



Level of cattle rearing practices followed by farmers of Indo-Gangetic plain zone

RAJEEV¹, RAVINDER KUMAR², R SINGH³, NEERAJ KUMAR⁴ and PRAVEEN KUMAR⁵

Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut, Uttar Pradesh 250 110 India

Received: 6 May 2015; Accepted: 12 October 2015

ABSTRACT

The sample of 90 respondents' was collected for present study from Shamli district in Indo-Gangetic plain zone. Sugarcane tops were the main fodder crop from October to May months. The sugarcane tops were fed with mix of berseem or mustard cake or others concentrates from January to May. 31.11% respondents used wheat straw mixed with other green fodders followed by *jowar*, *karbi*, berseem and *lobia* as 27.77, 3.33, 2.22 and 2.22%, respectively. It was found that 28.80% animals were milch animal in study area. 38.88% of the respondents provided colostrums within 2 h of birth, 2–4 within hours and the placenta. It was also observed that 43.33% allowed suckling of their calf upto six months. However, 91.11% of the respondents did not dehorn calve. The adoption level regarding feeding practices of cow rearing was providing clean and fresh drinking water which have higher 180 score (I rank) of feeding and lowest score was grazing which found only 17 score (X ranks), followed 172, 103, 98, 96, 102, 97, 69, and 47 score occupied the ranks III, IV, V, VI, VII, VIII and IX, respectively. Out of eight practices included in adoption of calf rearing management practices, Feeding of colostrum to newly born calves within 2 h after the birth was the highest score and occupied (Ist rank). The II and III ranks were occupied by attending newly born calf and proper cleaning of mucous from mouth and nostrils 139 score and trimming of hooves 94 score, respectively. Lighting and disinfection of naval cord, regular deworming of calves, right time method of dehorning and right time castration were VI, V, VI, VII, and VIII ranks, respectively. However, such types of practices are followed for sustainable livestock husbandry in this area since long time.

Key words: Adoption, Berseem, Calf rearing, Cattles, Feeds and fodder, Indo-Gangetic plain, Sugarcane tops, Western Uttar Pradesh

India is the seventh largest country in the world in which 75% peoples earn their livelihood from agriculture and animal husbandry (FAO 2006). Cattle are important species of livestock for India with the ranks first in the world with a total of 209 million cattle population (Dairy India 2012). It has the largest number of cattle breeds of the (<37) in the world. Hence, our livestock wealth constitutes the richest livestock bank in the world. Livestock contributes about 4% of total GDP, Which is over ¼ of GDP from agriculture sector. The dairy sector today provides some 70 million family's triple benefit of nutrition's food supplementary, income and productive employment to family. An Uttar Pradesh state rank first in milk production per annum. Cattle rearing for milk production, calf rearing for meat and agriculture working. A few efforts were known to made, to study together both the cattle and buffaloes management practices in the rural areas but these studies did not cover all the aspects. This is hardly adequate to serve as the basis

on which valid guidelines can be framed for introducing the recommended practices for adoption cattle keepers. Therefore, it is imperative to obtain first hand information on the existing cattle husbandry practices being followed by the cattle keepers in Shamli district of Uttar Pradesh.

MATERIALS AND METHODS

The study was undertaken in Shamli district which lies between the Ganges and the Yamuna. This area is leading in crop production as well as well-organized in dairy sector. The villages, viz. Kaserwa Kalan, Kaserwa Khurdh, Titaully, Lank, Mundate Kalan, Khari, Bhamedi, Rangana and Yusuf Chotra from the three blocks (Kairana, Shamli and Unn) of Shamli district were selected. Ten dairy cattle owners were randomly selected from each of the village. For the selection of sample, 3 blocks were randomly selected as Shamli, Kairana, and Unn in Shamli district. Further, 3 villages from each of the selected block was identified. From each selected village, 10 respondents were interviewed randomly. Thus, the entire sample consisted 90 respondents from selected 9 villages in 3 blocks of the district. The adoption level of cattle husbandry practices varies from farmer to farmer and the person rearing cattle in the village were considered for selection in sample. A complete survey of selected cattle keepers' household in each of the sample

Present address: ^{1,4,5}PhD Scholar, Department of Animal Husbandry, ³Professor and Head (rajbirsvbp@gmail.com), Department of Animal Husbandry, College of Veterinary and Animal Science. ²Senior Scientist (ravinder774@rediffmail.com), Animal Genetics and Breeding, ICAR, CIRC, Grass Farm Road Meerut Cantt, Meerut.

village was conducted. The preliminary information also included the age, education, land holding, herd size, source of irrigation, green fodder production family size etc.

Preparation of interview schedule: The interview schedule was prepared for collecting data from the respondents. The schedule consisted of the background information of the respondent along with the components of the good behaviour. The schedule was formulated in consultation with the experts in the field of animal husbandry by reviewing the relevant literature. The interview schedule was pre-tested to a sample of three farmers in a village area. The interview schedule was modified and used after preparing number of requisite copies.

This section was developed to know existing cattle feeding practices in the district. It considers two sub-section viz. feeding management and calf rearing management practices. To know the adoption of recommended feeding management practices by dairy farmers, it measured on three point continuum as 'Always' 'Sometime' and 'Never' by assigning the scores of 2, 1 and 0, respectively. Based on total scores, the respondents were classified into three categories i.e., low, medium and high by using frequency and percentage as a measure of check.

Constraints: Constraints are defined as impediment or obstacles in the adoption of recommended cattle feeding management practices. The constraints relating to feeding and calf rearing management practices were separately enlisted. To measure the intensity of constraint intervening in the adoption of recommended cattle feeding practices, three point continuum scales was used. The recorded responses were counted and were accorded ranks accordingly.

RESULTS AND DISCUSSION

Socio – personal characteristics of the cattle farmer

Age: In the present study, it was observed that 46.66% (highest) respondents were in old age group (above 50 years) followed by 7.77 and 45.55% of young (less than 50 years) and middle (36 to 50 years) age group engaged in cattle husbandry practices.

Education: It was seen that the highest (34.44%) respondents were secondary-level educated and lowest (4.44%) were -can be read only education group followed by 21.11, 17.77, 8.88, 7.7 and 5.55% of middle, illiterate, can-read-and-write, graduate, education level group (Table 1).

Family member: The family size was divided into 4 groups. It was seen that 209 (53.86%) respondents, more than 18-year-old age group in male was engaged in cattle husbandry and from 6 to 18-year-old age group male family members were 31.70%. Only 56 (14.43%) members from 6-year-old male group were involved. The female family members were 14.18, 28.71 and 57.09 %, respectively, from up to 6-year-old, from 6 to 18-year old and above 18-year-old groups, and the higher number of adult male (57.07%)

was engaged in cattle husbandry. The similar study was also conducted by Wadear *et al.* (2003), Khattri *et al.* (2004) and Khin Mon Oo (2005).

Area under fodder crop (ha): Among the selected dairy farmers 29.0% area was of legumes and 24.04% of cereals in the *kharif* season; whereas, 24.04% (13.5 ha) of legumes and 21.12% (11.45 ha) of cereals fodder crops in *rabi* season.

Feeding of animal: Existing feeding management practices of the study area are given in Table 2 and the data revealed that mostly (92.22%) respondent stall fed to their animals in groups. These findings are almost similar to Guar *et al.* (2005), and Malik *et al.* (2006), however, low percentage was reported by Swaroop and Prasad (2007). Moreover, grazing was not practiced by the any respondents because of higher crop intensity and unavailability of grazing land.

Type of fodder available: The sugarcane tops were the main fodder crop from October to May. Mostly sugarcane tops are fed with the mix with berseem or mustard cake or other concentrate from January to May. Whereas, wheat straw was used by the 31.11% respondents with the mixing of other green fodder or concentrate followed by *jowar*;

Table 1. The respondents profile in district

Characteristics	Number of respondent (90)	%
Age		
Young (less than 35 year)	07	7.77
Middle (36 to 50 year)	41	45.55
Old (above 50 year)	42	46.666
Education		
Illiterate	16	17.77
Can read only	04	4.44
Can read and write	07	7.77
Primary	08	8.88
Middle	19	21.11
Secondary	31	34.44
Graduate and above	05	5.55
Family size		
Male		
Up to 6 year	56	14.43
From 6 to 18 year	123	31.70
Above 18 year	209	53.865
Total	388	
Female		
Up to 6 year	42	14.189
From to 6 to 18	85	28.71
Above 18 year	169	57.09
Total	296	
Herd size of animal		
Milch	142	28.80
Dry	50	10.14
Pregnant	77	10.61
Heifers	67	13.59
Calves	107	21.70
Bulls	15	3.14
Total	458	

karbi, berseem and *lobia* as 27.77, 3.33, 2.22 and 2.22%, respectively. The mostly green fodder are available in the area irrespective of seasons. About 96.88% fodders were fed through chaffing by the farmers (Table 2).

Cultivation of green fodder: All respondents cultivated green fodder either in their land or in rented field. The major cultivated green fodder crops in different season were sugarcane, berseem, *lobia* and *jowar*.

The majority (83.33%) of the respondents fed readymade concentrate mixture to their animals and 16.77% home prepared concentrate mixture comprising crushed grain of wheat, oat, barley, cotton seed and mustard cake. These findings are in line with Patange *et al.* (2005) and Bhardwaj *et al.* (2003).

Feeding of common salt / mineral mixture: The majority 96.66% of the respondents were feeding common salt to their animals comprising 88.88% mineral mixture feeding. The common salt was fed mostly after the feeding the diet to animals as mixed with the chopped fodder or by mixing in soaked concentrated. However, mostly mineral mixture was purchased from the local market as available with different brands name. It was also surprisingly observed that most of the respondents were very aware regarding the mineral mixture feeding of their animal.

Most of the respondents are not preparing hay and silage in the study area. Only about 5% respondents were using hay (dry *jowar*, rice straw) with chopping or without chopping. These findings are almost similar as observed by Kumar *et al.* (2006) in Haryana and Punjab.

Mode of concentrate of common feeding: Majority (51.11%) of the respondents were feeding concentrate mixed with fodder at the milking time. Almost 100% advanced pregnant cows were steaming up (concentrate feeding) in the study area. They resume that steaming up is more beneficial in improvement of productive and reproductive performance in next lactation. Moreover, mostly respondents are feeding the concentrate mixed with fodder to their heifers for flushing purpose.

Extra feeding during advance pregnancy: Majority (58.88%) of the cattle keepers were providing extra feed during the advance stage of pregnancy but 41.11% were not feeding at advance stage of pregnancy and they think that this may be a cause of difficult calving. Regarding the first feed offered just after calving revealed that mostly 46.66% respondents provided dry fodder to their cows followed by dry coarse mustard seed and *gur* (24.44%), *gur* solution (22.22%) and lukewarm water (6.66%).

Quantity of concentrate fed to the lactating cow/day: Only 57.77% of the respondents fed 1–2 kg concentrate/day to their lactating cow followed 22.22, 6.66 and 13.33% of respondents fed 2–3 kg., 2–5 kg as per milk yield basis, respectively. However, most of the cattle keepers were aware regarding the ratio of milk yield and concentrate feeding to their cows.

Calf rearing management practices: Most of (97.77%) the respondents attended the cow at the calving time (Table 3). The respondents followed the practices of

Table 2. Respondents according to feeding management practices of dairy cattle

Stall feeding	Feeding of animals			
	Respondents	% (%)		
Group	83	92.22		
Individual	07	07.77		
Total	90			
<i>Type of fodder available</i>				
Sugarcane portion	30	34.33		
<i>Bajra/karbi</i>	03	03.33		
Wheat straw	28	31.11		
Berseem	02	02.22		
<i>Jowar</i>	25	27.77		
<i>Lobia</i>	02	02.22		
Total	90			
<i>Type of concentrate mixture used and its compositions</i>				
Home prepared	15	16.77		
Readymade	75	83.33		
Total	90			
<i>Pre- treatment of concentrate mixture</i>				
Grinding	28	31.11		
Soaking	05	05.55		
Boiling	57	63.33		
Total	90			
<i>Feeding</i>				
	Yes	No	Yes (%)	No(%)
Chopping of dry fodder	86	04	95.55	04.44
Chopping the green fodder	86	04	96.00	4.00
Cultivation of green fodder	90	00	100	00.00
Feeding of common salt:	87	03	96.66	03.33
Feeding of mineral mixture	80	10	88.88	11.11
Preparation of hay	05	85	05.55	94.45
Preparation of silage	00	90	00	100
<i>Mode of concentrate feeding to:</i>				
Lactating cow				
Mixed with fodder		16		17.77
At milking time		28		31.11
Both at milking and mixed with fodder		46		51.11
Total		90		
<i>Advance pregnant cow</i>				
Only concentrate		00		00
Mixed with fodder		90		100
Total		90		
<i>Heifer</i>				
Only concentrate		00		00
Mixed with fodder		90		100
Total		90		
<i>Extra feed offered to just calving cow</i>				
Lukewarm water		6		6.66
Dry course mustard seed		22		24.4
<i>Gur</i> solution		20		22.22
Dry grass/ hay/ leap dry fodder		42		46.66
Total		90		
<i>Quantity of concentrate fed to the lactating cow/days</i>				
1–2 kg concentrate		52		57.77
2–3 kg concentrate		20		22.22
3–5 kg concentrate		6		06.66
As per milk yield		12		13.33
Total		90		

cleaning calf immediately after birth and allowed dam to lick her calf immediately. The cattle keeper thought that if they trim the hooves of newly born calf, hooves will not increase in size. Only 33.33, 27.77 and 38.88% of the respondents provided colostrums within 2 h of birth, 2–4 h of birth and after dropping of placenta, respectively.

Quantity of colostrum feeding: A majority (43.33%) of the respondents were provided one quarter to their new born calves followed by half-quarter and as per body weight as 34.44% and 22.22%, respectively.

No. of days suckling: Only 43.33% respondents allow to suckling their calf up to 6 months followed by less than 4 months, more than 6 months and weaning as 32.22, 16.66 and 7.77%, respectively. Only 81.11% of the respondents of study area followed deworming of their calves. Whereas, 18.88% respondents are not deworming their calves under field conditions.

Dehorning: Most (91.11%) of the respondents are not dehorning practices in cattle. Only 8.88% respondents were dehorning their calves.

Castration: During the study it was found that most (94.44%) of the respondents were following castration practices in the study area. Only 5.55% respondent were not following castration practice to their calves

Adoption level of feeding practices of cowrearing: Providing clean and fresh drinking water (Table 4) got 180 score (I rank) and lowest score was grazing which found

only 17 score (X ranks). The cultivation of green fodder for maintaining, The fodder supply is round the year.

Adoption of calf rearing practices: Out of 8 practices (Table 5) included in adoption of calf rearing management practices; feeding of colostrum to newly born calves within 2 h after the birth was highest score and occupied I rank. The II and III ranks were occupied by attending newly born calf and proper cleaning of mucous from mouth and nostrils 139 score and trimming of hooves 94 score, respectively. Lighting and disinfection of naval cord, regular deworming of calves, right time method of dehorning and right time castration were VI, V, VI, VII, and VIII ranks, respectively. It may be concluded that practices of deworming of calf, castration, dehorning and feeding of colostrums to newly born calf within 2 h after birth were least adopted by respondents which inhibit the growth of calves.

Constraint in adoption of calf rearing management: Constraints in adoption of rearing management (Table 5) is a serious problem in village condition calf rearing practices. Lack of the knowledge at right time and method of castration got the highest 180 score (I rank) and lowest score was given to lack of knowledge about attending newly born calf and proper cleaning of mucous from mouth and nostrils and drying the body with coarse cloth.

On the whole it could be concluded that the respondents of the study area were of middle age group with primary school level education. The majority (92.92%) of farmers

Table 3. Calf rearing management practices in village condition

Calf rearing practices	Yes	No	Yes (%)	No (%)
Do you attend the cow at time calving	88	2	97.77	2.22
Do you clean the calf immediately after birth	83	7	92.22	7.77
Lice/ticks eradication measure followed	61	29	67.77	32.22
Dehorning	8	82	8.88	91.11
Castration	85	5	94.44	8.88
Deworming of calves	73	17	81.11	18.88
<i>Feeding of colostrums to the calf</i>				
Within 2 h of birth		30		33.33
2 to 4 h of birth		25		27.77
After dropping of placenta		35		38.88
Total		90		
<i>Quantity of colostrum feeding</i>				
One Quarter		39		43.33
Half quarter		31		34.44
As per body weight		20		22.22
Total		90		
<i>No of days suckling to the dam</i>				
Weaning		7		7.77
Less than 4 months		29		32.22
Up to 6 months		39		43.33
More than 6 months		15		16.66
Total		90		

Table 4. Adoption of feeding practices for cow

Feeding practices	Adoption			Total score	Rank order
	Always	Some time	Never		
Feeding balance concentrate mixture on the basis of production	25	53	12	103	III
Feeding green fodder to animal round the year	16	66	8	98	V
Feeding green fodder to advance pregnant animal	19	58	13	96	VII
Feeding mineral mixture	24	54	12	102	IV
Chaffing the dry fodder before feeding	80	6	4	172	II
Feeding common salt	23	51	14	97	VI
Providing clean and fresh drinking water	90	0	0	180	I
Preservation of surplus green fodder as hay silage	23	23	44	69	VIII
Allowing grazing animal only before 10 AM and after 5 PM during summer	00	00	90	00	X
Cultivation of green fodder maintaining fodder supply round the year	10	27	53	47	IX

Table 5. Adoption calf rearing practices

	Adoption			Total score	Rank order
	Always	Some time	Never		
<i>Feeding practices</i>					
Feeding of colostrums to newly born calves within two hours of birth	54	36	7	144	I
Attending newly born calf and proper cleaning of mucous from mouth and nostrils and drying the body with coarse cloth	57	25	6	139	II
Trimming of hooves	33	28	29	94	III
Lighting and disinfection of naval cord	23	37	34	83	IV
Right time method of dehorning	16	29	42	61	V
Right time and method of dehorning	5	10	75	20	VII
Right time and method of castration	4	06	80	14	VIII
Inducing early solid feeding	5	44	39	54	VI
<i>Constraint</i>					
lack of knowledge Feeding of colostrums to newly born calves within two hours of birth	52	31	7	135	VI
lack of knowledge attending newly born calf and proper cleaning of mucous from mouth and nostrils and drying the body with coarse cloth	50	30	10	130	VII
Lack of awareness about weaning time of calves	88	02	00	178	II
lack of knowledge right time and method of castration	90	00	00	180	I
lack of regular knowledge deforming of calves	82	8	00	172	IV
lack of knowledge right time and method of dehorning	87	3	00	177	III
lack knowledge about milk replacer induce to the calves	80	8	2	168	V

were using stalls feeding of animals in this area. The sugarcane tops were main fodder crop from October to May and fed with the mix with berseem or mustard cake or with other concentrate. The green fodder availability in summer, high cost of concentrate, non-availability of improved fodder seeds were realized as the most serious constraints.

REFERENCES

- Bhardwaj S R, Bhardwaj A, Yadav M C and Dixit V B. 2003. Adoption of buffaloes husbandry practices by the member and non-member of dairy milk co-operative societies in Haryana. *Dairy milk co-operative societies in Haryana* **65** (6): 69.
- Gour A K. 2002. 'Factors influencing adoption of some improved animal husbandry practices of dairying in Anand and Vadadara district of Gujarat state.' Ph.D. thesis, Gujarat Agricultural University. S.K. Nagar.
- Kumar U, Mehla R K, Chandra R and Roy B. 2006 Studies on management practices followed by the traditional owners of Sahiwal cow in Punjab. *Indian Journal of Dairy Science* **59** (2): 100-05.
- Patange D D, Kukarni A N, Gujar B V and Kalyanrkar S D. 2002. Nutrient availability milch marathwadi buffaloes in theory one tract. *Indian Journal of Animal Nutrition* **19** (1): 41-46.
- Swaroop Devendra and Prasad Jagdish 2007. Feeding systems of dairy cattle and buffaloes in rural area of Transyamuna, Allahabad district. *Paper presented in national symposium on recent trends in policy initiatives and technological interventions for rural prosperity in small holder livestock production systems*, held at Tirupati. pp 75-76.