



Marginal Value of Calf Gain

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Well-managed, high-quality pasture can provide a clean environment and low-cost feed for weaning and backgrounding calves. How profitable pasture weaning and backgrounding are depends on the additional gain obtained from feeding supplemental feeds on pasture, the cost of the supplemental feed, and the marginal value of the calves' weight gain.

Calf performance related to pasture quality and supplements is covered in another fact sheet by that title. The cost of supplemental feeds will change from year to year and can be obtained from local feed suppliers. Price supplemental feeds based on their net energy (or total digestible nutrient) and protein content. The marginal value of calf weight gain is based on the price slide between weight breaks of cattle being sold.

Calculating the Marginal value of calf gain

The marginal value of calf gain is not straightforward since feeder cattle are priced by their value per pound or hundredweight, not priced per head. To calculate the marginal value of gain, first calculate the value being paid per head within weight groups of cattle. Then calculate the difference in value between two weight groups of cattle. This difference in value is then divided by the difference in weight per head of the two groups. This can be done using the following formula:

$$\text{Marginal Value} = \frac{(\$/\text{Head group 1} - \$/\text{Head group 2})}{(\text{Wt}/\text{Head group 1} - \text{Wt}/\text{Head group 2})}$$

Here is an example for two sets of cattle, one weighing an average of 475 lbs selling for \$1.10/lb and the second weighing 525 lbs selling for \$1.07/lb.

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$$\text{Marginal Value} = \frac{(525 \text{ lbs} \times \$1.07/\text{lb}) - (475 \text{ lbs} \times \$1.10/\text{lb})}{(525-475)}$$

$$\text{Marginal Value} = \frac{(561.75 - 522.5)}{50}$$

$$\text{Marginal Value} = \$0.785/\text{lbs}$$

Using market reports

Where the weight breaks are not at uniform points, calculate weight group midpoint weights and midpoint values by averaging the top and bottom values of each weight group. This is not exact but will give a good ballpark figure when large groups of cattle are being sold. When weight groups are by hundred-pound breaks, it works out as in the following example.

$$\text{Value } \$/\text{head} = \$/\text{Cwt} \times \text{Cwt}/\text{head}.$$

| <u>Weight</u> | | <u>Price/Cwt.</u> | | <u>Weight Class Averages</u> | | | <u>Marginal Value</u> |
|---------------|-------------|-------------------|-------------|------------------------------|----------------|----------------|-----------------------|
| <u>Low</u> | <u>High</u> | <u>Low</u> | <u>High</u> | <u>Weight</u> | <u>\$/Cwt.</u> | <u>\$/Head</u> | <u>\$/Cwt.</u> |
| 300 | 400 | \$89 | \$93 | 350 | \$91.00 | \$318.50 | |
| 400 | 500 | \$78 | \$89 | 450 | \$83.50 | \$375.75 | \$57.25 |
| 500 | 600 | \$76 | \$89 | 550 | \$82.50 | \$453.75 | \$78.00 |
| 600 | 700 | \$76 | \$84 | 650 | \$80.00 | \$520.00 | \$66.25 |
| 700 | 800 | \$63 | \$70 | 750 | \$66.50 | \$498.75 | (\$21.25) |

In this example, there is even a negative marginal value, which can occur. When the value of light cattle is greater per pound than the value of heavy weight cattle, the marginal value of gain is less than the value of the heavy cattle. When the prices are constant across weight groups, the marginal value of gain is equal to the price. When the price of light cattle is lower than the price of heavy weight cattle, the marginal value of gain is greater than the value of the heavy cattle. This latter case has not been the norm for some time. However, it does occur when the price of corn is high compared to the value of finished animals.

It is important for cattle producers to know the cost of adding gain to cattle and the marginal value of that gain. These costs and values often stay constant from year to year. But when the grain market or the finished cattle market changes the cost and value of gains will change. It is a good practice to calculate these values each year to see what they are and how profitable current management will be or if management needs to be changed to keep in step with the markets.