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RESEARCH ARTICLE :

Assessment of constraints and strategies for goats rearing to increase income in district Mahoba

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SUMMARY : The present study was conducted in Mahoba district of Bundelkhand region of Uttar Pradesh. This region is most suited for rearing of Bundelkhandi goats due to natural habitat and special survival characteristics in the species. A sample of 240 farmers and their 566 buck and 1254 doe were randomly selected from all four blocks. The respondents were interviewed with the help of well structured interview schedule. The study covered daily milk yield per day, lactation length (days), total lactation milk yield (Baruwa, 2013), as higher under semi-intensive condition than intensive condition and extensive condition. Maximum goat keepers 63.96 per cent reared goats in semi-intensive system, mostly 74.36 per cent is a grazing method utilized by farmers in Mahoba. In Mahoba that lack of credit 81.67 per cent and inadequate veterinary service 78.33 per cent were the major constraints asked for goat farmers. Farmers suggest some possible solutions to the problems as development grazing land 89.58 per cent and provide veterinary facilities 78.33 per cent in Mahoba. Semi-intensive systems can be profitable at rural areas in Mahoba district.

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KEY WORDS :
Bundelkhandi goat, Constraints, Productive traits, Rearing system, Strategies

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BACKGROUND AND OBJECTIVES

Livestock sector plays most viable role in the economy of India. Goats are the most adaptable and geographically widespread livestock species and contribute significantly to rural economy when all other means of agriculture is a failure. The domestic goat (*Capra hircus*) is one of the oldest domesticated farm animals which provide multiple products like meat, milk, skin, fibre and manure. They efficiently survive on available crop residues, thorny shrubs and trees grown in low fertile lands where no other crops can be grown.

In India, goats are kept as a source of livelihood and additional income as well as insurance against natural disasters. Being small in size, goats are easier to manage and require less space, easily handled even by children and women. Bundelkhand region of Uttar Pradesh is also most suited for goat rearing due to semi-arid climate, undulated topography, availability of thorny shrubs and trees as feed, etc. Bundelkhandi goats are widely domesticated in this region due to their special survival characters like hardy nature,

long hair on body, long legs, bushy tail, large-sized and black-colored and narrow face and are able to survive in very low and high temperature in different seasons of this region. Keeping in view the present study was planned to evaluate the rearing systems, feeding system, Productive traits, constraints and suggestions of Bundelkhandi goat under extensive, semi-intensive and intensive rearing systems of goat production in Mahoba district of Bundelkhand region of Uttar Pradesh.

RESOURCES AND METHODS

The research study was conducted in Mahoba district of Bundelkhand region of Uttar Pradesh due to availability of Bundelkhandi goats. For the survey regarding population of Bundelkhandi goat for breed characterization included all the four blocks namely Jaitpur, Panwari, Charkhari and Kabrai of Mahoba district. In each block 12 villages and 5 farmers from each village having upto 60 goats were randomly selected as sample. Thus, a total of 48 villages, 240 farmers and 1820 goats which comprised 566 buck and 1254 doe were selected as sample. For the collection of data from herd a tested schedule were used for the purpose of information collection in terms of the rearing systems, feeding system, productive traits, constraints and suggestions of Bundelkhandi goat under extensive, semi-intensive and intensive rearing systems of the goat farmers. Tabular analysis technique was applied to classify data and derive meaningful findings. Statistical tools like mean, standard deviation, percentage, ratio and standard error for different traits were estimated with the help of RBD.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Rearing system:

Table 1 shows the rearing systems of Bundelkhandi goats in Mahoba district was maximum goat keepers 63.96 per cent reared goats in semi-intensive system, followed 28.34 per cent extensive system of rearing and 7.70 per cent respondent followed intensive system of rearing. The reason less respondent of intensive system or rearing might be the initial high cost involvement and lack of knowledge about scientific goat rearing (Fig.1). Nearly similar result found that (Islam, 2014; Stone, 2014 and Jana *et al*., 2014) reported that semi intensive system, respectively.

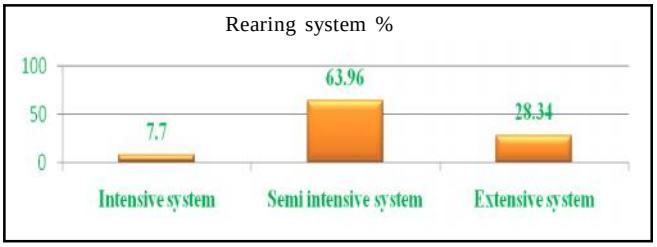

Fig. 1 : Rearing system of Bundelkhandi goats in Mahoba district

Feeding systems:

Three feeding systems namely stall feeding; tethering and grazing were applied for three different groups of goats in Mahoba district (Table 2). Grazing goat keeping seems to be important for farmers in Mahoba. The first is a grazing method utilized by farmers 74.36 per cent. Similar finding found that the (Lavania *et al.*, 2014) (Fig.

Table 1: Rearing system of Bundelkhandi in Mahoba district

Rearing system	Frequency	Percentage
Intensive system	18.48	7.70
Semi intensive system	153.50	63.96
Extensive system	68.02	28.34

Table 2 : Feeding systems of Bundelkhandi goats in Mahoba district

Feeding systems	Frequency	Percentage
Tethering	44.16	18.40
Grazing	178.46	74.36
Stall feeding	17.38	7.24

2). (Singh *et al*., 2013 and Rawat and Singh, 2014) in mahoba. The third tethering system is a mix of the two, both grazing and stall feeding (intensive and extensive) used by farmers 18.40 per cent. Nandi *et al*. (2011).

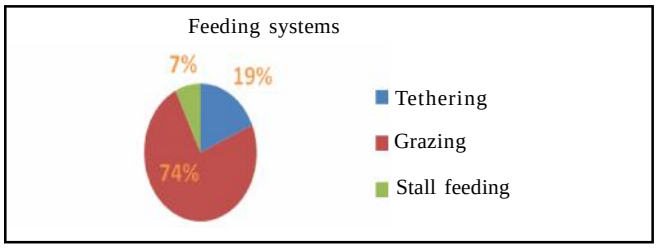

Fig. 2 : Feeding system of Bundelkhandi goats in Mahoba district

Productive traits:

The traits considered for the assessment of productive performances of doe (female goat) was as daily milk yield, lactation length and total lactation yield of Bundelkhandi goats in Mahoba district as shown in (Table 3).

Daily milk yield:

Fortnightly milk recording was done at the farmers' house/herd in the adult lactating goats in the morning and evening and the milk yield per day under extensive, semi-intensive and intensive system were found 510.19±21.62 ml, 580.36±10.54 ml and 552.24±12.47 ml, respectively. Daily milk yield per day was observed higher in the semi-intensive than extensive system. (Prasad *et al.*, 2013 and Bhowmik *et al.*, 2014) were recorded similar results.

Lactation length:

The average lactation length ranged between 80 and 120 days in most lactating goats. The average lactation length was estimated in under extensive system, semi-intensive and intensive is 84.72±12.61, 108.24±6.79 and 96.65±5.14 days, respectively. Lactation length was observed higher in the semi-intensive than extensive system. Similar results were also reported by (Bhowmik *et al.*, 2014 and Kharkar *et al.*, 2014).

Total lactation yields :

Total lactation milk yield in under extensive system, semi-intensive and intensive system are 43.22±9.57 lit, 62.82±4.38 lit and 53.37±6.43 lit, respectively. Total lactation milk yield was observed higher in the semi-intensive than extensive system. Similar results found that the (Kharkar *et al.*, 2014 and Prasad *et al*., 2013).

Total lactation milk yield was observed in the semi-intensive higher than extensive system due to grazing, feed ration and better management. Differences in management and nutritional status of the does might be responsible for variation in total lactation yield in this study. Poor nutrition in late pregnancy in addition to reduced weight and vigour of kids at birth can delay the onset of lactation. Moreover, consumption of milk by kids during lactation in scavenging production system may influence total yield of milk.

Major constraints and suggestions of improved goat production:

Major constraints of improved goat production:

There are several constraints to increase goat production in Mahoba. Risk and uncertainty are major common facts of goats business.

Diseases and parasites:

About 64.17 per cent of the farmers interviewed indicated that disease and parasites is the most problem of improved goat production. Diseases and parasites of the total flock loss is the largest single factor to the immense flock mortality. The effect of morbidity on productive and reproductive performances of the flocks is also apparently higher.

Feeds and fodder:

Grazing and fodder facilities are very limited especially during cropping, rainy season and during the dry period. Fodder production for goats is almost absent.

Table 3 : Productive parameters of Bundelkhandi doe in Mahoba district

Parameter	System			Statistical analysis	Critical difference
	Extensive	Semi-Intensive	Intensive		
Daily milk yield (ml)	510.19±21.62	580.36±10.54	552.24±12.47	NS	-
Lactation length (day)	84.72±12.61	108.24±6.79	96.65±5.14	*	10.68
Total lactation yield (l)	43.22±9.57	62.82±4.38	53.37±6.43	*	7.31

* indicate significance of value at p<0.05, NS= Non-significant

(Table 4) showed that shortage of grazing lands, feed and fodder was a pressing problem as reported by 71.67 per cent goat's rearers. No supplementary feeding was practiced by any of the rearers expect in goat flocks where lopping of side leaves and feeding dried pods was practiced. (Kathiravan and Selvam, 2011) studied that the major constraints of goat production was lack of fodder and grazing facilities.

Drought:

Shortage of water is a major constraint in goat farmers and fodder production in Bundelkhand. Mahoba face acute water scarcity in summer. About 57.92 per cent of the total respondents mentioned that the recurrent drought is major ground to the water scarcity.

Lack of scientific knowledge:

An overall of about 52.50 per cent respondents reported lack of improved technologies and scientific knowledge for goat production. Scientific knowledge and Technological inputs to mitigate the clear and present danger of flock health, management, breed and nutrition are critical requisite.

Lack of extension:

The total households 75.83 per cent condemned that the current extension system is providing them little support to enable them expand their goat production. It is anticipated that the extension service system could impartially support the rearing activities that uphold the livelihood of the smallholder farmers. However, the current extension system in the Mahoba district is undergoing insignificant intervention towards addressing the identified bottlenecks.

Lack of capital:

In Mahoba district goats keepers is very poor. No any facility available of goat keeping. Lack of capital to build flock holding and purchase production inputs is among limiting factor for about 62.08 per cent of the total respondents.

Market:

Absence of regulated market was felt by 37.50 per cent of goat's rearers. As the rearers are illiterates and ignorant of prices prevailing they were exploited by the middle men. From the survey it was found that nearly all the rearers faced this problem and had to sell their goats at unremunerative prices. As a result of which the goat rearers could not obtain better returns. Improper weighing was another problem faced by almost all the rearers, as the animals were sold through approximate weight and visual observation.

Theft:

Theft of goat was a major problem in the study area.

Table 4 : Major constraints of goat production in Mahoba district

Sr. No.	Constraints	Frequency	Percentage
1.	Diseases and parasites	154	64.17
2.	Feeds and fodder	172	71.67
3.	Drought	139	57.92
4.	Lack of scientific knowledge	126	52.50
5.	Lack of extension support	182	75.83
6.	Lack of capital	149	62.08
7.	Market	90	37.50
8.	Theft	67	27.92
9.	Lack of government support	180	75.00
10.	Breeds	169	70.42
11.	Housing facility	158	65.83
12.	Lack of credit	196	81.67
13.	Inadequate veterinary service	188	78.33
14.	Low price of milk	151	62.92

27.92 per cent farmers reported against theft problem. But no prevention was taken in the study area to control this problem.

Lack of government support:

It was all because of government could not bestow enough pattern age for the health and security of the goat. It is often reported that the veterinary hospitals, most of the times, did not have sufficient medicines. An overall of about 75.00 per cent respondents reported lack of government support, schemes and inputs for goat production.

Breeds :

The major constraints faced by farmers include the lack of improved breeds, disease-resistant/tolerant breeds. There is severe shortage of mature bucks for mating purpose. No insemination programme in available in study area. As a result, the farmers have still been rearing the traditional breed of goats. This breed, in fact, failed to provide enough milk and sufficient meat within the shortest possible time. (Table 4) reveals that 70.42 per cent reported that production hampered due to lack of improved breed.

Housing facility:

The whole management system including housing is very poor for producing healthy animals. The fox and others wild animals and thieves often attack the goats at night. The farmers cannot rear more goats due to the housing problem and 65.83 per cent respondents expressed their opinion against this problem.

Lack of credit:

The lack of credit was also one of the obstacles to for the development of goat keeping. Goat's farmers require substantial amount of capital. Since, goat keepers used to be illiterates, they find it not accessibility to bank finance to increase their flock size are to buy they needed equipment and medicines. The institutional credit imposed high interest rate, further; farmers could not get credit in proper time. (Table 4) revealed that about 81.67 per cent goat keepers could not develop their goat farm due to the non-availability of credit supply.

Inadequate veterinary service:

The veterinary services are found to be inadequate and the staff of the veterinary department could not meet rearers by way conducting awareness camps to sensitize the rearers about the probable diseases that would often affect the goats. Economic losses and parasitic infection depend on the levels of mortality and morbidity. (Table 4) reveals that 78.33 per cent reported that production hampered due to lack of inadequate veterinary service.

Low price of milk:

Profitability of any enterprise is directly related to price of the output and, therefore, relative product prices (and input prices) affect the choice of enterprise. Many of the rural people in the Mahoba derive their livelihood from livestock production and their incomes are directly affected by changes in the prices they receive. Prices represent a cost to consumers who spend an important part of their income on livestock products. (Table 4) revealed that about 62.92 per cent goat keepers could not develop their goat farm due to the low price of milk.

Similar with the constraints by the (Singh *et al.*, 2013) observed that the in Hamirpur and Mahoba districts, respectively. (Tanwar, 2011) found feeding constraints in Rajasthan. (Shah *et al*., 2015) poor veterinary infrastructure and services in Jammu and Kashmir. (Lawania and Gupta, 2015) economic problem and less profit faced by the tribal farmers in Rajasthan, (Baruwa, 2013) for financial problem. (Jana *et al*., 2014) pure breed buck were Burdwan district of West Bengal.

Farmers suggestions for improvement of goat production:

In order to overcome the problems of goat farming and making the goat farms more profitable, the goat farmers of the study area were asked to suggest some possible solutions to the problems. The per cent distribution of possible ways in which the improve goat production in Mahoba district is summarized in (Table 5).

Development grazing land :

The goat farmers suggested that government should development grazing land for goat farming. In addition, they also reported that government as well as KVKs should play a vital role in the dissemination technology of high yielding variety fodder cultivation to overcome the problem of fodder shortage. Increasing of grazing land by government may reduce the scarcity of goats feed. (Table 5) reveals that 89.58 per cent of the farmers referred to provision of development grazing land for goat rearing.

Provide veterinary facilities:

Illiterate goat farmers knew very little about Medicare facilities provided by the government for goats. The present veterinary staffs are still inadequate compared to areas they are supposed to cover visa vie time and after acquiring the skills. The goat farmers suggested that veterinary cares and services should be made available. In the study area 78.33 per cent farmers suggested to take necessary health care and diseases control facilities by the government and NGOs.

Availability of improved breeds of goats:

Unfortunately, No cross-bred goats were available in the study area. Many farmers were interested to purchase cross-bred and or/high yielding breed of goats to the door steps of the farmers. (Table 5) shows that 69.58 per cent of the farmers suggested that improvement of cross-bred goats should be encouraged for goat rearing.

Provide adequate of extension service:

Farmers reported that government should provide adequate extension services. Necessary training facilities on breeding, feeding, better management and animal health and disease control should be made available to the interested goat farmers. If these training programmes can be made effective, the profitability of goat keeping is expected to improve. About 61.67 per cent of the goat farmers suggested that extension services and training should be encouraged for the development of goat farms.

Better prices for improved goat products:

However, 48.33 per cent of the respondents urged that the prices for improved meat goats because they buy breeding stock as well as inputs expensively but they end up selling their goats locally at almost same price as locals by local traders due to ignorance which discourages goats rearing.

Credit facility of low interest:

To get rid of the problem of shortage of fund, the provision of short term loan for goat rearing should be made on easy term and conditions. In the study area, it was observed that many farmers were interested to expand their goat production, but most of them were suffering from the shortage of adequate capital supply. It was also evident from that 53.75 per cent of farmers show interested to get supply of institutional credit at low interest rates.

Provide breeding bucks:

About 44.17 per cent of the farmers interviewed suggest that government should provide breeding bucks to farmers to improve their stock.

Development of milk marketing facilities:

Most of the farmers in the study area could not sell milk for under developed milk market. About 46.67 per cent goat farmers suggested that milk marketing facilities should be developed for the enhancement of goat farming.

Similar with the suggestions by the (Shah *et al.*, 2015) for veterinary hospital and increase number of veterinary staff, (Kumar, 2012) reported that health care facility and regular vaccination camp, (Chander and Rathod, 2013) effective extension services and strengthening animal market, (Sawal and Yadav, 2006) protecting the common property of village for grazing, (Meena and Mann, 2006) improvement of common grassland, establishment of pasture and silvi-pasture system.

Table 5 : Farmers suggestions for improve of goat production in Mahoba district

Sr. No.	Constraints	Frequency	Percentage
1.	Development grazing land	215	89.58
2.	Provide veterinary facilities	188	78.33
3.	Availability of improved Breeds	167	69.58
4.	Provide adequate of extension service	148	61.67
5.	Better prices for improved goat products	116	48.33
6.	credit facility of low interest	129	53.75
7.	Provide breeding Bucks	106	44.17
8.	Develop milk marketing	112	46.67

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