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Dairy herd management and *Salmonella* in calves in Denmark

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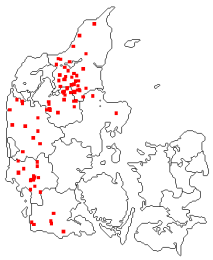
Objective

To investigate which management practices are associated with effective control of *Salmonella* in dairy calves

Location of herds participating in project



Materials and Methods

- **84 dairy herds were included in an eradication field trial from September 2008 through November 2009**
- **The included herds delivered bull calves to 20 dairy-beef herds enrolled in a similar eradication trial and were likely to be infected with *Salmonella* based on antibody measurements on bulk-tank milk sampling**
- **The outcome variable in the analysis was "successful" or "unsuccessful" control of *Salmonella* in calves. A farm was considered successful if there were no calves with high levels of *Salmonella* antibodies in serum in the 10 youngest calves above 3 months of age in November 09**
- **Farm managers were interviewed by telephone regarding management practices on farm**
- **Univariable analyses were performed for all management practices assessed in the interview – if p <0.2 for association with success, the practices were included in logistic analysis with forward inclusion of variables and interactions. Significant interactions were only kept in the model if meaningful**
- **Significance level was set to 5% in the logistic analysis**

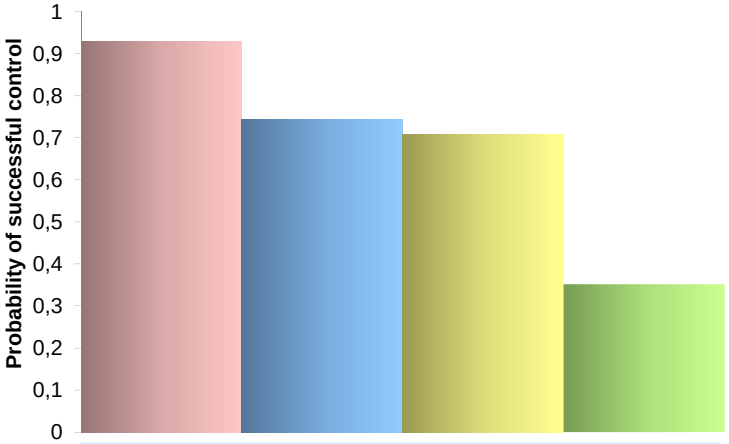
Results

- **Successful control of *Salmonella* in calves was associated with good calving management, separation of calf pens/hutches for calves < 4 weeks of age and no purchase of animals from herds that were likely infected with *Salmonella***
- **Herd size was significant in the univariable analysis but not in the multivariable, which could mean that management practices were correlated with herd size**
- **"Good calving management" includes one person responsible for calvings and colostrum, max 4 cows in calving box at any time, not using calving box for sick animals, new bedding at least once a week, cleaning calving box at least twice a month and max 5 cows calving before moved to calving box in the last year**

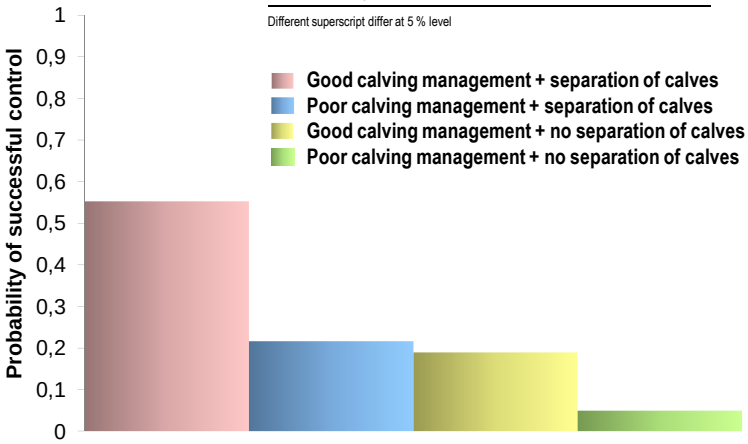
Significant main variables from logistic analysis

Variable	β	SE	P-value
Intercept	-2.95	1.05	
Calving management			0.03
Good[1]	1.50	0.78	
Miedium[1]	2.00	0.79	
Poor[2]	-		
Calf pen separation			0.01
Yes	1.67	0.73	
No	-		
Purchase of animals from likely infected animals			<0.01
Yes	2.34	0.72	
No	-		

Different superscript differ at 5 % level



Predicted probability for successful control of *Salmonella* in calves in farms not importing animals from possibly infected farms



Predicted probability for successful control of *Salmonella* in calves in farms importing animals from possibly infected farms

Good calving management + separation of calves
Poor calving management + separation of calves
Good calving management + no separation of calves
Poor calving management + no separation of calves

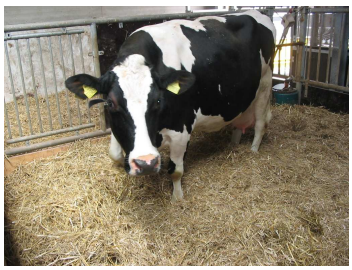
Conclusions

This study supports previous advise to farmers trying to control and eradicate *Salmonella* in cattle herds

It is essential not to purchase animals that might be infected with *Salmonella*

Calving management is critical and young calves should be separated by solid walls or distance between single pens or hutches

Herd size effects are most likely associated with underlying management



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