Saving Calves with Scours

The effects of scours in an individual herd can be overwhelming. Almost every herd experiences some scours during the calving season, and in severe outbreaks, illness and death may occur in 50 to 75% of the calves. Fortunately, considerable research has been directed towards understanding, treating and preventing scours. There are very effective means for limiting calf death from scours. Most of the treatment and prevention methods are readily available to every producer.

CAUSES AND EFFECTS OF SCOURS

Noninfectious Causes.
Problems that decrease the viability of the calf at birth, such as dystocia, poor nutritional status or health of the dam, poor mothering ability of the dam, etc., may predispose a calf to scours. These problems may be difficult if not impossible to control. When these problems occur, special care of the calf will decrease the risk of later infections.

Infectious Causes.
Far and away the most important cause of calf scours is exposure and infection by scour-causing infectious agents. These include several different types of viruses, bacteria, and protozoans. Each of these pathogens is unique and they cause disease in several different ways; however, the final effect of the infection on the calf is strikingly similar for all of these agents. Most calves can survive the pathogens causing the scours if proper supportive therapy is provided. In most cases, the cause of death from scours is severe acidosis and/or dehydration.

TREATMENT OF SCOURING CALVES

Since the leading cause of disease signs and death from scours are dehydration, electrolyte loss and acidosis caused by the out-pouring of fluid into the gastrointestinal tract, the most important treatment measure is replenishment of these vital fluids and electrolytes. Numerous formulas designed for rehydration, correction of acidosis, and replacement of lost electrolytes are commercially available.

Oral Electrolyte Replacement Fluids.
The most common mistake made in using commercial oral electrolyte replacement fluids is waiting too long before
administering these formulas to affected calves. Administered early and frequently, these fluids help the calf maintain vigor, allow it to continue sucking and maintain its normal body temperature. Administering fluids too late so that the calf is already depressed and down, or administering too little so that the calf continues to lose more fluids than it consumes, fails to improve the calf’s condition. When dehydration and acidosis are severe enough, normal intestinal function declines and the orally administered fluids are not adequately absorbed so they do little to enhance the calf’s survival. At this stage, the only effective means to prevent death is intravenous administration of fluid.

The IV route should be used when dehydration is 8% or greater. This can be determined by grasping a fold of skin in the neck area and if it takes more than 8 seconds for it to return to normal position, the calf is probably 8% or more dehydrated. A 12 percent loss of fluids usually results in death.

A severely dehydrated calf may also need to be treated for hypothermia. Hypothermia is defined as subnormal body temperature. Providing external sources of heat such as heat lamps or heating pads may be helpful. Administration of warm IV or oral solutions should be considered.

Some reminders about administering oral electrolytes...

- Oral electrolytes only contain 1/2 the metabolizable energy of milk. If the calf is only receiving oral electrolytes, it needs at least 6 liters/day to meet energy requirements. Milk feeding while rehydrating may make scours worse and some calves become anorexic or won’t eat.
- Do not mix milk and electrolytes.
- Do not feed bicarbonate solutions and milk. Bicarbonates interfere with milk curd formation.
- Examine all scouring calves’ navels, joints, lungs, and abdomens. Calves with complicating problems, such as pneumonia or navel ill, may require long term antibiotic therapy for 5-10 days.

**Antibiotics.**

Antibiotics have been extensively used in treatment of calves with scours; however, the overall affect of oral antibiotics in treating scours is often detrimental. A quick review of the organisms that cause calf scours shows that virtually all of the leading causes are resistant to antibiotics. Rota- and coronavirus are not affected by antibiotics at all. *Cryptosporidia*, like most coccidia, responds poorly or not at all to antibiotics. *Salmonella* and *E. coli* are highly resistant organisms that do not respond well to most oral antibiotics. Furthermore, orally administered antibiotics may have some deleterious effects on the calf. They alter the normal intestinal flora and, in some cases, can predispose the calf to superinfections or fungal infections. Some of the antibiotics commonly used for scours also inhibit glucose absorption from the intestine and alter the intestinal lining cells. In these cases, the continued use of oral antibiotics can actually prolong scours.

Note: When the *Salmonella* and *E. coli* organisms invade through the intestine and cause septicemia, treatment with antibiotic is critical. The type of antibiotic should be based on an accurate identification of the disease-causing organism and is best administered systemically, i.e., IV or IM.

**Having Calving Difficulties?**

**WANTED:** Herds experiencing calving difficulty with first-calf heifers for pelvic measurement study. Selection for replacement heifers with increased pelvic area has been proposed as a means of reducing the frequency of calving difficulty. The pelvic measurement may be incorporated into your normal pre-breeding reproductive examinations and vaccinations of beef heifers. The pelvic measurement will take an additional one to three minutes. A study to clarify the role pelvic measurements may have in beef cattle management will be conducted in Tehama, Glenn, and Colusa Counties. If you are eager to participate in this study, please contact Sheila Gaertner in the Farm Advisors' Office in Tehama (527-3101) or Glenn County (865-1107).
UPCOMING EVENTS

Ewe Management for Multiple Births
Wednesday
November 4, 1992
9:00 a.m. - 12:00 Noon
University of California Hopland Research and Extension Center, Hopland, California

Cattlemen’s Health Round Table
Wednesday,
December 2, 1992
1:00 p.m. - 4:00 p.m.
California Cattlemen’s Association
Annual Convention
Sacramento Hyatt Hotel

Scours (con’t.)

Probiotics.
Recently, the use of natural biological products, "probiotics", to re-establish a normal balance of intestinal micro-organisms has been suggested as a useful treatment for calf scours. Products containing either Lactobacillus or Streptococcus faecium are commercially available. How effective these products are is debatable.

PREVENTION OF CALF SCOURS

The incidence of infectious disease is a function of immunity level and level of exposure. Exposure to infectious organisms is highest in confined environments. First-calf heifers are frequently maintained in confined environments because they require more assistance at calving. Since these calves are more susceptible to disease, an increased level of exposure is even more problematic. Some procedures that may help reduce the level of exposure to organisms include: cleaning delivery-assisting area; washing teats on cows that have been assisted; cleaning the esophageal feeder when used to administer colostrum; providing clean and dry maternity pens; and moving pairs out to a clean pasture as soon as possible after calving.

Vaccination

Most ranchers would like to know the cause of every disease on the ranch but, even in the best of circumstances, that is difficult to achieve. If E. coli is identified as a problem in newborn calves at a specific ranch, then vaccinating cows prior to calving would be desirable. However, many large, extensively managed cow herds do not have the opportunity to work their cows prior to calving season. Recommending vaccination pre-calving against scours is a function of herd history, risk of disease, cost of vaccine and accessibility of the cattle.

Vaccines that are designed to protect the calf through colostral immunity following vaccination of the pregnant cow are listed in the following table.

<table>
<thead>
<tr>
<th>Type of Vaccine</th>
<th>Brand Name</th>
<th>Manufacturer’s Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. coli (K99)</td>
<td>Coligen</td>
<td>Two 5 ml doses (i.m. or s.q.) to the pregnant dam, spaced 21 days apart. The last dose should begin three weeks before calving. Annual booster is recommended.</td>
</tr>
<tr>
<td>E. coli (K99)</td>
<td>Vicogen</td>
<td>Two 5 ml doses given s.q. to pregnant dam, the first at six weeks before calving and the second at three weeks before calving. Annual booster is recommended.</td>
</tr>
<tr>
<td>CDV toxoid</td>
<td>Several</td>
<td>Administer yearly to pregnant dam according to label directions, no later than three weeks before calving.</td>
</tr>
<tr>
<td>Coronavirus + rotavirus</td>
<td>Calf-Guard</td>
<td>Two doses given i.m. to pregnant dam. The first in the fall, the second approximately one month before calving. Annual booster is recommended.</td>
</tr>
<tr>
<td>Coronavirus + rotavirus</td>
<td>Scourvac</td>
<td>One 4 ml dose, sprayed into the back of the calf’s mouth as soon as possible after birth.</td>
</tr>
<tr>
<td>E. coli</td>
<td>Guard 3</td>
<td>Similar to those for Calf-Guard.</td>
</tr>
<tr>
<td>IBR and BVD</td>
<td>Several</td>
<td>Administrer according to label directions to cows and heifers before breeding.</td>
</tr>
</tbody>
</table>

Consult with your veterinarian before initiating any vaccination program for recommended and up-to-date information.

This fall, as you look out into your pasture and notice dense, spiny thickets of yellow starthistle, think about some of the management opportunities you have to control this weed next spring. Yellow starthistle infests nearly 8 million acres in California. Its spiny flowers, toxicity to horses, and ability to form impenetrable stands makes it an undesirable weed to landowners, ranchers, and recreationists.

A study conducted on the University of California, Davis, Agronomy Farm and on ranches in Tehama and Colusa Counties investigated the use of controlled grazing with goats and cattle to manage dense populations of this weed. Although different classes of livestock were used, grazing periods were similar and timed to yellow starthistle's bolting, pre-spiny stage. Typically, this growth stage occurs in mid-May. Even at this stage, the nutritional value is low, but this is the optimum time to initiate grazing. As the plant matures, it becomes unpalatable. A short-duration grazing approach with a high stocking rate was used in this investigation.

The resulting differences from grazing compared to ungrazed treatments were striking. In grazed treatments, plant height, canopy size, and seed production of yellow starthistle were reduced. These paddocks could be penetrated with ease. Ungrazed treatments produced tall, dense starthistle stands. Their spiny, hedge-like canopies made these paddocks difficult to penetrate.

Regardless of the species used, good management and control of starthistle usually requires repeated grazing because starthistle can regrow following defoliation. The number of grazings required is strongly influenced by soil moisture levels. At sites where soil moisture was low, excellent control was obtained by two grazings. Three grazings were required to control starthistle where soil moisture level was higher.

While grazing did not eradicate yellow starthistle in the test paddocks, these results demonstrate that properly-timed, controlled grazing with ruminant animals can be an appropriate, economical, and environmentally sound method of controlling this weed.