Register data as an identification tool for dairy herds with potential welfare problems

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Objective

Preliminary study to investigate the ability of register datas potential to identify dairy herds with potential animal welfare problems

Materials & methods

Study design

• Retrospective cross-sectional study using pre-collected data from farms participating in *The Loser Cow project* [1] (data collected from September 2003 to October 2004, n=113) and data from the National Cattle Database (data collected for each herd from January 2003 to December 2004, $\pm$ six month period prior and after the date of visit)

• Lameness prevalence from *The Loser Cow project* as an indicator for impaired animal welfare and the relation between a set of 28 variables from the register data associated with animal welfare

Statistical analysis

• Correlation analysis

• Regression analysis of factors having significant relations with lameness prevalence. Backward elimination.

• Arcsine transformation of the lameness prevalence.

• 95% Confidence interval

Results & discussion

Variables per 100 cow years	Mean	Q1	Q3
Cows per year	141	115	157
Dead cows %	5,21	3,58	6,22
EKM kg per cow years	6632	5786	7688
Bulk tank SCC	217275	173750	250000
Lameness prevalence	10,13	3,31	14,51

Variables significantly related to the lameness prevalence:

•Bulk tank SCC

•Proportion of cows with deviation in fat/protein content > 1,5

•Proportion of dead cows

•Milk yield percentage 1.lactation cows versus 3.+lactation cows

•Milk yield percentage 2.lactation cows versus 3.+lactation cows

• Median age at first calving

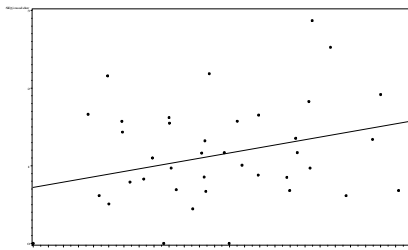•SD age at first calving

•Proportion of lean cows at slaugther

Figure 1
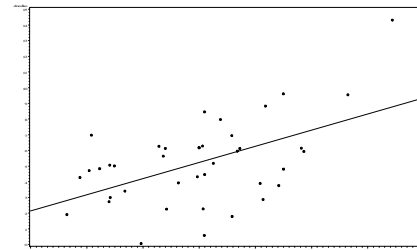Correlation lameness prevalence and SD age at first calving ($p = 0,0499$)

Figure 2
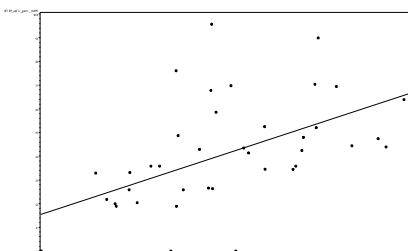Correlation lameness prevalence and the proportion of dead cows ($p < 0,001$)

Figure 3
Correlation lameness prevalence and the proportion of cows with a deviation in fat/protein content > 1,5 ($p = 0,0275$)

Conclusion

Register data does have some potential in the identification of dairy herds with potential welfare problems.

Eight out 28 variables showed a significant relation with the lameness prevalence.

This preliminary model will be investigated further by assigning cut-off values to each variable and to what combinations of variables will add the best strength to the model. Finally the model will be validated by a full on-farm welfare assessment.

[1] Thomsen, P.T., Østergaard, S., Søresnsen, J.T., Houe, H. "Loser cows in Danish dairy herds: Definition, prevalence and consequences", *Prev. Vet. Med., vol. 79, pp 116-135*