

Sell or Keep to Upgrading Cull Cows Profit Projection

Cow-calf producers are frequently faced with the alternative of selling their cull cows at the time they are culled or retaining them to improve the grade or body condition score (BSC). Not only is there a difference in price by grade, but also there is a seasonal price pattern that may be used to generate increased cull cow revenues. Cull cows prices are lower in the fall as supplies of cows are high as many producers cull in the fall when they wean calves. Spring cull cow prices are normally higher as supplies are lower.

Recall that the impact on the marketing margin of a higher price associated with grade change or the cull cow market price is substantial because the initial weight, which is high relative to the final weight, generates a high marketing margin that can supplement the grazing or feeding margin.

The objective of this spreadsheet decision aid is to evaluate the profitability of retaining cull cows by upgrading their grade to increase higher cull price and change timing of marketing for a more favorable seasonal price. It's a question to sell or keep the cull cow.

Evaluating up grading and marketing alternatives is a partial budget analysis measuring added revenue versus added cost. It's comparing the fall low seasonal sale piece based on the condition of the cow, cost of feeding the cow and marketing later at a higher seasonal price. Or using a different market including a yield and grade carcass alternative to increase net income. The opportunity cost of the auction market is the value of the culls under consideration. The upgrade and seasonal price improvement profit is calculated as follows for sales at any specific time.

Cull cattle **“upgrading profit”** or earning more = ((sales revenue after upgrade – (all marketing costs + added production costs) - opportunity costs of best marketing alternative before upgrade))

Input Data:

The key data to evaluate the economics of selling or keeping cull cows is the value of the cow if sold thin and what is the expected value if fed and sold later. Expected average daily gain and the feed cost of gain are also key parameters.

Reports in the decision aid

1. Sell or keep to upgrade cull cows. This report is a complete recording of data that described the cull cows, production performance, and all costs and calculates financial performance measures. Net margin and ROI and ROE are the first financial measures to observe.
2. Margin analysis and summary. Upgrading cull cows is a margin business. This report facilitates evaluation of prices of the culls by grade and BCS.

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3. Partial budget report. The partial budget clearly shows the change in revenue the added cost including the target return above the total unit cost (TUC) and the advantage of upgrading the cull cost.
4. Price sensitivity analysis. The opportunity cost of the cull cow and cost of gain are the primary determinants of the profitability of upgrading cull cows. The sensitivity table facilitates the evaluation of this reality. The necessary price for the upgraded cow to achieve the target rate of return is reported.

These data entry and reports facilitates “**what if**” analysis that is important for this production and marketing activity in volatile price and cost environment.

Results:

The expected value of the cull cow is the net market price and expected net weight. If cattle are not sold when culled this is the unrealized sale value.

The second part of the analysis is to determine the weight gain and the total sales value of the marketing or production alternative to determine the difference in gross revenue. This is the marginal revenue (added revenue) associated with the alternative. To be a profitable “keep em”, the added revenue must offset added cost (marginal revenue must be greater than marginal cost).

The third part of the analysis is to project expenses associated with retaining the cull cows. Cost per head and cwt gain is calculated. Recall that delaying sales means capital is tied up. If borrowed capital is used in the enterprise, then the charge for the capital used is the cash interest cost. If owner financed, then the opportunity cost of capital (its use in the next best investment) should be used as the capital charge. Because of production and price risk involved, a “net margin per head objective” should be established and included as a cost.

The target net margin per head objective is the amount of net income per head that would meet the producers’ financial performance objective. The software calculates the price necessary to achieve the target net margin objective and what this would mean in terms of annual return to capital in terms of the target version actual.

One should not take the price and production risk for nothing. Breakevens are often calculated with no returns to cover indirect costs, capital, or owner management. Using these incomplete cost values as a guide for pricing, if only achieved, will eventually break the business. Why set targets to go broke?

The calculated values are the financial (excluding opportunity cost of capital) and economic (including opportunity cost of capital) advantage of retained ownership.

The sales price of the retained cows to achieve the net margin objective provides a guide to understanding the net price necessary for an acceptable marketing and production alternative.

Summary Marginal Analysis

As noted, profitability keeping cull cows is dependent on two margins, the marketing margin and the feeding or grazing margin. The summary report identifies these margins. If cows are sold for a higher price in the seasonal cycle and better quality grade will have a positive marketing margin (roll up in price).

Cull Grades, Body Condition Score and Dressing %

It's very important to evaluate to cows condition and grade. The market discounts both thin cows (BCS 1-3) or those are too fat. This is a summary of grades, BCS and dressing percent.

Cull Cow Grades and Body Condition Scores (BCS)

Cull Cow BCS	Grade	Dressing %
Canner (BCS 1-3)	Canner	40 to 46
Cutter (BCS 4)	Cutter	45 to 49
Utility (BCS 5 & Above)		
BCS 5 to 9	Boning	50 to 52
BCS 6 to 9	Breaking	52 to 54
Commercial - BCS 5 to 9 *	Commercial	55 to 60

USDA Grade Cull Cow	Market Class	BCS
Canner	Lean	2-3
Cutter	Lean	3-4
Boning Utility	Boners	5
Breaking Utility	Breakers	6-7
Commercial Premium White Fat*		7-9

*More limited to young cows less than 42 months old.

Key Cost Definitions

- **Direct costs** are the most important and include feed and grazing, processing and health. Price raised feed at their market value. The opportunity cost of the cull cow is the most significant direct cost. Take care to recognize that in the current volatile cost situations historical cost and cow prices may not accurately reflect the current costs and make appropriate adjustments.

- **Indirect Costs** is necessary to include to insure production activity costs match up with the P&L this costs includes ownership and operating costs. Depreciation, repair, maintenance of improvements vehicles, machinery and equipment, labor and management, and property tax are examples of indirect costs. Indirect costs continue as the number of cattle increase or decrease. **General and Administrative Costs (G&A)** are included in indirect costs to run the business such as bookkeeping, professional fees for accounting and legal services, dues, utilities, general insurance, office supplies and administrative personnel salary, and payroll and benefits. There is management time spent on planning, implementation and marketing issues for the cattle custom feeding retained ownership activity. Indirect cost are also referred to as overhead costs or fixed cost.
- **Total Unit Cost (TUC)** is a substitute for the often used breakeven cost or a cost component divided by the amount of saleable product. The costs included **must be defined** before a breakeven can provide useful information to a decision maker. **A break-even that does not cover full cost is misleading.** Custom feedyards **never calculate** a “full cost” breakeven as they do not have access to owner’s costs beyond the direct costs incurred in the feedyard. Their breakeven is a feedyard direct cost breakeven. Producers must use closeout information and add the full payweight cost of the feeder and the cattle owners business’s indirect and general and administrative (G & A) costs including management cost. They must have **total unit cost (TUC)** to have a true measure of profitability. Having indirect and actual interest cost will mean the cattle retained ownership activity profitability is consistent with the business income or profit and loss (P&L) statement.
- **Vehicles, Machinery, Equipment Facilities and Improvements** are **indirect costs** that include ownership (depreciation, housing, insurance) and operating costs (repair and maintenance, utilities and fuel).
- **Owner Operator Labor and Management compensation** should be included in the production cost calculation at a level equivalent to the salary required to hire a non-family member to provide an equivalent service. Compensation in excess of this amount must be considered capital distributions in order to reconcile the retained earnings and statement of cash flows. This makes a sole proprietors cost comparable to a corporate business’s calculation. Owner manager costs need to be included in production costs. Many sole proprietor businesses have withdrawals for family living. Withdrawals beyond an equivalent to the salary would be an equity withdrawal on a production cost.
- **Yardage Cost** is used as an expression of indirect cost these costs are charged on the basis of head days fed. The “yardage concept” can be used for grazing cattle as feedyards use yardage to report custom fed cattle.
- **Finance cost** is calculated by taking total cost adjust for the time fed (days fed/365) times the annual interest rate. The same calculation can be used to calculate the return on investment (ROI) or the price of the service to cover total unit cost and return the interest rate ROI to background.

Other Retained Ownership Terms

- **Payweight Price** is the net income from sale after adjustments for freight and marketing costs. Payweight is the net weight after shrinkage for the cattle.

- **Feeding Margin** is the net feeder sales price minus the total cost of gain times the net payweight gain. This is a measure of cost of gain versus the sales value of finished cattle.
- **Marketing Margin** is the initial cull cow payweight times the roll back or roll up in price or the positive or negative margin between initial cow price and the cow cattle sales price.
- **Net Payweight Gain** is the difference between net sales or payweight and weaning weight.
- **Net Margin** or net income is the difference between the value of the net sales and the original feeder value and added cost for production, G&A and financing cost. If these costs are included this is **total cost or total unit cost** per head of per cwt. of cattle marketed. The net margin is made up of two components, marketing margin and feeding margin.
- **Net Payweight Sales Revenue** is the revenue received per Cwt after shrink and all freight and marketing costs are accounted for.
- **Average Daily Gain (ADG)** is the net payweight weight gain divided by head days grazed and or fed. This weight is adjusted for death loss (deads are in) as only live cattle payweight minus in payweight.
- **Sunk Cost** – is used to describe a cost that has incurred or has taken place that cannot be reversed. At the culling time the costs of retained ownership is the net value that could be received if the cow is sold or sunk costs. For retained ownership it's a question if the added revenue be greater than the added costs from retained ownership in greater than just selling the cull cow or Total Unrealized sales value or opportunity cost.
- **Value of Gain** = ((Total Revenue -Total Cattle In Cost)/Net Gain)
Value of Gain is what can be paid for gain and should be compared to total unit cost of gain (TUC). Value of Gain = ((Total Revenue -Total Cattle In Cost)/Net Gain)
- **Price risk** the cull cow selling price is the **critical determinant** if the short retained ownership to upgrade cull cows can be profitable. Possible forward pricing and avoiding seasonal price cycles need to be part of the planning process for cull cows with a short production period.

Remember you manage what you measure. Breaking even is financial failure. It is necessary to plan ahead and evaluate alternatives **with profitable target** net income and return in investment (ROI). Short production periods means price risk is high. Make your numbers do the talking.