SICK CALF PROTOCOLS
Template that can be adapted to specific farm's calves
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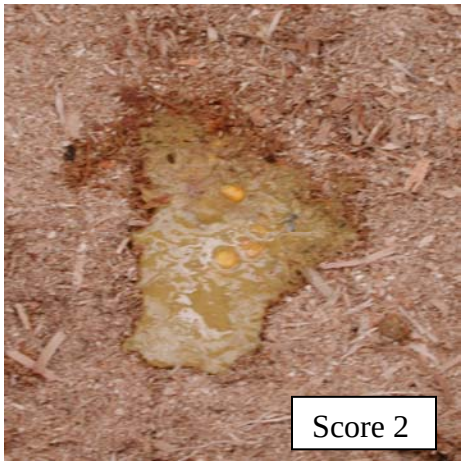
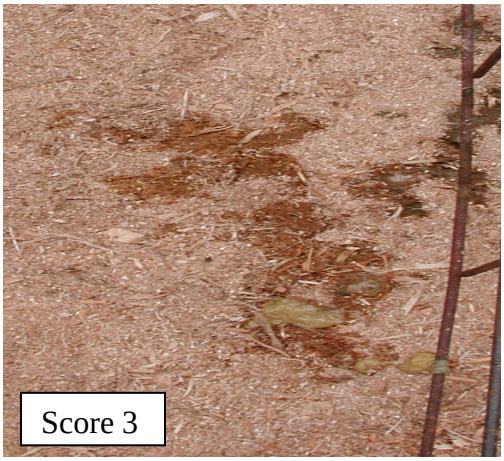
Diarrhea

Calves need extra fluids during bouts of diarrhea due to fluid loss through the intestines. Calves with a fecal score of 2 or greater will be dehydrated. Fecal consistency scores can be used to make decisions about calves that need extra fluids. Fecal score 0 or 1 are usually considered normal and depend on the type and amount of milk or milk replacer being fed. Fecal score 2 is diarrhea that is loose but has enough consistency to form a pile on top of the bedding as shown below. A fecal score 3 is given to diarrhea that is so watery that it sifts right through bedding as shown below.





Calves with diarrhea (fecal score 2 or 3) that appear relatively normal in every other respect – attitude, appetite and posture – may only require **fluids with electrolytes**, water but no other treatment. If a calf with diarrhea appears sick – dull, off feed, drinks slowly, stands with an arched back – or has a temperature that is greater than 103° F or lower than 100° F, **antibiotic coverage** for 3-days is advisable. Calves that are sick with their diarrhea may also benefit by being given **banamine**.

Always try to **keep the calves with diarrhea eating**. Do not discontinue milk/milk replacer feeding but do not force a calf to eat unless you are directed by your veterinarian. Never force feed a calf with abdominal distension or one that can't sit up for tubing. Try to get the calf to consume the normal amount of milk/milk replacer. If possible, offer smaller feedings more frequently to get the normal amount into them.

For calves with diarrhea score of 2, in addition to milk/milk replacer, give 2 quarts of **warm electrolyte solution** (mixed with water, not milk/milk replacer) sometime during the day. It can be offered between or after milk/milk replacer feedings. For calves with a fecal score of 3, there is enough dehydration that the calf needs a total of 4 quarts of oral electrolyte solution (OES) during a 24-hour period. A common approach is to provide 2 milk/milk replacer feedings **and** 2 oral electrolyte feedings, one 2-quart OES feeding between the milk/milk replacer feedings and one 2-

quart OES feeding after the last milk/milk replacer feeding late evening or at night. **Do not stop feeding oral electrolyte solution (mixed in water, not milk) until fecal consistency is back to normal or just slightly loose.** For calves that refuse OES, they can be tubed, provided that they can sit up without assistance and/or do not have a full abdomen.

Fresh water should be available at all times.

Antibiotics are not needed unless calves with diarrhea are sick (described above), are suspected of having a *Salmonella* infection or have additional health problems, for example, a bad navel, swollen joint(s) or respiratory disease. *Fluid replacement is the most critical factor that determines the outcome of a calf with diarrhea.* When required, the antibiotic protocol that you use should be based upon calf examinations and the advice of your veterinarian. For diarrhea treatment, we usually want 3 days of antibiotic coverage. Your veterinarian will help you select the most appropriate protocol. The protocols below may also be considered. Once a protocol is started, do not change to another antibiotic before the 3-day treatment is completed. Treatment is considered successful if the calf is eating aggressively and has a bright attitude. Diarrhea may persist for several days as it can take 5-7 days for the intestine to repair itself.

1) Naxcel/Excenel (Ceftiofur)
   Dose: 5 mg/kg = 4.5 cc per 100 pounds
   Route: Subcutaneously (SQ)
   Frequency: One to two times per day for 3 days

2) Nuflor (Florfenicol)
   Dose: 20 mg/kg = 3 cc per 100 pounds
   Route: Subcutaneously (SQ)
   Frequency: One dose every day for 3 days

Banamine may be useful for calves that are sick with their diarrhea as described above.

Dose: 1 mg/kg (1 cc/100 lbs)
Route: Intravenously
Frequency: Give once only. If the calf's condition does not improve (reduced fever, improved appetite), the dose can be repeated 24 hours later.

Respiratory Disease

Respiratory disease should be treated when calves receive a score 5 points or more using the Calf Respiratory Scoring System (sample form is attached). For calves with only a single sign of respiratory disease detected from outside the pen – nasal discharge, eye discharge, dropped ear or cough – you should take its temperature. Treat any calf with a single sign of respiratory disease and a fever of 103°F or higher with antibiotics. For any calves that have two or more signs of respiratory disease at the same time - cough, colored (white, yellow, blood tinged) nasal or eye discharge, drooping or twitching ears, or fever (<100 or >103) – treat with an antibiotic. Calves with respiratory disease should be given an antibiotic treatment protocol that provides 5-6 days of coverage. One time and multiple dose treatment protocol examples are shown below. Get your veterinarian to advise you

on the most appropriate choice for your calves. It is very important to treat calves with respiratory disease early so they can be cured before they move into the transition barn.

These are antibiotic protocols that provide appropriate antibiotic coverage with a single treatment:

- Baytril (Enrofloxacin)
  - Dose: 10 mg/kg=4.5 cc per 100 lb
  - Route: SQ
- Draxxin (Tulathromycin)
  - Dose: 2.5 mg/kg=1 cc per 100 lb
  - Route: SQ
- Excede (Ceftiofur)
  - Dose: 6.6 mg/kg=1.5 cc per 100 lb
  - Route: SQ (ear as instructed)
- Nuflor (Florfenicol)
  - Dose 40 mg/kg=6 cc per 100 lb
  - Route: SQ

The following antibiotic protocols for respiratory disease require more than one injection as described:

- Adspec (Spectinomycin)
  - 10-15 mg/kg=5-6 cc/100 lb SQ
  - Once daily for 5 days
- Baytril (Enrofloxacin)
  - 5 mg/kg=2 cc/100 lb SQ
  - Once daily for 3 days
- Excenel or Naxcel (Ceftiofur)
  - 2 mg/kg=2 cc/100 lb SQ
  - Once daily for 5 days
- Nuflor (Florfenicol)
  - 20 mg/kg=3 cc/100 lb SQ
  - Every other day for 2-3 doses

Banamine may be used as follows for calves that have a temperature that is greater than 103° F or lower than 100° F, have respiratory distress, or a combination of respiratory disease and diarrhea:

Dose: 1 mg/kg (1 cc/100 lbs)
Route: Intravenously
Frequency: Give once only

For calves that do not improve (reduced fever, improved appetite, less respiratory distress), banamine can be repeated 24 hours later. Call your veterinarian if calf is not improved within 3 days.

At the end of the 5 to 6 day respiratory disease treatment protocol, the calf should be evaluated again. If the calf has none or only one of the signs indicative of respiratory disease, the calf is considered

cured and no more treatment is needed. If the calf still has two or more of the signs listed above, it should be treated with a second antibiotic protocol or be examined by a veterinarian.

Navel infection protocol:

Calves with signs of an infected navel usually have an enlarged, painful navel that is wet, smelly or has a pus-like or blood tinged discharge. These calves may or may not have a fever but should be treated with an antibiotic to prevent the spread of the localized infection into the bloodstream. Calves with signs of navel infection should be treated promptly as this is a sign that they may have bacteria circulating in their blood (septicemia). Treat these calves with BOTH of the following antibiotics:

Procaine Penicillin G
Dose: ~22,000 IU/kg = 4 cc per 100 pounds
Route: IM
Frequency: Twice daily for 5 days

Naxcel/Excenel (Ceftiofur)
Dose: 2 mg/kg = 2 cc per 100 pounds
Route: SQ
Frequency: Twice daily for 5 days

Septic arthritis (infected joints) protocol:

Calves with infected joints will show lameness, swelling of one or more joints, and fever. They may not be eating well, but this may be difficult to detect in a group pen. *Calves with signs of infected joints should be treated promptly as this is a sign that they have had bacteria circulating in their blood (septicemia).* Treat these calves with BOTH of the following antibiotics:

Procaine Penicillin G
Dose: ~22,000 IU/kg = 4 cc per 100 pounds
Route: IM
Frequency: Twice daily for 5-7 days

Naxcel / Excenel (Ceftiofur)
Dose: 2 mg/kg = 2 cc per 100 pounds
Route: IM
Frequency: Twice daily for 5-7 days

These calves can also be treated with banamine as follows:

Dose: 1 mg/kg (1 cc/100 lbs)
Route: Intravenously
Frequency: Give once only for a maximum of 3 days. If the calf's condition does not improve (reduced fever, improved appetite), the dose can be repeated 24 hours later. Call a veterinarian if the calf has not improved within 3 days.

Possible Clostridium (Enterotoxemia):

Calves with Clostridium enterotoxemia are usually thrifty calves that have previously been eating well. Suddenly, they are off feed, appear bloated (left side, right side or a combination of both), are extremely depressed and may appear to be uncomfortable (kicking at the abdomen or unwilling to stand). This condition is caused by the release of toxins produced by *Clostridium perfringens* C& D, bacteria that are normally present in the intestinal tract. These calves require emergency treatment as described below:

Clostridium perfringens C& D antitoxin-
Dose: 10 cc
Route: Subcutaneously (SQ)
Frequency: Give one dose.

AND

Procaine Penicillin G
Dose: 5cc/100lb
Route: In the muscle (IM)
Frequency: Give twice daily for three days
You may also give penicillin by mouth at a dose of 20 cc twice daily for one or two days.

These calves may require IV fluid therapy or can be confused with calves that have blocked intestines. If the calf has not improved within 2 to 4 hours call a veterinarian. Do not use banamine for calves with enterotoxemia.