



Beth Doran advises an east-west orientation for monoslope or hoop barns to take advantage of the sun's position.

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OUT OF THE ELEMENTS

Dreaming of a new feeding facility? Here are some factors to consider when constructing a monoslope or hoop barn.

by Kindra Gordon, field editor

Whether a cold winter, a muddy spring or a hot summer, unfavorable weather conditions are tiring for man and beast. As a result, many cattle producers might have a better facility on their wish list. Whether for feeding calves, developing heifers or calving out cows, hoop barns and monoslope buildings are becoming more popular for several reasons.

For the past 30 years, Beth Doran, an Iowa State University (ISU) Extension beef program specialist has worked with producers to plan and procure such facilities. She shares that producers cite several reasons for investing in a new confinement barn. These include controlling manure runoff and protecting water resources, improving animal comfort, improving animal performance, reducing animal sickness, and capturing more value from manure.

All of those reasons are valid, Doran says. For certain classes of cattle, confinement barns can especially be beneficial.

“Lightweight calves are more fragile. They don’t have the body condition to deal with cold and wind,” she says. “Dairy steers are also more fragile. They don’t have the thick hide, hair coat or body condition of beef cattle.”

In hot settings, market-ready animals and black-hided cattle can benefit from the protection of a confinement barn, she says.

Additionally, some research has indicated a performance boost in confinement, with gains and feed efficiency being increased about 3.5%. Doran confirms that data, but cautions that boost may only be during a few months of the year.

Similarly, she notes, confinement facilities may offer more value from manure, but it varies. However, with composting becoming more popular, there may be some future economic opportunities from confinement barn manure that is stored.

That’s the balancing act of confinement barns, says Doran. “There are advantages, but there are disadvantages to consider,” she says.

Considerations

Doran shares that the No. 1

comment from producers once they have a hoop barn or monoslope building is this: “They tell me they didn’t realize the increased frequency for cleaning pens and increased amount of bedding.”

Doran reports most producers clean pens two to three times per week, depending on weather, and utilize 5-7 pounds (lb.) of bedding per head per day.

“The range varies,” she says. “The more animals in a pen, the wetter it will be, so those pens need to be cleaned and bedded more often.”

Also surprising, July and August can be the hardest months to keep pens dry due to humidity.

For producers planning to proceed with adding a confinement facility, Doran offers this checklist of

considerations.

BUILDING ORIENTATION. She advises an east-west orientation for monoslope or hoop barns to take advantage of where the sun is. Doran points out that positioning a barn north-south can often get too hot in the summer sun.

BUNK SPACE. Because the bunk will run the length of the building, this often dictates size of the monoslope or hoop barn. For feedlot animals, ag engineers advise 12 inches (in.) of bunk space per head. If the facility will be used to calve cows, Doran advises moving to a minimum of 24 in. of bunk space per head, and 36 in. would be better.

“A heavy, pregnant cow will take that much space,” she says.

ANIMAL DENSITY. On average, a minimum of 40 square feet (sq. ft.) per head is recommended, with a range of 38 to 50.

“Cattle do better with more space,” says Doran. In facilities with a slatted floor, the animal density is suggested to be smaller (on average 25 sq. ft. per head) so that the manure gets pushed down through the slats. However, Doran



Most producers utilizing confined systems clean pens two to three times per week, depending on weather, and utilize 5-7 lb. of bedding per head per day.

suggests this should be evaluated based on the size of the animals to be housed in the facility. For example, a 1,400-lb. steer would be about 3 ft. wide and 7 ft. long, which equates to about 21 sq. ft.

“If the barn is built for a density of 22 sq. ft., that gives very little room to lay down and move,” Doran points out.

FLOORING TYPE. Solid or slatted floors are the two options available in hoop barns or monoslope buildings. The choice hinges on the producer’s preference.

Doran says a solid floor should have some scoring done to it to minimize slipping by the animals, but she cautions that too rough of a surface can cause hoof abrasions and lameness.



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Rubber mats can be added to slatted floors to increase animal comfort and minimize slipping, but Doran says more research is needed to determine what works best.

BACK-OF-BUILDING DESIGN. Doran says ample research exists to support a split curtain for the back of a monoslope building. This allows for an upper curtain and lower curtain that can be adjusted

into various positions to ensure ventilation.

She notes that a lower curtain that rolls up from the bottom is preferred because it is less susceptible to rodent damage. Ultimately, Doran says the goals in managing the curtain are to keep cattle dry, protect them from the wind, but still have air movement to keep cattle comfortable.

BEDDING MANAGEMENT.

Doran shares that no one specific system works best for cleaning and re-bedding pens. She notes that many producers will use a bale shredder, while some let cattle unroll bales themselves.

Regarding type of bedding, she reports cornstalks and oat or wheat straw tend to work best and are most absorbent. Soybean stover is reported to be less absorbent. Doran notes that the

more finely bedding is ground, the more absorbent it will be.

Additionally, she reports some operations prefer deep-bedded pack that builds up over time, while others use shallow bedding and remove beds every three weeks. Doran says a deep-bedded pack can work well in winter, but tends to get hot in the summer. She has observed

Continued on page 94

More research needed

While development of monoslope buildings and hoop barns has progressed greatly in the past 10-15 years, Iowa State University’s Beth Doran says more research is still needed. Among the areas she’d like to see studies include:

- ▶ Animal density: How many square feet are ideal? Is banding tails necessary?
- ▶ Flooring and mats on slatted floors: What’s the best design?
- ▶ *E. coli* incidence: Is there a mud score on hides that predicts increased incidence?

Convincing the community

Iowa State University’s Beth Doran acknowledges that communities and neighbors may be hesitant to have a hoop barn or monoslope barn built in their community. How can their concerns be mitigated?

She advises sharing science- and research-based information with zoning boards and citizens. She encourages being open to listening to their concerns and providing information to them.

Secondly, she encourages producers to be good neighbors — by managing barns to minimize odors. Clean them regularly, and when spreading manure be conscious of the wind direction.

Also, when the community needs assistance, have your farm crew be part of helping or providing equipment.



Whether to use a solid floor or a slatted floor in hoop barns or monoslope buildings is a matter of personal choice, Doran says.

some incidence of hair loss on the rounds of animals on deep bedding.

Shallow bedding tends to be more moist, can have higher odors, and may have an increased incidence of *E. coli*. To mitigate these issues, Doran suggests shallow bedding may need to be cleaned out every week or two, instead of waiting three weeks.

Better management

Lastly, whether you have cattle in a confinement barn or not, Doran advises producers to adopt a system of monitoring the mud and manure on animals using a 1-to-5 scoring system (with 1 being clean and 5 being muddiest.)

“An animal’s hair coat is their insulation,” she explains. “If you get it wet and full of mud and manure, you begin to affect the animal’s heat or cold stress, as well as their average daily gain and feed efficiency.”

Doran continues, “A muddy hair

coat can decrease dressing percent, which starts to affect your profit.” She gives the example that a 1% decrease in dressing percent on a 1,400-lb. steer equals 14 lb. When multiplied by a market price of \$121.57 per hundredweight (cwt.) that equates to a \$17 deduction in price.

Moreover, a dirty hide can cost an extra \$30 to clean, so it can be used for furniture or other purposes.

Most importantly, Doran notes that when an animal has increased mud and manure on its hair coat, it has increased potential for *E. coli*, which costs the industry in both investment value and consumer confidence.

“Every time you have a beef recall, you impact consumer confidence. We want to avoid that, and clean animals help,” she concludes. ■

Editor’s note: Kindra Gordon is a cattlegirl and freelance writer from Whitewood, S.D.