

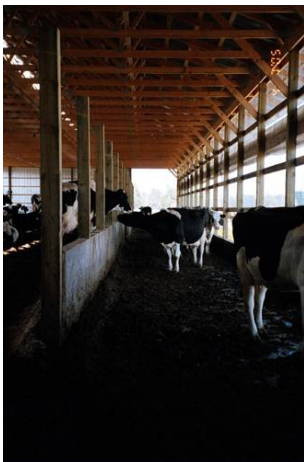
Volume 3  
January 26, 2006

## This Month's Topics

- \* Frequently Asked Questions About Compost Dairy Barn Design
- \* Producer Spotlight - Bennett Osmonson
- \* Upcoming Compost Dairy Barn Tours

## Ideas? Suggestions?

We encourage your input. If you would like to share some of your experiences or have ideas for topics in future newsletters, contact Mindy Spiehs, Wayne Schoper, or Vince Crary.



The walkway allows the cows to move freely between the bedded area and the feed alley.

## Frequently Asked Questions About Compost Dairy Barn Design

Compost dairy barns are a relatively new dairy housing alternative and we have many unanswered questions about the barns. Most of the information we have to date is based on producer observations. Therefore, our recommendations are based on producers' experiences that they have shared with us.

### How wide should the feed alley be?

The feed alleys in compost dairy barns are the same width as they are in freestall barns, 12 to 14 ft. They are concrete and have manger dimension similar to those for freestall barns. The feed alley is scraped twice a day.

### How much manure is scraped from the feed alley every day?

Producers have told us they estimate that between 20 and 25% of the manure a cow produces per day lands in the feed alley and is scraped away with a small amount of bedding. A 1,400 lb lactating cow produces about 148 lb or 2.4 cubic feet of manure per day. The amount in the feed alley would be 30 to 37 lb or 0.5 to 0.6 cubic feet per day per 1,400 lb cow. A 1,000 lb lactating cow produces about 106 lb or 1.7 cubic feet of manure per day and the amount in the feed alley would be between 21 and 27 lb or 0.3 and 0.4 cubic feet of manure per day per 1,000 lb cow. Remember that these numbers are estimates and do not include bedding.

### How do you separate the feed alley from the bedded pack area?

The feed alley is separated from the bedded pack area by a

4-ft high wall. Some producers are using poured concrete walls. Some producers are using movable 4-ft high Jersey walls, similar to those used in road construction. One producer using Jersey walls, created alcoves at each end of the wall for the waterers so that the concrete feed alley could be scraped without any waterers in the alley to obstruct alley scraping. We recommend that the wall between the pack and the feed alley have a fence on top to prevent cows from walking over the wall when the pack is three or more feet deep.

### How do cows move between the feed alley and the bedded pack area?

The 4-ft high wall separating the bedded pack and feed alley has at least one walkway at each end (as a minimum) for cow and equipment access to the stirred pack area. The bedding is sloped at each walkway so that cows and equipment can climb to the top of the accumulated pack. As producers look at larger compost dairy barns, we recommend walkways be located every 120 to 160 feet.

### Where should the waterers be located?

Waterers are located along the concrete feed alley. They can be located on either side of the feed manger or adjacent to the wall separating the feed alley from the pack area on the feed alley side. There are trade-offs with the different waterer locations. Waterers should not be located in the bedded pack area to avoid wetting the bedding, help keep the waterer clean, and because the waterer height would need to be adjusted as the pack depth increased. Some producers are using waterers with drains and drain pipes so waterers can be cleaned easily.

### It is suggested that 80 sq feet be used for Holsteins, what about Jerseys?

We do not have experience with a Jersey herd, but based on animal weight a Jersey weighing between 800 and 1000 lb would be expected to need around 65 sq feet per cow.

*Kevin Janni is an Extension Engineer with the University of Minnesota*



An example barn with 4 foot concrete wall separating the feed alley and the composted bedded pack area.

## For More Information

Vince Crary  
Extension Educator  
Otter Tail Co.  
(218) 385-3000  
crary002@umn.edu

Marcia Endres  
Dairy Production  
(612) 624-5391  
miendres@umn.edu

Kevin Janni  
Extension Engineer  
(612) 625-3108  
kjanni@umn.edu

Jeff Reneau  
Dairy Production  
(612) 624-9791  
renea001@umn.edu

Jim Salfer  
Regional Extension Educator—  
Dairy  
(320) 203-6093  
salfe001@umn.edu

Wayne Schoper  
Extension Educator  
Brown/Nicollet Co.  
(507) 794-7993  
schop002@umn.edu

Mindy Spiehs  
Regional Extension Educator—  
Livestock Manure Systems  
(320) 589-1711  
spie0073@umn.edu

University of Minnesota  
Extension Dairy Team website  
[www.extension.umn.edu/dairy](http://www.extension.umn.edu/dairy)

## Upcoming Compost Dairy Barn Tours

We often get requests to tour compost dairy barns. Two compost dairy barn tours have been organized for the near future. Tours will be held on Friday,

February 3 and Wednesday, February 15, 2006. Both tours start at 11:00 a.m. at the Holiday Inn in New Ulm, MN. Interested participants should contact

Wayne Schoper, Brown/Nicollet County Extension Educator at 507-276-5662 to join the tour. Check the Extension Dairy Team website for other upcoming tours.

## Producer Spotlight—Bennett Osmonson, Gully, MN by Mindy Spiehs

The University of Minnesota Extension Dairy Team has received numerous calls and e-mails from producers in the past few months who are interested in alternative bedding materials. Farmers want to know if they can use wheat straw, bean straw, corn stover, and other crop residues. We are currently conducting one small project and proposing a larger project to collect data to help us answer questions about bedding alternatives, cow health, milk quality, and manure nutrient content. Until then, we continue to make recommendations and share information based on producers' observations with the understanding that each farm has a unique situation and different management styles. Producers are encouraged to carefully examine their own situation to determine what works best for them.

Recently, I had the opportunity to speak with Bennett Osmonson from Gully, MN. I found Bennett to be a very innovative dairy farmer who is always thinking a step ahead. Bennett was the first dairy producer that I heard of who is using chopped wheat straw in his compost dairy barn. I am going to share some information about Bennett's experience with you.

In the past, Bennett has used a traditional bedded pack with concrete underneath. He started his composted bedded pack in early December. He began with 10 to 12 inches of chopped straw. The straw was chopped in a Jiffy grinder to approximately 6 to 8

inches in length and blown onto the bedded area to make a base. He allowed the pack to build up without turning it for approximately 2 weeks. Bennett used a forage chopper to process additional straw into 1.5 inch loose straw that was stock-piled. After two weeks, Bennett began adding the loose straw to the bedded pack with a large bucket tractor. At that point, he began turning the pack using a Farm King Rototiller, which is essentially a 6 foot wide garden tiller. He uses a hydrostatic 100 hp tractor so he can move at any speed needed to do a good job of tilling the straw. The rototiller turns the material to a depth of about 12 inches. Fresh 1.5 inch loose straw from the stock-pile is added every 1 to 2 days depending on the needs of the cows. The pack is turned before the fresh straw is added. They do not turn the pack between when the fresh straw is added because they want to keep the dry straw on top of the pack.

The cows are grazed during the summer months and house outside as much as possible during the colder months. The warm weather this winter has helped alleviate the bedding needs of the compost dairy barn since the cows are able to spend time outside every day.

We attempted to estimate the time Bennett spends in his compost dairy barn. The barn is divided into two halves, each with 84 cow capacity. It takes approximately 20 to 25 minutes to till each side and about 10 minutes

to grind the two bales of straw that are added to each side. The feed alley is scraped when straw is added. The temperature of the compost bedded pack was measured at 92 to 94 degrees Fahrenheit, which is lower than the recommended temperature necessary to kill mastitis bacteria, but it does indicate some composting has taken place.

Some other thoughts from Bennett: When clean 6 to 8 inch straw is added, it will become entangled in the rototiller so it works best for him to avoid turning pack if the longer straw is added or to have a little "muck" mixed in with the straw to help turn it. The time and fuel used are a big consideration as they try these alternatives. As he sees it now, the traditional bedding pack is simpler. So far, the somatic cell count has not been too much of a factor as clean cows have less flare-ups.

Before you go out and buy a bunch of wheat straw and abandon saw dust in your compost dairy barn, I would encourage you to proceed with caution. Bennett is ONE producer who has been able to successfully use chopped straw in his compost dairy barn for the past few months. Only time will tell if Bennett has a successful alternative model for compost dairy barns.

However, one thing is certain. The whole compost dairy barn concept would not have progressed to the point it is today without progressive thinking dairy farmers like Bennett who took a chance on something new.