RIGHTRISK: RISK MANAGEMENT TRAINING FOR AGRICULTURAL MANAGERS IN THE RURAL UNITED STATES

John P. Hewlett
University of Wyoming
Laramie, Wyoming USA
Email : hewlett@uwyo.edu

Jeffrey E. Tranel
Colorado State University
Pueblo, Colorado USA
Email: Jeffrey.Tranel@ColoState.EDU

and the RightRisk Team

Abstract

RightRisk is an Extension education program offered across the rural United States since its inception in 2002. Team members offer these programs using portable computer labs and web-based software to managers located in remote locations from the bottom of the Grand Canyon to the windswept-plains of Wyoming. Program offerings have expanded beyond the risk simulation – Ag Survivor – to include a ten-step process for strategic risk management with accompanying tools for implementation. Additional courses covering other dimensions of risk management have been developed, including: Feasibility of Alternative Rural Enterprises, Taxes for Agricultural Enterprises, and a two-module course entitled A Lasting Legacy. Alternative scenarios, covering various agricultural enterprises, make the simulation relevant to managers of rural farms and ranches. This flexibility and broad relevance of the fundamental concepts presented make these educational programs appealing for application in other rural areas.

Keywords: rural family, enterprise management, risk management

Background

U.S. farm policy enacted since 1996 has punctuated the need for agriculture producers to understand and manage risk. Risk management is difficult to understand and teach, both because the concepts are difficult and the breadth of problems and solutions are great. However, there is a need for risk management education. The U.S. farm economy is a higher-risk economic environment than agricultural families have seen since the 1930s (Fetsch, Bastian, Kaan, and Koontz, 2000). The need for further education is confirmed by a recent survey of producers (Kaan, et al., 2000). For those who provide education and Extension workshops to agricultural producers and their families, this is often a daunting task, given limited resources and the paucity of empirical studies on farmers' and ranchers' needs for risk management information and education.

While a great deal of our current understanding about risk education in agriculture was developed in the 1970s, the tools for accomplishing manager-directed education have evolved greatly since then, with the increasing power and reduced cost of portable microcomputers. Improvements in technology translate, in this case, into an increased power to teach complex, risk management concepts.

"RightRisk" (RightRisk.org) is an example of one program developed by a team of U.S. Extension educators and researchers from ten (10) western states, which utilizes new technologies in risk management education. The group's stated focus is to help farmers and ranchers understand and explore risk management decisions and evaluate the effects of those decisions.

Ag Survivor

Ag Survivor is one of the primary education tools used by the RightRisk Team. *Ag Survivor* is a risk simulation which allows users to experience making risk management decisions. Several alternative scenarios have been developed for the simulation, including: King Family Ranch, Wheatfields, Lazy U Ranch, EWS farms, with several more in development. The scenarios are assembled using actual production, weather, local markets, likelihood estimates, and other risk information to create a representative operation for a specific geographical area and type of operation. The resulting *Ag Survivor* scenario allows users the opportunity to manage one or more virtual agricultural enterprise without taking real-world risks with the potential of loosing the farm.

Typical risks faced in an *Ag Survivor* simulation may include:

- Production risk- such as: a poor hay crop due to too much or too little precipitation, low weaning weights due to drought conditions, low crop yield or poor quality due to insects or disease.
- Marketing risk- such as: higher/lower prices due to changes in the national corn markets, changes in price due to hay production, differences in prices with timing of sales, retained ownership strategies.
- Other risks such as human resource risk or legal risk- for example, sickness or heart attack on the part of the manager or a lawsuit filed in conflicts over rangeland management.

Controls offered to manage risks in *Ag Survivor* scenarios include:

- Production risk- insurance policies for protection against low yields, low revenue, or both; strategies offering protection against shortage of a critical input, such as buying more hay than needed; or options to retain ownership in order to reap all the weight-gain benefits from a certain group of animals.
- Marketing risk- strategies that help insure against downward trending prices, such as forward contracting, hedging, or options contracts; insurance products that offer protection from low revenues; or by timing the sale of commodities for periods which historically report annual high prices.

Simulation Outcomes

After participant teams have made their management decisions, results are compared on a cash-only basis. At this point teams are encouraged to discuss the strategies they used and whether the strategy chosen seemed to be a good one or not. Following this exchange, teams are informed that a simulation is available and that the results will allow for a statistical comparison of results for greater accuracy. Simulations for each team are then computed for 100 iterations of the strategies entered. This allows for the probabilities of the various risks to play out, creating a distribution of results. Annual returns information is presented to each team as a histogram with descriptive statistics.

Using the histogram and summary statistics as a basis, the presenter then engages the teams in a discussion of the results. One of the first questions asked is how to determine which are the better results. This allows the group to explore different possibilities for measuring outcomes: high average income, consistent results as measured with a lower standard deviation, a strategy which yields the highest minimum return for the group, or a set of decisions leading to the highest maximum return. In addition, points are made about the tradeoffs between these results, such as a strategy with a high maximum return which also very likely has a high standard deviation. Emphasis is made that individuals must decide for themselves the level of risk they are comfortable with and that there are not a single set of correct answers.

Where time permits, the discussion is directed toward comparing strategies. Alternatives such as maxi-min, mini-max regret, safety first, etc. are explained using a simple example. Teams are then challenged to revise their pattern of decisions from the previous round to achieve a more desirable outcome following a particular strategy. In this way, *Ag Survivor* serves as a centerpiece for risk management education and facilitates an exchange of ideas about strategy selection and evaluation. Participants are left with the RightRisk.org URL, where they may access several of the simulations online for further risk management practice.

Workshop participants range from commercial agriculture producers, small farm owners, retired commercial operators, beginning and young farmers, and college classes. Over 150 workshops have been offered since the inception of *Ag Survivor*, spanning at least 17 U.S. states. Group sizes range from just a handful of participants to about 100 when offered at the annual Colorado Wheat Grower's meeting.

Most users are very complimentary, offering comments such as: "*More fun than real life because you could experiment with a potentially bad decision without having to experience the real consequences" or "'Instant analysis and results based on management choices made. Non-impact scenarios are fun and helpful."* Another participant observed, that the "*Easy, laid back learning experience* [is] *very conducive to thinking and learning*."

Further and perhaps surprisingly, participants do not always need to be familiar with the scenario selected. In a recent program in Massachusetts a western, dryland wheat scenario was used with a group which included: a dairy operator, a pumpkin grower, a couple who manage an alpaca enterprise and a 200-member Community Supported Agriculture (CSA) enterprise mostly under glass, a hay grower, and one cow-calf producer, among others. The group was very receptive, with one participant commenting it was an "*Interesting presentation* [which offered a] *new way to look at production."*

Scenario Guides and Fact Sheets

The RightRisk Team has authored several scenario guides to accompany the *Ag Survivor* simulations. These guides provide additional background information about the scenarios, including the risks, probabilities, and consequences faced by simulation users. These guides, along with fact sheets and other information on risk management, are used to provide some consistency of presentation to workshop attendees, as well as provide information for individuals seeking greater depth of coverage outside the workshop setting. These materials are grouped into five resource categories at RightRisk.org for further investigation: building basic skills, risk management lessons, scenario based lessons, instructor's manual, and links to other online resources.

Strategic Risk Management Process

Ag Survivor represents a valuable tool for enticing agricultural managers to consider risks present in their operations. The proactive manager, however, requires tools to help implement changes designed to manage those risks in a manner consistent with their risk tolerance and business' ability to support risk. Members of the RightRisk Team are developing those tools as part of a planning model called Strategic Risk Management, a 10-step process for managing risk in agricultural operations.

Figure 1: The Strategic Risk Management Process

Figure 1 shows the "SRM process" in diagram form. It is derived from a customized, traditional strategic planning process to fit risk management. The process assists agricultural businesses in developing a risk management plan that takes into consideration resources available (including management ability), risk preferences, and the long term goals of the operation and families involved.

The process is divided into three main parts: strategic, tactical, and operational. The "SRM process" involves a series of ten specific steps. The process is cyclic with feedback and reevaluation as conditions change. Management decisions are based on operation goals, actual performance, and considering current and forecast conditions, including risk. The specific steps in the process include:

Determine Financial Health

Financial health, much like health in other contexts, refers to the practice of assessing the well-being of the financial resources of a business. This process will usually identify areas of both financial strength and weakness within the business. In addition, the practice may help identify areas of under-utilized capacity, perhaps offering the option to capitalize on developing opportunities.

Determine Risk Preference

There are three basic preferences for risk exhibited by people. People exhibiting risk neutral preferences seek to maximize income, while ignoring the presence of risk. Risk loving people seek risk, just as people who have an addiction to gambling do. Most people exhibit risk averse preferences. Risk averse people are willing to give up income to avoid risk. For example, suppose that a person is expected to lose an average of $600 per year from automobile accidents over their lifetime. Of course, it is not $600 every year. An accident carries a big price tag if and when it occurs. Most people are willing to pay more than $600 per year to avoid the risk of facing a large settlement. If a person were to pay $800 per year for car insurance, they would be demonstrating a willingness to pay a $200 premium above and beyond the cost of insurance to avoid the risk of paying a large settlement. Likewise, a farmer or rancher might accept lower profits from a marketing contract that reduced his or her price risk.

Establish Risk Goals

After establishing preferences for risk, the next step in the "SRM process" is to set risk goals. This is an extremely important step because goals guide the rest of the planning process. Goals should identify both family desires and where the business should be in 5 to 20 years.

Determine Risk Sources

The first step in the tactical phase is to determine when and where risks come from and to prioritize where risk management efforts will pay off most. There are five major types of risk: production risk, market or price risk, financial risk, institutional risk, and human resource risk. In addition, there are many sources of risk and controls available for management.

Identify Management Alternatives

There are four basic ways to manage risk: assume it, avoid it, reduce it or transfer it. The objective is to find the appropriate trade-off between the risk and achieving personal goals. Some people will choose to assume risks in order to capture the returns that are often associated with it. Of course, even someone that assumes risk will also try to reduce it. At the other extreme, some people are so uncomfortable with uncertainty that they will avoid risks altogether. Risk also can be transferred to other people that are better prepared to handle it.

Estimate Likelihoods

The next step in the "SRM process" provides the tools for estimating the likelihood for various alternatives. Steps in the "SRM process" provide detailed descriptions of probability density functions, using statistics for prediction, how to interpret them, and how to compute them.

Rank Management Alternatives

The final step in the Tactical stage of the "SRM process" is to rank the various alternatives considered and select those with the most desirable outcomes. Two or more risks may be compared by looking at the returns, the probability of good and bad outcomes, and including the personal risk preferences of the decision maker.

Implement Plans

Ultimately, the management team should put whatever plans have been made into action. Implementation of the plan involves acquiring the necessary resources, scheduling the tasks to be completed, and overseeing all aspects of the plan.

Monitor & Adjust

Resource use must be monitored and adjustments made as needed. Rarely are plans implemented exactly as outlined in paper. Particularly where uncontrollable-factors such as whether and markets are involved, implementation and execution must be monitored and mid-course adjustments made if goals and objectives are to be realized.

Replan

Re-planning is often ignored, probably because it tends to highlight what was not achieved. Recognizing what was not accomplished is the first step toward addressing any deficiencies responsible. Although re-planning occurs throughout the year as resource use is monitored, it should also occur at year end.

The "SRM" 10-step, process is ongoing into the foreseeable future. While some strategic goals and objectives will be met, others will prove too difficult or conditions will change to make them unimportant or too costly to achieve. That outcome is reasonable and acceptable. Progress toward those goals which are most important will provide many positive returns, particularly if systems are implemented to allow management the capability of measuring progress over time.

Other Rightrisk Courses

Additional RightRisk courses assist the farm and ranch manager looking to improve their risk management skills in specific areas. The first of these is a course entitled *Feasibility of Alternative Rural Enterprises*. Many managers of commercial agriculture enterprises and small rural landowners alike are actively considering alternative enterprises. However, most are unclear how to thoroughly evaluate these alternatives to ensure success if adopted.

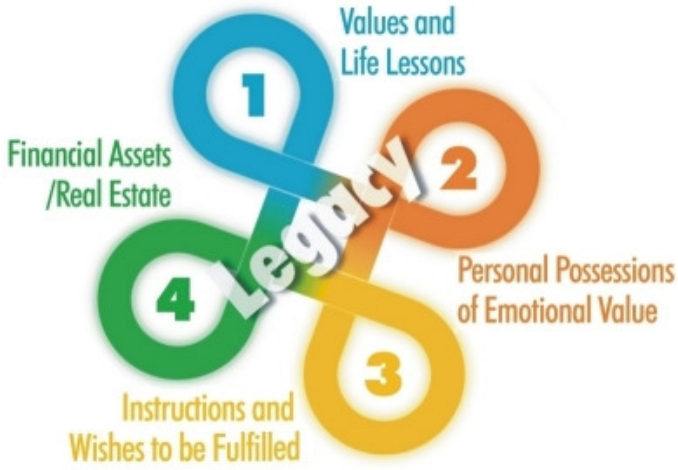
Feasibility of Alternative Rural Enterprises takes the user through the process of evaluating alternative enterprises from a number of perspectives, after an introduction which provides examples of several alternative enterprises. Evaluation of alternatives is accomplished by considering: level of interest, SWOT (strengths, weaknesses, opportunities, and threats) analysis, feasibility assessment, competitive analysis, business planning, and risk considerations. As the user completes each section of the course, interactive activities take input, which is recorded and complied to provide feedback to the user. Worksheets and other course materials provide additional content.

Taxes for Agricultural Enterprises provides a step-by-step interactive course that takes producers through the various terms, definitions, and strategies for managing taxes. The course is not meant to replace advice from an accountant or to be a comprehensive do-it-yourself tax guide. It is, however, designed to educate producers and increase their awareness of tax management strategies.

The course begins with definitions of for-profit or a qualified farm, which determine how the operation is treated by the IRS. The importance of good record-keeping is emphasized in the next phase of the course. Emphasizing that it is increasingly important to keep good business records, not only for tax purposes, but also for the overall performance of the business. The course proceeds with a presentation of the various classifications of farm income and expenses. The expense portion of the course addresses common questions relating to what is defined by the IRS as expenses. Each course section of *Taxes for Agricultural Enterprises* includes a worksheet with several questions and scenarios allowing users to test their knowledge as they go. As such, it provides producers insights on tax management strategies in a step-by-step manner.

Finally, a pair of courses entitled *A Lasting Legacy* provide rural families assistance with end of life planning. Many agricultural and family-owned enterprises fail in the transfer of control between one generation and the next. In fact, across the U.S. only one in three enterprises survive beyond the third generation. As such, this transfer and other end of life issues represent one of the greatest threats to the long term survivability of family-owned businesses.

Figure 2: The Lasting Legacy Model



A general model provides a conceptual framework for describing a legacy. Figure 2 is a graphical representation of that framework. In general, there are four major headings for the material covered by the courses: values and life lessons, personal possessions of emotional value, instructions and wishes to be fulfilled, and financial assets/real estate.
Topics addressed across the two-course series include:
Course 1- What is a Legacy, Parent/Adult Child Relationships, Managing Intergenerational Relationships, Improving Communication, Values and Life Lessons, and Personal Possessions of Emotional Value.
Course 2- End-of-Life Issues, Pre-Death Wishes, Final instructions, Estate Planning, Financial Planning, Transferring Real Property, and a Course Summary.

Each of these four additional RightRisk courses includes the following components:

- A resources section for further reading and investigation,
- Links to course worksheets, videos, and other supplemental material,
- A glossary with definitions for course terms and acronyms,
- Presenter resources including a teaching outline, PowerPoint files with notes for all slides presented, and
- Advertising materials for using in marketing the courses.

Finally, each course concludes with an email survey form to allow users to provide feedback on their effectiveness. Originally published as CD-based materials, the courses are also available at the RightRisk.org web site for online viewing.

Conclusion

Risk management is difficult to understand and teach, both because the concepts are difficult and the breadth of problems and solutions are great. The tools for accomplishing manager-directed education have evolved greatly since the 1970s, when a great deal of our current understanding about risk education in agriculture was developed, with the increasing power and reduced cost of portable microcomputers.

The U.S.-based RightRisk Team has developed a risk simulation *Ag Survivor* which has been presented in over 150 practitioner-oriented educational programs across the United States. Team members offer these programs using portable computer labs and web-based software to managers located in remote locations. Sessions have been well received by participants but serve primarily to raise awareness of the need for additional risk management education.

Most recently, program offerings have been expanded beyond the risk simulation to include a ten-step process for strategic risk management with accompanying tools for implementation. Additional courses covering other dimensions of risk management include: *Feasibility of Alternative Rural Enterprises*, *Taxes for Agricultural Enterprises*, and a two-module course entitled *A Lasting Legacy*. Alternative scenarios, covering various agricultural enterprises, make the simulation relevant to managers of rural farms and ranches. This flexibility and broad relevance of the fundamental concepts presented make these educational programs appealing for application in other rural areas.