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The Great Plains News Feed

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The Latest Across the Plains

Proper use of Implants

There are so many variables to factor when designing an implant program, it may seem easier not to implant at all. For example, if implanted cattle are sold at the same weight as non-implanted cattle, quality grade may be reduced. If cattle are implanted with a product containing TBA, ribeye area will be larger, and the cattle will be heavier. If these cattle are fed the same number of days as non-implanted cattle, the data suggest a minor impact on quality grade compared to no implants (65% choice instead of 70% for example). However, if these cattle were fed a week or two longer, there would be no effect on quality grade. Research conducted in Texas quite some time ago suggested implanted cattle should be fed longer to reach the same fat thickness as non-implanted cattle to minimize the effect on quality grade.

The math to decide whether aggressive implanting, with improved performance, pays versus extremely high quality grade is simple. Assume 100 head pens. If aggressive implanting causes a 10 or 15% reduction in Choice% and the spread is worth $5 per 100 lb of carcass, then you can figure the value difference in a pen grading a high percentage Choice. This assumes same days on feed, so overall carcass weight will be increased by 35 to 40 lb by implanting (assuming same days) and all 100 head are heavier by that amount. The reason for using the same number of days on implanted and non-implanted is feed costs are identical (or essentially the same).

If 15 head do not grade choice, with an 800 lb carcass = $5/cwt * 8 (for 800 lb carcass) = $40 less revenue on 15 head = -$600 less revenue. However, final weight increased by 35 lb of carcass on 100 head = $1.90/lb carcass * 35 * 100 = $6,650 more revenue for this pen of 100 steers. Again, this is same number of days.

If you feed 3 or 4 weeks less, you save yardage and feed, but take a bigger discount on quality. It is a better strategy to feed cattle longer and create a heavier final weight without the reduction in quality grade.

Erickson, D.G (2012, 3 08). Email on implant strategy. Lincoln, NE, USA.

Congratulations to Jake Nerud at our office! Jake has received a full scholarship to UNL to finish his Bachelor's Degree in Agriculture Business. We wish you the best of luck Jake and we'll miss you here at Great Plains Livestock Consulting!

Calendar of Events

- **May 11** Low Stress Handling Seminar, Curtis, NE
- **May 18** PBR Rodeo, Colorado State Fair Grounds, Pueblo, CO
- **May 31- June 7** Young Cattlemen's Conference, Denver, CO & Washington DC
- **June 5-9** World Pork Expo, Iowa State Fair Grounds, Des Moines, IA
- **June 8-10** Missouri Cattlemen's Association; All Breeds Junior Cattle Show, State Fair Grounds, Sedelia, MO
- **June 9** Nebraska Livestock Judging Classic, Buffalo County Fair Grounds, Kearney, NE
- **June 11-13** Colorado Cattlemen's Annual Convention & Trade Show, Loveland, CO
- **June 19** North Dakota Cattlemen's Feedlot Tour
- **June 23-24** North Dakota Junior Beef Expo
- **June 28-30** 4th Annual Show Me Beef Leadership Conference, University of MO & MCA Headquarters, Columbia, MO

The Great Plains News Feed

Timely Reminders

General

- ✓ Corn is too expensive to feed to parasites, worm your livestock.

Beef

- ✓ Semen check bulls for upcoming breeding season.
- ✓ Cows should be given pre-breeding vaccinations.
- ✓ Create a fly control plan to minimize pinkeye and maximize production.
- ✓ Worm cows.
- ✓ Consider addition of Rumensin, Bovatec, or Gain-Pro to mineral for cows and yearlings; all will improve performance.
- ✓ Give us a call if you need help designing a synchronization program for cows or heifers.

Swine

- ✓ Check feeders/waterers for waste control.
- ✓ Check feed budgets to control overfeeding expensive diets.
- ✓ Consider using Paylean to maximize your profits.

Unused Feed

- ✓ Holding a grudge is like letting someone live rent-free in your head.

The Value of Calving Early

By Jeremy Martin, Ph.D., Ruminant Nutritionist

The difficulty lies not so much in developing new ideas as in escaping from old ones.
-John Maynard Keynes

For years discussions of reproductive success in cowherds have begun with the percentage of cows pregnant or non-pregnant. While this number is interesting, and somewhat important, it is not a specific enough measure of reproductive efficiency for operations wishing to improve profitability or benchmark their performance. Nobody would argue in this market that just about any pregnant cow has greater value than the same cow if she was not pregnant. However, calving distribution within the calving season is more specific, more precise, and easy to measure.

Recent research, conducted in part by our own Dr. Dan Larson, and reported in Tables 1 and 2 identifies the value of calves from cows bred earlier in the calving season. You can use your own projected prices and calculate the value in your operation, but early calving cows will be the most profitable in nearly all situations. As you study the tables, notice that while the biggest change in value occurs between cows that calve in the second and third cycles, there is still a $30 per head advantage to steer calves born in the first cycle versus the second, and $25 of that advantage is maintained through harvest in a retained ownership program. If you extrapolate these data to today's calf prices, the difference between calves born in the first vs the second and third cycles is $48 and $120, respectively. Simply moving from the third cycle to the second cycle increases calf value by $72 per head.

The advantage to heifer calves born in the first cycle is carried through to their own reproductive success and the value of their calves, in addition to extra market value if sold as feeders. Additional research from Sprott at Texas A&M indicates those heifers that calve in the first cycle as 2 year olds have lifetime return on investment over 10% higher than those that calve initially in the second cycle. In essence, an 8-9 year old cow that calves in the first cycle each year raises the equivalent of 1.5-2 extra calves in that time frame than a cow that consistently calves in the second cycle. So, if an operation can successfully shift a higher proportion of the herd to calving in the first cycle, that success leads to more profitability in the first year and a greater likelihood of profitability in each subsequent year.

Table 1. Effect of Calving period on ADG, reproduction, and first-calf characteristics of heifer progeny.

Item	Calving period 1	2	3	SEM	P
n	651	304	64		
Birth Date, Julian day	77[a]	93[b]	113[b]	2.02	<0.001
Calf Birth BW, lb	79[b]	82[b]	84[c]	1.52	<0.001
Calf Weaning BW, lb	483[a]	470[b]	434[c]	10.80	0.03
Preweaning ADG, lb/day	1.83	1.83	1.90	0.09	0.10
Pre-breeding ADG, lb/day	0.86	0.90	0.90	0.07	0.07
Pre-breeding BW, lb	653[a]	644[b]	608[c]	9.22	<0.001
Cycling beginning of breeding, %	70[a]	58[b]	39[c]	9.35	<0.001
Breeding ADG, lb/day	1.59[a]	1.63[ab]	1.70[b]	0.90	0.03
Pregnancy diagnosis BW, lb	822[a]	818[a]	789[b]	11.75	<0.001
Pregnancy rate, %	90[a]	86[a]	78[b]	5.62	0.02
Pre-calving BW, lb	946	948	922	14.66	0.06
First-calf birth date, Julian day	68[a]	73[b]	75[b]	2.03	<0.001
Calved in first 21d, %	81[a]	69[b]	65[b]	8.41	<0.01
First-calf birth BW, lb	79[a]	82[b]	84[b]	1.52	<0.001
Assisted births, %	23	29	33	8.37	0.26
Dystocia score[2]	1.29	1.40	1.34	0.11	0.18
Cow weaning BW, lb	924	930	930	17.00	0.68
Calf weaning BW, lb	425	417	410	11.40	0.10
Pregnancy rate after first calf, %	93	90	84	6.61	0.20

[1]1=calved in the first 21 days, 2=calved in the second 21 days, 3= calved in the third 21 days of the spring calving period.
[2]Scoring system 1 to 5: 1 = no assistance; 2 = easy pull; 3 = mechanical pull; 4 = hard mechanical pull; and 5 = Caesarean section.

These numbers indicate a staggering effect on profitability even in a modest-sized cowherd. The challenge is how to repeatedly achieve these results. In previous newsletters, we have identified ionophores as one tool that we believe can aid in tightening calving seasons. Another is the strategic, targeted use of chelated trace minerals in cowherds. This strategy is backed by a large amount of research data and our own data collected over the last few years in cowherds across the country. Zinc, copper, and manganese are the trace minerals most likely to benefit cowherd reproduction if supplied in the chelated form. Numerous research reports illustrate the benefits of chelated trace minerals during the pre-breeding period on reproductive parameters, including quicker return to ovarian activity after calving, improved AI conception rate, and improved overall pregnancy rate. Our own experience with well-managed herds

indicates it is possible to produce substantially more calves early in the breeding season, with differences as large as 20% more cows calving first cycle in some herds.

The most critical time frame for making these changes to your mineral program is 60 days prior to the breeding season, and ideally extending out to the midpoint of the breeding season. During this time frame, we expect the combination of an ionophore and a high level of chelated trace minerals to increase mineral cost by approximately $3-$6 per head (annual) over the cost of a mineral with no ionophore or chelated trace minerals. Ancillary benefits include improved calf health and immune response, which are not the focus of this discussion, but are certainly important. Contact us if you are interested in tightening your calving distribution; just remember we have no control of the weather during calving season.

Table 2. Effect of Calving period on feedlot performance and carcass characteristics of steer progeny.

	Calving period[1]				
Item	1	2	3	SEM	P
n	431	287	53		
Birth Date, j-Julian d	73[a]	91[b]	116[c]	2.40	<0.01
Calf birth BW, lb	81.4[a]	83.6[b]	83.6[ab]	0.64	0.03
Calf weaning BW, lb	523[a]	495[b]	448[c]	4.78	<0.01
Calf adjusted 205 d BW, lb	539	539	543	5.11	0.77
Preweaning ADG, lb/d	2.09	2.11	2.11	0.02	0.61
Feedlot ADG, lb/d	3.60	3.60	3.65	0.04	0.81
Final BW[2], lb	1298[a]	1276[b]	1236.4[c]	6.65	0.01
DMI[3]	8.13	8.12	8.13	0.08	0.97
G:F, g gain/lb	442.2	444.4	446.6	2.70	0.52
HCW, lb	816.2[a]	803[b]	776.6[c]	3.50	<0.01
12-th rib fat, cm	1.35[a]	1.29[a]	1.19[b]	0.05	<0.01
Empty body fat, %	30.6[a]	30.0[b]	29.2[c]	0.29	<0.01
LM area, cm^2	87	87	88	1.46	0.54
Yield grade	3.0[a]	2.9[b]	2.7[c]	0.11	<0.01
Marbling score[4]	569[a]	544[b]	519[c]	11	<0.01
USDA Choice or greater, %	79	78	65	6	0.13
Md[5] or greater, %	34[a]	19[b]	14[b]	5	0.01
Carcass value, $	1114[a]	1089[b]	1040[c]	13	<0.01

[1]1=calved in the first 21 d, 2 = calved in the second 21 d, 3 = calved in the third 21 d.
[2]Final BW calculated based on a common dressing percentage (63%)
[3]DMI calculated using he prediction formula presented by Tedeschi et al. (2006) where DMI = 4.18+(1.98 x ADG) + (0.0013 x (MBW$^{0.75}$) + (0.019 x EFB)
[4]500 = small$^{0.}$
[5]Md = modest QG, USDA average Choice.
[abc]Means without a common superscript differ (P≤ 0.05).

Micronutrients and their impact on Cattle in the Feedyard

By Dan Larson, Ph.D., Ruminant Nutritionist

As the price of feeder and fat cattle climb, risk increases as well. Although cattle prices have risen dramatically, profitability has stayed relatively static. This is primarily due to a small replacement inventory and the demand ceiling consumers place on our final product. As such, profitability, as it relates to purchase and sale price, is not likely to increase much in the near term. Therefore, as cattle feeders and nutritionists, we need to search for strategies that can create modest, sometimes dramatic, improvements in efficiency. The foci of this article, micronutrients or trace minerals, are such a strategy.

Micronutrients are a class of feedstuffs fed at very small amounts and are essential to basic body functions. Since they are fed at such low levels, micronutrients are typically subject to antagonism by other nutrients, which may reduce their efficacy or restrict them entirely. Examples of micronutrients include zinc, copper, cobalt, manganese, chromium, iodine, selenium, and a host of other nutrients. In the feedyard, zinc, cobalt, copper and iodine hold some of the most promise for improving health, foot quality and feedlot performance. Chromium may improve feed intake and energy utilization, especially in newly received feedlot cattle. When bound to an organic molecule such as an amino acid or an organic acid, micronutrients are less subject to antagonism and are perhaps more available to the animal. This is accomplished by a biochemical process known as chelation.

Micronutrients are essential for receiving calf health and survivability. Both zinc and copper have been demonstrated to be essential for immune function. Zinc and copper amino acid chelates were shown to improve response to vaccination when compared to inorganic supplementation. When organic trace minerals were fed at supranutritional levels, the incidence of respiratory disease was 17.2% lower than diets with physiological levels of inorganic trace minerals. Taken together, some measure of chelated trace mineral supplementation is essential for receiving calf health. Chromium propionate, when fed during the receiving period may increase feed efficiency, and perhaps as a result, reduce morbidity and mortality. In a series of studies, chromium propionate reduced percent treated by over 10% and reduced mortality by 3-7% over control cattle not fed chromium propionate. In addition to direct health impacts, increasing levels of chromium propionate increased dry matter intake in the first 56 days on feed by over 5% in a separate trial.

In the finishing phase, micronutrients also affect performance. In particular, zinc as zinc methionine has been shown to improve feedyard performance. Feeding 360 mg/day of zinc methionine through the finishing period was shown to increase final weight by 40 lb compared to controls. The cost of feeding the zinc methionine product is $0.02/day or $2.80 for a 140 day feeding period. Furthermore, in two separate studies, feeding 360 mg of zinc methionine during the finishing phase, added to a diet containing Optaflexx increased final weight by 9 lb over diets containing Optaflexx alone in the last 28 days of the feeding period. Using the afore mentioned cost of feeding, zinc methionine may return up to $45 over no additional technologies or up to $8 over feeding Optaflexx without additional trace mineral supplementation. More generally, sulfur, which may be elevated by feeding high levels of corn co-products, is an antagonist to many of the trace mineral necessary for superior growth and feed conversion.

Chelated trace minerals are more expensive per unit than inorganic trace minerals. However, as chelated trace minerals appear to be more available to the animal, the cost per unit of utilizable mineral may be lower or the same cost. In addition, the performance advantages of replacing at least a portion of the inorganic trace minerals with chelated sources could easily pay for the additional cost. Please visit with your nutritionist about the benefits of using chelated trace minerals in your cattle feeding operation.