KNOWLEDGE CENTRE FOR AGRICULTURE

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

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This project has been subsidised by the European Union's Agricultural Fund for Rural Development and the Danish Ministry of Food, Agriculture and Fisheries.

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DANISH AGRICULTURAL ADVISORY SERVICE

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Danish Milk quality campaign logo

Our Milk
- a pure pleasure

Denmark - The world's number 1

Denmark - The world's number 1

Caroline Wozniacki – Miss Sunshine

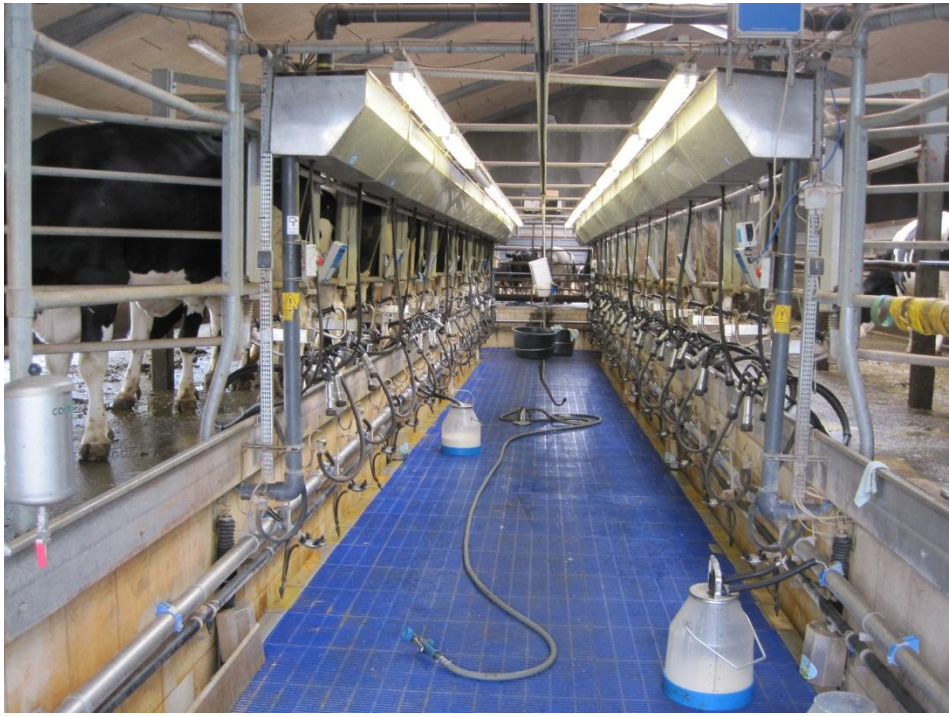
Highly industrialised Dairy Industry

Herd size

132 cows

Yield

9079 kg



The World's leader in robotic milking

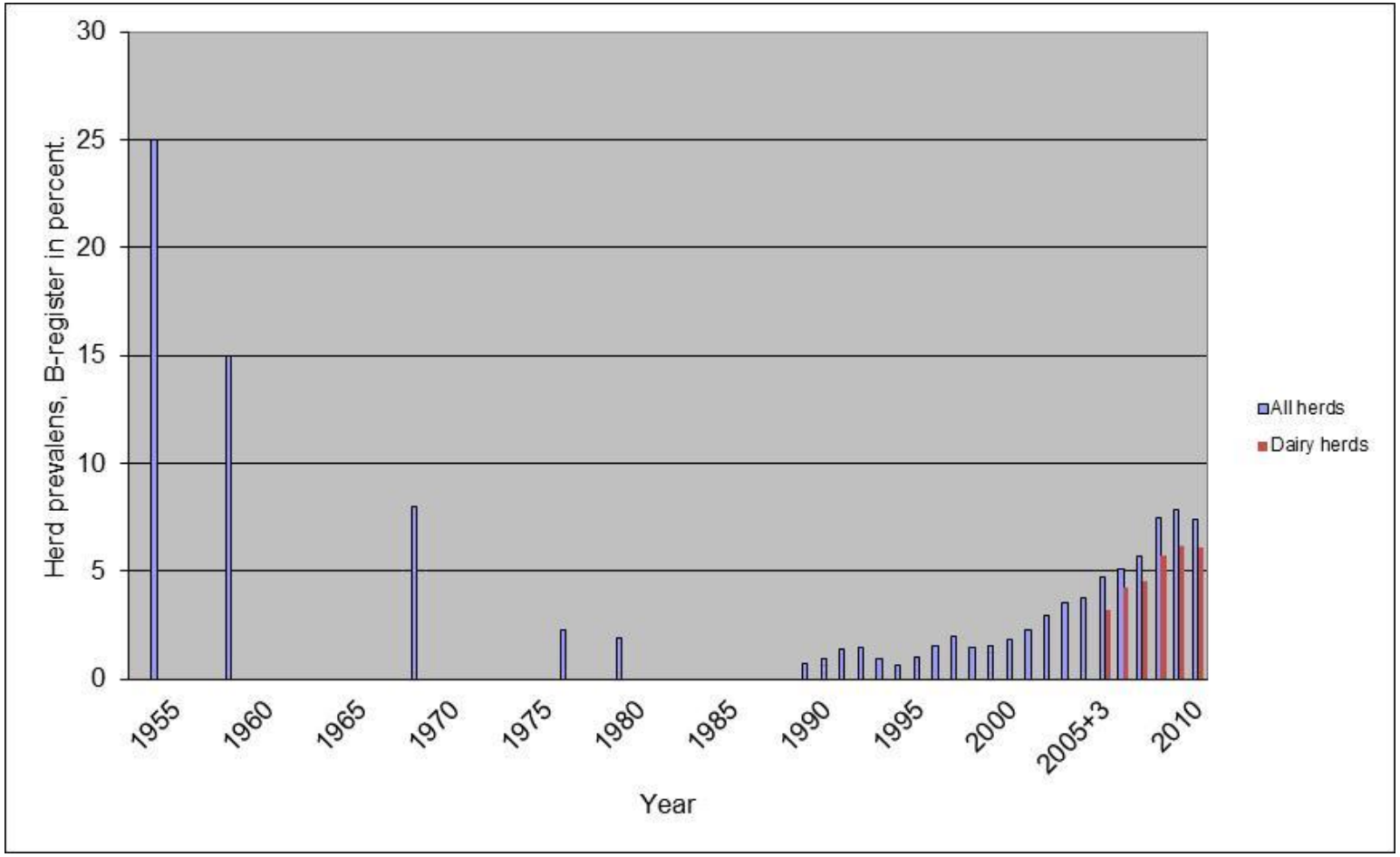
AMS herds
22 %

Cows
27%

Highly industrialised Dairy Industry

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



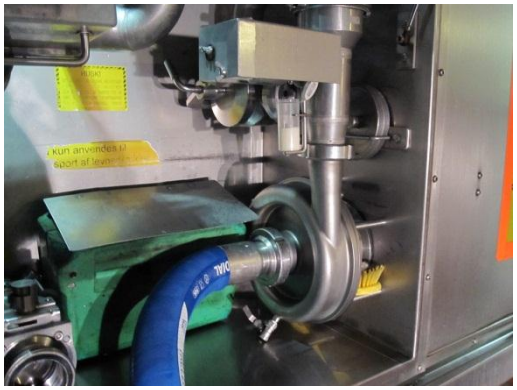
Aim of study

- 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.

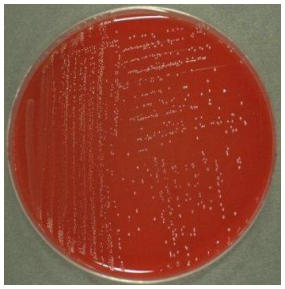
- To validate the PCR testing of all 12 genes as part of the annual nationwide BTM screening program

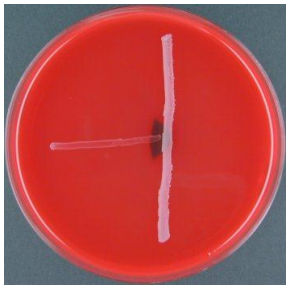
Bulk tank milk

Collection and sampling

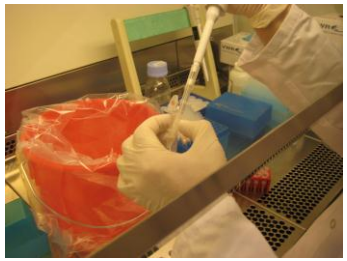


Culture
Streptococcus agalactiae + / -





PCR – real time
Ct value for 12 gene



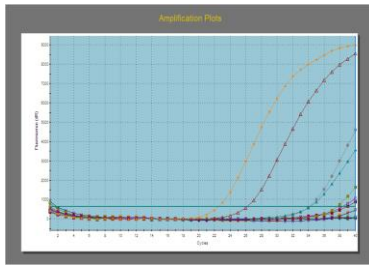


Table 1. Culture and PCR for *Streptococcus agalactiae* from all 4258 Danish dairy herds in 2009

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

*11 of the herds already in the Danish B- register
17 of these cultures were available for Gene sequensing and were confirmed asGBS

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 %)

In 2010 only PCR positive herds and herds already in the B register were tested by culture
And in 2010 samples for testing were teken immidiatly after arriving to the lab whereas in 2009 the samples were taken after SCC testing in the lab

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

Bacteria/gen	% NoCt	Lowest	10% Percentile
Staph aureus	9	20	29
Staph. Sp	0	18	27
Beta-lactam	22	22	31
Str. agalactiae	93	17	26
Str. dysgalactiea	14	16	28
Str. uberis	5	14	26
Coryne. bovis	10	25	32
Enterococcus	22	21	30
E.coli	39	18	30
Klebsiella	87	19	31
S. marcescens	98	25	34
A.pyo./ P. ind	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 surveiliance of other mastitis pathogens in dairy herds, and give farmers good information on further prophylactic actions against udder infections