

# Mastitis Prevention in Cold Weather

by Paul Heemskerk

Mastitis prevention does not stop when the temperatures drop and infection pressure is perceived to be lower. Dairy farmers who have stopped dipping during the winter have seen an increase in contagious mastitis. Mastitis occurs during all seasons and research suggests that during the winter months certain types of mastitis are more prevalent than during the summer.

In cold weather cows' teats are more prone to injuries due to frostbite, which can occur even when temperatures are above zero. In combination with high wind speeds, the wind chill equivalent temperature will be substantially lower than the actual temperature. Winter time therefore, is a time when extra care needs to be taken to prevent those injuries from happening in the first place. Teat skin tissue damaged by frostbite is more easily colonized by Staph. Aureus and environmental Streptococci.

Table 1, which was based on data derived from human studies, can act as a general guideline on when to take preventative measures against frostbite. Not all teats will be affected the same way and to the same extent. The resistance to frostbite depends also on the condition of the skin, whether the sun is shining, how wet the teat skin is and so on. Although it is tempting to stop teat dipping altogether in the winter time, keep in mind that even the milk film left on the teats after milking needs to be dried off before the cows are turned out. Also, teat dip which has been stored under cold conditions takes longer to dry, so it is recommended to store the product at room temperature whenever possible. This also prevents the product from freezing and active ingredients from possibly precipitating out of solution.

**Table 1. Wind chill equivalent temperature (° F).**

Wind speed (mph)	Air temperature (° F)																			
	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	
5	43	37	32	27	22	16	11	6	1	-5	-10	-15	-20	-26	-31	-36	-41	-47	-52	
10	34	28	22	16	10	4	-3	-9	-15	-21	-27	-33	-40	-46	-52	-58	-64	-70	-76	
15	29	22	16	9	2	-5	-11	-18	-25	-32	-38	-45	-52	-58	-65	-72	-79	-85	-92	
20	25	18	11	4	-3	-10	-17	-25	-32	-39	-46	-53	-60	-67	-74	-82	-89	-96	-103	
25	23	15	8	0	-7	-15	-22	-29	-37	-44	-52	-59	-66	-74	-81	-89	-96	-104	-111	
30	21	13	5	-2	-10	-18	-25	-33	-41	-48	-56	-63	-71	-79	-86	-94	-102	-109	-117	
35	19	11	3	-4	-12	-20	-28	-35	-43	-51	-59	-67	-74	-82	-90	-98	-106	-113	-121	
40	18	10	2	-6	-14	-22	-29	-37	-45	-53	-61	-69	-77	-85	-93	-101	-108	-116	-124	
45	17	9	1	-7	-15	-23	-31	-39	-47	-55	-62	-70	-78	-86	-94	-102	-110	-118	-126	
	No risk			Danger, some risk				<----- Severe danger, eminent risk ----->												

Source: *Cold Weather Teat Dipping*, Jeffrey K. Reneau, Dairy Update Issue 127, November 1999.

The first step to prevent frostbite from occurring is to prevent or minimize exposure of teats to the harsh conditions as indicated in the yellow and orange colored area of table 1. In today's dairies, however, this is not always possible and care needs to be taken so that cows' teats are dry before being turned out. Either enough time needs to be allowed for teats to dry or teats need to be blotted with single-use paper towels. In the latter case, however, a minimum contact time of 30 seconds is required for the teat dip to do its job.

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Lastly, teats should not be washed too often in the wintertime as this removes the skin's natural oils and acids. Teat dips used during the winter should contain sufficient levels of skin conditioners, such as glycerin, carbitol and/or lanolin. However, certain active ingredients used in teat dips such as iodine become inactivated when high levels of skin conditioners are added. Also, some teat dips are able to replenish the lactic acid mantle of the skin that acts as a natural barrier against infections.

With winter approaching it is important to review the practices during and after milking so that potential problems can be identified and prevented. The prevention of mastitis and potential winter-related problems is key in maximizing milk yield and profitability of the dairy farm. ■