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Feeding management practices followed by farmers rearing Hariana cattle in its breeding tract

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Abstract
The study was conducted in Hisar, Biwani, Rohtak and Jhajjar districts of Haryana state in India to assess the socioeconomic profile, technology adoption and constraints of the farmers rearing Hariana cattle in its breeding tract. A total of 240 respondents (60 respondents from each district) were purposively selected and interviewed individually using structured questionnaire prepared for the purpose. Different feeding management practices were recorded and it was found that 41.7% of the respondents preferred grazing and stall feeding system and 58.3 % of them practiced only stall feeding. In the case of types of fodder fed to cattle, mostly dry fodders like wheat straw and paddy straw were fed due to its availability round the year and easy to preserve for its less moisture content which reduce the chances of mould growth and spoilage. Green fodder availability was more during winter and rainy seasons than summer. The respondents provided concentrate feed only to milch cattle and the average quantity of concentrate feed given was 2 to 4 kg/day/animal supplemented with 0-40 kg green fodder and 2-8 kg straw depending upon the seasons. Majority (90.0%) of the respondents were not using mineral mixture in animal's diet. None of farmer were aware about preservation of fodder crop methods like hay and silage as farmers are having poor economic status, non-availability of skilled workers and poor knowledge about preservation methods. In respect to calf feeding practices, 63.8 per cent of the respondents are feeding colostrum to calf after the placenta was shed and others are feeding colostrum immediately. The results helps in educating the farmers regarding the advanced feeding methods and feeding interventions during different physiological status of the animal depending on their feeding strategies.

Keywords: feeding, Haryana, management, interventions, respondents

Introduction
Livestock farming is the major contributor to overall GDP of the nation [1]. The livestock farming provides self-employment, beneficiary income and nutrition to the people in rural as well as urban areas. Livestock production in general and dairying in particular is an instrument for enhancing the income of small farmers by reducing unemployment among the landless in the emerging agriculture scenario.

The milk produced from cattle and buffalo is the largest agricultural commodity and plays a major role in Indian economy [7]. It is recognized that if progress has to be achieved in dairy farmers, they are to be modernized in knowledge, adoption and their personal, social and economic characteristics should be improved. Among the livestock farming systems, dairy farming plays significant role in sustaining the rural livelihoods [11] by reducing the longstanding problems of unemployment and underemployment [9].

Haryana has the pride of being the place of origin for famous breeds of Haryana Cows and Murrah buffaloes [10]. Haryana or Hariana cattle's home tract is in Haryana state but the breed is found in Uttar Pradesh., Bihar and parts of Rajasthan states. Cows are good milkers and bullocks are useful for ploughing and transport. Milk yield is 1000 to 2000 kg per lactation. Feed is the most critical input in milk production. The farmers can reduce feeding costs without losing milk production by adopting improved feeding practices. For cheap and more milk production, green fodder play an important role as concentrates are costlier than green fodder. Balanced and proper feeding results in better utilization of nutrients and optimum milk production. Very little attention had been paid for formulating package of practices for cattle. The information on the feeding management practices were not properly documented in Hariana cattle.

Therefore, this study was conducted with an objective to assess the feeding management practices to suggest appropriate intervention areas of Hariana cattle rearing systems in its breeding tract of Haryana state in India.

Materials and Methods

The present study was carried out in Haryana state because it is the breeding tract of Hariana breed of cattle. Multistage stratified sampling procedure was used to select the districts, villages and respondents. Four districts (Rohtak, Jhajjar, Hisar and Bhiwani) was selected purposively and three tehsils was selected randomly from each identified district. From each selected tehsil, two villages was selected randomly.

A structured questionare was prepared for collecting the information regarding feeding practices followed by farmers in the breeding tract of Hariana cattle. After the selection of the villages, a preliminary survey was conducted in the selected villages to know the total number of farmers practicing dairy farming. Among these selected villages, 10 dairy farmers was selected by proportionate random sample from each village. Thus the total respondents of the study was 240 dairy farmers (for management practices, performance and economic viability). All farmers agreed to answer for the questionnaire and gave their consent prior to data collection during October and December 2017. Interview was conducted in the house during free time, in the shed during morning or afternoon milking.

The data collected from the dairy farmers were scored, tabulated and analyzed. The data collected was analysed using simple statistical tools such as averages, frequencies and percentage.

Results and Discussion

The native breeding tract of Hariana cattle lies between 28°30' and 300 north latitude and 75° 45' and 76° 80' east longitude. The native breeding tract of Hariana cattle encompasses large part of Rohtak, Hisar and Gurgaon districts of Hariana cattle. Purebred Hariana cattle were abundant in Jhajjar, Beri and Jahajgarh pockets of Rohtak district and the region was a leading trading centre particularly for Hariana bullocks. The home tract of this breed is the areas covered by the districts of Rohtak, Hissar, Gurgaon and part of Kamal in the Haryana State, and the Union Territory of Delhi.

Since milk production is a continuous process, it has greater ability of employment generation as compared to crop sector. Also, dairy farming is considered to be a tool of women empowerment since many dairy operations are performed by women. The Hariana breed of cattle is also maintained by women's in the breeding tract. The animals will be usually fed by grazing and also stall feeding. It could be inferred from the Table 1 that 41.7% of the respondents preferred grazing and stall feeding system, followed by majority (58.3%) of them practiced only stall feeding. It may be due to decrease in grazing land area (increasing trend to cultivate cash crops rather than fodder crops) with passage of time, less number of indigenous cattle in home, furious nature of Hariana cattle and profitability is less in them etc. In contrary to this [1, 2, 12] found that most of the respondents prefer stall and grazing feeding system.

In the case of types of fodder fed to cattle, mostly dry fodders like wheat straw and paddy straw were fed due to its availability round the year and easy to preserve for its less moisture content which reduce the chances of mould growth and spoilage. Green fodder availability was more during winter and rainy seasons than summer. It may be due to better water availability and suitable environment condition during winter and rainy season to grow fodder and natural pastures. Majority of the respondents fed concentrate feed to cattle and 33.3 per cent people gave both type of concentrate i.e. homemade and commercial, followed by 38.4 per cent of the respondents depend only on commercial feed materials. Different types of home grown grains and protein sources (oil cakes) were easily available throughout the year which helps farmers to prepare cheaper concentrate mixture for animal feeding. Jarial (2006) also reported that majority of the respondents fed concentrate feed to cattle. The materials used for preparing homemade concentrate feed were bajra, wheat, barley, gram grain and guar (Sorhum); 89.16% of the respondents also added common salt in concentrate mixture. Among the respondents 94.2% of the farmers used soaking method of feed material before feeding to animals to remove the anti -nitritional factors and to increase the palatability. Soaking and boiling of feed ingredients, addition of salt in diet of animals are traditional methods practiced by farmers.

On the whole, the respondents provided concentrate feed only to milch cattle because there is trend in farmers to provide good nutritional and management practices for animals when they get visible return through milk. Jarial (2006) and Nawazish (2003) [2, 6] also found similar results of feeding concentrate to only milch animals. The average quantity of concentrate feed given was 2 to 4 kg/day/animal supplemented with 0-40 kg green fodder and 2-8 kg straw depending upon the seasons. These findings coincides with [3] i.e. 1-4kg commercial feed/ homemade concentrate mixture with 2-11kg wheat straw and 5-50 kg chaffed green fodder offered to animal. Majority (90.0%) of the respondents did not add any mineral mixture in animal's diet due to high cost and less awareness about it. The lack of mineral mixture and common salt in the diet lead to various reproductive disorders like repeat breeding and anestrous. None of farmer were aware about preservation of fodder crop methods like hay and silage as farmers are having poor economic status, non-availability of skilled workers and poor knowledge about preservation methods. In respect to calf feeding practices, 63.8 per cent of the respondents fed colostrum to calf after the placenta was shed because of miss conception that udder full with milk support helps in expulsion of placenta whereas rest 25% respondents fed colostrum immediately after parturition as they were aware about advantage of colostrum feeding just after calving. The authors [1-5] also reported that majority of the respondents fed colostrum to calf after the placenta was shed. The present study revealed that most of the respondents did not have complete knowledge about good dairy farming practices including balanced feeding strategies.

Conclusion

The innate production potential of indigenous cattle has not been exploited to the fullest extent due to lack of awareness about the improved resources, technologies and other inputs attributed to lower literacy of this stratum of the rural people. It is a matter of concern that the population of indigenous cattle over the years has declined, while the population of crossbred cattle has increased. The feeding management practices followed by the farmers in the breeding tract of Hariana cattle can be used for planning of interventions for optimum production and health status of Hariana cattle.

Table 1: Feeding management practices by farmers in the breeding tract of Hariana cattle

Feeding management practices				
S. No	Particulars		Respondents (n=240)	
			Frequency	Percentage
1	Feeding system			
	I	Stall feeding	139	58.3
	ii	Stall + grazing	101	41.7
2	Grazing land			
	i	Own land	56	23.3
	ii	Community land	154	68.3
	iii	Migrate for grazing	30	08.4
3	Type of fodder			
	i	Green	80	33
	ii	Dry	144	60
	iii	Green + Dry	192	80
4	Chaffing of fodder			
	i	Yes	223	92.9
	ii	No	17	7.0
5	Concentrate feeding			
	i	Yes	216	90
	ii	No	24	10
6	Type of concentrate			
	i	Homemade	68	28.3
	ii	Commercial	92	38.4
	iii	Both	80	33.3
8	Feeding of mineral mixture			
	i	Yes	24	10
	ii	No	216	90
9.	Soaking of concentrate			
	i	Yes	226	94.2
	ii	No	14	5.8
10	Salt added in concentrate			
	i	Yes	214	89.16
	ii	No	26	10.84
11	Preservation of fodder crops			
	i	Yes	0	0
	ii	No	240	100
12	Time of calf feeding			
	i	After the placenta is shed	154	63.8
	ii	Immediately after birth	60	25
	iii	When the calf stand on its feet	26	11.2

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