Rearing healthy calves depends on many factors. Sourcing calves from a quality supplier, taking proper care of your calves and frequent health monitoring are all key to rearing strong calves.

10 KEY FACTORS TO REARING HEALTHY CALVES

1. Select healthy, good quality calves
2. Ensure the colostrum intake is at the correct level and fed for at least four days
3. Minimise stress during and after transportation by driving with care when calves are in tow and by handling calves gently upon arrival to their new home
4. Housing, pen sizes, ventilation, drainage and bedding must be of a high standard
5. Make sure that the CMR or milk volume and frequency of feeding is appropriate
6. Supply a good quality meal, fibre and clean water
7. Good feeding utensils are important. Make sure all teat feeders are clean and working well
8. Monitor the calves daily to check for early signs of health issues
9. Prevent disease by treating ailments at therapeutic levels
10. Employ quality, caring staff to look after the calves.

Assess calf health using your senses

When assessing calf health it’s essential to be highly observant to their condition and behaviour. Using your senses will help you to determine if there is any cause for concern.

LOOK
- Are the calves drinking and eating as normal?
- Are their eyes bright and alert?
- Is their skin soft and shiny?
- Examine the navel for swelling, redness and discharge
- Watch the calves moving, standing up and stretching to ascertain steadiness and energy
- Check the colour and consistency of the faeces for abnormalities
- Is there a discharge from the mouth or nose e.g. saliva, mucous, blood or pus?

LISTEN
- Are the calves grinding their teeth, bellowing or coughing?

SMELL
- Check the smell of the milk, meal, hay and water
- Does the bedding and air smell clean, dry and ammonia free?
- Do the faeces smell normal or foul?

CHECK
- The milk, meal, fibre and water are fresh
- All additional products offered to the calves
- Any product offered to the calves should be palatable and free from fungi and moulds.
**Temperature**

A clinical thermometer is the most useful diagnostic tool in the calf barn to detect illness early, and monitor treatment.

The normal temperature of a calf will vary with the ambient temperature, but should be in the range of 38°C-39°C. If in doubt take the temperature of another pen mate and compare. Always check the temperature of normal pen mate before the sick calf.

**FEEDING CALVES**

Feeding calves requires care and varies according to the age of the calf and whether it is scouring or not. Below is a guide to calf replacer milk (CMR), feeding patterns and a guide to weaning.

**Fortification**

Where whole milk availability is limited, or too valuable, (CMR) can be used in conjunction with whole milk to meet the daily feeding requirements of the calf.

CMR powder is mixed with water at a rate of 150 grams per litre and then combined with whole milk to reach the desired feed volume.

Where a concentrated feed is required, such as when calves are on a ‘once a day’ system, CMR powder can be added directly to the whole milk at a rate of 150 grams per litre of whole milk.

This increases the nutritional value of the whole milk and ensures the calf achieves its daily nutritional requirements.

**NB.** A typical litre of whole milk is, on average, equivalent to 150 grams of CMR powder.

**Twice-A-Day Versus Once-A-Day Feeding**

**Twice-a-day feeding**

- Milk fed twice a day
- Volumes fed up to 6 litres/calf/day
- Milk not fortified with extra CMR
- Feed approx 20-30kg CMR per calf
- Calf tends to eat smaller quantities of meal (40-50kg)
- Calves have access to pasture from 2-3 weeks
- Slower rumen development
- More labour intensive
- Environmental conditions less controlled when outside
- Calves weaned to pasture earlier are hardier at the same age
- Water should be freely available

**Once-a-day feeding**

- Milk fed once a day
- Volume low 2 litres/calf/day
- Milk fortified. **NB.** liquid milk and/or CMR colostrum can be fortified directly or by adding at 150 grams/litre
- Feed approx 20kg of CMR per calf
- Ad-lib access to meals will increase meal intakes to 75-90kg per calf
- Pasture is often restricted until week 5-7 to encourage early meal intakes
- Rapid rumen development
- Less labour intensive
- Environmental conditions can be controlled for optimal performance
- The transition from meal to pasture requires care
- Ad-lib access to additional water in the barn is essential

**NB:** In both systems a coccidiostat is required in the meal to fully control scours from Coccidiosis before and after weaning off milk.
MEAL AND ROUGHAGE FEEDING

Meal (concentrates) helps stimulate rumen function and prepare the rumen for an all grass diet which allows for a smooth transition from milk to grass feeding. The rumen matures at about 3 weeks of age and meal hastens this development.

Fibre (hay and straw) also contribute to the development of the rumen but is lower in energy and should not exceed more than 10% of the diet. Hay (higher in energy, palatability and digestibility) is always better than straw. The often quoted benefit of fibre as a ‘scratch factor’ to stimulate the rumenal papillae is a myth. Both act as a diet modifier and help to ‘stretch the rumen’. All fibre sources should be free of moulds and smell good.

The quality of the concentrate is very important; the main factors that drive meal intakes are milk volumes fed and the palatability of the meal.

Characteristics of a quality meal

- Highly palatable and highly digestable. Molasses can be added to help achieve this. Protein levels are best between 13-20%. A high protein level is needed while the calves are indoors. When given access to pasture this level can be reduced to save costs and not compromise growth rates.
- High in vitamins and minerals
- Contains rumenal buffers to prevent acidosis
- Should always contain a Coccidiostat (Rumensin or Deccox).

Issues to be aware of

1. Calves can be weaned off milk when meal consumption is greater than 1kg/calf/day. Meal levels should then be increased to 1.5-2.0kg/day for the next month
2. Be aware of bird contamination in meal feeders. Plastic flaps help to minimise this problem and filling the meal trough in the evening is also a useful way to prevent bird fouling
3. As meal consumption goes up it is important to ensure that every calf can have simultaneous access to the trough. Allow 300mm of head space per calf
4. As meal intakes increase water intakes become critical and will limit consumption if the calves do not have access to clean ad-lib water in an adequately sized trough.

Weaning management

- Sample-weigh calves to ensure target growth rates are being met before making weaning or management decisions
- Weigh bands are a useful tool to gauge calf weights quickly, but these are only approximate
- Weaning off milk is not recommended for calves less than 65kg
- Later weaning will contribute to a greater increase in growth rates
- Ensure high quality pasture is available
- Calves should be growing at 0.8-1.0 kg per day and consuming 1-1.5kg meal per day when weaned on to pasture
- Continue to feed meal for 3-4 weeks after weaning from milk
- Follow a transition period when weaning onto pasture by feeding 1-2kgs of pellets per day until 10-12 weeks
- Lower protein (16%) meal maybe fed once calves are on pasture
- Continue to monitor calves after weaning to ensure health is not compromised
- Make sure shelter, water and hay/straw are all available after milk weaning. Hedges or shelter belts are ideal.
Calf Rehydration during Scouring

Scouring calves are losing precious body water in the form of body salts (electrolytes) and energy. Weight loss can be dramatic and fatal, so lost fluids and salts must be replaced as quickly as possible to maintain calf energy.

Diarrhoea treatment is the same regardless whether the cause is nutritional or infectious. A good quality oral electrolyte, at therapeutic levels during the diarrhoea period and the recovery period, is the best way to ensure optimum calf health.

Oral electrolytes are lower in energy than milk, so milk feeding should be continued during the scouring period. Milk should never be withheld for longer than 24 hours.

Calf Rehydration Calculation

Use the below calculation to determine the fluid volume required to correct dehydration.

1. Multiply the calf weight by the % of dehydration (from table above).
   Example: A 40kg calf x 7% dehydration = 2.8L electrolyte just to correct the fluid loss.

2. Add a further 10% of the body weight in fluids for maintenance that day.
   Example: a 40kg calf requires a minimum of 4L of fluids/day.

Therefore:

3. To fully rehydrate the calf add these two volumes (rehydration + maintenance) together to give the total required for that day.
   In the example above = 6.8L or more.

   No more than 2L should be given per feed; so the calf needs to be fed 3-4 times per day.

   Do not mix electrolytes with milk. Feed separately and the interval between feeds should not be less than 2 hours.

<table>
<thead>
<tr>
<th>Calf symptoms</th>
<th>% Dehydration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhoea only</td>
<td>5% (even if only scouring for one day)</td>
</tr>
<tr>
<td>Eyes slightly sunken, skin losing elasticity, calf staggers on its feet, but is still suckling</td>
<td>7%</td>
</tr>
<tr>
<td>Eyes sunken, skin slow to flatten if pinched gums sticky, calf depressed</td>
<td>9% additional intravenous fluids need to be administered by a vet</td>
</tr>
<tr>
<td>Eyes very sunken, skin won’t flatten out if pinched, calf cannot stand.</td>
<td>12% additional intravenous fluids need to be administered by a vet.</td>
</tr>
</tbody>
</table>
**Recommended feeding regime for a scouring calf**

<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>Noon</th>
<th>PM</th>
<th>All night long</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Moderate scours</strong></td>
<td>Milk 1-2L</td>
<td>Electrolytes 2L</td>
<td>Milk 1-2L</td>
<td>Electrolytes Ad-lib 2-4L</td>
</tr>
<tr>
<td><strong>Total: 6-8 litres</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Severe scours</strong></td>
<td>Electrolytes 2L</td>
<td>Milk 1-2L</td>
<td>Electrolytes 2L</td>
<td>Electrolytes Ad-lib 4-6L</td>
</tr>
<tr>
<td><strong>Total: 8-10 litres</strong></td>
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</tbody>
</table>

- Reassess the next day and feed accordingly
- Electrolytes can be offered via a teat feeder, a trough, bucket or tube feeder such as Bouivet tube feeder
- Use only good quality electrolytes to ensure a balanced intake of salts and energy
- Hot feeding (30°C-45°C) will increase the will to voluntarily suckle or drink. We recommend the addition of Jump-Start™ Full Cream Colostrum to the diet as milk feeding is resumed.

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