

## **Cow-Calf Herd Budget Decision Aid User's Manual**

The purpose of this decision aid is to facilitate the organization production and economic data to budget of the cow-calf enterprise and beef cow herd. This manual also has a detail description of the budgeting process, definitions and how the information can be used in decision making in presented in three appendices. This decision aid address a number of decision areas including: the cow-calf herd budget, a linked vehicle, machinery and equipment investment and cost sheet and a cattle pricing summary. This data then provided an income or profit and loss (P&L) statement, a production evaluation partial budget, reports following the Standardized Performance Analysis (SPA) methodology, a sensitivity performance and data to evaluation of investment in beef cows or cow bid price.

### **Input**

The Cow-calf budget has the following data entry.

- Cow-calf budget production coefficients and production cost data that describe the cow-calf enterprise management.
- Vehicle, machinery and equipment investment.
- Cattle prices and associated price slides.
- Practices evaluation using a partial budget analysis.
- Select data to evaluate investing in breeding cows.

### **Output**

The cow- calf budget has the following reports:

1. Costs and returns per cow and for the total herd along with a summary of results.
2. A sensitivity analysis allows the user to set up intervals in the table. Net financial income, cost of calf production, and land or lease cost are also calculated.
3. A summary evaluation of a change in a production or management practices which also includes a price slide analysis for calves.
4. A summary of the cow calf SPA from the budget helps summarize the data and also facilitates comparative analysis to SPA data.
5. A summary of revenue, costs in and income statement format that facilitates projecting cash flow and income or profit or loss statements.
6. A cow investment analysis that address longevity.

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## **Description of Cow Calf Total Herd Budgeting**

Management is a dynamic process, which needs information to be effective. Budgeting can help a manager by providing economic information for decisions concerning a production period, an annual plan, or a long-run plan. Budgeting can also provide details about individual enterprises as well as information about the whole ranch. As a result, budgeting is used, in a variety of ways, in all phases of management, planning, implementation, and control. This publication describes the purpose of budgeting, budgeting terminology, examples of cattle budgets, and the availability of budgeting information.

## **The Purpose of Enterprise Budgeting**

Budgeting provides information, which can be used to support a variety of management:

1. Help the managers select the best crop, forage, and livestock enterprise combinations.
2. Refine organizational and operating structures; it also forces a manager to develop a production and marketing plan.
3. Forces the manager to uncover cost items that might otherwise be overlooked.
4. Allows the possible outcomes of a change to be studied before resources are committed to the change.
5. Test the economic and financial feasibility of alternative production technologies and management practices.
6. Develop and organize information, which will be helpful to lending agencies when the business needs operating, intermediate, or long-term loans.
7. Help the manager select among investments by estimating both the profits and the Impact on cash flow of each investment when credit is limited.
8. Provide information, which the manager can use to compare the projected and actual results of implementing a plan.
9. Provide the basic information for preparation of the ranch cash flow and projected income statement.

The end result of the budgeting process is information. This information is assembled in a budget report so that it can be understood and properly used. The decision aids focus on partial budget and enterprise budget reports.

The need for changes in the original plan can occur daily in ranching, and the partial budget can be useful in determining whether considered or observed changes will contribute to profits. Only those items that are subject to change are considered in partial budget analysis. For example, a change in the market price of stocker cattle might lead a rancher to do a partial budget analysis of changes in the marketing strategy of weaning calves. A price increase for stockers may signal the opportunity to hold cattle and sell them as stockers, and a price decrease for stockers may be large enough to suggest that the sale of the weaner calves is the best option. This type of budget is a short cut to enterprise budgeting and is, thus, a time-saver.

An enterprise budget is a statement of what is expected if particular production practices are used to produce a specified amount of product. It is based on the economic and technological relationships between inputs and outputs. It consists of a statement of expected revenues resulting from stated expenses incurred in the production of a particular product.

## **Enterprise Budget Terminology**

In order to use budgets effectively, the manager must understand the terminology used to describe and explain them. If these terms are not understood, information may be used incorrectly, and the end result may be wrong decisions.

A budget is defined as a projection of income and expenses (either for a single enterprise or a whole ranch), which is used for planning the future.

Enterprise or production activity is used as a common name for any alternative in which a manager can choose to invest time and money. Common enterprises are cow-calf, stocker cattle, improved pasture, hay, etc. Enterprises can be combined to develop the whole-ranch budget.

The two basic components of budgeting are income and expense. A proper understanding and use of income and expense concepts is the basis of effective budget development. At the most basic level, income is a certain value, which should be received in return for the commodities produced, and an expense (cost) is a charge, which should be made for an item used in the production of goods or services. Note that “expenses” and “cost” are used interchangeably in this paper.

Several groups of terms or distinctions may be used to clarify the significance of income and expense items in specific situations. These distinctions include:

- \* Direct vs. indirect costs
- \* Operating costs – sum of direct and indirect costs
- \* Total cost or total unit cost – some of operating and finance cost
- \* Cash vs. non-cash income and expenses
- \* Opportunity costs
- \* Long run vs. short run prices
- \* Economic vs. accounting or finance values
- \* Total, average, or marginal income and costs
- \* Income measures

These distinctions may not be absolute in all situations, but the ideas embodied by each term help us understand the use (and misuse) of budgets. These distinctions are discussed in more detail in the following sections.

## Direct vs. Indirect costs

The distinction between direct (often variable) and Indirect (often fixed) values is more applicable to costs. Most ranch income will vary with production; but very little income is fixed in the sense that a cost can be fixed. Thus, the explanations in this section concern only costs.

Indirect costs are those that occur no matter what, or how much, are produced on a ranch. Examples of indirect costs include: taxes on land and buildings and depreciation on buildings and machinery. Many costs, such as office expenses or supervisor's wages, are indirect costs in the sense that they will be incurred no matter what enterprise is involved. The operator's labor and family labor (withdrawals) also may be considered indirect costs. General and Administrative (G&A) costs or overhead are similar to indirect costs as production can be expanded and these costs do not increase in total. The cost of these items such as bookkeeping, CPA, legal and dues and subscriptions would be the same no matter how much is produced. With a given set of indirect expenses, production increases will lower the indirect costs per unit of production.

Direct costs are those costs that are more directly associated with the volume of business. The costs of seed, fuel, machinery, repairs, fertilizer, herbicides, hired labor, feed costs, veterinary expenses, and marketing expenses are examples of variable expenses for livestock production. Interest on operating loans is also a variable cost. These costs vary in total with the size of the ranch business. The level of some input, such as may not be changed as easily the fertilizer level or supplemental feed fed. However, these costs are still considered direct costs because they are specific to a certain enterprise and would not be incurred if that enterprise were not produced.

Three important planning concepts are related to the distinction between indirect and direct costs. First, a rancher, by increasing production with the same set of vehicles and machinery on the same land, can often increase profits because the indirect costs of vehicles, machinery and land are not increased. That is, the indirect costs have been spread over more production, causing the indirect costs per production unit to decrease.

Second, many ranchers try to cut their pre-unit direct costs of production by replacing labor with machinery. These ranchers may be substituting higher indirect costs (depreciation, interest, and property taxes on machinery) for lower variable labor costs. Decreasing direct costs while increasing indirect costs does not guarantee improvement in profits.

Third, it should be recognized that all cost items become fixed once they have been used or committed to use. These are sometimes referred to as "**sunk costs**". Once seed is planted, fertilizer is applied, or gasoline is used in the pickup, such an item becomes fixed even though it was variable before it was used. This distinction is important because sunk costs do not affect short run production decisions. Once calves are weaned all of their production costs are sunk costs.

In a situation where it becomes obvious after planting an annual forage that the future income from an enterprise will not cover total forage costs; an understanding of "sunk costs" will help the manager minimize losses. For example, suppose a drought severely reduces production

to a point where the rancher will lose money on the forage. The rancher still has some direct costs, such as the harvesting management expenses, which may or may not be incurred. The grazing decision will depend upon whether or not the gross income from the forage will exceed these direct costs. If the gross income will not exceed the direct costs, the rancher will minimize losses by leaving, not grazing the forage. If the gross income exceeds the direct costs, the rancher will minimize losses by grazing. In decisions, such as this one, any remaining direct costs become the key to the decision; direct costs already committed are now fixed or sunk costs.

### **Cash vs. Non-Cash Income and Expenses**

The definitions of income and expenses emphasized that they are “a value which should be received” and “a charge which should be made,” respectively. However, they may or may not involve actual cash transactions during the operating or budgeting period being analyzed. The cash versus non-cash distinction thus includes consideration of both the nature and the timing of a transaction.

### **Cash Income and Costs**

Expenditures for supplemental feed, fuel, fertilizer, purchased seed, repairs, and similar items are easily recognized as cash costs of production. Cash income is also easily recognized as actual receipts of money.

Non-cash income, such as land value appreciation or the value of ranch, production of replacement heifers, ranch produced products consumed at home, is real income that does not involve receipt of cash. Non-cash cost items such as unpaid family labor; depreciation, opportunity cost and interest on the equity capital tied up in the ranch do not involve actual cash expenditures. Consequently, it is easy to forget that non-cash items are actually income and costs.

Non-cash items are real values. They must be received and charged appropriately if a ranch business is to be analyzed correctly. Accounting for non-cash items is particularly important in analyzing individual ranch enterprises.

Most ranches have a number of enterprises producing different intermediate and final products. It is not easy to be accurate about the value and allocation of such non-cash items as building and machinery depreciation, raised feed (particularly roughage), and pasture when analyzing the profitability of an individual enterprise. Similarly, a machine shop enterprise will have earlier identified cash expenses; but almost all its income will consist of non-cash items, which are subsequently entered as cost for the ranch’s production enterprise.

### **Opportunity Cost**

Opportunity cost is a concept used to specify a cost for using resources. It is very important in ranch management, but easily misunderstood. The opportunity cost of a resource is the income, which could be received from the best alternative use of that resource. While this may appear to be a vague and useless concept, it has real applications.

Labor, land and capital resources can be used in several ways. Each alternative may generate a different income from those resources. For example, an acre of land could be used to produce any of several crops. Each of these crops would produce a certain income, but only one crop can be grown at a time. Therefore, the income from other crops is foregone.

When any resource is used in one way, the income from using it in any other way is lost. The income from the best alternative is called the opportunity cost of that resource because the rancher has given up the opportunity to earn that income. So, the “cost” of using the resource in the chosen use is its opportunity cost (that is, the income that could have been earned in the next best alternative). For resources, which are not purchased for each production period – such as equity capital or owner’s labor, the opportunity cost of that resource can be used to evaluate whether the chosen use is indeed the best use of that resource.

Opportunity costs are a factor in virtually all ranch management decisions. The ranch manager must not only ask, “Will this use of capital, labor, or land be profitable?” but he must also ask, “Would this capital, labor, or land produce a higher income if it were used in some other way?”

### **Long-run vs. Short-run Prices**

A manager’s planning horizon has a large effect on how prices and quantities are chosen. The planning horizon relates to the length of time affected by the current decision. The rancher, who is deciding whether to sell steers today, tomorrow, or next week, has a very short planning horizon for that decision. The same rancher would have longer run horizon for a decision concerning the purchase of a neighbor’s feedlot. Because of the different planning horizons, this rancher might use two quite different beef prices in developing the budgets involved with these analyses.

The length of planning horizon affects not only values but also the process of choosing which prices and quantities to use in budgeting. For situations with longer horizons, the manager needs information, which reflects a longer time period, a broader geographical base, and a larger, more political economy.

A very short horizon dictates the use of current prices and quantities. That is, today’s or next week’s values may be used even if they are much higher or lower than what is normally expected. The very short run decision is concerned with profitability in the short run horizon.

The planning horizon for a rancher deciding which crops to grow next year is too long for him to rely on projections based only on today’s prices. This manager needs to evaluate economic and environmental factors, which may affect profitability next year. For such an intermediate term, projections, which emphasize local information from the recent past, may be sufficient.

Managers who are making investment decisions have the longest planning horizons. Obviously, brush control or establishing perennial pasture decisions involves a longer commitment of capital than annual crop decisions. Thus, the former decisions require a longer horizon. The longer the horizon the more information is needed to project prices and quantities into the future. For sizable, long-term investments, a manager may need to evaluate historical data, long run population trends, and world climatic conditions, political conditions on a regional and an international view, as well as other information.

In summary, the planning horizon affects the size and complexity of the information base that should be used by managers. As the planning horizon lengthens the sources of information need to come from farther away in time, space, and markets.

### **Economic vs. Accounting Values**

The distinction between economic and accounting values is made by considering three basic questions. First, how is the value determined? Second, how is the value allocated between enterprises? Third, is the value cash or non-cash?

The method for determining value can vary with the purpose of the budget. For accounting purposes, the actual interest rate on land loans is used to determine interest costs. The economic interest cost of landholding is the opportunity cost of the money tied up in the land. In recent years, the interest rates that could be earned in alternative much lower than the interest rates that could be earned in alternative investments. Thus, the difference between economic and accounting values related to land can be large. The choice of interest rates to be used depends on whether one wants to estimate the impact of existing loans on cash flow or to compare the return from ranching with the return alternative investments.

The method of allocation can also cause a difference between economic and accounting values. In an economic sense, the crop may be allocated only part of the interest costs on land; the rest is allocated to a land investment enterprise. This method recognized that the value of land comes from two sources: ranching and speculation. The accounting process may place the full cost of holding land on the crop because until the land is sold, the crop is the only source of revenue. However, some accounting systems may be able to allocate land costs between ranching and speculation.

The third distinction relates to the difference between cash and non-cash values discussed earlier. If the owner works on the ranch, but does not explicitly pay himself, his “pay” is a non-cash cost. An economic enterprise budget would include the owner’s implicit pay because it is a cost of production. An accounting budget may not include the owner’s pay as a cost. It might instead label the “bottom line” as the return to owner’s labor, management, and risk. Including the owner’s pay can make the analysis of the financial status of the ranch more accurate; since the owner’s labor would be cash cost if someone else performed them.

### **Allocation of Costs**

When enterprise budgets are developed for the first time, most managers will start with records for the whole ranch. By following the steps outlined below, you can allocate costs from whole ranch records to individual enterprises.

- \* Determine the costs of separate items for the whole ranch.

If your whole-ranch records are in good order, they should indicate expense figures by individual item (i.e., supplemental feed, fertilizer for Bermuda hay, etc.). If these records are not up to date or individual items should be organized before costs can be allocated to specific enterprises.

- \* Identify the enterprises on the ranch.

Most ranches grow more than one forage and/or raise more than one category of livestock. If only one forage is grown, allocation is very easy. If the ranch business involves more than one forage or livestock enterprise, these enterprises must be identified and listed.

- \* Classify the costs as direct or indirect.

The costs on the ranch can be classified as either direct or indirect. Direct costs are those costs that can be attributed to a specific enterprise. Examples of direct costs are fertilizer applied to wheat and feed fed to beef cows. Indirect costs are those costs that cannot be associated with a specific enterprise. These would include, for example, costs for a truck, which is used for several crops (or general ranch duties), and fencing, which is used for several types of livestock.

- \* Allocate the direct costs.

Direct costs are easily allocated to enterprises because they are defined as used by that enterprise directly. Bermuda harvesting costs are allocated to hay. Weed control for wheat is allocated to wheat. Veterinary expenses for cows are allocated to the cow-calf enterprise.

- \* Determine the best way to allocate indirect costs.

Indirect costs can be allocated to enterprises by determining how they are related to those enterprises. There are three main ways to allocate indirect costs:

- On the basis of resource use, knowing that some enterprises require more management than others.
- On the basis of variable cost, reflecting that high variable cost is often associated with high inputs of management and other whole ranch indirect costs like phone, accounting, etc.
- On share of gross income, kind of an ability to pay concept. Where there are mixed crop and livestock, this procedure is not very appropriate.

The key in allocation of cost is not to distort relationships so that one would be misguided in choosing between enterprises in resource allocation decisions.



## **Interpretation of Enterprise Budget Results**

While budgets are made to be used, they must be properly understood and interpreted to be used correctly. Proper interpretation of budgets requires that the manager take into account the following factors:

- The budget's original purpose.
- The sources of preliminary data and the methods of collection.
- The calculations performed on that basic data.
- The planning horizon reflected in the budget.
- The methods used to identify and separate direct and indirect costs.
- The methods used to identify cash and non-cash items.
- The cost and income components included in the budget.

These factors will determine what questions the budget can help answer, and how the budget can be used most effectively as a management tool. See appendices

## **Beef Breeding Cows Investment Analysis**

### **Objective**

How do you decide what a cow is worth? The answer is not always as simple as what you must pay for a like age and quality cow over the scale at your local auction barn. In fact, a cow is just like a machine in a factory, and as such she has both a productive value and a salvage value. She is really worth the sum of all the cash she can earn over her lifetime less all the expenses she creates, which includes her salvage value as a cull cow. As you would expect, the net cash flows the cow generate over her lifetime depends on the future prices of calves, the ranch's cost structure and the eventual salvage value of the cow. Not only does the size of the cash flows impact the value of the cow, but also because money has earning power of its own, the timing of when the cow generates income and expenses is important in determining its value.

How can the value of the cow be estimated? If we can do a reasonably good job of estimating what a cow is worth, how can we use that information? The sum of the net cash flows the cow generates that are adjusted for the time value of money is called the cow's net present value. The net present value gives you an important benchmark to use to compare with an offer from a potential buyer. For example, if the net present value that you figure for the cow is higher than the buyer's offer price, then it is economically feasible to keep the cow. However, economic and financial feasibility are not the same thing.

Economic feasibility of investing or keeping money invested in any asset (such as a brood cow) only deals with the question of whether the investment (in this case the money we have tied up in the cow) can pay itself back. Financial feasibility deals with the question of how assets that are invested in are acquired. If the investment is made using borrowed funds, then the ranch takes on debt, and if the funds for the investment are generated internally or by stock offerings, then equity capital is being used. In either method, we use to finance a cow, if she is not an economically feasible investment, she will not be a financially feasible investment.

Two types of tools are needed to calculate the economic feasibility of investment. These tools are two different kinds of budgets, the first of which is the enterprise budget that was previously demonstrated. The enterprise budgets are used to calculate the net cash flows for the cow over her expected productive life. The second tool is a capital budget. The capital budget takes the net cash flow calculated in the enterprise budget and calculates the economic feasibility of the investment. The capital budget that we are using to calculate the maximum feasible economic bid price for a cow or the net present value.

The expected value of different types of cows in a herd depends on a lot of factors that are uncertain. Because of this uncertainty, many people totally ignore planning or use of economic analysis tools and considers the time spent on planning efforts to be wasted. Granted, it is highly unlikely that the future will unfold exactly as planned. However, it should be pointed out that cattle market conditions have never been stable over any extended period of time, so expecting that current conditions will prevail for the future is unreasonable. It should also be pointed out that the result of the planning process does not have to be an exact prediction to have value.

There are no hard and fast rules of thumb that will consistently provide the best culling strategy. Given the age composition of different herds along with the different physical resources for a particular ranch, the “cull half” and “cull to pay feed” may not be nearly aggressive enough for a younger herd or may be far too aggressive for an older herd. However, the use of these tools that we have discussed can provide benchmarks to calculate what might be best to do with the hand that you as a cattle producer have been dealt. This analysis should be carried out for your particular situation, because the “right” answer depends on the cost structure for your ranch and what you expect future prices to be

## **Input**

This decision aid facilitates the calculation of what can be bid for a cow and allows the user to do "what if" analysis given alternative expectations. This financial analysis helps those considering borrowing money for the cow purchase. Both income and self-employment tax are included in this cow investment analysis. The estimates of tax implications are approximations. It's advisable to talk with a qualified tax practitioner to determine the actual tax implications.

This decision aid uses the net present value approach to investment analysis and takes into account the discount rate, or rate of return desired for the investment.

If the cow enterprise does not generate a taxable income or there is no taxable income from other sources, then tax credits would be zero. Be careful. This may lead to the IRS classifying the cow-calf enterprise as a hobby activity. Again, call on your CPA when addressing tax questions.

Take time to consider input values and be realistic about weaning weights and cow operating costs. While doing your sensitivity analysis, change the calf price and/or calf crop and watch NPV. This will show the maximum bid price based on alternative price assumptions.

## Output

Users should refer to the interpretation of results at the bottom of the reporting page. The report summarizes all of the inputs and results by year.

## Key Definitions

The net present value (NPV) procedure accounts for the time value of money (in this case a beef cow investment) that produces annual returns for several years. It reflects the earning potential of this investment that can earn for the specified discount rate. This is the economic feasibility of the investment.

The NPV of the net beef cow return would be the amount of money one would need today to earn an equal future return on investments at the specified discount rate. If the NPV is zero or greater, it is returning at least the discount rate of return. If NPV is less than zero, the investment in the cow will not generate the specified return requirement.

Discount rate is the annual rate of return required for the investment in the cow. The discount rate should be selected such that it provides a rate of return comparable to an investment of similar risk.

Internal rate of return is the discount rate that would make the net present value equal to zero.

Cow operating costs are all the costs of the cow except cow depreciation and interest, which are pulled up in the other part of the analysis. The cow calf budget can be used to calculate the operating costs.

Cow depreciation calculated in the program is consistent with the mid-year election and the five-year life following IRS procedure. The purchase basis is cow cost minus accumulated depreciation. When the cow is sold, a capital gain (loss) accounts for the difference between the salvage value and the remaining tax basis in the cow.

## Appendix A: Economic Principles and Objective of Budgeting

Management is essentially the process of solving the problem of how to allocate available resources to meet the goals of the business. All problems of resource use involve one or more of three fundamental economic principles. They are discussed more fully in the following sections, but briefly, these principles are:

- \* Increase the use of an input as long as the value of the added output or income is greater than the added cost.

- \* Substitute one input for another input as long as the cost of the substituted input is less than the cost of the input, which is replaced, and the level of production is maintained. This substitution can be a complete replacement or simply a change in the mix of products.
- \* Substitute one product for another product as long as the value of the new product is greater than the value of the product it replaced and the total cost is constant. This substitution can also be a complete replacement or a change in the mix of products.

These principles would be sufficient for all planning if the manager has unlimited resources and perfect knowledge. Since this is not the case, three additional ideas must be introduced as aids to the decision-making process:

- \* If resources are limited, use each unit of resource where it will give the greatest returns and the value added by the last unit of the resource is the same for each of its alternative uses.
- \* When alternative choices involve different time periods, compare the alternatives on the basis of the present value of the resulting cash flows. In otherwise, take into account the time value of money.
- \* When risk and uncertainty cloud predictions, different levels of prices, costs, and yields should be used to evaluate the potential variation in expected income and cash flow of alternatives being considered.

The planning and budgeting process described in this manual incorporate these economic principles by searching for basic data and information and compiling that information into budget reports for decision-making.

### **The Law of Diminishing Returns**

Keeping in mind the physical law of diminishing return is helpful when thinking of what can be expected from the use of additional levels of production inputs. The physical law states, “as successive amounts of the variable inputs are combined with a fixed input in a production process, the total product will increase, reach a maximum, and eventually decline.” This physical relationship explaining why, unless an input is free it is not profitable to maximize production, as the last unit of input will not increase output enough to pay the added cost. This law is easily observed in agricultural production in examples as when more nitrogen is applied to pastures, more irrigation water is used and cattle are fattened to heavier weights.

### **Objective of Budgeting**

There are a few statements that summarize why cow-calf producers should learn to do their own projections and evaluations including:

- \* There is no agriculture enterprise subsidized more by non-ranch earnings than the Cow-calf enterprise. As a result, cow-calf producers subsidize the profits of input suppliers.

- \* Managing for performance requires measuring performance.
- \* Cash costs, out-of-pocket costs, and IRS costs do not measure production costs. Do not be fooled by these incomplete numbers.
- \* Do not bet on the team when you are sitting with the cheerleaders. Few enterprises have so many cheerleaders helping convince producers to buy more inputs.
- \* Cow-calf producers frequently start custom feeding with the money, the custom feeder the knowledge. After the cattle are fed, the custom feeder has the money, the cow-calf producer the knowledge.
- \* The Golden Rule – Those who have the gold make the rules. Cow- calf producers do not have the market power. They must focus on being low cost, productive producers.

Planning and budgeting does not insure financial success, but it does provide for more informed decisions.

### **Appendix B: Using Cost Calculation and Information to Reduce Cost**

Experience using the Standardized Performance Analysis (SPA) system, has pointed out the opportunities for reducing cost of production:

- Know your cost of production and update cost calculations in a timely manner.
- Express numbers on a per breeding cow and per cwt. of calf weaned basis so the values serve as reference points (i.e. turn cost data into meaningful management decision information).
- Anticipate in advance what costs should be - plan for cost control.
- Analyze cost by exception - identify either extraordinarily large or small cost items for cost control or expenditure opportunities.
- Clearly identify which costs can be managed.
- When deciding to reduce cost, determine whether or not the reduced cost results in a greater reduction in revenue.
- When increasing expenditures, determine if the added cost will be covered by added revenue.
- Insure that meaningful decision and performance evaluation information gets back to those who generate data. All employees need to see performance information. Everyone needs to provide ideas on how costs can be reduced.
- Budget for a profit on the basis of a complete cost of production including indirect or overhead costs.

- Market for a profit including a return to owner management and labor, not just a direct cattle and feed cost breakeven.
- Monitor cattle markets carefully and budget marketing alternatives frequently.
- Develop marketing alliances and merchandise cattle to bring the top dollar by evaluating all market alternatives.
- Invest in profitable assets and technologies. Eliminate assets that do not provide for profitable returns.
- To minimize input cost, use volume and seasonal discounts.
- Make investments on a financially sound basis. Do not invest for the sole purpose of reducing taxes. It seldom makes financial sense to spend a dollar to save 28 or 32 cents in taxes.
- Remember, if you are not paying IRS income taxes there is a good chance that your business is not profitable. After-tax, profitability keeps you in business.
- Find ways to empower your employees to increase their participation in decisions and be more accountable to business objectives.
- Work on communication with everyone in the business. Written, accurate, and timely summary information are most likely to be used.
- Make decisions based on your information and analysis not on emotions or others opinions.
- Record and monitor supplemental feed use and cow condition scores.
- Prepare accrual adjusted income statements (i.e., cash income and expense plus adjustments for inventory changes, prepaid expenses, accounts payable, and accounts receivable) to measure the business profitability.
- Develop written business goals, project financial statements and cash flows to achieve these goals. Update these plans annually, at least.
- Execution of the plan is the key - it is getting things done right and on time.
- Evaluate cash withdrawals from the business for family living or other activities. Answer the question - Can the business equity be sustained at the level of current and projected withdrawals?

- Challenge researchers, extension, private firms, and consultants to provide sound economic evaluations of their proposed changes in technologies and management practices.
- Specific target areas for reducing cost of production include:
- Supplemental feed cost - make sure the nutrition program is correct for cows of different condition and reduce feed waste.
- Determine your cost of raised feed - often it is cheaper to buy than raise your own.
- Improve the efficiency of the grazing system, as this is a low cost feed source.
- Sell unnecessary machinery and vehicles. The proceeds from the sale can be used in a variety of productive ways including the purchase of more efficient equipment or the reduction of debt.
- Find ways to reduce operating expenses of vehicles.
- Plan vehicle use to minimize mileage. A log book can be cost effective.
- Review all insurance policies to insure coverage is at the lowest cost.
- Check your depreciation schedule - Is it complete and accurate?
- Spend extra money on your CPA services to receive managerial financial statements. Your tax forms do not provide an accurate measure of profitability for the business.
- Spend time with your CPA to review your managerial financial statements and your tax management efforts.
- Summarize your historical financial statements. See if better interest rates can be attained from a different lender with your documented financial track record.
- Review the cattle health management program with a veterinarian that understands the production and economics of your business.
- Review overhead costs - see what expenditures are really necessary.
- Keep the tax appraiser informed and do not avoid the opportunity to argue your property valuations.

## Understanding Profit

Be very cautious when using reported breakevens, net income, and profit projections. Frequently breakevens do not include all costs and profit values over state true financial profitability. Developers of these values often ignore self-employment and income taxes, returns to management and labor, and overhead costs. Truly profitable enterprises provide retained earnings that can be used for savings, capital investments, or to reduce debts after all costs are accounted for. Always question what is included in cost and income reports or projections.

The NCBA Standardized Performance Analysis (SPA) Committee recommended that cost include both direct and indirect financial costs. Indirect costs, like overhead and owner operator management, are shared by all enterprises. A return to operator management and labor is included in cost at a level equivalent to the salary required to hire a non-family member to provide an equivalent service. Profit is calculated after accounting for taxes. It is the net after tax profit that pays living and other withdrawals, debts, and adds to savings.

A business must be profitable to survive financially, that is maintaining quality. In fact, the only way a business can survive without profit is if outside earnings or gifts are contributed to the business.

Competitiveness is measured by the ability of a business to produce and market a commodity and generate a profit. A competitive business generates after tax profits.

The financial progress of a business is measured in terms of the change in the business equity (assets - liabilities) or the difference between the total assets of the business and what is owned by the business (liabilities). Equity change is determined by preparing the business or enterprises beginning and ending balance sheet, accrual adjusted income statement, and statement of owner equity. Determine change in equity annually if you are in the cattle business or not. Is your business adding to equity or using equity to stay in business?

All businesses have different cost of production so you must develop your own numbers. Do not rely on someone else's numbers because in the cattle industry the numbers most frequently under estimate cost and overestimate profit. Become a better business manager by using your own information to face your reality.



## Appendix C: Definitions and Clarifications of Terms for Cow-Calf Budget

### Production Coefficients

Number of Breeding Cows In Herd (Hd.) - The size of the cow-calf enterprise is measured in terms of the number of breeding cows shown on the beginning of the fiscal year balance sheet, where breeding cows include all mature females and heifers of breeding age that have the potential to calve and wean the calf during the fiscal year.

Percent Calf Crop (%) - Also known as calving percentage, this is the number of females carrying a calf full term (until weaning) expressed as a percentage of exposed females. (Ex. “A projection of 83.5% of cows exposed will wean a calf).

Replacement Rate of Cows/Heifers (%) - The replacement rate is measured in terms of total exposed females. The numerator, which is the number of cows exposed for breeding that are either purchased or transferred-in female breeding animals (both heifers and mature cows). And the denominator is the total exposed females. **Note:** Exposed female numbers should include all replacement heifers as well as adult breeding cows. Female numbers should not be adjusted for death loss.  $(\# \text{ of replacement cattle} / \text{ total exposed females}) * 100$

Portion of Replacement Heifers Culled Before Breeding (%) - These are replacement heifers sold for slaughter or breeding to another operation before they are given a chance to breed due to the fact that they didn't meet certain standards, either in size, or body condition.  $(\text{Number of replacement heifers culled and sold before breeding} / \text{ total number of exposed females}) * 100$

Portion of Replacement Cows Purchased (%) - Out of the replacement cattle exposed into the herd, this number reflects what percentage is purchased (instead of raised).  $(\text{Replacement cows purchased} / \text{ total number of replacement cattle in the herd} - \text{ raised and purchased}) * 100$

Death Rate of Breeding Cows (%) - Also known as the total death loss of, this is expressed as a percentage of the total exposed females.  $(\text{Number of deaths in breeding herd} / \text{ total number of exposed females}) * 100$

Death Rate of Replacement Heifers Before Breeding (%) -  $(\text{Number of deaths of replacement heifers who died before breeding} / \text{ total number of exposed females}) * 100$

Average Age at Weaning (Mo.) - This is the average age, in months, that the calves were at weaning.  $(\text{Sum of the age in months of all calves at weaning} / \text{ total number of calves at weaning})$

Average Calving Age of Replacement Heifers (Mo.) - Average age, in months, that the replacement heifers were at calving.  $(\text{Sum of the age in months of all replacement heifers at calving} / \text{ total number of replacement heifers at calving})$

Number of Breeding Cows per Bull (Hd.) - Number of exposed females that each Bull is exposed to.

Useful Life of Bull (Yrs.) - How many years a bull will be exposed to a herd.

Number of Breeding Cows per Horse (Hd.) - The number of cows that a horse is used to work. (Ex. One horse per 150 hd. of cattle)

Useful Life of Horse (Yrs.) - Number of years a horse will be used to work cattle. (Ex. We will work a horse 10 years on cattle)

Payweight of Culled Bulls (Lb. /Hd.) - The weight on average of your culled bulls. (Total weight of all culled bulls sold / total number of culled bulls sold)

Sale Price of Cull Bulls (\$/Cwt.) - Amount per hundredweight that can be received for a cull bull.

Horse Salvage Value (\$/Hd.) - Amount that can be received for a retired or “fully depreciated” horse.

### **Capital Investment in Livestock**

**\*\*\* All these values should be found on the business' Balance Sheet**

Replacement Heifers Weaning to 1 Year (\$/Hd.) - Average amount invested in replacement heifers up to one year old. (Total dollar amount invested replacement heifers (weaning to 1 yr. old / total number of replacement heifers (weaning to 1 yr. old))

Replacement Heifers One Year to Breeding Age (\$/Hd.) - Average amount invested in replacement heifers one year to breeding age. (Total dollar amount invested replacement heifers (1 yr. old to breeding age / total number of replacement heifers (1 yr. old to breeding age))

Average Breeding Cow Value (\$/Hd.) - Average amount invested in breeding cows. (Total dollar amount invested in breeding cows / total number of breeding cows)

Cost of Purchased Breeding Cow or Pair (\$/Hd.) - Average cost of purchased breeding cows. (Total dollar amount invested in purchased breeding cows / total number of purchased breeding cows)

Average Bull Investment Value (\$/Hd.) - Average amount invested in bulls. (Total dollar amount invested in bulls / total number of bulls)

Average Horse Investment Value (\$/Hd.) - Average amount invested in horses. (Total dollar amount invested in breeding horses / total number of horses)

Percent of Livestock Investment Borrowed (%) - From the Balance Sheet- The percentage of investment in livestock that is financed through borrowing.

Interest Rate on Borrowed Livestock Capital (%) - From the Balance Sheet- Interest rate for loans used toward livestock purchases.

## Animal Unit Equivalents

**Animal Unit** - Is defined as the value placed on different categories of livestock to reflect their nutritional requirements relative to a breeding cow and calf, which is equal to one A.U.

University of Nebraska Lincoln (UNL) recommendation to calculate Animal Unit Equivalent or AU  
For all classes of cattle - AU is Average Weight divided by 1,000. For example a 1,200 dry cow would be 1.2 AU.

### CATTLE

Weaned calves to yearlings	500-800	0.65 animal unit
Mature cows	1,100 with unweaned calves at side	1.4 animal unit
Bulls (2 years and over)	1,700	1.7 animal units
HORSES <sup>10</sup>	Full Grown Horse	1.5 animal units

## References

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