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Changing Face of U.S. Agriculture and the Implication for Risk Management Education

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Abstract

Extension education in the rural United States is changing as the demographics shifts by agricultural operators are better understood. *RightRisk* is one program offered across the United States attempting to address the evolving needs for risk management by today's agricultural managers. Program offerings began with development of a risk simulation – *Ag Survivor* – but now 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: *Insuring Success*, *Feasibility of Alternative Rural Enterprises*, *Taxes for Agricultural Enterprises*, *AGR-Lite*, and a two-module course entitled *A Lasting Legacy*. Embracing new technologies through the use of personal response systems and web-based delivery continue to make *RightRisk* programming engaging for managers of rural farms and ranches. This flexibility and broad relevance of the fundamental concepts presented make these educational programs appealing for application in many areas, including outside the U.S.

Background

Agriculture in the western United States has experienced dramatic demographic and economic changes over the past decade. Much is known about the contribution of agriculture to the economy; however, much less is known about the changing makeup of those involved in agricultural enterprises. One way to better understand the situation is to take a closer look at the demographic characteristics of farms and farm operators in specific western states: Arizona, Colorado, and Wyoming.

The U.S. Census of Agriculture provides data on the total number of farms; farms by size; operator income; form of business ownership; tenure on the property; operator gender; operator age; and operator off-farm employment. Looking at a few of these specifics and how they have changed over time can help better understand what changes are taking place and the rate of that change.

In 2002, Arizona, Colorado, and Wyoming had a total of 48,085 farms, down from 48,147 farms in 1997. While farm size varied significantly, 35 percent of the farms were smaller than 50 acres in 2002. Farms having less than 180 acres account for almost 55 percent of all farms, and farms with sales of less than $50,000 account for 78 percent of all farms, which was a 3 percent increase from 1997, according to the U.S. Census of Agriculture.

U.S. Census data show the number of farms with annual agricultural sales of less than $2,500 significantly increased from 1997 to 2002 in Colorado and Wyoming and remained unchanged in Arizona. Data also show that between 2002 and 1997 the number of sole-proprietor farms in Colorado and Wyoming increased during the five-year period, while the number of partnerships and family-held corporations operating farms decreased in all three states.

Most farm operators in Arizona, Colorado, and Wyoming have lived on their farms for 10 years or more, with 18 years being the average in 2002. This was an increase of about six months from the 1997 census. From 1997 to 2002, census data show a significant decrease in the number of farm operators living on their present farms for four years or less. Conversely, the number of farm operators living on their farms for 10 years or more significantly increased during the same time period.

The average age of operators in Arizona and Wyoming declined from 1997 to 2002, while the average age of Colorado farm operators increased over the same period. The number of female farm operators in Colorado and Wyoming increased significantly from 1997 to 2002, while the number of female farm operators in Arizona remained statistically constant over the period. Male farm operator numbers in the three states decreased approximately 5 percent from 1997 to 2002.

Finally, the number of farm operators working off-farm and not working off-farm increased from 1997 to 2002. Farm operators not working off-farm accounted for 38 percent of all farm operators in 1997 and 44 percent in 2002. The most significant increase in farm operators working off-farm was in the category of "200 or more days worked off-farm," where there was an almost 8 percent increase (National Agricultural Statistics Service-NASS, 2002 and 1997).

A survey of farmers and ranchers in Arizona, Colorado, and Wyoming was conducted in 2006 by University Extension educators and researchers in cooperation with the National Agricultural Statistics Service of the United States Department of Agriculture. The target population was farm operations with annual sales of less than $50,000. Findings of the survey include: 1) The average size of farm reported was 264.5 acres with a mode of 40 acres; 2) Fully two-thirds of respondents reported income of less than $10,000 with the majority reporting income of less than $1,000 in 2005; 3) Eighty-one percent reported that less than 20 percent of their household income came from agricultural sales; 4) A total of 84 percent of respondents reported that their primary residence was located on the rural property and that they had lived there for an average of 18.9 years; 5) The age of operators reporting was predominately in the group 55 years and older (45 percent), while 6) most operators were male (77 percent); 7) Finally, 71 percent of respondents reported working off-farm, commuting on average 29.1 miles to work (Tranel et al., 2008).

In addition to shifting demographic and economic forces, smaller agricultural producers are faced with an increasing number of risks. All businesses deal with risk and uncertainty, yet most agricultural managers do not understand the difference between the two or how to manage the risk. Taking a risk means taking some action, like planting a crop, where probabilities of the various possible outcomes are known. When the producer cannot assign a probability to an event it is called an uncertainty. For example, a fire started by a lightning strike might be considered an uncertainty. Uncertainty is much more difficult to manage. Five major types of risk are commonly understood to exist: production risk, market or price risk, financial risk, institutional risk, and human resource risk. In addition, there are many types of controls available for managing these risks. The challenge for the manger is to know which controls are appropriate for the level of risk faced. In addition, the operator must take into account the cost of various controls and evaluate whether their potential benefit outweigh the cost of implementation.

U.S. Farm Policy

U.S. farm policy enacted since 1996 has punctuated the need for agriculture producers to understand and manage risk. Where the majority of U.S. producers are predominately smaller operators, these mangers are generally receiving greater attention by educators. Risk management is difficult to understand and teach, both because the concepts are difficult and the breadth of problems and solutions are great. Thus, there is an increasing need for effective 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 also confirmed by a recent survey of western 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.

Most recently the 2008 U.S. Farm Bill has given even greater emphasis to smaller and traditionally underserved operators. Specifically this legislation provides funding to enhance the outreach, assistance and educational efforts authorized under U.S. Department of Agriculture (USDA) programs for socially disadvantaged producers or groups “whose members have been subjected to racial or ethnic prejudice because of their identity as members of a group without regard to their individual qualities.” In addition, monies in this bill were targeted for beginning farmer and rancher development programs focused on training, education, outreach, and technical assistance. These funds are generally intended for individuals who have not previously operated a farm or ranch or have operated a farm or ranch less than 10 years. Other aspects of the bill offer assistance to limited-resource farmer or ranchers who report: 1) gross farm sales of not more than $116,800 in each of the previous two years and 2) a total household income at or below the national poverty level for a family of four in each of the previous two years. At least US$160 million have been earmarked in the bill to assist these groups over fiscal years 2009-20012 (USDA 2008).

What Is *RightRisk*?

RightRisk has its roots deeply embedded in risk management education conducted by Extension educators at land grant universities throughout the western United States. The Western Risk Management Education Team began developing risk management education tools – initially the Ag Survivor simulation model – and support materials. The Team changed its name in 2002 to the RightRisk Education Team to better reflect its educational philosophy "to help farmers and ranchers understand and explore risk management decisions and evaluate the effects of those decisions."

Today, RightRisk has become a premier organization helping agricultural firms and farm and ranch families better understand problems associated with financial, market, production, legal or institutional, and human risks. Team members have university appointments with extension, teaching, and/or research responsibilities. They have over 20 years of experience working with individual farmers and ranchers, small business owners, farm families, policy decision makers, members of local, state, and national legislative bodies, and others.

Introduction to Educational Offerings

RightRisk on-site educational programs have been conducted in several states and also reach individuals via its web site and on-line course presentations. Workshop participants range from commercial agriculture producers, small farm owners, retired commercial operators, beginning and young farmers, and college classes. Over 200 workshops have been offered since the inception of Ag Survivor with group sizes ranging from just a handful of participants to nearly 100.

RightRisk educational programs involve a variety of methodologies, programs, and materials. Programs can be as short as 1.50 hours or as long as five days. All involved family members and partners, regardless of age, are encouraged to participate in the educational programs. Computer simulations, personal response systems, group discussions, and exercises provide participatory experiential learning environments which allow RightRisk workshops and seminars to be fun, exciting, and educational.

Workshop participants have been complementary over the years, 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*."

Beyond the traditional workshop format, a number of web and CD-rom based courses have been developed for self-study situations. Farm and ranch families can learn about the risks they face and the tools for managing their risks in the comfort of their own homes and offices.

Research projects undertaken by the team are directed at better understanding risk attitudes and strategies of agricultural operators, developing tools for risk assessment and risk management, management decision aids, risk simulations, and resource management tools. Some of the more prominent efforts include:

- *Ag Help Wanted: Guidelines for Managing Agricultural Labor* – a human resource management text co developed by members of RightRisk LLC and researchers from five western states and one Canadian province. More information on this resource is available at: AgHelpWanted.org (Rosenberg et. al, 2002).

- *Rural Family Ventures* – a research effort to better understand the risk attitudes, resource management issues, and perceived threats of agricultural managers in three western states. One study involved those agricultural producers reporting less than $50,000 in agricultural sales, while a current study involves commercial farms and ranches reporting more than $50,000 in annual agricultural sales. Findings of the studies may be viewed at: RuralFamilyVentures.org (Tranel et al., 2008).

- *Risk Navigator SRM* – a text outlining a 10 step process for strategically managing risk and user-friendly tools created to help agricultural managers implement the process in day-to-day management of agricultural operations. More information is available at: RiskNavigatorSRM.com (Hoag et al., 2008).

Ag Survivor

Ag Survivor is one of the primary education tools used by RightRisk. This risk simulation was designed to help users better understand their own tolerance for risk while practicing risk management decision making in a simulated farm/ranch environment. The simulation is most commonly used in presentations with groups of producers where the interaction of individual ranch/farm managers in small group settings creates a learning atmosphere unlike most other educational presentations.

Several alternative scenarios have been developed for the simulation 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 losing the farm. The simulation may be experienced online at: AgSurvivor.com.

Insuring Success

Insuring Success is a course designed to help farmers and ranchers better understand risk, sources of risk, important aspects of risk management, and selected risk management tools. The web and CD-rom based self-study course is divided into 12 lessons that include important aspects of risk management. Enterprise diversity, drought mitigation strategies, retained ownership of livestock, and the numerous insurance products available to agricultural producers from the United States Department of Agriculture's Risk Management Agency are the focuses of this risk management education course (Hewlett et al., 2008).

Taxes for Agricultural Enterprises

Taxes for Ag is a web and CD-rom based self-study course designed to help agricultural producers gain a better understanding of the complex structure of income tax issues. The course and readily available support materials and links to internet sites can help farmers and ranchers:

- Learn the types of tax liability and the appropriate approach to record keeping.
- Delve into strategies for record-keeping based on the type of farming operation,
- Explore the differences between income and expenses,
- Investigate the reporting structure of the tax code, and
- Develop strategies for managing and limiting one's tax liability.

The course uses interactive games, printable worksheets, and tax form pictorials to help present the major issues at hand. Participating in the *Taxes for Ag* course is the most effective way for agricultural producers to improve their understanding of income taxes and gain the skills to effectively manage tax liabilities (Tranel et al., 2007).

Feasibility of Alternative Rural Enterprises

The *Feasibility of Alternative Rural Enterprises* course presents a step-by-step approach to defining an agriculture enterprise, setting goals, planning for success, and evaluating and managing risks. The course begins by defining agricultural enterprises and illustrating the differences between traditional and alternative enterprises. Course participants experience the process of planning and analyzing existing or potential enterprises. A SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) should be performed for each enterprise. Most new businesses fail due to lack of proper planning. As an entrepreneur, a person can greatly enhance his or her chances of success by assessing the feasibility of an idea. Individuals should do a personal assessment, production assessment, market assessment, and economic assessment for each potential alternative enterprise before they begin. The *Feasibility of Alternative Rural Enterprises* course is designed to help producers evaluate existing or new alternative enterprises. Content includes individual assessments at the end of each lesson, as well as interactive activities to help in understanding the concepts (Sharp et al., 2007).

AGR-Lite

AGR-Lite is a whole farm revenue protection plan that protects most crop and animal revenues. AGR-Lite insures the revenue of the entire farm rather than individual crops. The *AGR-Lite* course provides an overview of the AGR-Lite insurance program, the process for application, tools for calculating indemnity payments in the event of a loss, and the records and documentation required to get an AGR-Lite claim approved (Sharp et al., 2008).

A Lasting Legacy

The *A Lasting Legacy* courses present an alternate approach to end of life planning that suggests a road map for the future embracing the meaning of a person’s life. In historical terms, a legacy is something that is handed down from one period of time to another period of time. An individual’s legacy is a summation of a lifetime of achievement and the context in which that lifetime will be remembered. A legacy is not just money but reputation, accomplishments, impacts made in the world, and people touched.

Leaving a legacy that everyone can love depends on elders and adult children being able to bridge the communication gap. Communication between generations is more vital than ever to ensure that the needs of elders and heirs are aligned. Talking about legacy can be an emotionally satisfying experience for both parents and children. Comprehensive communication gives elders and their heirs an opportunity to share their most important beliefs, wishes and directives, and lessons learned throughout their lifetime.

These courses are designed to create an easy-to-use process to help families go through a hands-on approach to pass on a true legacy to younger generations. *A Lasting Legacy* captures all facets of an individual's life. Course 1 guides interested participants through 1) Methods and tools for improving intergenerational relationships; 2) Sharing Your Values and Life Lessons; and 3) Passing on Personal Possessions of Emotional Value. Course 2 addresses the legacy components of 1) Preparing Instructions and Wishes to be Fulfilled and 2) Distributing Financial Assets and Real Estate.

Thorough discussions about legacy planning should include talking about all four components of a true legacy. Where conversations between a parent and child do not cover all four components, the legacy conversion is not complete. Clarifying plans and explaining intentions can make otherwise contentious decisions understandable and avoid lasting resentments. When legacy decisions are made and then communicated to the family, research shows that family members are more likely to accept the outcomes. Family members will also benefit from the special memories and stories that have been shared (Sharp et al., 2007) and (Tranel et al., 2007).

Risk Navigator-Strategic Risk Management Process

All business owners make decisions that impact their bottom line. Making decisions is made harder when there is uncertainty about markets, production, or finances. Agricultural producers make more risky decisions than most business owners, but studies show that most don't have a strategic plan to manage risks. The *Risk Navigator – SRM* material helps agricultural producers better recognize risks, understand personal attitude toward risk, and manage risks specific to their operations. 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.

Figure 1. *The Strategic Risk Management Process*

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: 1) Determine Financial Health, 2) Determine Risk Preference, 3) Establish Risk Goals, 4) Determine Risk Sources, 5) Identify Management Alternatives, 6) Estimate Likelihoods, 7) Rank Management Alternatives, 8) Implement Plans, 9) Monitor & Adjust, and 10) Replan.

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 (Hoag et al., 2008).

Summary

The demographics of agricultural mangers in the United States are changing. A shift toward smaller, older operators with significant off-farm employment is clear. In addition, an increase in the number of women operators is also noted, possibly due to the demise of a large number of male mangers. Further, there is increasing emphasis on the part of U.S. policy makers on risk and risk management, most recently through a significant allocation of funds intended to assist the smaller and socially disadvantages farmers and ranchers. As a result U.S. Extension education is necessarily changing too.

RightRisk is one program offered across the United States attempting to address the evolving needs for risk management by today's agricultural managers. Educational program offerings began with development of a risk simulation – *Ag Survivor* – but now 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: *Insuring Success*, *Feasibility of Alternative Rural Enterprises*, *Taxes for Agricultural Enterprises*, *AGR-Lite*, and a two-module course entitled *A Lasting Legacy*.

In addition, the team is involved in significant research projects with the objective of better understanding risk attitudes and strategies of agricultural operators, developing tools for risk assessment and risk management, management decision aids, risk simulations, and resource management tools. Areas of emphasis include: management of agricultural labor, understanding the changing demographics of rural enterprise mangers, and authoring texts with accompanying tools for improved risk management.

Embracing new technologies through the use of personal response systems and web-based delivery continue to make *RightRisk* programming engaging for managers of rural farms and ranches. This flexibility and broad relevance of the fundamental concepts presented make these educational programs appealing for application in many areas, including outside the U.S.

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