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A Beef Calf Retention Decision Tool

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Abstract: This article describes a calf retention decision tool designed for use by Extension educators and by cow-calf producers. Cow-calf producers in the U.S. Southern Plains have multiple options regarding post-weaning marketing strategies for beef calves, due in part to the availability of fall and winter grazing. This software tool aids cow-calf producers in estimating the profitability of marketing weaned calves at various decision points. The tool allows producers to choose from marketing and retention scenarios based on ranch resources and price forecasts. It is available to Extension educators and cow-calf producers in a Microsoft Excel spreadsheet.

Introduction

Cow-calf producers in the U.S. Southern Plains have multiple options regarding post-weaning marketing strategies for beef calves, due in part to the availability of fall and winter grazing. Here, we discuss a software tool that aids cow-calf producers in estimating the profitability of marketing weaned calves at various decision points. The Beef Calf Retention Decision tool allows producers to choose from marketing and retention scenarios based on ranch resources and price forecasts. It is available to Extension educators and to cow-calf producers in a Microsoft Excel 2007 spreadsheet with a downloadable instruction file.

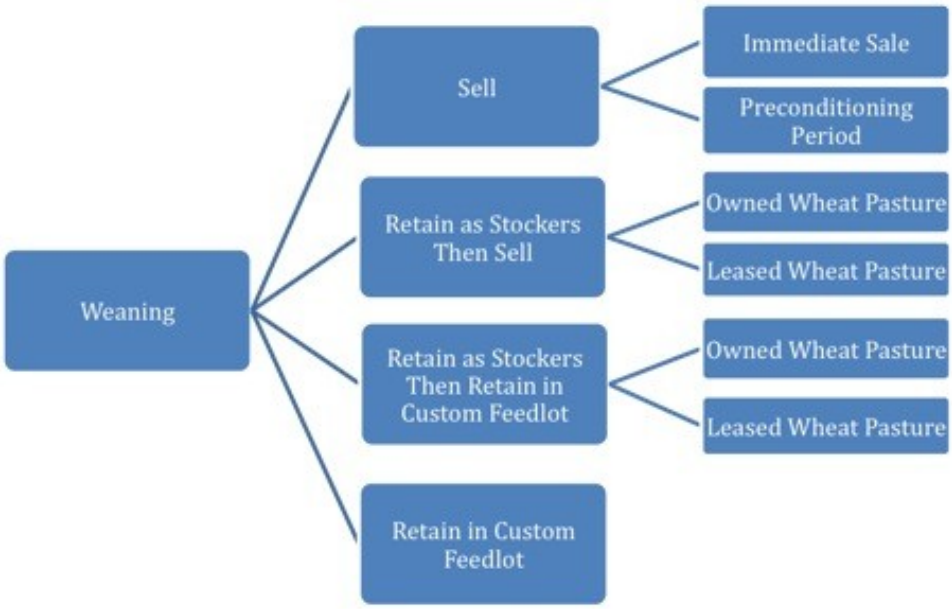
For Extension educators, computer spreadsheet decision tools offer opportunities for interactive and hands-on learning for producers at teachable moments; for producers, software tools support informed decision-making. Such tools are often utilized in farm management decision settings. A recent example is Hudson, Harrison, & Koelsch's (2006) water quality risk assessment tool for livestock operations.

This type of decision tool allows the developer to build in constraints and variables that lead the user to fully consider factors that might otherwise be ignored. This is crucial because producers often ignore the economic

value of existing resources. One example involves the use of wheat pasture for grazing weaned calves. Producers often view wheat pasture as "free" because they intend to plant wheat and will have pasture during that production year anyway. However, when wheat pasture is grazed, there are tradeoffs between beef production and bushels of wheat, as well as additional out-of-pocket costs. Computerized decision tools allow producers to more fully recognize tradeoffs and constraints associated with a production or marketing decision. The Beef Calf Retention Decision Tool can be used by Extension professionals to facilitate better producer decision-making.

Maintaining ownership past the traditional sale point at weaning can increase animal value, but it also comes with increased risk (price risk and death loss) and additional costs (White, Anderson, Larson, Olson, & Thomson, 2007; Schroeder & Featherstone, 1990; Gebremeskel & Shumway, 1979). The decision tree in Figure 1 illustrates the marketing options available to the Southern Plains cow-calf producer at weaning.

Figure 1.
Cow-Calf Producer Decision Tree for Weaned Calf Marketing



In the decision model, producers are first asked to indicate all retention options to consider. Price data is linked to the spreadsheet through an Oklahoma State University (OSU) server and is updated two to three times monthly. A "button" in the spreadsheet automatically updates price information for the user when clicked. The user enters relevant costs, including interest rates, for each retention option. Pop-ups within the spreadsheet point producers to relevant OSU publications on beef production and marketing topics. For example, the Sell at Weaning option asks for Weaning Date and Sale Date as different entries to provide producers the option of a post-weaning preconditioning period. When the user clicks on Sale Date, a pop-up appears with information regarding Vac-45 programs (standardized calf health management protocols to guide producers in adding value to calves) and available information resources on the topic. The first layer of worksheets asks for specific production and cost information from the producer for that retention option. Those are described below.

Sell at Weaning

The Sell at Weaning option is the default option. Users are asked to supply calf gender, wean date and weight, sale date and weight, and a shrink estimate. Preconditioning expenses, if relevant, are included in this option. Production expenses are calculated for calves sold at weaning (including preconditioning period, if applicable) and calves retained.

Retain as Stockers

The Retain as Stockers option allows users to specify whether pasture is owned or leased. If owned, users must supply estimates of additional wheat pasture costs associated with grazing, as well as expected wheat yield reduction and expected wheat price. The spreadsheet then calculates the estimated reduction in wheat revenue and the added cost of wheat grazing per acre to capture the real cost of grazing. If pasture is leased, the spreadsheet allows for the various types of lease terms available to producers. After supplying other cost information, the user is presented with per head expenses if held or if sold and with stocker cost of gain per pound if sold.

Weaned Calves to Custom Feedlot

The Weaned Calves to Custom Feedlot option asks users to estimate animal performance, shrink and death loss, allowing them to see how costs change as those performance parameters are changed. This section reports feedlot production expense per head as well as feedlot cost of gain per pound.

Stocker Calves to Custom Feedlot

The Stocker Calves to Custom Feedlot sheet allows users to estimate costs when they hold weaned calves over as stockers and then place them in a custom feedlot after the stocker phase. Beginning costs are those estimated in the Retain as Stockers phase; estimated returns from retaining ownership through custom feeding are then added.

Results

The Results worksheet gives a side-by-side comparison of costs and returns for the specified retention options. The sensitivity analysis illustrates changes in net values given a range of changes in prices or expenses.

Summary

Extension educators in the Southern Plains are often asked for assistance by cow-calf producers regarding marketing of their weaned calves. The Calf Retention Decision Tool allows educators and producers to estimate outcomes of different marketing decisions, based on economic concepts and individual resource situations. The Calf Retention Decision Tool was developed as a joint effort between the Oklahoma Experiment Station and Oklahoma Cooperative Extension Service. It is downloadable, along with the accompanying instructions, at <www.agecon.okstate.edu/faculty/publications.asp> and at <http://www.beefextension.com>.

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