Factors influencing the reproductive performance of dairy cattle in Khorasan Razavi Province, Iran

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We conducted a retrospective cohort study to investigate factors influencing the reproductive performance of dairy cattle in Khorosan Razavi province, Iran. Ten dairy herds, located within a 45 kilometre radius of the city of Mashhad in Khorosan Razavi province took part in the study. Complete lactation records were collected for cows that calved between 21 March 2006 and 20 March 2007. Each cow was followed until the end of the study on 21 October 2007 or until the date of leaving the herd, either by culling, sale, or death. Median days open was 123 days (range 28 to 430 days). Parametric accelerated failure time models based on the log-normal distribution, with and without a herd-level frailty term were used to identify and quantify the effect of factors influencing days open. Parity and the presence of retained fetal membranes, uterine infection, cystic ovarian disease, mastitis and lameness were positively associated with days open. Calving season was associated with days open, with cows calving in the winter and spring having a 1.12 (95% CI 1.04 – 1.21) and 1.10 (95% CI 1.02 – 1.19) times increase in calving to conception interval respectively, compared with cows that calved in the fall. The proportion of variance explained at the herd level was 0.3% suggesting that the herds that participated in this study were relatively homogenous in the distribution of unmeasured herd-level factors influencing days open.

This study has provided starting point for defining benchmark estimates of reproductive performance in dairy herds in this area of Iran. Quantifying the effect of disease on reproductive performance provides a means for ranking disorders in terms of their effect on fertility, allowing intervention strategies designed to optimise herd health and production to be further refined.