



## Assessment of Socio-economic Status of Farmers and Distribution of Buffalo Population in the Mahakaushal Region of Madhya Pradesh

Rajesh Kumar Vandre<sup>1</sup>, Shrikant Joshi<sup>1</sup>, Mohan Singh Thakur<sup>1\*</sup>, Madhu Sudhan Tantia<sup>2</sup>, Rekha Sharma<sup>2</sup>, Ajit Pratap Singh<sup>3</sup>, Akhilesh Pandey<sup>1</sup>, Vaishali Khare<sup>1</sup>, Mona Sharma<sup>1</sup> and Asad Khan<sup>1</sup>

<sup>1</sup>Department of Animal Genetics and Breeding, Nanaji Deshmukh Veterinary Science University, Jabalpur, Madhya Pradesh, INDIA

<sup>2</sup>ICAR-National Bureau of Animal Genetic Resources Karnal-132001, Haryana, INDIA

<sup>3</sup>Animal Biotechnology Center, Nanaji Deshmukh Veterinary Science University, Jabalpur, Madhya Pradesh, INDIA

\*Corresponding author: MS Thakur; E-mail: drmohansingh@gmail.com

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### ABSTRACT

The study of socio-economical status of the farmers and distribution of buffalo population were conducted at Mahakaushal region of Madhya Pradesh. Mahakaushal, a region of central India, lies in the upper or eastern reaches of the Narmada river valley in the Indian state of Madhya Pradesh. Data were collected through farmer's interview from target districts. Survey was indicated that the buffalo population was distributed in entire Mahakaushal region of the Madhya Pradesh particularly in Jabalpur, Mandla, Dindori, Seoni districts and in parts of adjoining districts including Naringhpur, Balaghat, Chhindwada, Katani and Umaria. The overall socioeconomic status of farmers was poor in all the districts. The annual income of farmers of Jabalpur and Mandla districts was slightly higher than the farmers of Dindori and Seoni districts; it might be due to slightly higher irrigated lands (1-3 acres) and literate family members (4-5). The farmers in Mahakaushal region mainly depends upon the pasture feeding for their livestock. The place, where animals were gathered during grazing is known as *Khirka*. The mating normally occurs during grazing. It was revealed that on an average 90 percent farmers housed their animals only at night while 10 percent of farmers housed them both day and night. In 98 percent animal houses, floor was *kachcha* type. In about 95 percent animal house had no drainage system. In 100 percent animal house had *kachcha* type of drainage. The survey was the first attempt to study the demographic and geographical distribution in Mahakaushal region of Madhya Pradesh.

### HIGHLIGHTS

- ⦿ Socioeconomic status of farmers was poor in majority of survey districts.
- ⦿ Mainly Kachcha type of housing was followed in all the survey districts.
- ⦿ The farmers livestock depends upon mainly pasture grazing.

**Keywords:** Breeding tract, Buffalo, Socioeconomic, Survey

India is largely dependent on agriculture, with agriculture providing financial assistance for around 70-75 per cent of the people. Cattle or Buffalo are kept as an auxiliary to crop cultivation for milk production, mechanical power for different agricultural activities, village transit, irrigation and manure generation. In general, the animals are fed agricultural leftovers and crop wastes. Landless, Small and marginal farmers, as well as landless laborers, are mainly accountable for animal husbandry. The

landless and small farmers are mainly depending upon the livestock for supplemental income. Thus, identifying strengths and weaknesses, as well as understanding of present management practices may be useful in developing

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appropriate intervention strategies. Buffaloes in India are third major contributors in the livestock population and largest producers of milk and meat in the country, although their contribution to draught animal power is relatively low but buffaloes are useful for pulling heavy loads at a low speed. In Madhya Pradesh, as per the 19<sup>th</sup> livestock census total buffalo population was 8.1 million out of which more than 90 per cent population are non-descript type (BAHFS, 2020).

The number of specified breeds and lesser known breeds are expected to be about 5 to 10 per cent of the total buffalo population in the country. Rest of the buffaloes are non-descript type and have extremely variable composition being either non-descript or crosses among various breeds and cannot be categorized in any other well-established breed. There is general concern that the genetic variation within the few domestic animal species is disappearing through breed substitution and inter-breed crossing. Any reduction in the diversity of genetic resource narrows the scope to respond to selective breeding (Sethi and Kala, 2005). The present study has been planned to assess the demographical and geographical distribution existing local buffalo population and socioeconomic status of farmers in Mahakaushal region of Madhya Pradesh.

## MATERIALS AND METHODS

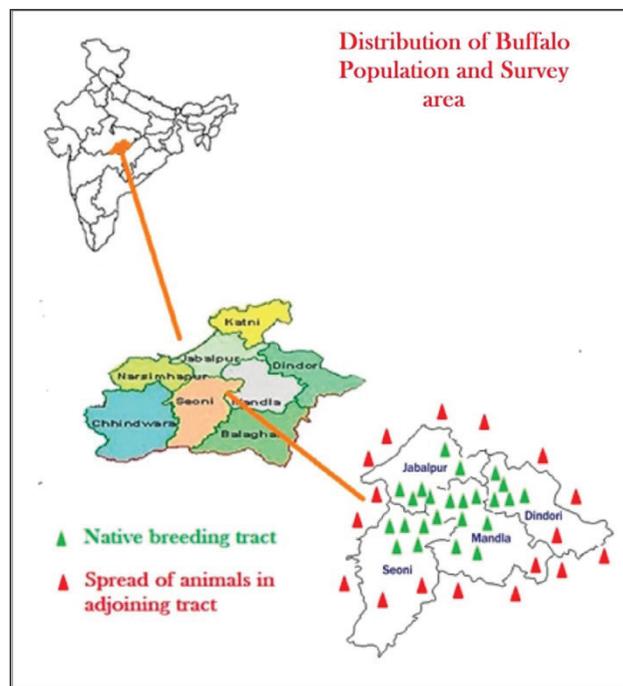
The survey was planned to study the demographic and geographical distribution of buffaloes in Mahakaushal region of Madhya Pradesh. During the survey, the concentration of buffalo population was taken into consideration along with socioeconomic status of the framers. This study reveals the information on the socio-economic status of farmers (through face to face interview), their livestock management practices.

## RESULTS AND DISCUSSION

### Breeding tract

The breeding tract of buffaloes under the present study has been shown in the figure 1. The buffalo population was distributed in entire Mahakaushal region of the Madhya Pradesh particularly in Jabalpur, Mandla, Dindori, Seoni districts and in parts of adjoining districts including Naringhpur, Balaghat, Chhindwada, Katani and Umaria.

The animals of buffalo population under study were mainly present in the interior areas of districts and villages which are close to the forest area where hardly any facility for A.I. was available. During the survey, it was found that the buffalo population was in the pure form because the mating of animals was mainly based on natural service and A.I. was rarely preferred by the farmers.



**Fig. 1:** Distribution of buffalo population in Mahakaushal region of M.P.

### The native environment and climate

Mahakaushal, a region of central India, lies within the upper or eastern reaches of the Narmada river valley within the Indian state of Madhya Pradesh. The region lies in between Latitude: 23° 08' 60.00" N Longitude: 79° 55' 58.80" E. The Mahakaushal region is also known as Maikal hill zone. The climate of the Mahakaushal is humid subtropical, as is typical of north-central India. The geography and climatic description of districts of the breeding tracts is presented in table 1.

### Soil, feed and fodder

The overall soil in entire Mahakaushal region is Black type. It was observed that wheat, paddy, maize, jowar,

**Table 1:** Geographical and climatic description of the breeding tract

Particulars	Districts			
	Jabalpur	Mandla	Dindori	Seoni
<b>1. Topography:</b>				
a. Latitude (N)	23° 10' N	22° 06' N	22° 94' N	22° 08' N
b. Longitude (E)	79° 56' E	80° 36' E	81° 07' E	79° 57' E
c. Height (MSL)	411 m	624 m	678 m	612 m
d. Area (Sq. Km.)	367	8771	6128	8758
<b>2. Climatic condition:</b>				
a. Temp. (Max.)	47°C	43°C	43.6°C	40.3°C
b. Temp. (Min.)	8°C	10°C	3.1°C	11.3°C
c. Annual Rain fall	1279.5 mm	1392 mm	1450 mm	1323 mm
d. Humidity (Range)	54-82%	41-84%	25-79 %	34-88%

Source: <https://www.timeanddate.com/weather/india/>.

**Table 2:** Age wise and sex wise distribution of buffalo population in Mahakaushal region

Districts	Up to 1 year		1-3 year		Above 3 years				Total
	Male	Female	Male	Female	Male		Female		
					Bull	Bullock	Milk	Dry	
Jabalpur	246	458	305	678	56	25	956	459	3183
Mandla	312	567	208	718	35	12	683	359	2894
Dindori	205	472	315	523	48	11	729	390	2693
Seoni	106	380	158	470	21	8	486	289	1918
Total	869	1877	986	2389	160	56	2854	1497	10688
Per cent	8.13	17.56	9.22	22.35	1.49	0.52	26.70	14.00	

etc. cereals were grown. The farmers mainly depend upon the pasture grazing for their livestock. There were only few farmers (1-2 %) that grow fodders (Barseem, Lucerne etc.) for their animals. The grass was available mainly during the rainy season and also in winter season. It was observed that grasses such as *samai*, *gunhari*, *kandhia* etc. were given to livestock as per availability in the area. The wheat straw and dry grasses were fed to animals during summer season.

### Demographical and geographical distribution

In the present study, total 10688 animals were covered under demographic survey in the Mahakaushal region of Madhya Pradesh. It was observed that in the whole breeding tract farmers were maintaining good number of buffalo animals. The age and sex wise population distribution

of buffalo population surveyed in Mahakaushal region has been presented in table 2. In all the age groups, the population of female was larger than that of male. It could be due to the fact that buffaloes female animals are mainly reared for milking purpose and buffalo bulls are not preferred for draught purpose (Table 2).

### Socio-economic status of farmers

The information regarding the socioeconomic status of farmers of Jabalpur, Mandla, Dindori and Seoni districts have been obtained by random survey using questioners. The average agricultural status of farmers of these districts was comparable. The overall socioeconomic status of farmers was poor in all the districts. The annual income of farmers of Jabalpur and Mandla districts was slightly higher than the farmers of Dindori and Seoni districts; it

**Table 3:** Agricultural status of farmers

Attribute	Jabalpur	Mandla	Dindori	Seoni	Overall
Agriculture holding (Acre)	1 – 4	1 – 3	1 - 3	1 - 2.5	1 to 3.12
Irrigated land (Acre)	1 – 3	1 - 2.5	1 - 2	1 - 2.25	1 - 2.43
Annual Income (₹)	15000 - 68000	12000 - 65000	10000 - 60000	11000 - 62000	12000 – 63750
Family members (No.)	4 - 6	5 – 6	6 - 7	5 - 6	5 – 6.25
Male family members (No.)	2 - 4	2 – 3	3 - 4	2 - 3	2.25 – 3.50
Female family members (No.)	2 - 3	2 – 3	3 - 4	2 - 3	2.25 - 3.25
Literate members (No.)	4 - 5	4 – 5	2 - 4	2 - 4	3 - 4.5
Male members engaged in animal husbandry (No.)	1 - 2	1 – 2	2 - 3	2 - 3	1.5 to 2.5
Female members engaged in animal husbandry (No.)	1 - 2	1 – 2	2 – 3	1 - 2	1.25 - 2.25
No of houses covered (No.)	300	275	250	175	1000

**Table 4:** Housing and feeding practices of buffalo population followed in Mahakaushal region

Attribute		%	Attribute		%
Animal tide:	Only night	90	Fodder	Fodder grown	1-2
	Day & Night	10		Pasture feeding	98-99
Types of animal house	Open	15	Feeding method:	Soaked	5
	Close	85		Raw	95
Types of construction	<i>Kachcha</i>	98	Concentrate feeding		5
	<i>Paucca</i>	2			
Location of animal house	Part of residence	80	Feeding at milking time		90
	Separate	20	Cleaning milk utensils		100
Type of flooring	<i>Kachcha</i>	98	Washing of udders before milking:		100
	<i>Paucca</i>	2		Grazing:	Distance
Construction of wall	Complete	60	Time		7 to 9 hr
	Half	40	Water adequacy:		80
Hygiene of animal houses	Clean	45			
	Not clean	55			
Provision for drainage	Yes	5			
	No	95			
Types of drainage	<i>Kachcha</i>	100			

might be due to slightly higher irrigated lands (1-3 acres) and literate family members (4-5). Agricultural Status of farmers of Dindori and Seoni districts was lower as compare to other two districts. The agricultural status of farmers of survey area has been presented in the table 3.

#### Housing, feeding and management practices

The results of random survey regarding housing, feeding and management practices are presented in table 4. It was observed that mostly farmers housed their animals only at night (90 %) while very few farmers (10 %) housed their animals during day and night. This was more or

less a general practice prevailing in all districts. The close housing system (85 %) was mainly followed than open housing system (15%). The *kachcha* type of house and floor with half height wall (98 %) was mostly used for housing the animals. About the 80 per cent animals house was besides the resident of farmers and 20 per cent farmers had separate animal's houses. Most of the animal houses had no drainage system (95 %). The hygiene and sanitary condition of the animal houses was very poor. In agreement with the present findings, Chandran *et al.* (2019) reported more or less similar pattern of different management practices in breeding tract of Diara buffalo in the middle gangetic plains of Bihar, India.

It was observed that only 1-2 per cent of farmers grown fodder in the breeding tract. The animals were mainly depends upon pasture feeding (98-99%). The feeding with chaffed green fodder was less common (1-2%). Raw feeding was practiced by 95 per cent farmers whereas soaked feeding was practiced by 5 per cent of the farmers in the targeted districts. As revealed by survey cooked feeding was not practiced at all. Feeding at the time of milking was practiced by majority of the farmers (90%). It was observed that almost all the farmers were conscious about the hygiene and therefore, cleaning of milking utensils and washing of udders before milking was a common managerial practice (Table 4). The source of water for buffalo animals was river, nala, canals, well, ponds and tank. Water availability for animals was adequate except during the summer season. Overall adequacy of water was about 80 per cent. Sometimes problems aggravated at time of poor rainfall.

In general, pasture grazing was preferred by the farmers for their animals. The buffaloes in the region are commonly released for grazing in the morning and returned home in the evening from grazing land. The animals practically depend upon grazing the whole day in the forest area with nominal feeding of concentrates once a day at the time of milking. Buffaloes were taken for grazing immediately after morning milking or by about 7- 8 A.M. and returned back to their home in the evening by about 6-7 P.M. The place, where animals were gathered during grazing is known as *Khirka*. The mating normally occurs during grazing. An animal attendant, known as Charwaha looks after the animals of entire village. During the summer, the animals roam freely in the Wardi system. It was observed that grazing land distance was 2-3 km from the villages. The young suckling calves of six months of age and above are also allowed for grazing with their mother by majority of farmers. In the breeding tract, the animals were depended upon pastures for their feeding. However, sometimes they were given *bhusa* and local grasses depending upon the availability. It was observed that very few farmers fed concentrate to their livestock. Concentrate was given to animals only during milking time. The concentrate fed to these animals included *aata* (flour), *choker* (bran) and sometime *khali-chuni* etc. Individual feeding rather than group feeding were practiced at the time of milking. Natural service practiced by majority of farmers. It was

observed that in interior areas there was no any facility of A.I., so farmers depends upon natural breeding with common buffalo bull that was available in *Khirka*.

Similar findings of free grazing system was also reported as a major practice in buffaloes of Maharashtra (Kalyankar *et al.*, 2008) and Galao strain of Nagpuri buffalo (Gubbawar *et al.* 2012). Kurrey (2015) reported that local buffaloes of Chhattisgarh plains were reared under semi intensive system of management and buffaloes were close to human dwellings. Jayashankar (2005) reported that the Gowli buffaloes were mainly maintained for milk production and also used for agricultural operations and transport. Practice of feeding concentrate to buffaloes varies in different parts of the country. Kalyankar *et al.* (2008) and Gubbawar *et al.* (2012) reported no concentrate feeding practiced and if offered, it is not as per the level of production in buffaloes of Maharashtra. Ali *et al* (2019) reported that some farmer offered the concentrate feeding to Puranthadi buffaloes which is in accordance with present study. Kurrey (2015) observed that the concentrate feeding was generally offered to local buffaloes of Chhattisgarhi during the advance stage of pregnancy and at early stage of lactation. Chandran *et al.* (2019) reported that 75.4% of animals were bred with Diara buffalo bulls available in the breeding tract. Natural service was done with the breeding bulls during grazing in several districts of Rajasthan (Gupta *et al.*, 2008) and at Indore district of Madhya Pradesh (Ahirwar *et al.*, 2010).

## CONCLUSION

The study revealed that the buffalo population mainly distributed in Jabalpur, Mandla, Dindori, Seoni and adjoining parts of the districts. The Socioeconomic status of farmers was poor in majority of survey districts. The *Kachcha* type of housing was observed mainly in the suryed area. The farmers mainly depend upon the pasture feeding for their livestock. The present study was the first attempt for demographic and geographic survey of the Mahakaushal region of Madhya Pradesh.

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