

Getting Started In Ag: Applied Risk Analytics Series

For those just starting out in production agriculture, dealing with the unexpected can be a big challenge. Unexpected challenges come in all shapes and sizes: Machinery breaks down, weather doesn't cooperate, livestock get sick, employees have issues and countless other unexpected events occur.

Dealing with unexpected challenges or risks that may arise, in whatever form they take, can be much easier with a risk management plan in place. As a new or beginning farmer or rancher, a comprehensive risk management plan should be one of the first things you develop for your operation. This can be a daunting task, however, because risk takes many forms across many different areas of production.

RightRisk.org was developed by academic professionals from UW and several other land-grant institutions as a risk management resource for producers, especially new and beginning operators. The primary goal is to help managers explore various risk management strategies and provide tools to evaluate those decisions.

RightRisk Analytics is a compilation of various risk management tools designed to help evaluate the effects of risk management decisions. The site includes several free analytics tools covering budgeting (from partial and enterprise to long-term whole-farm budgeting), forage leasing, risk strategy analysis and more. All these tools include an in-depth user guide with examples.

Many of the budgeting tools allow users to evaluate the effects of risk in the form of variables in each situation, like changing input costs or yield levels. Often, when producers develop budgets or use them to make decisions, assumptions are made about values such as the prices for commodities or inputs—or any other value associated with the budget.

The problem becomes when the best guess is wrong, which throws the projected results into question. The RightRisk analytics tools offer the ability to show and model the effects of risk by varying these values and generating associated probabilities.

RIGHTRISK ANALYTICS

Visit **RightRisk.org** to download the RightRisk Analytics Toolbox and start using several useful tools for budgeting and quantifying risk in your operation.

Applied Risk Analytics

Building on the foundation of the risk analytics tools is the Applied Risk Analytics (ARA) section of RightRisk.org. The case studies listed under this tab showcase the various risk analytics available from RightRisk with producer profiles. These realistic production examples demonstrate how the risk analytics can be used to examine risk management decision-making and chart the best management course going forward.

A wide range of production scenarios provides insights into different examples of Wyoming-based crop and livestock operations, from comparing crop insurance and leasing options to machinery purchases and comparisons, fertilizer application levels, and long-range risk evaluation.

Insurance Decision-making Case Studies

For most Wyoming farmers and ranchers, crop insurance has become an important part of risk management. Often it becomes necessary to evaluate the effectiveness of coverage, compare different coverage levels, or examine potential indemnities and other aspects of coverage.

Two ARA bulletins focus examples utilizing Pasture Range and Forage Rainfall Index (RI-PRF) insurance. These case studies use RightRisk tools to determine the effectiveness of the coverage, as well as evaluating the likelihood of indemnities over time using historical data.

In addition, the Multi-Temporal Risk Analyzer (MTRA) tool is used to assess the long-term effectiveness of implementing Livestock Risk Protection (LRP) insurance, as well as managing price risk in a fed cattle operation.

Applied Risk Analytics

- Comparing Conventional and Strip-till Tillage Systems
- Estimating Custom Rates and Machinery Costs
- Evaluating Fertilizer Application Decisions
- Evaluating Lease Arrangements
- Evaluating LRP Coverage With the Multi-Temporal Risk Analyzer
- Evaluating Pasture, Rangeland, Forage - Rainfall Index Coverage
- Evaluating RI-PRF Strategies with the MTRA Tool
- Evaluating Windrower Options with the Machinery Risk Calculator
- Evaluating Round & Square Bale Systems
- Hay Producers Evaluate Pivot Irrigation Alternatives

Machinery Cost-focused Case Studies

Several ARA bulletins focus on production decisions related to machinery. Machinery is often one of the largest, if not the largest, expense for Wyoming farmers and ranchers. It is important to have a firm grasp of the risk implications of any potential change or decision involving machinery.

These bulletins focus on examples using the Machine Risk Calculator (MRC) tool and the Multi-Temporal Risk Analyzer (MTRA) tool. The MRC tool is designed to help estimate machinery and field operations costs, as well as estimate the risk sensitivity of those costs to changes in various factors. The MTRA tool helps users consider the long-term effects of machinery purchases and other management decisions by projecting results over a period of up to 20 years.

For example, one case study uses analytics to compare tillage systems and their potential risk management implications. The operating costs of each system are outlined, as well as the potential effects of switching over the long term. Another bulletin compares a round-bale versus square-bale haying system using the MRC tool, which evaluates operating costs in addition to the purchase costs and associated benefits. A third case study walks the reader through a scenario considering the upgrade of an existing windrower and the potential increase in profitability.

Lease Arrangements and Fertilizer Decision Case Studies

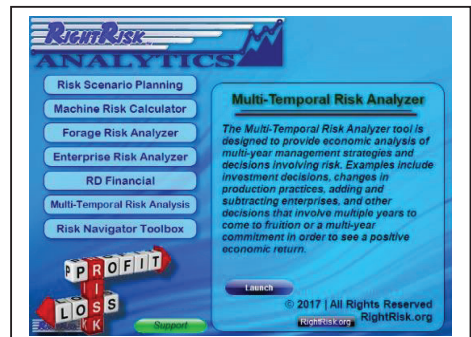
The Forage Risk Analyzer (FRA) tool helps evaluate potential forage leases, helping all parties involved to understand the full value of all aspects of the arrangement. The FRA tool is highlighted in one ARA bulletin, which details the use of the tool for a potential forage lease.

The FRA tool allows for up to a six-party lease, can be used for six different classes of land (irrigated, pasture, etc.), and includes a risk sensitivity analysis to account for potential variability of selected factors.

Another ARA case study evaluates fertilizer application decisions. The fertilizer application tools from RightRisk.org are used to assess the optimum rate of fertilizer application and to address the risk implications of the decisions using the Risk-Scenario Planning (RSP) tool. This partial budgeting tool helps evaluate the risk sensitivity of up to two variables in a decision framework.

For More information

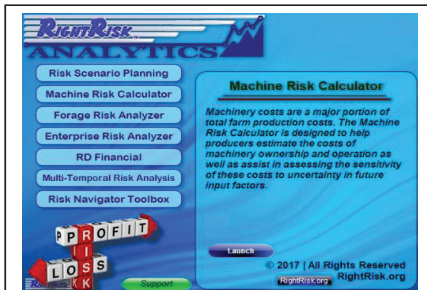
To view the Applied Risk Analytics bulletin series, navigate to the Resources tab on RightRisk.org and select Applied Risk Analytics. This will allow you to download and use any of the site's risk analytics tools.



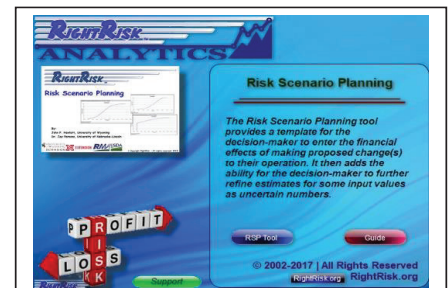
The Multi-temporal risk analyzer (MTRA) was developed to examine management decisions over a long-term framework.

MTRA provides probability analysis, accounting for the variables entered in the budgeting scenario.

MTRA can be used to measure the effects of variability for a large number of factors for up to 20 years.



The Machine Risk Calculator (MRC) quantifies machinery and equipment costs. Once data is entered, the MRC can also estimate the risk sensitivity of these costs to future changes in input factors. This feature is especially useful because operating cost estimates often do not take uncertainty into account.



The Risk Scenario Planning (RSP) tool is designed to evaluate the inherent risk involved in the partial budgeting process. Instead of choosing one value, RSP allows users to examine a range of values (maximum, minimum and most likely) to determine the effects on the bottom line.