Cow-Calf Budgets and Riparian Buffers: User Instructions

Overview
This Excel workbook takes a standard annual cow-calf enterprise budget and looks at the annual cost and income effects of installing and maintaining riparian buffers along watercourses located on the farm property. The intended target audiences for this workbook are cow-calf operators and other agriculture professionals interested in the impacts of riparian buffers. A basic understanding of cow-calf enterprise budgets and basic competence level in Excel is required to use this workbook.

This workbook is designed to work like a normal cow-calf enterprise budget with additional worksheets added to calculate buffer economic effects. The basic operational structure and enterprise budget on which this workbook is based is "2002 Idaho Livestock Costs and Returns Estimate" by Robert Smathers et al. It can be downloaded from the University of Idaho Cooperative Extension web site at:
http://www.ag.uidaho.edu/aers/publications/Livestock_CARE/livestock02/livestock%202002.htm. It is recommended that you download this budget as a reference, though this is not necessary to complete the workbook. The default numbers that appear in the worksheets do not represent a particular farm. Rather, they represent specific assumptions, prices and resulting costs and returns used for this budget. The exercise will only have meaning if farm operators enter their own information.

The user provides preliminary information specific to his enterprise and buffer situation, and the workbook produces a budget BEFORE and AFTER the buffers are installed. The user can then compare these two budgets. The initial input of farm and buffer information takes approximately 45 minutes. Once the basic farm information is input, then a number of buffer scenarios can be evaluated. The workbook has 10 worksheets:

1. **Economic Impact Summary**: Text describing the assumptions about the farm and buffer, and a table showing key economic indicators pre- and post- buffer installation.
2. **Farm and Buffer Assumptions**: Assumptions regarding crop management, capital and land involved in the crop production, and economic and management assumptions about the buffers.
3. **Prices**: Prices of farm and buffer inputs
4. **Livestock Receipts and Feeding Requirements**: Two tables estimate the monthly and annual receipts from your cow-calf operation. A third table estimates monthly and annual feeding requirements for your herd.
5. **Capital Investment and Machinery**: Details the economic and performance data for your farm machinery and equipment. This worksheet includes a table of all investments in the operation and a table which calculates operating costs for machinery and equipment used in the enterprise.
6. **Budget without Buffer**: Outlines the revenue, and variable and fixed expenses of the enterprise prior to buffer installation.
7. **Buffer Builder**: Designation of buffer design and size, and resulting income and costs.
8. **Budget with Buffer**: Outlines the revenue and variable and fixed expenses of the enterprise after the buffers have been installed.
9. **Buffer Budgets**: Calculates the *per-acre* buffer income and costs for seven different buffer types. This worksheet is built from information you have provided in previous worksheets. This revenue and cost information is used to design the buffers in the Buffer Builder worksheet. **NOTE**: This worksheet should not be altered. It is not meant to be manipulated by the user.
10. **Buffer Harvest Schedule**: With input from the user, this sheet calculates potential net income from selective timber harvest of a portion of the buffer.

Definitions and help pop-ups
Throughout the worksheets, explanations, descriptions and instructions have been entered into pop-up windows. Cells that have pop-ups associated with them have a red flag on their upper right corner. When you move the cursor over these cells, the pop-up will appear. Users are encouraged to read these as you go along.

Entering data directly
Any cells that contain a blue background and blue text represent places where you can enter numbers or text directly. Left click the cursor on the cell where the data should go and type in the text or numbers.

Workbook protection
The workbook is protected to ensure that the formulas are not accidentally modified. To unprotect the workbook go to Tools menu and select Protection and Unprotect Workbook. There is no password. Before doing any formula modification, save the file under another name in order to retain an original copy of the workbook. It is strongly recommended that you do not alter any equations in this workbook, as it may introduce errors and invalid results.

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Entering data step by step

Step 1: Open the Excel file and save it to your hard drive or CD ROM under another name. This protects the original file from being corrupted accidentally.

Step 2: Fill in the blue column of the Farm and Buffer Assumptions worksheet. These numbers should accurately reflect your enterprise. If a given assumption does not apply to your operation, place a "0" in the blue column for that item.

Step 3:   Fill in the blue column of the Prices worksheet and make sure that the numbers reflect prices you pay and receive. If you do not know a price, leave it at the default setting. See pop-up windows on specific cells for detailed explanations.

Step 4:   Review the Monthly Allocation for Livestock Receipts table. Change numbers in blue if necessary to reflect your monthly sales of animals.   The Livestock Receipts table auto calculates based on this information. Review the Monthly Feed Requirements table. Make adjustments to the blue numbers where necessary to reflect your monthly feeding regime for the herd.

Step 5: Review the Equipment and Investment worksheet. In the Capital Investment table make sure that the equipment compliment accurately reflects your operation. Add machinery in rows that are marked "Other:" Delete rows containing equipment you do not own. Numbers that appear in dark blue can be directly changed by the user. Change these numbers if they do not accurately reflect your estimates of machine purchase price, salvage value and useful life. Similarly, in the Equipment Operating Costs table check to make sure the blue numbers in the Total Annual Use column and the Repairs column accurately reflect your costs. Delete rows containing equipment you do not own. Check pop-ups on column headings for equations used. Most of the data for this worksheet came from Smathers, Robert. "The cost of Owning and Operating Farm Machinery in the Pacific Northwest: 2000" PNW346. University of Idaho. It is assumed that all machinery and equipment are owned by the producing farm (not leased).

Step 6: Fill in the blue boxes in the Budget without Buffer Worksheet.   The black numbers on this worksheet are automatically calculated based on numbers you've entered in the Farm Assumptions, Prices, Livestock Receipts, and Capital Investments worksheets. You should not alter any black numbers directly on this worksheet. If you do need to change a particular black number, click on that cell to see the sheet and cell reference. Go to that sheet and cell and change the number there. The bottom line on this budget should look familiar; it is your current net return. See pop-ups for specific line item details.

Step 7: Fill in the blue boxes in the Buffer Builder Worksheet, following the steps numbered 1 through 8.   The user should enter the number of lineal feet for each stream type on all the land he has in production (both owned and leased). This may involve some on-the-ground measurements with a distance wheel, if you do not already know these numbers. Stream type maps can be obtained from Snohomish County Planning and Development Services. See the first pop-up on this worksheet for definitions of stream types.

In steps 3-8 in this worksheet, you can design different kinds of buffers for different watercourses on your farm. See the default numbers to see how this works. Examples are given in pop-ups. Leave a 0 in the width column for buffer types you do not wish to use. The total buffer width and acreage of the buffer are calculated automatically by the worksheet.

Still in the Buffer Builder worksheet, scroll down to the Buffer Acreage Summary table and in the light blue box enter the number of buffer acres that will be installed on land that you lease. Only a rough estimate of this acreage is required. See additional information about this cell and other cells in the worksheet in their pop-up windows.

Step 8: While still in the Buffer Builder worksheet, scroll down to the Buffer Budget Summary Table and fill in blue boxes if you have buffer income or costs that are not already listed in this table. If you have increased feed costs due to the installation of the buffer, these should be added in this section. See pop-ups for instructions on foregone income in the buffer area and increased feed costs.

Step 9: Go to the Budget with Buffer worksheet. As with the original budget, numbers in blue can be modified by the user. Verify that your variable costs in the blue boxes accurately reflect changes in your operation due to the placement of buffers. This worksheet shows the same original budget, now modified to include average annual revenues and costs of the buffers you have designed. Please note that the annualized revenues and costs of the buffers are **not** cash flow values, they represent the average annual effect of the buffer on the enterprise over a designated time period.

Step 10: Flip to the Economic Impact Summary worksheet located after the title page and view the summary of the analysis. To the right of the table you can edit the description of the assumptions used in your analysis and the results. Users are encouraged to edit this text; if you return to this scenario after some time, you can look at this text and know immediately what you modeled. When you are done, save the Excel file to your computer using a name that describes the scenario, such as "100' buffer with cost share."

END OF WRITTEN INSTRUCTIONS