

Value of Gain:

Current Situation and Overview of Available Decision Tools

September 2011

Glynn T. Tonsor (Kansas State University)

Kevin C. Dhuyvetter (Kansas State University)

Value of Gain: Current Situation and Overview of Available Decision Tools

September 2011

Glynn T. Tonsor (Kansas State University)
Kevin C. Dhuyvetter (Kansas State University)

As fall weaning approaches, cow-calf producers that have the facilities and resources for retaining ownership need to make the decision as to whether or not they can increase returns by adding weight to their calves. Likewise, stocker and backgrounding operators having access to feedstuffs, whether it is pasture (wheat, grass, or crop residues) or harvested crops, need to be looking at what they can pay for calves that they want to add weight to. Methods of adding weight to calves in the fall and winter months vary considerably across Kansas. Wheat pasture in southern and central Kansas is common many years, but without moisture soon that might be less of an option this year. Other areas rely on winter grazing of grass supplemented with purchased feeds such as distillers grains. One of the most common programs is to background calves with rations relying heavily upon forages such as silage or hay. Regardless, of the specific program, many of these fall and winter grazing and backgrounding programs begin in mid-October and continue for a period of one to six months depending on market conditions and a host of factors specific to a given producer's situation. Cattle markets constantly provide information regarding economic returns to adding weight to calves such as might be done with fall and winter grazing or backgrounding programs. The purpose of this fact sheet is two-fold: 1) to overview the current market situation for 2011 grazing and backgrounding and 2) to raise awareness of decision tools available to producers and others for evaluating their particular situations.

Current 2011 Projections

Given diversity across operations including variation in forage and cattle quality, stocking density, supplemental rations fed, etc., two alternative rates of weight gain are evaluated. Namely an average daily gain (ADG) of 1.75 lbs is included as a conservative estimate of animal performance while an ADG of 2.25 lbs reflects a situation with above-average forage quality or cattle performance.

Table 1 presents the value of gain (VOG) projected for a 500 lb steer purchased in Salina, KS on October 19, 2011 assuming an ADG of 1.75 lbs.¹ Mathematically, VOG is simply the value per head of the animal at the end of the feeding period (sales value) less the value of the animal at the beginning of the period (purchase value) divided by the weight gain. This VOG information reflects the revenue aspects of grazing or backgrounding placement decisions by identifying the expected value suggested by current cattle market conditions for cattle weight gain. Producers vary notably in the weights at which they place cattle, the grazing/backgrounding duration employed, and the final weights achieved. Accordingly, the incremental VOG of each additional 50 lbs gained up to a weight of 800 lbs is presented along with the cumulative VOG for alternative ending weights. For instance, table 1 projects the first 50 lbs gained to be worth \$124.77/cwt. The incremental VOG of each additional 50 lbs generally declines as the animal increases in weight. However, this decline in incremental VOG is not constant and is particularly sensitive to market seasonality consistent with the changing nearby feeder cattle futures market contract associated with a given ending weight.

Table 1. Value of Gain, Average Daily Gain of 1.75 lbs

<i>Date</i>	<i>Weight</i>	<i>\$/cwt^a</i>	<i>\$/head</i>	<i>Incremental VOG (\$/cwt)</i>	<i>Cumulative VOG (\$/cwt)</i>	<i>Futures Contract</i>
10/19/2011	500	\$144.57	\$723	base	base	Oct
11/16/2011	550	\$142.77	\$785	\$124.77	\$124.77	Jan
12/15/2011	600	\$139.83	\$839	\$107.49	\$116.13	Jan
1/12/2012	650	\$137.69	\$895	\$112.01	\$114.76	Jan
2/10/2012	700	\$136.50	\$956	\$121.03	\$116.33	Mar
3/9/2012	750	\$133.71	\$1,003	\$94.65	\$111.99	Mar
4/7/2012	800	\$130.76	\$1,046	\$86.51	\$107.74	Apr

^a Expected prices are from www.beefbasis.com (see footnote 1 for additional details)

Table 2 presents similar information for the alternative situation of an ADG of 2.25 lbs. Comparing the first column in each table one readily observes the impact of a faster rate of weight gain is earlier marketing of an animal for any given final weight target. The impact of market seasonality on VOG projections given different ADG rates must also be noted. For

¹ We particularly assumed a 100 head lot of Large and Medium-Large, Grade 1-2 steers are purchased and sold in Salina, KS. All projections were made on August 29, 2011.

instance, table 2 indicates February 29, 2012 would be the expected day for 300 lbs of weight gain to be achieved given a 2.25 ADG. Conversely, an ADG of 1.75 results in April 7, 2012 being the day 300 lbs of gain would be achieved. The relevance of this difference from a revenue perspective arises upon recognition of different nearby futures contracts being germane for these alternative dates.

Table 2. Value of Gain, Average Daily Gain of 2.25 lbs

<i>Date</i>	<i>Weight</i>	<i>\$/cwt^a</i>	<i>\$/head</i>	<i>Incremental VOG (\$/cwt)</i>	<i>Cumulative VOG (\$/cwt)</i>	<i>Futures Contract</i>
10/19/2011	500	\$144.57	\$723	base	base	Oct
11/10/2011	550	\$141.20	\$777	\$107.50	\$107.50	Nov
12/2/2011	600	\$139.17	\$835	\$116.84	\$112.17	Jan
12/24/2011	650	\$136.94	\$890	\$110.18	\$111.51	Jan
1/15/2012	700	\$134.68	\$943	\$105.30	\$109.96	Jan
2/7/2012	750	\$133.44	\$1,001	\$116.08	\$111.18	Mar
2/29/2012	800	\$130.92	\$1,047	\$93.12	\$108.17	Mar

^a Expected prices are from www.beefbasis.com (see footnote 1 for additional details)

Once producers have a projection of what the market is offering as the VOG for a particular weight gain and time frame, they can compare this with their expected cost of gain (COG) to determine if adding weight will be profitable. For example, if a producer felt he could add 250 pounds to his fall-weaned calves for \$95 per cwt (\$0.95/lb of gain) using a program such that they gain 2.25 lbs per day and then marketing them in early February, he would increase the value of the calves approximately \$40 per head compared to selling them at weaning [gain of 2.50 cwt x (\$111.18 – \$95.00) = \$40.45].

Available Resources and Decision Tools

The VOG information presented in tables 1 and 2 reflects the revenue aspects of grazing or backgrounding placement decisions by identifying the expected value of cattle weight gain. Value of gain projections for alternative scenarios such as purchasing cattle of varying characteristics and using markets besides Salina, KS are easily obtainable. Those interested in alternative scenarios may use the *Feeder Cattle Basis Forecast* tool available at:

www.beefbasis.com, which was used in generating the projections shown in tables 1 and 2.

Historical prices and value of gain for different weight-time scenarios for feeder cattle in Kansas

are available in the *CattleSeasonalsCash.xls* Excel spreadsheet available at www.agmanager.info/Tools/default.asp#LIVESTOCK.

As previously noted, in addition to acquiring an estimate of value of gain (VOG), producers need a parallel assessment of costs facilitating \$/head or \$/cwt margin projections. Cost of production, and corresponding cost of gain (COG) vary notably across producers making description of "typical" situations problematic. Fortunately there are tools available that can guide producers in estimating their COG. Representative grazing and drylot backgrounding budgets are available in both Adobe PDF and Microsoft Excel format under the title "Winter Wheat Grazing" (MF-1009) and "Drylot Backgrounding of Beef" (MF-600) at: www.agmanager.info/livestock/budgets/projected/default.asp.

Similarly, there are decision tools available for producers to use who already possess a more detailed understanding of their COG. These producers are encouraged to utilize the "Cattle Breakeven Selling and Purchases Prices" resource available in both Web Dashboard and Microsoft Excel format at: www.agmanager.info/Tools/default.asp#LIVESTOCK. Table 3 on the last page shows information that can be generated in the Excel version of this decision tool for the VOG and COG example discussed above.²

Conclusions

Cattle producers looking to add weight to calves this fall, whether they are calves retained from their own cowherd or calves purchased, through grazing or feeding operations can benefit from the improved decisions resulting from enhanced understanding of current revenue, costs, and hence profit projections. Depending on the specific rate of gain and total gain, the market is currently projecting the cumulative value of gain (VOG) to be about \$110-\$115/cwt. Thus, producers wanting to retain ownership or purchase calves this fall will need to add gain at a cost of gain less than that in order to be profitable. Producers are encouraged to utilize the resources and decision tools introduced here by expanding beyond the representative examples presented to reflect their unique situations.

² Additional information includes break-even selling prices for alternative purchase prices or costs of gain.

Table 3. Breakeven Selling Price Worksheet (screen capture from Buy-Sell.xls)

Purchase weight (lbs)	500
Purchase price (\$/cwt)	\$144.57
Purchase date (mm/dd/yy)	10/19/11
Average Daily Gain (pay-to-pay)	2.25
Feeding cost of gain (\$/cwt)	\$95.00
Interest rate on feeder and feeding cost of gain	7.00%
Percent death loss*	1.50%
Costs per head (trucking, vaccines, backgrounding, etc.)**	\$0.00
Desired profit per head	\$0.00

* Enter ONLY if death loss is NOT included in feeding cost of gain, otherwise enter zero.

** Do not enter any costs included in feeding cost of gain.

Selling Weight ¹	Purchase Price (\$/cwt)							Expected sale date	Expected cash price
	\$138.57	\$140.57	\$142.57	\$144.57	\$146.57	\$148.57	\$150.57		
	Breakeven Selling Price (\$/cwt) ²								
500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/19/11	\$144.57
550	135.77	137.63	139.48	141.33	143.19	145.04	146.90	11/10/11	\$141.20
600	132.92	134.63	136.34	138.04	139.75	141.46	143.16	12/02/11	\$139.17
650	130.54	132.12	133.71	135.29	136.87	138.45	140.03	12/24/11	\$136.94
700	128.53	130.01	131.48	132.96	134.43	135.91	137.38	01/15/12	\$134.68
750	126.81	128.20	129.58	130.96	132.34	133.73	135.11	02/07/12	\$133.44
800	125.34	126.64	127.94	129.24	130.54	131.85	133.15	02/29/12	\$130.92

¹ Enter the minimum selling (pay) weight you want to consider.

² Based on a feeding cost of gain of \$95/cwt.

Selling Weight	Feeding Cost of Gain (\$/cwt)							Expected sale date	Expected cash price
	\$87.50	\$90.00	\$92.50	\$95.00	\$97.50	\$100.00	\$102.50		
	Breakeven Selling Price (\$/cwt) ¹								
500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10/19/11	\$144.57
550	140.75	140.95	141.14	141.33	141.53	141.72	141.91	11/10/11	\$141.20
600	136.88	137.27	137.66	138.04	138.43	138.82	139.20	12/02/11	\$139.17
650	133.63	134.19	134.74	135.29	135.84	136.39	136.94	12/24/11	\$136.94
700	130.88	131.57	132.26	132.96	133.65	134.34	135.03	01/15/12	\$134.68
750	128.51	129.33	130.15	130.96	131.78	132.60	133.41	02/07/12	\$133.44
800	126.47	127.39	128.32	129.24	130.17	131.09	132.02	02/29/12	\$130.92

¹ Based on a purchase price of \$144.5/cwt.

Breakeven Selling Price is below Expected cash price (expect positive returns)

Breakeven Selling Price is above Expected cash price (expect negative returns)