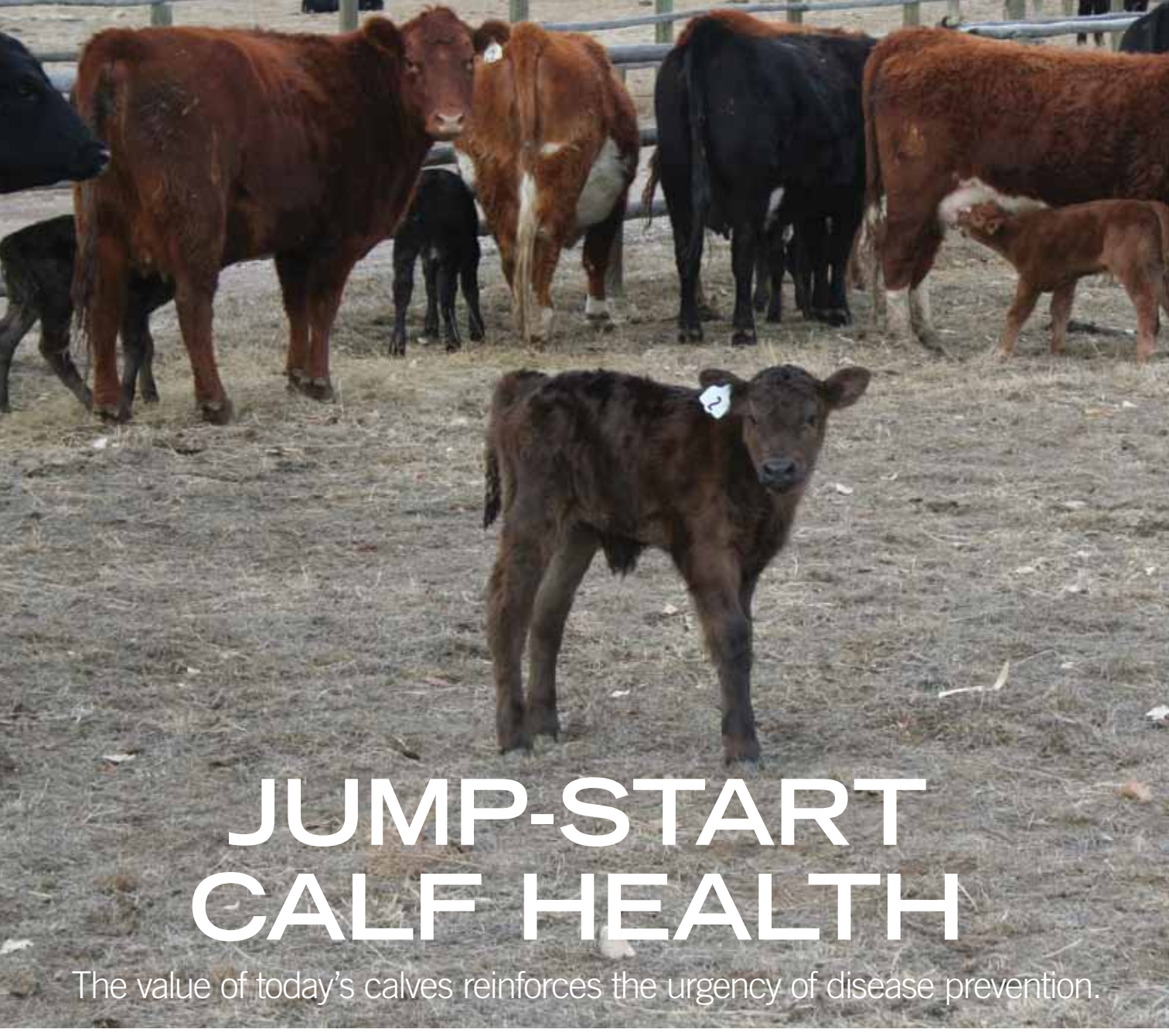

JUMP-START CALF HEALTH

The value of today's calves reinforces the urgency of disease prevention.

BY JOHN MADAY
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Regardless of the weather, market forces or calf prices, ranchers go to great efforts and expense to keep their newborn calves comfortable, healthy and alive, says Minnesota veterinarian Lynn Aggen. But with this year's calves projected to bring upward of $1,000 each at weaning, some extra investment in calf health could pay significant dividends.

Research consistently shows higher rates of pre-weaning sickness and death loss in calves that do not receive passive immunity from their dams. The impacts also extend beyond weaning, with immune-deficient calves experiencing more sickness and poorer performance through backgrounding and finishing stages.

BEGIN WITH PREVENTION

Prevention is more effective and less expensive than treatment, and Aggen says prevention of calfhood disease begins with transfer of antibodies from the cow to the calf. Actually, he says, prevention begins even earlier, with pre-calving vaccination of cows to build their immunity and boost the concentration of antibodies in their colostrum. A pre-calving scour vaccine, along with a seven-way clostridial vaccine administered to heif-

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Disease prevention is more effective and less expensive than treatment.

ers and cows about eight weeks prior to calving, provide cost-effective protection against a broad range of pathogens that cause calf scouring and other calf diseases, Aggen says.

In calving pastures, Aggen says "dilution is the solution" for minimizing calf scours. He suggests frequently moving pregnant cows away from cow-calf pairs, using some variation of the "Sandhills Calving System" to reduce exposure to pathogens. The Sandhills system involves setting up about eight calving pastures and moving cows that have not yet calved to a fresh, clean pasture every week, leaving cows with new calves in each pasture as they go. Although all producers might not have the space or facilities to use the full system, Aggen says they can benefit by moving cows away from potentially contaminated pasture as much as possible.

At calving, Aggen stresses that getting that high-quality colostrum into the calf — plenty of it and as early as possible — becomes the No. 1 priority. Allow the calf to nurse before applying ear tags, weighing or any other task.

South Dakota State University Extension veterinarian Russ

When to feed and what to use

Ideally, every calf nurses successfully within hours after birth and receives plenty of high-quality colostrum. But when they don't, South Dakota State University Extension veterinarian Russ Daly offers advice for deciding when to assist them and what products to use.

He lists these situations in which feeding colostrum might be necessary:

- **Often following a difficult birth, calves have been deprived of oxygen and are weak and less likely to get up and nurse on their own.**
- **When the mother won't let the calf nurse.**
- **When the cow's udder has poor conformation, making it difficult for a calf to nurse for the first time.**
- **When the cow is not producing milk or is affected by mastitis.**
- **When the cow has been leaking milk before calving.**

Daly says nursing its mother is the preferred way for a calf to ingest colostrum, as it provides the highest levels of antibody absorption. Second best is nursing from a bottle, followed by tube feeding. When it's necessary to feed calves, he lists these products in order of preference:

1. **Fresh colostrum milked from another cow in your herd within 24 hours, and ideally within eight hours after calving. Cows with full-term stillborn calves present an opportunity for producers to obtain colostrum.**
2. **Frozen colostrum from another cow in the herd. Colostrum can be frozen and stored for up to one year. If it is warmed up slowly, there is minimal loss of antibodies. The freezing process destroys white blood cells in colostrum that may help the immune system, so fresh colostrum is preferable.**
3. **Fresh colostrum can be obtained from cows in another herd, such as dairies. Daly advises caution, as unpasteurized colostrum can transmit infectious diseases such as Johne's disease and mycoplasmosis. Colostrum is a good growth medium for bacteria if it is not collected and stored properly. Finally, remember that dairy cow colostrum generally has a lower antibody concentration than beef cow colostrum, so feed more, such as using 6 quarts versus 4. Know the health status of the source herd.**
4. **Frozen colostrum from a cow in another herd.**
5. **Colostrum replacers. These powdered mixes are excellent tools to have handy in case of emergencies and contain a full dose of antibodies for the calf. They do not contain the white blood cells and immune substances in natural colostrum, but they avoid the risk of introducing disease. Colostrum replacers need to be mixed completely, according to label directions, and tend to be expensive compared to colostrum supplements.**
6. **Colostrum supplements do not contain a full dose of antibodies for the calf — often only 40 to 50 grams. As such, these products should be used in cases when it's questionable whether a calf consumed its full dose of colostrum. Look for the level of globulin protein or IgG on the label for an indication of antibody levels.**

Watch newborn calves nurse whenever possible to verify they consume the needed colostrum.

Daly notes that a calf's ability to absorb colostral antibodies starts to decline shortly after birth. Within 24 hours, the calf is essentially no longer able to get the benefit of the antibodies in colostrum. Ideally, calves should fill up on colostrum within the first two to three hours, with another feeding four to six hours later.

Aggen recommends watching calves nurse whenever possible to verify they consume the needed colostrum. He notes that even a nursing calf with its tail wagging is not necessarily getting the fluids it needs, as the dam's teats could be plugged or the dam just isn't supplying enough colostrum. When in doubt, he says, don't hesitate to feed calves natural or artificial colostrum. (See the sidebar "When to feed and what to use" for more information.)

Aggen says one of his cow-calf clients routinely tube-feeds every calf with colostrum replacement. While he doesn't recommend this practice, he acknowledges that the rancher's calves stay healthy with virtually no death loss, so he doesn't reject the idea.

When in doubt whether a calf received adequate quantity or quality of colostrum, Aggen uses concentrated antibody products, available in bolus, gel or powdered forms, to provide immunity against specific pathogens such as *E. coli* and coronavirus. For cold-stressed calves, he moves them into a "hot box" or warm area as soon as possible and tube-feeds them with natural or artificial colostrum.

When scouring occurs, Aggen uses IV fluids along with tube feeding to fight dehydration and will use a laboratory test to determine whether they received maternal antibodies. Results of the test can help determine whether a treatment program has much chance of success.

REMAIN VIGILANT

Once calves reach 3 to 4 weeks of age, diseases other than scouring, such as coccidiosis, bloat or respiratory disease, can become a concern. Aggen advises producers to work with their veterinarians to design a calf-vaccination program based on herd history. Mineral supplements such as selenium also benefit immunity in areas where pastures are deficient.

Recognizing the challenges, Aggen emphasizes cleanliness as a top priority for calf health through this period and advises ranchers to do what they can to provide a clean, dry environment for pairs. Muddy conditions result in muddy udders. Year-round maintenance of calving pastures to encourage grass cover can help minimize mud, and providing a dry "creep" area for calves, when feasible, can help minimize sickness.

Daly stresses the importance of continued diligence after getting calves through those critical first weeks. Watch for signs of diarrhea, navel infections or other conditions that might require treatment.

Enterotoxemia, or abomasal bloat, sometimes occurs in calves from 2 to 6 weeks of age, and Daly says the condition is not well understood, with several factors potentially involved. Characterized by a full, distended abdomen, with calves sometimes kicking at their bellies, the condition can be fatal if left untreated. Early treatment with antibacterial medications, however, usually will resolve the problem.

Clostridial organisms seem to play a role in the condition, and some veterinarians have had success at prevention by using a clostridial vaccine in calves or by adjusting pre-calving vaccinations for cows. Daly says, though, that producers should work with their veterinarians to develop prevention and treatment programs, as no single protocol seems to work in all cases.

Watch for signs of enterotoxemia following storms or periods of harsh weather, he says. Unfavorable weather can interrupt normal nursing behavior, and when conditions improve, the calf consumes an excess of milk. Veterinarians believe the sudden influx of food stimulates activity of bacteria in the calf's gut, resulting in gas production and bloat.

Later in spring and through the summer, respiratory disease can crop up in calves and cause significant problems, especially if calves did not receive sufficient antibodies from their dams. On operations with a history of respiratory disease, Daly suggests vaccinating calves against the viral pathogens associated with BRD, including IBR, BVD, PI3 and BRSV. Past research suggested that vaccinating calves at a young age — a few weeks after birth — was ineffective due to interference from maternal antibodies. However, Daly says, more recent research has shown early vaccination with certain vaccines can reduce disease incidence even though tests fail to detect an antibody response in the calf.

With this year's calves likely to bring record-high prices, a little extra investment in disease prevention could pay off on sale day.