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Farmers' profile characteristics and knowledge of dairy farmers regarding feeding management practices in Akola district of Maharashtra state

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Abstract

The present study was conducted to assess the profile characteristics and knowledge of dairy farmers regarding feeding management practices in Akola district of Maharashtra. An exploratory research design was adopted for the study. Balapur and Barshitakli tehsils were purposively selected, from which eight villages were selected and 120 dairy farmers possessing milch animals were randomly selected. Data were collected through personal interviews using a pre-tested structured interview schedule. The findings revealed that majority of the dairy farmers were middle-aged (50.00%), had higher secondary education (29.16%), semi-medium land holdings (43.34%), medium herd size (50.00%) and medium family size (60.00%). A majority of the respondents had annual income of Rs. 5–9 lakh (52.50%) and 10–20 years of experience in dairy farming (70.00%). Wells were the major source of irrigation (50.00%), while (73.33%) followed a Kharif + Rabi cropping pattern. About 52.50 per cent had received training and (89.16%) had fodder storage facilities, whereas (56.67%) had not availed animal insurance. Regarding knowledge of feeding management practices, all respondents (100.00%) were aware of the system of cattle feeding, while (87.50%) knew methods of roughage processing and (81.66%) were aware of the importance of concentrate feed for high milk-producing animals. However, knowledge was comparatively low regarding silage (35.83%) and additional concentrate feeding during advanced pregnancy (20.83%). The study concluded that although dairy farmers possessed adequate knowledge of basic feeding practices, considerable gaps existed in specialized and stage-specific feeding practices. Therefore, focused training, demonstrations and extension guidance are needed to improve scientific feeding knowledge and enhance dairy animal productivity.

Keywords: Dairy farmers, feeding management practices, knowledge, dairy farming, fodder management, scientific feeding, Akola district

1. Introduction

Dairy farming is an important component of the rural economy and provides a regular source of income and livelihood to farm households. The productivity and profitability of dairy animals are influenced by several management factors, among which feeding occupies a particularly important position. Adequate and balanced feeding is essential for maintaining animal health, improving milk production and enabling dairy animals to express their productive potential. Feeding management includes appropriate utilization of green fodder, dry fodder and concentrate feed, along with mineral supplementation, adequate watering, fodder processing and conservation.

In many farming situations, dairy animals are still fed using traditional knowledge and locally available feed resources. Inadequate awareness regarding the quantity and quality of feed, mineral supplementation, silage preparation and stage-specific feeding may result in an imbalanced ration and consequently affect animal productivity. The literature

reviewed in the study also indicates considerable variation in farmers' knowledge of scientific feeding practices.

The socio-economic and personal characteristics of dairy farmers are important for understanding the existing status of dairy farming. Characteristics such as age, education, land holding, herd size, family size, annual income and experience in dairy farming provide an understanding of the background in which feeding decisions are made. The present study therefore focused on profiling dairy farmers and assessing their knowledge regarding scientific feeding management practices.

Knowledge is an important prerequisite for the effective adoption of improved dairy technologies. Farmers having adequate knowledge about feeding systems, fodder processing, concentrate feeding and mineral supplementation are better positioned to make appropriate feeding decisions. Hence, assessment of farmers' knowledge can help identify specific areas requiring extension education, training and practical demonstrations.

In this context, the present study was undertaken in selected areas of Akola district of Maharashtra with the specific purpose of understanding the profile of dairy farmers and their knowledge regarding feeding management practices.

2. Objectives of the study

1. To study the profile of dairy farmers.
2. To assess the knowledge of dairy farmers regarding feeding management practices.

3. Materials and Methods

The study was conducted in Akola district of Maharashtra. Among the seven tehsils of Akola district, Balapur and Barshitakli tehsils were purposively selected because of their relatively higher population of milch animals. Four villages from each selected tehsil were purposively selected, resulting in a total of eight villages. An exploratory research design was adopted for the present investigation. The design was

considered appropriate for studying the profile of dairy farmers and their knowledge regarding feeding management practices under field conditions. From each selected village, 15 dairy farmers possessing milch animals were selected randomly. Thus, a total sample of 120 dairy farmers was selected for the study.

Primary data were collected through personal face-to-face interviews using a pre-tested structured interview schedule. The schedule included information on personal and socio-economic characteristics of dairy farmers as well as their knowledge regarding feeding management practices. The interview schedule was developed after consultation with experts and review of relevant literature.

4. Results and Discussion

4.1 Profile Characteristics of the Respondents

The profile characteristics of the respondents were studied using selected characteristics and are presented in Table 1.

Table 1: Profile Characteristics of the respondents (n = 120)

Sr. No.	Profile Characteristics	Category	Frequency	Percentage
1.	Age (years)	Young (up to 35)	28	23.33
		Middle (36-50)	60	50.00
		Old (50 to above)	32	26.67
2.	Education	Illiterate (Cannot read and write)	04	03.34
		Primary school (1 st to 4 th std.)	13	10.83
		Middle school (5 th to 7 th std.)	22	18.34
		Secondary school (8 th to 10 th std.)	26	21.66
		Higher secondary school/ junior college (11 th to 12 th std)	35	29.16
3.	Land Holding (ha)	College/university (Above 12 th std)	20	16.67
		Marginal (Up to 1.00 ha)	13	10.83
		Small (1.01-2.00 ha)	45	37.50
		Semi-medium (2.01- 4.00 ha)	52	43.34
		Medium (4.01-10.00 ha)	08	06.66
4.	Herd Size	Large (Above 10.00 ha)	02	01.67
		5 animals	25	20.83
		6 to 11 animals	60	50.00
5.	Family Size	Above 11 animals	35	29.17
		Up to 4 member	33	27.50
		5 - 8 member	72	60.00
6.	Annual Income	Above 8 member	15	12.50
		Up to 400000	31	25.83
		500000 - 900000	63	52.50
		1000000 - 1400000	15	12.50
		1500000 - 1900000	07	05.83
7.	Experience in dairy farming	Above Rs 1900000	04	03.34
		Up to 9 years	16	13.33
		10- 20 years	84	70.00
8.	Source of irrigation	Above 20 years	20	16.67
		No Source	08	06.67
		Well	60	50.00
		Tubewell	38	31.66
9.	Area under fodder crop	River	14	11.67
		No fodder crop	74	61.67
		Up to 0.53 ha	38	31.66
		0.54 - 0.86 ha	05	04.17
10.	Cropping pattern	Above 0.87 ha	03	02.50
		Only Kharif	21	17.50
		Kharif +Rabbi	88	73.33
11.	Training received	Kharif+ Rabbi+ summer	11	09.17
		Training received	63	52.50
12.	Availability of fodder storage facility	Training not received	57	47.50
		Availability	107	89.16
13.	Animal insurance availed	Non Availability	13	10.84
		Animal insurance availed	52	43.33
		Animal insurance not availed	68	56.67

The findings revealed that the majority of dairy farmers were middle-aged (50.00%), had higher secondary education (29.16%), and possessed semi-medium land holdings (43.34%). Half of the respondents (50.00%) maintained a medium herd size, while (60.00%) had medium family size. A majority (52.50%) had annual income of Rs. 5–9 lakh and (70.00%) had 10–20 years of dairy farming experience. Wells were the major source of irrigation (50.00%). Most of respondents (73.33%) followed Kharif + Rabi cropping pattern. About (52.50%) had received training, while (89.16%) had fodder storage facilities. However, (56.67%) had not availed animal insurance.

The table 2. indicates that family members actively participated in various dairy farming activities. In feeding, the majority (55.00%) involved 2 to 3 members. For housing, (48.33%) reported involvement of 3 to 4 members, while in calving, (61.66%) involved 2 to 4 members. In health care, 50.83% reported involvement of more than three members, whereas 75.00% involved 2 to 3 members in milk and hygiene activities. Overall, 2 to 3 family members were predominantly involved in major dairy farming activities, indicating the importance of family labour in dairy farm management.

Table 2: Family members engaged in dairy farming

Sr. No.	Cattle Feeding Practices	Family Members engaged in dairy farming	Frequency	Percentage (%)
1.	Feeding	Up to 1 member	34	28.33
		2 -3 member	66	55.00
		Above 3 member	20	16.67
2.	Housing	Up to 2 member	22	18.34
		3 - 4 member	58	48.33
		Above 4 member	40	33.33
3.	Calving	Up to 2 member	25	20.84
		2 - 4 member	74	61.66
		Above 4 member	21	17.50
4.	Health care	Up to 1 member	107	89.16
		2 - 3 member	55	45.83
		Above 3 member	61	50.83
5.	Milk and hygiene	Up to 1 member	12	27.50
		2 - 3 member	90	75.00
		Above 3 member	18	15.00

Table 3: Possession of machinery for fodder cutting

Sr. No.	Possession of machinery for fodder cutting	Categories	Frequency	Percentage (%)
1.	Hand operated chaff cutter	Possession of hand operated chaff cutter	17	14.17
		No Possession of hand operated chaff cutter	103	85.83
2.	Electric/power operated chaff cutter	Possession of Electric/power operated chaff cutter	30	25.00
		No Possession of Electric/power operated chaff cutter	90	75.00
3.	Reaper for fodder cutting	Possession of Reaper for fodder cutting	13	10.83
		No possession of Reaper for fodder cutting	107	89.17

The table 3. indicates that the majority of dairy farmers did not possess machinery for fodder cutting. Only (14.17%) of respondents possessed a hand-operated chaff cutter, whereas (85.83%) did not. Similarly, (25.00%) possessed an electric/power-operated chaff cutter, while (75.00%) had no such facility. Further, only (10.83%) possessed a reaper for fodder cutting, compared with (89.17%) who did not possess. Overall, the findings revealed limited ownership of fodder-cutting machinery, which may indicate inadequate mechanization and greater dependence on manual methods for fodder preparation.

4.2. Knowledge about feeding management practices

The findings in table 2 indicates that the dairy farmers possessed a varying level of knowledge regarding different feeding management practices. All the respondents (100.00%) were aware of the basic system of cattle feeding, indicating universal awareness of grazing, stall feeding and their combinations. A considerable majority (76.67%) were aware of the feeding pattern followed under intensive systems, including green fodder, dry fodder, concentrate, mineral mixture, vitamin A and salt.

Regarding roughage management, (87.50%) of respondents knew the methods of processing roughages, while (68.33%) were aware of the benefits of processing roughages before feeding, such as improving digestibility, palatability and nutrient availability. Similarly, (75.00%) of farmers had knowledge about the use of mineral mixtures in cattle feeding. A high proportion (81.66%) also knew that concentrate feed is necessary for high milk-producing animals.

However, comparatively lower knowledge was observed regarding certain scientific and specialized feeding practices. Only (35.83%) of respondents were aware of silage, whereas (64.17%) had no knowledge about it. Similarly, only (20.83%) knew about the requirement of additional concentrate feeding during the advanced stage of pregnancy. Knowledge regarding concentrate feeding immediately after calving was also comparatively limited, as only (41.66%) knew about homemade concentrate and (36.66%) were aware of purchased concentrate. Further, (65.00%) of dairy farmers were aware of common fodder conservation methods such as silage making, hay making and sun drying.

Table 4: Knowledge about feeding management practices

Sr. No.	Cattle feeding Practices	Knowledge (n=120)	
		Yes	No
1.	Are you aware of feeding pattern followed under intensive system? (Green fodder, dry fodder, concentrate, mineral mixture, vitamin A, Salt, All of these)	92 (76.67)	28 (23.33)
2.	Is there any benefit of processing roughages before feeding? Benefits: i) Improves digestibility of fibrous feed ii) Increase palatability iii) Improves nutrient availability iv) Leads to better milk production, growth and health	82 (68.33)	38 (31.67)
3.	Methods of Processing of roughages (Chaffing, soaking, sprinkling of salt water, urea fortification, treatment of jaggery/ molasses)	105 (87.50)	15 (12.50)
4.	Do you know about silage?	43 (35.83)	77 (64.17)
5.	Do you know about that milch animals require extra concentrate feed during the advanced stage of pregnancy? (1.5-2 kg concentrate feed)	25 (20.83)	95 (79.17)
6.	Do you know about mineral mixture used in cattle feeding?	90 (75.00)	30 (25.00)
7.	Is concentrate feed necessary for high milk-producing animals?	98 (81.66)	22 (18.34)
8.	Do you know about the common method of fodder conservation in your area? If yes, which method you generally use? (Silage making, Hay making, sun drying)	78 (65.00)	42 (35.00)
9.	Do you know which type of concentrate feed given to a cow/buffalo just after calving ? A) Homemade concentrate e.g. Mixture of available cereal grain, available pulse grain, Oil seed cake	50 (41.66)	70 (58.34)
	B) Purchased e.g. Oil seed cake, other	44 (36.66)	76 (63.34)

5. Conclusion

The study revealed that dairy farmers were predominantly middle-aged, moderately educated, and had medium herd and family sizes with considerable dairy farming experience. Family labour played an important role in dairy activities, particularly feeding, calving, and milk hygiene. However, possession of fodder-cutting machinery was low, indicating limited mechanization. Farmers had good knowledge of basic feeding practices, especially cattle feeding systems (100.00%), roughage processing (87.50%), and concentrate feeding for high milk-producing animals (81.66%). However, knowledge was comparatively low regarding silage (35.83%) and additional concentrate feeding during advanced pregnancy (20.83%). Hence, focused training, demonstrations, and extension guidance are needed to improve scientific feeding practices and dairy animal productivity.

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