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# The Great Plains News Feed

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**July/August 2011**

# The Latest Across the Plains

## *2011 3rd Annual Cattlemen's College*

We would like to thank everyone who attended the 3rd Annual Cattlemen's College conference. This year the topics included adding value to feeder cattle, Cow/Calf risk management, silage, heat stress, and grain processing and types. This year we also had great success with our round table sessions which also included a variety of topics from value and cost of weaned calves, building designs, and much more! The speakers for this year's conference were exceptional and if you didn't get a chance to see them we are including brief abstracts of the topics they discussed at the meetings for you to take a look at. Attendance this year was nearly 150 guests from a ten state region. As always if you have any questions regarding the latest in livestock nutrition or any lingering thoughts about the conference feel free to contact any of our nutritionists.

## *Summer Heat*

We are firmly in the middle of summer and the heat is on across the country. Dealing with heat stress has become a real issue for cattle producers in most areas. While it might be easy to overlook, the importance of having access to good quality water for cattle to drink can't be stressed enough. Where most tend to get in trouble is not having enough *access* to that water. Be creative in ways to provide extra water trough space for cattle right now, particularly in confinement, and cattle will not only have a better chance of surviving the heat, but actually performing well through it.

Shades are also a great tool to help cattle dealing with heat stress. Whether just a temporary set up, or a strong permanent fixture, research has proven that shades in feeding pens will give cattle relief throughout the day and improve feeding performance through the hot times.

As a last resort, using water sprinklers can also provide some temporary relief for cattle. The key here is to make sure you are putting out big water droplets that will penetrate the hair coat and get to the skin of the animal. Using a fine mist for sprinkling cattle will only make the situation worse.

Cow numbers continue their downward trend, which continues to support higher calf prices. Don't get caught up in being discouraged with higher feed costs when projections right now show that there is money to be made growing calves. Give us a call and let us show you the numbers. Just remember, with volatility comes opportunity!

## Calendar of Events

- **July 15-17** 2011 Four State Farm Show, Pittsburg, KS.
- **July 20** 2011 North American Manure Expo, Northeast Community College's Ag Complex, Norfolk, NE.
- **July 22-30** North Dakota State Fair, Minot, ND.
- **July 28-30** OCA Annual Convention and Trade Show, Midwest City, OK.
- **Aug 1-4** NCBA Summer Conference, Orlando, FL.
- **Aug 9-10** 11th Annual Nebraska Grazing Conference, Kearney, NE.
- **Aug 11-21** Iowa State Fair, Des Moines, IA.
- **Aug 11-21** Missouri State Fair, Sedalia, MO.
- **Aug 11-21** Illinois State Fair, Springfield, IL.
- **Aug 12-13** 2011 OCM Annual Conference, Kansas City, MO.
- **Aug 15-17** America's Conference on Grasslands, Sioux Falls, SD.
- **Aug 25** Central Plains Beef Industry Days, Howells, NE.
- **Aug 26** R-CALF USA 2011 Convention, Rapid City, SD.
- **Aug 26-27** Annual OCA Range Round-Up, Oklahoma City, OK.
- **Aug 29** ICA Beef Masters Open 2011, Wildcat Golf Course, Shellsburg, IA.
- **Aug 26-Sep 5** Colorado State Fair, Pueblo, CO.

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## Timely Reminders

**General**

✓ Clean water sources on a weekly basis.
✓ Keep an eye on commodities contract prices the next two months.
✓ Have us sample hay and silage (silage greater than 4 weeks after harvest).

**Beef**

✓ Start thinking about pre-weaning calf diets.
✓ Contact your nutritionist for creep feeding options.
✓ With high feed prices re-implant cattle.
✓ Spring calving herds should be pulling bulls soon.

**Swine**

✓ Check feed budgets.
✓ Evaluate optimum slaughter weights.

**Equine**

✓ Keep an eye on hay/forage quality.

**Unused Feed**

✓ "There ain't a Bull that can't be Rode and ain't a Rider that can't be Throwed."

## Four Silage Management Opportunities in 2011

*By Dr. Keith K. Bolsen & Ruth E. Bolsen*

Regardless of the size of a livestock operation and because it is 'not a perfect world', producers know problems occur in every silage program. The paper focuses on four important silage management and feeding practices that producers control but sometimes poorly implement or overlook entirely: 1) achieving a high silage density, 2) providing an effective seal, 3) recognizing the negative effects of surface-spoiled silage, and 4) safety.

***Achieving high silage densities in bunkers and piles.*** Silage density and preservation efficiency, measured as DM recovery, are positively related. Higher densities also increase the storage capacity of existing bunker silos (without over-filling) and decrease the height of drive-over piles (without reducing storage capacity). However, in recent surveys, results show that many producers are not achieving the recommended minimum silage dry matter density of about 15 lb per $ft^3$ (44 lb fresh weight bulk density per $ft^3$).

Several key considerations to improve density include: 1) Check densities, but only if this can be done safely, and be prepared to adjust filling and packing procedures, 2) Reduce the forage delivery rate is difficult to accomplish, as very few producers or silage contractors are inclined to slow the harvest rate, 3) Employ experienced people, especially those who operate the push-up/blade tractor or tractors and provide training as needed, 4) Increase the rate of forage push-up when harvest rate increases to reach a target density, 5) Spread forage in thin layers of 6 to 8 inches during the entire filling operation and pack continuously, 6) Increase pack tractor weight, 7) Increase the number of pack tractor passes over all forage layers (Caution: more tractor passes requires more packing time per ton), and 8) Increase pack tractor passes near bunker silo walls. Spreadsheet software is available to assist producers and their silage team in achieving their target densities**.**

***Techniques and economics of sealing bunkers and piles.*** From 2006 to 2010 an average of 107.6 million tons of whole-plant corn was harvested annually for silage in the USA. By design bunkers and piles allow a large percentage of the ensiled material to be exposed to the environment. Polyethylene sheeting, which is typically weighted with discarded car or truck tires or tire sidewalls, has been the common method used to protect silage near the surface. However the protection provided is highly variable and often changes during storage. Many livestock producers are quick to point out that 'putting tires on plastic' is not an activity enjoyed by their employees. An oxygen barrier (OB) film (www.silostop.com) is a recently introduced alternative to standard black or white on black polyethylene. The OB film, which is 45µm in thickness, has dramatically improved the preservation efficiency and nutritional quality of silage within 12 to 36 inches of the surface in bunkers and piles.

Excel spreadsheets to calculate the profitability of sealing ensiled forage or high moisture grain in bunker silos and drive-over piles were developed from research at Kansas State University and are available from the authors. Bottom line: The profitability of sealing bunkers and piles with Silostop or standard plastic makes it clear that producers and their silage team should pay close attention to the details of this 'highly troublesome' task.

***Negative effects of surface-spoiled corn silage***. In virtually all bunkers and piles, which are sealed with standard polyethylene, there will be varying amounts of surface spoilage. This spoilage should be discarded but only when it is safe to do so. Research at Kansas State University (www.ksre.kse.edu/silage) showed that feeding surface spoilage dramatically reduced the nutritive value of corn silage-based rations. The data suggests that dairy cows fed low to moderate amounts of surface spoilage would produce $150 to $500 less milk per 305-day lactation, and growing/backgrounding cattle fed surface spoilage would produce $3 to $15 less live weight gain per ton of corn silage.

***Safety issues in managing bunkers and piles*.** Few farming operations invite as many different opportunities for injury or fatality as a silage program. Silage-related tragedy knows no age boundary as workers and bystanders of all ages have been injured or killed during silage harvest and feedout. Increasingly, stories involve bunker silos and drive-over piles. Consistently protecting employees, equipment, and property throughout harvesting, filling, and feeding does not occur without thought, preparation, and training.

A major factor contributing to injury or fatality is avalanche/collapsing silage, which is typically the result of over-filled bunkers and piles. Avalanches do not have to happen! Bunkers and piles should not be filled higher than the unloading equipment can reach safely, and typically, an unloader can reach a height of 12 to 14 feet. Proper unloading technique is crucial and includes shaving silage down the feedout face and never "digging" the bucket into the bottom of the silage. Undercutting, a situation that is common when the bucket cannot reach the top of an over-filled bunker or pile, creates an overhang of silage that can loosen and tumble to the floor. Never allow people to stand near the feedout face, and a rule-of-thumb is never stand closer to the silage face than two to three times its height. When sampling silage, take samples from a front-end loader bucket after it is moved to a safe distance from the feedout face.

Think safety first and avoid complacency! It is always best to take steps to eliminate hazards in advance than to rely upon yourself or others to make the correct decision or execute the perfect response when a hazard is encountered. Only experienced people should be permitted to operate equipment associated with harvesting, filling, packing, sealing, and feeding in a silage program. The correct sizing of bunkers and piles can reduce the risk of an accident. Software is available to assist producers in designing safer and more efficient bunker silos and drive-over piles (http://www.uwex.edu/ces/crops/uwforage/storage.htm).

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## Influence of Processing and Grain Type On Starch Digestion

*By Dr. Fred Owens*

Rate and efficiency of gain are proportional to intake of digestible energy above maintenance. Digestible energy is obtained from the fat, protein, carbohydrate (starch and sugars), and fiber in a diet. For both cereal grains and corn silage, starch is the primary source of digested energy. Both corn grain and corn silage are processed primarily to increase digestibility of starch. Among the sources of digestible energy, fiber has the lowest digestibility. Consequently, grain or silage that has higher fiber content has a lower digestible energy. Within corn kernels, most of the fiber is found in the hull and tip cap. Therefore, reducing the proportion of fiber (selecting corn grain with less hull or larger kernels; more mature corn silage that has a higher grain:stover ratio) will increase the digestible energy content of a feed. Because fat has more energy than protein, feeds rich in fat have a higher concentration of energy. Starch dilutes the germ content of corn grain, so grain with a higher percentage of starch automatically has a lower percentage of germ. Because oil and protein are concentrated in the germ, increasing the starch content of grain decreases energy content per unit of weight of corn grain. However, because grain yield generally is greatest for corn hybrids that produce grain rich in starch, total energy yield per acre usually is greatest when the starch content of grain is high.

Within corn kernels, starch is found in a vitreous (the dense, dark yellow portion of kernels) or a floury (the soft, white powdery portion) form. Because it is encased in protein and yields coarse particles when rolled or ground, vitreous starch generally is less rapidly and extensively digested by animals than floury starch. But when corn is extensively processed (fermented to form high moisture corn; steam flaked; extruded) digestibility of both floury and vitreous starch approaches 100%. Whole corn kernels are only digested if the pericarp is broken by processing the grain or when chewed by animals. Grinding or rolling dry grain to reduce particle size starch increases digestibility of starch from corn grain by lactating dairy cows. But for feedlot cattle, provided all the kernels are cracked, the size of ground corn particles has very little impact on starch digestion. Lower digestibility of coarse particles by lactating cows presumably is due to the shortened time for starch digestion in the rumen of cattle consuming high amounts of fiber-rich diets.

To increase yield of digestible energy, the cob, husk, and shank portions of corn plants often are harvested in addition to the grain. When harvested in the high moisture form and fermented, these form “coblage” or “earlage.” Though these additional ear components are less digestible than corn grain, total dry matter and energy yield per acre harvested will be greater (5 to 6% from the cob and a similar additional amount from the husk plus shank) and such products have “built in” roughage. Yield of both grain and earlage reaches a maximum point when grain contains about 66% dry matter with a range among hybrids from about 62 to 68%. When harvested earlier, grain deposition is incomplete, but delaying harvest reduces yield an average of 1.1% for each 1% increase in grain dry matter content due to ear drop, respiration, and “invisible” loss.

Unless chewed, whole corn kernels are not digested. However, when fed in diets containing little roughage (ideally under 10%) to cattle that chew their feed well, starch digestibility from whole corn will be moderately high. The higher the cost of grain, the greater the economic benefit from extensive grain processing. High moisture harvest, reconstitution, and steam rolling or flaking increase the energy availability of grain substantially (an average of 7% from fermentation; 16% from flaking). Metabolic disorders including acidosis are most prevalent when intake of starch is high and when the diet contains a large amount of fine, rapidly fermented particles that can separate from other feed particles in the feed bunk. Prevalence of fine particles is lower with rolled than ground grain. Including wet feedstuffs or water in the diet helps reduce separation of fine particles. Displacing a substantial portion of starch-rich grains with starch-depleted distiller’s grains also markedly reduces the incidence of acidosis.

Energy value per unit of dry matter is greater for wet than for dried distiller’s grains. With diets composed of dry rolled or high moisture grain, addition of either wet or dry distiller’s grains generally increases feed intake and improves feed efficiency. In contrast, the responses in intake and efficiency from addition of distiller’s grains to diets composed of steam flaked grain are small or nil. However, if cost of net energy is less for distiller’s grains than for cereal grains, cost of gain still will be reduced by replacing grain with distiller’s products.

When fed as coarsely rolled dry grain, grain from different commercial hybrids have a range in feeding value more than 14% (with floury, low test weight grain typically being best) and a similar range in grain yield (about 12%). Unfortunately, hybrids with the highest feeding often have the lowest grain yield. Because extensive processing (high moisture harvest; flaking) equalizes energy availability for most hybrids, grain yield becomes the primary factor of interest when selecting a hybrid to grow. Additional factors (slow drying to expand the time window for harvest of high moisture grain at its optimal moisture content of 28 to 32%; softer corn kernels to increase digestibility of grain fed as coarsely rolled or ground grain; large kernel size to reduce fiber content and increase grain digestibility; uniform kernel size and kernel vitreousness for consistent processing to avoid fluctuations in rate of ruminal digestion that can cause metabolic disorders) should be of concern for livestock producers attempting to maximize rate and efficiency of gain.


*“Turning Science into Money”*