

Bacterial count in frozen spare supply of colostrum on 42 commercial dairy farms in the Netherlands

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Goal

To analyze the bacterial count and coliform count of frozen colostrum on 42 commercial dairy farms, all clients of Veterinary Center Someren (NL).

The farms use this colostrum as spare supply, to feed as a first meal to a newborn calve, when there is no colostrum from the own mother available.

Results and discussion

58% of the samples had a bacterial count higher than 100.000 cfu/ml (49 of 84), and were for this reason not suited to feed to newborn calves. 100.000 cfu/ml is generally considered the upper limit for bacterial counts in milk and colostrum (i.e. Morrill et al., 2012).

An increased bacterial count has a negative effect on the absorption 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).

17% of the samples had a coliform count higher than 10.000 cfu/ml (12 of 64). 10.000 cfu/ml is generally used by laboratories as the upper limit for coliform counts in milk and colostrum. A high E.coli count is an indication for contamination with manure. In this case, contamination with manure does not seem to play a big role.

Practical considerations

These findings suggest that on these farms at least 60% of newborn calves that receive thawed colostrum as first colostrum, take in colostrum that is unsuited for this purpose. It is assumable that in practice, this percentage is even higher, as the bacterial count will further increase during the process of thawing and handling the thawed colostrum.

Feeding colostrum with a high bacterial count will increase the incidence of diseases in young calves. A too high bacterial count reduces the absorption 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. The third causative factor for the high bacterial counts consists of a too long time interval before the colostrum is cooled down enough to stop bacterial growth.

The process of selection plus the number of dairy farms make it highly assumable that the results are a reliable reflection of the situation amongst all the clients of this veterinary practice. The authors have no reasons to assume that this group of dairy farmers is not representative for the whole dairy farmers population in at least the south of the Netherlands.



Materials and Methods

On 42 dairy farms 95 samples were taken aseptically from frozen colostrum that serves as spare supply. At the moment the farmers had frozen the colostrum, they did not know about this study. The samples were transported in a coolbox and arrived in frozen condition at the laboratory of VC Someren, that performed bacterial counts.

The results of 11 samples were not used because these samples were not representative: the farmers had handled and frozen this colostrum in a different way than they normally would have done.

In 64 of the samples also the coliform count was analyzed. In the first batch of 20 samples this test was not performed.

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.

Literature and more information is available via: jan.hulsen@vetvice.nl. Jan Hulsen is at this WBC.