



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2022; SP-11(5): 964-965  
© 2022 TPI  
[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 07-03-2022  
Accepted: 17-04-2022

**P Inwati**  
Department of Veterinary  
Gynaecology and Obstetrics,  
College of Veterinary Science and  
Animal Husbandry NDVSU,  
Jabalpur, Madhya Pradesh,  
India

**SN Shukla**  
Department of Veterinary  
Gynaecology and Obstetrics,  
College of Veterinary Science and  
Animal Husbandry NDVSU,  
Jabalpur, Madhya Pradesh,  
India

**NK Shakya**  
Department of Veterinary  
Gynaecology and Obstetrics,  
College of Veterinary Science and  
Animal Husbandry NDVSU,  
Jabalpur, Madhya Pradesh,  
India

**KK Gupta**  
Department of Veterinary  
Gynaecology and Obstetrics,  
College of Veterinary Science and  
Animal Husbandry NDVSU,  
Jabalpur, Madhya Pradesh,  
India

**A Bisen**  
Department of Veterinary  
Gynaecology and Obstetrics,  
College of Veterinary Science and  
Animal Husbandry NDVSU,  
Jabalpur, Madhya Pradesh,  
India

#### Corresponding Author

**P Inwati**  
Department of Veterinary  
Gynaecology and Obstetrics,  
College of Veterinary Science and  
Animal Husbandry NDVSU,  
Jabalpur, Madhya Pradesh,  
India

## Study of breeding season in female goats

**P Inwati, SN Shukla, NK Shakya, KK Gupta and A Bisen**

### Abstract

The effect of season in breeding performance of goats was studied in 848 breeding goats maintained under organized as well as unorganized rearing system in Jabalpur. Sirohi goat breeding data revealed that during three years, maximum breeding occurs in the month of August (23.58%) followed by June (16.32%), September (12.44%), May and October (11.92%), December (7.51%) and February (6.48%) but less number of animals were bred during January (1.30%), March (2.33%), July (4.40%) and November (1.81%). However, no breeding was recorded in the month of April. Similarly, higher percentage of breeding were recorded during the month of December (15.65%) followed by September (14.48%), August (12.17%), June (11.30%), May (10.43%) and January (8.69%) in Barbari goats. The total breeding in Sirohi and Barbari goats was also recorded higher during August (20.96%), followed by June (15.17%), May (11.58%), September (12.97%), October (9.78%) and December (9.38%).

**Keywords:** Season, breeding, Sirohi, Barbari, Jabalpur

### Introduction

Goats were among the first farm animals to be domesticated. In developing countries due to valuable contribution, goats are called as “poor man’s cow”. The livestock production is directly related to reproductive efficiency of animals but, little is known about reproduction in goats especially in our country. Reproduction in goat is generally described as seasonal with differences in seasonality among breeds and location. The seasonality in goat is mostly dependent on a number of factors *viz.* latitude, climate, breed and managerial practices. The main environmental factor affecting seasonal breeding is the annual change in day length, which influences gonadotropic releasing hormone (GnRH) pulse generation and hypothalamic-pituitary-gonadal feedback loop (Fatet *et al.*, 2011) [2].

### Materials and Methods

The effect of season in breeding performance of goats was studied in 848 breeding in goats maintained under organized as well as unorganized rearing system in Jabalpur. The study was carried out throughout the year in 2014 and retro-spectively for the year of 2013 and 2012 in the prescribed proforma containing information of age, breed, month and season of kidding and breeding etc. and data were analyzed.

### Results and Discussion

Total 501 breeding in Sirohi (386) and Barbari (115) breeds of goats were recorded in organized rearing system whereas 347 breedings were recorded under unorganized rearing system.

The results of total breeding in Sirohi and Barbari goats revealed, significantly higher breedings during rainy (47.70%) followed by winter (28.94%) and summer (23.35%) season ( $P < 0.01$ ). Month wise results also shows higher breeding during August (20.96%), followed by June (15.17%), May (11.58%), September (12.97%), October (9.78%) and December (9.38%) in Sirohi and Barbari goats. Further, breed wise, maximum breeding in Sirohi goat occurred in August (23.58%) followed by June (16.32%), September (12.44%), May and October (11.92%), December (7.51%) and February (6.48%). However, none bred in the month of April. Similarly, higher percentage of breeding were recorded during the month of December (15.65%), September (14.48%), August (12.17%), June (11.30%) January (8.69%) and May (10.43%) in Barbari goats. The literature is scant regarding influence of seasonality in goats of tropical countries especially in India. The findings of present study are supported by few reports available from other countries which states that reproductive seasonality is less in goats of tropical and subtropical environment and some local breeds have just a short

anoestrus period or bred throughout the year (Chemineau *et al.*, 1986) [1]. Boer goats in South Africa experience oestrus activity all year around with the highest percentage in autumn (Greyling *et al.*, 2000) [4]. Similarly local goats in Chile showed only 3 months of anoestrus in late spring and early summer (Santa Maria *et al.*, 1990) [6]. Ample literature is available regarding seasonal pattern in reproductive activity in goats of temperate region, however, the goat of tropical region are considered to breed round the year and are dependent on latitude, climate, food availability, breed and breeding system (Khan *et al.*, 2008) [5] but authentic literature is not traceable regarding seasonality in breeding performance of Indian goats. In 2014, more numbers of breeding were recorded in Sirohi and Barbari during May (35.76%) followed by August and December (13.25%), February (9.93%) and June (7.28%). However, less numbers of goats were bred during other months (2.65 to 4.64%). Breed wise, maximum breedings were recorded in the month of May in Sirohi (40.91%) and Barbari (21.95%). None bred in the month of March, April, September and October in Barbari and April in Sirohi goat. Season wise, higher percentage of breeding were recorded during summer (43.70%) followed by winter (31.12%) and rainy (25.16%) season in both the breeds taken together ( $P < 0.05$ ). However, the trend was different in Barbari, where maximum breedings were observed during winter (46.34%) followed by summer (36.58%) and rainy (17.07%) season. The variation in breeding pattern in Sirohi and Barbari may be due to difference in native place or origin of these breeds. Sirohi is a dual-purpose large breed of goat belonging to arid and semi-arid region of southern Rajasthan. Whereas, Barbari is a small breed, distributed in dry Northern region of West Uttar Pradesh. The climatic conditions of Jabalpur are more or less similar to the northern region as compared to the arid and semiarid climate of Rajasthan. The differences in breed and their origin and adaptability at the studied environment cannot be ignored for such difference in the reproductive performances in the present study.

In 2013, the breeding trend was recorded higher in August (33.51%) followed by June (27.75%), September (14.66%) and December (9.42%). However, less number of goats bred in other months (1 to 3.66%). No breeding was recorded in the month of March to May in Sirohi and February to May, July and October in Barbari. In 2012, the higher breedings were recorded in October (23.90%) followed by September (20.75%) and June (7.55%) in Sirohi and Barbari goats. Breed wise data revealed maximum breedings in the month of October (28.46%) and September (22.76%) in Sirohi and March (16.67%) in Barbari goats. However, none bred in the month of April in Sirohi and February, June and August in Barbari goat. The total breeding was recorded significantly higher during rainy (52.83% and 61.25%) followed by winter (35.84% and 21.46%) and summer (11.32% and 17.27%), respectively during the year 2012 and 2013. The trend of goat breeding in 2014 under organized rearing system differs from 2012 and 2013. This was due to variation in the climatic condition in 2014 where the rain was started somewhat earlier *i.e.*, in the mid of May (summer) in a form of short sprinkle which is favorable for goat breeding. However, in 2012 and 2013 the rain started in June (actual rainy season) month in Jabalpur. In unorganized rearing system, significantly higher breeding was recorded during summer (48.99%) followed by winter (31.70%) and rainy (19.30%) season in different breeds of goats ( $P < 0.01$ ). The trend of goat breeding in 2014 under organized and unorganized rearing system was found

comparatively similar, however, differs from breeding pattern of organized rearing system during 2012 and 2013. The possible reason for this difference has already been discussed above as difference in climatic conditions.

The breeding in goat of Jabalpur was recorded sporadically throughout in the year 2012, 2013 and 2014. However, cluster in breeding occurs in particular months of the year *i.e.* August (12.58%), September (20.75%) and October (23.9%) in 2012; June (27.75%), August (33.51%), September (14.66%) and December (9.42%) in 2013 and May (35.76%), August (13.91%) and December (13.25%) in 2014.

Literature in support of present study from other countries is also stated that in most goat breeds, the breeding season occurs in the autumn or winter, and the anoestrus period in the spring or summer. However, great variability exists between and within breeds in terms of the timing and duration of the seasonal reproductive cycle, depending on geographic origin. It is also reported that goats adapted to the subtropical conditions, the breeding season lasts from September to February and anoestrus from March to August, however some goats showed one or two isolated ovulations in June or July (Duarte *et al.*, 2008) [3].

### Conclusions

The breeding in goat of Jabalpur was recorded sporadically throughout year. However, cluster in breeding occurs in particular months of the year *i.e.*, August (12.58%), September (20.75%) and October (23.9%) in 2012; June (22.75%), August (33.51%), and September (14.66%) in 2013, and May (35.76%), August (13.91%) and December (13.25%) in 2014. The season wise breeding found almost similar in 2012 and 2013, where maximum breeding was recorded during rainy followed by winter and summer season. However, it differs in 2014 where more number of goats was bred during summer followed by winter and rainy season. April was recorded as lean month in goat breeding throughout the study period except 2012 in Barbari goats.

### References

1. Chemineau P, Normant F, Ravault JP, Thimonier J. Induction and persistence of pituitary and ovarian activity in the out-of-season lactating dairy goat after a treatment combining a skeleton photoperiod, melatonin and the male effect. *Journal of Reproduction and Fertility*. 1986;78:497-504.
2. Fatet A, Rubio MTP, Leboeuf B. Reproductive cycle of goats. *Animal Reproduction Science*. 2011;124:211-219.
3. Duarte G, Flores JA, Malpaux B, Delgadillo JA. Reproductive seasonality in female goats adapted to a subtropical environment persists independently of food availability. *Domestic Animal Endocrinology*. 2008;35:262-370.
4. Greyling JPC. Reproduction traits in the Boer goat doe. *Small Ruminant Research*. 2000;36:171-177.
5. Khan MS, Khan MA, Mahmood S. Genetic resources and diversity in Pakistani goats. *International Journal of Agricultural Biology*. 2008;10:227-231.
6. Santa Maria A, Cox I, Munoz E, Rodriguez R, Caldera L. Estudio del ciclo sexual, estacionalidad reproductiva y control del estro en la cabra Criolla en Chile. Final Research Coordination Meeting FAO, Bogotá, Colombia 19-23, September 1988, International Agency Vienna, Austria, 1990, 363-385.