Dystocia, or calving difficulty, costs the U.S. beef and dairy industries more than $400 million each year. [PHOTO BY SHAUNA ROSE HERMEL]

A Proactive Approach

Calving is stressful, but there are ways to help.

Story by
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Losing animals at calving time is difficult for cattlemen to face, especially if those losses are preventable. Calving-time losses are incredibly expensive to both the individual and the cattle industry as a whole. According to the U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS), dystocia, or calving difficulty, costs the U.S. beef and dairy industries more than $400 million each year.

There's even more at stake when you consider today's cattle prices. Colorado State University (CSU) animal scientist Jack Whittier says, "You never want to lose calves, but when weaned calves are worth what they are — $600 to $700-plus — that's a pretty significant loss."

That loss is compounded when other investments are considered, such as the cost of nutrition for the cow and other needed resources. "It's not just the loss of a weaned calf," Whittier says. "It's the time loss."

Bob Larson, University of Missouri (MU) Extension veterinarian, says, "Any herd with an average death loss that exceeds 4% is having avoidable death loss."

Following are practical tips to help producers prevent calving loss.

The basics

Whittier and Larson recommend that cattlemen inspect facilities and gather certain supplies before calving season begins. Larson advises that a clean pasture, not used for winter feeding, should be available for calving. Both strongly encourage a clean area be made available in case calving assistance is needed.

While Whittier acknowledges that a specific birthing facility may not be practical for all operations, he encourages advance planning to ensure that producers are able to get to an animal to provide assistance, and that it's as clean and dry as possible. "If it's raining or snowing, having a place to get the cow under cover is very useful," both to the animal and to those trying to help her, Whittier says.

Such confinement can make things easier on both the cow and the cattleman. "Many times they'll quiet down when they know they're caught or know they're safe, compared to being on the end of a lariat somewhere," Whittier says.

An important piece of equipment is a set of obstetrical chains and handles. A popular alternative to handles is a mechanical calf puller, although Whittier cautions against the force that such equipment provides. While mechanical calf pullers might be useful when calving a large herd, Whittier says, "Having some chains and hand holds that can be placed on to work with the heifer when she's pushing may be more advantageous than just grabbing the calf with the calf puller and jerking it out."

Trying to pull the calf with a calf puller often causes more problems than it solves, Whittier says. "Too much brute force, too much tension on the calf puller — that's generally the way cows are hurt."

Lubricant is important to easing the calving process and avoiding injury, particularly in animals that have been in labor for a long time. Whittier especially advises using lubricants when inside the cow to avoid tears and ruptures and to avoid causing any further distress that hands and arms might cause. Water-based commercial lubricants work well. Soap should be avoided, as it can irritate vaginal membranes.

Larson further suggests that plastic sleeves, a bucket, clean water and disinfectant be present.

Whittier encourages the use of plastic gloves when examining the cow, "both for sanitation and for disease-related problems." While the risk of disease transmission may

What should happen: The normal stages of labor

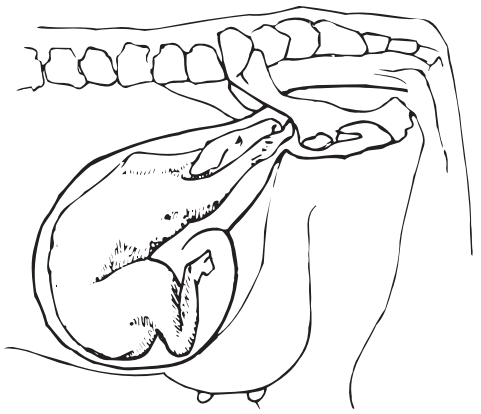
The first step in assisting in a difficult birth is knowing what should normally happen during labor, which will allow you to recognize when something goes wrong. Calving, or parturition, can be broken into three stages, each marked by distinctive behaviors and physiological changes in the cow.

Stage 1 is when the cow prepares to give birth. The fetus should rotate to the normal birthing position, and uterine contractions should begin. "These may not be visible in a mature cow," says University of Missouri (MU) Extension veterinarian Bob Larson, "but most heifers and many cows will act nervous, kick at their sides and have some straining."

"Stage 1 is pretty much just behavioral changes," says Colorado State University (CSU) animal scientist Jack Whittier. "They lie down, they get up, they separate themselves off." Raising the tail is another sign of labor.

This stage usually lasts two to three hours in cows and four to five hours in heifers. Any disturbance or stress to the cow should be avoided, as it may disrupt contractions and delay calving.

Fig. 1: Normal position of the calf



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Stage 2 is when the cow actually gives birth. Usually marked by the appearance of the water bag, the cow's cervix should be fully dilated by this point. "The cow has strong straining and is usually lying down," Larson says. The cow should be focusing more intensely on her contractions, instead of just displaying restless behavior.

As the contractions increase, and if the calf's position is normal, its forelegs and nose should begin to protrude from the vulva. Normal calf presentation is facing toward the birth canal, right side up, with front legs and nose directed into the birth canal (see Fig. 1).

Backward presentations can be delivered without assistance (if the calf is right side up and both hind limbs enter the birth canal), but should be carefully considered for intervention, Larson cautions. In such deliveries, the umbilical cord can become pinched, inhibiting blood flow, which makes a quick delivery important.

Once the calf begins to pass through the birth canal, the umbilical cord is pinched and then breaks, stimulating the calf to breathe on its own, according to both Larson and a CSU calving guide compiled by Whittier and others. Stage 2 normally lasts an hour or less in cows, sometimes extending up to four hours; but, first-calf heifers usually take longer, up to six hours.

Stage 3 is when the cow expels the placenta after the calf is born. This cleaning stage is usually completed in two to eight hours. "The placenta is hanging out," Larson says, "and the cow may have mild straining."

not be high if the herd is disease-free or if the health program is up to speed, he still views gloves as an important precaution.

Clean equipment is vital. "The cleaner, the better, recognizing that saving the calf may be more important than spending 10 to 15 minutes to disinfect yourself or the area," Whittier says. Risks from calving in dirty areas or using dirty equipment include uterine infection to the cow, resulting in a loss of productivity, and navel infection of the calf.

Recognizing trouble

An important part of checking for trouble is knowing when to start. It's much better to check often to be sure there aren't any problems than to leave things to chance. Each operation must weigh the value of its calves and its available time and manpower when determining when and how often to check during calving season.

Whittier and Larson recommend beginning to watch cows two weeks before the expected date. "Even with a known date, there can be variation around when they'll calve," Whittier says.

He recommends looking for physical changes that come with preparing to calve. "Look for the development of the udder, the swelling of the vulva and the loosening of the rear end of the cow," he says.

When cows appear close to labor, Larson recommends checking at least four times a day, but "preferably every two hours for heifers and every four hours for cows."

Once labor has started, checking the animal becomes even more important. Whittier suggests watching her periodically after she's started Stage 1 (see "What should happen," page 46). Malpresentation of the calf or twins can disrupt dilation, not allowing the cow to enter Stage 2.

Larson says, "If labor has progressed to the point that the calf's nose and front feet are visible, the calf should be born within one hour. If not, provide assistance.

"Normal labor and delivery usually last less than eight hours," he continues. "If the cow is making progress, assistance is generally not needed."

For cattlemen who can't check as often as suggested, it's harder to know when labor started. If there's no water bag in sight when you first notice the animal in labor, Whittier advises watching her for an hour or so to see what's going on.

"If she still continues to lie down and push, even though she's not expressing anything, I would wait an hour or so," he continues.

However, if the animal looks like she's giving up, that may be a cause for concern. Signs of giving up include lying down and no longer pushing, or getting up and eating (if not at the same time that the animal usually eats).

After the water bag has been presented and Stage 2 has begun, both Whittier and Larson agree that the main sign of trouble is a lack of progress. "If an animal is straining hard, but the situation appears unchanged for 30 minutes, I become concerned and get the animal in for an examination," Larson says.

Whittier adds, "If the cow's stopped making progress or the water bag's been out for about two hours, that's probably a time to become concerned." However, if after two hours the cow is still straining and making progress, Whittier advises against intervening.

"From when progress stops," he says, "allow no more than 30 minutes to where you intervene."

Another thing to carefully look for is fatigue in the cow. If the water bag or feet are showing, but "she just isn't pushing anymore," Whittier says, "that's a pretty good indication of fatigue, and she's probably going to need some direct assistance."

Watch for signs of stress to the cow or calf, including heavy bleeding in the cow, as well as swelling of the calf's feet or nose. While a calf in a normal delivery may have its tongue out, swelling is a definite sign of calf stress.

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How to help

Unless there are signs of stress or fatigue, intervening means first examining the cow instead of immediately delivering the calf. If no sign of trouble can be detected upon examination, labor should be allowed to continue for another 30 minutes, Larson says. If there is still no progress, assistance should be brought in.

"The need to call for assistance is very dependent on the operator," Whittier says. Someone with very little or no experience should probably obtain assistance right away.

"You don't always need to call a veterinarian to have assistance," he continues. "The assistance could come from a neighbor or from someone who just has more experience than you do."

When examining the cow, she must first be confined, usually in a chute. Larson says, "Using a plastic sleeve and plenty of lubrication, I put my hand in the birth canal and check to see if the calf is in the right position, the pelvis appears large enough to allow passage and the birth canal is lubricated."

After determining the problem, you can then step in to help. Some common calving problems and solutions are presented below.

Malpresentation. Calves that are not normally positioned are the most difficult to correct on your own (see Fig. 2). "Any time that you have been working on correcting a bad presentation for 15 minutes without progress, it is best to stop and call in veterinary assistance," Larson says. As a veterinarian himself, he allows 15-30 minutes to make progress or he is likely to choose a cesarean section (C-section).

Unless extremely experienced, you should not try to correct presentations, unless a head or single leg is turned. Whittier says, "When in question, even a little bit of question, call a professional." Factor in how long it will take a veterinarian to reach you when deciding when to call for help.

To prevent puncturing or tearing the uterus when manipulating or feeling for the calf, keep the fingers together and move as gently as possible, Whittier says. Your hand should be cupped over the hoof when moving legs.

"Having your fingers separated or a single finger sticking out and putting pressure against the uterus, you'd be a lot more prone to puncture the uterus that way," he says. Lubrication helps prevent such problems by allowing your hands to move more freely.

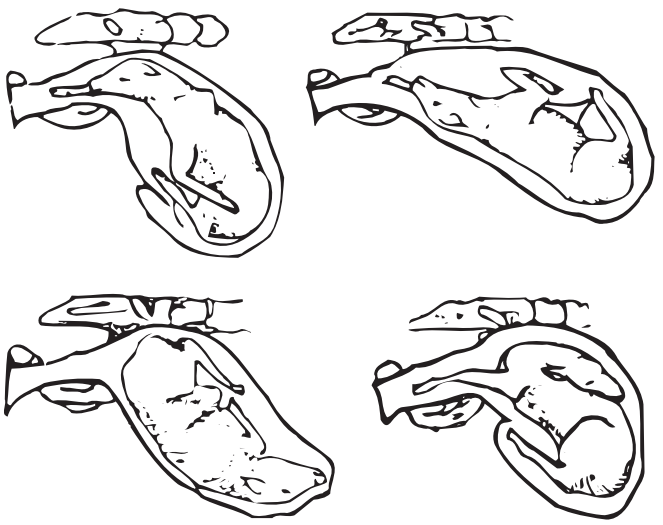
The first step to correcting a malpresentation is determining how the calf is presented. If you are unable to feel a head or tail, but you can feel legs, it can often be difficult to tell the front from the back.

"With front legs, the leg joints (ankle and knee) bend in the same direction — with back legs, the ankle and hock bend in opposite directions," Larson says. On front legs, hooves will have the top side up, while the bottom will be up on back legs. However, he cautions, "This is not the case if the animal is both upside down and backwards."

Immediate signs of malpresentation requiring professional assistance include feeling the hind end of the calf, or the tail, but either not feeling the legs or feeling them extend down into the uterus, instead of toward the birth canal. If the calf is presented sideways, with all four legs facing a single direction, professional help should be sought, according to a CSU calving guide compiled by Whittier and others. Such problems most often call for the assistance of a veterinarian and a C-section.

If the calf's front legs are positioned normally, but its head is turned down or sideways, this can

Fig. 2: Abnormal positions of the calf



often be corrected. The CSU manual says that by grasping the calf's muzzle with your hand or looping soft rope or a chain through the mouth and around the back of the head, you can gently bring the head to its proper position (facing toward the birth canal, between the front legs). Avoid looping the rope around the lower jaw, as too much force can easily damage it.

It may help to gently push the calf's body back into the uterus while positioning the head. Secure one or both presented legs with chains before doing so.

"If the cow's stopped making progress or the water bag's been out for about two hours, that's probably a time to become concerned."

— Jack Whittier

If the calf's head is presented normally, but one or both legs are still inside, first attach the rope or chain to its head. Gently push it back into the uterus and search for the legs. If extended, hold the leg below the knee and push until the knee is bent. Then, move the knee upward with one hand while bringing the hoof forward with the other, according to the CSU manual.

Correcting retained hind legs is done the same way. Pull the hock into a flexed position, then cup the hoof while pulling up and toward you and pushing the hock away from you. If unable to fit both hands into the cow to correct the problem and unable to do it with one hand, call for professional assistance.

Oversize calf. The most common cause of dystocia, this problem most often occurs in heifers. "They're still growing and haven't reached mature size yet," Whittier says. "If it's an extremely oversize fetus, it may be more difficult for her to even present anything." Because of this, it may be necessary to internally check first-calf heifers earlier.

If the calf's position is found to be normal after examination, but the cow cannot deliver it herself, she probably has an oversize calf or is too small herself. You must first determine if the pelvic canal is large enough for the calf to pass through. If not, consult a veterinarian to determine if a C-section is advisable.

To establish if the fetus can be pulled without injury to either the cow or the calf, now is the time for the obstetrical chains. Larson recommends that the loop of the chains be placed above the dewclaw, with a half-hitch placed between the dewclaw and hooves.

Whittier suggests that the cow be lying down. "They're going to be more able to help you and work with you than if they're standing up," he says. "Then it's just brute force." Although dependant on available facilities, Whittier says that putting a rope around the cow's flank area and putting a little pressure on her spine will encourage her to lie down.

Larson offers three tests to decide if the calf can be pulled. First, if limbs are presented and the strength of one adult cannot pull so the calf's head fully engages the pelvis, no further pulling should be attempted.

Second, if the head and limbs have already entered the pelvis, the first joint of one limb should either extend or be pulled to extend at least one hand's width from the vulva. The third test is if the other fetlock can do the same. If either one or both of these is not possible, do not attempt to pull the calf.

"Really, you're working with the cow, not working against her. The most important thing to do is to assist her, not hurt her," Whittier says. Instead of pulling as fast as possible, pull only when the cow pushes, and give the chains slack when she stops.

Larson and Whittier advise pulling be done one leg at a time to get the shoulders

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Fig. 3: Applying traction to one shoulder at a time

out of the birth canal (see Fig. 3). Alternate between legs, switching from one to the other after a few inches of progress. Once one shoulder is out of the canal, it should be held in that position while the other is pulled. After both shoulders are out, extracting the calf should not be a problem.

If pulling a backwards-presented calf, Larson says to attach the chains above the fetlock joint. Since the calf's umbilical cord will be pinched, such cases should be turned over to a veterinarian if no progress occurs very quickly.

Both Larson and Whittier strongly advise against using mechanical calf pullers aggressively. Larson says, "You should only use as much force as could be generated by a big man — the problem is that calf pullers can generate much greater force than that." In most instances, he suggests pulling by hand.

As with any difficult birth, it's important to know when to call for help. "If one shoulder cannot be started with the strength of one person," Whittier says, "that's an indication that the calf may be too big or the pelvic area too small."

Twins. Because twins usually enter the birth canal one at a time, there is often no problem. However, Larson and the CSU guide advise that twins can block the birth canal by being presented together. If this happens, one will usually come facing forward and the other facing backward. Pull the closest twin first, but if unsure, choose the calf presenting its back legs.

After ensuring you have two legs that belong to the same calf, push the other twin further back into the uterus. You can then extract each calf individually. If unable to identify the individual calves, or at all unsure about what to do, obtain assistance.

Final advice

Much information is available about preventing dystocia through nutrition, breeding choices and genetic selection.

Larson advises to "select bulls for low to moderate birth weight (depending on herd goals), make sure cows and heifers calve in good body condition, have a good pasture to calve in and good nursery pastures to move pairs into, check animals frequently, and have a facility to bring cows that are having calving difficulty where they can be confined and examined."

The most important thing to remember is, "there's nothing wrong with asking for help," Whittier says. "The risk is a dead calf, or a dead cow and calf."

Editor's Note: *The following calving manuals were used in compiling this article: "Assisting the Beef Cow at Calving Time," available from MU Extension Publications at* http://muextension.missouri.edu/explore/agguides/ansci/g02007.htm, *and "Calving Management Manual," available from CSU for $20 by contacting Nancy Weiss at Nancy.Weiss@colostate.edu or (970) 491-6233.*