How to improve animal welfare in the milking parlor

Julie Smith for Progressive Dairyman

Animal welfare in the milking parlor is one piece of the bigger picture of how improving cow comfort and removing barriers to production can increase milk production efficiency and profitability on your farm. Different styles of milking may have different welfare issues associated with them, but the principles of animal handling, hygiene and milker training apply across the board.

Stimuli and their use (or abuse)

The central principle of low-energy handling taught in modern stockmanship training is that you use the lowest energy stimulus necessary to get the desired response. Stimuli come in the form of visible signals (movement which varies in speed, direction and distance relative to the flight or escape zone), audible signals (shushing, talking, yelling or whistling) and touch (slapping, poking, pushing, tail-twisting or electric prodding).

More than 80 percent of the herd should be easily moved with only low-energy stimuli (rocking or walking, talking not shouting, pushing not hitting). The cow moves because of these stimuli – not because of what you said or what you think is going through its head. Dr. Bonnie Beaver, veterinary behaviorist, states, “One of the first lessons in livestock handling is to quit trying to explain the animal’s behavior in terms of what it might be thinking or feeling.”

How do animals learn?

Stockmanship training Dr. Don Högland explains that animals learn by trial and error. They learn which behaviors are rewarded and which are punished. A more neutral way to think about the learning process is that an event (or outcome) is associated with a stimulus. The stimulus can be pleasant or unpleasant. A stimulus can be applied (i.e., introduced or increased) or taken away (i.e., reduced or removed) in order to increase or decrease a behavior.

Think of classic carrot-and-stick stimuli. The carrot is offered to promote a behavior and fed as a reward to reinforce it. The stick is used to decrease a behavior. In animal training, the method of reducing or removing a stimulus to promote a behavior is common.

It can be helpful to assess both the cow and the environment to figure out why there is a problem moving a particular cow or moving cows at a particular place. Cows usually need to stop and investigate things that are new in their environment. Making things “not new” can help keep cows moving. Cows that have had an aversive experience in a particular place or with a particular person will also be more difficult to move.

What do we want lactating cows to learn?

Basically, we want cows to go where we want them to go because that is where they want to go. The late stockmanship leader Bud Williams explained his method as “let[ting] the animal do what I want.” We want them to know when it is time to go to the milking center and how to get there. We want them to stand without kicking during milking. We want them to exit the milking center and return to their pen. The cow can be motivated to be milked because that will relieve pressure in the udder. The cow can be motivated to stand quietly if treated gently by people and milking equipment in the parlor. The cow can be motivated to get a drink of water and a meal if access to fresh water and fresh (or freshly pushed up) feed is available.

Work with the cow’s biology

You are probably very familiar with the cow’s let-down reflex. Suckling or udder stimulation is sensed by nerves that transmit impulses to the brain where they trigger the release of oxytocin from the pituitary, which travels through the bloodstream. The binding of oxytocin to receptors in myoepithelial cells in the alveoli of the udder leads to their contraction and milk ejection.

Extensive research has shown that this reflex is maximal a minute to a minute-and-a-half after the beginning of udder stimulation. We also know this reflex can be short-circuited by the release of adrenaline. Adrenaline takes about 20 minutes to clear from the bloodstream. Therefore, it is important not to trigger the release of adrenaline within 20 minutes of entering the milking parlor or

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the cow will not milk to its full potential. Think about the first-calf heifers entering the milking string. If they are trained to the parlor before they need to enter to be milked, they may have a better letdown response.

**Equipment settings and animal welfare**

Abnormal teat conditions caused by equipment settings, management or environment are linked with increased risk of mastitis. The usual motivator for management involvement is to reduce milk losses and therefore increase profitability. It is important to keep in mind that addressing these conditions and preventing mastitis also improves animal welfare, which is increasingly on the mind of the consumer.

Some conditions are short-term, meaning they will resolve spontaneously within a few hours. For example, purple teats after the unit is removed will return to normal. However, this could be caused by a number of equipment factors (such as high milking vacuum; faulty pulsation; wide-bore, old or high-tension liner design; small-lipped or too large a mouthpiece; mismatch of liner and teats) or improper procedure leading to overmilking. Addressing the problem before it leads to medium-term or chronic changes in the teat is important.

Teat-end hyperkeratosis is one of those conditions that will persist once it develops, even if the roughness can be reduced through emollients and attention to equipment problems. Milkers should be alert to lesions of the skin of the teat barrel caused by infectious agents. Beware that multiresistant pathogens are a great source of spread of infection. Veterinary attention should be triggered by any ulcerative or vesicular condition.

**Mastitis and animal welfare**

According to a nationally representative survey conducted in 2007, 16.5 percent of U.S. dairy cows had clinical mastitis. About twice as many are estimated to have subclinical mastitis. Mastitis or udder problems is the second-most common reason for culling dairy animals. These statistics place mastitis high on the list of welfare issues on dairy farms. Consumer concern about mastitis stems from both animal welfare and food safety perspectives. Mastitis control cannot be limited to milking procedures. Pre- and post-dipping are important but not sufficient to eliminate mastitis. Look to barn design, overall cow cleanliness and low-energy handling to reduce stress while also providing nutritional support of immune function.

**Good feet and good footing for better milk production**

Losing milk to lameness or a cow to a slippery floor again present challenges to animal welfare and farm profitability. Think about whether any of the cows that are hard to get up at milking time are lame cows. What do they do when they exit the parlor? What could be done differently to make milking less aversive to these cows?

Tracking where cows slip or fall can draw attention to areas where improvements in traction can make a big difference. Use data to drive corrective action.

**Get your team on board**

It’s all well and good to go to a meeting or read the proceedings and become more knowledgeable. How are you going to use what you have learned to improve animal welfare and profitability on your farm?

1. Make welfare a priority; conduct a welfare audit.
2. Provide incentives – compliment good work, fire repeat offenders.
3. Attend or send key employees to stockmanship training – or invite a trainer to your farm.
4. Repeat 1, 2 and 3 regularly.