



Survey Of Bulk Tank Milk From All Danish Dairy Herds In 2009 And 2010 With Real time PCR



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Our Milk

- a pure pleasure



Denmark - The world's number 1

Denmark - The world's number 1



Caroline Wozniacki – Miss Sunshine

Highly industrialised Dairy Industry



Number of dairy cows 573,000

Herd size 132 cows

Yield 9,079 kg



The World's leader in robotic milking

AMS herds

22 %

Cows

27%

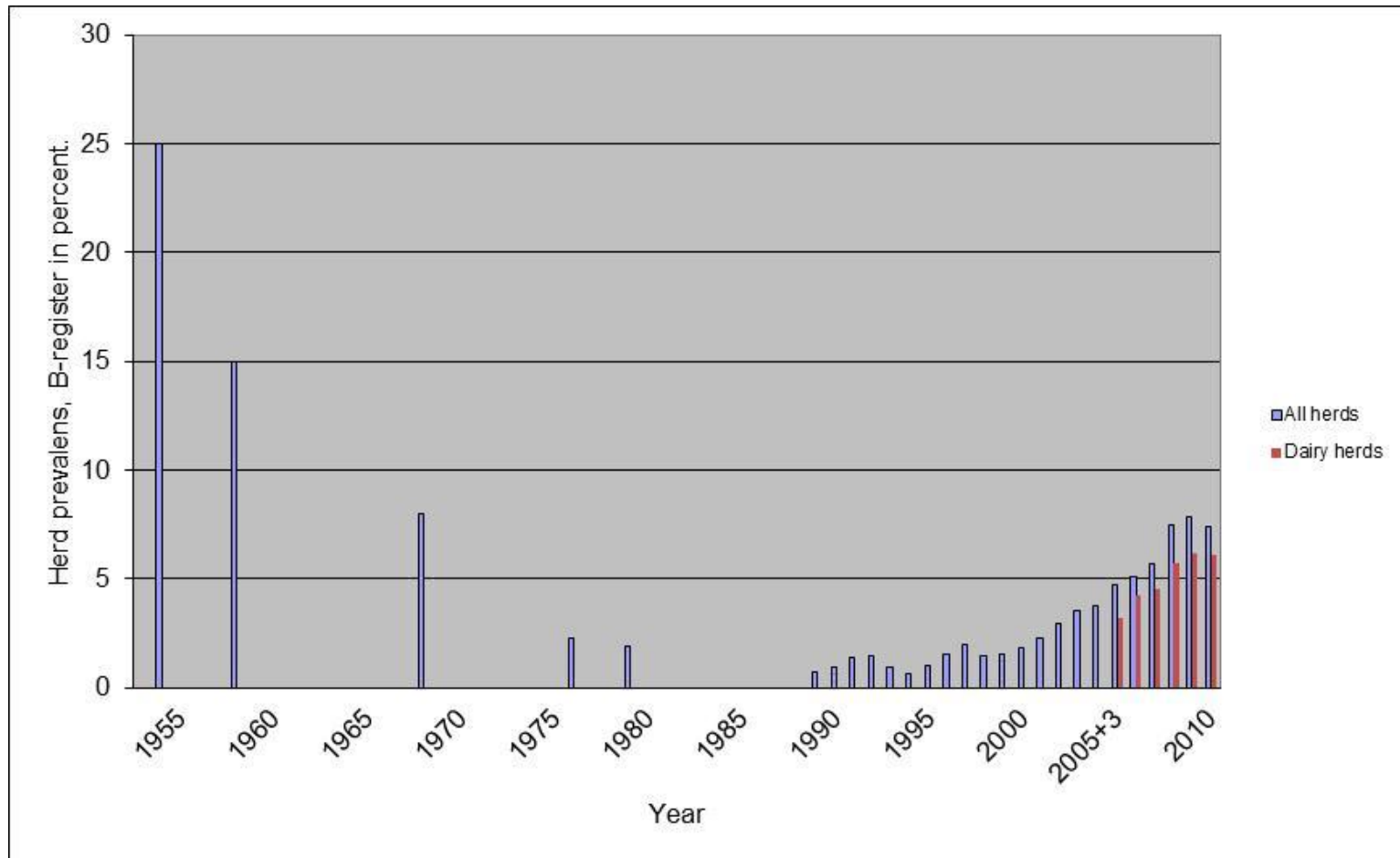


Organic herds 10%

10 % of milk



Herds in the Danish B-register from 1954 to 2010 in percent of all herds and from 2005 of active dairy herds





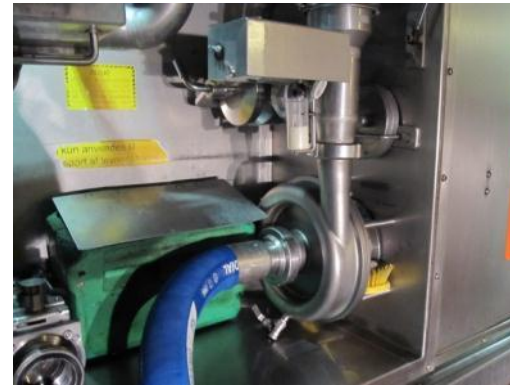
Aim of study

- To provide a sensitivity comparison of bacterial culture and the PCR assay (Pathoproof®) in *Streptococcus agalactiae* detection in Bulk tank milk samples from all 4258 Danish Dairy herds in 2009.
- To validate the PCR testing of all 12 genes as part of the annual nationwide BTM screening program

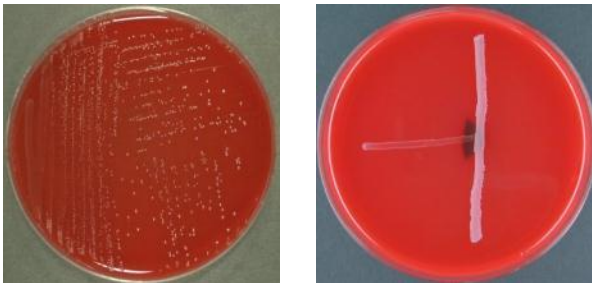
Bulk tank milk



Collection and sampling



Culture Streptococcus agalactiae + / -



PCR – real time Ct value for 12 gene

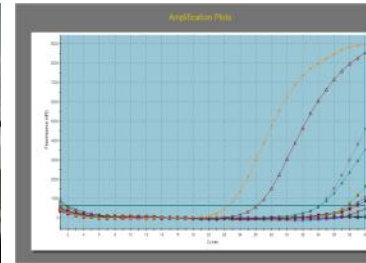
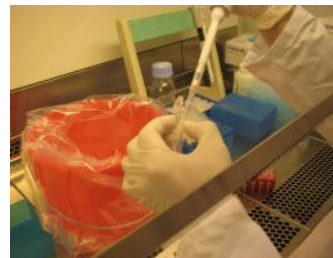


Table 1. Culture and PCR for *Streptococcus agalactiae* from all 4258 Danish dairy herds in 2009

Test for GBS	PCR	
	Positive	Negative
Culture		
Positive	178	20
Negative	132	3928

Table 2: Number of dairy herds PCR and culture positive for *Streptococcus agalactiae* 2009 and 2010

Year	herds	PCR GBS-positive	Culture GBS-Positive
2009	4258	301 (7.3 %)	198 (4.7 %)
2010	4093	271 (6.6 %)	141 (3.4 %)

Table 3: Results of PCR test PathoProof® in BTM samples from 4258 herds in 2009

Bacteria/gen	% NoCt	Lowest	10% Percentile
<i>Staph aureus</i>	9	20	29
<i>Staph. Sp</i>	0	18	27
Beta-lactam	22	22	31
<i>Str. agalactiae</i>	93	17	26
<i>Str. dysgalactiea</i>	14	16	28
<i>Str. uberis</i>	5	14	26
<i>Coryne. bovis</i>	10	25	32
<i>Enterococcus</i>	22	21	30
<i>E.coli</i>	39	18	30
<i>Klebsiella</i>	87	19	31
<i>S. marcescens</i>	98	25	34
<i>A.pyo./ P. ind</i>	37	19	32

Conclusion

- Streptococcus agalactia is an increasing problem in Denmark
- PCR is more sensitive than culture
 - Sensitivity 94%
- PCR on BTM samples can be used as surveillance of other mastitis pathogens in dairy herds, and give farmers good information on further prophylactic actions against udder infections