



# Minnesota Dairy Health Conference

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## **Designing Barns for Cow Behaviour, Comfort and Health**

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Each year, cows leave our herds because of health and safety issues in their workplace. The loss of valuable animals to lameness, mastitis, entrapment, or injury is both frustrating and costly to milk producers. The experiences of innovative producers who designed their facilities to fit normal behavior of cows have proven that something can be done to prevent involuntary removals. The objectives of this conference presentation are to create awareness about cow behavior and comfort, to stimulate change in beliefs and barns, to present recommendations for stall dimensions, and to show recent innovations in dairy barns.

Savvy cattle care professionals claim that new housing designs and management practices provide enhanced cow health and performance, cow behavior and dignity, a reduction in drug use, and a contribution to consumer confidence and milk's image. Some claim that their choices have put fun back into going to the barn and helped them hire and retain workers.

A cow comfort audit assesses cows, their workplace and its management for meeting the needs of the cow. Injury, lameness, or behavioral abnormalities may be obvious. However, an auditor must be familiar with normal and sensitive to abnormal behavior when judging how cows react to their environment. Contrariness of cows to our goals for their use of stalls may be because of mismatching of cow dimensions and stall dimensions.

Cow ergonomics concerns the improvement of cow health and performance through the careful design of her work environment. Ergonomic innovations in dairy barn design and construction aim to increase the health, safety and longevity of cows. Normal resting positions, rising motions, and lying motions, cow dimensions and space requirements for these behaviors must be known to build ergonomically correct stalls. Sometimes more freedom rather than control changes unwanted behavior to acceptable behavior.

Some producers are leading the way in dairy cow ergonomics by building tie stalls with open fronts, longer and wider platforms, higher tie rails, and longer tie chains. These changes to tie-stall barns virtually eliminate the difficulties in rising experienced by "dumb heifers" or 'weak' older cows. In these stalls, cows have the freedom to lunge forward and take a stride as if they were on pasture or in a bedded pack barn. For similar cow comfort in free-stall barns, producers are building stalls with front-lunging space, raising and repositioning the neck rail, making stalls wider and longer, and changing the position and style of the brisket locator.

Resting, standing or perching behavior may be as important as position control for sizing stalls because those behaviors have an impact on foot health, leg injuries, production, or longevity. Stall dimensions may be chosen to keep stalls clean, to copy a neighbor's barn, to satisfy a contractor's preference, or because of expert opinion, barn cost per stall, extension recommendations, or beliefs about cow comfort. The choice of beds or bedding, floors, feed bunk design and restraint, traffic routes, and manure handling systems also are important when choosing cow housing. Humane care should

guide us in matching cows and designing barns. Productivity alone is not an adequate measure of welfare.

Changes in beliefs and barns have been quite rapid in the past decade. Farmers credit cow comfort as a key component in their businesses. Consumers believe that those who have dominion over the cows will take care of them. Our innovators are showing us a better way to husband our cows. They welcome guests, share their knowledge, and make a difference. Many veterinarians, feed company consultants, milking equipment dealers and dairy industry advisors also have become excellent advocates for cow comfort. In North America, members of the research team at the University of British Columbia have been extremely productive in finding and extending useful information. Research and extension education by Drs. Nigel Cook and Ken Nordlund stand as landmarks in cow behaviour, comfort and design for modern dairy cattle housing. And, producers are often the originators of ideas and their barns are sites for on-farm research. Producers planning renovations or new barns very wisely spend time observing or working in new facilities to determine if innovations will meet their needs or the needs of cows in their care.

## **Resources**

Dr. Anderson's PowerPoint presentation at the Conference will contain materials contained in documents on the internet. Here are the three links.

Dairy Cow Comfort: Cow Behaviour to Judge Free-stall and Tie-stall Barns  
[http://www.omafra.gov.on.ca/english/livestock/dairy/facts/info\\_cowbehave.pdf](http://www.omafra.gov.on.ca/english/livestock/dairy/facts/info_cowbehave.pdf)

Dairy Cow Comfort: Free-stall Dimensions  
[http://www.omafra.gov.on.ca/english/livestock/dairy/facts/info\\_fsdimen.pdf](http://www.omafra.gov.on.ca/english/livestock/dairy/facts/info_fsdimen.pdf)

Dairy Cow Comfort: Tie-stall Dimensions  
[http://www.omafra.gov.on.ca/english/livestock/dairy/facts/info\\_tsdimen.pdf](http://www.omafra.gov.on.ca/english/livestock/dairy/facts/info_tsdimen.pdf)

Here is the link to the Dairyland Initiative and work by Drs. Cook and Nordlund.

Dairyland Initiative - Wisconsin  
<http://thedairylandinitiative.vetmed.wisc.edu/>