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Risk Management for Ag Families: Evaluation of an Integrated Educational Program for Producers on the Northern Plains

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Risk Management for Ag Families: Evaluation of an Integrated Educational Program for Producers on the Northern Plains

Abstract

This article analyzes the impact of a series of educational programs focusing on risk management for agricultural families structured as a series of short educational sessions coupled with hands-on learning activities. Responses of program participants to pre- and post-workshop questionnaires, series questionnaires, and a follow-up mail survey are analyzed using non-parametric statistics. Results indicate that this integrated format, focusing on areas of risk affecting agricultural family businesses, had a positive impact on knowledge levels and behavior. Overall, these results suggest this type of educational format may have merit as compared to more didactic approaches for delivering risk management education.

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Introduction

Risks faced by today's agricultural producers go well beyond the concerns of hail damage or price fluctuations at local auctions and elevators. Farm/ranch survival depends on sound risk management practices involving farm enterprise choices, advanced marketing, business, and debt management (Held & Helmers, 1981; Held & Zink, 1982). Producers operating as family businesses face human risk elements that their agribusiness competitors do not (Davidson et al., 1997; Greenberg, 2000; Leach, Ball, & Duncan, 2002).

Impacts from Washington and the world are also increasingly felt at the farm level. U.S. farm policy changes over the past decade have placed agricultural producers in a riskier business environment. In the mid 1990s, international trade agreements removed trade barriers greatly increasing volatility in agricultural product markets. The 1996 FAIR act (Food, Agriculture Improvement Reform Act) decoupled commodity program payments and introduced a system to reduce government outlays to agricultural producers. In order to assist producers through these changes, the FAIR act mandated that risk management education be provided to agriculturalists.

To meet the objective of providing risk management and financial tools to farmers and ranchers,

the USDA budget increased from 25.7 billion dollars in 2004 to \$40.7 billion in 2005 (USDA, 2006). Five (5) million dollars annually is mandated specifically for risk management education (Agricultural Risk Protection Act of 2000, H.R. 2559 Sec. 524 (3) and (4B)). This money is paid out under the Cooperative State Research Education and Extension Service, USDA Risk Management Agency, and Regional Centers linked to Cooperative Extension with the goal of easing producer dependence on government programs, reducing farm income variability, and improving the odds of farm survival.

Brorsen and Irwin (1996) stated that "Extension should put more emphasis on managing risk" (p. 73). Anderson and Mapp (1996) surveyed Cooperative Extension economists and reported that most saw a gap between published research on risk management and practices that could be used to affect producers. With risk management education an increasingly important part of US farm policy and a fundamental tool for farm survival, research on needs and impacts of risk management education is surprisingly sparse.

A few recent studies have touched on specific risk management education needs. Fetsch, Bastian, Kaan, and Koontz (2001) conducted a survey of agricultural producers in Colorado and Wyoming aimed at assessing their risk management needs. The authors found that producers did not want traditional 2- to 3-day workshops but that they were open to follow-up programming. Hall, Knight, Coble, Baquet, and Patrick (2003) surveyed cattle producers in Texas and Nebraska regarding their perceptions, desires, and needs regarding important areas of risk and risk management education. Their research indicated that previous attendance at programs and lower age increased the probability of expressing a need for more risk management education. The authors conclude there is a need for more applied risk analysis research accompanied by development of new educational programs that address producer needs.

More in-depth program evaluation research has demonstrated that deeper levels of implementation and change do not occur until people participate in at least four and preferably more 2-hour weekly sessions with exercises between sessions to practice learned skills (Fetsch, Schultz, & Wahler, 1999; Fetsch & Zimmerman, 1999). While these results come from analyses of programs on a very different topic than agricultural risk management, they included rural parents similar to the producer groups targeted for this study. These studies point to a desire from producers for programs other than traditional brief, one-time educational lectures and a need for reported impacts of risk management education.

The focus of this program was on the risk management needs of family operations in a four-state region encompassing the Northern Plains, typified by large farms and ranches, low population, and extensive agricultural production. According to USDA Agricultural Resource Management Survey data, the Northern Great Plains region has agricultural operation debt to asset ratios that are slightly higher than the national average (USDA ERS, 2006). Drought has also affected agricultural production in this region (NCDC, 2004). Moreover, the results of Fetsch et al. (2001) indicate human resource risks ranked high amongst producers in Colorado and Wyoming. This suggests operators in this area may be facing an elevated risk of firm failure.

The Risk Management for Ag Families grant project developed an integrated series of risk management workshops that would address producer needs and use methods suggested by the literature. The pilot project presented here employed an expansive definition of risk, introduced innovative teaching methodologies, and incorporated short and medium term impacts evaluations. This paper evaluates the potential impacts of this approach.

Approach

A team of Extension educators and agricultural economists developed the Risk Management for Ag Families integrated risk management program, delivered in a series of workshops with a medium-term follow-up. Twenty-eight educators were trained using these materials in a Train The Trainer Conference at the Campbell County Extension Office over 3 days in November of 2003. The Risk Management for Ag Families workshop series was presented to 40 agricultural operators in six program offerings in Wyoming, Montana, North Dakota, and South Dakota between January and June of 2004.

Workshops were structured to incorporate hands-on applications of concepts delivered through a series of relatively short presentations with time between sessions for producers to practice what they learned. An educational curriculum encompassing market and production risk management was delivered in four separate sessions: a risk-simulation game, family financial management, agricultural business financial analysis, and risks in family business. The curriculum presented information in an integrated and complimentary manner, rather than a traditional didactic approach. Complete curricula are available at <http://agecon.uwyo.edu/RiskMgtForAgFamilies/>.

In order to research the impact of this educational approach and the effectiveness of this curriculum, participants were required to complete pre- and post-session and program questionnaires related to knowledge and practices in the overall program as well as each session area. Participants were also asked to complete a follow-up questionnaire, which used a Dillman design (Dillman, 2000), 3 months after the workshop series to assess the degree to which new risk management information and practices were implemented. Questionnaires and follow-up surveys are often used to evaluate educational programs (Gay & Airasian, 2003). Data summarized in this

article are from these questionnaires.

Data Analysis

Forty producers from four states participated in the Risk Management for Ag Families workshops and workshop evaluations. This sample was self-selecting and therefore not statistically representative of any population. The Wilcoxon Signed Ranks test statistic was used to examine differences between pre- and post- program and session questionnaire responses in this analysis. This test is a nonparametric (i.e., does not require a normally distributed population) alternative to the paired-samples t-test. It is appropriate for nominal and ordinal categorical data (i.e., counts and ranks) with two to nine categories (Norusis, 2005). This test statistic is appropriate for simple local comparisons within a small sample. Statistics presented here are not intended to represent any population. For this analysis, p-values at $\alpha \leq 0.05$ and 0.01 are reported with, $\alpha \leq 0.01$ considered significant.

Results

Specific Session Results

An analysis comparing pre- and post-questionnaire results for each session was conducted in order to ascertain potential short-term changes in knowledge.

In general, questionnaire responses to market and production risk management simulation training indicate positive changes in participants' overall risk management attitudes. Results from financial management session questionnaires imply that producers who participated were already knowledgeable in most of the financial areas discussed. Post-session results for the family finance session questionnaire showed significant improvement in attitude. The family business risks workshop elicited the most significant responses of the four risk management workshops. Overall, these pre- and post-session questionnaire results indicated that there was a significant short term impact. Complete results are available at <http://agecon.uwyo.edu/RiskMgtForAgFamilies/FinalReport.pdf>.

Overall Program Results

A comparison of general pre- and post-program and the follow-up questionnaire results serve as a measure of producer's benefit from the Risk Management for Ag Families training program, i.e., was there an educational impact?

Participants in the Risk Management workshop series were asked nine questions regarding their general risk management knowledge and attitude both before the first and after the last session. Two of these questions were asked in the follow-up mail questionnaire as well.

Although responses were marginally more positive to general questions regarding the future of agriculture, operations' comparative financial situations, and the importance of risk management, there was no significant difference in post-program answers. Pre-program answers to all of these questions were high to begin with suggesting that producers who chose to attend already had a positive overall attitude in these areas.

Knowledge regarding a series of more specific risk management tools and strategies showed significant improvement with regards to production, marketing, financial, and human risk as well as strategic planning (Table 1).

Table 1.

Pre- vs. Post-Program Results: Knowledge of Specific Risk Management Tools

| "How knowledgeable are you about the risk management tools and strategies within the following categories?" | Pre-Program Mean ^a | Post-Program Mean ^a | p-value (2-tailed) ^b |
|---|-------------------------------|--------------------------------|---------------------------------|
| Production | 5.6 | 6.6 | 0.005** |
| Marketing | 4.4 | 5.5 | 0.006** |
| Financial | 5.3 | 6.5 | 0.002** |
| Legal | 3.8 | 4.7 | 0.021* |
| Human | 4.4 | 5.9 | 0.000** |
| Strategic Planning | 4.3 | 6.1 | 0.000** |

a. Means are calculated from a 9 item Likert scale with 1 = "Not Knowledgeable" and 9 = "Very Knowledgeable."
b. Calculated using the Wilcoxon Signed Ranks Test (based on negative ranks). ** indicates significance at $\alpha = 0.01$, * indicates significance at $\alpha = 0.05$

Significant improvement was also shown in general risk management questions regarding satisfaction with knowledge of available risk management alternatives, current risk management plan, measurable and attainable business goals, and intention to re-evaluate a risk management plan in the near future (Table 2).

Table 2.

Pre vs. Post Program Results: Risk Management Alternatives, Planning, and Goals

| | Pre-Program Mean ^a | Post-Program Mean ^a | p value (2-tailed) ^b |
|---|--------------------------------------|---------------------------------------|--|
| I am satisfied with my knowledge of risk management alternatives. | 2.4 | 3.6 | 0.000** |
| I am satisfied with my current risk management plan. | 2.6 | 3.2 | 0.003** |
| I intend to re-evaluate my risk management plan in the near future. | 3.8 | 4.2 | 0.011* |
| I am satisfied with my current strategic plan for my operation. | 3.0 | 3.0 | 0.785 |
| I am satisfied [that] my current business goals are measurable and obtainable. | 3.2 | 3.6 | 0.008** |
| a. Means are calculated from a 5 item Likert scale with 1 = "Strongly Disagree" and 5 = "Strongly Agree." b. Calculated using the Wilcoxon Signed Ranks Test (based on negative ranks). ** indicates significance at a = 0.01, * indicates significance at a = 0.05. | | | |

The follow-up questionnaire, sent 2 to 3 months after the final workshop, had a 67.5% response rate. (27 out of 40 participants returned the follow-up questionnaire.) With this in mind, it is still interesting to note several areas that received a more enthusiastic response from those producers who did respond. More than 75% of respondents indicated areas that had been evaluated to reduce production, market, family finance, business finance, and family business risk since the workshop series (Table 3).

Table 3.

Follow-up Questionnaire Results: Alternatives Evaluated to Reduce Specific Risks

| | Mean ^{a b} |
|---|----------------------------|
| Production Risk | |
| A new business enterprise | 27% |
| Ways to reduce my costs | 81%** |
| Crop insurance | 52%* |
| Adopting new technology / production practices | 67%* |
| Market Risk | |
| Forward contracting | 36% |
| Futures/Options | 32% |
| Crop insurance | 54%* |
| Gathering market news / analysis to help me market my product | 78%** |
| Family Finance Risk | |
| Multiple family members included in family finance decisions | 63%* |
| Develop a process for making family finance decisions | 48% |
| Develop family goals for family finances | 92%** |
| Develop a plan for transferring my property or estate | 63%* |
| Business's Financial Risk. | |
| | |

| | |
|---|-------|
| Develop a plan to prepare financial statements | 70%* |
| Analyze what has happened to my net worth over a period of time | 83%** |
| Develop budgets for the coming year | 80%** |
| Analyze ways to improve net income | 88%** |
| Family Business Risks | |
| Working to assess family/business balance | 58%* |
| Working to understand family decisions regarding business risks | 35% |
| Working to improve family communication about business risks | 67%* |
| Working to understand four systems of family enterprise | 82%** |
| <p>a. Mean is calculated from binary responses coded 1 for "Yes," and an affirmative response to "Check all that apply;" and 0 for "No," and unchecked list items, reported as a percentage.</p> <p>b. ** indicates $\geq 75\%$, and * $\geq 50\%$ of respondents responded "yes" or checked this item.</p> | |

Conclusions

Impact Assessment: Did Producers Benefit from the Risk Management for Ag Families Training Program?

A majority of questions asked on pre- and post-workshop questionnaires regarding specific knowledge of risk management strategies showed significant improvement. Significant improvement was also shown in several questions regarding satisfaction with new knowledge and skills. These results indicate that respondents gained short-term knowledge regarding risk management in the workshop series.

Responses to the follow-up questionnaire further indicate that respondents took actions to address their risk management situation as it related to training in the workshop series. Every respondent indicated specific areas that they had evaluated in the 2 months since the workshop series to reduce production, marketing, family finance, and business financial risks. More than half of respondents reported evaluating overall risk management and strategic plans, and 78% reported evaluating their production risk.

Curriculum Assessment: What Sessions or Points Within Each Session Were Most Helpful?

Respondents reacted favorably to a family finance session. A major impact of this session was to indicate good family financial management as a significant risk management strategy for agricultural families.

The risks in family business workshop elicited the most positive responses of the four risk management workshops. This seems to follow findings in Fetsch et al. (2001) that human relationship risks in the management of the farm business were ranked as being a high priority among survey respondents.

Methodological Recommendations on Teaching and Impacts Assessment

Results of the pilot study reported here indicate that the unique integrated series approach to training and focus on risks distinctive to family businesses in this workshop series had a positive impact. Overall, workshops focusing on human risk as they related to family businesses were most beneficial. Moreover, the format of short workshops coupled with activities to re-enforce concepts was a successful format for risk management education.

The pilot study also makes an important contribution in documenting short- and intermediate-term impacts of a risk management education curriculum. The results help fill a gap in the literature regarding the impacts of risk management education as well as contribute to knowledge regarding future workshops on risk management education.

As Extension educators continue to use USDA funding to deliver risk management workshops, these results suggest integrating the human risk element into more practical risk management curricula may be useful. Moreover, workshops delivered as a series of short programs with hands-on activities during and between workshops may be a more effective format for risk management education concepts than traditional one-contact type formats.

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