ANALYSIS OF BODY MEASUREMENTS OF NEWBORN PUREBRED BELGIAN BLUE CALVES

Iris Kolkman¹, Geert Opsomer¹, Stefan Aerts³, Geert Hoflack¹, Dirk Lips²

¹Fac Veterinary Medicine, Merelbeke, ²Kaho Sint Lieven, Sint Niklaas, Belgium

At calving, animals of the double muscled Belgian Blue (DM-BB) breed are compromised by the incompatibility in size and shape of the dam and her calf, resulting in a very high incidence of dystocia problems. To clarify which body parts of THE CALF are of decisive importance to allow natural delivery, measurements of nine body parts were assessed in 147 newborn DM-BB calves on 17 farms. We also examined which environmental factors (gender of THE CALF, parity, type of calving) were significantly associated with these specific calf measures. The mean birth weight (BW) was 49.2 ± 7.1 kg. The average body length (BL) was 56.4 ± 4.5 cm and the mean length of the head (LH) 24.4 ± 2.3 cm. Measurements obtained for shoulder width (SW) and hip width (HW) were 22.4 ± 2.2 cm and 22.9 ± 2.1 cm respectively, while the mean withers height was 71.1 ± 4.7 cm. Measurements of circumferences revealed a circumference of the front fetlock (CFF) of 17.9 ± 1.1 cm, a the hind fetlock (CFH) of 18.0 ± 1.0 cm and a mean hearth girth of 78.0 ± 5.4 cm. BL (P < 0.01) and the CFF and CFH (P < 0.001) are larger in bull calves than in heifer calves. Calves born via Caesarean Section had broader SW (P < 0.01) and HW (P < 0.01) when compared with calves born after natural calving. Sizes of calves born out of multiparous cows were generally larger than of calves born out of heifers (SW: P < 0.001; HW: P < 0.05). As SW and HW are the broadest points of a BB calf, they are both candidates for being the limiting measures for calving ease, but the difference between HW and SW for the total dataset was not different from zero (P > 0.05). In contrast to male calves where also no significant difference could be found, in female calves the difference between HW and SW was significantly different from zero (P < 0.001), thus in female calves the HW is the most limiting factor of THE CALF's body. The significant variation in some body measures between the calves raises the possibility of selection towards smaller calves aiming to limit the dystocia problem in the BB breed. Furthermore, based on our results we were able to build equations for the farmer to use at the moment of calving containing the LH, the CF and THE CALF's gender to estimate SW and HW. Together with the knowledge of the pelvic size of the dam, this information may help both the obstetrician and the farmer to more accurately predict the probability of natural calving at parturition.