

General Session II

"Environmental Considerations"

Moderator — Jerry Stokka

Bovine Behavior: Key to Handling Cattle

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Abstract

An approach to applying behavioral knowledge to handling cattle is discussed. It is pointed out that cattle usually behave in predictable ways, and that those who handle cattle should be able to predict the animals' most likely behavior. Applying scientific knowledge to practical cattle handling is outlined under the categories of herding instinct, dominance, vision, flight zone, hearing, previous experiences, strange environments, and curved chutes and other sorts of handling facilities.

Introduction

When humans began producing food instead of gathering it, the large ruminant animals simply showed up and began pestering the neophyte farmers by robbing them of their crops (Zeuner, 1963); these fellow beings seem to have tired of gathering food, too. Indeed, early farmers' first fences were meant to keep these marauding creatures - including aurochs, the ancestors of our cattle - out not in.

Soon, however, these animals became tame, and then domesticated. And eventually, of course, those special species possessing sufficient adaptability and utility came to be produced agriculturally (Hale, 1969). So we humans seem not to have intentionally gone into the wild to round-up candidates for domestication. Rather, these crop-robbing herbivores actually came to us plant producers for their own selfish reasons, sort of asking to be integrated into our society. As Stephen Budiansky (1992) has pointed out, "...The first chore for anyone who would set out to prove that the domestication of animals is a natural product of evolution is to undo several thousand years of human self-importance."

Ever since then, we have counted on cattle for all kinds of beneficial products. And so ever since, for our own selfish reasons, we have been trying to manage these special animals so as to enhance their productivity. And in managing them, we sometimes have to handle them. And herein has lain a problem. Veterinarians find themselves in a variety of peculiarly well-suited positions to observe cattle handling in every situation imaginable, and the veterinary profession has an ethical responsibility to attempt to enhance animal well-being at every opportunity and to correct handling problems as they occur.

Some handlers' personalities have sadistic features. These people should not be permitted to handle animals. More often the problem at its root is just this: Most cattle are more massive than most humans. Cattle commonly weigh eight to ten times as much as their human handlers. Consequently, as we have handled our cattle we have had to apply our greater cognitive powers, our powers to think and reason, to observe and associate, our powers to achieve mind over matter, to use more brain than brawn. We need to apply behavioral knowledge in getting animals to go where we want them to go, to do what we want them to do, even when they seem to be of a different mind.

In many situations, this is no mean feat; in fact, mind does not always overwhelm matter. Still, many more times than not, it must do exactly that. Otherwise, we cannot get on with managing these special animals so as to enhance their productivity, so as to better serve our own purposes.

While handling cattle, sometimes we become frustrated with them as they refuse to mind us, refuse to go or do as we might wish. And this frustration may lead

to anger. Other times we become frightened by the cattle and their charging or looming presence. And this fear - which is completely rational - may lead to anxiety. Anger and anxiety in turn may cause us to lose our temper. And when we do, we sometimes resort to abusive cruelty as we try in vain to get the animal's attention, to get it to submit, to vent our exasperation, or to *whatever*. When the quality of our stockmanship has degenerated to this sort of futile exercise, not only are we acting foolishly, we are acting inhumanely. It could as well go without being said: Good stewards of animals never act inhumanely toward their charges.

Although spokespeople for animal agriculture reassuringly tell consumers that "farmers and ranchers are neither cruel nor naive....A farmer would compromise his or her own welfare if animals were mistreated" (Anonymous, 1988), the fact is that some fraction of the cattle in this country occasionally are physically abused, especially at times when they are being handled for one reason or another, and especially when they are being handled by someone who does not hold them as chattel. Observing behavioral principles surely must be the way to minimize the cases of abusive cruelty in cattle handling.

Digression: Behavioral Approaches and Handling Aids

Before reviewing some behavioral principles that underlie sound cattle handling, let us digress to discuss the appropriate overall approach to the task. Everyone who handles cattle needs to occasionally remind himself or herself of two things:

- 1) cattle *usually* behave in predictable ways, and
- 2) those people who would handle cattle should be able to predict the animals' most likely behavior.

The handler who thoroughly understands cattle behavior - better yet, who "thinks like cattle" - is in the best position to react appropriately on the spot when a situation arises requiring correction of an animal's behavior or intention. Often corrective action can be achieved using handling aids that employ sound or sight cues aimed at the cattle: plastic rattles on long poles, canvas slappers hit against walls, plastic pom-poms shaken in the animals' faces, or whips cracked *above* their heads.

Alas, cattle do *not always* behave predictably. When they refuse to move as the handler might wish, it is appropriate to use a well-chosen goading device such as a slapper or electric prod. But the force applied should be the minimum required to start the animal, and any such force should be applied dispassionately (Curtis, 1988). If excessive slapping or prodding is required routinely, then either (a) the personnel involved may be too angry, too anxious, or inadequately trained in proper cattle handling techniques; (b) the facility may be designed improperly; or (c) the animal may be sick or injured.

Behavioral Principles Underlying Sound Cattle Handling

Much has been documented about the many various aspects of the behavior of cattle (e.g., Hafez, Schein, and Ewbank, 1969; Hafez and Bouissou, 1975; Kilgour and Dalton, 1984). The foremost scientist specializing in the application of behavioral principles to cattle handling in particular has been Temple Grandin (1989, 1993a), an animal scientist, both an academic and an industry consultant. The annotated outline that follows is based on her work in organizing our knowledge in this area.

Digression: Scientific Knowledge is Based on Organized Observations

A brief review of a recent scientific paper authored by Grandin (1993b) will serve to exemplify the point that, although casual observations by alert observers serve as the first step in generating scientific information, organized observations are the ultimate step.

"Cattle with a bad temperament are more difficult to handle and create a safety hazard for handlers," Grandin began the introduction of this article. In this experiment, 53 bulls and 102 steers were restrained in a squeeze chute for blood testing every 30 days. In four consecutive sessions, 9% of the bulls and 6% of the steers became extremely agitated every time they were restrained, whereas 25% of the bulls and 40% of the steers always stood very calmly while being restrained in the squeeze chute. These results documented the fact that agitated behavior is very persistent over a series of handling and restraint sessions. There also was a relationship between balking and this temperament rating: Agitated bulls balked less during entry into the squeeze chute. Finally, cattle balked less when entering a scale than when entering the squeeze chute, indicating that restraint in the latter was more aversive.

Applying Behavioral Principles to Cattle Handling

Herding Instinct. Cattle are herd animals, so isolation is an agitator and a stressor. Isolated cattle are more likely to injure handlers as they frantically attempt to rejoin herdmates.

Cattle *follow the leader* in order to keep in visual contact with herdmates. When a string of cattle stops, starting the leader moving again often results in the whole group starting to move.

A calm pacifier cow put in tactile contact with a wild cow tends to tame the latter so certain procedures can be performed.

Dominance. Cattle are used to submitting to dominant individuals in their herd. Likewise, they of-

ten will submit to humans who establish and exert dominance over them by becoming what Grandin has called *the boss animal*.

Vision. The visual field of cattle exceeds 300 degrees. Thus, they can see items and movements all around their bodies. These often distract or frighten the cattle, causing balking and other anomalous behaviors. For example, a jacket hung on the outside of a chute wall and flapping in a breeze can stop cattle movement. Solid walls prevent animals from seeing such things, and are especially useful with animals unaccustomed to the facility.

Blocking vision stops attempts to escape. Wild cattle remain calm when their heads are in a dark area that blocks vision.

Cattle often balk at shadows, bright spots, and changes in floor surface.

Cattle have color vision, and are more likely to balk at sudden changes in color. Thus, handling facilities should be painted one color.

Flight Zone. When a human enters an animal's flight zone, the animal starts to move away. Tame cattle have smaller flight zones than do wild ones; range cows' flight zones may have a radius of as much as 200 ft, whereas some dairy cows have virtually no flight zone. If a handler penetrates too deeply into an animal's flight zone, the animal will either bolt away or, if there is no obvious route of escape, turn and run back past the handler. Accidental injuries are common in the latter instances.

The ideal position of a handler is at the edge of the animal's flight zone. To start the cattle moving, the handler enters the flight zone; to get them to stop, the handler steps back from the flight zone.

Each animal has a *point of balance* somewhere near the withers. To cause the animal to go forward, the handler stands behind the point of balance and enters the flight zone; to cause it to back up, the handler stands in front of that point and enters the zone.

Hearing. Cattle are very sensitive to high-frequency noises. Loud or new noises can frighten and stress cattle, so they should be eliminated from the surroundings of handling facilities. Noise from a rustled pom-pom or shaken rattle may be used to start cattle moving. Noise from metal against metal, doors closing,

and hydraulic handling equipment, though, should be minimized.

Previous Experiences. Cattle probably do not have the cognitive capacity to fantasize about frightening or pleasurable experiences (Curtis and Stricklin, 1991). But they will remember such experiences when next confronted by the situation, months and even years later, and act accordingly. This underscores the wisdom of handling animals gently at all times.

Strange Environments. Cattle are creatures of habit. If they have experienced only one environment, they often become frightened and stressed when moved to another place. Cattle raised in a variable environment or a series of environments are more adaptable to novel places.

Curved Chutes. Grandin offers detailed advice on all aspects of designing all sorts of handling facilities for cattle. For example, she recommends curved single-file chutes for moving cattle onto a truck or into a squeeze chute. This handling facility prevents the cattle from seeing what is at the other end of the chute until it is almost upon the end, and it also takes advantage of the animal's natural tendency to circle around a handler moving along the inner radius of the chute. Grandin advises using a curved chute with an inside radius of 12 ft to 16 ft for handling cattle.

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