

The Latest Across the Plains

Timely Reminders

- ◆ Corn is too expensive to feed to parasites, worm your livestock.
- ◆ Water is the most important nutrient, and needs to be available in the liquid form.
- ◆ Scrape snow from pens and keep aprons and approaches smooth.
- ◆ Place cows on a High-Mag mineral.
- ◆ Plan ahead for estrus synchronization plans, especially for virgin heifers.
- ◆ Be ready to put up shades in the pens.
- ◆ Target a BCS of 5 - 5.5 on mature cows and 5.5 - 6 on heifers at calving.
- ◆ Be sure to adjust cow nutrition to match requirements as they calve.
- ◆ Decide which implant you will use on calves.
- ◆ Place breeding females on a breeder mineral 60 days prior to breeding.
- ◆ Semen check bulls.
- ◆ Haul as much manure as possible out of pens.

Unused Feed

"I go about looking at horses and cattle. They eat grass, make love, work when they have to, bear their young. I am sick with envy of them." —Sherwood Anderson

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

- Plans are underway for a new medium scale processing plant in central Iowa, which will harvest primarily high quality and NHTC cattle.
- Texas has been the top cattle state, both in feedlots and in pastures. But, on February 1st, Nebraska counted 2.46 million head of feeder cattle, 20,000 more than Texas.

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

- **March 4 - 23** Houston Livestock Show & Rodeo, Houston, TX
- **March 12 - 13** Triumph of Ag Expo — Farm and Ranch Machinery Show, Omaha, NE
- **March 13 - 15** North American Farm & Power Show, Owatonna, MN
- **March 13 - 15** Four States Ag Expo, Cortez, CO
- **March 25 - 27** Mid America Farm Expo, Salina, KS
- **March 25 - 27** Wisconsin Public Service Farm Show, Oshkosh, WI
- **March 31 - April 2** National Institute for Animal Agriculture, Louisville, KY
- **March 31 - April 5** Royal Manitoba Winter Fair, Brandon, MB
- **April 2 - 5** Georgia Cattlemen's Association Convention & Beef Expo, Perry, GA
- **April 3 - 5** Oklahoma City Farm Show, Oklahoma City, OK
- **April 4 - 6** Cattle Raisers Convention & Expo, San Antonio, TX
- **April 9 - 11** Agri-Marketing Conference & Trade Show, Jacksonville, FL
- **April 9 - 11** Great Bend Farm and Ranch Expo, Great Bend, KS
- **April 25 - 27** California Antique Farm Equipment Show, Tulare, CA



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Nutrition and Management of the Bred Heifer

By Luke Miller, M.S., Nutritionist

A great deal of emphasis is placed on developing heifers in an effort to maximize reproductive efficiency. Traditionally, heifers have been conditioned to gain 1.5-2.0 pounds per head per day, which would allow them to reach 65% of mature body weight at first service. Research conducted by our own Dan Larson and Jeremy Martin has shown that growing heifers to 55-60% of mature weight at breeding will not decrease conception rates, is a more economical option, and can increase longevity. Detailed nutritional heifer development protocols have been reviewed in previous newsletter articles (March/April 2008, May/June 2009, May/June 2011), and can be viewed on our website. However, this article focuses on heifer management post-breeding.

Spring-born replacement heifers are generally developed with a total mixed ration in a dry-lot setting, or graze dormant forage and are fed a high concentrate supplement to reach the desired gain prior to breeding. After synchronization and A.I., it is not uncommon to turn out onto spring pasture and let a clean-up bull do the rest. Spring pasture is a source of highly digestible forage. Heifers coming off of a ration designed to grow them slower (targeting 55-60% mature body weight at breeding) and placed on spring pasture should have a slight increase in energy intake. However, cattle pushed to gain faster pre-breeding could easily be transitioning to a lower energy ration when going to grass. Recent research has shown that reducing dietary energy of replacement heifers during the first 21 days after A.I. can greatly reduce 1st service conception rates. Researchers at Purdue University and the University of Wyoming ran a joint study which examined the effects of nutritional supplementation of heifers post-insemination. All heifers were developed on a ration to meet 125% of maintenance energy requirements, which allowed for a 1.5-2.0 lb ADG. Immediately after insemination, they were either left on the development ration (125% NEm), or placed on a lower energy diet balanced to meet 100% or 80% of their maintenance energy requirements. The findings revealed that reducing energy by 25% or 45% led to a decrease in 1st service A.I. conception rates by 21% or 17%, respectively, compared to leaving heifers on the prebreeding plane of energy. It is important to note that the 25% lower energy ration was still balanced to meet maintenance energy requirements, but conception rates were reduced nonetheless. The take-home message is that it is not simply a matter of how much energy is reduced, but that any reduction in energy status can cause significant effects on reproduction.

Keeping heifers in a positive energy balance through the summer will pay off later. For a heifer to calve in a body condition score of 6, she needs to be at or very near this level by late fall. Gradual supplementation through early to mid summer will decrease the amount of purchased feed needed later in the year when prices typically increase. Keeping 2 year old first-time calvers and bred yearlings in the same pasture, as opposed to being in the general herd, is a good management practice, as it will prevent a high percentage of 2 year olds from falling out of production. Although mineral requirements decrease during mid-gestation, a good mineral supplementation program is still crucial for energy metabolism, fetal development, and a number of other physiological activities taking place in a bred, and still growing, heifer. Be sure to not skimp on mineral supplementation just because she is bred.

Maternal recognition of pregnancy occurs at around 15-17 days post-insemination, so handling cattle during this period is strongly discouraged. If cattle need to be hauled after A.I., doing so within the first 5 days after breeding will have little effect on pregnancy rates. If this is not possible, waiting until around day 25 after first service would be the next best option. This will allow enough time after first service for heifers to be safe in calf, and those who settled on their second estrus period to still be within the 5 day window, assuming they were synchronized.

It's difficult to believe that spring is almost upon us as we continue to battle this relentless winter. However, sunshine and green grass will be here before we know it. Bred heifer prices have been strong, but the investment to produce these females grows more expensive every year. Doing a few small things right will give you the best opportunity for both your hard work and investment to pay off.



Why We Stress Feedlot Pen Maintenance

By Jeremy Martin, Ph.D., Nutritionist

Depending on your location, you may have experienced a largely dry winter, or be struggling with one of the tougher winters in recent years. Therefore, you may have feedlot pens in the best condition possible or the worst. Regardless of which camp you are in, the fact remains most of us will receive some moisture over the next four months, which means pen conditions will be a challenge. I know my clients get tired of me telling them to scrape aprons, haul manure, and clean snow out of pens – but the time you spend doing so this time of year is a good predictor of average daily gain (ADG) and feed conversions (FC) your closeouts will display over the next several months. We could still have a lot of cold weather left in the Midwest, and that amplifies the loss of performance with muddy pens.

Research from the University of Nebraska (Mader, 2011 Nebraska Beef Report, pp 82-83) summarized environmental and closeout data over five states in the West and Midwest, and Canada, to determine how temperature and mud affect cattle ADG, FC, and cost of gain (COG). Table 1 illustrates the expected change in maintenance energy requirements, ADG, FC, and COG associated with mud depth of 2 or 6 inches at either 36 or 16 degrees Fahrenheit and varying pen densities. Clearly, this simulation encourages reducing mud depth and animal density in colder weather to maintain cattle performance.

Table 1. Estimated mud depth, change in net energy for maintenance (NEm), and cost of gain for feedlot cattle under different simulations. (Mader, 2011).

Pen Space, ft ² /aPen Space, ft ² /animal:	250	150	150	150	150	250	250	250	250	350	350	350	350
120-day precipitation, inches:	0	2	2	6	6	2	2	6	6	2	2	6	6
Mean temperature, °F:	68	36	16	36	16	36	16	36	16	36	16	36	16
Mud depth, inches	0.00	1.96	3.47	3.95	8.48	0.40	2.52	2.38	7.52	0.02	2.51	1.72	7.52
NEm, % change ¹	—	25.6	48.7	37.1	91.3	17.8	41.9	27.9	82.2	16.1	41.9	24.3	82.2
DMI, lb/day	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
ADG, lb	3.71	3.23	2.78	3.01	1.94	3.37	2.91	3.18	2.12	3.41	2.91	3.25	2.12
F:G	5.93	6.82	7.91	7.32	11.32	6.52	7.55	6.91	10.36	6.46	7.55	6.77	10.36
Cost of gain/ lb, \$	0.61	0.70	0.82	0.76	1.17	0.67	0.78	0.71	1.07	0.67	0.78	0.70	1.07
% Change ²	—	15.1	33.5	23.5	91.1	10.0	27.5	16.6	74.8	8.9	27.4	14.2	74.8

¹Change (%) in NEm; at 26°F with no mud, NEm is approximately 20% greater than at 68°F.

²Compared to ideal feeding conditions averaging 68°F (first numerical column).



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In addition to cattle performance, dressing percentage can be greatly influenced by muddy pen conditions. Data presented at the 2010 Iowa State University feedlot forum compared dressing percentage of cattle carrying increasing amounts of mud from two feedlots (Table 2). Results varied between the two feedlots, but even at the feedlot with less reduction in dressing percent, it decreased by nearly 1%. At fed cattle prices such as we have seen in the first quarter of 2014, the financial cost per head is at least \$20.

Table 2. Impact of mud scores on dressing percent. (ISU Feedlot Forum, 2010).

Mud Score ¹	Tri-County ² Dressing Percent	Armstrong ² Dressing Percent
1	62.02 ^a	62.00
2	62.19 ^{a,b}	62.02
3	61.91 ^b	61.96
4	61.19 ^{a,b,c}	62.59
5	61.13 ^{a,b,c}	59.50 ^a

1: Mud Scores are defined as:

1 = no tag, clean hide

2 = small lumps of manure attached to the hide in limited areas of the legs and underbelly

3 = small and large lumps of manure attached to the hide covering larger areas of the legs, side and underbelly

4 = small and large lumps of manure attached to the hide in even larger areas along the hind quarter, stomach and front shoulder

5 = lumps of manure attached to the hide continuously on the underbelly and side of the animal from brisket to rear quarter

2: Column least square means with similar superscripts are significantly different (P<.01)

Table 3. Projected effects of mud and bedding on feedlot cattle. (Mader, 2011).

Space, ft ² /animal:	250	250	250	250	250	250	250
120 days precipitation, in:	0	2	2	2	6	6	6
Mean temperature, °F:	26	36	26	16	36	26	16
Estimated mud depth, inches	0.00	0.40	2.01	2.52	2.38	6.63	7.52
Nem, % change	—	1.8	11.2	16.0	11.9	43.9	56.2
Intake, lb	22.00	22.00	22.00	22.00	22.00	22.00	22.00
Without bedding							
ADG, lb	3.31	3.37	3.10	2.91	3.18	2.47	2.12
Change, %	—	1.8	-6.4	-12.1	-4.0	-25.6	-35.9
Feed/gain	6.64	6.52	7.10	7.55	6.91	8.92	10.36
Cost of gain, \$/day							
Yardage and interest	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Health and feed	1.77	1.77	1.77	1.77	1.77	1.77	1.77
Total	2.27	2.27	2.27	2.27	2.27	2.27	2.27
Cost of gain/lb	0.68	0.67	0.73	0.78	0.71	0.92	1.07
Change, %	—	-1.8	6.9	13.8	4.1	34.4	56.1
With bedding ¹							
ADG, lb	3.31	3.41	3.31	3.22	3.41	3.31	3.22
Change, %	—	2.9	0	-2.9	2.9	0	-2.9
Feed/gain	6.64	6.45	6.64	6.83	6.45	6.64	6.83
Change, %	—	-2.8	0	3.0	-2.8	0	3.0
Cost of gain, \$/day							
Subtotal (less bedding)	2.27	2.27	2.27	2.27	2.27	2.27	2.27
Bedding	0.00	0.01	0.06	0.08	0.07	0.20	0.23
Scraping and hauling, prorated	0.00	0.01	0.02	0.03	0.03	0.08	0.09
Total	2.27	2.29	2.35	2.38	2.37	2.55	2.59
Cost of gain/lb	0.68	0.67	0.71	0.74	0.70	0.77	0.80
Change, %	0	-2.1	3.7	7.4	1.5	12.3	17.3

¹Bedding cost is \$60/ton; scraping and hauling cost is \$6/ wet ton. Hauled weight is assumed to be four times original dry bedding weight.

Additional simulations from Mader's data set explored the positive effects of bedding cattle during harsh and muddy conditions. Table 2 shows expected change in ADG based on mud depth, temperature, and presence of bedding. It is worth noting that the greatest predicted reduction in ADG in treatments that included bedding was 2.9%, versus a predicted 36% reduction in cold weather with 6 inches of mud. The expected change in cost of gain under those conditions is over 57% in the absence of bedding, and only 17% in the presence of bedding – even after the cost of bedding and hauling additional material from pens is accounted for. Similar COG results have been noted in nearly every bedding study where economics were applied. For additional information on bedding, refer to the September/October 2011 GPLC Newsletter available at www.GPLC-Inc.com/Newsletters.html.

I'm sure it won't be long before we are talking about heat stress in feedlot cattle, but for now, keeping pens dry, hard-surfaced, and bedded in the worst of the winter will set you up for successful closeouts this spring.





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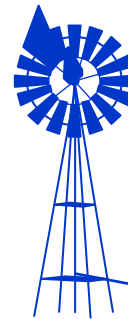
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