

Effect of uterine size and position on pregnancy per artificial insemination, pregnancy losses and culling rates

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The aim of this study was to evaluate the effect of uterine size and position on pregnancy per AI, pregnancy losses and culling rates. A total of 472 events from 256 lactating Holstein cows were enrolled. Size and position score (SPS) of the reproductive tract was assigned at the moment of AI as follows: SPS1 – small and compact uterine horns resting within the pelvic cavity; SPS2 – cows had reproductive tracts that were intermediate in cervical and uterine horn diameter with longer uterine horns resting partially outside the pelvic cavity; and SPS3 – cows had reproductive tracts that were larger and resting mostly outside the pelvic cavity. Pregnancy diagnosis was performed at 31 ± 3 and 60 ± 3 d after AI by ultrasonography. SPS was impacted by parity ($P < 0.01$), where primiparous cows had a higher frequency of SPS1 and lower frequency of SPS3 when compared with multiparous cows (SPS1 - 39.2% vs. 14.7%; SPS3 - 9.8% vs. 22.1%). Animals that had SPS1 had higher fertility when compared to SPS2 and SPS3 (49.5% vs. 37.2% vs. 26.5%; $P < 0.01$). Pregnancy loss between 31 ± 3 and 60 ± 3 d post-AI was increased in cows with SPS3 compared to SPS2 and SPS1 (21.8% vs. 14.1% vs. 8.3%, respectively; $P = 0.02$) even when parity was held constant. Total culling rate during data collection was 24.7%. Only animals that had reproductive culling were include in the analysis. Animals that had SPS1 and SPS2 were less likely to be culled when compared to SPS3 (11.3% vs. 27.2% vs. 36.5%, respectively; $P < 0.01$). Primiparous with an SPS3 tended to be more likely to be culled than multiparous with an SPS3 (46.1% vs 34.7%, primiparous and multiparous, respectively; $P = 0.10$). In conclusion, cows that had an SPS 3 had lower fertility, higher pregnancy losses and higher culling rates.

Implications: The size and position of the reproductive can be used in a useful scoring system to identify less fertile lactating dairy cows and can easily be diagnosed. It can provide an opportunity to make relevant management decisions and maximize reproductive efficiency in dairy farms.