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Practice of milking cows three times daily on Danish dairy farms

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Introduction & Objective

Milking high-yielding dairy cows three times per day is widely practiced in many countries, and the objective with this study was to collect information on how this is practiced in Denmark through an electronic questionnaire.

Questionnaire respondents

In Denmark, 91 % of all farmers are members of the farmer-owned milk recording organisation and of these, 157 milk their cows 3 times per day. This corresponds to 8 % of members after correcting for 761 dairy farms with milking robots. In total, 90 farmers (57 %) answered the questionnaire.

Table 1. Distribution and characteristics of respondents

	Breed					
	Holstein	**Jersey**	**Red Danish**	**Crosses**	**Mixed herd**	**Total**
Conventional without grazing						
Farms, n	50	7	4	8	5	74
Herd size, cows	329	447	266	503	331	356
Milk yield, kg ECM per cow	12,071	10,011	11,375	11,194	11,667	11,717
Conventional with grazing						
Farms, n	3	1	0	0	0	4
Herd size, cows	255	155				220
Milk yield, kg ECM per cow	11,917	10,750				11,625
Organic						
Farms, n	7	0	0	3	2	12
Herd size, cows	344			360	490	372
Milk yield, kg ECM per cow	11,000			10,028	11,250	10,799
Total across systems						
Farms, n	60	8	4	11	7	90
Herd size, cows	327	406	266	464	376	352
Milk yield, kg ECM per cow	11,939	10,104	11,375	10,876	11,548	11,590

Table 2. Productivity of milking systems

		Rotary		Parlour					
	Stanchion	**Side by side**	**Herringbone**	**60 degrees**	**side by side**	**Herringbone**	**Swingover**	**Tandem**	**Total**
Farms, n	3	11	9	8	34	22	2	1	90
Cows, n per farm	80	532	314	271	383	288	505	254	352
Milk yield, kg ECM per cow	12,067	11,584	11,781	10,469	11,835	11,592	10,550	11,200	11,590
Min per milking	113	187	154	159	201	191	190	200	185
Kg ECM per min	7.9	30.2	22.5	15.8	21.2	16.4	25.6	13.0	20.3
Milking slots, n	7	41	28	19	27	15	30	12	24
Milking slots, cows per slot	11.4	13.1	11.5	15.0	15.6	20.6	17.0	21.2	16.0
Kg ECM per min per slot	0.69	0.74	0.82	0.98	0.89	1.20	0.86	1.08	0.94
Milkers per milking, n farms									
1 person	3	3	4	5	15	16		1	47
2 people		6	5	3	17	6	2		39
3 or more people		2			2				4

Results

Characteristics of respondents (Table 1)

- Dairy farms milking 3 x per day are larger (352 vs. 188 cows) and produce more milk than the average of recorded herds in 2016 (11,590 vs. 10,452 kg ECM per cow).
- Around 13 % of respondents are organic, which is similar to national average of 11 %.

Productivity of milking systems (Table 2)

- The most prevalent milking system is a side by side followed by a herringbone milking parlour. Around 22 % of farms use a rotary parlour.
- The average milking takes 3 hours, but varied between 70 and 390 min across farms.
- Half of farms have only one person milking at a time.

Farmer's experiences with 3 x milking (Table 3)

- More farmers indicated higher yield and no negative effects if they started milking 3 x per day before 2015, hence before the milk quota was abolished.
- In contrast, more farmers, who started in 2015 or later, indicated better feed utilisation and profitability and fewer saw many different milkers as a negative effect.

Table 3. Farmer's experiences with 3 x milking

	Year of start of 3 x milking	
	Before 2015	**2015 or later**
Positive effects, % of farmers indicated:		
Higher yield per cow	51.1	43.3
Better feed utilisation	24.4	32.2
Better profitability	24.4	32.2
More coherent workday for employees	35.6	25.6
Lower somatic cell count	32.2	24.4
Better udder health	34.4	23.3
Higher longevity	14.4	11.1
More persistent lactation curve	13.3	8.9
Better reproduction	6.7	2.2
Negative effects, % of farmers indicated:		
No negative effects	31.1	20.0
Many different milkers	17.8	11.1
Difficult to recruit enough labour	10.0	10.0
Some cows loose too much condition	3.3	4.4
Poorer reproduction	2.2	5.6
Increased turmoil	0.0	5.6