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RESEARCH ARTICLE

INFLUENCE OF PREPARTUM BODY CONDITION ON VARIOUS TIME INTERVALS (STAGES) DURING PARTURITION IN CROSSBRED CATTLE

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ABSTRACT

The aim of the study is to know the influence of prepartum body condition score on various stages of parturition. Prepartum body condition score was carried out on 60 crossbred animals by using a 6 point scale before one week of expected date of calving. Animals were classified as low, medium and high body condition based on their body condition score. The Body condition of the dam had no significant effect on time intervals during the process of parturition. However, high body condition dams took slightly more time (175.6±10.0 min) to deliver their calves than the medium (172.1±7.1 min) and low (170.7±7.8 min) body condition animals. Prepartum body condition also had no effect on postpartum weight loss of dam and birth weight of calf.

INTRODUCTION

During the most recent past the conventional subjective appraisal of the body fat reserves in livestock, made by visual and tactile, has been rationalized by the use of the numerical system of rating based on specific anatomical points. Palpation of the chin, loin, rump, tail-head, hooks and pin bones (Wildman *et al*., 1982) and occasionally, width behind the shoulders (Treacher *et al*., 1986) provide an assessment of the fatness of the animal. The actual numerical scales have varied among systems. Thus, over the range from very thin to very fat cows, the scale is 1,2...5,6 (Prasad and Tomer, 1995a) and 1.00, 1.25.... 4.75, 5.00 (Edmonson *et al*., 1989). Research on conditions score in dairy cows has mainly focused on the impact of condition score at calving on production performance in the first half of the subsequent lactation (Broster and Broster, 1998) reproduction (Nagappa *et al.,* 2014) and occurrence of metabolic and infectious disorders (Dubuc *et al*., 2010). Hardly any information on the body condition score and its association with prepartum time intervals of during the process of parturition of cattle is available in the literature. The aim of the study was to know the influence of prepartum body condition on various stage of parturition and birth weight of the calf

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MATERIALS AND METHODS

Body condition score was carried out on 60 crossbred animals maintained at cattle farm, Indian Veterinary Research Institute, Izatnagar as per the method of Prasad and Tomer (1995a) by using a 6 point scale (1 = poorly body condition and 6 = grossly obese body condition) before one week of expected date of calving. Animals were classified as low, medium and high body condition based on their body condition. The score below 3 were considered as low body condition, the score between 3 and 4 was considered as medium and score above 4 were considered as high body condition for the present study.
All animals were farm born and raised under similar standard managemental practices. All the animals were artificially inseminated and diagnosed for pregnancy after 2 months of insemination and are reared under loose housing system .The animals under the study were shifted from their pre calving shed to calving shed before 2 weeks of their expected date of calving. Calving shed consisted of a row of calving pens. Each calving pen measured 10' x 12' and was equipped with feed and water troughs. Animal were transferred to calving pens when it started showing the signs of approaching parturition. After the animal had been placed in the pen, the door of the pen was closed and door was left closed 6-h post-partum. Sufficient feed and water has placed in the calving pen prior to parturition.

Table 1. Effect of prepartum body condition score on various stages of parturition

	High body condition	Medium body condition	Low body condition
Number of observations	22	26	12
Onset of restlessness	175.6±10.0	172.1±7.1	170.7±7.8
Onset of intermittent abdominal straining	111.3±7.9	108.2±5.3	105.4±5.8
Appearance of *chorio-allantoic* sac	67.9±5.4 (18)	69.8±4.1 (18)	66.9±4.1 (10)
Rupture of *chorio-allantoic* sac	65.1±5.3 (18)	68.1±4.0(18)	65.0±4.0 (10)
Appearance of calf at vulva	46.2±3.4	45.4±2.3	40.9±2.5
Onset of intense and regular straining	32.73±2.3	32.0±1.6	28.8±1.7
Parturition period	2.73±0.3	2.25±0.2	2.03±0.2

Table 2. Pre and post-partum body weights of dam and birth weight of calves (Mean±SE)

	Dams body weight (kgs)		Body Wt. Loss (kgs)	Birth wt of Calf in kgs
	Before calving	After calving		
Body condition score				
High	443.1±18.8	399.5±17.1	43.6±1.7	23.8±0.89
Medium	413.8±14.3	371.4±13.0	42.4±1.3	23.3±0.63
Low	372.8±29.9	338.3±28.2	40.5±1.7	22.8±0.88

Animals were closely observed and elapsed time was recorded for an onset of various external signs of impendent parturition from the time animal first showed signs of the parturition and continued till the birth of a calf. The following observations were made.

- Onset of signs of restlessness
- Onset of intermittent abdominal straining
- Appearance and rupture of chorio-allantoic sac (CAS)
- Appearance of calf at vulva
- Onset of intense and regular straining
- Parturition period.

Data was analyzed by using the statistical procedures as mentioned by Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

The influence of prepartum body condition score on various stages of parturition i.e., elapsed time intervals from the onset of restlessness to the birth of calf were presented (Table 1).

The body condition of the dam had no significant effect on elapsed time intervals from Onset of restlessness, onset of intermittent abdominal straining, appearance of *chorio-allantoic* sac, rupture of *chorio-allantoic* sac, appearance of calf at vulva, onset of intense and regular straining, parturition period to the birth of calf. However, high body condition dams took slightly more time to deliver their calves than the medium and low body condition animals. Present findings are in agreement with those reported by Prasad and Tomer (1995b) who also observed the longer calving process in high body condition cows in Karan Swiss and Karan Fries cattle. Body weight of dams before and after calving, body weight loss and birth weight of calf was presented in Table 2. The prepartum body condition score had no significant effect on body weight loss during parturition. However, dams having high body condition have lost slightly more body weight (43.6±1.7kgs) when compared with the medium (42.4±1.3kgs) and low (40.5±1.7 kgs) body condition of dams. Results showed that there is no significant effect of prepartum body condition score on the birth weight of the calf. White *et al*., (2002) reported that prepartum body condition score at calving did not influence birth weight of calves in Angus x Hereford cattle. Salim, B and Salim, A (2016) and Paputungan & Makarechian In present study, birth weights of calf are slightly heavier for cows with high body condition when compared with low body condition and similar findings were reported by Spitzer *et al* (1995) in beef cows.

Conclusion

The study concludes that prepartum body condition score had no significant influence on various stages of parturition, body weight loss during calving and on birth weight of calf.

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