

Prevalence, risk assessment and control of heifer mastitis in Switzerland

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Key words

Dairy heifers; Mastitis; Prevalence; Risk factors; Consequences; Switzerland

Aim of the study

The aim of this study was to evaluate the prevalence, risk factors and consequences of heifer mastitis in Switzerland.

Material and methods

This study was divided in two parts.

Modul 1: The prevalence of subclinical mastitis in heifers was determined on the basis of SCCs $\geq 100,000$ cells/mL at the first test date. Analysed risk factors included data for the genetic background, morphological traits, geographical region, season of parturition and milk composition. Also the SCCs over the complete first lactation were observed.

Modul 2: The prevalence of mastitis relevant pathogens in heifers and eventually associated risk factors was evaluated using multivariable, multilevel logistic regression analysis. 54 farms in Switzerland were visited, the farmers interviewed and the young stock, housing systems and pastures observed. Quarter milk samples of 1564 quarter (391 heifers) were collected in less than 24 hours post partum for microbiological culture.

Results and significance

Modul 1: The overall prevalence of SCM in 166,518 heifers during the period from 2006 to 2010 was 20.6%. Higher frequencies of SCM were present in heifers of the Holstein breed (odds ratio, OR, 1.62, P-value < 0.001) and heifers with high fat-protein ratios (OR 1.97, P-value < 0.001) or low milk urea levels combined with high milk protein levels (OR 3.97, P-value < 0.001). Traits associated with a low risk of SCM were high set udders, high overall breeding values and low milk breeding values. Heifers with SCM on the first test day had a higher risk of either developing chronic mastitis or leaving the herd prematurely.

Modul 2: In about half of the quarter samples a bacteriological positive result was found. Tie-barns and the breed category "Brown cattle" were risk factors for intramammary infections (IMI) by contagious major pathogens. Teat swelling and teat lesions were highly associated with the prevalence of environmental pathogens. Raising on external breeder farms seemed to be a protective factor against IMI by contagious major pathogens. Keeping pregnant heifers in a separate group appeared to be protective against IMI by coagulase-negative staphylococci.

The risk of IMI by coagulase-negative staphylococci increased in a weaning age < 4 months, feeding concentrates to calves younger than 2 weeks and a high or medium welfare in the calves group.

Publications, posters and presentations

Bludau, M. et al. (2014) Mastitis of Swiss primiparous dairy cows: Prevalence and risk factors. Veterinary Journal, DOI

Bludau, M. et al. The association between risk factors at quarter, heifer and herd level and intramammary infections in Swiss dairy heifers. (Manuscript not published yet)

Bludau, M. (2013) "Heifer mastitis – Epidemiology and risk factors in Switzerland". Presentations on ITB workshops 18.10.2013 and 23.11.2013

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