
Reducing the number of critical transitions for dairy cows: effects on milk yield, body weight, and body condition score

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Drying-off, calving, and the start of lactation are critical transitions for a dairy cow, during which most health issues occur. Dairy cows face these transitions every year, as a one-year calving interval (CI) is aimed for. By extending the voluntary waiting period for first insemination (VWP), CI is extended, reducing the number of critical transitions per year, with possible positive effects for health. The risk of increased CI is a reduction in milk yield per year, as there are less calving-associated peaks in milk yield. This experiment investigated consequences of extended VWP for milk yield, body weight and body condition score (BCS). Cows (N=150) were blocked for parity, calving season, expected milk yield and persistency, within blocks randomly assigned to one of three VWP (50, 125, or 200 days), and monitored for a complete lactation. Fat-and-protein-corrected milk yield per day (FPCM), body weight, and BCS were analyzed for the first 40 weeks in lactation and for the last twelve and six weeks before dry-off, using a repeated measurements model with fixed effects of VWP, parity (1 or 2+), time, and interactions, and cow as repeated subject. Milk yield was also calculated as FPCM yield per day of CI. In the first 40 weeks in lactation, FPCM was not affected by VWP for parity 1, while for parity 2+ FPCM was lower in VWP200 compared with VWP125 or VWP50 (32.7 vs 35.6 vs 34.9 kg/day, $P < 0.10$). For parity 1, FPCM per day of CI was not affected by VWP, while for parity 2+ FPCM per day of CI was lower in VWP200 compared with VWP125 or VWP50 (23.5 vs 26.5 vs 27.1 kg/day, $P < 0.05$). Body weight and BCS did not differ during the first 40 weeks in lactation. In the last six weeks before dry-off, FPCM was greater for VWP50 compared with VWP125 or VWP200 (20.3 vs 17.2 vs 14.7 kg/day, $P < 0.05$). In the last 12 weeks before dry-off, BCS was greatest for VWP200, intermediate for VWP125, and smallest for VWP50 (3.5 vs 3.0 vs 2.6, $P < 0.05$). Concluding, there were no milk losses when extending VWP for heifers, but older cows with a 200d VWP had a reduced average milk yield per day. Extending VWP could increase risk of fattening in late lactation compared with a VWP of 50 days.