

WVS MILK QUALITY

Waupun Veterinary Services, LLC - Your Progressive Dairy Partner since 1958

Cow Comfort and Milk Quality

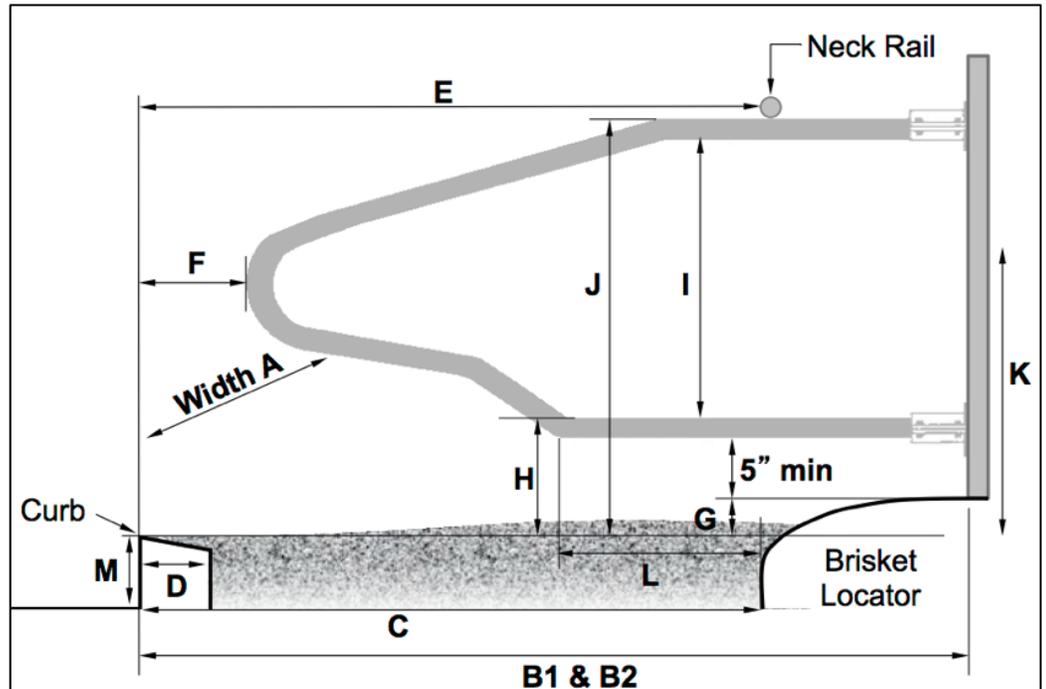
Dr. Gordy Jones gave a talk at the annual NMC meeting in Birmingham Alabama on the importance of cow comfort for milk quality. Much of this article comes from that talk and an article he wrote for the Progressive Dairyman.

Dr. Jones says that the cow has three jobs – to stand to milk, to stand to eat or drink, and to lie down and chew cud. It’s the job of the dairy farmer to enable her to do these things well.

The 24-hour time budget of a cow requires that she has 20 hours of each day to herself, with no more than four hours devoted to milking or other intrusive activities. Designing the cow environment to enable the cow to do these things is key. Dr. Jones says that for a cow to perform at optimum we must take care of cow comfort and welfare first. Cow comfort is first, second, and third in importance.

Three major areas that need attention are nutrition, dry cows and cow comfort. If dairy farmers take better care of the cows, focusing on these priorities,

Continued on back page.



Recommended Stall Dimensions from the Dairyland Initiative

Stall Dimensions	Body Weight Estimate (lbs)					
	1000	1200	1400	1600	1800	2000
Center-to-center stall divider placement (stall width) (A)	42	45	48	50	54	57
Total stall length facing a wall (B1)	96	108	108	120	120	126
Outside curb to outside curb distance for head-to-head platform (B2)	180	192	192	204	204	216
Distance from rear curb to rear of brisquet locator (C)	64	66	68	70	72	75
Width of rear curb (D)	6-8	6-8	6-8	6-8	6-8	6-8
Horizontal distance between rear edge of neck rail and rear edge of curb for mattress stalls (E)	64	66	68	70	72	75
Horizontal Distance between rear edge of neck rail and rear edge of curb for deep bedded stalls (E)*	58	60	62	64	66	69
Distance from rear edge of divider loop to point of curb (F)	9	9	9	9	9	9
Height of brisquet locator above top of curb (loose bedded stall or mat/mattress surface) (G)	3	3	4	4	4	4
Height of upper edge of bottom stall divider rail above top of curb (loose bedded stall or mat/mattress surface) (H)	10	10	12	12	13	14
Interior diameter of the stall divider loop (I)	30	33	33	36	36	36
Height of neck rail above top of curb (loose bedded stall or mat/mattress surface) (J)	42	45	48	50	52	54
Obstruction height (K)	5-35	5-35	5-35	5-35	5-35	5-35
Horizontal distance from brisquet locator to loop angle (L)	20-22	20-22	20-22	20-22	20-22	20-22
Rear Crub Height (M)	8	8	8	8	8	8

The blue and white chart above, “Recommended Stall Dimensions from the Dairyland Initiative,” relates to the diagram at the top of the page. Letters A-M can be found in the column of the chart labeled, “stall dimensions,” and correlate to the diagram above.

Continued from front page.

there would be no sick cows, he said that if a cow has a problem, the problem is the result of the people taking care of the cows.

Milk is the absence of stress. If we remove stress from our cows, we let them express their genetic potential. Food in the morning; get them to bed; make that bed comfortable. It's just that easy," Jones said. "Buildings are tools. These are tools to let you implement your plans. We have to take care of the cows, and the facilities have to allow it."

For milk quality it is very important that cows lie straight in their free stalls. Facility design done right makes for comfortable cows and maximizes performance. Freestall barns fail for four common reasons, Jones said. Lack of cushion is a concern, neck rail placement is an issue, lunge space makes a difference, and a lack of the ability of cows to see around the environment will stress the cows.

"The neck rail needs to be far enough forward that in the winter, when a cow stands in bed, she stands straight and has all four feet in bed. That's where the right place is," he said.

A cow has to lunge and bob when getting up. Restricting this ability decreases the time they spend lying in the stall. Cows will position themselves in one of three positions – short, regular or long, with their head and legs in different positions – when lying down in the freestalls.

All are acceptable. Using loop dividers that the cows can't go over will keep them square in bed and will keep organic bedding material clean, decreasing somatic cell counts.

Freestalls should be designed to be 48 inches wide, with a neck rail 48 inches above the curb. Sixty-six to 68 inches are needed from the back curb to the point of contact with the neck rail, and the same distance to the brisket board, which should be two inches above the back curb.

Bedding needs to be kept up to curb level, or the effective bedding length is actually shortened by eight to 10 inches, and the cows won't use the stall.

PCR vs. Culture Bulk Tank Reports

Bulk tank testing is an essential tool for monitoring herd udder health and milk quality. Two common testing methods - PCR (polymerase chain reaction) and bacterial culture - provide different but complementary information.

PCR testing detects the DNA of mastitis-causing bacteria, whether the organisms are alive or dead. Because of its high sensitivity, PCR can identify very small amounts of bacterial material and is especially effective at detecting contagious pathogens such as *Staphylococcus aureus*, *Streptococcus agalactiae*, and *Mycoplasma* species. This makes PCR useful for early detection and herd surveillance. However, PCR may also detect residual DNA from past infections or treated cows, so a positive result does not always indicate an active infection.

Bulk tank culture, in contrast, grows only live, viable bacteria. This method reveals which organisms are actively present in the tank at the time of sampling. Culture is very helpful for evaluating environmental mastitis risks, sanitation issues, and milking equipment hygiene. Because culture requires living bacteria, recent antibiotic use or low-level shedding can reduce detection, and some organisms may not grow well on standard culture media.

PCR vs. Culture: Bulk Tank Milk Testing

Feature	PCR (Polymerase Chain Reaction)	Culture (Bacteriological Culture)
What it Detects	Detects DNA of pathogens — live or dead	Detects live, viable bacteria that grow on culture media
Speed	Very fast — results in hours	Slower — 24–72 hours
Sensitivity	High sensitivity; detects low counts	Lower sensitivity; may miss low-level bacteria
Specificity	Very high with proper primers	High but may be affected by contaminants
Pathogen Types Detected	Excellent for <i>Mycoplasma</i> , <i>Staph aureus</i> , <i>Strep</i> species	Broad detection of most culturable bacteria
Viability Information	Cannot distinguish live vs dead bacteria	Shows live bacteria only
Quantification	Ct values possible (not true counts)	Provides CFUs for true quantification
Usefulness in Bulk Tank Screening	Great for herd-level surveillance and hard-to-culture organisms	Great for routine mastitis monitoring
Cost	Generally more expensive	Usually less expensive
Effect of Prior Antibiotics	Less affected; still detects DNA	More affected; antibiotics reduce viability
Limitations	May detect dead organisms; limited to panel targets	Misses fastidious or slow-growing organisms