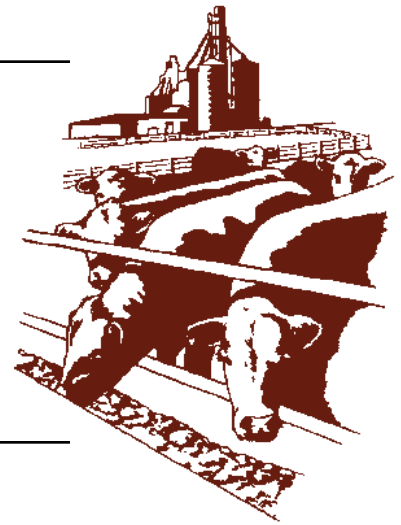


Beef Cattle Handbook



BCH-4400

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Ways To Reduce Handling Stress

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Careful, quiet handling of cattle will help improve productivity. Research studies have shown that stresses imposed by handling and transport can have a detrimental effect on weight gain, rumen function, reproductive function and the immune system (Galyean et al., 1981; Hixon et al., 1981; Blecha et al., 1984). Quiet handling also improves animal welfare and reduces stress-related meat quality problems such as dark cutters.

How stressful is handling and restraint? The degree of stress is determined by an interaction of previous experiences, tameness and genetics. Stress levels during restraint can range from almost zero in totally tame animals to extreme levels similar to being pursued by a predator. Tame cattle which are accustomed to frequent gentle handling will be much less stressed by restraint in a squeeze chute compared to wild cattle that see people only twice a year. In one study, tame dairy cows had much lower cortisol (stress hormone) levels during restraint compared to wilder beef cattle (Lay et al., 1992).

Cattle Have Good Memories

There is an old saying that you can tell what kind of a stockperson a person is by looking at the behavior of the cattle. Cattle have long memories and animals that have had previous experiences with rough handling will be wilder and more difficult to handle compared to cattle with previous experiences with gentle handling. Ranchers in Australia have found that calves that are gently trained by having people walk or ride among them while they are grazing will be calmer and easier to handle. The animals need to learn that you are neither a predator nor a food source. To prevent young calves

from becoming stressed when cows chase a vehicle for feed, train the animals that feed is available only when the horn is honked.

Genetics can also affect reactions to handling. Flighty, excitable cattle will take longer to respond positively to quiet handling than animals with calmer genetics. While most cattle will calm down when they are handled quietly, there are a few individuals that remain wild. In one experiment, a small percentage of bulls became extremely agitated in a squeeze chute every time they were handled (Grandin, 1992). Repeated gentle handling failed to calm down these bulls. Highly excitable cattle should be culled. They increase agitated behavior in the herd, both by passing on their genes and getting cattle around them excited. To accurately cull for temperament, there should be a minimum of two evaluations. More than one evaluation is required to avoid culling a good animal that becomes excited because an animal next to it becomes agitated.

Calm Handling Methods

The principle of quiet handling is to avoid excitement. If an animal becomes very excited, 20-30 minutes is required for its heart rate to return to normal (Stermer et al., 1984). The first step is to reduce yelling and electric prod usage. Cattle are very sensitive to high pitched noise. Electric prods can be almost eliminated by replacing them with wands with plastic streamers on the end or light plastic paddles which contain rattles. To keep cattle calm, handlers also need to learn to work on the edge of the flight zone and to use the point-of-balance at the shoulder. To drive an animal forward, the handler must

be behind the point-of-balance and outside the blind spot right behind its rear end. The animal will turn and look at the handler if he enters the blind spot. When cattle are moved through a single file chute, an entire line of animals will move forward when the handler walks back past the point-of-balance of each animal. The handler walks in the opposite direction of desired cattle movement. Handlers must also avoid overloading the crowd pens. This is one of the most common handling mistakes. Cattle need room to turn in the crowd pen. A wand with plastic streamers or a plastic paddle with rattles can be used to turn the animals. To turn an animal to the left, block its vision on the right side. Handling small groups is best.

Designs for Calmer Cattle

Solid sides on chutes and crowd pens help keep animals calmer. Solid sides provide the most advantage when wild cattle are handled and have less of an effect on tame animals. Cattle fear people that are deep inside their flight zone or personal space. The wilder the animal, the greater the flight zone. Completely tame animals have no flight zone. When a solid barrier is placed between a relatively wild animal and a person, the animal feels safer and is less likely to become excited. Even partial blocking of the view of a nearby person will have a calming effect.

Standard squeeze chutes violate this behavioral principle. The operator and other people are deep in the animal's flight zone. The installation of solid drop-down sides is especially recommended if cattle are wild. Cattle will also remain calmer during restraint if they can see a calm animal standing either in front of them or behind them. For AI or pregnancy testing, cows can be placed in a dark box with solid sides, top and front. It has no squeeze or headgate. For maximum stress-reducing effect, the cattle should be familiarized with the box prior to breeding. A new, novel box may be frightening. Novelty is a very strong stressor because cattle are a prey species.

On hydraulic chutes, the pressure relief valve must be set to prevent oversqueezing. Excessive pressure can cause severe injuries. Many people make the mistake of squeezing an animal harder if it struggles. The animal may be struggling due to people deep in its flight zone

or excessive pressure. Animals will stand still if the concept of optimal pressure is used. There must be sufficient pressure to make the animal "feel restrained," but excessive pressure that causes pain or discomfort must be avoided (Grandin, 1993).

Another principle is that sudden, jerky motion of a restraint device excites an animal and slower, steady motion has a calming effect. Lunging at the headgate can be reduced by installing a solid sliding gate with a small window in it about four feet in front of the headgate. This may slow down cattle handling, but headgate injuries and stress would be reduced. Cattle should be driven into a squeeze chute at a slow walk. Reducing stress will help make cattle more productive and improve animal welfare.

References

- Belcha, F., S. L. Boyles and J. G. Riley. 1984. "Shipping Suppresses Lymphocyte Blastogenic Responses in Angus and Brahman X Angus Feeder Calves." *J. Anim. Sci.* 59:576-583.
- Galyean, M. L., R. W. Lee, and M. W. Hubbert. 1981. "Influencing of A Fasting and Transit on Rumen and Blood Metabolites in Beef Steers." *J. Anim. Sci.* 53:7-18.
- Grandin, T. 1992. "Behavioral Agitation During Handling of Cattle is Persistent Over Time." *Appl. Anim. Behav. Sci.* 36:1-9.
- Grandin, T. (Ed.) 1993. "Livestock Handling and Transport." CAB International, Wallingford, Oxon, England.
- Hixon, D. L. et al. 1981. "Reproductive Hormone Secretions and First Service Conception Rate Subsequent to Ovulation Control With Synchronate B." *Theriogenology* 16: 219-229.
- Lay, D. C., T. C. Friend, C. C. Bowers, K. K. Grissom, and O. C. Jenkins. 1992. "A Comparative Physiological and Behavioral Study of Freeze and Hot Iron Branding Using Dairy Cows." *J. Anim. Sci.* 70:1121-1125.
- Stermer, R., T. H. Camp, and D. G. Stevens. 1981. "Feeder Cattle Stress During Transportation." Paper No. 81-6001, *Amer. Soc. Agric. Eng.*, St. Joseph, MI.

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