Young Stock WBC2016-378

Bacterial count in the first meal of colostrum on 17 commercial dairy farms in the Netherlands

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Goal

To analyze the bacterial and coliform count of colostrum at the moment it is fed to newborn calves as first or second meal, on 17 commercial dairy farms, all clients of Veterinary Center Someren (NL).

On many Dutch dairy farms, it is common practice to completely milk out the cow immediately after calving and feed this first colostrum to her calf as first, second, etc. meal, until it is finished.

Results and discussion

Bacterial counts of the first colostrum meal (70 samples):

- 24% of the samples had a bacterial count higher than 100.000 cfu/ml (17 of 70).
- 7% had a coliform count higher than 10.000 cfu/ml (5 of 70).

100.000 cfu/ml is generally considered the upper limit for bacterial counts in milk and colostrum (i.e. Morrill et al., 2012).
10.000 cfu/ml is generally considered the upper limit for coliform counts in milk and colostrum.

An increased bacterial count has a negative effect on the absorbtion of IgG in the intestinal tract of the newborn calf (Langel et al., 2015). The bacterial count is besides the concentration of antibodies, most specifically IgG, the most important component of colostrum quality (Stewart et al., 2005; Godden, 2008).

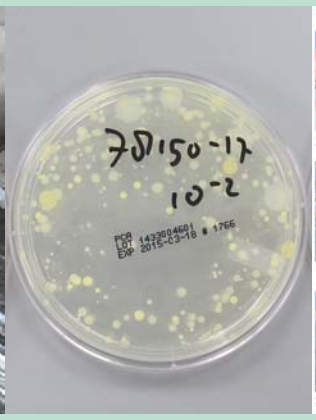
The number of samples from second colostrum meals, 10, was too low for significant conclusions.

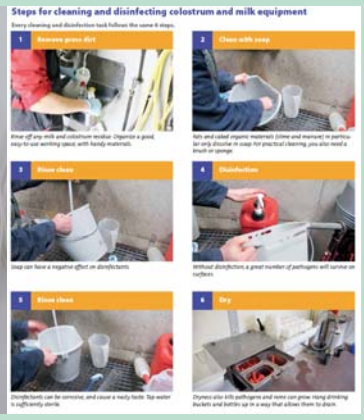
Practical considerations

These findings suggests that on these farms around 24% of newborn calves take in a first meal of colostrum that is unsuited for this purpose, due to a too high bacterial count.

Feeding colostrum with a high bacterial count will increase the incidence of diseases in young calves. A too high bacterial count reduces the absorbtion of IgG by the calf, and it seems likely that it will also challenge the immunological naive calf, perhaps dependent on the type of bacteria.

Assessments of management practices on these farms and information from scientific literature point at milking and milk collecting materials as the main sources of contamination. On many farms the remaining part of the colostrum is not rapidly cooled and stored below 4˚ C, which is a risk factor for a too high bacterial count in later meals.





Materials and Methods

Samples where taken by dairy farmers, who had received sampling instructions on a chart and a sampling kit.
The sample kit consisted of 5 sterile 5 ml disposable syringes with a sterile 1.2 mm x 3.5 mm (pink) needle, plus 10 milkers gloves. Instruction was to aspirate colostrum into the syringe via the needle and immediately put the syringe plus covered needle into a refrigerator.
During the sampling period the farmers were aware of the results of an earlier studie of the bacterial count of frozen colostrum supply on dairy farms, in which 58% of the samples exceeded the maximum bacterial count of 100.000 cfu/ml.
The samples where collected, transported in a cool box and arrived in frozen condition at the laboratory of VC Someren, that performed bacterial counts. On 17 dairy farms 86 samples were taken and analysed. 6 samples where not used in the analysis, because they where not taken from first colostrum or the colostrum was not handled in the normal way by the farmer.

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The authors declare that they have no other interest in this study, besides scientific and delivering commercial services supporting dairy farms in young stock husbandry.

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