

ASSOCIATIONS OF REPRODUCTIVE MANAGEMENT AND PERFORMANCE IN PRIMI- AND MULTIPAROUS COWS ON LARGE DAIRY FARMS

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The aim of this study was to analyse the associations among management practices and reproductive performance in primiparous and multiparous dairy cows on large commercial dairy farms.

Personal interviews were performed between 22 May and 6 November 2015 in order to survey the reproductive management practices on 34 Holstein-Friesian large commercial dairy herds in Hungary. Individual data of 23,781 cows that calved between 1 January 2014 and 31 December 2014 were also gathered from the farms participating in the survey. The associations of the management practices and reproductive performance by parity were analysed retrospectively by mixed effects models. Data were managed in *Microsoft Excel 2013* (*Microsoft Corporation*, Redmond, WA, USA). Statistical analyses were performed in *R version 3.4.0*.

Mean±SD size of the studied herds was 755±470 cows (range: 291–2,502), whereas the 305-day milk yield of the herds amounted to 10,014±965 kg (range: 8,330–12,541). Primiparous cows had shorter breeding interval (42.2 vs. 43.2 days, $P<0.001$), shorter calving to conception interval (152.3 vs. 161.8 days, $P<0.001$), higher first-service conception risk (24.8 vs. 17.3 %, $P<0.001$) and higher probability of pregnancy at 200 days in milk (65.2 vs. 55.4 %, $P<0.001$) compared to multiparous cows, however, no differences between parities were found regarding days to first service (75.7 vs. 75.6 days, $P>0.05$). The use of voluntary waiting period was linked to larger increase in calving to conception interval ($P<0.05$) and greater decline in the probability of pregnancy at 200 days in milk ($P<0.001$) in multiparous cows. Primiparous cows experienced larger improvement in days to first service ($P<0.001$), breeding interval ($P<0.05$), calving to conception interval ($P<0.01$) and probability of pregnancy at 200 days in milk ($P<0.001$) than their multiparous counterparts when estrus synchronization was used (vs. not used). Early pregnancy diagnosis and pregnancy recheck improved breeding interval ($P<0.01$ for both practices), calving to conception interval ($P<0.01$ and $P<0.001$, respectively) and the probability of pregnancy at 200 days in milk ($P<0.001$ for both practices) to a larger extent in primiparous cows.

Primiparous cows generally experienced larger improvement in reproductive parameters when estrus synchronization, early pregnancy diagnosis and pregnancy recheck were applied compared to their multiparous herdmates. Therefore, our study has shown that the associations of reproductive management practices and parameters are different in primi- and multiparous cows.

Keywords: DAIRY CATTLE, REPRODUCTION, PARITY, MANAGEMENT, PREGNANCY DIAGNOSIS