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Studies on Breeding and Feeding Practices of Buffalo in Vogue among Buffalo Farmers in Temperate Himalayan Region of Kashmir Valley

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ABSTRACT

The study was conducted in two geographically isolated districts of Anantnag in south Kashmir and Baramulla in north Kashmir. In each district 200 buffalo rearing farmers were selected. The information was collected through personal visit on the basis of a pre-formulated and tested questionnaire. The results revealed that majority (81.50%) of respondents were detecting heat in buffaloes by themselves and natural service with known/unknown bull was the only method of mating. Only a meagre proportion (8.75%) were practicing pregnancy diagnosis and considerable number of farmers (48.00%) were using services of a veterinarian for the treatment of anoestrous. Grazing plus supplementary feeding was adopted by maximum proportion of respondents (95.50%) with 58.25% using a combination of green fodder and dry fodder. Feeding twice a day was adopted by maximum (76.50%) farmers and feeding regularity was maintained by majority (89.75%). Treatment of poor quality feed stuffs was not practised by any of the farmers. Majority of the respondents (97.75%) were not feed according to animal's productivity level while 76.50% were practicing feeding at later stage of dry period. All farmers practiced feeding as per body weight and all of them used milk as a source feeding to young stock. Proportion of farmers, feeding according to productivity level and those feeding at later stage of dry period differed significantly among the districts. Majority (92.50%) of the respondents adopted individual pattern of feeding. It is concluded that many of the breeding and feeding practices in vogue did not conform to any prescribed standards and as such farmers need to be apprised about scientific management practices.

1. Introduction

Livestock sector plays an important role in socio economic development and national economy of the country. The contribution of livestock sector to the national economy in terms of Gross Domestic Product is 4.1% at current prices during 2012-13 and 3.5% at constant prices during 2004-05. India has about 190.90 million cattle and 108.70 million buffalo population. The Indian dairy industry has made a remarkable progress in last three decades with unprecedented growth in milk production.

India has emerged as a leading milk producer country in the world with 132.4 million tones milk (DAHD, 2014). The buffalo population has increased from 105.3 million to 108.7 million showing a growth of 3.19% and the milch buffalo has increased from 48.64 million to 51.05 million with an increase growth rate of 4.95% (DAHD, 2014). Livestock population in Jammu & Kashmir is 9.20 million in which cattle population is 2.79 million and buffalo population is 0.738 million. Buffalo holds a greatest promise for food security and sustainable development in the 21st century as these animals form an integral part of the typical farming system in India. In India, buffalo has been the backbone of rural economy.

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It is the mainstay in the production of butter and ghee. Not only this, buffalo is also considered to be more useful for reasons of higher fat content in milk and ability to utilize agricultural byproducts more efficiently (Sharma *et al.*, 2009). The nutritive value of buffalo milk products is also higher than cows because of the higher concentrations of protein, fat, lactose, minerals and vitamins in buffalo milk. Buffalo milk and its derived products could be a good source of conjugated linoleic acid (CLA) for humans like other food products from ruminants. Numerous potential physiological effects have been attributed to CLA including those related to its potential antiadipogenic, antidiabetogenic, anticarcinogenic and antiatherosclerotic properties (Frank *et al.*, 2012). Buffalo rearing seems to have received least attention of policy planners as well as farmers particularly in Kashmir. In spite of being quite hardy, better adapted to low input production system buffalo rearing has not been so popular in Kashmir Valley. Present study was therefore planned to know the breeding and feeding practices followed by buffalo rearing farmers of Kashmir Valley.

2. Methodology

The study was conducted in Kashmir Valley which is surrounded by Himalayas on all sides with average temperature ranging from -5° to 32°C. In Kashmir Valley two geographically isolated districts with highest buffalo population *viz.* Anantnag in South Kashmir and Baramulla in North Kashmir were included in the study. Random sampling technique was used to select the respondents

within the selected districts. A minimum of 200 buffalo rearing farmers in each district were covered. The information was collected on the basis of pre-formulated and tested questionnaire devised for the purpose and the interview schedule developed for the study was used for collecting the information by personal interview from selected buffalo owners. The questions / statements of interview schedule were read out one by one and their responses were recorded. The data generated on these traits was tabulated and classified. The data was analyzed using standard statistical procedures (Snedecor and Cochran, 1994). Simple averages and percentages were calculated. However, the proportionate data was compared through z-test of proportions. After performing statistical analyses tests were referred by p-values, any p-value ≤ 0.05 was taken as statistically significant.

3. Results and Discussion

Majority (81.50%) of the respondents detected heat by themselves. Farmers themselves detected heat by observing mounting behaviour, bellowing, tail vibration, restlessness *etc.* The findings are contrary to an earlier finding in this regard (Kishore *et al.*, 2013) in Khammam district of Andhra Pradesh, who reported that 95.00% farmers were not able to detect heat in animals. The maximum proportions of respondents (67.25%) were using known pedigree bull for natural service while as 32.75% reported service by unknown pedigree bull. Results similar to present findings have been reported earlier (Kushwaha *et al.*, 2007) in Uttar Pradesh.

Table 1. Breeding practices followed by buffalo rearers in Kashmir Valley (N=200/district)

Parameters	Variant	Percentage		
		Anantnag	Baramulla	Overall
Heat detection	Veterinary personal	0.00 ^a	01.00 ^a	0.50 ^a
	Self	83.00 ^c	80.00 ^c	81.50 ^c
	Not done	17.00 ^b	19.00 ^b	18.00 ^b
Method of mating	Natural service with known bull	64.00 ^c	70.50 ^c	67.25 ^c
	Natural service unknown bull	36.00 ^b	29.50 ^b	32.75 ^b
Pregnancy diagnosis	Yes	15.00 ^{aA}	2.50 ^{aB}	8.75 ^a
	No	85.00 ^{bA}	97.50 ^{bB}	91.25 ^b
Anestrus treatment	Veterinarian	36.50 ^{cA}	59.50 ^{cb}	48.00 ^d
	Livestock assistant	0.50 ^{aA}	9.00 ^{ab}	4.75 ^a
	Village quack	12.00 ^b	9.50 ^a	10.75 ^b
	Self treatment	51.00 ^{dA}	22.00 ^{bB}	36.50 ^c

Different small case superscripts across rows in a particular parameter indicate significant difference between different variants and different upper case superscripts across columns indicate significant difference between districts

However, Kishore *et al.* (2013) reported predominance of artificial insemination in Andhra Pradesh with only 37.50% farmers resorting to natural service of their animals. Unavailability of artificial insemination facility in the study areas could be a possible reason of predominance of natural service. Majoritiy (91.25%) of the respondents were not practicing pregnancy diagnosis. Results contrary to these findings have been reported earlier in Punjab (Aulakh and Karamjit, 2012) and Rajasthan (Gupta *et al.*, 2008) wherein per-rectal examination is a norm. The possible reason for non-adoption of per-rectal examination as a pregnancy tool is the myth that it damages the foetus and compromises the future fertility of the dam. A considerable proportion of respondents (48.00%) were treating anestrus by consulting a local veterinarian followed by self treatment

(36.50%), village quack (10.75%) and livestock assistant (4.75%). As per the result some proportion (12.00%) of indigenous medicines like kuth (*saussurea costs*) and some respondents are using onion for the treatment of anestrus. They also took advice from veterinary doctors when need arises. Use of Indigenous traditional knowledge in Livestock husbandry is very important particularly in far off places like those where buffaloes are reared in Kashmir. Bhanotra and Gupta (2016) have recorded twenty such traditional remedies used by *Gujjars*, *Bakerwaals* and *Dogra* communities in Kathua district of Jammu and Kashmir. Grazing plus supplement was main feeding method adopted by majority (95.50%) of the respondents. Results similar to present findings have been reported earlier in Uttar Pradesh (Malik *et al.*, 2005).

Table 2. Feeding practices followed by buffalo rearers in Kashmir Valley (N=200/district)

Parameters	Variant	Percentage		
		Anantnag	Baramulla	Overall
Feeding method	Grazing plus supplement	96.00 ^a	95.00 ^a	95.50 ^a
	Stall feeding	4.00 ^b	5.00 ^b	4.50 ^b
Types of feed and fodder	GF+ DF+ Conc.+ M.M	1.00 ^a	1.00 ^a	1.00 ^a
	GF+ DF+ Conc.	31.50 ^{bA}	50.00 ^{bB}	40.75 ^b
	GF+DF	67.50 ^{cA}	49.00 ^{bB}	58.25 ^c
Frequency of feeding/day	Three times	8.00 ^{bA}	37.00 ^{bB}	22.50 ^b
	Two times	90.00 ^{cA}	63.00 ^{cB}	76.50 ^c
	Once	2.00 ^{aA}	0.00 ^{aB}	1.00 ^a
Regularity of feeding	Maintained	92.00 ^b	87.50 ^b	89.75 ^b
	Not maintained	8.00 ^a	12.50 ^a	10.25 ^a
Source of feed stuff	Home grown	13.00 ^{aA}	2.50 ^{aB}	7.75 ^a
	Purchased	24.00 ^{bA}	1.50 ^{aB}	12.75 ^b
	Both	63.00 ^{cA}	96.00 ^{bB}	79.50 ^c
Treatment of poor quality feed	Yes	0.00	0.00	0.00
Feeding as per body weight	Yes	0.00	0.00	0.00
Feeding according to production	Yes	4.00 ^{aA}	0.50 ^{aB}	2.25 ^a
	No	96.00 ^{bA}	99.50 ^{bB}	97.75 ^b
Extra feeding during dry period	Yes	37.50 ^{aA}	9.50 ^{aB}	23.50 ^a
	No	62.50 ^{bA}	90.50 ^{bB}	76.50 ^b
Feeding of young stock	Milk only	100.00	100.00	100.00
Feeding pattern	Individual	95.00 ^b	90.00 ^b	92.50 ^b
	Group	5.00 ^a	10.00 ^a	7.50 ^a

Different small case superscripts across rows in a particular parameter indicate significant difference between different variants and different upper case superscripts across columns indicate significant difference between districts

However, results contrary to these findings have been reported among dairy animal owners in Gujrat (Katariya, 2007) wherein stall-feeding either at home or at farm within a limited area was the norm. A considerable proportion of respondents (58.25%) were providing green fodder and dry fodder to their animals followed by green fodder, dry fodder plus concentrate (40.75%) and green fodder, dry fodder, concentrate plus mineral mixture (1.00%). Results similar to these findings were reported earlier in Chhattisgarh (Deoras *et al.*, 2004) wherein majority of respondents were not feeding mineral mixture to their animals. However, results contrary to these findings were reported earlier in Rajasthan (Singh *et al.*, 2007). Feeding of concentrate and mineral mixture by very less number of farmers could be possibly due to lack of awareness besides high cost and poor availability of the same. Generally two times feeding was practiced by maximum proportion (76.50%) of respondents. Results similar to present findings were reported earlier in Gujarat (Jadav *et al.*, 2014). It is a general practice among the buffalo owners in the region that animals are fed dry roughage and/or supplement in the morning and evening and grazing is practised in between. None of the respondents were found practicing treatment of poor quality feed stuff. Results similar to present findings were reported earlier in Andhra Pradesh (Kishore *et al.*, 2013). Lack of awareness on part of buffalo owners could be a possible reason for absence of physical, chemical or biological treatments of poor quality feed stuffs. No farmer was feeding as per body weight and maximum proportion of the farmers (97.75%) was not feeding the animals as per the productivity. Results contrary to these the findings were reported earlier in Chhattisgarh (Deoras *et al.*, 2004). Majority of the respondents (76.50%) were not providing extra feeding during later stage of dry period but some proportion (23.50%) were providing extra feeding during later stage of dry period. Results contrary to these findings were reported earlier in Rajasthan (Manohar *et al.*, 2014). Lack of knowledge about scientific feeding methods could be attributed to lack of consideration being given to body weight and physiological status of the animal while determining the quantity of ration to be offered. Majority of the respondents (92.50%) were feeding their animals individually. Results similar to present findings were reported earlier in Gujarat (Jadav *et al.*, 2014). Predominance of individual rather than group feeding is due to the fact that majority of the buffalo owners were having only one buffalo.

Conclusion

Maximum proportion of respondents were detecting heat in buffaloes by themselves and natural service was the only

method of mating with known or unknown bull. Majority of the respondents were not practiced the pregnancy diagnoses. Grazing plus supplementation was the main feeding method adopted by farmers.

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