. Extra feeding for pregnant cow
It was found that extra concentrate fed to pregnant cow last two months of her pregnancy by 60, 68, 71, 69 and 65 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Whereas 18, 14, 17, 17 and 19 percent of respondents fed extra concentrate last three months of her pregnancy in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively and 22, 18, 12 14 and 16 percent of respondents did not feed extra concentrate to pregnant cow in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall majority (66.6%) of the respondents fed extra concentrate last two months to pregnant heifers followed by (17%) of the respondent fed extra concentrate last three months to advanced pregnant cow and (16.4%) of the respondent did not feed extra concentrate to advanced pregnant cow in the study area. The lower rate of adoption of these practices might be due to

lack of awareness about the importance of good feeding during advanced pregnancy and early lactation. The results are similar to the result of Shitole *et al.* (2009) [22] who observed that lower number of the farmer provided additional ration for pregnant animals in their study area. These findings Contrary with findings of Manohar *et al.* (2014) [14].

q. Quantity of concentrate fed to the lactating cow per day
It was found that quantity of concentrate fed to the lactating cow per day by farmers categorized in to three categories viz. 2-7 kg. concentrate, more than 7 kg. concentrate and last one is given on the basis of milk production 1kg. concentrate per 3 kg. of milk production. It was found that quantity of concentrate fed to the lactating cow per day 2-7 kg. concentrate by 56, 62, 68, 64 and 60 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Whereas 27, 20, 19, 21 and 23 percent of respondents fed more than 7 kg. concentrate to the lactating cow per day in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively and 17, 18, 13, 15 and 17 percent of respondents offer 1kg. concentrate per 3 kg. of milk production in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall majority (62%) of the respondents fed 2-7 kg. concentrate followed by (22%) of the respondent fed more than 7 kg. concentrate and (16%) of the respondent fed 1kg. concentrate per 3 kg. of milk production to the lactating cow per day in the study area.

r. Mode of concentrate feeding to lactating cow
Concentrate feed was fed to animals at milking time and mixed with fodder by 62, 66, 71, 69 and 64 percent of respondents in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively, whereas 38, 34, 29, 31 and 36 per cent of respondents fed concentrates after milking in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall, it was observed that majority (66.4%) of respondents practiced feeding of concentrate during milking time and mixed with fodder followed by (33.6%) after milking in the study area. The present findings are in line with findings of Yadav *at al.* (2021) [23] in Bhilwara district of Rajasthan, Benidir *et al.* (2017) [24] semi-arid region of Algeria and Jatolia *et al.* (2018) [25] in Udaipur district of Rajasthan.

s. Water supply
It can be found from the 88, 90, 94, 92 and 92 percent of respondents offered free access of water to their animals in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. While 12, 10, 6, 8 and 18 percent of respondents provided water two times a day in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall majority (91.2%) of respondents provided water free access in a day followed by two times of water (8.8%) in a day in the study area. The present findings are in accordance with findings of Sourav *et al.* (2023) [20] and contrary with the findings of Kumar *et al.* (2019) [13] that they found that majority of dairy farmers provide three-time water for their animals in western Uttar Pradesh.

t. Enrichment of poor-quality roughages by urea ammonization and molasses

It was found that enrichment of poor-quality roughages by urea ammonization and molasses was practiced by 5, 4, 4, 3 and 2 per cent of the farmers in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Whereas 95, 96, 96, 97 and 98 per cent of respondents did not practice enrichment of poor-quality roughages by urea ammonization and molasses to the dairy animals in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall majority (96.4%) of the farmers did not practice poor-quality roughages by urea ammonization and molasses and (3.6%) of respondents practice poor-quality roughages by urea ammonization and molasses in the study area.

u. Quantity of dry fodder

It was observed that 85, 89, 94, 90 and 87 percent of respondents followed feeding of dry fodder 2-2.5 kg. per 100 kg of body weight in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Whereas 15, 11, 6, 10 and 13 percent of respondents followed feeding of dry fodder 2.5-3 kg. per 100 kg of body weight in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall majority of the respondents (89%) were practicing feeding of dry fodder 2-2.5 kg. per 100 kg of body weight as such followed by (11%) 2.5-3 kg. dry fodder per 100 kg of body weight in the study area. These results are in agreement with the findings of Kumar *et al.* (2019) [13] who reported that 19% respondents fed dry fodder as such while 66.50% fed after chaffed in western Uttar Pradesh and Gupta *et al.* (2008) [26], who reported that 79.30 percent of farmers adopted chaffing of dry fodder practice. However, present findings are contrary to the results of Sabapara *et al.* (2010) [27] in their survey area.

v. Quantity of green fodder

It was observed that 25, 19, 15, 20 and 22 percent of respondents followed feeding of green fodder with quantity more than 20 kg. per day in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively, whereas 75, 81, 85, 80 and 78 percent of respondents followed feeding of green fodder with quantity less than 20 kg. per day in Hardoi, Shahabad, Bilgram, Sandila and Sawayajpur tehsils, respectively. Overall majority of the respondents (79.8%) were practicing feeding of green fodder with quantity less than 20 kg. per day as such followed by (20.2%) with quantity more than 20 kg. per day green fodder. The results are accordance with the findings of Manohar *et al.* (2014) [14] in their respective study region.

Existing feeding management practices of cattle

S. No	Particulars	Hardoi (100)	Shahabad (100)	Bilgram (100)	Sandila (100)	Sawayajpur (100)	Total farmers (500)	Percent %
1.	Feeding of animals							
(a)	Stall feeding	28	22	16	19	24	109	21.8
(b)	Only Grazing	0	0	0	0	0	0	0
(c)	Both	72	78	84	81	76	391	78.2
2.	Type of stall feeding							
(a)	Group	30	20	12	15	23	100	20
(b)	Individual	70	80	88	85	77	400	80
3.	Fodder production							
(a)	Grown	25	33	38	36	30	162	32.4
(b)	Not grown	75	67	62	64	70	338	67.6
4.	Grazing site							
(a)	Common pasture land	21	19	14	17	21	92	18.4
(b)	Harvested/ Fallow fields	53	60	68	64	57	302	60.4
(c)	No Grazing	26	21	18	19	22	106	21.2
5.	Time of feeding							
(a)	One time feeding	14	9	8	11	11	53	10.6
(b)	Two time feeding	74	77	80	78	74	383	76.6
(c)	Three time feeding	12	14	12	11	15	64	12.8
6.	Type of feeding							
(a)	Balance	21	26	22	24	19	112	22.4
(b)	Imbalance	79	74	78	76	81	388	77.6
7.	Type of feed & fodder							
(a)	GF+DF+ Concentrates	50	64	66	60	56	296	59.2
(b)	GF+DF	42	23	18	28	34	145	29
(c)	DF+ Conc.	8	13	16	12	10	59	11.8
8.	Type of fodder							
(a)	Wheat straw+Paddy straw+Green grass	45	41	36	39	38	199	39.8
(b)	Wheat straw+Bajra	4	5	6	4	8	27	5.4
(c)	Wheat straw+Maize+ Paddy	25	30	38	36	34	163	32.6
(d)	Wheat straw+Maize+ Grass	26	24	20	21	20	111	22.2
9.	Chopping of dry fodder							
(a)	Yes	91	88	96	94	90	459	91.8
(b)	No	9	12	4	6	10	41	8.2
10	Chopping of green fodder							

(a)	Yes	81	80	88	86	84	419	83.8
(b)	No	19	20	12	14	16	81	16.2
11	**Type of concentrate mixture**							
(a)	Self-prepared	40	54	42	52	50	238	47.6
(b)	Ready made	14	12	18	10	15	69	13.8
(c)	Mixture of both	46	34	40	38	35	193	38.6
12	**Method of concentrate feeding**							
(a)	Soaked conc. Mixture before feeding	62	60	70	68	65	325	65
(b)	Did not soaked conc.	38	40	30	32	35	175	35
13	**Feeding of common salt**							
(a)	Yes	24	18	22	16	19	99	19.8
(b)	No	76	82	78	84	81	401	80.2
14	**Feeding of mineral mixture**							
(a)	Yes	16	10	18	15	13	72	14.4
(b)	No	84	90	82	85	87	428	85.6
15	**Preparation of hay & silage**							
(a)	Yes	09	03	11	02	05	30	06
(b)	No	91	97	89	98	95	470	94
16	**Extra feeding for pregnant cow**							
(a)	Last two months	60	68	71	69	65	333	66.6
(b)	Last three months	18	14	17	17	19	85	17
(c)	Not feeding	22	18	12	14	16	82	16.4
17	**Quantity of concentrates fed to the lactating cow per day**							
(a)	2-7 kg conc.	56	62	68	64	60	310	62
(b)	>7 kg conc.	27	20	19	21	23	110	22
(c)	1 kg per 3 ltr. Milk production	17	18	13	15	17	80	16
18	**Mode of concentrate feeding to lactating cow**							
(a)	At milking time & mixed with fodder	62	66	71	69	64	332	66.4
(b)	After milking	38	34	29	31	36	168	33.6
19	**Water supply**							
(a)	Free access	88	90	94	92	92	456	91.2
(b)	Two time	12	10	06	08	08	44	8.8
20	**Enrichment of poor-quality roughages by urea ammonization & molasses**							
(a)	Yes	05	04	04	03	02	18	3.6
(b)	No	95	96	96	97	98	482	96.4
21	**Quantity of dry fodder**							
(a)	2-2.5 kg/ 100 kg body wt.	85	89	94	90	87	445	89
(b)	2.5-3.0 kg/ 100 kg body wt.	15	11	06	10	13	55	11
22	**Quantity of dry fodder**							
(a)	More than 20kg	25	19	15	20	22	101	20.2
(b)	Less than 20 kg	75	81	85	80	78	399	79.8

Conclusion

In conclusion, this study highlights the socio-economic profile and feeding management practices of cattle farmers in Hardoi district, Uttar Pradesh. Most respondents are middle-aged, educated, and predominantly male, with a significant portion engaged in mixed farming. Economic challenges persist, as 68% of farmers fall within the low-income category. Feeding practices mainly involve stall feeding, with many relying on self-prepared concentrate mixtures. These findings underscore the need for targeted interventions to enhance livestock management, improve productivity, and uplift the economic status of farmers, ultimately contributing to the sustainability of the livestock sector in the region.

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