

Housing Expo Examines Stall, Building Design

Wisconsin Vet: Cow Comfort Translates Into Improved Production

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NORTH CORNWALL (Lebanon Co.) — Inadequate cow comfort comprises one quarter of all problems a dairy veterinarian encounters as limiting factors in herd performance.

And making the cow more comfortable can go a long way toward increasing productivity by improving overall herd health, according to Dr. Gordon Jones, DVM, Oconto Falls, Wis.

Jones spoke to about 125 livestock managers on Wednesday morning at the annual Animal Housing Expo at the Lebanon Fairgrounds.

The Wisconsin veterinarian spoke to producers about the important "covenant" that needs to be kept with cow care, a covenant that is "sacred to me."

Jones held up a little toy cow to those who attended as he spoke about his wide-ranging expertise in cow care.

"I brought the cow with me to remind you who speaks for the cow," said Jones. "She can't speak for herself. You and I have to speak for her."

Jones called the cow, of which there are more than a billion on this planet, the most dominant ruminant.

In his practice, Jones said that he takes care of nearly 300 dairy clients, which make up about 95 percent of his business. He began his practice in 1977.

Many times, according to Jones, farmers get caught up in some of the headaches of the dairy business and "don't look up from the fog to see what the neighboring county's done or the neighboring state or what they're doing across the country, or even around the world." They don't take enough of a hard, long look at what they're doing to improve milking and overall performance.

While helping the farmer with herd health, Jones said it is important to keep the individual goals of the producer in mind. But "we've got to come up with a way to measure cow comfort," he said.

To raise production, the idea is to "coax" the cow into eating more. Each pound of dry matter intake (DMI) translates into nearly three pounds of milk produced for

a typical cow. For every seven cents invested in DMI, the returns range from 35 cents to 42 cents in milk from a cow, depending on genetics and other factors.

If you can get the cow to eat one more bite, production rises, increasing profitability. If you can increase the dry matter intake one more bite, she'll milk more and it can be more profitable for the dairy farmer, according to Jones.

"I've never been on a dairy in the United States where I didn't coax the cow into eating one more bite, I'd raise performance and increase profitability without increasing more expenses beyond the feed," said Jones.

The limiting factor in improving nutrition is, in many cases, cow comfort.

Jones said that that, according to recent studies conducted in France, the blood flow to the udder of the cow, when she's standing, is 3.74 liters per minute. When she's lying down, blood flow is 5.56 liters per minute. That's an

increase of 49.67 percent for a cow that's lying down. "That's dramatic," said Jones.

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Jones indicated that in one case, research showed that a 5-7 pound milk increase was possible with cows that are given more room to lie down in.

Also, freestalls completed without obstructions, including posts and curbs, may be the best answer

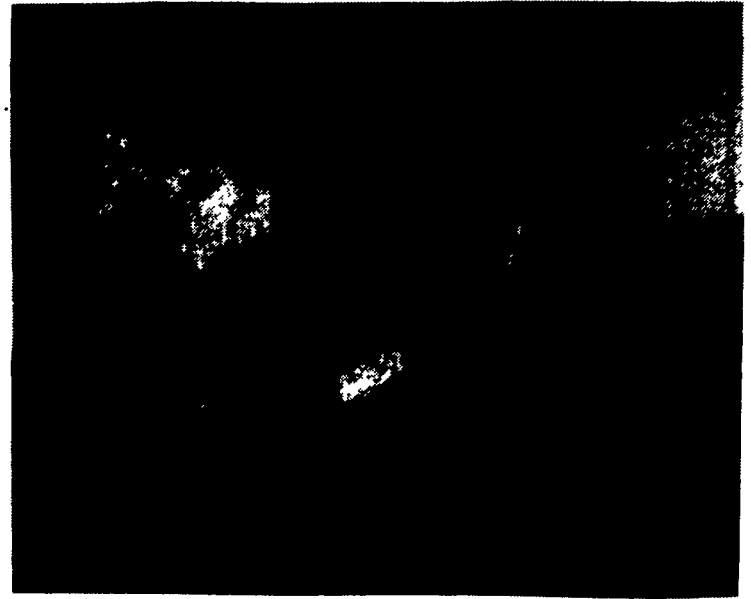
women is to lie cows down as fast as possible," said Jones.

Cows will often "tell you when they're uncomfortable," said Jones, because they'll be "standing and chewing their cud." "Something's wrong with where they want to lie down. If you see cows standing around chewing their cud, it's a bad time."

Evidence of a comfort problem is bad hocks on the cow's legs. That tells a veterinarian that there is something wrong with the stall. The swollen hock is caused by the impact against a hard surface, either lying down, standing up, or grinding against the surface.

Jones showed examples of cows that had bruised hocks as a result of bumping against too hard a surface in their stalls.

For producers using tiestalls, often there is not adequate space in the stalls on the side for the cows and in the length of the stall to properly lie down or for the cows to get up. He told the producers that a tiestall platform needs to be



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for cow comfort. "I now think of the best barns, my best performance barns, are freestalls, not tiestalls," he said.

Jones said that lying down cows make more milk. And lying cows lie down better when there's more bedding.

Jones provided data from research in New York that indicated the most productive and profitable herds are those that spend more money on bedding. And the best bedding is sand.

"I think the gold standard for cows, be they in tiestalls or in freestalls, is sand," Jones said. "Sand is the perfect bedding."

Sand is ideal because of its cushioning and its moisture absorption.

According to a display at the expo featuring Penn State recommendations, if using sand, a minimum 4-inch to 6-inch layer in the stall is necessary (12 inches or more is preferred). The sand must be free of stones and rocks and have minimum clay and organic material. Typical usage ranges from 20-80 pounds per stall per day.

Sand can be stored in a pile near exhaust fans to keep it dry. Sand dries out quickly when spread.

The manger should be prepared so that it is four inches higher than the cow's front feet. The manger should be smooth. Also, the manger should be white because cows shy away from putting their head into a dark cavity.

Water pressure to a trough should be adequate. Because of the problems of "boss cows," more than one water site should be provided so that all cows can receive an adequate supply.

Jones told the producers that good ventilation is also important. Basket fans, he said, are not ventilation — they simply take all the bad air that accumulates in the barn and spread it everywhere. Some type of natural or tunnel ventilation is needed.

Jones said that veterinarians have been used to looking at something that is abnormal for so long that "we start thinking abnormal is normal." Jones said that he started to believe that a calf couldn't be born without assistance, even though only three percent of births are assisted.

According to Jones, it's important for producers to learn to "look up from the fog" of the daily work to see what they can do to improve the farm as a business.

Avoiding Building Failures

"It really boils down to bracing — proper truss bracing," said Tim Royer, president of Timber Tech Engineering, Womelsdorf, at the Expo.

Royer showed a series of slides from the infamous winter of 1994. Snow load damage caused millions of dollars worth of damage to wood buildings that had wide, clear-span trusses without proper bracing.

"Our agricultural buildings keep getting wider and longer and bigger to do more and at a better price per square foot," said Royer. "You end up just scraping all the fat out, and there's nothing but lean left in our building designs." The important thing is that you don't scrape out what should stay in, in terms of structural integrity.

The design employs "a lot lighter construction than we had 200 years ago." In the past, barn buildings with bank construction were made with big timber and (compared to today's economy) expensive materials. Now, the buildings are "stick-built" designs. The buildings use two-by-fours or two-by-sixes using dimensional wood-metal plate trusses.

The key element to structural integrity is to examine the load and follow that load path through the structure and into the properly built foundation below.

In one example, heavy snows in 1994, some measuring five to six feet, caused a riding arena using 70-foot clear span wood trusses to collapse. The entire side of the roof caved in, leaving tons of snow and rubble on the floor of the building.

In other examples, side-sway buckling was caused by the enormous snow load.

"I spend a lot of time on truss bracing, primarily because that is the number one evil we found in the winter of 1994," said Royer.

In every case, there was inadequate bracing for the snow loads.

The load is going to find the weakest link. And whatever that weakest link is, that's where the failure is going to start and possibly take the rest of the building down, according to Royer.

In another example, Royer showed that inadequate design of the bracing caused the roof of a building under construction to bow considerably. A rainstorm finally

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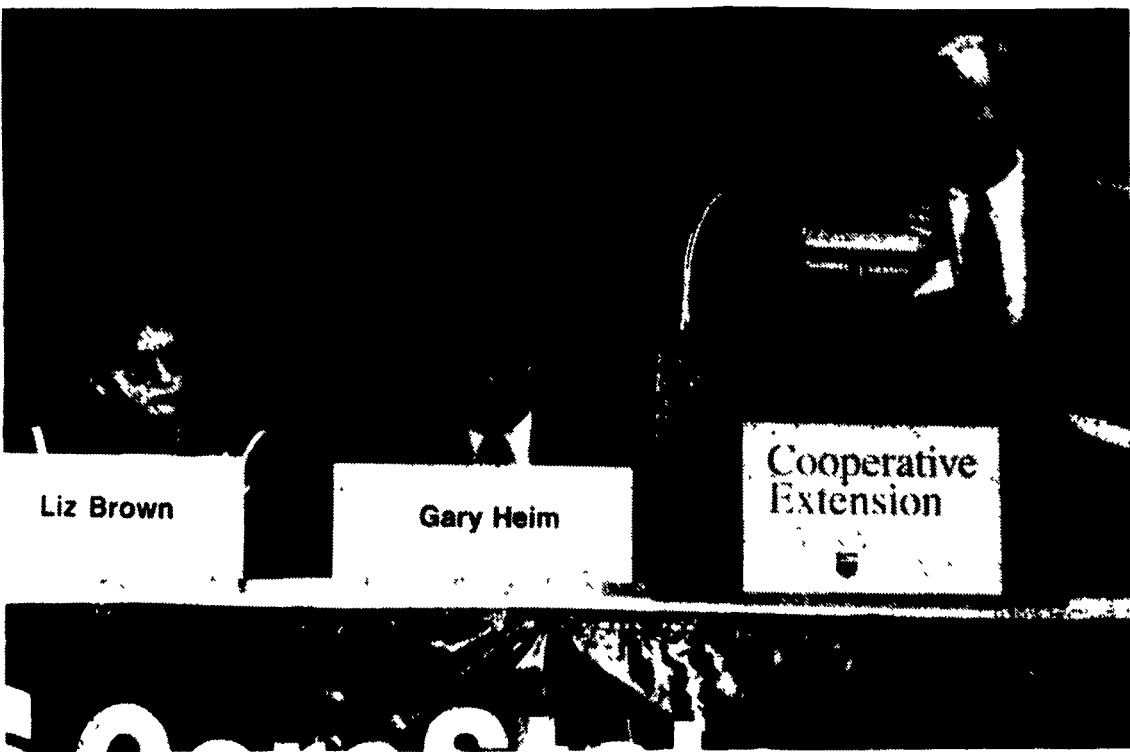
The key is to "lie the cow down as quickly as you can," said Jones. Increasing blood flow with a cow at full rumen can send 90 gallons of blood per hour through the udder.

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Gary Heim, attorney with Mette, Evans and Woodside, center, and Liz Brown, tax consultant and preparer, left, spoke about some of the strategies farm businesses can use to transfer assets and the business enterprise to succeeding family members. Moderator is John J. Mattillo, agrifinance officer, CoreStates Bank, right.