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# Impact of Continuous and Seasonal Breeding on Performance of Surti Goats

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## Abstract

The profitability of goat enterprise depends on successful rearing of more number/per cent of kids on goat farm. This study was carried out to compare the performance of Surti goat under continuous and seasonal breeding pattern at Surti goat farm of the station for a period of four years. The goats were maintained on stall feeding and managed as per standard procedure. The number of kidding, kid born, their mortality and successful rearing of kids for one year of age were studied. The numbers of females under continuous and seasonal breeding were 283 and 303. The kidding percentage was 74.55 and 39.93 for continuous and seasonal breeding respectively, which indicates that the breeding performance is much higher in continuous breeding thereby getting more number of kids (227), while in seasonal breeding kidding per cent was very less and number of kids available for rearing were also less (134). However, the incidence of mortality was much higher in continuous breeding 41.85% (95) with the availability of 58.14% (132) of kids for rearing, whereas in seasonal breeding mortality was 32.08% (43) with the availability of 67.92% (91) kids for rearing. Grossly, the overall percentage availability of kids for rearing is more in continuous breeding, hence to optimize the profit of goat farm continuous breeding is better than seasonal breeding with a precautionary measures to control kid mortality.

**Key Words:** Breeding pattern, Reproductive performance, Surti goat

## Introduction

Goats are prime important species in the small ruminants and second largest species in livestock category and contribute in the production of milk after cattle and buffaloes (GoI Survey, 2013). The goat is being recognized as a significant food source, because does can convert feed DM into milk as efficiently as other ruminants; 185 kg milk/100 kg of dry OM for does compared with 162 kg of dry OM for cows in temperate environment (Spedding, 1969). Also, goats provide a remarkable diversity of products, like milk, meat, morocco and suede skins, mohair and cashmere garments. The profitability of goat enterprise depends on successful rearing of more number/per cent of kids on goat farm. Out of 135.04 million indigenous goats, 26.97% are pure breed, 11.77% are graded breeds and remaining 61.26% are non-descript breeds. Population of Surti goat in India is 4,06,487 which contribute only 0.30% of total goat population. The current reproduction status of communal

does in Africa is low, mainly due to high kid mortality and inbreeding (Webb and Mamabolo, 2004). Although year round mating might yield more kids than seasonal mating, it has negative effect on the long term growth and reproductive capacity of the female (Pattamarakha *et al.,* 1997). Such studies are lacking from Indian tropical climate. Surti goats are not seasonal breeder; however most of the kidding takes place in the month of October, December and February. Therefore, the study was carried out to compare the performance of Surti goat under continuous and seasonal breeding on institutional goat farm in Gujarat for a period of four years.

**Materials and Methods**

The data for this study were collected over a 4-year period (2013 - 2016) from Pashupalan Sanshodhan Kendra, College of Veterinary Science & AH, AAU, Ramna Muvada, Gujarat. This included a total of 586 adult goat (above 1 year of age) records. Year round mating was carried out during two year (2013 and 2014) on 283 goats, while seasonal breeding was carried out during (2015 and 2016) in month of April and May on 303 goats. The goats were maintained on stall feeding and managed as per standard procedure. The numbers of kidding, kids born, their mortality and successful rearing for one year of age were studied.

**Results and Discussion**

The year-wise kidding pattern and mortality rate recorded in continuous and seasonal breeding are presented in Table 1. The result of study showed that the kidding percentage was 74.55 and 39.93 for continuous and seasonal breeding respectively, which indicated that the breeding performance was much higher in continuous breeding thereby getting more number of kids (227), while in seasonal breeding kidding per cent was very less and number of kids available for rearing were also less (134). Mellado and Meza-herrera (2002) obtained 70 % conception rate during spring in Mexico, while Restall (1992) obtained 82 % conception rate in Australian goats mated at the April joining. These rates were higher than the present finding. In a south African study, the highest kidding rate was attained in autumn (96%), followed by spring (93%), winter (63%) and summer (0 %) (Webb and Mamabolo, 2004). The survey carried out by Pattamarakha *et al.* (1997) in Thailand revealed that 89.6 % farmers followed year round mating and 32.3 % of them believed that this practice

**Table 1: Kidding and kid mortality rate during continuous and seasonal breeding in Surti goats**

| Traits studied | Continuous Breeding (Year Round Breeding) | | | Seasonal Breeding (April - May) | | |
|---|---|---|---|---|---|---|
| **Year** | **2013** | **2014** | **Total** | **2015** | **2016** | **Total** |
| Goats included in study | 126 | 157 | 283 | 135 | 168 | 303 |
| No. (%) of kidding | 98 (77.77) | 113 (71.97) | 211 (74.55) | 67 (49.62) | 54 (32.14) | 121 (39.93) |
| No. of Kids born as twins | 20 | 12 | 32 | 2 | 24 | 26 |
| No. of Kids born as single | 88 | 107 | 195 | 66 | 42 | 108 |
| Total kids born | 108 | 119 | 227 | 68 | 66 | 134 |
| Kid mortality (up to 1year) | 48 (44.44) | 47 (39.50) | 95 (41.85) | 29 (42.65) | 14 (21.21) | 43 (32.09) |
| Kids for rearing (after 1 year) | 60 (55.56) | 72 (60.50) | 132 (58.15) | 39 (57.35) | 52 (78.79) | 91 (67.91 |

Figures in the parentheses indicate percentage values.

yields more kids. The present findings are also in line with these reports. Goats mated in peak summer in month of May and June in Mexico had greater chances of getting pregnant than goats mated in fall (Mellado *et al.,* 2006).

The incidence of mortality was much higher in continuous breeding is 41.85% (95) with the availability of only 58.14% (132) of kids for rearing whereas, in seasonal breeding mortality was up to 32.08% (43) with the availability of 67.92% (91) kids for rearing. Mating in the spring normally resulted in low kid crops, but survival and growth rate of kids were acceptable in Mexican climate (Mellado *et al.,* 1996). The mortality rates in goats in communal systems of south Africa were extremely high (40.6%) compared to systems with better management (<5%) (Webb and Mamabolo, 2004).

**Conclusion**

From the above study, it revealed that in seasonal breeding per cent of kidding and number of kids born are less than the continuous breeding where it is about 35 per cent of more kidding and kids born, while slight higher mortality (9.77 %) in continuous breeding than seasonal breeding was recorded which might be due to more number of kids born.

Therefore, above study indicated that to optimize the profit of goat farm continuous breeding is better than seasonal breeding with a precautionary measures to control kid mortality.

**Conflict of Interest:** All authors declare no conflict of interest.

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