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Long term risk assessment using the Multi-Temporal Risk Analyzer from RightRisk.org

Most successful agricultural businesses maintain a long-term focus even in challenging times. Keeping major decisions and planning focused on the long term is one way to manage risk and uncertainty and remain profitable.

Major decisions in production agriculture are often long term in nature: investments in machinery and equipment, changing cropping practices or production methods, or adding a new enterprise. The changes these decisions involve take several years to play out. Where more time is involved, more variability is also possible. As a result, it is important to carefully evaluate the alternatives and possible effects before making the decision.

A partial budgeting approach is one way to evaluate these decisions. This includes accounting for all expenses and revenues associated with the proposed change. In doing so, it is often difficult to account for risk—especially with a long-term focus in mind. Many times, the risk and uncertainty that accompanies these decisions tends to be included by conservatively adjusting the rate of return or interest rate(s) to account for the changing time value of money. The problem with this is that a large share of risk can go unaccounted for, such as variations in costs and inflows over time. Simply plugging in a lower rate of return may not provide an accurate picture of how the decision or change plays out over time, especially the implied variability in the bottom line.

THE MTRA TOOL FROM RIGHTRISK.ORG

The Multi-Temporal Risk Analyzer tool (MTRA), from RightRisk.org is a budgeting tool designed to provide a method for including risk when considering these decisions. MTRA is a spreadsheet-based, partial budget tool that allows users to enter cash inflows (added returns and reduced costs) and outflows (reduced returns and added costs) from a proposed management change.

A unique feature includes the ability to turn on and off each of these items over a 20-year period, allowing the user to accurately project long term expectations for the decision (Fig. 1).

MTRA allows the user to incorporate risk around any one of these potential cash inflows or outflows by entering maximum, minimum, and most likely values for each. This is important where using a single value for a cost or income item is what is often called a best guess. This best guess becomes a certain value the further into the budgeting process it goes unchanged, when the user has not accounted for its potential variability. By using a range of values we account for at least some of the inherent uncertainty.

MTRA generates several tables (Fig. 2) and graphical outputs from the input data. These reveal the changes over time and allow the user to extensively analyze risk probabilities, as well as evaluate the influence of changes in interest rate on the results.

PRODUCTION EXAMPLE

We will highlight how MTRA can be used in a production decision by a northern Wyoming ranch family in the next installment. The family is looking at a potential switch from flood irrigation to center pivot sprinklers and would like to assess the risk and other long-term implications of this change.

James Sedman is a consultant to the Department of Agricultural and Applied Economics in the University of Wyoming College of Agriculture and Natural Resources, and **John Hewlett** is a farm and ranch management specialist in the department. Hewlett may be reached at (307) 766-2166 or hewlett@uwyo.edu.

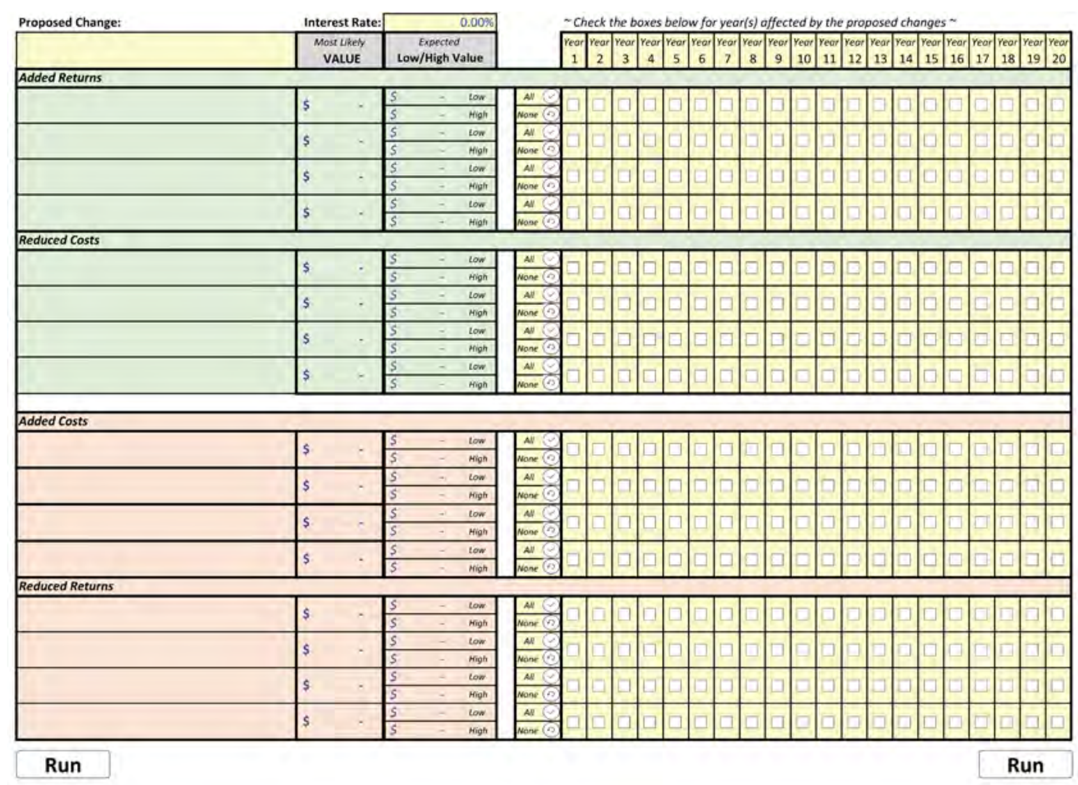

Figure 1. Multi-Temporal Risk Analyzer data input form

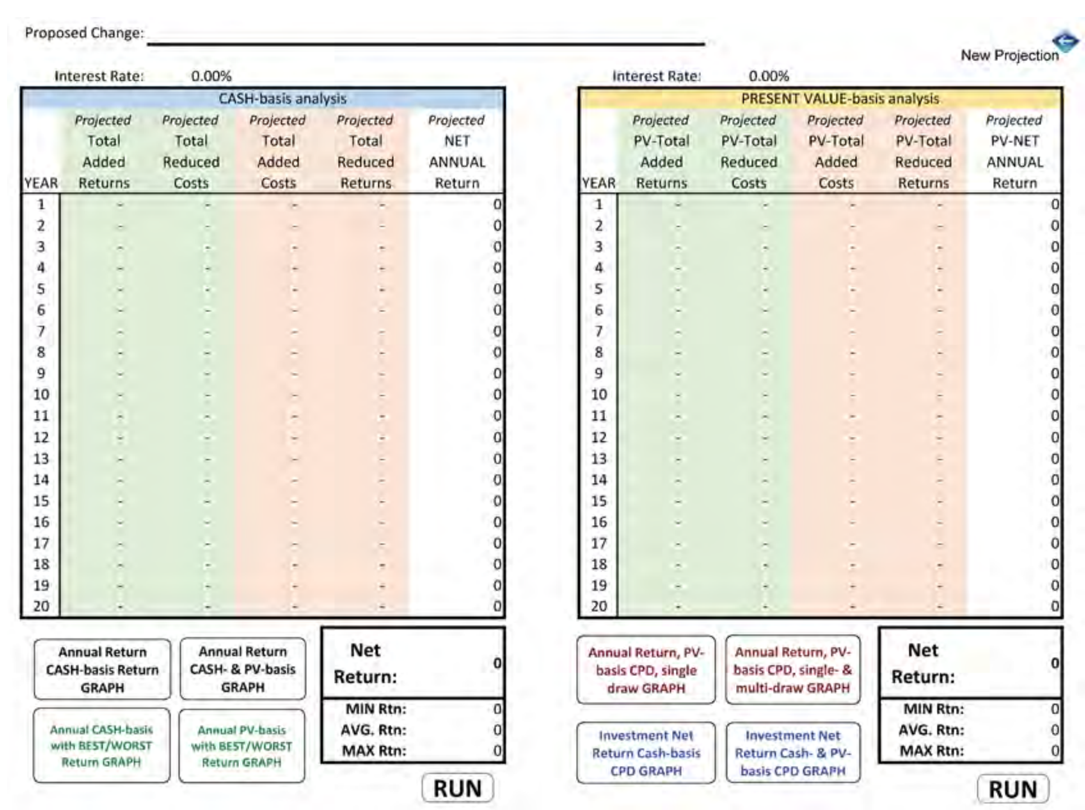

Figure 2. Multi-Temporal Risk Analyzer output table format

FOR MORE INFORMATION

To access the Multi-Temporal Risk Analyzer tool, simply log on to RightRisk.org and select Risk Management Tools from the Resources tab.

The MTRA tool is one of the many budgeting tools available at RightRisk.org. Included with the tool are two examples (via data files), along with a user guide and presentation slides. All these risk analytics tools and other resources, such as courses and presentations, are designed to help producers learn about and account for risk in their businesses. Take a look to learn more about the wide range of risk management topics, from crop insurance to budgeting, estate planning, and much more.