SCCL

SCIENCE • NATURE • CARE

We are colostrum

PRACTICAL GUIDE TO COLOSTRUM MANAGEMENT

Is Your Maternal Colostrum Providing Maximum Immunity?

VISUALS DON'T ALWAYS DETERMINE QUALITY

The physical appearance of colostrum in terms of colour, odor, thickness etc. doesn't reliably indicate its quality. Testing the IgG concentration of your colostrum is essential.

The exact hue of colostrum can vary due to management, beta-carotene and individual animal factors. Though antibodies do contribute to colour changes, it is not a reliable indicator of exact concentration and concentration is vital.

WHY IS MEASURING ANTIBODY CONCENTRATION IMPORTANT?

The antibody content in colostrum determines its ability to pass on sufficient immunity to a calf. A Brix refractometer is a simple to use and relatively cheap on-farm tool to test the quality of maternal colostrum.

Calves fed high-quality colostrum defined as > 25% Brix in the first hours of life ensures successful antibody transfer, supporting immune defense, health and improved productivity compared to calves fed poorer quality colostrum.

IMPORTANCE OF ANTIBODY TRANSFER

Providing adequate quality colostrum in the first hours helps calves resist diseases, reducing risk of mortality and improving health.

FUTURE PRODUCTIVITY

Higher IgG levels are linked to increased milk production in the first lactation.

Example: Each unit of serum IgG above 12 mg/mL can yield 8.5 kg more milk.

PRE-WEANING GROWTH

1 kg of pre-weaning average daily gain often results in more milk production in their first lactation.

DeNise, S.K., Robison, J.D., Stott, G.H., and Armstrong, D.V. 1989.
Effects of passive immunity on subsequent production in dairy heifers
Soberon, F., Raffrenato, E., Everett, R.W., and Van Amburgh, M.E. 2012.
Preweaning milk replacer intake and effects on long-term productivity of dairy calves.

How to Test Maternal Colostrum

OPTICAL REFRACTOMETER

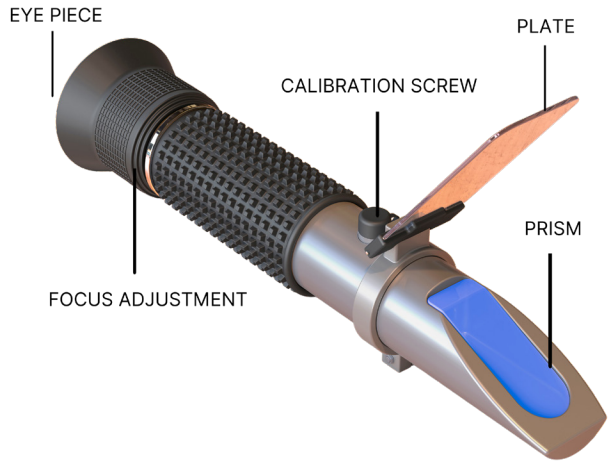
STEP 1: Clean it. Wipe the glass (prism) with a clean cloth.

STEP 2: Calibrate it. Add a drop of distilled water, adjust to 0%, then wipe it dry.

STEP 3: Add Colostrum. Put a few drops on the glass and close the plate.

STEP 4: Check the result. Look through the eyepiece at the bright light source to see the reading.

STEP 5: Clean it again. Rinse the glass with water and dry it.



IF YOUR COLOSTRUM IS TESTING UNDER 24% BRIX, DON'T DUMP, ENRICH. SEE PG. 6 TO LEARN HOW.

For instructions on how to use a Digital Refractometer, scan the QR code.

Feeding Colostrum: How Much & When?

FIRST 12 HOURS FEEDING PROTOCOL

WITHIN 2 HOURS OF BIRTH

Feed **3-4L of colostrum containing 200g IgG (antibodies).**

50g IgG per liter if colostrum is equivalent to 22% Brix

Enrich to at least 25% minimum to promote excellent passive transfer.

WITHIN 8 HOURS OF BIRTH

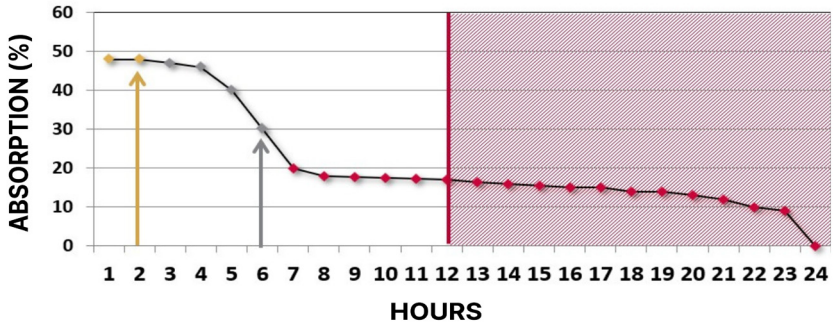
Feed an addition 2L of colostrum containing at least 100g IgG. Can feed poorer quality colostrum that is not sufficient for the first feed.

CALF FEEDING BOTTLE

The average bottle size is typically 1 liter.

IMPORTANCE OF TIMING

Calves have the highest ability to absorb antibodies in the first 2 hours after birth. Antibody absorption drops significantly after 8 hours. The sooner a calf can receive its first feed of colostrum the better.



RECOMMENDATION: MAKE SURE CALVES RECEIVE MINIMUM 300g OF IgG OVER TWO FEEDINGS IN THE FIRST 12 HOURS FOLLOWING BIRTH.

Colostrum Best Practices

USING ON-FARM COLOSTRUM

Maintain sanitary milking practices and ensure pails and bottles are clean to prevent contamination.

Feed or store colostrum right away, avoid letting it sit out or be exposed.

Test quality with a refractometer. If <24% Brix, consider enriching (Pg. 6)

Reheat stored colostrum to 100–106ºF (38–41ºC) in a water bath.

**Caution* heating colostrum to a temperature above 41ºC will reduce the antibody content.*

When maternal colostrum isn't available, or in emergency situations powdered whole bovine colostrum is a great alternative to supplement or fully replace maternal colostrum to make sure calves get their best starts regardless of circumstance.

USING SCCL POWDERED BOVINE COLOSTRUM

Supplies: Pail, Thermometer, Whisk or Electric Mixer, Liquid Measuring Cup, Bottle or Tube Feeder, Scale

STEP 1: Take water temperature from tap using thermometer.

- Water should be between 43-49ºC / 110-120ºF.

STEP 2: Check mixing instructions on the SCCL colostrum label and add the recommended volume of warm water into a clean and disinfected pail.

- If feeding more than one bag, add the total water volume recommended from both.

STEP 3: Add SCCL colostrum into the pail of warm water.

STEP 4: Thoroughly mix colostrum powder with whisk.

- Should take 15 seconds to mix. Do not over mix or clumping will form.

STEP 5: Pour into bottle or tube feeder and deliver to the calf.

Mixing & Feeding Tips

Add Warm Water

Add colostrum

Mix thoroughly

Pour and Feed

Enrichment: Improving Quality

Maternal colostrum can be variable, calf care should not be.
Even in well-managed herds, colostrum can fall short in quality or quantity. If maternal colostrum is below 25% Brix, follow the enrichment guidelines. Enrichment is simply adding colostrum powder to your maternal colostrum to improve its quality and help standardize colostrum management.

STEP 1: Test the Brix % of the maternal colostrum with a brix refractometer (optical or digital).

STEP 2: See chart provided below and find your Brix %. Determine if enrichment is necessary.

STEP 3: Use the SCCL Colostrum Calculator App or Enrichment Chart to calculate grams of powder to add. See Pg. 7.

STEP 4: Follow feeding protocol to ensure absorption of IgG. Calves should receive 300 IgG minimum in first 12 hours.

Day 1 Calf Feeding Protocol

Maternal Colostrum Brix %	Colostrum Concentration	Recommendation*
< 20%	Low	Keep for 2nd feeding Replace with powder for 1st feeding
20-24%	Moderate	**ENRICH**
> 25%	Excellent	Feed as is

*Consult with your animal health specialists.

Enrichment Instructions

Enrichment Instructions (Spanish Subtitles)

A.J. Lopez, J. Echeverry-Munera, H. McCarthy, A.C. Welboren, A. Pineda, M. Nagorske, D.L. Renaud, M.A. Steele. 2023 Effects of enriching IgG concentration in low- and medium-quality colostrum with colostrum replacer on IgG absorption in newborn Holstein calves

How to Use the Enrichment Tools

SCCL COLOSTRUM CALCULATOR APP

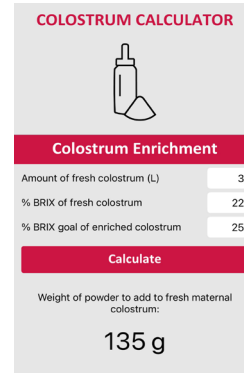
STEP 1: Choose your preferred language and measurement system.

STEP 2: Add the amount of colostrum you plan to feed. *Example: 3L*

STEP 3: Add the Brix % of your fresh colostrum. *Example: 22%*

STEP 4: Add the Brix % you would like to achieve. *Should be at least: 25%*

STEP 5: Press Calculate. The amount of powder your need to add to your fresh colostrum to enrich will be shown.



Download
Colostrum Calculator

ENRICHMENT CHART

STEP 1: Find your fresh colostrum Brix % on the left column.

STEP 2: Find the target for desired colostrum brix on the top row.

Set Target for desired colostrum Brix % (1L)

Maternal Brix % (1L)

Brix	22%	23%	24%	25%	26%	27%	28%	29%	30%
17%	75g	90g	105g	120g	135g	150g	165g	180g	195g
18%	60g	75g	90g	105g	120g	135g	150g	165g	180g
19%	45g	60g	75g	90g	105g	120g	135g	150g	165g
20%	30g	45g	60g	75g	90g	105g	120g	135g	150g
21%	15g	30g	45g	60g	75g	90g	105g	120g	135g
22%	0	15g	30g	45g	60g	75g	90g	105g	120g
23%	-	0	15g	30g	45g	60g	75g	90g	105g
24%	-	-	0	15g	30g	45g	60g	75g	90g
25%	-	-	-	0	15g	30g	45g	60g	75g
26%	-	-	-	-	0	15g	30g	45g	60g
27%	-	-	-	-	-	0	15g	30g	45g
28%	-	-	-	-	-	-	0	15g	30g
29%	-	-	-	-	-	-	-	0	15g
30%	-	-	-	-	-	-	-	-	0

22% Brix --> 25% Brix
= 45 g powder per liter

How much powder is too much powder?
Anything 20% or under is probably not a great candidate for enrichment, however, could be utilized for a calf's second feeding (Pg. 4).

Transition Feeding: Colostrum Post Day 1

WHAT IS TRANSITION FEEDING?

A calf experiences many changes and stressors in the first few weeks of life physiologically and nutrition-wise. In nature, calves are drinking transition milk, not quite colostrum, not quite normal lactation, at the cow's side for days after birth.

Science shows that feeding dairy calves colostrum PD1 rather that abruptly shifting to amilk replacer promotes gut development that impacts long-term feed efficiency and reduces risk of death and disease in the first 21 days and during periods of high challenge such as weaning, experiencing diarrhea symptoms or respiratory disease, or following high stress events (i.e. transportation or environment changes).

Post Day 1 Feeding Protocol

Health Challenge Level	Feeding Recommendation	Duration
LOW CHALLENGE	70g powder/ day	10 days
MODERATE CHALLENGE	95g powder/ day	12 days
HIGH CHALLENGE	120g powder/ day	14 days

Reduce your milk replacer by the amount of colostrum added so total feed remains consistent.

APPLYING TRANSITION FEEDING

STANDARD PD1 PROTOCOL

Feed 95 g of colostrum powder with your regular milk replacer (split between 2 feedings) daily for 12 days to prevent health issues and promote gut health.

FEEDING COLOSTRUM DURING GUT HEALTH CHALLENGES?

Feed 140 g of colostrum powder for 5 days or until symptoms stop.

Learn more about our protocols for calving sucess by scanning the QR code. Or visit www.headstartdairy.com/episodes

Berge, A.C.B., Besser, T.E., Moore, D.A., and Sischo, W.M. 2009.
Evaluation of the effects of oral colostrum supplementation during the first fourteen days on the health and performance of preweaned calves
McCarthy, H.R., Cantor, M.C, Lopez, A.J., Pineda, A., Nagorske, M., Renaud, D.L., and Steele, M.A. 2024.
Effects of supplementing colostrum beyond the first day of life on growth and health parameters of preweaning Holstein heifers