P-ISSN 2322 - 0678 & E-ISSN 3048 - 9946
Gujarat Journal of Extension Education Vol. 40 : Issue 1 : December - 2025 https://doi.org/10.56572/gjoee.2025.40.1.0012

EFFECTIVENESS OF PASHU POSHAN APP ON ADOPTION OF SCIENTIFIC FEEDING PRACTICES AMONG DAIRY FARMERS

Diksha Patel[1], Arjun Prasad Verma[2] and Shyam Singh[3]

1 Subject Matter Specialist, Krishi Vigyan Kendra, Banda, BUAT, Banda-210001
2 Assistant Professor, Department of Agriculture Extension, BUAT, Banda-210001
3 Senior Scientist cum Head, Krishi Vigyan Kendra, Banda, BUAT, Banda-210001
Email : pateldiksha279@gmail.com

ABSTRACT

The present study was undertaken in Banda district of Uttar Pradesh, to know about the existing feeding practices of dairy animals and to assess the effectiveness of PashuPosan app on adoption of scientific feeding practices of respondents in the research area. Out of eight blocks; four blocks namely Badhokharkhurd, Tindwari, Mahua and Naraini have been selected and from each selected block, 30 respondents were selected randomly, thus constituting the sample size of 120 respondents. The results revealed that majority of farmers followed total grazing practice (55.83%), semi stall feeding (31.67%) and stall feeding (10.83%). The total grazing practice were mostly followed for Non-descript and indigenous cattle and semi stall and stall feeding for Buffaloes. The average grazing hours are 6.35 hours in a day. The Lactating and advanced pregnant animals were given relatively more importance in term of balance feeding. Very limited farmers (15.00%) were feeding mineral mixture to their animals and none of the respondent were practiced the silage and hay making. Level of adoption has increased by 22.99 percent and 17.22 percent after exposure to PashuPosan App during year 2021-22 and 2022-23. Inadequate knowledge about balanced feeding, high cost of concentrate, feed and fodder and inadequate knowledge about fodder cultivation were top prioritized constraints as perceived by the farmers with weighted mean score of 58.50, 55.17 and 49.17 respectively. There is need to popularize the ICT tools related to dairy farming in the study area and also a series of awareness programmes, veterinary health camp, farmer scientist interaction, kisanghosthi, group meetings should be organized for better reach of scientific feeding practices among farmers.

Keywords: *dairy farming, scientific feeding, pashuposan app, balance rationing, mineral mixture*

INTRODUCTION

Livestock sector play a crucial role in Indian economy, and it is one of the most important means of livelihood and nutritional security to the overwhelming majority of rural masses and it is the source of employment security to about 70 million rural households viz. landless labourers, marginal, small, medium and large farmers who were involved in dairy farming (Mahammad et al., 2021; Mahammad et al., 2022; Ghasura and Bhatt, 2023). India is the number one milk producer in the world, not through the fact that she has had high yielding dairy producing animals but due to high population of low yielding dairy animals. Poor genetic make-up, lack of feed and fodder and inadequate health coverage are the major causes of the low milk production by animals of different breeds (Ponnusamy and Ambasankar, 2006). Inadequate nutrition is the largest reason behind low milk production by animals of different breeds (Meena et al, 2009). In 2023-24, India is the top producer of Milk with a production of 239.3 MT with 471 grams/day per individual availability (BAHS, 2024). According to FAO Statistics dairy animals in India have a productivity of 1777 Kg per/per year as compared to the global average of 2699 kg/animal/year in 2019-20 (Press Information Bureau, 2021). Moreover, the average milk production per crossbred cows, non-descript/ indigenous cows and buffaloes is only 8.55, 3.44 and 6.06 kg/day in our country, respectively (BAHS, 2023). Not only that, the yield difference is significant because of the varying milk productivity across states and in the district (Patel et al. 2019; Rathod and Dixit, 2020). This is attributed to the fact that our dairy production systems are the subsidiary and supplementary systems rather than the intensive and commercial systems with regards to the total land use pattern with crop production prevailing over dairy farming. However it was also found that the dairy farming is more stable, requires less investment, and has proven to be a profitable during distress time of farmers as compared to crop production (Parmar, et al. 2025). Bovine milk production mainly depends on four pillars of animal husbandry i.e. breeding, feeding, health-care and management practices (Swami *et al.* 2024). Among these four pillars, the feeding of dairy animals plays a significant role in enhancing the

quality milk productions and the maintenance of healthy reproductive and productive animal health. Approximately 70 per cent of the cost of milk production and maintenance of dairy animals is because of feeding alone (Meena et al, 2009). Therefore, there is a need to instill information about enhanced feeding methods of dairy animals that can contribute immensely to the rapid and efficient as well as cost effective transfer of knowledge via mobile applications. With this in mind, National Dairy Development Board, Anand has created PashuPoshan app in 2015 that is based on Android. Through the aid of this app., balanced ration can be constructed and the cost can be optimized by using the animal profile. Consequently, a research has been developed under KVK, Banda on the effectiveness of PashuPoshan app in enhancing the transfer of scientific knowledge on feed management practices to dairy farmers within the period of the year 2021-22 and 2022-23 with the following.

OBJECTIVES

(1) To identify the existing feeding practices of dairy animals in Banda district of Uttar Pradesh

(2) To assess the effectiveness of *PashuPosan app* on adoption of scientific feeding practices among dairy farmers in the study area

(3) To identify the constraints faced by dairy farmers in adoption of balance feeding of dairy animals

METHODOLOGY

The current research was conducted within the Banda district of Uttar Pradesh. This district has been sub-divided into 8 developmental blocks. An eight block of four blocks, viz. Badhokharkhurd, Tindwari, Mahua and Naraini have been chosen. A random selection of 25 respondents was carried out in each of the chosen blocks hence 100 respondents were chosen to determine the feeding practices that were followed by them. The selection criteria, that is, the respondents who owned at least one dairy animal during the time of study. The study has utilized data collected by semi structured interview schedule and Experimental research design both prior to and after has been used in the study. To measure the Effectiveness of Pashu Poshan Mobile app 20 dairy farmers of each year 2021 2022 2023 have been randomly chosen among the initial 100 farmers chosen in the study. Paired t test was used to analyse data. Constraint analysis was performed using the method of Weighted Mean Score (WMS) and ranking was also provided, which is determined by the amount of WMS.

$$\bar{x} = \frac{\sum_{i=1} X_i W_i}{\sum_i W_i}$$

where, $\bar{x}$, weighted mean score

Xi, value of i^{th} constraint

Wi, weight of the i^{th} constraint

RESULTS AND DISCUSSION

Table 1 represents the feeding management practices followed by Banda dairy farmers. Nearly half of the respondents (55.83 %) adopted the total grazing system while only few followed stall feeding system (10.83%). It was observed that practices of letting animal tograze freely or *anna pratha*after the *rabi* crop is harvested. InBundelkhand region farmers typically leave their cattle during the wet and lean season (in local language local cows were made Anna from Diwali to Holi or From sowing of Rabi crops to harvesting and threshing of Rabi crops) leading to poor emphasis of feeding in case of Non descript or desi catlle and also the local indigenous breed Kenkatha (Rathod and Dixit, 2020). The findings are in accordance with findings of Mishra *et al.* 2010, who found that animals are being left for grazing during lean season especially during rainy season. However in case of buffalo semi stall feeding and zero grazing is followed. The grazing period is around 8-10 hours in summer (7am-5pm) while 7-8 hours in rainy season based on raining and Winter 6 hours (10-4). The majority of respondents 65.00 percent of farmers fed milch animals individually while 35.00 percent of farmers fed in groups. Nearly half of the farmers were depended on pastures while the rest of the farmers cultivated Jowar-Barseem (13.33%) and Pasture- Barseem (35.83%) for their animals. This is due to the fact that in Banda district in Kharif season nearly 60-70% area kept fallow so there is abundance of pasture or naturally grown vegetation/weeds etc. and during Rabi mostly big farmers grow Barseem in 0.5-2 acre of land. The reason might be that they were not aware of the benefit of green fodder. On the similar lines, NDDB (2017) depicts that less than 1% of the area was allocated for fodder cultivation in Bundelkhand region (Rathod and Dixit, 2020). Furthermore, it was found that the 38.33 percent of dairy farmers fed Arharstover+ wheat straw+Gram+ field pea+ lentil strawas dry fodder followed by 32.50 percent of dairy farmers who fed paddy straw + wheat straw and 29.17 percent fed only wheat straw to their animals. The findings of Kant et al. 2024 are in conformity with the present study. The reason might be the availability of all type of straw in the study area as the area is identified as major pulse grown area and Paddy and wheat is also growing in the area. They farmers utilized all the straw available with them.

Majority of respondents (54.17%) used home made concentrate (mixture of sarson cake, daliya, *chuni, chaukar, kana*)feed to animal whereas 38.33 percent of respondents fed both homemade as well as compound feed. Only 10.00 per

Table 1: Distribution of respondents based on existing feeding practices of animals (n=120)

Sr. No.	Feeding practices	Category	Frequency	Percentage
1	**Feeding system**	Total grazing	67	55.83
		Semi-stall feeding	38	31.67
		Stall feeding (zero grazing)	13	10.83
2	**Feeding of milch animal**	Individual feeding	78	65.00
		Group feeding	42	35.00
3	**Type of green fodder**	Jowar-Barseem	16	13.33
		Naturally grown vegetation- Barseem	43	35.83
		Feeding grasses from bunds or uncultivated lands	61	50.83
4	**Type of dry fodder fed to animal**	Wheat straw	35	29.17
		Paddy straw+ wheat straw	39	32.50
		Arharstover + wheat straw+ Gram+ field pea+ lentil straw	46	38.33
5	**Type of concentrate fed to animal**	No concentrate feeding but leftover of kitchen	12	10.00
		Compound feed + home made	46	38.33
		Home made concentrate (mixture of sarson cake, daliya, *chuni, chaukar, kan*a)	65	54.17
6	**Quantity of fodder (green + dry) used per animal per day (kg)**	Lactating	10.63	
		Dry	9.54	
		Heifers	5.67	
		Calf	2.16	
7	**Quantity of concentrate used per animal per day (kg)**	Lactating	2.83	
		Dry	1.34	
		Heifers	0.67	
		Calf	0.00	
8	**Feeding norms followed**	Body weight	08	6.67
		Age	06	5.00
		Milk production	73	60.83
		Availability of feeds	33	27.50
9	**Feeding of mineral mixture**	Yes	18	15.00
		No	102	85.00
10	**Feeding of salt**	Yes	82	68.33
		No	38	31.67
11	**Conservation of green fodder as hay and silage**	Not followed	120	100.00
		Followed	0	0.00
12	**Clean drinking water**	Twice a day	88	73.33
		Thrice a day	26	21.67
		Round the clock	06	05.00

cent fed no concentrate but leftover of kitchen to their cattle. Many farmers bought compound feed like *Kapila Pashuahar*, NDDB *pashuahar* etc. from market. On average, the dairy farmers fed 10.63 kg of fodder (green + dry) to lactating animals followed by 9.54 kg to dry animals, 5.67 kg to heifer and 2.12 kg to calf. It was reported that chaffed green fodder mixed with dry fodder fed to animals in the study area. In case of concentrate, dairy farmers fed an average of 2.83 kg to lactating animals followed by 1.34 kg to dry animals, 0.68 kg to heifer and no concentrate given to calf. It was observed in the study that only lactating/ advanced pregnant animals were offered a relatively better feeding through supplementation

Table 2 : Effectiveness of *PashuPosan app* on scientific feeding practices among dairy farmers

Year	Extension teaching methods	Level of adoption (%)			't' value
		Pre- exposure	Post-exposure	Difference	
2021-22	Farmer practices (n=20)	54.72	59.04	4.32	1.93
	PashuPoshan App (n=20)	56.63	79.62	22.99	14.72**
2022-23	Farmer practices (n=20)	56.16	60.28	4.12	1.73
	PashuPoshan App (n=20)	57.27	74.49	17.22	12.76**

*(** significant at 0.05 percent level of significance)*

of green fodder, concentrates, Ca supplements, mineral mixture etc. It is due to fact that farmers receive immediate returns for their investment. These findings are in accordance with the study of Dhaniram, *et al.* 2016. Mostly farmers used feeding norms as based on milk production (60.83%) followed by feed available (27.50%). Feeding of mineral mixture confined to very limited farmers i.e. 15.00 percent of respondents. Similar finding were reported by Barman *et al.* 2023 where only 17.00 percent of the respondents fed mineral mixture in Coochbehar district of West Bengal. This might be due to lack of knowledge about their benefits and potential cost concern. The results are in contradiction with findings of Parmar et al. 2025 who have found 73.33 per cent of respondents provided mineral mixture to their animals. Conservation of green fodder as silage and hay was followed by none of the respondents. This might be due to the fact that less awareness and non leguminous green fodder production was not practiced among the farmers. The finding are in line with Singh, 2018 and not so with Parmar et al. 2025. Majority (73.33%) of the dairy farmers provided water twice a day, only 21.67 percent provided water thrice a day and only 5.00 percent of the respondent provided water round the clock for drinking purpose. This depends on seasons. During summer 3-4 times and during winter 2-3 times water given to animals. The findings are in line with Kant*, et al*. 2024.

Table 3 Constraints faced by dairy farmers in adoption of balance feeding of dairy animals (n=120)

Sr. No.	Constraints	Weighted mean Scores	Rank
1	**Inadequate knowledge about balanced feeding of dairy animals**	58.50	1
2	**Inadequate knowledge about fodder cultivation**	49.17	3
3	**High cost of concentrate mixture and fodder**	55.17	2
4	**Lack of irrigation sources for fodder crops**	41.33	7
5	**Decrease in agricultural land under fodder cultivation**	40.33	8
6	**Lack of pasture or grazing land in villages**	45.00	5
7	**Insufficient green and dry fodders availability throughout the year**	47.17	4
8	**Non availability of quality seeds for fodder production**	43.00	6
9	**Lack of development programme/scheme for feed and fodder management to farmers**	31.83	9

The results were shown in the table 3 revealed that the level of adoption has increased by 22.99 percent and 17.22 percent after exposure to *PashuPosan* App during year 2021-22 and 2022-23 and significant at 0.05 level of significance in increasing the adoption. It is because that App was user friendly to use and it provide various information related to the balance ration formulation based on age, milk production, body weight of animals. By using this app the farmer's knowledge about feeding practices was enhanced which ultimately results in increase in adoption of feeding practices among farmers. The findings are in line with results of Sinha *et al* .(2018); Verma *et al.* (2020); Singh et al., (2024); Pandey et al. (2024); Rajput et al. (2025); Sahu et al. (2025); Yadav et al. (2025).

The farmers perceived "inadequate knowledge about balanced feeding of dairy animals" as the first and most important constraint, in feeding of farm animals with a mean score of 58.50. In a similar study done by Singh et al. (2017) lack of knowledge about recommended feeding practices of dairy animal was ranked as first and most important constraint in feeding of dairy animals in Rae Bareli and Varanasi district of Uttar Pradesh. The results was found in agreementwith the results of Chaudhary *et al.,* 2024 where they have found majority of respondents (71.3 per cent) hadmedium level knowledge of dairy farmers about scientific dairy farming practices. "High cost of concentrate mixture and fodder" was ranked as second most important constraint with mean score of 55.17. The respondents perceived "Inadequate

knowledge about fodder cultivation" as third most important constraint in feeding with mean score of 49.17. The findings are in line with Singh (2018). "Non availability of green and dry fodders throughout the year" was perceived as fourth important constraint by the respondents with the mean score of 47.17. "Non availability of pasture land in village", "non availability of quality seeds for fodder production", "lack of irrigation sources for fodder crops", "decrease in agricultural land under fodder cultivation" and "lack of development programme/scheme for feed and fodder management to farmers" were ranked fifth, sixth, seventh, eighth and ninth constraints with weighted mean score 45.00, 43.00, 41.33, 40.33 and 31.83 respectively.

CONCLUSION

The study concluded that the majority of farmers followed total grazing practice for cattle which is referred as Anna Pratha and stall feeding is mostly followed for Buffaloes. Lactating and advanced pregnant animals were given relatively more importance in term of balance feeding. Very limited farmers are feeding mineral mixture to their animals. The PashuPosan App was found to be effective in term of increase in adoption of scientific feeding practices among dairy farmers. Therefore there is need to harness the potential of ICT tools i.e. mobile apps, Kiosks, web portal etc. for better and timely transfer of technology. Poor knowledge on balanced feed and high cost of concentrate and fodder were to top prioritized constraints by the farmers. For overcoming these constraints, a series of awareness programmes, veterinary health camp, farmer scientist interaction, kisanghosthi, group meetings should be organized for better reach of scientific feeding practices among dairy farmers.

ACKNOWLEDGEMENT

The authors are thankful to Hon'ble Vice chancellor, BUAT, Banda and Director ICAR-ATARI, Kanpur for providing necessary facilities and Funds for conducting the study.

CONFLICT OF INTEREST

All authors declare that they have no conflict of interest.

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Received : September 2025 : Accepted : November 2025