

# Do you get all the milk? The importance of stockmanship

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## Abstract

The importance of human-animal interaction for the well-being and production of dairy cattle is increasingly recognized. This paper discusses the impact of stockmanship skill and worker attitude on production and animal well-being on dairy farms.

**Key words:** dairy, stockmanship, welfare, well-being

## Résumé

On reconnaît de plus en plus l'importance de l'interaction homme/animal pour le bien-être et la production des bovins laitiers. Cet article discute de l'impact des aptitudes d'élevage et de l'attitude des travailleurs sur la production et le bien-être des animaux dans les fermes laitières.

## Introduction

Milk production of cattle is impacted by their health status, and most research is focusing on improving animal health through refined vaccination strategies, genetic improvement, nutrition, reduction of infectious pressure, biosecurity, and facility design – just to name a few. There is no doubt these factors are important parts of the puzzle to improve animal well-being. Yet, a seldomly investigated and commonly overlooked variable is the impact of human-animal interactions on dairy cattle's well-being, stress, reproduction, and production.

Cattle are handled daily on every dairy farm in the world, regardless of the country, facilities, infectious pathogen exposure, production level or breed. In epidemiological studies, we often encounter differences between herds that cannot be explained by the assessed management factors. One might speculate that the attitude, personality and handling skills of farm personnel might be 1 of the factors explaining these differences.<sup>16,18</sup> We know from the human medical field that it is not just the skill set of the clinician and their ability to “get the job done”, but in particular it's their bedside manners that influences patient satisfaction, stress, anxiety, and improves emotional well-being and health outcomes in patients.<sup>9</sup> In the livestock industry, the combination of

good handling practices, understanding of the animals' needs, signs of sickness, and a positive attitude towards the animals are often called *stockmanship*.

## Farm Personnel Attitude & Milk Production

Indeed, several studies have found that the “human factor” or the attitude of farm personnel is very important for well-being and production levels of animals.<sup>10,15,16</sup> The importance of attitude and stockmanship skills has been well-documented in the swine industry.<sup>12</sup> Poor handling has been shown to decrease fertility, while stockmanship training of personnel not only improved the stockman's handling skills and attitude towards the animals, but was also associated with higher farrowing rates and longer retention of farm workers.<sup>6</sup>

For the dairy industry, Seabrook<sup>18</sup> showed that the attitude of dairy workers was associated with the milk production of cows. Likewise, Breuer et al<sup>3</sup> demonstrated that the attitude and handling skills of farm personnel explained 19% of the variation of milk production between farms. Considering that stockmanship skills explained up to 70% of the residual milk after milking,<sup>17</sup> it is not surprising that a recent survey found an association between stockmanship training and milk production. After accounting for herd size and bulk tank somatic cell count, herds that had employees with stockmanship training had a 1780 lb (810 kg) higher rolling herd average than herds without stockmanship training.<sup>20</sup> Although no causal inferences could be made based on the survey data, one must still wonder if participation in stockmanship training may be a surrogate for attitude towards improvement and animal well-being on dairy farms.

However, it is not only the attitude of stock personnel, but also the cattle handling skills that are of great importance for dairy farms besides cow flow<sup>20</sup> and milk let-down on farms.<sup>1,17</sup> Improper handling of cattle will stress cattle and stock people as well, and was shown to have an impact on reproduction of cattle as well as in other livestock species.<sup>6</sup> Stressed cattle have increased serum cortisol levels, are less likely to respond to stimuli from the handler, and are less likely to ruminate than those with lower cortisol levels.<sup>4</sup> Attitude and skill are closely interwoven, and poor attitude will affect the

handler's patience and handling skills, which will affect the response of the animal and likely the attitude of the handler. The adrenergic response to stress, such as 'pushing' the cows too fast to the milking parlor, will impair the oxytocin reflex and compromise milk let-down.<sup>5</sup> Most people only focus on cattle handling in the holding pen and procedures in the milking parlor, and may not realize that human-animal interactions start in the pen where animals live. Any interaction in the pen will affect cattle. Therefore, when walking or herding cattle, remember that cattle move slower than humans, and that they need clear signals from the handler and a chance to react. If cattle are moved too fast or inappropriately from their pen towards the milking parlor, they can become stressed. Shouting should also be avoided as cattle find loud human voices even more stressful than the banging sound of metal gates.<sup>21</sup> These are not new concepts, as in 1918 Gardner stated in his textbook *Live Stock and Dairy Farming* that "A dairy cow should always be handled gently, for any disturbances affect her. Loud noises or disturbances should be avoided. A cow should never be struck or mistreated, nor should she be talked to in a loud voice."<sup>10</sup>

### Stockmanship

Bud Williams has identified some of the most crucial aspects of proper cattle handling. He emphasized the importance of angle, speed, timing, and understanding and utilization of animal senses (sight, sound, and touch) for the effective handling of cattle. An important point is that cows need to see the handler and that the handler must be aware that cows prefer to follow "their nose" and other cows. Clear signals are imperative for good cattle flow as they will ultimately react to the handler's signals. Therefore, the handler should be aware of his/her actions, environmental stimuli, and the reactions of the cattle. The handler should adapt his/her behavior to the given circumstances, and as soon as the cattle are initiated to move as desired by the handler, pressure on the animals must immediately be released as positive reward.

A commonly observed mistake is that handlers place increased pressure on a particular animal (e.g. a cow who does not get up in its stall or does not react as anticipated), but does not recognize that other cows in the area may have a lower reaction threshold than the focus animal, and are becoming stressed by the actions of the handler. Rough handling of an animal will result in a ripple effect and create more anticipating cows, while calm and positive handling of cattle will translate to calm animals around the handled animal. Because adrenergic responses are not immediately switched off, any interaction on the way to the parlor affects milk let-down for that milking. Keeping this in mind will improve

the cattle flow and reactivity, and will likely decrease kicks and defecation in the parlor, which contribute to potentially hazardous and undesirable working conditions for parlor employees.

### Milking Heifers

Cattle are creatures of habit, and novel stimuli can potentially increase stress. On most dairy farms, replacement heifers are handled very little until they are returned from the heifer raiser or until they calve for the first time. They are then bombarded with a myriad of novel stimuli: increased human-animal interactions, new facilities, new animals, new feed ration, hormonal changes, calving for the first time, as well as exposure to sound, touch, and smell of the milking parlor/milking for the first time. Therefore, it is not surprising that some primiparous heifers are prone to "act up" during the first several milkings. On many farms, milking fresh heifers is considered one of the most challenging areas to establish calm animals on farm.<sup>20</sup> Until heifers become accustomed to being milked and do so in a calm fashion, they may refuse entry to the milking parlor, kick off milking units or show increased flinch-step-kick responses compared to other animals. Acclimation to the milking routine does not have to be difficult. By reducing the number of novel stressors prior to calving, heifers' performance and behavior can be improved during early lactation.

The importance of habituating the animals to the handler has been seen in the beef industry. Cooke et al acclimated pre-pubertal heifers (both *Bos Indicus* and *Bos Taurus*) to human-proximity and handling facilities for 4 weeks, 3 times a week. A negative control group was left undisturbed on pastures. Although the acclimated heifers had a slightly lower average daily weight gain, they were calmer, had lower serum cortisol levels, and ultimately significantly better pregnancy rates than those not habituated to humans.<sup>7,8</sup>

Several approaches have been tried with varying degree of success to habituate heifers to the parlor and handling. Hemsworth et al<sup>13,14</sup> tested whether interaction with primiparous heifers during calving or shortly after calving had any impact on the milking behavior of cattle when compared to no additional handling. For the first hour post-calving, the handler would stand within 16 feet (5 m) of the heifer or approach the heifer to within 3.3 feet (1 m). If the animal backed off, the handler retreated. In addition, the handler's hands were covered in fetal fluids. If the heifer could be approached, the handler would hold his/her hands to the cow to smell. Indeed, handled cattle were slightly calmer and faster to enter the milking parlor than those not touched.

Bremner conducted an experiment where prepartum heifers were either 1) not additionally handled

nor exposed to the milking parlor, 2) moved through the parlor 2x prior to calving, or 3) handled and moved through the parlor and handled around the udder on 14 occasions.<sup>2</sup> Although prepartum handling improved behavior of heifers during entrance to the parlor and while milking, it did so only in 1 of the 2 study herds. Again, differences in magnitude of the effect of handling between study farms remained unexplained, and may have to do with the handling skills of herd personnel.

Authors of yet another study brushed heifers daily for 5 minutes between 6 and 49 weeks prior to calving.<sup>1</sup> Heifers brushed had a 19% increased milk let-down and kicked less compared to heifers not habituated to human touch. Regardless, after 3 to 4 weeks all heifers became accustomed to the milking procedure, after which no difference in behavior could be identified.<sup>1</sup> Although none of these experiments showed the ultimate solution for habituating heifers to the parlor, they consistently identify that heifers need to be calmly handled in the weeks prior to calving to improve behavior in the milking parlor. Future studies need to focus on best practical solutions to acclimate heifers to the milking routine.

### The Veterinarian and Stockmanship

Dairy producers are aware of the importance of stockmanship. Herds that train employees included cattle handling practices as the third most commonly taught skill, right after milking procedure and disinfecting protocols for the milking parlor.<sup>20</sup> However, commonly the herd manager or area manager was conducting the training, and they often faced challenges including time limitations, barriers to communication, and a lack of educational tools. Therefore, this area poses a great opportunity for veterinarians to offer stockmanship training to employees, similarly to obstetrical and milking procedure training. During routine herd checks they could observe and review stockmanship skills of workers. Positive reinforcement, such as praising well-done handling, will further improve the morale and attitudes of dairy employees towards the animals and their work environment.<sup>19</sup>

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