

The Latest Across the Plains

Timely Reminders

- ◆ Keep pens box scraped.
- ◆ Haul manure whenever possible.
- ◆ Have your calving facilities and OB equipment ready.
- ◆ Have the right mineral for your cow's stage of production.
- ◆ Prepare now so your Hi-mag and Fly control minerals are on hand.
- ◆ Target a BCS of 5.0-5.5 on mature cows and 5.5-6.0 on heifers at calving.
- ◆ Remember a MGA protocol estrus synchronization must begin 33 days before breeding, which may be the end of April.
- ◆ Be sure to adjust cow nutrition to match requirements as they calve.
- ◆ Make sure waterers are clean and in good working order.
- ◆ Decide which implant you will use on calves.
- ◆ Make sure bulls are in a body condition score 6.0 before breeding season begins.
- ◆ Semen check bulls.

Unused Feed

"It is not what you do for your children, but what you have taught them to do for themselves, that will make them successful human beings." — Ann Landers

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

In some cases urea is economical to feed when reducing byproducts and increasing corn.

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

- **Mar 3 - 22** Houston Livestock Show and Rodeo, Houston, TX
- **Mar 4 - 5** Wichita Falls Ranch & Farm Expo, Wichita Falls, TX
- **Mar 11 - 12** Triumph of Agriculture Expo, Omaha, NE
- **Mar 17 - 18** The Precision Farming Expo, Salem, OR
- **Mar 19 - 21** Four States Ag Expo, Cortez, CO
- **Mar 19 - 21** North American Farm and Power Show, Owatonna, MN
- **March 23 - 26** National Institute for Animal Agriculture, Indianapolis, IN
- **Mar 24 - 26** Mid America Farm Expo, Salina, KS
- **Mar 24 - 26** Wisconsin Public Service Farm Show, Oshkosh, WI
- **Mar 27 - 29** Cattle Raisers Convention & Expo, Fort Worth, TX
- **April 8 - 10** Great Bend Farm and Ranch Expo, Great Bend, KS
- **April 15 - 17** NAMA's Agri-Marketing Conference & Trade Show, Kansas City, MO
- **April 16 - 18** Oklahoma City Farm Show, Oklahoma City, OK



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Backgrounding Management Effects on Finishing Cattle Performance

By Zeb Prawl, M.S., Nutritionist

It is a common belief amongst many stocker cattle operators and backgrounders in all parts of the country that feedyard owners will not want their cattle if they were fed at higher rates of gain and/or implanted aggressively while in the growing phase of their lives. The perception that rate of gain in excess of 2 lbs/day for growing cattle cuts down on both rate of weight gain and feed efficiency in the feedyard has been around for years. This most likely has been due to the fact that cattle that have been backgrounded at lower rates of gain and then moved to the feedyard usually explode in terms of growth the first 50-100 days on feed. This phenomenon is termed compensatory growth and it has been well documented over many years of cattle feeding. Furthermore, there sometimes are misconceptions about how growth rate during the backgrounding phase will affect carcass quality, whether in a positive or negative manner.

Feeding Management

It has been established that backgrounding cattle at lower, but varied rates of gain and different pasture types does not negatively affect feedlot performance or carcass quality. Work done at the University of Nebraska and summarized by Klopfenstein and others in 2000 (JAS, Vol. 77, E-Suppli) showed that 372 calves over 5 years were grazed during the winter at rates of gain of 0.5 or 1.34 lb/head/day. After finishing the calves and adjusting to equal rib fat, it was determined there were no differences in feedlot performance or quality grade among differing rates of gain while being backgrounded. Similarly, in 418 summer grazed calves over 7 years, calves grown at either 1.25 or 1.85 lbs/day and then finished also had no differences in feedlot performance and quality grade when compared at equal rib fat thickness. In several instances, calves that gained at higher rates during the growing phase actually had slightly higher average daily gains and improved feed efficiencies during the feedlot phase in this summary. The authors concluded that if cattle are fed to a common rib fat endpoint and rates of weight gains reported in the study fall within the given ranges, then the backgrounding program has little to no effect on marbling and carcass quality grade of finished cattle. Additionally, it was noted that calf-feds in these trials had steaks that were more tender than their yearling fed counterparts. This has also been pointed out in other studies which have shown that lower gains during backgrounding could actually compromise beef tenderness and juiciness.

When looking at cattle being backgrounded on mixed rations and in drylots, Coleman and others (JAS, v. 73, 1995) found that steers fed a high silage diet at ad libitum intake or a high concentrate diet limit fed achieved similar gains during the backgrounding phase also had similar gains among treatments in the finishing phase. Silage fed steers that had a smaller rate of gain during backgrounding did eat more feed and gain more weight while being finished, but were 4.3% less efficient at converting feed to gain. In the end, carcass characteristics were similar between the two treatments.

To compare different winter feeding programs on growth of steers during the background phase, McCurdy and co-workers at Oklahoma State (OSU Research Report, 2005) fed steers one of four ways through the winter and then studied feedlot performance. For the growing phase of the trial (112 days), cattle were fed in 1 of 4 ways: Ad lib fed a high concentrate diet (CF), grazed on wheat pasture (WP), fed a silage based growing diet (SF), or program fed a high concentrate diet (PF). For finishing, all steers were adapted to and fed a high concentrate finishing diet and harvested at a common backfat thickness. Corn was the main component for the concentrate portion of the diets used.

Effect of treatment on performance during the growing phase.

| | Treatment* | | |
|------------------------|-------------------|-------------------|-------------------|
| | WP | SF | PF |
| Initial Weight, lbs | 557 ^a | 522 ^b | 517 ^b |
| Final Weight, lbs | 829 ^a | 813 ^a | 831 ^a |
| Dry Matter Intake, lbs | -- | 17.0 ^a | 13.4 ^b |
| ADG, lbs | 2.53 ^a | 2.42 ^b | 2.61 ^a |
| Feed:Gain, lbs | -- | 7.04 ^a | 5.16 ^b |

^{abc}Means without a common superscript differ significantly (P<.05)

*The CF treatment was put on full feed from the start, so the performance data from those cattle was only given in the finishing phase results.

Effect of treatment on performance during the finishing phase.

| | Treatment | | | |
|------------------------|--------------------|-------------------|--------------------|-------------------|
| | WP | SF | PF | CF |
| Initial Weight, lbs | 829 ^a | 813 ^b | 831 ^a | 527 ^b |
| Final Weight, lbs | 1287 ^a | 1282 ^c | 1258 ^{ab} | 1233 ^b |
| Days on Feed | 121 | 107 | 107 | 191 |
| Dry Matter Intake, lbs | 23.0 ^{ab} | 24.0 ^a | 22.2 ^b | 19.0 ^c |
| ADG, lbs | 3.54 ^a | 4.51 ^b | 4.23 ^c | 3.54 ^a |
| Feed:Gain, lbs | 6.52 ^a | 5.34 ^b | 5.25 ^b | 5.37 ^b |

^{abc}Means without a common superscript differ significantly (P<.05)

Carcass characteristics were not negatively impacted by growing phase feeding treatment. In fact, silage fed and program fed cattle had higher marbling scores than wheat pasture grazed cattle, while also increasing ribeye area and lowering yield grade. The researchers concluded the following from this trial: "Dry-lot feeding programs that are targeted for growing cattle can provide a viable alternative to winter wheat pasture grazing. Winter growing diets consisting of silage and/or high-concentrates, fed in a restricted amount, may result in greater, more efficient gains during finishing as compared to grazing. Additionally, these types of backgrounding diets may enhance carcass yield grades."

Implants

For feedlot cattle, it is typical that the use of a properly managed implant program will provide between \$40 and \$80 of additional income. That number for backgrounding cattle could easily be that high, or higher.

If cattle are fed to a common fat endpoint of about 28% empty body fat, there is no negative impact of implanting on carcass quality. Since most feedlot studies in the past have compared implanted vs. non-implanted cattle at the same days fed rather than the same fat endpoint, the results can often be misleading regarding the impact of implant use on quality grade. (Erickson, University of Nebraska - Lincoln). Data shows that feeding steers and heifers that are implanted an additional 7 to 14 days will result in similar quality grades as non-implanted cattle. Of course, doing so will also increase carcass weights.

It has been argued that the use of low potency implants during the cattle growing/backgrounding phases will result in much higher responses from moderate and high potency implants during the finishing phase. Just by looking at one study, one could see that this is certainly not always true. In the OSU trial shown above, cattle were implanted with Component® ES (moderate potency implant that contains Estradiol Benzoate and Progesterone) during the growth phase, and Revalor® S at finishing. Gains shown while cattle were being finished would illustrate that the use of a moderate potency implant during backgrounding certainly didn't hurt gains in the finishing phase by commercial feedyard standards in terms of gain in this trial.

In some work recently published from Williamson and coworkers from Arkansas (Professional Animal Scientist, v 30), they found that steers and heifers implanted with a moderate potency implant (Synovex® S or H) increased average daily gains by 0.3 lbs per day during the backgrounding phase and did not impact finishing average daily gains.

Additionally, the use of more moderate powered implants during the growing phase usually results in a slightly longer payout than the conventional low dose implants. In work done in grazing steers by McMurphy and others at OSU (OSU Research Report, 2009), while studying the effects of supplement type on late summer grazing in backgrounding steers, they also used either Raigro® or Component® TE-G implants against non-implanted



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controls. Implanted cattle gained similarly for the first 98 days of the grazing period, with Component® implanted cattle gaining 2 lbs more than Ralgro® implanted cattle during this time. However, from day 98-126, cattle implanted with the Component® implant gained 8% more than Ralgro® implanted cattle (0.17 lbs/day more). During this time, the Ralgro® cattle gained the same as the non-implanted controls. This illustrates that the use of a moderate potency implant not only can improve gains in backgrounding cattle, but those gains can be sustained for a longer period than low potency implants in the same program.

It is important to remember that there are several different ways to achieve successful results when backgrounding cattle for the feedlot. It is also important to remember that you don't have to leave money on the table while doing so. Putting together a total management plan can be a daunting task when faced with all the possibilities of how to grow calves and yearling cattle these days. Let us at Great Plains Livestock Consulting, Inc. help you put together a program this spring that will allow you maximum use of feeding technologies and maximum success with your backgrounding and feedlot cattle for the rest of the year.

Choosing, Designing and Managing Cattle Feeding Barns

By Dan Larson, Ph.D., Nutritionist

Regulatory issues, land prices, weather and the desire for the next generation to return to the farm have fueled interest in feedlot confinement barns. However, construction is outpacing science and there are many unknowns regarding the best design and management practices. I certainly do not have all the answers, but I have had the opportunity to tour many, and help design a few confinement barns and will share some of the best concepts I have found. The decision to build a confinement barn centers on the roofline: monoslope, gable or hoop and the floor type: bed pack or slats. All of these choices are functional. The decision depends upon labor, manure management, calf weight and breed type.

The three major financial considerations influencing your decision should be the price of the building, the improvement in cost of gain, and the added value of manure. The cost of a bed pack barn will range between \$600 and \$1000 per head space and slat floor barns will range between \$800 and \$1200 per head space. Rubber mats may add another \$200 per head space. There is little data describing any difference in cost of gain between building types. It has been my observation that most well designed, well-managed feedlot buildings will improve feed efficiency by 4-8%. Research conducted by Iowa State University reveals a 4% improvement in feed efficiency for indoor fed vs. outdoor fed cattle, due entirely to improved gain. Our experience shows about a 2 lb drop in dry matter intake, further contributing to a bit more improvement in feed efficiency. This improvement is mainly due to dry hair coats and the lack of mud. It is NOT due to warmer cattle, buildings are not designed for that purpose. Iowa State data suggests a 45% improvement in manure value for bed pack building versus open lots. The same data set indicate that slurry type manure from a slatted floor barn has 55% more value than manure from outdoor lots and 18% more valuable than bed pack buildings. The roof type of the building does not appear to matter much, as long as the rest of the building is designed appropriately and managed intensively. Thus, I will focus the rest of the article on the floor type and management thereof.

Appropriate building design begins with the footprint. Every building should be oriented with the wind and the sun in mind. In other words, do not site buildings behind a tree row, on the leeward side of a hill or within 50 feet of another building. Effective buildings are oriented east to west to take advantage of north winds and the southern sun during the winter. Bedded pack buildings are typically designed narrow (50 feet) or wide (100 feet). In my experience, airflow is poor in the middle of wide buildings, and much improved in the narrower building. Bunk space is critical, especially in narrow buildings where cattle are fed on one side of the pen. Finishing cattle performance appears not to be impacted down to 7 inches of bunk space per head. Adequate water space is also essential; strive for at least one, perhaps 2-4 inches of water space per head. Airflow is also critical. Con-

struct a building with the least impediment to airflow on the north side as possible. A curtain can be an integral part of the building, but invest in an automatic curtain so it is convenient to raise the curtain when it is not needed. Temperatures need to drop below 20° F before cattle with a dry coat begin to lose performance due to cold stress. Do not over-use curtains on mild winter days.

The pen surface type is perhaps the most critical choice in building design. The most common surface is still solid, with a bed pack. The advantages of a bed pack are better overall foot health, improved cattle comfort, and the ability to handle manure with conventional equipment. Average estimates of bedding usage range from 10-12 lb per head per day, according to university research. Assuming an average cost of bedding material of \$0.04/lb, that amounts to \$0.44/head/day or \$88/200 day turn. This estimate does not take into account the cost of scraping aprons and cleaning barns. In general, bunk aprons should be scraped at least every 3 days. The more often the bunk apron is scraped, the easier it will be to maintain the bedding pack. Pen stocking density will also affect bed pack integrity. Stocking density between 40-50 square feet per animal will maximize pen usage and barn usage. The base material under the bed pack must be firm enough to scrape, but permeable enough to allow the bed pack to be established. Concrete slats have gained popularity in recent years due to many factors. The advantages include reduced labor, no bedding cost, improved manure value, and increased animal units per acre. The recommendation for stocking density in slatted floor barns is 21-24 square feet per animal. Stocking densities lower than 24 square feet result in manure building up on the slat and incomplete utilization of the pen space. The biggest challenges with slatted floor barns are bunk space and foot and leg health. Rubber mats affixed to the slat have gained popularity for improving cattle comfort, foot and leg health, and perhaps performance. There has been little research data generated in the United States on the subject, but while research conducted in Canada and Europe has found very little overall performance differences between rubber and concreted slats, it has suggested a small improvement in performance in the first 30 days of the feeding period. This would appear to be due to an easier adjustment to the slats and less disruption in cattle performance. The major advantage to rubber-coated slats is a reduction in pull rate from foot and leg problems of 4-7% compared to concrete slats. Anecdotal evidence suggests a difference in performance between various manufacturers of rubber slat material. Please contact us to discuss rubber manufacturer quality.

In more general terms, feeding cattle indoors requires a different mindset and feeding plan. Growing cattle indoors can be more challenging due to bunk space, feed bunk capacity and the lack of exercise. In other words, it is more difficult to grow frame on smaller framed cattle due at least in part to space constraints. Limit fed programs, provided you have adequate bunk space (11-12 linear inches), are very effective in growing cattle. This strategy uses higher energy, more dense, rations which are fed at a level 10-25% below ad libitum dry matter intake. Feed is usually present in the bunk 6-10 hours per day. Once cattle reach our target weight, or perhaps frame size, they are moved to ad libitum intake and transitioned to a finishing diet. One of the most critical pieces of the ration program for indoor fed cattle, especially slat fed cattle, is trace mineral nutrition. We have found great success in improving hoof health by using a substantial rate of chelated trace minerals in all diets before and while cattle are on concrete and/or housed indoors. This strategy has led to a large reduction in pulls due to hoof rot, foot injury and tender hooves. Maintaining adequate bedding and scraping bunk lines is critical to the success of a bed pack building. A poorly managed bed pack, one that is constantly wet and requires cattle to move through more than hoof deep manure will reduce gain and feed efficiency similar to mud in an open lot. In any building, restricting airflow more than absolutely necessary will result in damp, unhealthy conditions that lead to sick cattle and reduced performance. When designing and managing buildings, keep airflow as the number one factor influencing your decisions. It is a good practice to smoke new and existing buildings to determine if there are changes you can make to improve airflow.

The decision to build a feeding barn is a major financial decision that will affect your profitability for years to come and that of the next generation. Please visit with us to set up tours of other building such as what you are planning to build and for additional ideas that will help make your building a success.





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