

# The Latest Across the Plains

## *Unused Feed*

What you get by achieving your goals is not as important as what you become by achieving your goals. – Zig Ziglar

## *Save Money \$\$\$ Test Your Feeds*

Tests are relatively inexpensive, usually costing less than \$20, 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.

## *Timely Reminders*

- ◆ Prepare adequate wind shelter and protection from winter elements. A dry, clean hair coat reduces maintenance energy requirements.
- ◆ Analyze winter feed supplies.
- ◆ Keep pens scraped and get manure hauled to fields.
- ◆ Make sure waterers are clean and in good working order.
- ◆ Keep an eye on breakeven projections for cattle placed on feed.
- ◆ Monitor BCS of cows monthly.
- ◆ Contact your nutritionist about running projections on growing or finishing cattle, beef or Holstein, to help plan feedstuff needs.
- ◆ Remember to provide bedding for mature bulls. Frozen testicles are a major reason for BSE failure.
- ◆ Use an internal parasite control product (white de-wormer) in both cows and calves after freeze up/dormancy occurs.
- ◆ Its easier to put BCS on cows in the 2nd trimester and when its warmer, rather than the 3rd and when its cooler. Consider increasing BCS now if needed.

## Calendar of Events

- **Feb. 1 - 3** Cattle Industry Convention & NCBA Trade Show, New Orleans, LA
- **February 9** Producer Perspectives: Farm and Ranch Transition and Succession Webinar (<https://go.unl.edu/manage2020>)
- **Feb. 18 -26** Nebraska Cattlemen's Classic, Kearney, NE
- **Feb. 9 - 26** San Antonio Stock Show & Rodeo, Sant Antonio, TX
- **Feb. 21** Small Farm Orientation Webinar <https://www.ext.vsu.edu/events/2023/12/21-small-farm-orientation>
- **Feb. 24 - 26** Western Farm Show, Kansas City, MO
- **Feb. 24 - 27** Illinois Beef Expo, Springfield, IL
- **March 9** The Growing Climate Solutions Act Webinar (<https://go.unl.edu/manage2020>)
- **March 16** The Growing Role of Government in Livestock Markets Webinar (<https://go.unl.edu/manage2020>)

# Maximizing Profit in the Feedlot

Knowing your cost of gain (COG) is essential if you are going to be in the cattle business long-term. Total cost of gain is calculated by taking all the expenses including yardage (feed, vet/med, interest, shrink, death loss, marketing, trucking, etc.) divided by the total gain. A simple estimate of purchase price breakeven can be calculated with this number. This will allow you to make a more informed decision about purchasing cattle. More importantly, you need to know the optimum endpoint for the cattle you are feeding. In 2010, U.S. Premium Beef (USPB) conducted a case study and research project to help answer this question. We have changed the prices and costs to current market conditions (January feeder cattle board and April fed cattle board as of November 18, 2022) to help answer that question in today's market conditions. Unfortunately, we cannot change the weight of the animals for the study to represent the size that we see today, but we do know that animals are bigger now than they were 15 years ago when this study was conducted. You can assume that all the animal characteristics are similar today, but cattle are 100 pounds heavier.

The following USPB case study was a serial slaughter trial to compare profitability at different DOF. Table 1 reports the parameters and costs used in this example. Even though the costs are quickly and constantly changing, the principles and calculations remain constant. Follow this simple calculation to estimate purchase price breakeven in your own operation: a 750 lb animal will need to gain an additional 566 lb to finish at 1316 lb. If your COG is \$125/cwt then it will take \$707.50 to gain the 566 lb (750 lb to 1316 lb). If the 1316 lb animal is worth \$165/cwt or \$2,171.40/head, you can subtract your COG from it and divide it by the initial weight to get the purchase price breakeven ( $\$2,171.40 - \$707.50 = \$1,463.90/\text{head}$ )/750 x 100 = \$195.19/cwt. Steers at 750 lb bought above that price are likely to lose money and steers bought below that price are likely to make money.

This calculation is very important with backgrounding cattle because it points out the fact the most effective way to lower cost of gain is by increasing the ADG. Lowering feed costs will help, but not to the magnitude of ADG. For example, a 400 lb steer grown at a 2 lb ADG with a total cost per day of \$2.00, the COG is \$100/cwt. If you lower the total cost \$0.10 to \$1.90/head/day and maintain a 2 lb ADG then your COG would be \$95/cwt. However, if you were to use the \$2.00 cost and your gain increased to 2.5 lb then the COG would be \$80. If the steers were purchased for \$230/cwt or \$920/head and fed for 120 days, the 2 lb ADG steers would be sold at 640 lb and have a breakeven sale price of \$181.25/cwt or \$1,160/head, while the 2.5 lb ADG steers would be sold at 700 lb and have a breakeven sale price of \$165/cwt or \$1,155/head. Therefore, you can take a \$16/cwt discount without suffering a loss. If there is not a \$16/cwt discount then you are losing money by growing the cattle at a slower pace.

Keep in mind that COG is not the same for each day of the feeding period because weight gain and total daily cost is not the same for each day of the feeding period. Weight gain is low during the receiving period and even the growing period but peaks out shortly after the cattle are on full feed then slowly declines until slaughter. For example, the average COG for the first 30 days may be over twice what the average COG is for the entire feeding period due to the low gains and high input costs (drugs, vaccines, death loss, shrink, etc.), especially on calves. On the other hand, the COG to take a steer from 1,234 to 1385 lb may be only slightly higher than the average for the entire feeding period

**Table 1. Steer Projection "Base" Values**

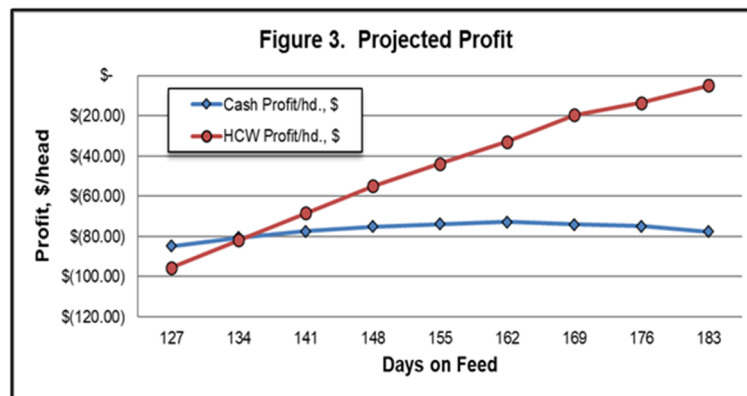
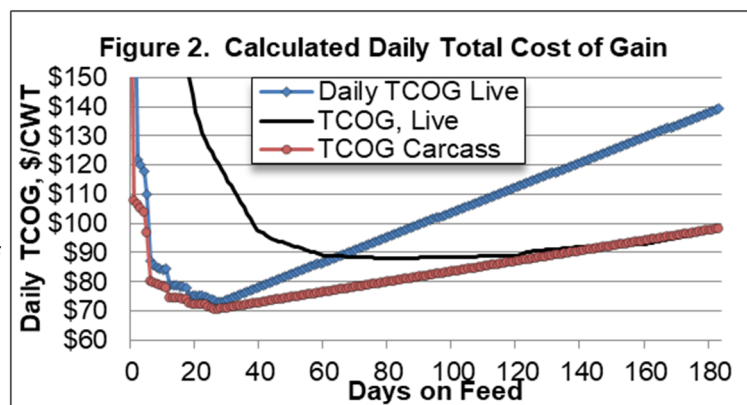
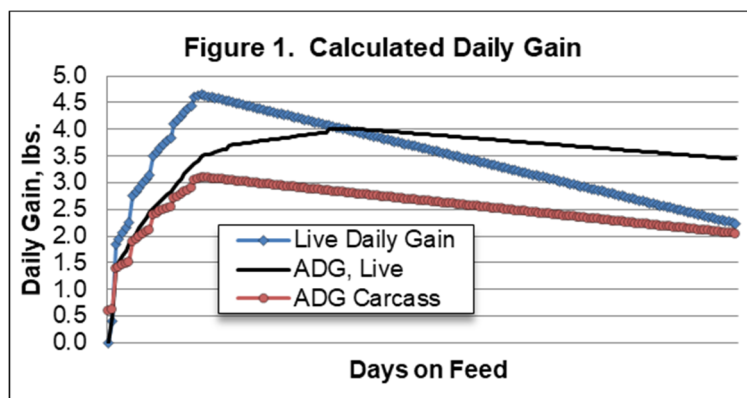
750 lb. placement weight 155 days on feed (DOF)
1316 lb live pay weight (LW)
3.65 lb average daily gain (ADG)
5.88 lb dry matter feed conversion (DM F/G)
21.46 lb dry matter feed intake/day
\$205/cwt feeder purchase price
\$165/cwt cash, live selling price
\$262/cwt dressed beef price
1% death loss
\$25/head veterinary/medicine cost

(\$120.52 vs. \$130.0) because the animal is only gaining slightly less than its maximum daily gain; the majority of the fixed expenses have been incurred (vet/med, shrink, death loss, marketing, trucking); and only the daily expenses are left (daily feed cost, yardage, and the interest and shrink associated with them).

In this example, with a live price of \$165/cwt you are not ahead to sell a heavier weight animal because a 1,385 pound animal (183 DOF) has a COG of \$130/cwt. This means you are still losing \$0.06 per pound of live weight gain. Selling on a carcass weight basis or grid basis is not as straight forward because the cost of gain should be related to a carcass weight gain basis. This is beneficial because the decline in the carcass weight gain is less dramatic than the decline in the live weight gain as pointed out in Figure 1. This is the result of an increased yield with increasing DOF (days on feed). The result of this slower reduction in carcass weight gain is a slower increase in COG and the ability for an animal to increase in profitability when feeding to a heavier weight as depicted in Figure 2. In Figure 2, **Daily TCOG, live** is the COG on a live basis while the **TCOG, Carcass** is the carcass TCOG adjusted back to a live equivalent using a constant yield. This allows for comparison of COG between live and carcass.

Figure 3 shows the profit per head that can be realized if sold either on a live weight (cash) or HCW basis at that specific day. With current costs, price, and the limitations of this dataset, no scenario shows a profit. However, from the figure you can see if selling the cattle live, the minimum loss occurs when selling cattle at 162 DOF. On the other hand, there is much less of a loss beyond the 162 DOF if you are selling dressed (HCW) because the price of dressed beef in this example is \$262/cwt. Looking at the profit trend for selling cattle on a HCW basis, it appears if you feed the cattle longer you are going to actually see a profit (see Table 2).

Table 2 reports the serial slaughter information using a 155 DOF base and showing the comparison of performance on a weekly basis for four weeks prior to and after the 155 DOF. This table shows the ADG for the period each week; however, I have added a line "Daily Live Gain, lbs." that reports the ADG for that specific week. The third line in the table shows how feed efficiency becomes poorer with increased size of the animal and reduction in gain. The following two lines "TCOG, \$" and "Daily COG, \$" show the cumulative COG for the entire feeding period and the COG for that specific week. The seventh, eighth and ninth lines report HCW by week, that specific week's daily carcass weight gain and the carcass COG for that week. Notice that the percent reduction in live weight gain from 134 to 183 DOF is 24% while the reduction in carcass weight gain for the same time period is only 18%; therefore, a higher percent of gain is attributed to carcass tissue with increased days on feed (greater yields). The following line reports the yield and it's improvement as live body weight increases. The next section reports the improvement in quality grade. Thus, if selling on the grid, now is a time when you want to



push the DOF to the point of being discounted for heavy weights and yield grades 4 and 5's. The yield grade (YG) section shows that the YG 1 and 2's decrease and 4 and 5's increase as DOF increase. If you are selling on the grid be careful to account for the discounts of 4 and 5's as well as the heavy weights shown in the following section. We do not recommend selling on the grid without a thorough understanding of the grid.

In summary, knowing the average COG will allow you to know where the purchase price breakeven is. However, knowing the optimum endpoint and marketing strategy (live, carcass weight, or grid) for cattle can mean the difference in being profitable or not. These decisions vary with type and quality of cattle as well as different markets and costs of gain. Be sure you are using some form of tracking program and it can give you the information discussed here to allow you to be confident in the decision you make.

**Table 2. Projected Performance at Different Days on Feed.**

<b>Weeks</b>	<b>-4</b>	<b>-3</b>	<b>-2</b>	<b>-1</b>	<b>BASE</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>DOF</b>	<b>127</b>	<b>134</b>	<b>141</b>	<b>148</b>	<b>155</b>	<b>162</b>	<b>169</b>	<b>176</b>	<b>183</b>
ADG, lbs./day	3.81	3.77	3.73	3.69	3.65	3.61	3.56	3.52	3.47
Daily Live Gain, lbs.		3	3	2.86	2.86	2.57	2.57	2.43	2.29
DM F/G, lbs.	5.64	5.7	5.76	5.82	5.88	5.94	6	6.06	6.12
TCOG, \$	120.52	121.58	122.69	123.82	125.00	126.20	127.43	128.69	130.00
Daily COG, \$	108.36	109.50	110.68	111.88	113.11	114.36	115.96	117.28	118.97
LW, lbs.	1,234	1,255	1,276	1,296	1,316	1,334	1,352	1,369	1,385
HCW, lbs.	773	790	807	824	840	856	872	886	900
Daily HC Gain, lbs.		2.43	2.43	2.43	2.29	2.29	2.29	2.00	2.00
Daily Carcass COG	172.98	174.01	175.04	176.13	177.23	178.35	180.04	181.24	183.03
Yield, %	62.64	62.93	63.23	63.52	63.82	64.12	64.41	64.71	65
Prime, %	0	0.23	0.63	1.03	1.43	1.83	2.23	2.63	3.03
Choice/Prime, %	49.62	54	58.46	62.56	67.07	71.13	74.64	78.26	81.38
Ungraded, %	5.04	3.77	2.86	2.01	1.31	0.46	0	0	0
CAB, %	10.29	12.14	13.97	15.99	18.48	20.88	23.18	25.38	27.03
BCPR, %	9.79	10.4	10.96	11.35	11.83	12.47	13.14	13.88	14.78
YG 1, %	25.5	21.66	17.86	14.19	10.64	7.49	4.61	1.99	0
YG 2, %	40.79	41.98	42.83	43.36	43.53	43.11	42.23	40.99	39.54
YG 3, %	30.64	32.54	34.9	37.17	39.43	41.54	43.63	45.68	47
YG 4, %	3.07	3.82	4.41	5.25	6.05	7.29	8.68	10.05	11.73
YG 5, %	0	0	0	0.03	0.35	0.57	0.85	1.29	1.73
Light Weight, %	0.36	0.13	0	0	0	0	0	0	0
Heavy Weight, %	0	0	0.35	1.61	3.16	4.76	6.88	9.98	15.21
Cash Profit/hd., \$	-84.82	-80.56	-77.49	-75.08	-73.80	-72.78	-74.12	-74.84	-77.73
HCW Profit/hd., \$	-95.39	-81.88	-68.40	-54.84	-43.89	-32.84	-19.55	-13.43	-5.00
Grid Profit/hd., \$	-105.83	-90.39	-76.19	-61.31	-50.19	-36.15	-24.79	-16.66	-9.63

## Promoting Longevity of Herd Bulls: Offseason Herd Bull Nutrition Management

Breeding season is over, and now we turn the herd bulls out to pasture, to the corn stalk field, or to a dry-lot for the winter. Here they will sit, out of sight, out of mind. That is until they act like bulls and get to fighting and break something, but that is besides the point. Even though sire selection decisions impact over 70% of the resulting genetics in a cowherd if we consider both calves and replacement heifers, bulls are often put on the back burner after we pull them off the cows. Just like most everything on the ranch, bulls are a depreciable asset, so we cannot just put them in a back pen somewhere and forget about them until breeding season rolls around again. We need to carefully manage our bulls and strive for longevity of that bull in the cowherd, thus reducing our bull cost per cow unit.

If a bull has done his job during the breeding season, he is going to look a little rough when we show up with that trailer to pull him off the cows. So the time between breeding seasons is critical to get these boys ready to do their job all over again next year! This means that we need to get some condition and weight on these bulls. For those that use their bulls in more than one breeding season per year, this time period is shorter, and bulls should be evaluated more closely to ensure they are prepared for the next season. If bulls need to regain weight, then they must gain at a higher rate depending on the degree of weight and condition loss. Most bulls, and young bulls in particular, lose weight and body condition through the breeding season. It is not uncommon for bulls to lose 100 to 200 lb, and this is ok if it means they have been working hard to breed cows. However, we don't want bulls to lose condition to the extent they lose muscle tissue and we should be prepared to supplement thin bulls after breeding to ensure they continue to regain condition prior to the next breeding season. Just as with cows, use body condition to assess the nutritional status of bulls to determine if and how much we need to supplement. Young bulls will grow until they are 3-4 years of age, and giving attention to these young bulls is key to preventing them from falling out after 1 or 2 seasons. At breeding, target young and mature bulls to be in a BCS 6 and 5, respectively. Over-conditioning of virgin bulls prior to breeding is an issue for seed-stock producers and discussions about over-fed bulls "melting" upon turn out happen every year. Likewise, issues with semen quality, libido, and fatigue can be seen in over-fed mature bulls so we want to avoid over-conditioning established herd bulls same as we do for developing yearling bulls.

Table 1. NEg Required For Gain For A 1765 lb Bull (NASEM, 2016)

ADG, lb	Mcal/day
0.9	1.9
1.76	4.1
2.65	6.4

As with other classes of cattle, nutrient requirements for bulls is dependent upon weight and ADG. Table 1. shows the amount of energy (Mcal of NEg) required daily for a 1765 lb bull at different levels of daily gain. The take-home point here is that energy requirements beyond maintenance increase as the level of gain increases and we can design a nutrition program for bulls to provide sufficient energy depending on what our goal is for gain. For example, 2.8 lb/hd/day of corn (in addition to their daily intake) would supply the 1.9 Mcal/day of NEg ( $2.8 \text{ lb/day} \times 0.68 \text{ Mcal/lb of NEg} = 1.9 \text{ Mcal/day}$ ) needed for a bull to gain 0.9 lb/day. If we wanted this bull to gain 90 lb, we should start supplementing 100 days prior to breeding. Rapid changes in body condition should be avoided, especially put-

ting on a lot of weight in a short amount of time, as that will set the bull up to lose it again quickly. Bulls can consume 2.0% of BW DM basis and intake and forage quality will determine the supplementation program. Bulls in a BCS 5 or greater can do well on forage that is 8-10% CP without much additional supplement. Mineral and vitamin nutrition influences sperm quality, so provide a well-fortified product that supplies at least 65,000 IU/day of vitamin A during the dormant season. Organic trace minerals have also been shown to promote sperm quality, so they would be best utilized prior to the start of and during the breeding season which also coincides with the recommended time for feeding them to breeding females.

Many “common sense” things regarding bull nutrition and management routinely get overlooked during fall and winter. If comingling young and mature bulls together and they are not turned out on pasture, then they need to be in a bigger pen or trap pasture large enough so they can get away from each other to avoid injury. The more space we can give bulls also allows them more exercise keeping bulls sound and athletic. If possible, it is best to feed or supplement bulls in an area such that they are forced to travel some distance to water so they exercise daily. A buller cage or something similar will prevent bulls from riding and keep hip, leg, and foot injuries to a minimum. If supplementing in a bunk, provide at least 2 to 3 ft of linear space per bull. Your water source cannot be overlooked, and clean water in the liquid form is absolutely necessary. Once cold or snowy weather sets in, we need to make sure bulls not only have protection but that we are also providing bedding to avoid frozen testicles, particularly if bulls are in a drylot or on pasture with limited standing dormant forage. This is also an ideal time to treat for internal and external parasites or develop a plan to do so if you don't already have one in place. Conducting a breeding soundness exam with your veterinarian prior to the start of the breeding season is always recommended. This is cheap insurance relative to the cost of the bull and allows us to identify any problems with sperm cell motility or morphology as well as a bull's physical ability to breed. Keep in mind that sperm production is a continuous life-long process, and a breeding soundness exam conducted at one point in time evaluates the ability of a bull to breed at that point in time. Bulls can fail an initial breeding soundness exam and then pass a second exam, and the opposite can also happen. The results of one breeding soundness exam are not necessarily true throughout life which is why we recommend having bulls checked annually, and at least several weeks prior to the start of the breeding season to give yourself time to find a replacement bull if needed.

The market for bulls fluctuates some from year to year, but the general trend has been higher over time. Bulls simply represent no small investment for cow-calf producers, and the ones with more proven or sought-after genetics often bring \$5,000-6,000+. Yes, some producers lease or turn over their entire bull lineup annually for other reasons. However, for most cow-calf operators a bull represents a mid-term investment, and our goal is for him to be siring progeny with our chosen genetics for several years into the future. With good nutrition and management during the offseason, we can achieve that goal and increase a bull's productive life. If you have questions or would like to discuss and review your current bull wintering program for this year, please feel free to contact a GPLC consultant today.

# Winter 2022

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