



Cow-Calf in Confinement?

by **Troy Smith**

Though known best as a feedlot nutritionist and beef industry writer, Kenneth Eng is a cattleman too. He is currently focused on timber and cattle operations in Mississippi, but Eng has owned ranches in his native Nebraska as well as California, Texas, Oklahoma and New Mexico. In addition to the fairly traditional grass-based yearling and cow-calf enterprises he has owned, Eng has maintained beef cow herds in what he calls modified- or semi-confinement.

Eng certainly isn't the only cattleman to do so. Plenty of producers keep cows confined to a relatively small area and feed

them for some portion of the year. As a consequence of drought, a good many cows spent time in drylot last spring while pastures were given extra growing time prior to grazing. Some producers confine part or all of their cows for most of every winter — whenever the herd is not grazing summer pasture. The cows are held in a drylot setting — whether that consists of a sacrifice pasture, winter trap or feedlot — where they receive harvested feedstuffs.

Eng believes the beef industry could benefit from more semi-confinement cow-calf operations. He is not suggesting that everyone ought to use this method. Neither is he recommending yearlong

confinement and feeding of cows. Such an operation probably won't be competitive long-term. However, Eng does think the semi-confinement model could aid the rebuilding of the nation's beef cow herd. It might be a way for established producers to expand and an avenue for new cow-calf producers to enter the business. But Eng believes the greatest opportunity may result from turning the existing semi-confinement model on its head.

"I foresee the emergence of semi-confinement cow-calf operations that utilize little or no grass," says Eng, noting the increasing scarcity of grassland in many parts of the country. "More and more grass has been converted to crops. Pastureland values and rental rates keep climbing. But crop residues offer a tremendous alternative grazing resource."

In honor of his late wife, Eng created the Dr. Kenneth Eng and Caroline McDonald Eng Foundation to fund research and education in cow-calf production efficiency. According to Eng, a collective \$2 million is being invested in beef cow research, including drylot production systems, by the University of Nebraska (UNL), Oklahoma State University and Texas A&M University.

Terry Klopfenstein, UNL ruminant nutritionist and professor emeritus, agrees that the abundance of crop residues represents a great and underutilized opportunity for grazing cows. Klopfenstein thinks producers might want to think about grazing cows on cornstalks and other crop residues during the winter and then drylotting cows in the summer. He thinks summer calving might be a good choice for many producers. The economics of that scenario, where cows are confined for six months and graze residues for six months, can be favorable in areas where the feed resources are available.

"Ethanol has changed our lives," says Klopfenstein, referring to the

conversion of grassland to corn production and also the growing use of distillers' grains and other corn milling by-products by cattle feeders and cow-calf producers too. Additionally, many fields of cornstalks are windrowed, baled and transported for use in cattle rations. However, cornstalks may be most valuable when left in the field.

"Grazing absolutely is the most efficient way to use cornstalks," emphasizes Klopfenstein. "Stalk grazing is very economical. It makes the hypothetical confinement/stalk-grazing system economically competitive."

To grain farmers worried about potential soil compaction resulting from cattle grazing crop fields, Klopfenstein says it is not a problem. Based on 15 years of Nebraska research on fields planted to corn and soybeans, in rotation, researchers determined that grazing of cornstalks does not cause detrimental soil compaction. Subsequent soybean yields actually increased following cornstalk grazing, and grazing cows still left sufficient residue behind to enhance no-till farming methods.

"Grazing does not harm fields. Leaving fields ungrazed means fields have way more residue than is needed. It doesn't make sense to waste it," Klopfenstein says.

UNL Cow-Calf and Range Specialist Karla Jenkins says those baled cornstalks and other residues, wheat straw and low-quality hays tend to be the most cost-effective ingredients for rations fed to cows while in confinement. The quality of the total ration can often be boosted economically with the addition of by-product feed ingredients such as distillers' grains and corn gluten feed. Depending on an operation's location, alternatives might include sugar beet pulp, wheat midds, soy hulls and other by-products.

"Limit-feeding cows in confinement is key. Letting cows eat all they want is not economical," says Jenkins, explaining that total dry-matter intake would be limited to less than 2% of body weight.

"A limit-fed ration must contain energy dense ingredients," she adds. "Producers must know the nutrient content of their feedstuffs, and they must know the nutrient requirements of their cows. That changes with stage of production. The diet must be manipulated by adjusting ingredients or the amount of ration fed, in order to meet changing needs of the cow and calf. It really doesn't matter which commodities are used in a ration, as long as it provides a palatable and balanced diet. Producers can and do get pretty creative."

When calves are present with cows in confinement, producers need to consider the amount of feed calves will consume. According to Jenkins, calves often



start sampling the forage very early. By three months of age, a calf will eat about 1% of body weight in forage in addition to nursing the cow. So when pairs are fed in bunks, amounts fed should reflect consumption by calves as well as cows.

Jenkins advises producers feeding cows in confinement to target cow body condition score (BCS) 5. Her UNL colleague, Extension Beef Specialist Rick Rasby agrees.

“Body condition score is a good indicator of adequate nutrition, and cows in BCS 5 do just fine from a reproductive standpoint. Cows in BCS 5, at calving, can maintain a 365-day calving interval,” states Rasby, warning of the danger associated with cows exhibiting poor body condition at calving.

“Trying to play catch-up after cows calve usually doesn’t work. You can increase their energy intake, but the added energy usually goes into lactation and not on the cow’s back,” explains Rasby. “It’s better to be proactive and make sure cows have adequate condition at calving.”

Allowing adequate bunk space is also important when feeding cows in confinement. It’s particularly important when cows have calves at their sides. Rasby recommends allowing three feet of bunk space for each pair. He also advises consideration of an ionophore

for inclusion in the ration, calling it beneficial to reproduction as well as feed efficiency.

According to Rasby, confinement of cows may afford advantages for application of various management practices. Cattle are close at hand for routine vaccinations as well as preconditioning and weaning of calves. Rasby says early weaning is a practice that can help producers manage cow body condition. Moved to their own pen, calves can be fed a growing ration, and the cow diet can be adjusted for the period of non-lactation.

Rasby says confinement may also accommodate application of synchronized artificial insemination more easily than pasture-based systems. When natural service is used, fewer bulls may be necessary to cover cows in confinement. Rasby warns against skimping on bull power when yearling bulls are used. However, mature bulls might be used at the ratio of 1 to 30 or 35 cows, instead of the typical pasture breeding ratio of 1 to 25.

Mississippi State University veterinarian David Smith says the common assumption is that calf sickness will be a significant problem if calves are born and raised in a confinement setting. However, not all drylot environments equate to the stereotypical feedlot setting. Cows might be maintained on center-pivot

corners or any designated parcel of crop ground or pastureland. A drylot might be a few acres or 40 or more. Generally, more room is better during calving and while calves are very young.

“Crowded conditions of confinement systems increase the opportunities for injury from others in the herd and from hazards presented by broken posts, fences and gates, and the drylot environment can enhance transmission of infectious disease,” says Smith.

The risks, he adds, can be addressed. Risks of physical injury to cow or calf can be minimized by designing facilities that present minimal hazards and keeping them well maintained. Choice of breeding season should allow for calving and subsequent production stages to occur during optimal weather conditions. Producers also must implement appropriate practices for managing animal health, including careful monitoring for injury and disease.

Smith cites UNL studies where the Sandhills Calving System was applied to cows managed in confinement. After calving began, cows that had not calved yet were separated from those that had delivered and moved to a different, clean pen. Moving of heavies occurred weekly to prevent the buildup of pathogens in the calving environment and to reduce opportunity for overwhelming exposure of new calves to pathogens.

“In (confined calving) trials, there were no calf losses due to scour when the Sandhills System was applied,” states Smith, admitting the study was small. “Health risks can be mitigated, though not eliminated, by anticipating their occurrence and managing known risk factors.”

According to Vernon Anderson, North Dakota State University animal scientist, disease has been essentially a nonissue for cows undergoing a summer drylot period at Carrington Research Extension Center. The Center has maintained cows in a semi-confinement system for over 40 years.

“Watching the cattle closely every day in the drylot gives you an advantage over pasture in early detection of signs of disease. Treatment can be affected easily and quickly. Treating individual animals early reduces the potential of serious outbreaks,” says Anderson.

In Anderson’s opinion, the well-managed drylot can be “cow heaven.” Poorly managed operations could be just the opposite. Anderson says the onus is on the manager to provide adequate facilities and proper nutrition and care. Anything less is not in the best interest of the cattle or the economics of the enterprise. **HW**