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extension economics report

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COW CALF - PLUS : A Computer Decision Tool for Cattlemen to Improve Production Decisions

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TABLE OF CONTENTS

1. Introduction.....	02
2. Using Cow Calf – Plus.....	03
3. Breakeven Analysis.....	12
4. Sensitivity Analysis.....	13
5. Comparing Enterprises using Graphs.....	14
6. Conclusion.....	15

1. Introduction

Allocating resources for a farm operation is not an easy task and is getting even more complicated because of multiple alternatives that become available year round. Cow-Calf operators are required to make sound decisions when implementing a cattle operation. These decisions cannot set aside marginal costs that are hidden to a certain extent behind operational mannerisms that most farmers are not willing to give up. So, it is necessary that a new kind of attitude emerge in order for cow-calf operations to become more viable.

Enterprise Budgeting is an efficient approach to help producers address potential production practices and returns. **Cow-Calf Plus** was developed to provide cow-calf operators with a more accurate and automated way to evaluate the operational and financial results of the current and potential operation. The more this tool is exploited, the more solutions one should be able to come up with when critical problems arise. It is critical to making better operational decisions in today's economic condition. Profit margins have been compressed by higher input costs, lower output prices, increased labor costs, globalization, and greater number of large operations. Keeping abreast of today's operation cost structure is fundamental to making these complex and extremely important business decisions.

A manager is the one who should know how to plan, organize, lead, control and facilitate. Planning should be the most critical component of one's managerial skills. Cow-Calf Plus was created to help managers plan for a most profitable operation. The size of the operation can be modified as well as costs and yields. Higher costs are automatically incurred when larger operations are desired and the most cost-effective operations might be compared to one another when properly submitted. The process of submitting a particular operation for subsequent use will be explained in details later in this report. Cow-Calf Plus also allows for breakeven and sensitivity analysis of most preferred operations. So, by using this tool, one should be able to make better predictions about the farm business operation profitability under different steer calf prices and weights.

In order to download Cow-Calf Plus, the user needs a computer with Internet capabilities and a web browser such as Netscape or Internet Explorer. For downloading this program, the user must check the following web address: <http://cherokee.agecon.clemson.edu/extindex.htm>. The user can save or open the extension software application **CowCalf_Plus.xls** on to his or her computer. Microsoft Excel® and approximately one megabyte of available disk free space are required.

2. Using Cow Calf – Plus

This program intends to give farm operators some insight on how to plan a cow calf operation. To understand how to operate CowCalf_Plus, one must think of a mailbox. When *submitting* a Cow Calf operation, one is putting a letter into a mailbox. There are 30 mailboxes with one letter each. Then, each mailbox will contain a distinct cow calf operation (the letter). A cow calf operation is in reality a budget. So, the system will store from budget1 to budget30. In other words, the user can create 30 cow calf operations to be economically compared when it is appropriate.

When using the *Delete* button though, the user will be clearing all the mailboxes. After that, he or she can start filling the mailboxes again starting from mailbox1 (budget1). By using the *Data Analysis* button, one can see all 30 cow-calf operations, also known as budgets. On that screen, when clicking the number that appears on column A, referring to the number of the budget, the user will be able to see the budget he or she has submitted, saved previously. The budgets that appear on the *Data Analysis* screen should remain in the program until the *Delete* button is clicked. To finish, in order to compare all stored budgets, the user should click the button *Graphs*. From there on, the user should be able to know which cow calf operation brings the best financial results.

It may sound confusing to you, but everything will be cleared up in the coming sections. The program consists of the following parts:

a) Cow Calf

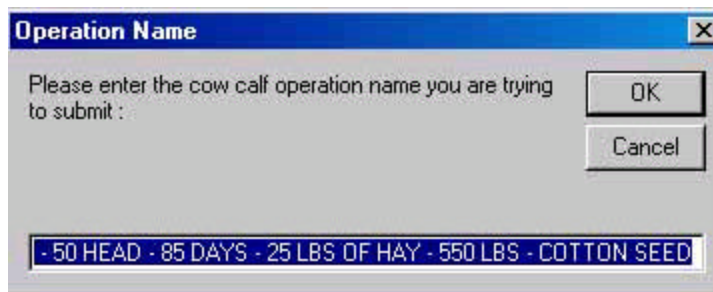
This part of the program refers to the cow calf data input section that the user should mostly be working on. Several buttons at the top of the screen were designed to help the user navigate through the screen. Users are not required to use these buttons if they are used to dealing with the several components of an enterprise budget and know how to use the Excel® scroll bar button on the right side of the screen. Even for the most spreadsheet experts, though, these buttons should be helpful. The buttons on the right side of the screen are the same as the main menu buttons, such as *Data Analysis*, *Graphs*, *Delete*, *Menu* and *Cow Calf*. The *Menu* button returns to the main menu.

The format used in this program is the same as the Clemson Beef Cattle budget format. First section, the **Top** section, is comprised of all the information about the size and major characteristics of the operation. Second section, **Receipts** section, deals with the operation income. The third section, **Variable Costs**, deals with the costs that are incurred only if production takes place. Most of the costs involved in this section are dependent on production levels and the size of the cow calf operation. The fourth section, **Fixed Costs**, consists of those costs that are incurred regardless of whether production occurs or not. These costs are considered to be "fixed" because they generally remain the same within a

production period and do not vary with output. Other costs are also displayed along with fixed costs in this section, but they are not related to each other. The fifth section, the **Breakeven** section, describes a situation in which either steer/heifer selling prices or steer/heifer selling weights would supposedly be sufficient to cover costs and result in zero profit (the break-even point). The formula of breakeven price is cost divided by weight, and breakeven weight is cost divided by unit price. The buttons on the right hand side of this section will give access to the breakeven analysis graphs. More detailed information about these graphs will be presented in subsequent chapter. The **Operation** section, the sixth section, consists of estimated facility and equipment costs along with other operational costs. The seventh and last section, the **Returns** section, allows the producer to gain a better understanding about potential returns (IAVC) when prices and weights are adjusted higher and lower than the assumed figures. Also, the user should be able to access the two sensitivity analysis graphs by clicking the buttons on the right. A description of each section and components of the cow calf screen is displayed below:

i. **Submit**

The **Submit** button will create a copy of the current, modified budget into the program. There are spaces available for 30 submissions only. As previously stated, the cow calf operations will be named Budget1, Budget2, Budget3, and so on. The user must carefully name each of his or her operation accordingly for subsequent identification through the text box that will pop up on the screen. Also, it is important that users do not click the submit button if they do not intend to compare the recent operation with the others previously stored. To review all submitted budgets, the user should access the *Data Analysis* screen. See below the pop-up dialog box:



ii. **Top**

This segment of the program starts with the name of the operation displayed at the first line with yellow background below the seven section buttons. The name identifies important aspects of the operation and should help distinguish one cow calf operation from the others. The more details the name possesses, the better for users to identify the operation. It is implicit that the blue-colored digits can be manipulated by the user. White-colored digits are formulas that cannot be changed.

The user should notice that the information available in this section describes the type of operation he or she is trying to create. The input cells that users can manipulate in this section are: herd size, acres in hay, available farmland, spring calf crop percentage, cull cows percentage, number of acres per cow, labor hours per cow, days on hay and supplements, number of pounds of hay per cow/day, number of pounds of two other feed supplements per cow/day (these two supplements are associated with the supplements described in the variable costs), steer selling weight, heifer weight discount, and cull cow weight. The manipulation of those input cells will generate a great impact on all costs involved in the operation. Also, these manipulations will change the values of some formula cells that are displayed on the left hand side of this same section. For example:

Input cells	Formula cells
<u>Herd size (Cell G4):</u>	number of acres in forage (Cell C4)
	number of steers sold (Cell C5)
	number of heifers sold (Cell C6)
	number of culls sold (Cell C7),
	number of deaths (Cell C8)
	percent of steers sold per cow (Cell C9)
	percent of heifers sold per cow (Cell C10)
	excess hay sold on herd (Cell C11)
<u>Acres in hay (Cell G5):</u>	excess hay sold on herd (Cell C11)
<u>Spring calf crop (Cell G7):</u>	number of steers sold (Cell C5)
	number of heifers sold (Cell C6)
	number of culls sold (Cell C7)
	number of deaths (Cell C8)
	percent of steers sold per cow (Cell C9)
	percent of heifers sold per cow (Cell C10)
<u>Cull cows (Cell G8):</u>	number of heifers sold (Cell C6)
	number of culls sold (Cell C7)
	percent of heifers sold per cow (Cell C10)
<u>Number of acres per cow (Cell G9)</u>	number of acres in forage (Cell C4)
<u>Days on hay and supplements (Cell G11)</u>	excess hay sold on herd (Cell C11)
<u>Lbs. on hay (Cell G12)</u>	excess hay sold on herd (Cell C11)

The purpose of this report is not to provide the user with understanding of all the cell formulas, but to help him or her operate this program. Manipulation of some of the data should be done in accordance with sound production practices. For instance, if available farmland is only 100 acres whereas “acres in forage” required for the chosen operation size is about 1000, it will be necessary additional rented land of over 900 acres. Renting additional land is costly. So, users must be sure about the combination of these input data in order to maximize profits. The *Top* screen is displayed below:

BERMUDAGRASS - 50 HEAD - 85 DAYS - 25 LBS OF HAY - 550 LBS - COTTON SEED					
ACRES IN FORAGE	100.00		HERD SIZE	50	HEAD
STEERS SOLD (60%)	24.00	HEAD	ACRES IN HAY:	20	ACRES
HEIFERS SOLD (33%)	15.00	HEAD	AVAILABLE FARMLAND:	120	ACRES
CULLS SOLD (17%)	8.00	HEAD	SPRING CALF CROP:	95.0%	ALL BLUE-COLORED DIGITS CAN BE CHANGED.
DEATHS:	3.00	HEAD	CULL COWS:	15.0%	
STEERS SOLD PER COW:	48.0%		NUMBER OF ACRES/COW:	2.00	ACRES
HEIFER SOLD PER COW:	30.0%		LABOR PER COW:	4	HRS/COW
EXCESS HAY SOLD ON HERD:	6.88	TON	DAYS ON HAY & SUPPL:	85	DAYS
STEER SELLING WEIGHT:	550.00	LBS	LBS. OF HAY:	25.00	COW/DAY
HEIFER WEIGHT DISCOUNT:	30.00	LBS	LBS. OF COTTON SEED:	5.00	COW/DAY @
CULL COW WEIGHT:	1000.00	LBS	LBS. OF SOYBEAN HULL:	5.25	COW/DAY @

iii. Receipts

This portion of the program indicates the four types of income that the farmer should be able to generate from the selected operation. The first income, *Steer Calf*, represents the total of receipts the farmer should earn from the birth of a certain percentage of steers under a declared selling weight. Based on the formulas at the *Top* section, 48 percent of the calf crop should be steer calf. The second income, *Heifer Calf*, is based on the number of heifers born and on the heifer selling weight, which is calculated by applying a certain discount to the steer weight at the *Top* screen. Usually, heifer’s weight is lower than steer’s weight. Accordingly, the user should be encouraged to changing the *heifer weight discount* to the level that best suits his or her current operation. The third income, *Cull Cows*, refers to the number of cull cows sold for replacement. The user should be able to manage the cull cow weight along with the percentage of cull cows he or she wants to replace out of the calf crop. Based on the screen above, 8 cull cows will be sold which represents 15 percent of the calf crop (95 percent of the herd, assuming 5 percent of deaths). The last income, *Excess Hay Sold*, represents the extra hay in tons that was not consumed by the herd. The formula for calculating this variable takes into account the herd size, the number of acres in hay and the number of days the herd will consume the hay and supplements. Based on the previous screen this number is 6.88. The screen below, depicting the *Receipts* section, displays the total of 0.138 tons per cow since there is a need for calculating receipts per cow unit. In the example below, the farm operation will generate \$477.15 of income per cow unit.

GROSS RECEIPTS					
STEER CALF	LBS	660.00	\$1.08	\$285.12	\$14,258.00
HEIFER CALF	LBS	620.00	\$0.78	\$121.68	\$6,084.00
CULL COWS	LBS	1000.00	\$0.40	\$80.00	\$3,000.00
EXCESS HAY SOLD	TON	0.138	\$75.00	\$10.35	\$517.50
TOTAL RECEIPTS:				\$477.15	\$23,857.50

iv. Variable Costs

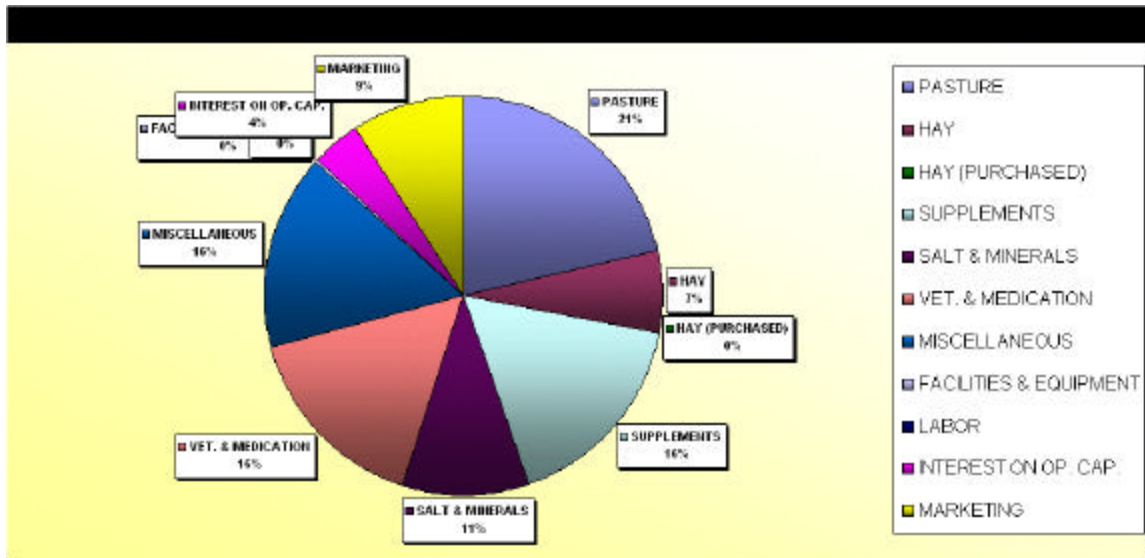
Variable costs are the out-of-pocket costs of producing the animals. These costs include charges for pasture maintenance such as fertilizer and lime, supplemental hay and feed, veterinary costs, fence maintenance, labor, etc. Costs are typically associated with the production and maintenance of beef cattle for different time periods, 6 months or 1 year. Most of the costs involved in this section are dependent on the quality of the grass and feeding rates. To address this important issue, the user will be able to select a variety of grasses for grazing and hay from the forage budget screen that can be accessed through the button "Find Forage Crop Number" on the right hand side of the screen. All costs of the forage screen can be changed at the user's discretion. The existing costs and yields were brought from Clemson Extension enterprise budgets. Purchase hay will come into view only if there is not enough grassland (acres in hay) for producing all the hay consumed by the herd. In this case, excess hay is negative and zero income is generated from it. Four additional supplements can be combined with hay. The first two supplements are associated with the feeding rates recorded at the *Top* section and are measured by hundredweights. The two other supplements are treated on a per head basis.

Hired labor is treated as a variable cost. The user must figure out the number of hours that are associated with utilizing hired labor for raising one cow unit. The default number for labor per cow is four hours and located at the *Top* section. However, the program will add this value to the costs only if the herd size exceeds a minimum number of cows established by the farm operator. This variable is located at the *Breakeven* section.

It is assumed that all funds required for the semi-annual production are borrowed. The interest rate is assumed to be nine percent for six months. If working capital is to be provided by the farmer, there is no need for borrowing money and percentage must be substituted for zero. All the assumptions made previously can be altered at the user's discretion. For example, some farmers will have their calves delivered at the buyer's expense so that he or she should not incur costs related to shrinking on calves. The same principle applies to sales commission when there is no intermediary (middle-man) involved in the sales event.

In order for the user to have a more detailed picture of these costs, a graph was designed to exhibit the percentage distribution of all variable costs. This graph can be seen by means of clicking the button "Variable Cost Distribution" on the

right hand side of the screen. Some of the variable cost categories were grouped together to help improve the analysis, view of the distribution. For example, all costs associated with feed supplements were grouped into the category “supplements” and all marketing costs were grouped into “marketing.” This graph is displayed as follows:



v. Fixed Costs & Other Costs

Fixed costs are the expenses that are not directly applicable to each animal but are incurred by the business whether or not any animals are produced or sold. Examples of fixed costs are: depreciation of equipment and facilities, interest on the owner’s investment, insurance, and facility maintenance and repair. Farmers do not write checks for depreciation, but equipment and facilities wear out or become obsolete and must be replaced. Depreciation categories include allowances for herd ownership, equipment, fencing, and pasture establishment. This segment is also known as “cow operation” and is available for adjustments and modifications at the section/button *Operation*.

The establishment cost is amortized over the expected life of the forage crop and is included in the maintenance forage budget as a fixed cost. Expected life of the forage crop is assumed to be 10 years. Establishment costs from all crops, both hay and grazing, are included into the “Machinery and Pro Estab Cost” category (Machinery and Pro-rated Establishment Cost). The user will find all these costs on the forage budget screen as it was mentioned early. However, it is fundamental that he or she examine these costs carefully as they apply to the farm operation.

Additional land is used just in case the farmer requires to rent extra land to produce the projected number of animals. Ownership cost is also listed as a reminder that there is an “opportunity charge” associated with the use of pasture.

If animals were not grazing this land, it could be rented or sold and the money invested. A general farm overhead cost of 8 percent of total variable costs is also included. This is a "catch-all" cost including telephone, utilities and contingencies. This item is designed to handle expenses that are not easily allocated to the animal.

vi. **Breakeven**

The first half of the table, on the left side, provides the user with the breakeven steer and heifer selling weight needed to pay for all variable costs or total costs. For example, if the user were to cover only the variable costs of his or her cow calf operation, it would be necessary a steer selling weight of about 449 lbs and a heifer selling weight of 419 lbs, keeping all the other variables constant. This is good information for helping making production decisions.

The second half of the table, on the right side, relates to the breakeven steer calf and heifer selling prices needed to cover all variable costs or total costs. For example, in order to pay for all costs involved in the operation it would be required that steer calf price be \$1.65 per lb and heifer calf price be \$1.19 per lb while all other costs stay constant. Price plays a major role in marketing decisions and this might be the missing information needed for devising a price strategy that deals with market uncertainty. See table below:

BERMUDAGRASS - 50 HEAD - 85 DAYS - 25 LBS OF HAY - 550 LBS - COTTON SEED				
	BREAK-EVEN QUANTITY (LBS)		BREAK-EVEN PRICE (\$/LBS)	
	Per Steer	Per Heifer	Per Steer	Per Heifer
VARIABLE COSTS	449	419	\$0.86	\$0.64
TOTAL COSTS	836	806	\$1.65	\$1.19

vii. **Operation**

The upper part of this table refers to the facilities and equipment that should be available to run the cow calf operation described at the *Top* section. The size of the facilities and quantity of equipment must reflect the size of the cow calf operation in terms of herd size and acreage. Even though fencing has been estimated on a per acre basis and is associated with the number of acres in forage, the other two categories should be estimated according to the number of cows, bulls, calves, labor, and available farmland. The number of years from each category will be used for calculating depreciation.

The lower part of this table is associated with the initial expenditure in animals that the farm operator should make in order to set up the cow calf operation. As a new investment, one should purchase brood cows, bulls, and some replacement heifers to anticipate for later disposal. But, managers may not agree with some of the assumptions made and should feel free to change their values. For example, if a farmer bought some bulls before and now decided to run a cow calf operation and make use of those bulls as part of the operation, he or she should substitute

the current bull unit value for zero. By doing this, all costs associated with buying one or more bulls should be eliminated. Also, the number of bulls is based on the number of cows per bull to be used. Number of cows per bull can be changed at the upper right hand side of this section.

viii. **Returns**

Before tapping into the *Returns* section, a brief explanation of the existing financial returns will be given. Returns reveal the profitability of the enterprise. Two types of results are calculated: Income Above Variable Costs and Net Returns to Risk and Management. They are mostly used to evaluate the financial efficiency of allocating selected production units into the beef cattle operations. Allocation of resources will vary among location, size of operation, technology adoption, financial condition, and enterprises. For that reason, each farm operation should focus on the best combination that applies to its current situation. See below the definitions:

a) *Income Above Variable Costs (IAVC)*: Gross Receipts minus Total Variable Costs. This figure estimates the beef cattle operations' income above the operating expenditures. It is normally used to represent the financial gains of the enterprise. IAVC is, incorrectly but frequently, called profit by many managers.

b) *Net Returns to Risk and Management* is the normal stopping point in the construction of most budgets. Purchased inputs and owned resources have been paid. This figure is sometimes referred to as profit; however, it is more correct to call it a return to all resource costs except management. If the figure is positive, the producer will be rewarded for his management efforts and the entrepreneurial risk he has taken. This is the figure that management should use to make decisions and compare alternatives.

The returns displayed in this section refer to IAVC. This section table allows the producer to gain a better understanding about potential returns when steer calf selling prices and weights are adjusted higher and lower than the assumed figures. This information will help the producer evaluate the risk involved in undertaking the cow-calf enterprise. The table is shown below:

INCOME ABOVE VARIABLE COSTS FOR DIFFERENT CALF PURCHASE PRICES AND STEER SELLING WEIGHT					
STEER SELLING WEIGHT	STEER SALE PRICE (\$/LBS)				
	\$0.92	\$1.00	\$1.08	\$1.16	\$1.24
500	-\$0.18	\$18.44	\$37.06	\$55.68	\$74.31
525	\$16.20	\$35.76	\$55.31	\$74.97	\$94.42
550	\$32.59	\$53.07	\$73.56	\$94.04	\$114.53
575	\$48.97	\$70.39	\$91.90	\$113.22	\$134.64
600	\$65.35	\$87.70	\$110.05	\$132.40	\$154.74

b) Data Analysis

This screen was developed to help users review all the submitted budgets. Budget numbers are located in the first column. Clicking on the budget number will cause the program to open the budget. Once the budget is stored it stays the same as long as nobody changes it. So, it is possible to make corrections in a budget that has already been submitted without having an effect on the master budget or the subsequent budgets. But, the master budget is the screen with which the user must be working on to create new budgets. Besides, buttons on the right hand side of any submitted budget will lead to information regarding the master budget only. To return to *Data Analysis* from any submitted budget, click "Back."

The *Data Analysis* screen also summarizes the information contained in the submitted budgets. It displays, in addition to the budget number, the name of the cow calf operation, total income (gross receipts), total variable costs, income above variable costs (IAVC), total fixed costs, net return to risk and management, net profit margin (NPM), operating profit margin (OPM), and difference in net profit margin between the first submitted budget and subsequent budgets. This screen allows for 30 budgets only.

c) Graphs

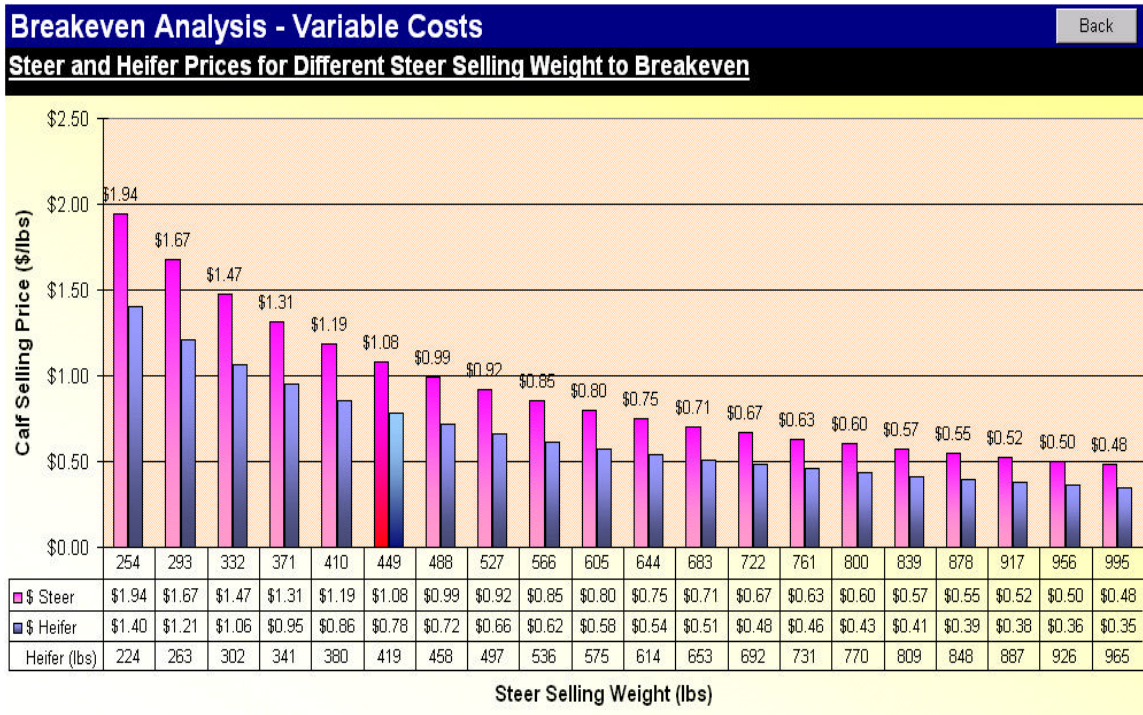
This section was primarily designed for helping users analyze profit potentials among submitted enterprise budgets. *Data analysis* provides the same information as the one included in these graphs. However, graphs allow for a more distinct understanding of the financial returns when evaluating the 30 submitted enterprise budgets. Also, they point out the best cow calf operation in terms of the financial return under discussion. Four graphs were designed to depict four important returns that can be drawn from the budgets: Net Profit Margin (NPM), Net Return to Risk and Management, Operating Profit Margin (OPM), and Income Above Variable Costs (IAVC). More detailed information about each of these graphs will be given in chapter 5.

d) Delete

The *Delete* button removes all enterprise budgets that appear on the *Data Analysis* screen. Accordingly, the graphs will be cleared as well. Dialog boxes will appear on the screen for confirmation. The user must sign positively to each question posed on the dialog box by clicking OK. It is expected to appear as many dialog boxes for user's confirmation as the number of submitted budgets that exist in the *Data Analysis* screen list. Clicking "Cancel" will not cause the program neither to advance nor to back up. On the contrary, it will cause the program to stay idle until the OK button is clicked. Once the *Delete* button is pushed, it is not possible to reverse the deleting process.

3. Breakeven Analysis

Unpredictable marketing conditions account for changes in steer and heifer selling prices. To assist producers with valuable information regarding production/price strategy decisions, CowCalf Plus includes a graphic instrument to help evaluate price structure for different weight levels at several breakeven points. The user can access this graph from the *Breakeven* section. Two square buttons are located on the right hand side of the screen: breakeven analysis to cover variable costs and breakeven analysis to cover total costs. See chart below:

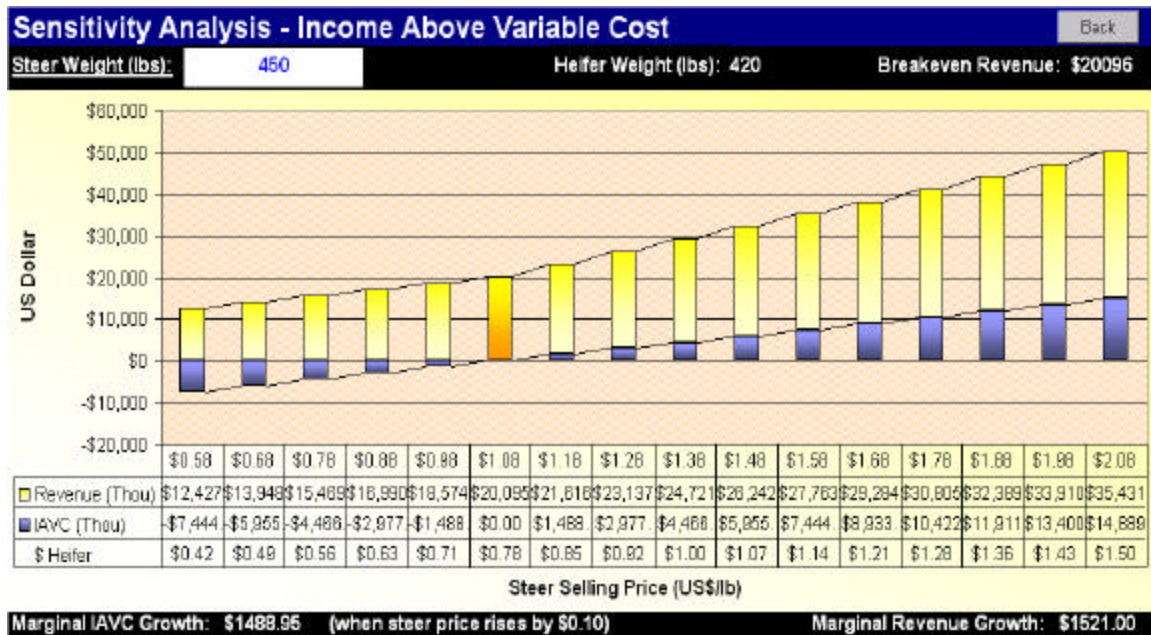


This chart depicts the breakeven points where producers would like to be if the cow calf operation were to cover variable costs only. Pink bars refer to steer calf selling prices and blue bars to heifer calf selling prices. Each pair identifies a breakeven point wherein selling prices and weights are combined to display a range of breakeven possibilities. The red-marked bar represents the current budget breakeven point. At that point, where prices are \$1.08 for steers and \$.78 for heifers, it is necessary that selling weights be approximately 449 lbs for steers and 419 lbs for heifers to pay for all variable costs and achieve zero operating profit margin.

Further analysis should help farmers decide on whether to become more cautious about improving production practices or not. For example, if steer prices are reduced to \$0.75, steer weight should be raised to approximately 644 lbs to breakeven. On the other hand, it would be required that steer selling price increase to nearly \$1.19 in order to breakeven at the 410 lb production level.

4. Sensitivity Analysis

In this scenario, sensitivity analysis is a chart used to determine the different outcomes in terms of revenue and IAVC (or Net Return) when prices and weights are altered. The sensitivity aspect of this chart is explained by a relatively large change in revenues and IAVC (or Net Return) when a small change in prices takes place. The greater the marginal growth, the larger the sensitivity to prices. The marginal growth rates are displayed at the bottom of the screen. Two separate sensitivity charts were designed: one containing IAVC and another one containing Net Returns. Both charts include revenues. Breakeven revenue is displayed at the upper right corner of the screen. See chart below:

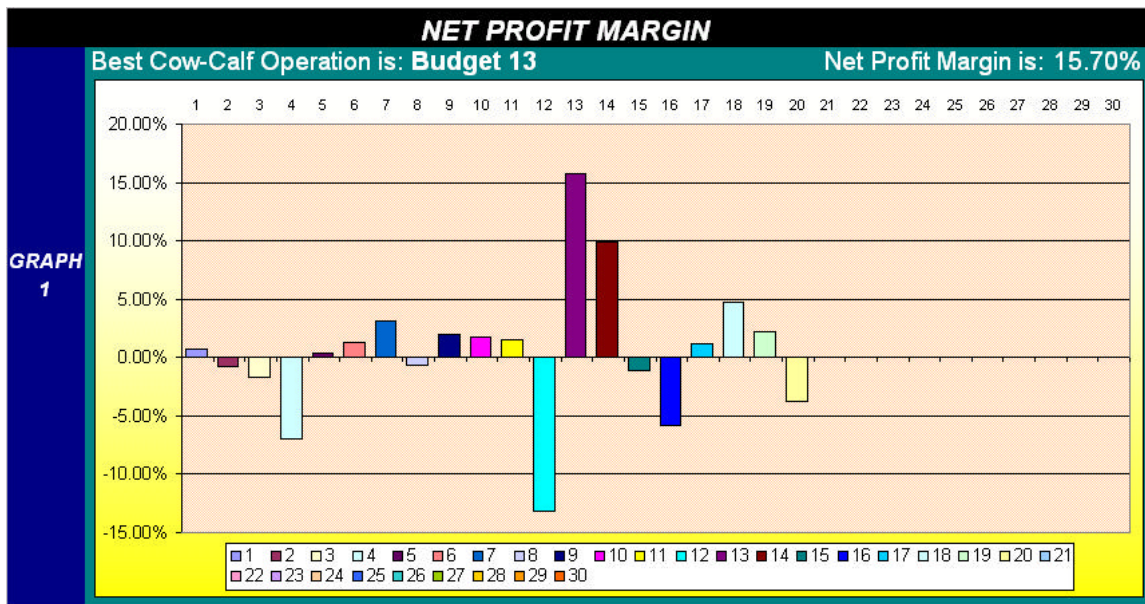


To understand this chart the user must first establish the steer weight level he or she is anticipating from the operation. This information can be entered on the upper left corner of the screen. The current figure is 450 lbs. Next, it is important to take a look at the breakeven revenue amount. On the chart, this figure can be viewed under the orange-marked bar in conjunction with the breakeven steer and heifer prices. This chart depicts different revenue and IAVC levels for every 10 cent steer price increase or decrease. For example, at 450 lb steer weight level, revenues will increase by \$1,521, from \$20,095 to \$21,616, when steer price increases from \$1.08 to \$1.18. Heifer calf price is a fraction of the associated steer calf price and does not vary in the same proportion as the steer calf price.

Achieving the right amount of revenue to cover the incurred production costs is the goal of any cow calf operator. By selecting a more appropriate steer weight level, the user must gain some insight on how price changes should be able to meet the desired revenue and profitability.

5. Comparing Enterprises using Graphs

To be more assertive on selecting a cow calf operation that offers great potential to bring about optimal financial returns, it is fundamental that users look into these graphs for further analysis. The first graph depicts all submitted budgets in terms of Net Profit Margin (NPM), which is Net Return for Risk and Management (NRRM) as a percentage of total income. The second graph shows NRRM in dollar terms. The second ratio to be analyzed in the third graph refers to the Operating Profit Margins (OPM), which is calculated by subtracting Income Above Variable Costs (IAVC) from total income. The fourth graph displays all IAVCs from all submitted budgets. The user should be able to conclude about the most profitable operation simply by comparing the height of the chart bars. However, each graph has been provided with the assertion of the best cow calf operation at the top left corner right above the charts. See graph below:



Interpreting this graph is a straightforward process. Budget 13 provides the best net profit margin among all 20 submitted budgets. Budget 14 comes in second place and budget 18 in third. The user is expected to move back to the *Data Analysis* section to review the most relevant cow calf operations individually because it is not possible to access the submitted budgets from this section. Reviewing budgets is a valuable way of getting more understanding on how to best allocate land and inputs into the cow calf operation.

It is not necessarily true that the same cow calf operation will do well across all four financial returns. When the size of the operation differs greatly, one budget may show excellent profit margins while others great IAVCs. The analysis of this discrepancy will help farm operators make better decisions as to reduce current profit margins in favor of potential larger operations, or vice-versa.

6. Conclusions

This program should be used just as a complement to other managerial decision aid tools that have already been successfully used by the farm operator. Input data must be carefully gathered from dependable sources in order to validate the outcomes generated by the graphical analysis. However, it is not recommended that decisions be made solely based on the information obtained from this program. Some of the assumptions made in the design of the program might not be consistent with the approach users usually adopt when making production or marketing decisions. Other discrepancies may become visible as users keep on using the program and they should be conscious about not adapting their cow calf operation to an extent to which it becomes an unfeasible application.

By all means, this program may lead to a better understanding of some cow calf production intricacies that might have been left out of the decision making process. Regardless of the user's ability with the use of computer-aided managerial tools, it is believed that most users will be able to make the best use out of this program. But, it is critical that users do not overlook any of the concepts introduced in the program and be attentive to details. The initial cow calf operation was not created to reflect a particular operation or to indicate an efficient, most profitable operation. The initial input data should not be taken into account unless they are applicable to the farm operation.

Farmers are strongly encouraged to carefully examine other alternatives as to combine operating costs (variable costs) that are capable of reducing expenses while increasing profits. This kind of improvement can be done through different feed combination of hay, supplements, and pastures. To conclusively profit out of the most appropriate feed efficiency, the users are also encouraged to increasingly change feed rations along with input rates and, repeatedly, do successive checks on the associated financial returns such as IAVC and Net Return. It is also important that users take a look at the percentage distribution of those costs to cope with disproportionate costs associated with feeding the cows (pasture, hay, purchased hay, supplements, salt and minerals). The pasture cost is associated with forage budget variable costs only. Therefore, it is necessary that farmers frequently monitor their forage budgets as well.