Dairy Australia

REARING HEALTHY CALVES

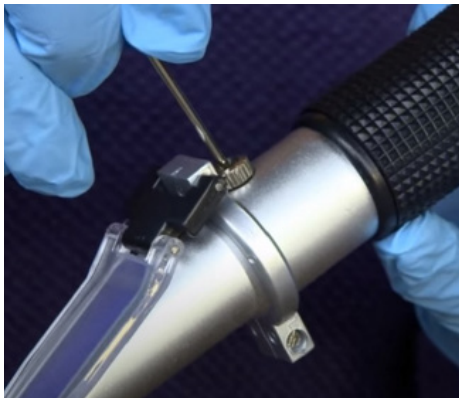
Calf shed guides

PREVENT, MONITOR, TREAT

COLOSTRUM

The four Qs of colostrum	
	Definition
Quality	High quality colostrum has a Brix refractometer reading of more than 22%
Quickly	Two feeds of colostrum within 12 hours of birth
Quantity	Feed 2-3L per feed depending on quality (see table on the next page)
sQeaky clean	Minimise contamination and bacterial growth by appropriate collection and storage. Aim for a total plate count (TPC) of less than 100,000 cfu/ml.

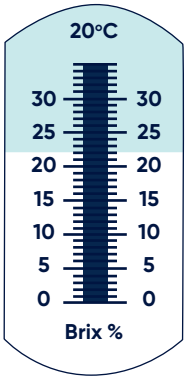
Checking colostrum quality



Step 1 Check that the refractometer is calibrated.

Step 2 Mix the colostrum well and place 1–2 drops onto the glass surface and lower the cover.

Step 3 Look through the eyepiece to take the reading at the line where the blue and white areas meet.



Step 4 High quality colostrum has a **reading of 22% or more**.

Tip

If a reading on the Brix refractometer appears fuzzy, try wiping the face of the refractometer clean and then re-apply a smaller drop of colostrum. Alternatively, choose a point midway between the end and start of the blue fading.

Scan the code
to watch video on using a Brix refractometer

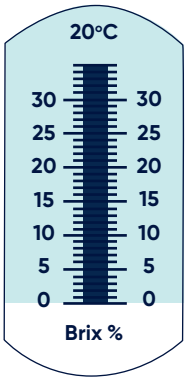
How to calibrate a Brix refractometer

Step 1 Place 2-3 drops of water onto the glass surface and lower the cover.

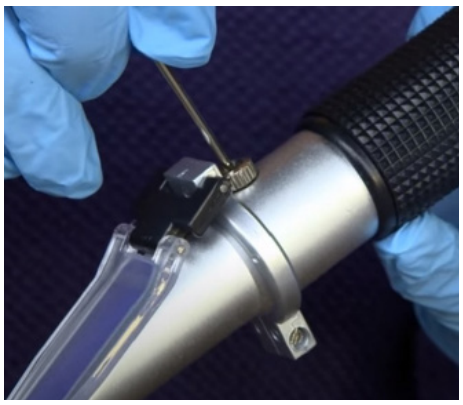
Step 2 Hold eyepiece up to the light.

Tip

Clean your Brix refractometer with a soft lint free cloth or lens wipe after every use.



Step 3 Scale should read zero.



Step 4 If the scale does not read zero, turn the calibration screw on the top of the refractometer until the scale reads zero.

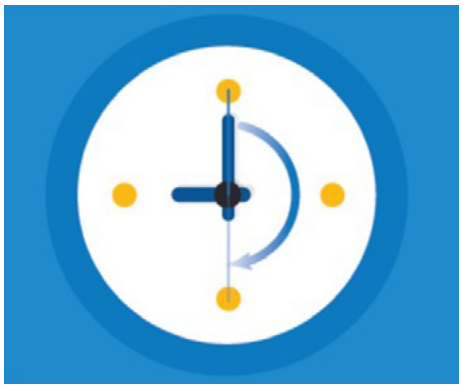
How much colostrum to feed

Quality	Brix	How much
Good	22% or more	Two x 2L feeds within 12 hours
Poor	18–21%	Two x 3L feeds within 12 hours
Unknown	Unknown	Two x 3L feeds within 12 hours

Harvesting colostrum

Step 1 Wash teats

Step 2 Disinfect teats



Step 3 Wait 30 seconds

Step 4 Dry teats

Minimising bacterial contamination of colostrum

- ✓ Remove calves from dams as soon as possible
- ✓ Ensure collection and storage equipment is spotlessly clean and disinfected
- ✓ Wash, disinfect and dry teats before harvesting colostrum
- ✓ Discard colostrum from sick cows or if it is contaminated (e.g. blood, manure, mastitis, flies)

Storing colostrum

How to store high quality (22% Brix or more) colostrum:

Method	How long
Refrigerator (less than 4°C)	Up to 2 days
Refrigerator (less than 4°C) plus potassium sorbate	Up to 5–7 days
Deep freeze	Up to 6–12 months

Fact

Potassium sorbate is a food preservative that can be used to inhibit further bacterial growth. It does not kill bacteria already present in colostrum. 50% potassium sorbate solution can be purchased from veterinary clinics and can be stored for 6 months.

- ✓ Cool colostrum to less than 4°C if not using within an hour of collection
- ✓ Store in small (2-3L) containers rather than buckets to ensure rapid cooling
- ✓ 50% potassium sorbate preservative can be added at a rate of 10ml per litre of colostrum
- ✓ Warm/thaw to 35-38°C in a warm (not hot) water bath before feeding

STOMACH TUBING CALVES

How to stomach tube a calf

Step 1 Restrain the calf

1 Position the calf between your legs in standing position.

2 Back calf into a corner with hand under muzzle to hold head and neck upright.

Step 2 Kink plastic tube to prevent liquid entering tube before it is in position.

Step 3 Insert stomach tube

1 Gently push tube into the mouth and over the back of the calf's tongue.

2 Wait for the calf to swallow and gently pass tube down the neck.

Step 4 Pass the stomach tube down to the full length.

1 Feel for the ball at the end of the stomach tube moving down.

2 You should be able to feel two tubes (the calf's windpipe and the stomach tube).

*You will not be able to feel the ball if it is incorrectly placed in the windpipe.

Step 5 Once in position:

1 Unkink the tube and allow the liquid to flow.

2 Monitor for bloating, discomfort, or change in position.

3 If you suspect something is wrong, immediately lower the bottle and kink the tube before withdrawing.

Step 6 To remove the stomach tube, kink the tube and gently pull the tube out in one swift motion. Clean thoroughly after use.

Important

- ✗ Never stomach tube a calf that cannot sit upright on its own.
- ✗ Incorrect placement of a stomach tube may result in death.
- ✗ Never force the stomach tube.
- ✓ Always maintain the head and neck above the level of the stomach.

Scan the code to watch video on how to stomach tube a calf

BLOOD TESTING FOR FAILURE OF PASSIVE TRANSFER

Blood testing for failure of passive transfer is performed by your vet.

It is used to evaluate how effective your colostrum management is.

- ✓ Blood test at least 12 calves between 24 hours and 7 days of age
- ✓ Aim for 80% of calves to have a serum total protein of greater than 5 g/dL
- ✓ Aim for 50% of calves to have a serum total protein of greater than 5.5 g/dL

CLEANING FEEDING EQUIPMENT

How to clean feeding equipment	
Rinse	• Rinse feeders with lukewarm (not hot) water. • Rinse/scrub off dirt and milk residue to improve effectiveness of disinfection.
Wash	• Use hot water (at least 50°C) and add detergent. • Scrub all surfaces and inside teats to remove any milk residue.
Disinfect	• Use Virkon-S® or bleach as per label directions. • Solution needs to be in contact with equipment for at least 5–10 minutes to achieve disinfection.
Rinse	• Thoroughly rinse containers using hot water or an acid rinse product.
Dry	• Allow the bottles and buckets to drain and dry upside down (preferably on drying racks). • Do not stack buckets inside each other. • Do not sit buckets upside down on a concrete/solid floor as residues may build up around the rim.

WEANING

Wean calves based on concentrate consumption over at least three consecutive days.

$$\textit{Concentrate consumed (per calf per day)} = \frac{\textit{total kg concentrate consumed}}{\textit{number of calves in group}} \div \textit{number of days}$$

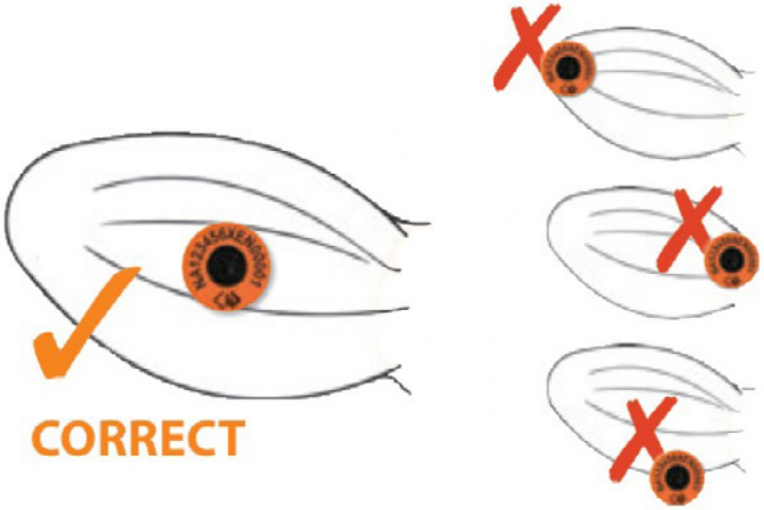
Calves can be weaned when they are consuming at least:

- ✓ 1.5–2kg per calf per day for Holstein-Friesians
- ✓ 1–1.5kg per calf per day for Jerseys

IDENTIFICATION

- Ear tags should be applied to the middle third of the ear between the two rises of ear cartilage.
- Always apply NLIS (electronic) tags to the calf's RIGHT ear.
- Tip to remember which ear the NLIS tag goes into: **"NLIS is the *RIGHT* thing to do"**

How to ear tag a calf



Scan the code
to watch video on
how to ear tag a calf

Image credit: NSW Department of Primary Industries

CHECKING A CALF'S TEMPERATURE

Gently insert the thermometer to approximately 5cm into the rectum and hold against the rectal wall. Wait until the thermometer beeps before reading.

HIGH	>39.4°C
NORMAL	38.3–39.4°C
LOW	<38.3°C

SCOURS

Scouring calves have increased fluid requirements. Use the table below to estimate the amount of fluid required over 2-3 (or more) feeds.

		Minimum daily fluid requirement (water/electrolytes and milk)	
Dehydration level	**Appearance**	**Sloppy/pea soup scour**	**Watery scour**
Mild	Bright, alert, standing and moving around. Good suck reflex.	6 litres	8 litres
Moderate	Less active, sitting down more than other calves, sunken eyes. Reduced suck reflex.	8 litres (consider giving small feeds more often)	10 litres (consider giving smaller feeds more often)
Severe	Lying down, reluctant to move, drink, sunken eyes or may be unresponsive. No suck reflex.	Seek immediate veterinary attention or consider humane euthanasia.	

- ✓ Space electrolyte feeds at least two hours between electrolyte and milk feeds
- ✓ Never withhold milk for more than 24 hours
- ✓ The volume of oral electrolytes required each day is calculated by subtracting the amount of milk being consumed from the selected number of litres in the table.

VETERINARY MEDICINES

Medicine	What is it?
Antibiotics	A medicine that kills or stops the growth of microbes (usually bacteria).
Anti-inflammatories	A medicine that reduces inflammation, reduces temperature, and provides pain relief.
Anti-parasitics	Medicines that act on specific organisms (e.g. Cryptosporidium).

Always follow your farm's standard operating procedures (or treatment protocols) and carefully read the label before giving antibiotics.

Antibiotics should be used only if one or more of the following criteria exist:

- ✓ Tests indicate bacteria are the cause (e.g. *Salmonella* or *E.coli*)
- ✓ There is blood or mucus in the manure
- ✓ The calf has a high rectal temperature (greater than 39.4°C)
- ✓ The calf is dull, slow to rise or not interested in feeding

Ceftiofur

Examples include Excenel®, Accent®, Ceftiosan® and Excede®

This is a critically important antibiotic for human health.

Never use ceftiofur:

- ✗ without written advice from your vet
- ✗ for mass medication

If you are currently using ceftiofur, contact your vet to find out if there may be an appropriate alternative.

Excenel® (pictured right) is an example of a ceftiofur-containing product.

GIVING INJECTIONS

Always read the label before using veterinary medicines.

Calves are susceptible to injury from incorrect injection placement.

Intramuscular injections should always be given in the middle of the neck or in the rump, close to the hip bone, using a new (not re-used) 18 gauge, 1-inch-long needle.

How to give an intramuscular injection

Correct intramuscular injection placement, close to the hip bone

Image: Jakob Malmo

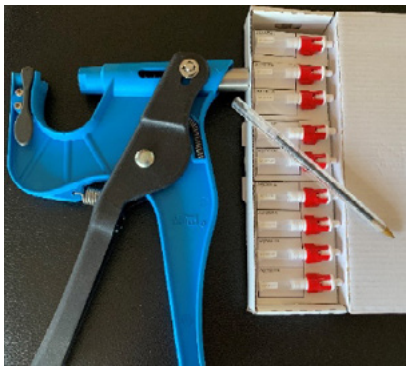
Incorrect intramuscular injection placement, too far back from the hip bone. Injection of a medicine here is very likely to damage the nerve in the back leg.

Image: Jakob Malmo

Intramuscular injections should always be given in the middle of the neck or in the rump, close to the hip bone.

COLLECTING GENOMIC SAMPLES

How to collect genomic samples

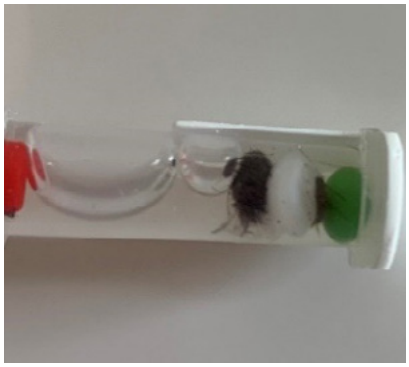


Step 1 Gather equipment
- Tissue sampling units (TSUs)
- TSU applicator gun
- Pen

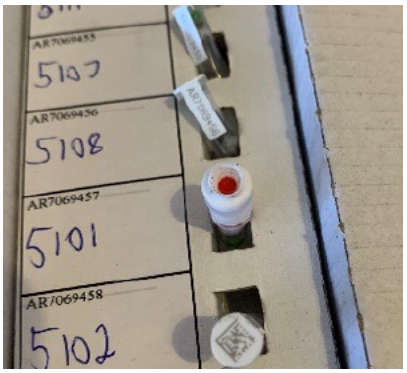
Step 2 Load TSU
- Squeeze retainer clips and insert TSU
- Gently squeeze applicator handles until piston connects with red connector piece
- Release handles and remove red connection piece

Step 3 Restrain calf (if required)

Step 4 Collect sample
- Collect sample from 1-2 cm from edge of ear. Avoid cartilages and major blood vessels.
- Squeeze applicator with one swift, smooth motion.



Step 5 Check sample
- Check sample and green ball are floating inside TSU
- Squeeze retainer clips to release TSU
- Pull handles apart to release needle



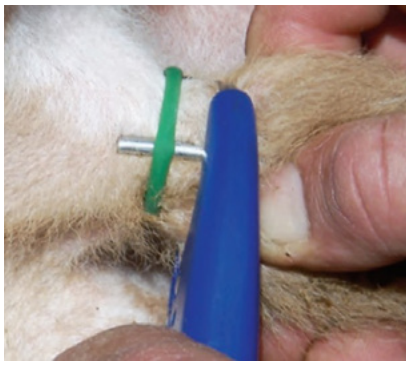
Step 6 Record the calf's ID next to the sample number in the box.

CASTRATION WITH AN ELASTRATOR® RING

How to castrate a calf

Step 1 Place the rubber ring on the Elastrator® applicator and expand it. Position the applicator near the bottom of the scrotum with the prongs pointing towards the calf's body.

Image: Meat & Livestock Australia



Step 2 Pull the tip of the scrotum through the expanded ring which is positioned above the testicles close to the calf's body.

Step 3 Apply gentle pressure at the neck of the scrotum to push the testicles below the rubber ring into the scrotum. Do not place the ring too high up the neck of the scrotum as this may pinch the adjacent skin on the abdomen.

Step 4 Release the pressure on the applicator so that the ring tightens around the neck of the scrotum.

Image: Meat & Livestock Australia

Step 5 Carefully remove the rubber ring from the prongs of the applicator.

Step 6 Palpate the scrotum gently to make sure both testicles are present below the rubber ring.

- Calves should be more than 24 hours old when castrated
- Calves less than two weeks old should be castrated by the rubber ring method in preference to the cutting method.
- Calves more than two weeks old should be castrated by the cutting method in preference to the rubber ring and tension band methods.

Source: Australian Animal Welfare Standards and Guidelines for Cattle

MY TREATMENT PROTOCOLS

Use these templates to write treatment protocols with your veterinarian.

My vet's name is	
My vet's practice is	
My vet's phone number is	
This protocol was written on	
This protocol is due for review on	

SCOURS

Signs to look for

Steps

1. Move calf to hospital pen ASAP.
2. Commence electrolyte therapy by teat (if possible) or tube (if unwilling to drink):
   - **Mild** cases – give ____ litres of electrolytes ____ daily in addition to normal milk feed
   - **Moderate** cases – give ____ litres of electrolytes ____ daily in addition to normal milk feed
   - **Severe** cases (e.g. unable to stand or suck) – call/notify ____
3. Give ____ (how much) of ____ (what) ____ (route) ____ daily for ____ days if one or more of the following criteria exist:
   - ✓ Tests indicate bacteria are the cause (e.g. *Salmonella* or *E.coli*)
   - ✓ There is blood or mucus in the manure
   - ✓ The calf has a high rectal temperature (greater than 39.4°C)
   - ✓ The calf is dull, slow to rise or not interested in feeding
4. Mark the calf with ____ (how) and record its number, date of treatment and treatment details ____ (where).
5. If calf is getting worse or is not better after ____ days, notify/call ____.

Additional notes

Withholding periods

MY TREATMENT PROTOCOLS

Use these templates to write treatment protocols with your veterinarian.

My vet's name is	
My vet's practice is	
My vet's phone number is	
This protocol was written on	
This protocol is due for review on	

RESPIRATORY DISEASE

Signs to look for

Steps

1 Move calf to hospital pen ASAP.

2 Give _____ (how much) of _____ (what) _____ (route) _____ daily for _____ days

3 Give _____ (how much) of _____ (what) _____ (route) _____ daily for _____ days

4 Mark the calf with _____ (how) and record its number, date of treatment and treatment details _____ (where).

5 If calf is getting worse or is not better after _____ days, notify/call _____.

Additional notes

Withholding periods

Dairy Australia Limited ABN 60 105 227 987
Level 3, HWT Tower
40 City Road, Southbank Vic 3006 Australia
T +61 3 9694 3777 F +61 3 9694 3733
E enquiries@dairyaustralia.com.au
dairyaustralia.com.au

3604 | Oct 2021