Feeding Milk Replacer

A prime consideration in raising calves is to provide adequate dry matter intake for growth. A typical calf weighing 80 to 100 pounds at birth should be fed 350 to 400 grams of milk replacer dry matter daily for a week following colostrum feeding (see Colostrum and the Newborn Calf in this series). From about 10 days of age to weaning, 400 to 500 grams of dry milk replacer is required. Table 1 suggests amounts of milk replacer to feed and mix as the calf matures.

Mixing

Because most calf feeders have at some time experienced difficulty in getting poorer quality milk replacers to dissolve, mixing in very hot water has become common practice. DewDrop milk replacers containing INSTAMIX mix well even in cool water. Mix only the amount required for a single feeding.

Hand mixing is best done with a wire whip, continuously stirring while adding powder. If using a power mixer, be careful not to overmix by operating the equipment too long or too vigourously.

The temperature of the milk replacer at feeding time will have little effect on calf performance when the ambient temperature is above about 5°C. However, when calves are housed in cold barns or calf hutches in winter, the feeding of warm milk replacer is strongly recommended. Under these conditions, calves will also benefit from a milk replacer containing a higher fat level such as DewDrop HiNRG.

Feeding methods

Feeding milk or milk replacer by open pail is a common practice, although many calf raisers choose nipple feeding by pail or bottle. Table 2 shows the results of a US survey which examined the effect of feeding method on calf mortality. The slightly higher death rate in herds using nipple containers indicates that sanitation might be a problem when using these feeding methods. This same survey also revealed that mortality rates are significantly reduced (6.1% vs 10.9%) when the calf housing unit was cleaned and disinfected after each calf in contrast to only once per year.

Automated feeding equipment can be used, but good management and observation are needed if the goal of weaning healthy calves is to be achieved. Always use and feed only from clean equipment.

Feeding schedule

Most calf raisers feed twice daily. This assures at least two observations of the calf each day and probably is more satisfying to the calf. Weak or unthrifty calves will benefit from even more frequent feedings.

<table>
<thead>
<tr>
<th>AGE</th>
<th>Per Feeding - Twice Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cups of Powder</td>
</tr>
<tr>
<td>1-3 days</td>
<td>-----</td>
</tr>
<tr>
<td>4-10 days</td>
<td>1.5</td>
</tr>
<tr>
<td>10 days - weaning</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Table 1. Mixing and feeding guidelines for DewDrop Calf Milk Replacers.

<table>
<thead>
<tr>
<th>Feeding Method</th>
<th>Open Pail</th>
<th>Nipple Pail</th>
<th>Nipple Bottle</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Herds</td>
<td>42</td>
<td>48</td>
<td>93</td>
</tr>
<tr>
<td># of Calves</td>
<td>1486</td>
<td>1466</td>
<td>3262</td>
</tr>
<tr>
<td>% Mortality</td>
<td>6.9</td>
<td>9.4</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Table 2. In this US survey, feeding milk replacer from nipple pails or nipple bottles was associated with higher calf mortality.
Once-a-day feeding of calves has proven successful except when calves are housed in the extreme cold or in otherwise undesirable environments. The keys to the success of once-a-day feeding are keen observation to detect any sickness early and careful feeding of adequate nutrients without overfeeding. Calves will need the same amount of dry matter daily, but liquid amounts may have to be reduced to avoid digestive upsets. If once-a-day feeding is practiced, calves should be observed at least once in addition to feeding time for general health and well-being.

Feeding programs for calves in hutches can be similar to those used for calves in nurseries during most of the year. During extremely cold weather, feeding rates should be increased because energy requirements of the calves will be greater. Increasing the amount fed by factors of 1.25 to 1.5 and offering the feed three times daily has helped provide the nutrients needed by these calves. Young calves that appear to be extremely cold and are doing poorly should be placed in warmer quarters.

Preventing calf scours

A number of different management practices encourage the development of scours in small calves. Avoid these if at all possible:

- Overcrowding - provide 24 to 28 square feet of bedded area or about 20 square feet of building floor space for calves raised in confined, elevated stalls.
- Inadequate ventilation - provide a minimum of 4 air exchanges per hour in winter, 15 in summer. Avoid direct drafts on the calf.
- Wet, damp calves - provide adequate bedding and avoid spraying calves with water when cleaning facilities to help prevent calves from becoming chilled. Provide plenty of dry bedding in maternity stalls.
- Overfeeding - irregular amounts and too much of the wrong concentration or wrong kind of milk replacer are common causes of calf scours.
- Low resistance to infection - vitamin A, D, and E supplementation (oral or injectable forms) immediately after birth is helpful in increasing the calf’s natural resistance to scours, especially if colostrum is low in vitamin A content.
- No colostrum - don't assume the newborn calf has nursed. Many newborn calves receive insufficient amounts of colostrum to be protected from calfhood diseases. Feed colostrum as soon as possible after birth (see Colostrum and the Newborn Calf in this series).
- Dirty utensils - clean the feeding utensils thoroughly after each feeding. Store upside down to drain all water out. Small amounts of excess wash water are perfect areas for bacteria to multiply rapidly.

Use of electrolytes

Early detection of sickness and prompt corrective action is important to prevent scours. When a calf has only a mild case of scours (not off-feed, not depressed, and no fever), feeding an oral electrolyte solution usually is beneficial.

A good procedure is as follows:

- Discontinue milk replacer.
- Feed only water containing electrolytes for 3 to 6 feedings, depending on how soon feces become firm, to a total daily intake equal to 10% of body weight.

Oral electrolyte solutions can be purchased commercially. If not readily available, an electrolyte mixture can be made by combining these kitchen cabinet ingredients:

- 4 teaspoons of table salt
- 3 teaspoons of baking soda
- 1/2 cup of “light” corn syrup
- 1 gallon of water

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