

Composted Bedded Pack Barn Solves Cow Comfort Woes

by Wayne Schoper

A Compost Bedded Pack Barn may be a solution for some dairy producers who are looking at a need to improve cow comfort at a lower cost. Tom and Mark Portner are two young dairy farmers who live just north of Sleepy Eye. After graduating from the University of Minnesota in the late-1980's, they returned home to Sleepy Eye to dairy farm with their father, Harold. After Harold retired, Mark and Tom purchased the home farm and began their own operation. They milked cows in a tie stall barn and later built a freestall barn to house the cows.

Dairy farming was going along quite well for the Portners. Production was holding in the high teens to low twenties. But there were some issues that needed to be addressed. One of the main concerns was cow comfort. The Portners have excellent genetics in their herd, but many of the cows were leaving the herd early after being culled for feet and leg problems. So when the Minnesota Farm Journal came out with an article in the spring of 2001 about a new kind of dairy housing, Tom and Mark were intrigued. The article referred to Calvin Paulson, a dairy farmer in the state of Virginia. Calvin had built a loose housing facility that was different than the traditional manure pack. The barn was built as an open structure with no free stalls or cement. The floor of the barn consisted of packed clay. On this floor, sawdust was hauled in to make a bed for the cows. Calvin had experimented with many different materials and had decided that sawdust seemed to work the best. The idea was to make a composted bedded pack barn. While the cows were out of the barn being milked, the sawdust could be stirred using some sort of a machine, like a skid steer loader, with tines mounted on the front.

As a result of the information and idea, during the summer of 2001, the Portner Brothers built a new barn adopting this concept. On October 15th, 2001 the cows went into the barn for the first time. Sawdust was hauled in by the semi load. At first it was very dusty. However, after the first few days went by, dust was no longer a problem. Things began to change rapidly. First of all, the cows spent all of their time either eating or resting and chewing their cud. Instead of standing around as might be seen in many freestall barn systems, the cows would go back to the main barn and lie down. Another change that could be seen was a significant drop in somatic cell count (SCC). The Portners have always had their SCC under control, but now the increased cow comfort brought it even lower. The milk from the two barns is co-mingled so exact numbers are

not available but Tom feels that the compost barn SCC numbers probably drop below 100,000 at times. The combination of the two barns averages around 225,000 to 275,000, which is still considered quite good. Is the result of a lower SCC in the Portner herd from a compost barn facility unique? No. Other producers who have put these barns up in the last three years also report large decreases in SCC numbers within a short time. The most significant change as a result of the Portners constructing a compost barn, however, is a milk production level that has been increasing ever since. Currently, the herd is at 23,800 RHA with over 1,000 pounds of fat.

Originally, the compost barn was set up to allow 100 square feet per cow. The Portner's experience since construction has led to a management change to whenever a cow has some feet and leg problems in the freestall she is transferred into the compost barn. This is putting somewhat of an overload on the compost barn capacity with current cow numbers bringing the spacing to 60 square feet per cow. At this time, the square footage per cow seems to be working fine, although the sawdust needs to be refreshed more often with a new load. A semi-load of sawdust lasts from 3 to 5 weeks and costs around \$750. Weather is a major factor in how long the sawdust lasts. Wetter more humid weather requires more frequent additions of fresh sawdust.

A compost barn also has some challenges. One of the challenges is stirring the sawdust on a regular basis. It needs to be done twice a day, everyday. The Portners accomplish this by doing it while the cows are being milked. Tom and Mark rigged up a front-mounted gang of multi-weeder teeth that stir the compost to a depth of 12 to 18 inches. This stirring process incorporates the urine and the manure, and refreshes the surface, making a comfortable place for the cows to lie down. The University of Minnesota Dairy Team agrees with the Portners that this step is critical to having success with the composted bedded pack. Another very important management practice that makes the Portners successful in using a compost barn facility is the application of a consistently effective pre-milking cow prep procedure. Low bacteria counts on bulk tank cultures indicate that teat surfaces at Portners are clean before milking machines are attached. As is the case with any dairy herd, experience has shown that milking procedures can have a large impact on bulk tank somatic cell counts (BTSCC) and it is no different with a compost barn facility.

Right now this kind of dairy housing facility is drawing a lot of attention. More research needs to be done on why this type of housing system seems to be working. Is it the facility or the

management of the facility? It appears that with careful management the composted bedded pack barn can work well. Currently those farms using this kind of housing report lower BTSCC, higher production and lower cull rates. That's a very positive direction for any dairy operation.

(Note: More information on this topic can be found in the Sept 25th edition of Dairy Star in an article on page 27 entitled, "Composting bedded-pack dairy barns in Minnesota" by Dr. Kevin Janni, U of MN Biosystems and Ag Engineering Specialist.)



The Portner Brothers' compost bedded pack barn.

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