

## RECOMMENDATIONS FOR ROUTINES AT DRYING-OFF AND THE DRY PERIOD FOR DAIRY COWS

### Definitions

- **Drying-off** is the period at the end of the lactation when, by changes in feeding, milking intervals and other management factors, the cow is prepared for the cessation of milking.
- **Dry period** is the period between the last milking in a lactation and calving.

### Background

- To keep newly calved cows healthy is a prerequisite for sustainable milk production.
- Through good planning and efficient drying-off the dry period will be of sufficient length for the udder to get enough rest for the coming lactation. This rest gives time for healing of damages and infections in the udder. Moreover, if the cow is treated with dry-cow antibiotics there must be enough time for the drugs to act and then disappear before the next lactation. The length of the dry period is also important for the milk production in the coming lactation.
- The aim of the recommendations is to reduce the risk for udder infections and mastitis during drying-off, dry period and early lactation by introducing good routines to reduce the risk for milk leakage and open teat canals during and after drying-off. A reduced milk production will also decrease discomfort caused by a tense udder after drying-off.
- The recommendations also give suggestions for follow-up and evaluation of the routines.
- The routines should always be based on the conditions of each herd. Thus, the road to the goal (healthy newly calved cows) can vary between herds.

### Recommendations

- Herd specific written routines for drying-off and the dry period should be produced.
- Plan the drying-off so that the dry period will last for 6-8 weeks.
- If possible, plan drying-off of groups of cows on fixed weekdays.
- Approximately 10-12 weeks before estimated calving the body condition score (BCS) and daily milk production is checked. When needed, the feeding of the cow is adjusted so that the BCS is 3.0 and the daily milk production is no more than 15-25 kg/day at the beginning of the drying-off. How this is accomplished is decided based on the conditions in each herd in collaboration with the herd production advisor.
- At the start of the drying-off, the daily milk production is checked and based on the production the cow is milked with 36-48 hours interval 1-3 times according to Table 1.
- Preferably, a cow should not milk more than 10-15 kg/day before the last milking at the end of the drying-off, and the drying-off should not take longer than 4-5 days.
- During the drying-off the cow should have access to a clean and dry lying area and be placed in a separate section of the barn to facilitate restrictive feeding. This section should preferably be out of hearing distance from the milking equipment to avoid sounds that stimulate milk let-down.
- During the drying-off period the cow is given a ration without concentrates but containing at least 4 kg DM grass silage (of the kind the cow is used to) and free access to water, straw and mineral feed (the same as during lactation).
- After the last milking, the cow is given a normal dry cow ration as decided in collaboration with the herd production advisor. The ration should contain sufficient feed of good quality including vitamins and minerals, and free access to water of good quality.

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- After drying-off the cows should be moved to a separate barn/part of the barn where there are no lactating cows. The cows should be grouped based on udder health (healthy separate from other cows) during the whole dry period.
- During 14 days from the start of drying-off the udder should be controlled for swelling morning and evening, preferably without touching the teats and udder, and the general condition of the cow should also be checked at the same occasions. It is also recommended that the teats are dipped/sprayed with a teat dip containing iodine twice daily. If signs of possible mastitis are present the cow is moved to a section for sick cows and is investigated using normal routines.
- Make sure that the lying area of the animals always is clean and dry.
- Avoid stress factors such as more than one cow per cubicle and regrouping of animals.
- From 3 weeks before estimated calving (close-up) the dry cow should be adjusted to the lactation ration and minerals should be given to adjust the cation-anion balance of the feed.
- During the last 3 weeks before calving the udder should be controlled daily and the teats should be dipped/sprayed with a teat dip containing iodine.
- Group the cows according to udder health (healthy separate from other cows) also at and after calving.
- Evaluate the herd routines by checking the udder health after calving (e.g. the proportion of cows with CMT 2-5 day 3-4 after calving; the proportion of clinical mastitis during the first month; changes in milk somatic cell count (SCC) at the first test milking compared to before drying-off (e.g. proportion new infections and proportion cured (cut-off healthy/sick: 150 000 cells/ml); results from bacteriological culturing of milk samples).

Table I. Recommendations for milking intervals during drying-off based on milk production at the start of the drying-off

Milk production kg/day	Day during drying-off (M=morning, E=evening)											
	1		2		3		4		5		6	
	M	E	M	E	M	E	M	E	M	E	M	E
> 25	-	-	Milk	-	-	-	Milk	-	-	-	Last milking	DRY
15 to 25	-	-	Milk	-	-	-	Last milking	DRY				
< 15	-	-	Last milking	DRY								

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