



EFFECT OF CONTINUOUS BUCK EXPOSURE ON THE REPRODUCTIVE PERFORMANCE OF MALABARI CROSSBRED DOES DURING POSTPARTUM

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Abstract

The present study was conducted with the objective to determine the effect of continuous buck exposure on the postpartum resumption of ovarian activity, first behavioural oestrus and conception rate in Malabari crossbred does. A total of 20 does on day 31 postpartum were selected and were randomly allotted into two groups. Buck exposed (BE) does (n=10) were in continuous exposure to bucks throughout the study period whereas the control (n=10) group were not exposed to buck. Both groups were kept under similar feeding and management conditions. The animals were weaned on day-30 postpartum, the time interval from the weaning to the first behavioural oestrus ranged from 33-41 postpartum (3-11 days) in BE and 48-72 postpartum (18- 42 days) in control animals ($P<0.05$). During the study period, in both the groups, an oestrus response of 100 per cent was observed within 72 days. The conception rate in BE and control were 50 and 30 per cent, respectively ($P>0.05$).

It was concluded that, does in continuous exposure to buck showed reduced intervals from the weaning to first behavioural oestrus, earlier resumption of cyclicity and improved conception rate compared to the control group.

Keywords: Continuous buck exposure, Malabari crossbred does, Conception rate

Goat population in Kerala is showing an increasing trend and they play an important role in the socio-economic life of small holder farmers. Among the various breeds of goats, Malabari (Tellicherry) breed is the most popular one in Kerala. Prolonged kidding to conception interval is one of the reasons for low reproductive efficiency and economic loss for animal breeders (Westwood *et al.*, 2002). The lack of information regarding the ovarian activity during postpartum in goats has detrimental effects on the success of animal productivity and synchronization regimens. The interval between parturition and the first postpartum oestrus is an important trait that contributes to

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the reproductive efficiency (Lindsay, 1991). The start of oestrous activity during the postpartum period is important to obtain a suitable kidding interval (Devendra and McLeroy, 1982). Hence, the present study was carried out to monitor the effect of buck exposure on the postpartum resumption of ovarian activity and conception rate in Malabari crossbred does.

Materials and Methods

The entire experiment was conducted at the Instructional Sheep and Goat Farm located at Mannuthy. Apparently, twenty healthy goats that had kidded at least twice were selected for the study. The does were randomly divided into two groups that contained ten does each, wherein ten does were in continuous exposure to buck (auditory and visual stimuli, BE) and the other group was kept as control (without any buck exposure, no auditory or visual stimuli). All the animals were weaned on day-30 postpartum and the does in both the groups were monitored for the display of their first postpartum oestrus since weaning. The animals were inseminated with chilled semen at observed oestrus. The pregnancy diagnosis was carried out on day-25 post insemination by transrectal ultrasonography. All the statistical analysis were carried out using SPSS software version 21.0. The results were analysed using one way ANOVA and the results were expressed as Mean \pm SE.

Results and Discussion

In the present study, an oestrus response of 100 per cent was obtained in both the groups. The interval between weaning and

the onset of oestrus among does in the BE and control group was 37.79 \pm 4.27 days and 60.65 \pm 11.3 days, respectively (Table 1). The result obtained was similar to that reported by Naasz and Miller (1990), who observed that beef cows exposed to the bull returned to oestrus at 42.2 \pm 3.1 days after calving whereas, in cows not exposed to bull the interval was 58.3 \pm 4.7 days.

The result obtained was also in agreement with Shelton, (1960) and Chemineau *et al.*, (2006) who reported an interval of 5-7 days and 5-10 days, respectively after buck exposure. However, in the control group, the result was almost similar with Machiya *et al.*, (2012) in Assam goats that exhibited oestrus at a mean interval of 68.80 \pm 6.71 days after last kidding. However, it was slightly lesser than Arora (1992), who opined an oestrus onset at 89.90 days in Black Bengal does. The variations in interval required for oestrus expression could be attributed to breed difference, location and nutritional status of the does.

With regard to the duration, the total mean duration of oestrus was 33.00 \pm 4.19 h and 22.67 \pm 1.33h in the BE and control groups and were found to be non-significant between groups.

The conception rate obtained was 50 and 30 per cent, in the buck exposed and control, respectively, and was found to be non-significant. The result obtained in the present study is in agreement with Ahktar *et al.* (2015) who obtained a conception rate of 66.66% and 33.33%, respectively ($P<0.05$), with the bull exposed and control groups.

Table 1: Oestrus Characteristics during the postpartum period in the buck exposed and control groups

| Sl. No. | Parameters | Buck Exposed | Control |
|---------|--|--|---|
| 1 | Oestrus response (%) | 100 | 100 |
| 2 | Interval from weaning to first behavioural oestrus (days, Mean \pm SE) | 37.79 \pm 4.27 ^a (33- 41 days) | 60.65 \pm 11.3 ^b (48-72 days) |
| 3 | Duration of oestrus (h, Mean \pm SE) | 33.00 \pm 4.19 | 22.67 \pm 1.33 |
| 4 | Conception rate (%) | 50 | 30 |

a,b values differ significantly at 5% level

Hence, it could be concluded that does in continuous exposure of buck during the postpartum period, induced an early onset of behavioural oestrus and improved the conception rate. Hence, it is recommended to have the does in the vicinity of bucks for enhanced reproductive performance.

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