

Practical Welfare

Speakers offer management changes to improve the welfare of beef cattle.

by *Kasey Brown*, associate editor, & *Troy Smith*, field editor

Every time cattlemen interact with cattle is an opportunity to improve the welfare of that animal. That was a prominent theme of the 4th International Symposium on Beef Cattle Welfare hosted by Iowa State University in Ames, Iowa, July 16-18. Most of the speakers said that by improving the animal's situation, you also improve your own and the animal's performance. Pain mitigation, handling and housing considerations are all practical suggestions to improving beef cattle welfare.

Processing improvements

Nebraska veterinarian and cattle-handling specialist Tom Noffsinger demonstrated how to use consistent communicative signals to move cattle into pens and through working facilities. He emphasized that when inducing, maintaining or stopping animal movement, the primary receiver of stimuli is an animal's eye.

"Cattle crave to see the destination and whoever is guiding them simultaneously," said Noffsinger. "A handler initiates movement and guides animals through [his or her] body position and posture, but you work off the eye."

Noffsinger also emphasized the benefits of acclimating cattle to new surroundings and moving them through a processing facility once prior to restraining them and performing vaccinations or other procedures.

Dee Griffin, feedlot veterinarian at the University of Nebraska Great Plains Veterinary Education Center, offered tips for restraining individual animals using ropes. He urged familiarity with numerous

knots that make rope restraint safer for the animal and the handler. Griffin said the most important knot may be the bowline, which can be used to secure a loop around an animal's neck that will not pull tight and cause the animal to choke.

Another must-know knot is the Honda knot — the same one used to make the "eye" loop in the end of a lariat. Griffin also demonstrated the weaver, or sheet bend, knot, which can be used to fasten the ends of two ropes together and remain easily untied. A clove hitch halter tie knot is Griffin's favorite for securing an animal's head to one side of a chute to gain access to the jugular vein.

Griffin showed how to apply a bowline-tied loop around the neck, a half hitch around the withers and another half hitch around the flank area to cast an animal for treatment. He called it a good method to know and apply when a chute is not accessible.

For more information and online demonstrations, Griffin advised cattle handlers to consult www.animatedknots.com, calling it "an excellent knot-tying Internet site."

— by *Troy Smith*

Managing pain of castration

Australia and the United States are competitors in beef production, but their production systems vary quite a bit. Cattle production in northern Australia is low-input, Carol Petherick, senior research fellow at the University of Queensland, told attendees. Australia has a large number of animals in very large areas. These rangeland conditions mean that stocking rates are low, and there are often few employees on the ranch.

Cattle are handled once or twice a year (in May and/or September) when calves are

weaned or branded. Northern Australia has a tropical climate with highly variable rainfall, in both timing and amount. This also affects the timing of husbandry.

"It is not uncommon that calves are 7 to 12 months of age and older when they are dehorned and castrated," she explained.

While the preferred option from an animal welfare perspective would be not to perform dehorning, castration or spaying, it would likely take decades to change the production system, Petherick noted. Many welfare projects have been

done on *Bos taurus* calves, and Australian cattle are mainly *Bos indicus* or high-percentage *Bos indicus* crosses. She shared research on castration pain mitigation using Australian production practices.

The issues with pain relief are that a very limited number of drugs are regulated for use in cattle, and all are restricted to use only by a veterinarian or with supervision. Cost is a factor, plus additional handling and time. The efficacy for procedures is unclear, too, she added.

She shared results of a study that compared surgical castration to banded castration in both weaning-age bulls ("weaners") and mature bulls. The nonsteroidal anti-inflammatory drug (NSAID) ketoprofen was given as a pain reliever, but she said it took about 1-2 hours to kick in for mature bulls and no difference was noticed in the weaner bulls. More pain was observed through movement and abnormal lying positions among the banded bulls in both age groups.

Granted, cattle that were unaccustomed to handling and restraint showed a heightened cortisol response, which masks a pain-specific response and any beneficial effects of analgesic.

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► Surgical castration has more acute pain, but it can be managed with the NSAID, and pain and inflammation fades more quickly, said Carol Petherick, senior research fellow at the University of Queensland.



► Dee Griffin, feedlot veterinarian at the University of Nebraska Great Plains Veterinary Education Center, urged familiarity with numerous knots that make rope restraint safer for the animal and the handler.





and the pain and inflammation fades more quickly, she said.

“The lack of efficacy of the NSAID in the banded bulls indicates noxiousness due to more pain. We recommend not banding bulls,” she explained.

— by Kasey Brown

Reduce stress at weaning

Cattle are raised in extensive, pasture-based systems in South America, and about 87% of cattle finish on grass, explained Maria José Hötzel of the Laboratório de Etologia Aplicada e Bem-Estar Animal, Departamento de Zootecnia e Desenvolvimento Rural at the Universidade Federal de Santa Catarina in Brazil.

The biggest difference between natural weaning and artificial weaning is

that natural weaning is a gradual change in diet and social contact with the dam. Artificial weaning changes both the diet and social contact suddenly, Hötzel said. Two of the recommended forms of weaning to reduce stress are fenceline separation and nose-flap weaning, which are both conducive to pasture-based systems.

Weaning is stressful, Hötzel emphasizes. The separation from the dam, new social environment, new diet, no milk, no suckling and new spatial environment greatly affects the calf’s performance. A calf’s behavior is indicative of weaning stress, though different factors can contribute to the stress.

Nose-flap weaning puts a hard plastic flap on the calf’s nose, which blocks the calf from being able to suck. This still allows social contact with the dam, but forces the calf to change its diet. Calves weaned through fenceline weaning experience a loss of suckling and milk ingestion and social contact, though the calves can still see their dams.

In an initial study, Hötzel says three groups of calves were observed — weaned by nose flap, by fenceline separation, and a control group of abruptly weaned calves. Those weaned by nose flap and fenceline spent more time eating, less time walking and vocalizing, and had better average daily gains



► Maria José Hötzel, from the Laboratório de Etologia Aplicada e Bem-Estar Animal, Departamento de Zootecnia e Desenvolvimento Rural at the Universidade Federal de Santa Catarina in Brazil, recommended nose-flap weaning.

(ADG) (though less clear in the nose-flap weaning).

However, fenceline calves bawled and paced more the first few days after separation, while nose-flap calves endured the loss of milk and suckling in the company of their dam. Hötzel recommended having good fences and more available pasture for fenceline weaning.

Ultimately, Hötzel recommends nose flap weaning, with the nose flap staying for three days rather than 14. She granted the nose flap duration study had variable pastures, but

behavior and performance was noted to be better when the nose flap was used for three days.

Additionally, the response to weaning is influenced by calf development — body size, body condition and grazing skills — and pasture availability and quality.

— by Kasey Brown

Environmental stresses

“Since 2009, we’ve had major adverse weather conditions in the Midwest that have contributed to major livestock losses,” noted heat-stress specialist Terry Mader of Mader Consulting LLC.

Environmental stress leads to impaired digestive, metabolic and immune function. Weather has been more variable in recent years, and heat stress levels have increased about 1% each year since 2000. High-performing animals are the most susceptible to heat stress.

Dying of heat stress is a horrific death, he explained. It involves dehydration, intravascular coagulation, respiratory and neurological collapse, tremors, lack of coordination, and death.

“It is unacceptable the number of heat stress deaths each year,” Mader asserted.

Cattlemen must be vigilant in monitoring their cattle and taking the appropriate measures early in the day before panting is noticed. Cattle at the most risk are unhealthy or previously sick, dark-hided, high-producing, competing at the water bunk, and those on endophyte-infested grasses.

“If I had to pick one way to cool animals, it would be to put water in or on an animal, but it needs to be consistent,” Mader explained. Other ways to mitigate heat stress include shade, sprinkling of pens, and ample access to cool water. He recommended having 2-3 linear inches (in.) of water bunk space per animal during the summer, compared to ¾-1 linear in. in other seasons. Warm water decreases intake and gain, so avoid aboveground black PVC hose and waterers.



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Flies and other parasites, extra body condition, limited air movement and moving animals also contribute to heat stress. Additionally, he said, from an animal welfare standpoint, cattle shouldn’t be fed to gain 4.2 pounds (lb.) per day throughout July.

Regarding placement of feedlot pens, 47.1% of cattle deaths occur in south- and west-facing pens, according to a study published in 2010 in the *Journal of Animal Science* in which Mader participated. A comprehensive climate index (CCI) adjusts ambient temperature for relative humidity, wind speed and radiation. The bare ground in a feedlot pen can be 50° F greater than the air temperature. Green grass and trees buffer solar heat.

Contrastingly, in the winter, there are even higher cattle losses. Cold and mud are bigger factors than heat stress, he said. Wet pens

equal wet cattle. Winter mitigation includes shelter, windbreaks and bedding.

“What is acceptable in hot or cold deaths?” he challenged the audience. “What yardstick should be used? Who decides, the producer or the consumer?”

— by Kasey Brown



► Tom Noffsinger, a feedlot veterinarian and animal-handling consultant, said proper facility design and handler training can create voluntary cattle flow without the use of driving aids.

Low-stress handling benefits

Inappropriate handling episodes occur when handlers don’t understand how to perform the task.

We must take responsibility for our actions and set our animals up for success, said

CONTINUED ON PAGE 118



Hands-on Beef Cattle Welfare CONTINUED FROM PAGE 117

Tom Noffsinger, a feedlot veterinarian and animal-handling consultant.

A lot of bad situations come from untrained handlers or untrained cattle. Proper facility design and handler training can create voluntary cattle flow without the use of driving aids such as flags, paddles, sticks and prods.

“If you keep doing what you’re doing and it’s bad, you’re going to keep getting what you’ve got,” Noffsinger asserted. He said some Australian friends quip that Americans don’t roll their own cigarettes anymore. Americans tend to get frustrated and keep doing what isn’t working instead of stopping and re-evaluating the situation.

Cattle need to see where you want them to go, and handlers should put pressure on the front of the animal, not the back.

“You have to interact with the correct portion of the cow — the eye,” Noffsinger explained. “When cattle can see you, they can interact with you. They crave to see the destination and the source of guidance simultaneously.”

He highlighted a few caregiver goals, which included greeting new arrivals to alleviate some relocation stress, demonstrate communication skills, encourage health status honesty, recognize abnormalities, allow the immune system to function, enhance water and feed intake levels, and

encourage rest and recuperation. Cattle that are uncomfortable in their home won’t drink.

Cattle lick and chew when comfortable, he observed. The goal is to have them comfortable during processing, or any time they are interacting with humans.

He urged cattle owners and managers to realize that success and harmony start at the top. Make sure every interaction between caregivers and animals is a good one.

— *by Kasey Brown*

