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GEOGRAPHICAL DISTRIBUTION, MANAGEMENT PRACTICES AND UTILITY OF KOSALI CATTLE AT NATIVE TRACT

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Abstract: Kosali, the first breed of cattle from Chhattisgarh state has been registered as 36th breed of cattle. These animals are smaller in size and are well adapted to the existing agro-climatic conditions of the region. In the present study, a field survey was conducted to find out the geographical distribution, management practices and utility of the Kosali cattle. This study revealed that Kosali cattle are mainly distributed in the Central Plain Region of the state. They are fed in groups and individually. Kosali cattle owners (96.49%) grow fodder as paddy and gave un-chaffed dry fodder. The concentrate feed, which comprises of broken rice and rice polish (Kodha) may sometimes be supplemented to the lactating cows (at the time of milking) and working bullocks. The green fodder is rarely grown and naturally grown grasses are available during rainy season only and provide to the animals. The general practices recorded were to tie Kosali cattle mostly during night hours (88.69%) in kaccha houses (83%). Natural mating is the only mating system in the entire breeding tract. About 70% farmers are using Kosali animals for milk and agriculture operations. In conclusion, Kosali cattle are well adapted to the existing agro-climatic conditions of the region. They have excellent capacity of heat tolerance and disease resistance and can thrive well under the poor feed stuffs available in the state. Appropriate breeding strategies, management and conservation models should be designed for overall improvement of this breed.

Keywords: Breeding, Feeding, Management Practices, Kosali.

INTRODUCTION

India subcontinent has vast livestock genetic resources of which 41 well known breeds are of cattle. In Chhattisgarh, livestock are raised as a part of mixed farming systems and are closely associated with socio-economic and cultural ethos of the farming community. According to 19th livestock census, this state is very rich in its livestock wealth with more than 1.50 crores animals [1]. The state has 9.81 million cattle heads (19th livestock census) and contribution to the total livestock population is the highest (65%). Out of 41 well characterized breeds of Indian cattle, Kosali is one of them (Accession No. INDIA_CATTLE_2600_KOSALI_03036). The Kosali is the first breed of the cattle from the

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Chhattisgarh state and it has been registered as the 36th breed of cattle. In general, these animals are smaller in size with poor milk production potential but they have evolved as a result of very long period of natural selection and are well adapted to the existing agro-climatic conditions of the region. They have good capacity of heat tolerance and disease resistance and can thrive well under the poor feed stuffs available in the state. These animals serve as source of cash income and play significant role in the social and cultural values of the society.

These days, modern technology has become indispensable for dairy development. For sustainable development, indigenous knowledge (IK)/indigenous technical knowledge (ITK) play an important role [2]. It is essential to utilize local knowledge for enhancing production in a manner, which does not disturb the ecosystem and environmental health. As a result indigenous knowledge has become an affordable alternative. Considering importance of this, a survey was made to document IK regarding geographical distribution, management practices and utility of Kosali cattle in their native tract.

MATERIALS AND METHODS

A stratified two stage random sample survey was carried out in breeding tract during September, 2014 to September, 2016 and three districts namely, Rajnandgoan, Baloda bazaar and Bilaspur were selected. At least a total of 320 respondents were included in the study. Data were collected in-depth interviews, direct observation, group discussions and structured questionnaires, as designed by ICAR-NBAGR, Karnal, Haryana. Based on the outcome of discussion and earlier studies, information was gathered about the geographic distribution, management practices i.e. feeding, housing, watering, breeding etc adopted by farmers and utility of the breed. While selecting respondents due care was taken to ensure that they were evenly distributed in the village and truly represented animal management practices prevailing in the area. The data collected from the field and secondary sources were entered in to database using Excel 2007 software. The statistical tools like frequency and percentages were used for interpreting the data and inferences were drawn.

RESULTS AND DISCUSSION

1. Geographical distribution

Breeding tract lies in between 19.8 to 22.7 degrees north latitude and 80.3 to 83.6 degrees east longitude. Kosali breed is mainly concentrated in the Central Plain region (15 districts) of the CG state with 31.32 lakh estimated population and spread in 68.49 lakh hectare

geographical area. More than total 60% cattle are concentrated in the central plains of the CG state.

2. Management practices in the breeding tract

2.1 Grazing, feeding and watering

The animals are taken out for grazing for the whole day. Commonly, in breeding tract of Kosali, animals are let loose for grazing in the morning and they come back to home in the evening. An animal attendant, commonly called as ***Charwaha/Rauth,*** take care of the animals of the entire village which was consisted 90-160 adult female, 8-15 males, 45-70 young ones and 30-40 calves. Animals remain totally free ranging ***Chhella/Wardi system*** during summer season. The animals graze here and there and are gathered in common place near to village called ***Gowthan.***

Animals are offered mostly dry fodder as which consists generally un-chaffed paddy straw (93%). Sometime chaffed dry fodder and concentrate are provided in soaked form to the animals. The green fodder is rarely grown and naturally grown grasses are available during rainy season only and provide to the animals. The animals are fed in groups and individually. The concentrate feed, which comprises of broken rice and rice polish (Kodha) may sometimes be supplemented to the lactating cows (at the time of milking) and working bullocks. There were no practice of feeding concentrates to young ones, heifers and even pregnant animals. Cows are milked by a person called ***Rauth***, under a contract system wherein he gives three days milk to the owner and takes one day milk himself or offer some fixed quantity of rice. Calves are allowed to suckle up to the age of about 4-6 months. At birth, the sex ratio is almost equal which starts deviating towards female dominance from the age of 1 year or so. However, in urban and semi-urban areas the organized commercial dairy farms are maintained keeping buffaloes, indigenous milch breeds and cross-bred cows under stall fed system. They provide adequate amount of feed, fodder, good management and health care to their animals to maximize the production. But keeping Kosali cattle in organized herd was not found. This might be due to less milk production of the cows.

Gradually diminishing pasture land and shortage of dry and green fodder in terms of quality and quantity is the major limiting factor in livestock productivity in Chhattisgarh. Poor feed status could be due to huge livestock population in relation to availability of feeds and fodder. Frequent droughts, inappropriate management skills and dominance of small holdings are also responsible the shortage of fodder. Adequate availability of quality feeds and fodder will be key inputs to improving animal productivity in the state.

At field level, permanent rivers and ponds constitute the watering source but at home main source of drinking water for the animals as well as their owners is hand pump or tube well.

Figure.1.

Grazing, housing and utility of the Kosali cattle

2.2 Housing and Sanitation

Housing and sanitation conditions were observed in the breeding tract of the Kosali cattle and summarized in the table 1. The Kosali animals are not provided with any specific type of housing. The general practices recorded were to tie animals during night hours only (88.69%) and allowed to graze them during day hours. Hardly 6.54% cattle owners confined their animals during daytime. On the other hand, 3.6% of cattle owners were observed to keep their animals at one place during day and night. The tendency to tie animals in open area i.e. outside of house (~35%) was less as compared to closed housing system (~65%). Close housing system indicated that to provide shelter to animals from rain, light, cold, storm etc. The general trend was that farmers construct kaccha house for housing cattle and other livestock species. The proportion of kaccha house was 83% as compared to pakka housing system (17%). The human dwellings and cattle enclosures are common such that differentiation between the two is not possible. Animals are housed either in separate houses or as part of the owner residence during night and part of the day. The individuals who have constructed cattle house as a part their hut were substantial in number (73%). The percent of livestock owners who have kaccha flooring were 81%. Most of the cattle houses were full walled (62%) but their roof was kaccha or made up with grass and bamboos (Fig.1).

Ventilation observed was quite sufficient in respect of circulation of fresh air (76%). Sanitation was noticed in 65 % cases spread over all villages. More than 96% livestock keepers/farmers do not have urine drain facility at their houses. Less than 35% animals are maintained under poor hygienic conditions yet the animals are resistant to majority of the tropical diseases. Similar housing and sanitation practices were also found at field level in different breed of cattle lie Purnea, Belahi, Bachaur, Gaoloa, Kenkatha [3,4,5,6,7]. This goes to substantiate the popular belief that Indian cattle in general are naturally resistant to tropical diseases. In majority houses, no separate calf pen or bull shed was found.

2.3 Prophylaxis and disease control

General diseases/health disorders encountered in Kosali cattle are included, Bloat/Indigestion, Gestro-enteritis, retention of placenta, FMD etc. Majority of cattle owner gave allopathic and local treatment. Vaccination against Foot and Mouth Disease (FMD), Haemorrhagic Septicemia (HS) and Black Quater (BQ) diseases were observed in cattle species and these are being done by Govt.

2.4 Selection and Breeding of males and females

Mostly females are preferred over the males. The farmers generally keep 2-5 breedable cows under rural management conditions. Most of the respondents detected heat in their animals by observing the symptom of bellowing and mucus discharge from the vulva. They use the bulls of village panchayat/loose by other farmers for breeding of their cows. Natural mating is the only mating system in the entire breeding tract. However, some Government and Non-Govt. organizations has started Artificial Insemination (AI) service or introduced bulls for crossbreeding or to up grade local cattle in some areas.

3. Utility of the breed

Kosali cows have poor genetic potential of milk production and they produce 0.6 to 1.4 kg milk per day. More than 70% farmers are using Kosali animals for milk and agriculture operations. Bullocks of the breed are useful for agricultural operations as well as rural transport. Due to less body weight of Kosali Bullocks, they are used for cleaning of weed from the paddy crop or aeration in the crop and it is locally called **"BYASI".** The heat tolerance and disease resistance of the breed make it fit for draft purpose in Chhattisgarh state. Cow dung is a cheap and easily available rich source of micro flora. Cow dung is a "gold mine" due to its wide applications in the field of agriculture, energy resource, environmental protection and therapeutic applications. Though cow dung has been used in several studies but the breed of cow has not been mentioned. Thus indigenous breeds are

having uniqueness at various levels which is needed to be capitalized to improve breed and production value.

CONCLUSIONS

In conclusion, the livestock owners from Kosali breeding tract were most found poor and illiterate and hence they were neither aware of modern housing system nor ready to adopt modern management practices. But nearby cities, very few farmers are adopting some modern management practices. Feeding, housing, health and breeding management practices adopted by the respondents in the study area needs improvement through organize training programmes, demonstrations, kisan ghosthi and exposure visits by various government organizations and NGOs.

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Table 1: Housing of animals

Particular	No of livestock owners			Total
	Bilaspur	Balodabazar	Rajnandgaon	
Tying of animals				
	Bilaspur	**Balodabazar**	**Rajnandgoan**	
Day	57	31	7	95 (6.54%)
Night	461	455	371	1287 (88.69%)
Day & night	35	7	11	53 (3.6%)
None	3	5-	13	16 (1.1%)
	Housing pattern			
Open	187	198	156	541 (34.54%)
Close	327	415	283	1025 (65.38%)
	Shed			
Kaccha	398	401	376	1175 (83.15%)
Pakka	85	74	79	238 (16.84%)
	Place			
Separate	113	137	119	369 (26.74%)
Part of Residence	341	401	270	1012(73.26%))
	Flooring			
Kaccha	402	445	379	1226 (~81%)
Pakka	103	89	98	290 (~19%)
	Wall			
Full walled	314	303	249	866 (~62%)
Half walled	189	179	161	529 (~28%)
	Ventilation			
Well ventilated	314	349	249	912 (~76%)
Not well ventilated	87	103	91	281 (~24%)
	Sanitary condition			
Clean	280	285	252	817 (65.36%)
Not clean	156	160	117	433 (34.64%)
	Drainage			
Yes	24	24	22	70 (7.12%)
No	313	344	256	913 (92.88%)