

## Heifers with short ano-genital distance conceive sooner and require fewer inseminations

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Raising replacement heifers is the second largest expense for a dairy farm, where every extra day to first calving increases the cost of rearing a heifer. Selecting heifers for superior fertility, therefore, could yield significant economic benefits. Ano-genital distance (AGD, the distance from the anus to the clitoris in cattle) is a phenotype believed to reflect androgen exposure during a critical time in a heifer's fetal development. A previous study in lactating Holstein cows found that cows with long-AGD ( $\geq 127$  mm) are less fertile than cows with short-AGD ( $< 127$  mm), demonstrating its potential as a new fertility trait. This study was to determine if the same negative relationship exists between AGD and fertility measures in maiden Holstein heifers. AGD was measured by one individual in 671 heifers (11 Alberta & BC dairies); it followed a normal distribution pattern with a mean ( $\pm$  SD) of  $114 \pm 11.5$  mm (range, 81 to 148 mm). Using the mean AGD as the cut-point, heifers were categorized into short ( $< 114$  mm) and long ( $\geq 114$  mm) AGD groups, and associations with fertility were determined. Heifers with a short-AGD were younger at conception ( $444 \pm 8.5$  vs.  $457 \pm 8.4$  days;  $P < 0.01$ ) and required fewer inseminations ( $1.6 \pm 0.13$  vs.  $1.8 \pm 0.13$  times bred;  $P = 0.02$ ) than those with long-AGD. Moreover, pregnancy to first AI in short-AGD heifers was greater than that in long-AGD heifers ( $62.2 \pm 5.7$  vs.  $52.5 \pm 5.8$  %;  $P = 0.01$ ). In summary, a negative association between AGD and fertility measures, i.e., age at conception, times bred and pregnancy to first AI, was evident. Therefore, AGD may be a useful reproductive phenotype for genetic selection, although studies on a larger scale are necessary to confirm these findings. **Take Home Messages:** (1) Maiden heifers with short AGD are more fertile than those with long AGD (2) These are preliminary findings which remain to be confirmed.