The Latest Across the Plains

Timely Reminders

- Prepare adequate wind shelter and protection from winter elements. A dry, clean hair coat reduces maintenance energy requirements.
- Test hay and silage to insure proper ration formulation, be sure to check nitrates on annual crops.
- Analyze winter feed supplies.
- Keep an eye on breakeven projections for cattle placed on feed.
- Consider limit feeding stock cows. High energy feedstuffs are relatively low cost compared to hay. Limit feeding high energy feeds may substantially reduce cow input costs.
- Monitor BCS of cows monthly.
- Keep pens scraped and get manure hauled to fields.
- Make sure waterers are clean and in good working order.
- Prepare supplies and pen conditions for weaning calves.
- Wean calves - contact us about setting up backgrounding diets.
- Use an internal parasite control product (white de-wormer) in both cows and calves after freeze up/dormancy occurs.

Welcome, Dr. Matt Luebbe!

Great Plains Livestock Consulting, Inc. would like to announce the addition of Matt Luebbe, Ph.D., PAS as our newest consultant! Matt's interest in beef production started with helping his family background and finish cattle in eastern Nebraska. After attending the University of Nebraska, Dr. Luebbe continued as a post-doctoral research assistant with Texas AgriLife before returning to the University of Nebraska as a faculty member stationed at the Panhandle Research and Extension Center. Many of the research and extension goals at UNL were focused on profitability and sustainability of beef cattle operations using data to help producers. These same goals are used while assisting producers to be successful in their own operations.

Unused Feed

"A man can fail many times, but he isn't a failure until he begins to blame somebody else."
--John Burroughs

Save Money $$$ Test Your Feeds

Tests are relatively inexpensive, usually costing less than $18, for the information derived. Contact our office to set up an appointment to have us pull feed samples if we have not done so yet.

Calendar of Events

- **Nov 11** Veterans Day
- **Nov 13 - 14** Unit Cost of Production for Cow-Calf Producers, O'Neill, NE
- **Nov 15 - 16** Kansas Agri-Business Expo, Wichita, KS
- **Nov 15 - 16** Gateway Farm Expo, Kearney, NE
- **Nov 15 - 16** McCook Farm & Ranch Expo, McCook, NE
- **Nov 28 - 30** Amarillo Farm & Ranch Show, Amarillo, TX
- **Nov 28 - 30** Greater Peoria Farm Show, Peoria, IL
- **Nov 28 - 30** South Dakota Cattlemen's Association Convention & Trade Show, Pierre, SD
- **Nov 28 - 30** Range Beef Cow Symposium, Cheyenne, WY
- **Dec 1 - 2** Missouri Livestock Symposium, Kirksville, MO
- **Dec 4 - 5** Unit Cost of Production for Cow-Calf Producers, North Platte, NE
- **Dec 4 - 8** ASTA's CSS & Seed Expo, Chicago, IL
- **Dec 5 - 7** Nebraska Power Farming Show, Lincoln, NE
- **Dec 5 - 8** Nebraska Cattlemen Annual Convention & Trade Show, Kearney, NE
- **Dec 7 - 9** Tulsa Farm Show, Tulsa, OK
- **Dec 12 - 14** Indiana - Illinois Farm & Equipment Show, Indianapolis, IN
- **Dec 14 - 16** Wichita Farm & Ranch Show, Mulvane, KS
- **Dec 25** Christmas Day
- **Dec 31** New Year's Eve
- **Jan 1** New Year's Day
- **Jan 5 - 7** Missouri Cattle Industry Convention & Trade Show, Columbia, MO

The Great Plains News Feed

Hybrid Corn and Cattle Production

By Dan Larson, Ph.D.

The cattle feeding industry is based on corn and various byproducts of the corn milling industry. As nutritionists, we are ever vigilant to changes in feedstuff quality and the effect on cattle performance. In the past few years, a couple technological changes have presented new opportunities and potential challenges to the cattle feeding industry. While a multitude of hybrid technologies exist in the corn industry, this article will focus on two: Enogen corn technology and genetic improvements in corn stalk durability and health.

Syngenta introduced Enogen corn in 2011 as a pilot project. The Enogen technology centers on an amylase enzyme genetically engineered into the corn plant. The technology was developed for the ethanol industry. It reduces the need for added amylase in the ethanol production process, reducing cost and improving efficiency. However, Enogen comes with some drawbacks, formostly it cannot enter the non-ethanol food chain. Thus if there are production or transportation issues at or after harvest, producers need an outlet for the product. Luckily, Enogen corn is safe and practical for use as animal feed. Research shows a positive impact of Enogen corn on swine and dairy production. Recent research at the University of Nebraska sought to determine the impact of Enogen corn on growing and finishing beef cattle. The first project sought to determine the effect of dry Enogen corn on finishing performance of 700 lb. steers (Fig. 1).

The researchers found replacing typical corn hybrids with Enogen corn in rations with Sweet Bran improved performance. Sweet Bran is a patented form of wet corn gluten feed produced by Cargill. Specifically, Enogen corn, with Sweet Bran in the ration, improved average daily gain by 6.2%. As there was no accompanying increase in DMI, feed efficiency was improved by 8.7%. Interestingly, there was little to no difference in any performance measure when Sweet Bran was not a component of the diet. This can be explained by the observation that corn gluten feed in all forms has rumen buffering capability. Previous research by UNL has shown that rations containing corn gluten feed, without added roughage, perform acceptably to rations with added roughage. Thus, these data suggest that Enogen corn technology causes some measure of increased rumen acid content, which is alleviated by corn gluten feed. This makes sense, as the purpose of the amylase enzyme in Enogen is to digest starch into its component sugars, making it more digestible to the rumen microorganisms and ultimately the animal.

The caveat with Enogen corn in cattle, unlike hogs, is digestion of starch, or its sugars, mainly takes place in the rumen, rather than the small intestine. Therefore, it is critical that the products of amylase digestion stay in the rumen long enough for the microbes to utilize them. That concern was the focus of a second study conducted by UNL. In this study, researchers compared Enogen corn processed by dry rolling or high moisture rolled corn. When Enogen dry rolled corn was fed with modified distillers grain, a nearly 4% increase in feed efficiency was noted. However, when Enogen was put up high moisture, there was very little difference in feed efficiency compared with non-Enogen corn. The researchers hypothesize that because rations containing high moisture corn pass from the rumen more quickly, there was insufficient time for the microbes to digest the added products of amylase digestion.

These data suggest that Enogen corn can improve productivity and reduce the cost of gain of finishing cattle. However, there may be a slight added risk of low rumen pH (acidosis) when feeding Enogen corn. But it appears that wet corn gluten feed, or one would assume a small amount of added roughage, will negate that risk. If Enogen corn can be raised or purchased at a similar cost to non-Enogen corn, there is an apparent economic incentive to do so.

As understanding grows about pest management in corn and increasing yield potential requires greater stalk strength, many of us are left wondering what impact this has on the digestibility of the forage resulting from silage production. The dairy industry in particular has made strides in using brown mid-rib type corn, as opposed to more conventional varieties expressing any number of traits important for corn grain production. These hybrids contain less lignin and often produce more biomass per plant than conventional varieties. The dairy industry has provided data demonstrating the benefits of low lignin corn varieties. However, little if any data exists in the dairy literature about the direct impact of corn hybrid technologies on corn silage fermentation and subsequent utilization. Clearly, however, increased lignin content of the stalk will have an impact on forage quality. What this likely means is proper silage production, including inoculation, packing, covering, moisture management, and face management are going to become more important with each new technological breakthrough. Please contact your GPLC nutrition-

*Figure 1

	No Sweet Bran		With Sweet Bran		Corn*SB
	Control Corn	Enogen Corn	Control Corn	Enogen Corn	
DMI, lb/day	23.0	22.4	23.3	22.7	0.99
ADG, lb/day	3.60^{xy}	3.57^{xy}	3.49^{x}	3.72^{y}	0.05
F:G	6.44^{xy}	6.31^{xz}	6.71^{y}	6.13^{z}	0.02

ist for help in understanding how these technologies may impact your bottom line.

The Expensive Decision to Install Slat Mats

By Adam Schroeder, M.S., MBA, PAS

With the availability of corn and ethanol co-products, the Midwest has unique advantages in terms of feed cost of gain. Factors such as climate, feed efficiency, manure value, environmental compliance and others have forced many producers evaluate confinement buildings to expand their operations. Although animal housing research can be expensive and difficult to conduct, over the last decade, studies have compared the various types of buildings, pen characteristics, and manure value coming from these various building systems. University of Minnesota data suggests slatted floor buildings can increase manure value from $30/head in an outdoor lot or $40/head in a manure pack, to over $60/head in a deep pit system. Slatted floor buildings also reduce bedding material cost from $0.44/head/day to zero, and eliminate time spent bedding and scraping. However, in addition to the increased initial cost of $400 to $500 per head space for a deep pit barn compared to a bedded pack, challenges related to feet and legs and animal welfare on slatted floor facilities have created concern. One potential way to improve cattle comfort is to use rubber or plastic slat coverings over the concrete gangs. Various products have been developed to help increase grip so animals are more confident in getting up and lying down as well as providing cushion to reduce incidence of joint swelling.

There are two main types of slat cover options; flat rubber and domed plastic. Each has a different way of achieving grip and cushion. Flat rubber mats typically have some type of texture on the top with each manufacturer having its own variations on surface texture. For rubber mats, this provides the grip necessary for cattle to rise and move about the pen without slipping. Anecdotal experience suggests that deeper textured mats seem to provide more grip; however, they have a higher propensity to become caked in manure and lose their effectiveness if you run lower stocking densities (greater than 24 square feet per animal). Domed plastic slat mats achieve grip through a different mechanism. They are slick surfaced mats to help shed water and manure. Grip is achieved from the sinking of the mat under the hoof from their initial dome shape to a more depressed or concave shape. In a typical situation, cattle are able to achieve necessary grip from the flex of the product and have no problems getting up from a lying position. The mats seem to be softer and provide more cushion than rubber mats; however, when trying to get cattle sorted or moved out of a pen the grip is not as effective as rubber mats and slipping can occur (especially prominent with flighty cattle). While very little research has been done in the US on plastic slat covers, the University of Illinois completed a comparison study of various rubber mat products compared to concrete on locomotion score. By 90 days on feed, lameness was reduced on all rubber mats tested compared to bare concrete. This indicates that the cushion and grip provided by slat mats are decreasing risk of lameness. Further analysis of that study should be available in the next year.

Another consideration when evaluating slat mat options is anchoring systems that attach the mat to the concrete. Anchoring of the rubber or plastic is necessary to prevent the mat from coming off or folding up when cattle are moving around in the pen. There are three main ways that anchoring is achieved: 1) wedges that are attached to the rubber mat and are hammered in the gaps between gangs 2) anchors that go through the rubber mat and have expanding wings that hold in the gaps 3) spring loaded plastic flaps that hold onto the side of each gang. While all are effective, rubber wedges have the potential to be pulled up as cattle run across a pen and stop abruptly. Similarly, plastic flaps have been known to come loose from the gangs and allow a plastic cover to come up off the gang. Anchors provide the most effective way of attaching rubber to the concrete; however, make sure the anchor you use is one piece and does not have the ability to come completely apart when installed. Some older anchoring devices have the ability to become loose over time and drop down into the pit causing problems with agitators and pumps. Any metal should be stainless steel to avoid corrosion and detrition.

While these comparisons can have implications on the type of mat that may be best suited to your facility and management, return on investment needs to be examined before the costly addition can be recommended. Iowa State University and the University of Illinois both have completed comparison studies with rubber mats compared to bare concrete. Summarizing their results, it seems that there is a 0.2 lb increase in ADG when cattle move from concrete slats to rubber mat covered slats. Feed intake and conversion results have been more variable, but the data tends to show that mats increase intake 0.5 – 1.0 lb of DM/head/day with no measurable change in feed conversion documented. Using this information, if cattle are fed 180 days, with a 0.2 lb. increase in ADG, that is an additional 36 lbs live weight when sold. If feed intake was increased 0.75 lb. of DM per day at $0.07 per lb., that is a $12.60 increase in feed cost for the 36 lbs. of additional gain. At $112 per cwt live weight, the added value of mats from increased gain minus feed cost is $27.72 per head for cattle fed 180 days. This does not put a value on cattle that are pulled from slats for lameness issues. With slat mats adding roughly $150 to $200 per head space, it would take 6 to 7 turns of cattle to realize the return from slat mats in a slatted floor facility. With most manufacturers claiming new rubber and plastic technologies will allow these products to be used 15 years or longer before complete replacement would be advised, slat mats offer the potential to improve animal comfort and increase feedlot profitability.

In addition to various slat mat options, grooving and texturing of concrete slats are an option to increase grip and reduce the incidence of slipping. In new construction, there is typically no added cost associated with these options as they are incorporated in the form. However, modifying existing facilities can add $0.60 to $1.00 per square foot. Very little research has compared grooved slat gangs to matted slats. Many factors such as size of cattle, time on feed and pen design can complicate the decision to use various mat products or grooving. Please contact us to discuss our experiences with the various slat mat options and make recommendations specific to your operation and management.

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The Great Plains News Feed

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