Calf Management

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Careful management of the nutrition, health and wellbeing of the cow/heifer will ensure the satisfactory delivery of a healthy calf.
Causes of mortality at calving through still births and dystocia:

> in heifers: calves too large

> in fat cows/heifers: too much energy in diet

> with milk fever

> with negative energy balance
Healthy calf rearing results from:
1. adequate colostrum intake
2. provision of a clean, dry and comfortable environment
3. meeting nutritional requirements
4. minimising pathogen exposure
5. boosting specific immunity
Colostrum

Newborn calves need:

• 2 litres in first 6 hours
• 4 litres in first 24 hours

Fed by:
• bottle
• stomach tube

Use colostrum from first milking
Inadequate colostrum intake in first 24 hours results in calves that are:
• 9 times more likely to get sick
• 5 times more likely to die
Passive immunity from colostrum

Active immunity from calf

Age (weeks)
Colostrum should be stored:

• in refrigerator for 7 days
• frozen for weeks/months
• in small containers (1-2 litres)

Store colostrum for each cow separately
### Colostrometer

<table>
<thead>
<tr>
<th>Item</th>
<th>Milking number</th>
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<tbody>
<tr>
<td>Spec Grav</td>
<td>1.056</td>
</tr>
<tr>
<td>Spec Grav</td>
<td>1.040</td>
</tr>
<tr>
<td>Spec Grav</td>
<td>1.035</td>
</tr>
<tr>
<td>Spec Grav</td>
<td>1.032</td>
</tr>
<tr>
<td>Solids%</td>
<td>23.9</td>
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<tr>
<td>Solids%</td>
<td>17.9</td>
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<tr>
<td>Solids%</td>
<td>14.1</td>
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<tr>
<td>Protein%</td>
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<tr>
<td>Protein%</td>
<td>8.4</td>
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<tr>
<td>Protein%</td>
<td>5.1</td>
</tr>
<tr>
<td>Protein%</td>
<td>3.1</td>
</tr>
<tr>
<td>Casein %</td>
<td>4.8</td>
</tr>
<tr>
<td>Casein %</td>
<td>4.3</td>
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<tr>
<td>Casein %</td>
<td>3.8</td>
</tr>
<tr>
<td>Casein %</td>
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<tr>
<td>IgG g/L</td>
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<td>IgG g/L</td>
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<tr>
<td>Fat %</td>
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<tr>
<td>Fat %</td>
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<td>Lactose %</td>
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<tr>
<td>Lactose %</td>
<td>4.4</td>
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<tr>
<td>Lactose %</td>
<td>5.0</td>
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</table>

Foley and Otterby, J of Dairy Science 61:1033 1978
Growth factors

Response in cells
2. Maintain a clean, dry, comfortable environment
Contaminated environment leads to infections in uterus and calf
Scours are a problem caused by:
• exposure to manure
• last for up to 28 days

Major pathogens are:
• *E. coli*,
• Salmonella,
• Rotavirus,
• Cryptosporidium, and
• Coronavirus.
Keep calves separated to day 56 if possible
Bull calves
Pen in groups of 6-8 to day 42 and 16 calves to day 84
In grouping calves:
• provide adequate feed bunk space,
• check access to water,
• check pens for dampness, winds and proper shade if outdoors
What is wrong with this?
In daily routines manage young animals first and oldest animals last

Ensure pens are cleaned thoroughly after each batch
Train staff in hygiene procedures
3. Meeting nutritional requirements
Weight of whole milk powder substitutes required per day

<table>
<thead>
<tr>
<th>Liveweight of Calf kg</th>
<th>Whole milk per calf daily litres</th>
<th>Whole milk powder per calf daily kg</th>
<th>Fat fortified powder (CMR) per calf daily kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>4.1</td>
<td>0.55</td>
<td>0.62</td>
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<td>40</td>
<td>4.6</td>
<td>0.62</td>
<td>0.70</td>
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<td>50</td>
<td>4.9</td>
<td>0.66</td>
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<tr>
<td>60</td>
<td>5.3</td>
<td>0.72</td>
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</table>

Up to 21% protein
Make sure all young calves consume their full quota of colostrum/milk.
Keep all feeding equipment perfectly clean
Calving

Feed milk to 12% Bwt (4L); growth 200g/d. Increase solids to 12.5% but not milk volume

Offer calf starter ration in increasing amounts from 50g to 0.9 kg/day

Calves grouped and feed best quality hay

Days

0 4 28 42 56 112

Calving

Weaning
Milk

Milk and hay

Course texture, 4% molasses 18-21% protein, 12 MJ/kg DM

Milk and grain

VFA
16% protein
Dehorning occurs when horn buds are apparent:

- Caustic chemicals as early as 7 days
- Hot iron at 10-12 days
- Gouge dehorner to 70 days

But not at weaning
4. Minimizing pathogen exposure

- E. coli
- Coronavirus
- Rotavirus
- Cryptosporidium
- Salmonella
Scours

Dehydration
Solution: Electrolyte replacement
Avoid antibiotics where possible

RESIDUES
Commercial electrolyte formulation:

- Balanced electrolytes and buffering agents – sodium, potassium, chloride and bicarbonate

- Vitamins and chelated trace minerals for improved immune function;

- Live Microbials: 8 species beneficial colonizing microbials,

- Saccharides to feed beneficial bacteria;

- Contains specialized egg proteins;

- High quality dried whey and colostral milk proteins
Calf scours caused by:

- Poor maternity pen management,
- Poor colostrum management,
- Feeding calves milk from sick cows that has a high bacteria count,
- Muddy pens,
- Extremes in environmental conditions,
- Irregular feeding schedules,
- Feeding poor quality milk replacer,
- Malnutrition,
- Co-mingling calves of different age groups,
- Poor equipment hygiene
5. Boosting specific immunity

Microorganisms that can be vaccinated for include:

- enterotoxigenic *E. coli*, very effective in cow given 6 and 3 weeks pre-calving;  
  - passive immunity
- rotavirus and
- coronavirus less effective
- clostridial diseases effective
Parasites

Coccidiosis

Prevention:
• maintain hygiene
• include commercial coccidiostats in feed

Liver fluke

Prevention:
• drench calves
• drain water to prevent snail vector
Happy calves will grow to be productive cows