

## BUCK-INDUCED ESTRUS IN GRAZING GOATS DURING INCREASING PHOTOPERIOD AND UNDER COLD STRESS AT 25° N

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**Abstract.** This study characterizes the goat response to the buck stimulus during the transition from anestrus to complete sexual function in mixed-breed goat herds maintained on an arid rangeland (25°N). In a first experiment, seasonal incidence of behavioural estrus was recorded by exposure of does to bucks (buck to doe ratio 1:18-1:24; n= 60-96) in February, April, May and June. Signs of estrus were observed in 89, 1, 100 and 88% of goats exposed to bucks during these months, respectively, within a mean  $\pm$  SD of  $5.6 \pm 3.8$ ,  $8.0 \pm 0.0$ ,  $9.4 \pm 4.9$  and  $4.7 \pm 3.7$  days from the initiation of teasing to first standing estrus. In a second experiment, two groups of goats were joined to bucks in January, one group (n= 44) undergoing cold stress (constant drizzling and 8°C mean daily temperature), the other without rain and mild temperatures (13.6°C; n= 44). A lower proportion of goats under cold stress, manifested by higher ( $p<0.01$ ) plasma cortisol levels, showed estrus compared with goats under mild weather (27 vs. 80%;  $p<0.01$ ). From a production standpoint, a high estrus response is expected in winter and early June in mixed-breed grazing goats in agro-pastoral production systems at 25°N, although wet cold weather in winter hampers the responsiveness of does to the buck stimulus.

**Keywords:** anestrus, estrus, sexual seasonality, male effect, short ovarian cycle.