

Associations between teat end shape and teat end callosity ring and mastitis bacteria isolated in quarters from Norwegian Red cows

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Introduction

- **Mastitis:** One of the economically most important diseases in dairy farming.
- **Pathogenesis:** Mastitis bacteria enter the quarter thorough the teat canal.
- **Objective:** Assess the relationship between teat end shape and teat end callosity on subclinical infection of mastitis bacteria in quarters after one evaluation in lactating dairy COWS

Material and Methods

- 49 herds
 - 24 organic and 25 conventional
 - 19 tie stall and 30 free stall
 - Different location around Norway
- N= 1010:
 - 1.parity n= 450
 - 2.parity n= 257
 - > 2.parity n= 333
- Milk samples collected aseptically from all quarters at the visit day before milking
- Milk samples were refrigerated or frozen prior to bacteriological examination
- Individual animal data were collected from the Norwegian Dairy Herd Recording System

Material and Methods

PRAKTIJKONDERZOEK VEEHOUDERIJ

Speenpuntvereelting Classificatiesysteem

Streefwaarden
1A dunne gladde eeltring. Dit is een gezonde speen (meer dan 80% van de koeien).
1C Een dikke gladde eeltring. Dit komt soms rond top lactatie voor (bij maximaal 30% van de koeien).

Gladde eeltring

Rafelige eeltring

Geen **Dun** **Matig** **Dik** **Extreem**

Vermijden
2D, extreem dikke en rafelige eeltring. Dit is een zeer ernstige vorm van vereelting, die altijd vermeden moet worden.

- Teats examined by one person before milking
- Teat end shape
 - Flat, round, pointed or inverted
- Callosity ring
 - Callosity thickness
 - none
 - slight
 - moderate
 - thick
 - extreme thick
 - Callosity roughness
 - smooth
 - rough

F. Neijenhuis et al., 2000, JDS

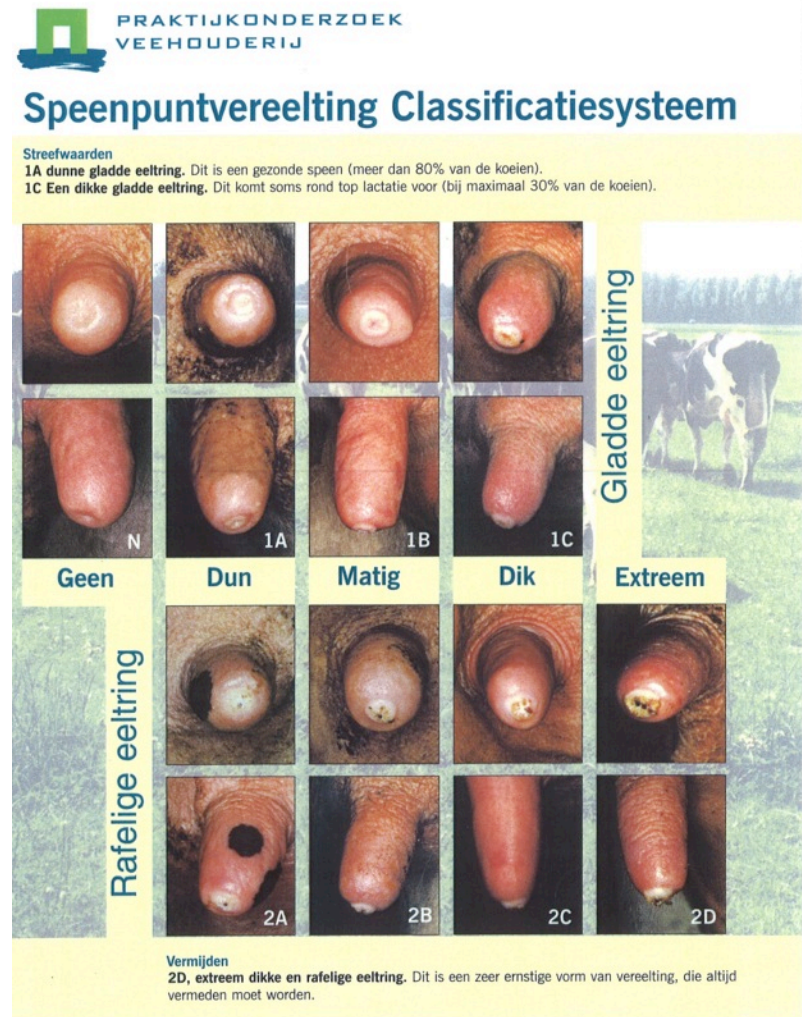
Results

- DIM at visit: 161 d (SE \pm 3.14)
- MY4 wk after parturition: 26.5 kg (SE \pm 0.24)
- Mastitis bacteria: 16% of the quarter samples
 - CNS 9%, *S.aureus* 3%, *Strept.dysgalactiae* 2% and other 2%
- Teat end shape

	%
Round	44
Flat	42
Pointed	6
Inverted	7

Results

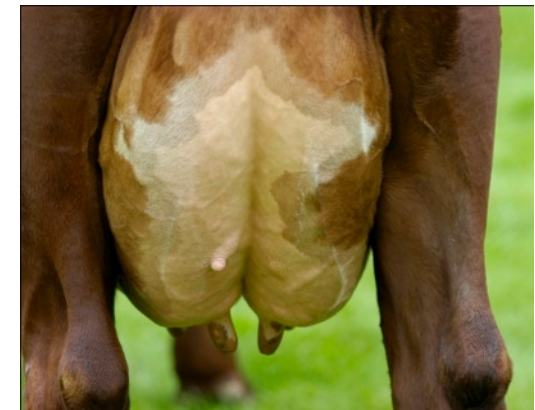
- Callosity ring
 - Callosity thickness
 - none 26%
 - slight 55%
 - moderate 15%
 - thick 2%
 - extreme thick 0.5%
 - Callosity roughness
 - smooth 55% and 13% infected
 - rough 19% and 22% infected
 - no ring 26% and 18% infected



F. Neijenhuis et al., 2000, JDS

Results

		OR	95% CI	P
<u>Callosity ring</u>	non	-	-	-
	smooth	0.891	0.664 – 1.198	0.44
	rough	1.744	1.082 – 2.285	0.02
<u>Teat end shape</u>	flat	-	-	-
	round	1.249	0.953 – 1.635	0.11
	pointed	1.901	1.171 – 3.086	0.01
	inverted	1.472	0.919 – 2.358	0.11
<u>Quarter</u>	right front	-	-	-
	left front	1.242	0.922 – 1.672	0.15
	right rear	1.661	1.238 – 2.230	< 0.01
	left rear	1.623	1.210 – 2.177	< 0.01
<u>Parity</u>	1.parity	-	-	-
	2.parity	0.979	0.710 – 1.352	0.90
	> 2.parity	1.428	1.070 – 1.906	0.02
Ln_SCC	$\beta = 0.718$	2.051	1.824 – 2.305	< 0.01



Outcome: mastitis bacteria isolated in quarter

DIM and **4wk MY:** NS associated to risk for infection

Conclusion

- Factors affecting the risk for infection with mastitis bacteria
 - Teat end shape
 - Callosity ring roughness
 - Quarter
 - Parity
 - SCC closest to visit day
- Evaluation of teat end shape and callosity ring can be useful for culling decisions on an individual level





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Distribution of teat end callosity within teat end shape group!

Teat end shape	Teat end callosity ring			<i>n</i>
	None	Smooth	Rough	
Round	17 %	58 %	26 %	1758
Flat	31 %	60 %	8 %	1681
Pointed	1 %	38 %	61 %	244
Inverted	72 %	27 %	1 %	291
<i>n</i>	1031 25.9%	2197 55.2%	746 18.7%	3974