



Letter to the Editor: Associations between days open and dry period length versus milk production, replacement, and fertility in the subsequent lactation in Holstein dairy cows

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The recently published retrospective observational study by Overton and Eicker (2025) is well conducted, revealing many associations between previous days open and days dry and their association with replacement risk and milk production in early subsequent lactation. However, the conclusions are unjustifiably bold considering that this is a retrospective observational study where the reason for the delay in days open is unknown and that controlled studies drawing different conclusions do exist.

As the authors state, on most farms, the aim is for a short calving interval. Therefore, one may presume that cows with a long period of days open in this retrospective study are so involuntarily, that is, due to poor fertility, disease, or poor management, or all of these. Consequently, this is something that may be presumed to affect both days dry in the “current” lactation but also may affect subsequent lactation fertility, health, milk yield, and replacement risk.

A voluntary extension of the waiting period before first insemination is a different story. This is a planned decision, preferably tailored to the potential and condition of the individual farm. The waiting period may then be individually adapted for cows of different parities, with extensions better suited for higher-yielding cows and longer extensions possible during the first lactation (Burgers et al., 2021).

Further, in the introduction, the authors imply that by employing extended lactations, one might be striving toward reduced production. To support this statement, they refer to retrospective studies and studies of BCS (Roche et al., 2009; Bedere et al., 2018; Fricke et al., 2023). These studies are well conducted, but they do not answer the scientific question of the effect of voluntarily extended lactations on milk yield. The fact that a long

dry period, as well as high BCS in late lactation, is not desirable from either a fertility, health, or production perspective is scientifically well established. As is implied by the authors, the results of randomized controlled studies have indeed shown that too-long extensions of the voluntary waiting period for multiparous cows come with a risk of longer dry periods and an increase in BCS in late lactation (Niozas et al., 2019; Burgers et al., 2021).

Fortunately, several relatively recent randomized controlled studies have been published that might shed light on the effect of extended lactations on milk yield (Niozas et al., 2019; Burgers et al., 2021; Edvardsson Rasmussen et al., 2023). In a recent review (van Knegsel et al., 2024), the results of controlled studies on the effects of extended lactations on reproduction and milk yield were summarized, showing no obvious effect on milk yield for primiparous cows and multiparous cows with moderate extensions of the voluntary waiting period (Figure 1). Moreover, there was a clear improvement in first service conception rate and days open after the end of the voluntary waiting period for cows having an extended compared with a conventional voluntary waiting period. In most studies reviewed, the numbers of inseminations per conception and fertility treatments were lower. A recent review of extended lactations by Stelwagen et al. (2024), partly including the same studies, came to similar conclusions regarding yield and general reproductive performance of the cows: “All studies conducted under high-input conditions with high-producing dairy cows, often fed a total mixed ration (TMR), indicated that there is very little to no adverse effect of EL [extended lactations] on average daily milk yield compared with control lactation length [...]” and “Overall, EL appears to improve reproductive performance and allows more time for cows to become pregnant again. . . .”

Results of lifetime production are still missing, although one study (Edvardsson Rasmussen et al., 2023) found no significant difference between primiparous

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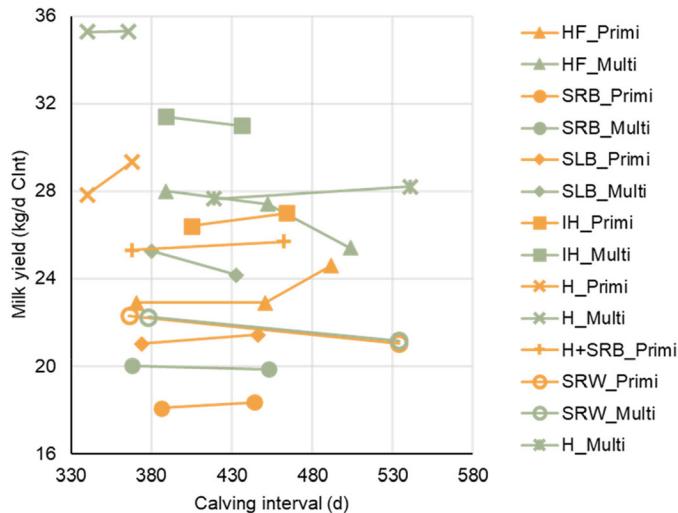


Figure 1. Milk yields associated with different calving intervals. Results from controlled studies with primiparous (yellow) and multiparous (green) cows of different breeds. Note: for clarity, the axes are truncated. Adapted from van Kneegsel et al. (2022, 2024). HF = Holstein Friesian cows (Burgers et al., 2021); SRB = Swedish Red and White; SLB = Swedish Holstein (Rehn et al., 2000); IH = Israeli Holstein (Arbel et al., 2001); H = Holstein (note: Based on cows pregnant at first artificial insemination only [Stangaferro et al., 2018]); H + SRB = Holstein and Swedish Red and White (Edvardsson Rasmussen et al., 2023); SRW = Swedish Red and White (Österman and Bertilsson, 2003); H_Multi = multiparous Holstein cows (van Amburgh et al., 1997).

cows receiving an extended or conventional lactation in milk yield per day over 2 consecutive calving intervals. In that study, milk yield per day in the second calving interval was even higher for cows receiving an extended compared with a conventional first lactation.

Although the cow milk production may be maintained in high-yielding herds, and reproduction improved, it should be noted that extended lactations do not suit all farm systems. Herd dynamics and recruitment plans will be affected. There will be more cows in estrus, fewer dry cows, more lactating cows, and a lower need for recruitment heifers. Further, as is implied by the authors, an individual approach might not be practically compelling for all dairy systems, although having group-level protocols for primiparous and multiparous animals may in some cases be feasible.

In a greater context, extended lactations may represent a reproduction management strategy that accommodates the physiological demands of today's high-yielding dairy cows while simultaneously promoting animal welfare and optimized production with less use of hormone treatments, as spontaneous fertility is markedly enhanced by delaying first insemination. Therefore, further research from different perspectives is desirable and justified, as this is a topic with potential to influence the whole sector.

In summary, drawing conclusions about causation from retrospective studies carries a risk of bias. Regard-

ing causation, results from controlled studies should be preferred and used to recommend on-farm practices.

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