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## Goat husbandry in south western Rajasthan: The modern breeding management practices

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### Abstract

The present investigation was conducted to study goat breeding management practices among 180 respondents from Marwar Region of South-Western Rajasthan. Frequencies were work out for each attribute and percentages were calculated to draw inferences. The study revealed that most of the goat owners were middle age group, illiterate, living in joint family, small land holders and their main occupation is Animal Husbandry. All the goat owners detected the heat by symptoms and followed use natural breeding. Most of goat owners used their own buck (74.44%), extra care at the kidding time (86.11%), pregnancy (89.44%) and breeding in rainy season (76.67%). About (41.67%) goat owners used the improved breeding buck. About (42.77%) of the goat owners used the 20-40 breedable goat for service. 45.00 per cent goat owners castrated their male kids for meat production at 3-6 months of age. Half of the goat owners (52.78 %) do not practice to change the breeding buck, breed the goats during rainy season and select the buck on the basis of physical appearance.

**Keywords:** Marwar Region, Goat and Breeding management practice

### Introduction

Livestock play a vital role in the agricultural and rural economics of the developing Countries. Not only they produce food directly, but they also provide key inputs to crop agriculture. Goats have been associated with man since dawn of agriculture and domestication of animals, making them socioeconomically, a very important animal providing products (meat, milk, fibre, hair) and service to man throughout the world, especially in the developing countries. In India, the total numbers of goat breeds that have been recognized till date is 34 and most other still remain unexplored (ICARNBAGR).

As per 20th Livestock census, and India's livestock sector is one of the largest in the world having huge livestock population of 535.78 million. According to recent census by Govt. of India in 2012 the Goat population is 148.88 million in India BAHS (2014). In Rajasthan the total population is 20.84 million. Total meat production including goat meat was 5.9 million Tonne in 2012-13 as compared to 1.9 million tons in 2001-02 (AHD, 2019)<sup>[1]</sup>.

Good quality milk is produced by Indian goat breeds such as Jamunapari, Barbari, Beetle, Surti and Jakhrana. In Rajasthan state goat farming has become an income generating activity for every class of society whether they are landless or land holder, resource poor or progressive farmer and irrespective of their occupation. Hence, with this background the present study was conducted to know the personal socio-economic characteristics of goat keepers of Marwar region of Rajasthan.

### Materials and Methods

The present study was conducted in Jodhpur, Nagaur and Pali districts selected purposely keeping in view the fact that the district has highest goat population of Marwar region of South-Western Rajasthan. One tehsil was selected from each district viz. Bilara from Jodhpur, Nagaur from Nagaur and Sojat from Pali Districts were randomly selected. To meet the required sample size from each tehsil, four villages were selected from each tehsil. Thus, total twelve villages were selected for the present study. Therefore 15 respondents were randomly selected from each selected village. The total sample size for this study was 180 goat keepers.

After having selected the respondents, the researcher paid repeated visits to the villages under investigation and developed a good rapport with the concerned respondents to gain their confidence. The researcher's personal, professional qualifications and experience greatly facilitated in rapport building.

In the present study the term adoption operationalized as the new practice recommended by scientist after thorough research for the benefit of goat owners. Whether the goat owners using these technologies over a period of time at the farm or not. For the selection of recommended scientific management practices, a list of various recommended practices was collected and divided in to major aspect of goat husbandry namely, breeding, feeding, and housing management practices. The data were collected with the help of pretested structured interview schedule by holding personal interview with goat keepers by the researcher.

### Results and Discussion

The management practices of breeding, feeding, housing and management were studied of all the 180 respondents and the different practices have been described in the following sub sections.

#### Existing Breeding Practices

The results obtained on different breeding aspects of goats in the study area from the total respondents were summarized in the following sub heads and detail information's presented in (Table 1).

#### Method of heat detection

In present study the recorded data showed that heat detection was observed through physical symptoms by all respondents, teaser buck was not used for heat detection because lack of knowledge about teaser buck in the study area. Similar observation was reported by Nitharwal (1999) [12], Sharma (2005) [15], Sabapara *et al.*, (2014) [14], Mordia (2017) [11] and Gameti (2018) [3]. All of the respondents preferred natural service for insemination over Artificial Insemination, the reason being unavailability of skilled person and good quality semen in area. The present investigation shows that Artificial Insemination as a tool for goat improvement was not adopted by the respondents due to lack of trained person, lack of technologies developed in the field and non-availability of buck semen in the study area. These results nearby with the findings of Gurjar *et al.*, (2011) [4], Kunarathinam *et al.*, (2019) [8], Mordia (2017) [11] and Gameti (2018) [3].

In the present study the data analysis showed that majority of total respondents (76.67%) observed that their goats come in heat during rainy season or with the onset of monsoon. while 13.13 per cent respondents 67 observed that their goats come in heat during summer season and only 10.00 per cent respondents observed that their goat in heat during winter season. In the present study maximum goat comes in heat in rainy season or during onset of monsoon. These results agreed with the findings of Sharma (2005) [15], Gurjar *et al.*, (2011) [4], Mordia (2017) [11] and Gameti (2018) [3].

#### Pregnancy diagnosis

In the present study the data showed that 62.78 per cent of the total respondents diagnosed pregnancy in female goat by themselves. The study area the most common method used for pregnancy diagnosis was confirmed by physical changes (own judgment) like ballottement of abdomen and decrease milk yield of the pregnant doe. Similar results were observed by

Sharma (2005) [15], Gurjar (2006) [5] and Sabapara *et al.* (2014) [14], Mordia (2017) [11].

#### Extra Care of Goat in Breeding Period

The present research analysis showed that total respondents, 87.78 per cent provided extra care of goat at time of kidding for better health of dam or kid and less chance of contamination. Whereas 12.22 per cent of respondents were not provided any extra care at the time of Kidding. Similar observation recorded by Gameti (2018). Whereas, total respondents, 89.44 per cent provided extra care of doe during pregnancy. Whereas 10.56 per cent of respondents were not provided any extra care of pregnant doe. These finding are closely associated with the results obtained by Lahoti and Chole (2010) [9], Sabapara *et al.* (2014) [14] and Gameti (2018) [3].

In the present study the recorded data showed that that majority (69.44%) of total respondents in the study area give the extra ration to breeding buck whereas, 30.56 per cent goat owners did not give the extra ration to breeding buck. These finding are closely associated with the results obtained by Gurjar (2006) [5], Sharma *et al.* (2007) [16], Lahoti and Chole (2010) [9], Sabapara *et al.* (2014) [14], Mordia (2017) [11] and Gameti (2018) [3].

#### Managemental practice in breeding buck

In the present study the data revealed that majority (74.44%) of the total respondents were using own buck for breeding purpose whereas, only 25.56 per cent respondents were using improve breeding buck for matting. These results are in agreement with the findings of Gurjar (2006) [5] and Sharma *et al.*, (2007) [16] Kunarathinam *et al.*, (2019) [8]. Meanwhile, the 58.33 per cent of the total respondents were not used improved breeding buck while 41.67 per cent respondents were used improved breeding buck. The reason behind less using of improved breeding buck because less availability of improved buck and lack of knowledge about breeding buck in the study area. Higher result was found by Soni *et al.* (2011) [17], Mordia (2017) [11] and Gameti (2018) [3].

According to the present investigation the majority (42.77%) of total goat's owners in study area used only single breeding buck for 20-40 breedable goats while 38.33 per cent goat owners used single buck for less than 20 breedable goats for service. 18.88 per cent goat owners used single buck for more than 40 breedable goats for service. This result agreed with the findings of Sharma (2005) [15], Gurjar *et al.*, (2008) [6], Mordia (2017) [11] and Gameti (2018) [3].

In the present study the data showed that majority (52.78%) of total goat owners didn't change breeding buck every year. The changing of buck after its use for every year was followed by 47.22 per cent respondents where as others changed their bucks after 2 or more years of breeding. The present observation is comparable to the reports of Sorathiya (2015) [18], Deshpande *et al.*, (2009) [2], Manzi *et al.* (2013) [10] and similar with Gameti (2018) [3].

#### Castration of male kids

The majority (53.89%) of goat owners castrate their male kids whereas 46.11 per cent respondents did not castrate the male kids. Castration of male kids was done by the goat owners to avoid unnecessary mating and to improve fattening while remaining goat owners were not aware about importance of castration. The results indicate that in Pali district Rebari, Devasi cast does not prefer castration because of religious taboo. The majority 45.00 per cent total goat owner castrate

their male kid at 3-6 month of age whereas 3.89 per cent of total respondents castrate their kid at less than 3 months of age and 5.00 per cent of total respondents castrate the kid more than 6 months of age and 46.11 per cent of respondent doesn't prefer castration. These results agreed with the findings of Thiruvankadan *et al.* (2005) [19], Jana *et al.* (2014) [7], Mordia (2017) [11].

### Selection criteria of breeding buck

In the present study the data recorded on table 1 showed that 82.78 per cent of total respondents breeding buck on the basis

of physical appearance while only 11.11 per cent of total respondent selected breeding buck on the basis of body weight and only 6.11 per cent selected breeding buck on the basis of dam's milk. While all respondents 100 per cent preferred culling of unproductive/unusable goats in the study area. It was observed that goat owners of study area were sold unproductive and unusable animals. The present observation is comparable to the reports of Gurjar (2006) [7], Rao *et al.* (2008) [13] and Mordia (2017) [11].

**Table 1:** Existing breeding practices in the study area

S. No.	Breeding practice	Jodhpur		Nagaur		Pali		Total		
		F %	F %	F %	F %	F %	F %	F %	F %	
1	Method of heat detection	By symptoms	60	100	60	100	60	100	180	100
		By teaser buck	0	0	0	0	0	0	0	0
2	Method of breeding	By natural service	60	100	60	100	60	100	180	100
		By artificial insemination	0	0	0	0	0	0	0	0
3	Type of breeding buck use	Own	42	70	47	78.33	45	75	134	74.44
		Community	18	30	13	21.67	15	25	46	25.56
4	Improve breeding buck	Yes	24	40	23	38.33	28	46.67	75	41.67
		No	36	60	37	61.67	32	53.33	105	58.33
5	Pregnancy diagnosis	Yes	43	71.67	47	78.33	34	40	113	62.78
		No	17	28.33	13	21.67	26	43.33	67	37.22
6	Number of breedable goat per breeding buck for service	<20 goats	25	41.67	15	25	29	48.33	69	38.33
		20-40 goats	26	43.33	30	50	21	35	77	42.77
		>40 goats	9	15	15	25	10	16.67	34	18.88
7	Extra care at the time of the kidding	Yes	56	93.33	59	98.33	43	71.67	158	87.78
		No	04	6.67	01	1.67	17	28.33	22	12.22
8	Extra care of pregnant doe	Yes	56	93.33	58	96.67	47	78.33	161	89.44
		No	04	6.67	02	3.33	13	21.67	19	10.56
9	Extra ration for breeding buck	Yes	45	75	40	66.67	40	66.67	125	69.44
		No	15	25	20	33.33	20	33.33	55	30.56
10	Castrate in the male kids	Yes	44	73.33	50	83.33	03	05	97	53.89
		No	16	26.67	10	16.67	57	95	83	46.11
11	Castrate male kid (age)	0-3 months	01	01.67	06	10	0	0	07	03.89
		3-6 months	41	68.33	37	61.67	03	05	81	45
		>6 months	02	03.33	07	11.67	0	0	09	05
		No	16	26.67	10	16.67	57	95	83	46.11
12	Change of breeding buck every year	Yes	23	38.33	33	55	29	48.33	85	47.22
		No	37	61.67	27	45	31	51.67	95	52.78
13	Breeding season of goat	Summer	06	10	0	0	18	30	24	13.33
		Rainy	43	71.67	55	91.67	40	66.67	138	76.67
		Winter	11	18.33	5	8.33	02	3.33	18	10
14	Selection criteria of breeding buck	By body weight	01	01.67	19	31.67	0	0	20	11.11
		By dam milk yield	03	05	06	10	02	03.33	11	06.11
		By physical appearance	56	93.33	35	58.33	58	96.67	149	82.78
15	Culling of unproductive goats	Yes	60		60		60		180	100
		No	0		0		0		0	0

F=frequency, %=per cent,

### Conclusion

The present results indicate that improved goat rearing provide the opportunity of regular income and employment to the poor goat owners. Their income could be further enhanced by adopting improved goat management practices since the goat owners are the mostly illiterate, OBC cast, middle age group and joint type family periodical training is required for better adoption rate.

Respondents should be motivated about use of improved breeding buck, feeding of extra ration for strength to breeding buck, selection of breeding buck on the basis of recommended criteria, feeding of balance ration in quality and quantity according to their age, provision to protect from heat stress during summer season, and buck breeding managerial

practices to improve goat management practices due to low adoption levels.

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