ALABAMA COOPERATIVE Extension SYSTEM
Your Experts for Life

AG ECONOMIC SERIES

TIMELY INFORMATION
Agriculture & Natural Resources

AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY, AUBURN UNIVERSITY, AL 36849-5639

DAERS 05-5 May 2005

What's The Value Of Additional Weight Gain?

Dr. Walt Prevatt
Auburn University

Have you ever heard someone give the wrong directions to a traveler or the wrong instructions on how to assemble something or even discuss a concept incorrectly? I=ll bet you have. That is what usually happens when people use the term "value of gain."

I hear people frequently compare the market price per pound received for heavier feeder calves with the per pound cost of adding the additional weight. The fallacy in this comparison lies with the use of market price per pound rather than market price per head. Many people automatically assume the value of gain and the market price per pound for heavier feeder calf are the same thing. Unfortunately, this is almost always incorrect. This comparison is correct only when there is no difference in the market price per pound for feeder calves of different weights. This situation occurred only once for a very short time period during the last 14-year cattle cycle (a market response to $5 per bushel corn during April 1996) .

We all know that heavier feeder calves bring a lower market price per pound than lighter feeder calves. We also know that heavier feeder calves, even though they bring a lower market price per pound, usually sell for a larger market price per head. That=s because the **finished animal** typically weighs 1,000 to 1,300 pounds and it costs something to add the additional weight gain. Thus, this output increasing technology is based on the marginal revenue and marginal cost associated with producing the additional weight.

The value of gain that cattlemen are concerned with is simply the value of putting additional weight on feeder calves. Economists call this the marginal revenue of the additional weight which is commonly known as the "value of gain." The correct procedure to estimate the "value of gain" involves a few simple steps (see Table 1).

Table 1. A Procedure To Calculate The Value of Gain.

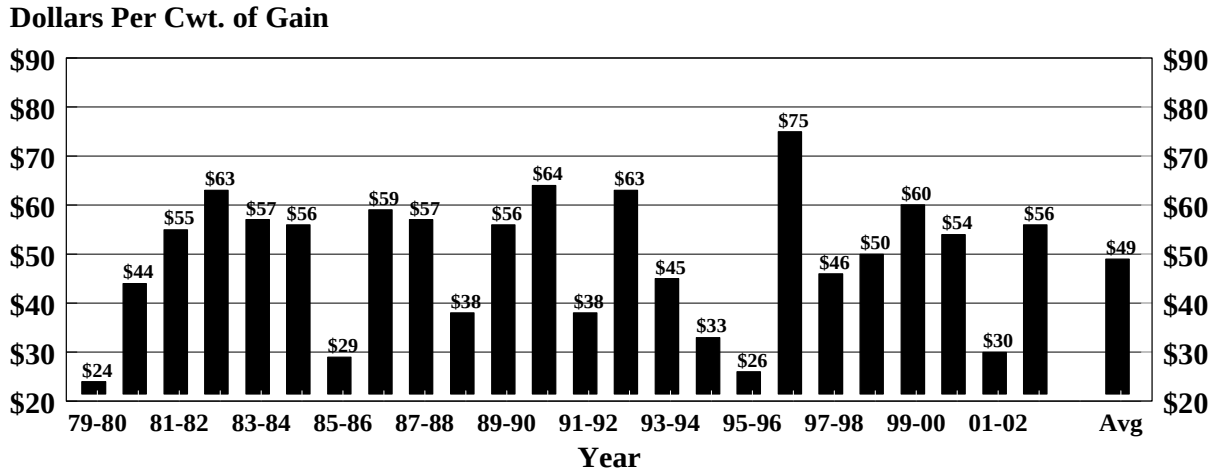
ITEM	DATA	EXPLANATION
1. Purchase weight (lbs/hd)	450	Given
2. Purchase market price per lb ($/lb)	$1.30	Given
3. Purchase market price per head ($/hd)	$585.00	Item 1 X Item 2
4. Sale weight (lbs/hd)	750	Given
5. Sale market price per lb. ($/lb)	$1.00	Given
6. Sale market price per head ($/hd)	$750.00	Item 4 X Item 5
7. Gross margin ($/hd)	$165.00	Item 6 - Item 3
8. Weight gain (lbs/hd)	300	Item 4 - Item 1
9. Price margin ($/lb)	-$0.30	tem 5 - Item 2
10. Value of gain ($/lb)	$0.55	Item 7 / Item 8

First, calculate the purchase market price per head (item 3) and sale market price per head (item 6). Second, calculate the gross margin between the heavier and lighter feeder calf. The gross margin is the sale market price per head (item 6) of the heavier feeder calf minus the purchase market price per head (item 3) of the lighter feeder calf. And third, the value of gain is simply the gross margin divided by the weight gain (item 7 / item 8). These three simple steps provide you with the "value of gain."

In the example above, the purchase market price per head was $585 (450 lbs. * $1.30/lb.). The sale market price per head was $750 (750 lbs. * $1.00/lb.). The gross margin was $165 ($750 - $585). The weight gain was 300 pounds (750 – 450). Thus, the value of gain was $0.55 per pound ($160/300 pounds) or $55 per hundredweight ($0.55/lb.).

Putting additional weight on feeder calves often involves some uncertainty. As you might expect, the value of gain varies for different weight ranges, sexes, time periods, location, quality of feeder calves, etc. Figure 1 describes the value of gain for a 200-day stocker program over a 24-year period. Stocker calves are assumed to be purchased in October weighing 400 pounds and sold in April weighing 750 pounds. Animals are assumed to be feeder steers, medium and large frame, heavy muscling (#1).

Figure 1. Value of gain, feeder steers, October - April, 400 - 750 pounds, 1979 - 2003.



Assumes October purchase of 400# stocker calf and April sale of 750# feeder.
Assumes feeder steers, medium & large, number 1.

The value of gain over this 24-year period ranges from $24 to $75 per hundredweight (24 to 75 cents per pound). The average value of gain is $49 per hundredweight (49 cents per pound). Thus, if your cost of gain averaged $40 per hundredweight (40 cents per pound), your average net value of gain (value of gain minus cost of gain) would be $9 per hundredweight (9 cents per pound). This average $9 per hundredweight net value of gain equals about $31.50 per head profit (9 cents per pound of gain or $0.09/lb * 350 pounds/head = $31.50/head). Furthermore, if your cost of gain was $40 per hundredweight (40 cents per pound), you would have been profitable 16 out of 22 years. Cost of gain does vary, but usually not as much as value of gain or market prices. Obviously, calculating the value of gain and cost of gain after production and marketing are completed is very simple. The real task is how well you can "estimate" these measures prior to purchasing and placing the feeder calves on feed or pasture.

Astute cattle producers that put weight gain on feeder calves need to know how to estimate value of gain and cost of gain. Many producers can estimate their cost of gain within a few cents per pound. Thus, the challenge in making profitable management decisions about adding additional weight usually comes not in estimating the cost of gain, but in estimating the value of gain. Experience, a thorough study of markets, and a little luck will help you accurately estimate the value of gain.