PELVIC DIMENSIONS IN PHENOTYPICALLY DOUBLE MUSCLED BELGIAN BLUE COWS

Iris Kolkman¹, Geert Hoflack¹, Stefan Aerts², Dirk Lips², Geert Opsomer¹

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

The Belgian Blue (BB) breed is characterized by a double-muscled (DM) phenotype typified by a deficiency in the myostatin (mhs) gene and is known also for its excellent meat quality and superior killing out percentage. This extreme conformation has been related to a reduction in inner pelvic dimensions. As a result, the traits associated with the DM phenotype have been achieved only after introducing the Caesarean Section (CS) for routine management of parturition into bovine practice.

This present study explored the variation in internal and external pelvic measurements and body dimensions of DM-BB cattle in Belgium to search for opportunities to select for less dystocia within this breed. Withers height (WH), heart girth (HG), the distance between the two tubera coxae (TcTc) and the distance between the two tubera ischiadica (TiTi) were compared to the internal pelvic measurements of width, height and area as measured by pelvimetry using a Rice pelvimeter. Herds in Flanders presented 507 cows and heifers for measuring. Mean values were 58.9 ± 6.2 cm for TcTc, 14.6 ± 2.3 cm for TiTi, 15.2 ± 2.1 cm for pelvic width (PW), 18.8 ± 1.9 cm for pelvic height (PH) and 288.5 ± 60.9 cm² for pelvic area (PA). There was a significant correlation between type of calving (Caesarean Section [CS] versus calving per vaginam) and WH (P < 0.05), TcTc (P < 0.05), TiTi (P < 0.001), PH and PA (P < 0.001). Cows that calved per vaginam had larger body and pelvic measurements compared to animals that were delivered by CS. The external pelvic value TcTc had a higher correlation (r = 0.58 - 0.63) with the internal pelvic measurements than the TiTi (r = 0.22 - 0.28). The correlation between other external body measures such as HG and WH were even higher (r = 0.69 - 0.74 for HG and r = 0.67 - 0.74 for WH).

Measuring internal pelvic parameters and to a lesser extent external body parameters for cows of this breed may assist selecting cows that are able to give birth per vaginam and may reduce the dependence on elective CS for developing its conformational characteristics.