The Latest Across the Plains

Timely Reminders

- Keep cattle bedded during harsh conditions
- Maintain pen surfaces (shape and remove snow)
- Keep an active implant in terminal animals
- Evaluate BCS of cows, target a 5.5 to 6.0
- Switch cowherd to Calving & Breeding Mineral 60 days prior to calving
- Remember protein and energy requirements increase during the last third of gestation
- Bulls and pregnant cows need 6-8 gal. water/day and lactating cows need 11-14 gal. water/day (liquid form works best)

Unused Feed

"My grandfather used to say that once in your life you need a doctor, a lawyer, a policeman, and a preacher but every day, three times a day, you need a farmer." —Brenda Schoepp

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.

What's New in the Industry

Zilmax is back on the market.

We want to hear from you…

Do you have a question you would like one of the nutritionists to address in depth in our newsletter? Just submit your question through our website www.GPLC-Inc.com and we will get to work on it.

Calendar of Events

- **Jan 9 - 24** National Western Stock Show, Denver, CO
- **Jan 15 - Feb 6** Fort Worth Stock Show & Rodeo, Fort Worth, TX
- **Jan 19 - 20** Rice Lake Area Farm Show, Rice Lake, WI
- **Jan 21 - 22** Garden City Farm and Ranch Show, Garden City, KS
- **Jan 28 - 30** Ag Pro Expo, Orlando, FL
- **Jan 26 - 28** Northwest Agricultural Show, Portland, OR
- **Jan 26 - 28** Colorado Farm Show, Greeley, CO
- **Jan 27 - 28** Midwest Ag Expo—Illinois, Gifford IL
- **Jan 27 - 29** KMOT Ag Expo, Minot, ND
- **Jan 26 - 30** Sioux Empire Farm Show, Sioux Falls, SD
- **Jan 27 - 29** National Cattlemen's Beef Association Trade Show, San Diego, CA
- **Jan 28 - 30** Power Show Ohio, Columbus, OH
- **Jan 29 - Feb 7** Black Hills Stock Show, Rapid City, SD
- **Feb 2 - 4** Colusa Farm Show, Colusa, CA
- **Feb 2 - 4** Iowa Power Farming Show, Des Moines, IA
- **Feb 3 - 4** Buffalo Bill Farm & Ranch Expo, North Platte, NE
- **Feb 3 - 4** Southern Farm Show, Raleigh, NC
- **Feb 14 - 21** Iowa Beef Expo, Des Moines, IA
- **Feb 9 - 11** World Ag Expo, Tulare, CA
- **Feb 10 - 13** National Farm Machinery Show, Louisville, KY
- **Feb 13 - 21** Nebraska Cattlemen's Classic, Kearney, NE
- **Feb 26 - 27** Western Farm Show & Tractor Pull, Kansas City, MO
- **Feb 27 - Mar 1** GEAPS Exchange Expo, Austin, TX
- **Mar 3 - 5** Hawkeye Farm Show, Cedar Falls, IA
- **Mar 8 - 9** Eau Claire Farm Show, Eau Claire, WI

The Great Plains News Feed

Functional Genomics

By Dan Larson, Ph.D., Nutritionist

Functional genomics is a rapidly expanding field which has the potential to increase our understanding of how an animal will perform by collecting a simple tissue sample. There is an ever increasing number of companies selling the opportunity to test many species for traits ranging from milk production to reproduction, which is the essence of functional genomics. The process of Marker Assisted Selection (MAS) uses variations in an animal's genotype, otherwise known as single nucleotide polymorphisms (SNP), to predict the phenotype (expressed traits) of an animal or its offspring. This ranges from simple, single gene traits such as polledness, coat color, or genetic defects to complex traits involving thousands of genes such as reproduction, carcass quality, health and growth traits. By analyzing an animal's genetic code, we assume it is possible to predict these complex traits, or at least explain part of the reason why one cow is significantly more reproductively efficient than her herdmate. If it is truly possible to explain these differences more accurately than using EPD's alone, then we can tailor nutrition and management programs to cattle.

Functional genomics is a rapidly expanding field which has the potential to create extreme profits for any company which successfully markets their product. The sales range from the simple single traits listed above to the complex. The most lucrative, and powerful, tests use an SNP chip which essentially includes thousands of SNP's (>100K) which are linked by statistical data to the expression of a trait. For example, a bull whose DNA is run on the SNP chip will receive a score, or percentile rank, detailing his potential marbling ability. This is determined by which version of a large number of SNP's related to marbling that his DNA matches. The same determinations can be made about reproductive rate in cows, growth traits, milk production in dairy cows, etc. Many breed associations have begun incorporating these DNA-based rankings into their EPD calculations to improve the accuracy of young, non-parent cattle in the herdbook. Research estimates show perhaps greater than a 20% improvement in EPD accuracy using genomic testing.

As with any technology, there are drawbacks. The secondary purpose of this article is to caution producers about the potential pitfalls of DNA-based selection. Although SNP chips match thousands of SNP's, they still explain a relatively small percentage of the variation in complex traits. In simple terms, any trait, such as feed efficiency, is controlled in part by thousands of genes and in part by the environment. The SNP chip explains only a portion of the variability controlled by genetics. This percentage, known statistically as the R^2, ranges from less than 5% to much greater numbers, depending upon the amount of data available relating actual feed efficiency of cattle to their, or their parents', genetic analyses. I've had numerous questions this year about the use of SNP technology in cow herds, and even in some feedlots. One of the biggest dangers is using marker assisted selection to "select" your cowherd, especially on reproductive traits. It is true that reproduction is not highly heritable, so selecting based on the dams past performance will not lead to rapid genetic improvement. However, simply culling animals with a poor genomic score will not necessarily improve reproduction either. *The quickest way to improve reproduction is still appropriate nutrition and development, and strict culling*. Similarly, using genomics to select the most efficient feedlot cattle will not pay big dividends. The cost of the test will likely outweigh the small percentage of genetic improvement the genomic test will influence. Genomic testing of sires and dams, especially bulls who sire large numbers of calves, will help predict performance of future generations. However, the environment and management will still have significant impacts on performance traits. Take care when culling animals, and if genomics are used, be certain they are incorporated into an EPD system to take advantage of as much genetic information as possible.

The purpose of this article is not to discourage producers from exploring genomics and marker assisted selection. Rather, the purpose is to hopefully provide some clarity to a very weighty subject. There are still many things we don't know about the bovine genome. Recent research has proven the environment can have immediate and lasting impacts on genetics, which goes beyond simple performance responses. This phenomenon, called epigenetics, holds the potential to create a new wave in animal management. What is clear is that we must evaluate all genetic technology critically, understand what we are being sold and make breeding decisions based on multiple factors. Please contact us for more information, or if you would like to discuss this topic in more depth.

The Great Plains News Feed

Technology: Embrace It or Discard It

By Luke Miller, M.S., Nutritionist

When the markets don't work in our favor and the bottom line starts to look thin, or even in the red, it is common to begin looking for ways to cut corners or explore alternative marketing options. During these times, every dollar we can receive a return on becomes crucial. There is a trend in production agriculture to digress to using less technology in an effort to reduce cash expenditures. Marketing as natural or organic can be an option. While premiums for these markets do exist, there are still a number of cattle producers who are neither embracing performance-enhancing technology nor getting paid to refrain from using it.

Of all the different feed additives and animal health products on the market today, implants are still the one tool that will offer the most return on investment and are still greatly underutilized in today's industry. On average, implants will improve feed conversion by 7%. Even the mildest of implants (Ralgro) should result in 20 pounds of added weight at weaning. Recent research from Oklahoma State has shown that re-implanting calves prior to a 45 day preconditioning phase will increase ADG by 0.2 lb/hd/day. In today's market, this approach should net over $50 of added profit per head. Following these cattle through the feeding phase with a more aggressive implant program should result in another $100-$150 of added value per head. *Cattle on a high level of nutrition have the ability to benefit from multiple implants, so the myth that previously implanted cattle will not respond if re-implanted does not hold true.* (For more on implants, refer to http://gplc-inc.com/pdf/2015/03-10/Mar_Apr_2015_Newsletter.pdf, http://www.gplc-inc.com/newsletters/2010/10_Mar-Apr_Newsletter.pdf and http://www.gplc-inc.com/newsletters/2012/12_May-June_Newsletter.pdf)

A survey of feedlots and beef marketing companies conducted by the Noble Foundation determined that on average feedlots were willing to pay $4.76/cwt premiums for feeder cattle qualifying for an all-natural market, while marketing companies would offer an additional $5.79/cwt above market price for the same cattle. There really are no "industry standards" for natural feeder cattle, but if we use these values as an average, the premiums offered would not recoup the lost gain from not implanting, much less the potential value that other management tools could provide, such as antibiotics, ionophores, MGA, and/or beta-antagonists.

As an industry, we do a very good job of talking about dollars and cents, break-evens, and our bottom line. Utilizing growth-enhancing technologies such as implants, ionophores, and beta-agonists in combination have been estimated to increase ADG by 0.8 lb/hd/day, improve feed conversion by 18%, and add 100 lbs of live weight to yearling-fed beef cattle when compared to "natural" fed cattle. The same predicted comparison of traditional vs natural programs in calf-feds results in cattle finishing nearly 150 lbs heavier at 5 days younger when technology is implemented. According to recent research from Washington State University and Iowa State University, removing growth-enhancing technologies at the current level they are being utilized would add over 8% to production costs and increase the amount of feed required to produce one pound of gain by 18%, resulting in an additional 7 million acres needed to produce the same amount of beef. However, whether we like it or not, we live in a world where consumer perception of our production practices has an increasing influence over beef demand. A majority of consumers have little care about producer profit; they want to simply feel good about the food they are purchasing to feed their family. When referring to common technologies and management practices our industry embraces, but that are sometimes frowned upon by the outside world, we need to be sure to point out the importance of positive side effects that we are creating, such as decreasing the carbon footprint, reducing energy costs, decreasing methane production, etc. Refer to http://www.gplc-inc.com/newsletters/2013/13.05.06_Newsletter.pdf for more information about the impact of growth-enhancing technologies.

There is nothing wrong with capitalizing on high premiums available through some of the niche markets that are available. However, if you are going to set your program up to be successful in that atmosphere, make sure the added premiums offset the production losses, and also that it is a guaranteed market so that you are not hung out to dry at sale time. There are substitute products available that qualify for all-natural markets and can help recover some of the production losses, such as chelated trace minerals, probiotics, yeast, and nutraceuticals. Feel free to contact someone on our team for recommendations. At the same time, if you are selling "traditional" cattle at market prices and feel you could do a better job of utilizing technology, we'd be glad to have that discussion with you.

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The Great Plains News Feed

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January/February 2016