

Higher embryo quality and viability in heifers with short anogenital distance

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Recently, the genetic selection of dairy cows for fertility with superior reproductive phenotypes is of interest. The potential use of anogenital distance (AGD; the distance from the center of the anus to the base of the clitoris in dairy cows) as a reproductive phenotype is strengthened by previous findings that cows with short AGD (<127 mm) had a greater fertility than those with long AGD, and AGD is a moderately heritable trait. Moreover, a recent preliminary study suggested that primiparous cows with short AGD have greater embryo yield and viability than those with long AGD. The objective of this study was, therefore, to determine if embryo yield and quality varied between heifers of different AGD categories. AGD was measured using digital calipers in heifers (n = 13) that were previously superovulated and flushed (average 2.4 flushes/animal) for embryos. The embryo data set (n = 30) from these heifers were collected. Heifers were categorized as either short (<114 mm) or long (≥114 mm) AGD based on the mean (114 mm) obtained from a population of 671 heifers in a different study. The proportion of viable (58% vs. 42%; $P = 0.02$) and grade 1 (58% vs. 42%; $P = 0.05$) embryos were significantly higher and the proportion of fertilized ova (55% vs 45%; $P = 0.07$) tended to be greater in heifers with short AGD compared to those with long AGD. The proportion of viable embryos out of total structures recovered (67% vs. 56%; $P = 0.08$) within short and long AGD categories tended to be greater for heifers with short AGD than those with long AGD. In summary, although the yield of embryos did not differ, the embryo quality was greater for heifers with short AGD than heifers with long AGD. **Take Home Messages:** (1) Fertilization rate and embryo viability are important for a successful pregnancy. (2) Our findings that heifers with short AGD have greater viable embryos than those with long AGD, therefore strengthening the potential for AGD as a novel reproductive phenotype.