Waterbeds or mattresses — does one work better?

by Barbara Wadsworth Jones and Jeffrey Bewley

HALF of a cow's day should be spent lying down. That's the only way it's going to get the 12 or more hours needed to optimize health and milk production.

Cow lying time is an indicator of cow comfort, and different freestall bases impact lying time. To encourage lying behavior and minimize hock lesions, a stall surface must be nonabrasive, compressible, and give as the cow moves.

Comparing the options

An ideal stall surface will be cost effective, sturdy, provide a comfortable lying area, keep animals clean, and minimize labor needed to upkeep the stall. Waterbeds are one option available to producers. Potential benefits of waterbeds are lower bedding use and reduced hock lesions. They are also said to have more useful life as they may last longer and not compress over time like rubber-filled mattresses can.

Research directly comparing waterbeds to rubber-filled mattresses has been lacking, so a study conducted at the University of Kentucky compared cows housed in a freestall barn with waterbeds to cows housed in a freestall barn with rubber-filled mattresses. The full study was published in *The Professional Animal Scientist*.

Two freestall barns with 50 stalls each were used for the study. One barn's freestall base was waterbeds, and the other freestall barn had rubber-filled mattresses. Both barns had the same layout, dimensions, and daily cleaning schedule. All stalls received a layer of sawdust for bedding every other day. Both barns shared a raised feedbunk that held the TMR, and cows ate from both sides of the bunk.

Lying times were measured daily by a lying time monitoring leg tag. Milk yield was recorded daily in the parlor, and somatic cell count was measured every other week. Rumination times were tracked daily by a rumination monitoring collar. Locomotion scores, hock scores, and hygiene scores were documented weekly for each cow.

What the cows said

Our study found differences and similarities between the two stall surfaces (see table). We found that daily lying time was longer for cows housed on the waterbeds. Hock scores were also lower for the cows on waterbeds.

Milk yield and somatic cell count were not different between the cows housed on the waterbeds and the cows housed on rubber-filled mattresses. Cow hygiene and lameness were also similar between the two stall surfaces. On the other hand, rumination time was longer for cows housed on the rubber-filled mattresses.

What do these results tell us? As for the difference in hock scores, the rubber-filled mattresses may have been more rough on the surface. They also may not have been compressible and, therefore, didn't move with the cow as the cow stood up, forcing the legs to rub on the surface causing hock lesions.

Stage of lactation, breed, ration, and weather all affect milk yield. Therefore, a direct comparison of freestall bases in a barn will probably not detect milk yield differences. In addition, the rumination time variation may not be great enough to show a true biological difference, so the differences seen in the rumination time is not concerning.

Both mattresses and waterbeds keep cows off of concrete, which is certainly a positive attribute. Taking this data into consideration, the difference in lying time may indicate that cows found the waterbeds to be a more comfortable resting area by lying down longer. With the goal of 12 or more hours of rest per day, anything we can do to encourage more lying time will benefit the cows and, hopefully, reward you with more milk.

A comparison of waterbeds and rubber-filled mattresses

Aspect evaluated	Waterbeds	Rubber-filled mattresses
Lying time (hours/day)	10:32 ± 0:13[a]	9:47 ± 0:15[b]
Milk yield (lbs./day)	64.82 ± 2.25[a]	65.28 ± 2.25[a]
Somatic cell score	2.87 ± 0.31[a]	2.36 ± 0.22[a]
Rumination time (hours/day)	6:29 ± 0:08[a]	6:44 ± 0:08[b]
Overall hygiene	1.38 ± 0.05[a]	1.32 ± 0.05[a]
Hock score	1.86 ± 0.03[a]	1.97 ± 0.04[b]

[ab]Pairs with different superscript letters ([a,b]) are significantly different

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A.I. problems surfaced on this well-run farm

by Peter Edmondson

DAVE contacted me about his dairy herd's fertility; he was really worried. Things had been going well, but now it was clear that a wheel had fallen off the wagon. There were too many open cows at pregnancy diagnosis and he thought that conception rates had fallen. Excellent records and a good computer system allowed me to carry out an in-depth fertility analysis before I visited the farm.

Edmondson

Bountiful employee pool

Dave runs 400 cows in Zimbabwe and has a large staff because labor is plentiful and much cheaper than we pay in the West. A milker will be paid around $300 per month, but the minimum wage is only $2 per day. Cows are milked twice a day and average 64 pounds. Up to now, his calving index had been running at 13 months but was now heading closer to 14.

The farm has separate teams for calf rearing, milking, feeding, young stock, and breeding. One of the employees, Innocent, heads up the breeding team of three people who detect heat and inseminate the cows and young stock. Guards do the heat spotting and calvings at night time.

The percentage of cows pregnant at the fertility checks had dropped off two months earlier, suggesting problems with heat detection. Conception rates also had fallen around the same time.

We went through questions about changes to diet, cows losing condition, and heat stress, but nothing seemed to be different. I looked at conception rates in more detail and there was one clear change. Innocent's conception rates had halved recently. The conception rates of Frank and John, two older guys who have been inseminating for years, hadn't changed at all.

Talked to staff

It was time to talk to Innocent to find out what was going on. Innocent is young, highly committed to his job, and has a wife and two kids. We thought it best for Dave to talk to Innocent on his own as he has a great way with people. He is not confrontational and is a highly supportive dairy owner. His staff thinks the world of him. Innocent broke down after a few minutes; one of his sons was very sick and he was terribly worried. Doctors hadn't gotten to the bottom of the problem, and so Innocent was totally distracted from his work. He was putting on a brave face to Dave and the rest of the farm staff.

Dave immediately offered Innocent his understanding by giving him a week of compassionate leave and put Frank in charge of the breeding team. We found a number of things that had slipped such as applying heat detection aids two weeks after insemination. A new night guard started two months earlier and Innocent had not given him any training in heat detection, and there were some other problems as well. These factors would have contributed to a lower number of cows bred at preg check.

Innocent returned to work a week later. The doctors made their diagnosis and his son had recovered and returned to school. Upon Innocent's return, we took advantage of having all three A.I. men present on the farm. I spent time with each one individually and asked them to talk their approach to A.I., how they prepared semen, and then observed them preparing and inseminating a cow.

Frank and John had been trained to A.I. about 15 years ago and Innocent 10 years ago. They have had no follow-up training. It was fascinating to compare how they did things. None of them carried out the same or even the correct procedure.

Innocent liked to place some semen up each horn, whereas Frank placed three quarters of the straw in the body of the uterus and then retracted the A.I. straw back into the front of the cervix and placed the rest there. Meanwhile, John only thawed straws for 15 seconds.

The following day we carried out an impromptu A.I. refresher course. We started off with theory and science and each man had plenty of challenging questions. We then moved on to the practical part. We had acquired some uteri from the local abattoir to use for dye tests to show where they were placing semen. They all found the training helpful and had an improved understanding of the correct protocol.

Training applies everywhere

The question 'What was your best buy or decision?' was asked in the 66th Annual Round Table published in the December 2016 edition of *Hoard's Dairyman*. Training was the top answer for half of the herds.

All professionals are required to carry out a certain number of training days each year to build their skill set and keep up-to-date. We can all develop bad habits over time, and training can help correct these to ensure that we do things right.

Every time I carry out a training with farm staff, I am always uplifted by their enthusiasm and desire to learn and improve. Maybe it's time to review your staff's skill sets and see if they would benefit from retraining in A.I. or other areas.

The author is a vet who runs UdderWise-Global Mastitis Solutions, United Kingdom. To learn more about the author, visit his website at www.udderwise.co.uk.