

Assessing colostrum quality for optimal immunity in newborn calves



Colostrum management and antibody monitoring

Colostrum management is the foundation of successful calf rearing. Colostrum contains a high concentration of protective antibodies, or IgG, alongside a range of other constituents which are crucial for the future growth and development of the calf.

Ensuring calves absorb a sufficient quantity of IgG from colostrum in the first few hours after birth is critical to safeguarding their health early in life and optimising their future productivity.

Calves should have serum IgG levels of >10mg/ml at 24 hours of age¹

The main factors that determine the success of antibody transfer are the timing of colostrum collection and feeding, and the quantity and quality of the colostrum that is consumed.

Calves should receive 3-4 litres (10% of birth weight) of good quality colostrum within 2 hours of birth¹

Routine assessment of colostrum quality will ensure that calves are only fed the best, reducing the risk that they receive too little antibody, which leaves calves at increased risk of disease.

Good quality colostrum has an IgG level of greater than 50mg/ml¹

A focus on good hygiene when collecting and storing colostrum is also essential.

Assessing colostrum quality using a brix refractometer

A refractometer is an accurate, robust, pocket-sized device that uses light to determine the density of a liquid. A refractometer calibrated to the brix scale can be used to assess the amount of protein in colostrum. This provides an accurate indication of the IgG level^{2,3}. Unlike colostrometers, the accuracy of the reading is not markedly affected by sample temperature, and only a small volume of colostrum is needed to perform the test.

To test the colostrum, lift the cover, place a drop of colostrum on the lens of the refractometer, and close.

Hold the refractometer up to the light, look into the lens and focus until a clear line is seen between the blue and white fields. Read the brix value off the scale at this point and convert to an IgG level using the table below.

After each use rinse the lens and wipe dry with a soft cloth. The refractometer should be calibrated regularly according to the manufacturer's instructions.

Colostrum with a brix value of 22% or greater should be used for the first feed

Interpreting the brix value^{2,3}

Brix (%)	IgG concentration (mg/ml)	Colostrum quality
25.5	75	Very good
22	50	Good
20	30	Poor



References

1. McGuirk SM & Collins M (2004) Managing the production, storage and delivery of colostrum. *Vet Clin Food Anim* 20, 593-603
2. Biemann V *et al* (2010) An evaluation of brix refractometry instruments for measurement of colostrum quality in dairy cattle. *J Dairy Sci* 93, 3713-3721
3. Vandeputte S *et al* (2014) Investigating colostrum quality in beef cattle by radial immunodiffusion and brix refractometry *Vet Record* 175, 353-354

Locatim® contains bovine concentrated lactoserum containing specific immunoglobulins G against *E. coli* F5 (K99) adhesin $\approx 2.8 \times 10^{10}$ /ml *microagglutination method. UK: POM-VPS IE: POM. Further information available in the SPC or from Merial Animal Health Ltd, RG12 8YS, UK. UK Tel: 01344 746960 (sales) or 01344 746957 (technical), IE Tel: 01 291 3985 (all queries). Locatim® is a registered trademark of Biokema. ©2018 Merial Animal Health Ltd. All rights reserved. Merial is now part of the Boehringer Ingelheim Group of Companies. Date of preparation: July 2018. AHD11233 Use Medicines Responsibly.