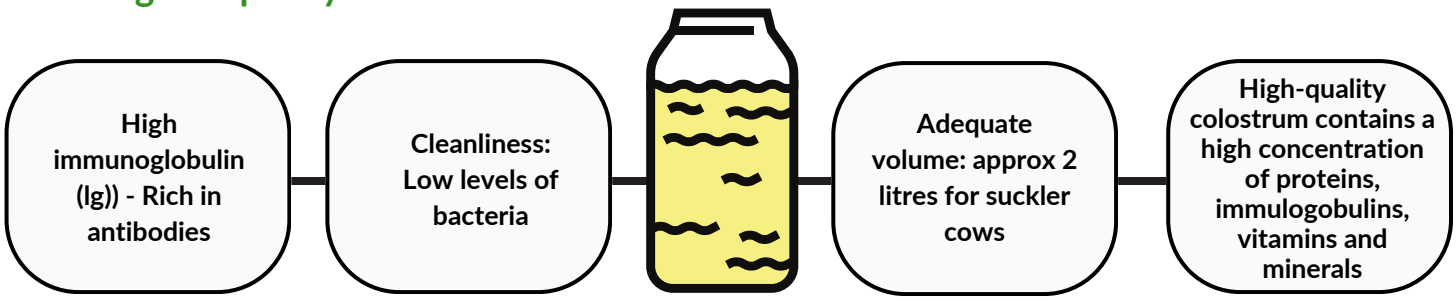
Colostrum Quality in Calves

Importance, Benefits, and Best Practices for Beef Farmers

Colostrum is the first milk produced by a cow after calving, essential for the health and survival of calves. It provides vital nutrients and antibodies, including immunoglobulins (Ig antibodies), energy, growth factors, and increased levels of vitamins and minerals. Colostrum also has a higher fat and protein content than whole milk.

What is good quality colostrum?



Why do I need good quality colostrum?

Passive Immunity: Calves are born lacking active immunity, and rely on the antibodies in colostrum to receive passive immunity from their dams.

Disease prevention: The antibodies present in colostrum are essential for protecting the calf from infections and illnesses like scours (diarrhoea), pneumonia, and navel infections during the first few weeks of life, before its immune system is fully developed.

Why do I need to feed colostrum in the first two hours after birth?

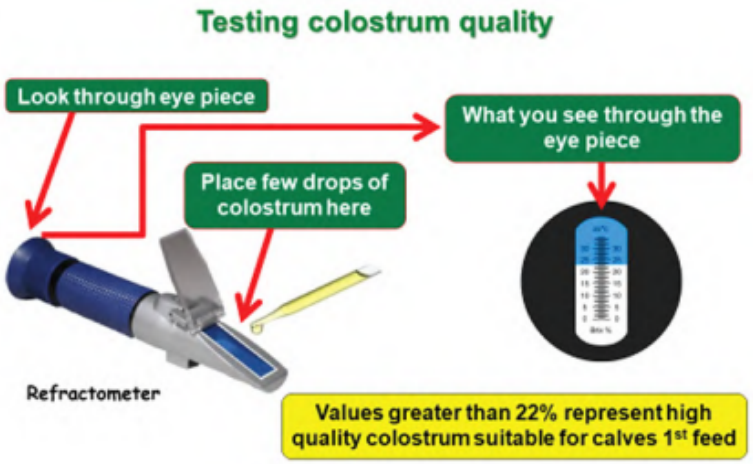
At birth, the calf's stomach lining is porous, allowing antibodies to pass through, but it begins closing quickly. Absorption is highest in the first two hours, drops sharply by six hours, and is nearly gone by 24 hours. Additionally, colostrum quality declines as the cow produces more milk, diluting antibodies. In the case of sucklers, feed 2 litres of the first milk (colostrum) to the calf within 2 hours of birth.

Failure of passive transfer (FPT) of immunity occurs when the calf does not absorb sufficient colostral immunoglobulins immediately after birth.

How can I test the quality of colostrum?

Use a Brix-Refractometer:

- Measures the percentage of total solids – proxy for Ig quality
- A reading of 22% or higher indicates good quality
- It is an accurate and reliable tool



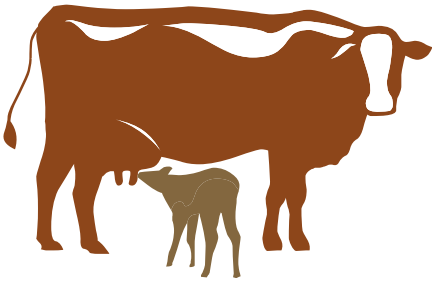
How can I improve colostrum quality?

Nutrition

Most studies show that limiting dietary energy or protein during pregnancy, or a lower body condition score (BCS) at calving, does not negatively affect colostrum quality in beef-suckler cows or heifers. However, BCS at calving is probably the biggest factor affecting ease of calving and the herd's fertility, which is key to maintaining a 365-day calving interval.

View the technical note on Body Condition Scoring here or scan the QR code

- Heifers naturally tend to produce lower-quality colostrum. To address this, store frozen colostrum from mature cows to supplement the colostrum given to heifers' calves when volume is insufficient, or if it tests below 22% on a Brix refractometer



Feed a high-specification pre-calving bag mineral:

- Feed for at least 4 weeks before calving
- Dust on silage and ensure all cows have access.

Vaccinate against common infectious diseases:

- Most vaccines must be given at least four weeks pre calving to allow antibodies develop in the colostrum
- Follow the label instructions carefully. For two-dose programmes (e.g., rotavirus, crypto vaccines), you will need to start the vaccination programme earlier
- Avoid using salmonella vaccines with other vaccines.

Dose cows for fluke

- Mature cows are generally resistant to stomach and lungworms; however, they do not develop immunity to liver or rumen flukes.
- If liver or rumen fluke are present on your farm, ensure that cows are treated with the appropriate product and dose.

What about storing colostrum?

Collection: Collect colostrum as soon as possible after birth to maximise antibody levels and minimise dilution.

Hygiene: Use clean, sterilised containers and avoid contamination during collection.

Storage:

- Refrigerate if storing for less than 36 hours.
- Freeze for longer storage, ideally in zip-lock bags for quick and easy defrosting.

Teagasc Research

Research shows that mature suckler-bred cows produce colostrum with higher IgG levels (134 mg/mL) compared to first calvers (117 mg/mL) and their calves had superior passive immunity (calf serum IgG and total protein). Colostrum IgG concentrations did not differ between suckler beef cow genotypes.

What about colostrum replacements?

Colostrum replacements should only be used as a last resort. They provide energy for the calf but lack antibodies and therefore do not offer the immunity benefits of natural colostrum.

Why not check out the other factsheets in the calf management series!

Scan the QR codes below to read.

Preventing scour in new born calves

Six steps to good navel care in calves

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