

## Effects of dry period length on milk production and composition in early lactating Holstein cows

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**Introduction** Recently, there has been an interest in shortening the non-income-producing dry period (DP). Retrospective analysis of farm data and planned experiments both indicate about a 5 to 6% loss in milk yield during the subsequent lactation when the DP is reduced by approximately 30 d (Rastani *et al.*, 2005). Additional milk produced during the extra 30 d of lactation can compensate for some of the loss in the subsequent lactation. There are, however, some advantages to reducing the dry period length, including increased income from milk in the current lactation, simplified management of dry cows through movement toward a one-group nutritional strategy, decreased metabolic disorders, and reduced strain on dry cow facilities. The aim of this study was to determine the effects of dry period length on milk production and composition in early lactating Holstein cows.

**Materials and methods** Holstein cows (n=13) were used to evaluate 2 dry period (DP) management strategies on postpartum milk yield and composition. The cows were randomly assigned in 1 of 2 treatments: 1) traditional 60 days dry period (n=6); 2) a shortened 35 days dry period (n=7). All cows were fed by routine ration of farm (total mixed diet) twice a day at 0800 and 1400 h and had at all time free access to water. After parturition, cows were milked 3 times per day at 0400, 1200 and 1800 h and yields were recorded until 50 days postpartum. Milk samples were collected from each milking on 1 d per wk and composited for analysis of milk composition (Micro Scan; FOSS Electric A/s, Denmark). The data were analyzed using the MIXED procedure of SAS (2001) for a completely randomized design with repeated measures. Overall effect of treatment was tested using cow within treatment as the error term. For all analyses, least square means were calculated.

**Results** Table 1 shows the effect of different dry period lengths on milk yield and composition. Milk yield, and also protein and lactose contents were all similar among the treatments. Milk fat content reduced in the shorter dry period group ( $P=0.02$ ). The effect of time was significant and milk yield increased over the time ( $P<0.05$ ). The milk component yields were all similar among the treatments. The effect of time was significant and the yields were increased over the time ( $P<0.05$ ). Our result on milk yield is in agreement with other study showed that cows with 30 days dry period had similar milk production compare with the control (Gulay *et al.*, 2003). Result on milk fat content is in contrast to other recent study (Watters *et al.*, 2008).

**Table 1** Least square means of milk yield and composition in cows with different dry period lengths.

Parameter	Dry period length, d		SE	Treatment P value	Time P Value
	60	35			
Milk, kg/d	38.34	37.96	0.734	0.72	0.02
Fat					
%	3.99	3.74	0.104	0.02	0.54
Kg/d	1.50	1.43	0.084	0.58	0.04
Protein					
%	3.05	3.15	0.037	0.09	0.29
Kg/d	1.17	1.21	0.074	0.74	0.003
Lactose					
%	4.55	4.68	0.059	0.15	0.52
Kg/d	1.75	1.79	0.111	0.77	0.007

**Conclusions** Results of this study demonstrated that milk yield, and also milk protein and lactose contents were not affected by shortening dry period. Based on milk yield response, a 35d dry period was sufficient time for the mammary gland to complete its renewal. More studies with larger group of cows needed to evaluate the effect of shortened dry period.

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