

Want to Take it Inside?

Cow-calf confinement is possible with these considerations in mind.

Story & photos by **Troy Smith**, field editor

“Oh, give me land, lots of land under starry skies above ...”

Those words, first penned by Montana poet Robert Fletcher, were put to music by songwriter Cole Porter back in 1934. The lyrics of *Don't Fence Me In* express a longing for pastoral surroundings, presumably somewhere out in cow country. Today, a good many existing and aspiring cattle producers long for pastoral surroundings, too — pasture where they can manage some cows, or more cows.

Starting a conventional cow-calf enterprise or expanding an existing one can be difficult, if only because of the real-estate requirement. It takes lots of land, which has become increasingly scarce because of conversion to crop production, as well as residential, recreational and commercial development. By some estimates, total grassland acreage has declined by about 32 million acres in the last decade or so. Competition for that which remains makes grazing land expensive to buy or rent.

However, some producers have found that it makes economic sense to break from convention and follow a nontraditional route. Among those daring to be different are eastern-Nebraska cattle producers Tyler and Megan Burkey. Limited pasture acreage hindered expansion of the couple's Milford-area cow-calf operation until they adopted a semi-confinement production system. Now, the Burkeys manage about 500 cows, split into spring- and fall-calving herds, utilizing steel-framed, fabric-covered barns.

With three barns on the place, the Burkeys use two of them to manage cows in confinement during part of the year. Each herd, in turn, is housed from the start of calving through weaning — usually a period of about 120 days. The early-weaned calves are then moved to the third barn for backgrounding, and their dams go outside. For the remainder of the year, cows rotationally graze available forages, including crop residues, crops planted for grazing and permanent pastures.

In central Iowa, near Linden, Chad and Amy Wilkerson had no pasture, but their

experience with a hog confinement barn led them to consider starting a cow-calf confinement system as a means of diversifying their operation. They now have a 46-foot (ft.) by 320-ft. hoop barn, similar to the Burkeys', which houses eight pens and working facilities. The Wilkersons now manage 220 brood cows, serving as an embryo transfer (ET) recipient herd for multiple customers.

They manage 160 cows under roof at all times, with the remainder held in outdoor pens.

The Burkeys and Wilkersons are not held up as examples that all cow-calf producers should imitate. Housed cow-calf confinement systems are not for everyone.

“Putting up a barn is expensive,” Tyler Burkey admits. “but it would have cost us a lot more to buy more pastureland.”

Iowa-based financial consultant Moe Russell has conducted an economic analysis comparing year-round cow-calf confinement under a roof with a more traditional Corn Belt production system.

The latter system places cows on pasture during the summer, utilizes grazed cornstalks in fall and early winter, but typically finds cows drylotted and fed during late winter and/or early spring. As a result of his study, Russell identified 11 areas where well-managed, year-round confinement in a barn offers potential for improved economic return. These include:

1. Potentially longer cow life — up to 10% longer — due to more consistent quality of diet.
2. Feed cost savings, because of lower total feed energy requirement (likely at least 25% lower).
3. Calf weaning weight improvement — up to 50 pounds (lb.) heavier.
4. Increased manure value per animal.
5. Improved conception rates — 5%-15% improvement.
6. Advantageous for application of estrus

synchronization and timed artificial insemination.

7. Potential for time/labor cost savings, but this is highly dependent on management system.
8. Opportunity to shift calving season and capitalize on market price seasonality.
9. Decreased calf mortality rate in controlled environment.
10. Opportunity to stretch bull power.
11. Increased cow salvage value, with cull cows in better condition at marketing.

Analyzing costs

Certainly important to anyone considering construction of a confinement barn is the cost. Russell cites a fairly wide cost range of \$1,600 to \$3,600 per cow-calf pair.

“On average, it's probably going to cost \$3,000 per pair to house a cow-calf enterprise, but the total cost depends on a lot of factors,” Russell explains, citing preconstruction dirt work, the volume of concrete used, and choices associated with cattle working facilities and manure storage as factors contributing to significant cost variability.

“I think cow-calf confinement systems can be a tremendous way to add diversification to grain production, and it can be a good way to bring the next generation into an operation, without buying more land,” adds Russell. “Our feasibility studies show it can be a very good investment.”

University of Kentucky livestock and

poultry facility design and management specialist Morgan Hayes is not surprised by the growing interest in confinement or semi-confinement (part of the year) systems for cow-calf production. She says confinement beneath a roof may make a lot of sense under certain climatic conditions.

“Land availability and cost have stimulated interest in cow-calf barns, but there are other drivers — like avoiding mud in high-rainfall areas, and a desire to achieve more efficient feed management and improved reproduction,” says Hayes. “Moving cow-calf pairs

from pasture to a barn requires more intensive management in order to address those things.”



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According to Hayes, management must include balancing stocking density, bedding and ventilation to keep a barn dry. Calves, in particular, need a dry place to lie down.

“Keeping the barn and the calves dry helps control health problems,” states Hayes. “When calves are protected from weather by a roof, but they still get wet because of a mismanaged barn, you haven’t gained much.”

Hayes says high stocking densities mean more moisture is produced and there is less open floor space from which moisture can evaporate. Bedding is used to manage short-term moisture loads. However, if bedding use becomes excessive and cost-prohibitive, either stocking density or ventilation may need to be adjusted.

“Since most cow-calf barns are naturally ventilated, proper siting and barn design are important to maintain natural air flow,” says Hayes, noting that barns should be oriented to take advantage of prevailing breezes, and not too close to other structures or tree rows that might obstruct air flow.

According to Hayes, animals require less square footage of space in a barn than in an outside lot, and animals on slatted flooring need less square footage than on a bedded floor. However, slatted floors are not recommended for cow-calf pairs, because slat spacing for large animals is too wide for calves’ small feet. Therefore, Hayes recommends a bedded floor, allowing 80 to 120 sq. ft. per cow-calf pair.

In addition to floor space, producers must plan for adequate access to feedbunks. Hayes says one of the advantages of confinement is that calves typically start coming to the feedbunk at an early age. Producers Burkey and Wilkerson concur, noting the favorable impact on calf growth, facilitation of early weaning and easy transition to the backgrounding phase.

While bunk space recommendations range from 24 to 36 linear inches (in.) per cow in confinement, Hayes recommends 30-36 in. per cow-calf pair, unless creep-feeding areas accessible only to calves are maintained. A maximum bunk height of 18 in. is advisable unless there is a step or lip, 4-6 in. in height, along the front of the bunk for calves to use as an aid for reaching into the bunk.

“I would prefer that producers set aside 20% to 25% of the floor space as creep areas, where calves can access feed without competing with cows and risking injury,” Hayes states. “Typically, the greater the

variation in age and size of animals within a barn, the more aggressive the competition.”

Hayes reminds producers that drinking water must be made available in adequate volume, as cows managed in confinement and fed a high-dry-matter ration should be expected to consume more water than cows on pasture. Even nursing calves need water — likely drinking more water than many producers realize — so calf accessibility to waterers is important.

Nutrition management

Since a potential advantage of management under confinement is the ability to control cow diets and utilize relatively inexpensive feed resources, ration management is critically important. Depending on location and local markets, rations may include familiar ingredients such as grain and silage, but diverse feedstuffs are utilized across the country and even within regions.

University of Nebraska Extension Cow-Calf Specialist Karla Jenkins says cow rations have been formulated from ingredients as common as low-quality harvested forages and crop residues, or as regionalized as bakery waste or cotton gin trash. Such commodities may be combined with the most

readily available and economical choices from multiple byproduct feed ingredients. In regions where interest in confined cow-calf systems is increasing, such as the Corn Belt, staples for cow diets often are composed of ground cornstalks and wet or dry distillers’ grains.

Jenkins says management for economical, efficient nutrition for cows in confinement often requires a mind-set shift for producers accustomed to managing cows on grazed forages or feeding hay free-choice. Typically, best results are achieved with limit-feeding — providing cows with only as much feed as needed to meet nutrient requirements and maintain body condition. Producers can limit dry-matter intake to less than 2% of cow body weight when providing an energy-dense diet. Limit-feeding also reduces total manure production, compared to cows whose feed consumption is less controlled.



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Jenkins warns that producers must understand cow nutrient requirements and how they change according to age and stage of production. To meet requirements efficiently, producers also must understand nutrient content of the feedstuffs used. That means feed ingredients should be tested by a commercial laboratory.

“However,” warns Jenkins, “TDN (total digestible nutrient) values shown on laboratory reports may not be the result of analysis, and instead calculated from acid detergent fiber. This is an acceptable measure of forage energy, but may not be accurate for some commonly used byproducts, such as wet distillers’ grains, because of their oil content and interactions of byproducts in residue-based diets.”

Jenkins says energy values usually are higher than results indicate, resulting in feeding in excess of cow requirements and increased expense. If the energy estimate is too low, the result is poorer-than-expected cow performance. According to Jenkins, TDN values based on animal performance feeding trials are available from land-grant universities and are recommended for evaluating byproduct ingredients.

For many and probably most producers, establishment of a roofed cow-calf confinement facility will hinge on the ability to secure financing. According to Bruce Eberle, a Rabo Agrifinance relationship manager based in Grand Island, Neb., a producer ought to do some homework before making a proposal to a lender.

“It’s a bit like pouring concrete,” says Eberle, “you’ve got to do the preparatory work if you want things to look right.”

Eberle says the “prep” work starts with gleaning information about the kind of project you are proposing. If it’s a cow-calf barn, don’t forget to explore environmental impact issues. Realize that knowledge regarding values of single-use structures is narrow and may affect a lender’s valuation of a proposed plan. When negotiating a loan, don’t make terms so long that, down the road, debt is still owed on a depleted asset. Neither should terms be so short that large payments deplete available cash. Moreover, make sure timing of payments matches cash flow.

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“Keep projections as simple as possible, but do the math showing how the debt will be paid. A proposal should include projected revenue and expenses, a capital spending budget, owner withdrawals, debt payment plan and a projected ending balance sheet.”

Before doing anything else, Eberle advises producers considering a housed cow-calf confinement system to seek the best knowledge available. Some of the most useful

knowledge is that born of experience, so likely sources are people who are already managing cow herds in a confinement barn.

“Go see some operations of the type you’re interested in and ask questions. Have other members of your team (lender, accountant, veterinarian, nutritionist, etc.) also see it up close and in person. Ask questions and urge other team members to do the same,” advises Eberle. “Due diligence is how you gain

confidence that what you’re proposing will be a sound beef production business.”



Editor’s Note: *Troy Smith is a freelance writer and cattleman from Sargent, Neb. The sources cited in this story were speakers at the Midwest Cow-Calf Symposium March 21-22 in Omaha. Sponsors included Alliance for the Future of Agriculture in Nebraska (A-FAN), Coalition to Support Iowa’s Farmers, Nebraska Cattlemen and Iowa Cattlemen’s Association.*

Calf health in a confinement barn

When producers contemplate a situation involving calving cows confined to a barn, one of the frequently asked questions is, “What about calf health?” It’s a good question, according to Sara Barber. The Worthington, Minn., veterinarian says the “population pressure” associated with confinement increases the potential for exposure to disease pathogens. Therefore the keys are mitigation of exposure and maximization of immunity.



Sara Barber

Barber emphasizes barn management as a way to address both issues. Many health problems can be prevented by keeping pens clean and dry. It minimizes the nasty places that harbor pathogens and keeps calves from becoming wet, cold and stressed.

“I can’t emphasize enough the importance of dry bedding,” states Barber. “If you kneel in the pen and your knees get wet, it’s too wet for calves.”

Another way to reduce exposure to disease is to practice good sanitation following use of equipment, such as esophageal feeding tubes and balling guns. Equipment should be cleaned with soap, water and a brush. Barber recommends applying a disinfectant before using them again.

“Never share equipment between newborns and sick, older calves. To avoid cross-contamination, you should have two sets of equipment,” adds Barber. “Remember that a calf with diarrhea is [a] microbe-shedding machine, and you can carry those pathogens on your boots, clothes and hands, too.”

Also as a means of preventing exposure to pathogens, Barber advises biosecurity practices, including never allowing situations where resident animals can have nose-to-nose contact with newly acquired animals.

To foster the highest possible immunity among calves, Barber recommends consultation with a veterinarian to develop a herd vaccination protocol that is appropriate for each individual operation. Proper timing of vaccination of cows is beneficial to calves, too, because it helps maximize the power of colostrum.

“Colostrum is the most important meal of every calf’s life, because it is their first source of antibodies,” says Barber. “Calves need to ingest colostrum early. If a calf has not nursed within three hours of birth, they should be fed colostrum or a colostrum replacer — not a colostrum supplement.”

When using frozen colostrum, Barber advises thawing the container in water that is no hotter than 150° F. Do not thaw in a microwave oven. Discard any frozen colostrum that is more than a year old.

Barber also recommends that newborn calves’ navels be dipped in a 7% (strong) iodine solution, and dipp cups should be cleaned after each use.

On a related note, University of Kentucky Livestock Facility Specialist Morgan Hayes recommends that producers calving in confinement facilities have some small enclosures for isolating cow-calf pairs. These could be used as individual calving pens, but perhaps more importantly as a place where a cow and her newborn calf can spend some “quality time” separated from the remainder of the herd.

“I think it’s beneficial to give them up to a day in a pen, separate from the group, to facilitate bonding of the cow and calf,” opines Hayes, adding that the practice can mitigate the milk robbing that may be more prevalent when groups of pairs are kept in close quarters. It could reduce the incidence of aggressive older calves successfully nursing mothers of newborn calves, thus preventing newborns from receiving sufficient colostrum.

Barber and Hayes agree that barn confinement offers potential calf health-related advantages, including tempering of weather extremes and enhanced ability to monitor herd health.