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6

Risk Management for Ag Families: An Outreach Education Model for Improving Family Business Success

Christopher T. Bastian, Amy Nagler,
Randolph R. Weigel and John P. Hewlett
University of Wyoming
USA

1. Introduction

Family owned businesses account for more than half of the gross domestic product in the United States and have been an important source of growth for the economy (University of Tulsa, 2006; MassMutual Financial Group, 2003). Of the 2.2 million farms operating in the U.S. during the 2007 agricultural census, 86.5 percent listed their business organization as family or individual, and these farms reported a total estimated market value of agricultural products sold of $297.2 million (USDA NASS, 2009). Hoppe and Banker (2005) estimate that 97 percent of all farms in 2001 were family managed farms. Given the importance of family businesses in the U.S. economy and the large number of family farms, it is noteworthy that traditional outreach education programs dealing with business concepts often ignore the unique risks faced by family businesses.

Research indicates that nearly 7 out of 8 family businesses will fail before they are passed on to a third generation (Aronoff, 2001). Part of the reason family business failure is so high stems from the fact that family businesses mix personal lives with business decisions. Issues such as disputes amongst family members who are also employees, non-performance of family members, succession planning, and the impact of poor family finances putting pressure on business performance are all potentially firm-threatening issues which are unique to family businesses (Davidson et al., 1997; Greenberg, 2000; Leach et al., 2002).

Moreover, farm businesses face added risks associated with production agriculture that may not be found in other family businesses. In the mid 1990s international trade agreements such as the General Agreement on Tariffs and Trade (GATT) and the North American Free Trade Agreement (NAFTA) removed trade barriers and greatly increased volatility in agricultural product markets. In the U.S., the 1996 Food, Agriculture Improvement Reform Act, known as the FAIR act, decoupled commodity program payments from traditional production requirements and developed a system to reduce government outlays to agricultural producers. During the tenure of the FAIR act, commodity supplies in the United States increased and commodity prices generally dropped. Additionally, the FAIR act

mandated that risk management education be provided to agriculturalists. While the latest farm bill has continued payment programs to producers in an effort to address lower agricultural incomes, the market environment remains much riskier than it was prior to the events of the mid 1990s. This riskier market environment is in addition to the production risks traditionally faced by agricultural producers.

Risk management education continues to be a priority as evidenced by risk management granting programs and efforts by the United States Department of Agriculture Risk Management Agency and Cooperative Extension System to improve producers' risk management skills and tools. Additional monies are available through regional risk management education centers to develop and deliver programs to agricultural producers. However, many of the curricula being developed and delivered by traditional agricultural economics specialists focus on various aspects of risk, returns, and tradeoffs and are often centered on profit maximization. It would seem that family farm audiences and family businesses in general, might be better served by educational programming which integrates traditional risk management concepts with the unique needs of family businesses.

2. Relevant Literature

2.1 Outreach Education

Given the importance of marketing and risk management skills in improving firm survival (Kay, 1981), it is noteworthy that little research has been published on risk management needs assessments or the impact of risk management education programs on agricultural producers' business strategies. Jamison and Lau (1982) studied 37 data sets on small farm production and education across a number of countries. Their analysis indicated that in 31 of the studies the effect of formal education was positive and usually significant in improving farm efficiency. Non-formal education was shown to be significant in improving agricultural productivity in half of studies reporting producers engaging in non-credit education. Akobundu et al. (2004) conclude that net farm income of small, limited resource farmers significantly increased when they experienced more than one educational visit with an extension educator. Anderson and Mapp (1996) surveyed Cooperative Extension economists and reported that most Extension economists thought there was a gap between published research on risk management and risk management practices that could be used in programs to improve producers' abilities. Hall et al. (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 addressing producer needs.

Fetsch et al. (2001) conducted a mail survey using a random sample of agricultural producers in Colorado and Wyoming aimed at assessing their risk management needs. The authors found that agricultural producers desire risk management education in a number of topic areas, but that they wanted programming that was not like traditional educational programs in terms of their approach and content. Human relationship risks in the

management of the farm business were ranked a high priority amongst survey respondents. Producers also indicated that rather than two or three day programs they preferred shorter educational sessions. The majority of producers indicated they would attend follow-up programs. The authors conclude that determining program impacts through pre-test surveys at the beginning of the educational process and post-test surveys after producers had attended a number of short educational sessions emphasizing application of new concepts would make an important contribution.

Previous program evaluation research with Cooperative Extension clientele has demonstrated that short-term workshops do increase knowledge, improve attitudes, and improve behaviors as assessed by mail surveys six weeks after participation in Cooperative Extension workshops (Fetsch, 1994; Fetsch and Gebeke, 1995; Fetsch and Gebeke, 1994). More in depth program evaluation research by Fetsch et al. (1999) and Fetsch and Zimmerman (1999) has demonstrated that deeper levels of implementation and change do not occur until people participate in at least four and preferably more two-hour weekly sessions. Researchers found that participation in six or seven two-hour weekly meetings with well trained professionals who provided research based information, active learning activities such as role plays, and time to practice the new behaviors for a week between each workshop produced behavioral changes and statistically significant improvements on more in depth variables. While these results come from analyses of programs on a very different topic than agricultural risk management, they included rural families similar to the producer groups targeted for this study.

The literature cited above indicates that an outreach education program incorporating hands-on applications of concepts delivered through a series of relatively short presentations with time between sessions for producers to practice what they have learned could have significant impacts on their depth of knowledge and changes in behavior when applied to risk management needs. Moreover, a risk management education program which addresses topics in an integrated and complimentary manner, rather than a traditional didactic approach, could improve agricultural producers' knowledge retention and ultimately their abilities to survive in the risky business environment they face. Little research has been published specifically addressing agricultural family risk management education needs or impacts.

2.2 Family Business

Atchison et al. (1994) find that understanding how family relationships affect the business and how the business affects the family was critical for small business success. Bianchi and Bivona (2000) state that small business managers need to understand the relationship between business issues and the equity-owning family's emotional involvement. Ward and Aronoff (1990) find that business growth could not keep up with rising family lifestyles which ultimately created stress in the family. Moreover, they find that disagreement between family members involved in family owned firms increased stress and the possibility of business failure. Paul et al. (2003) investigate the timing and sequencing of development in the family and family business and how these affected adjustment strategies that household and business managers employed when coping with unusual stress. They find that family variables were more significant in predicting adjustments in the business

realm than in the family realm. The authors conclude that looking at variables from both the family and business perspective was important when attempting to understand the dynamics associated with family owned businesses. Danes et al. (2005) explore differences in language patterns used by male and female family business owners. The authors find that "emotional discourse style (words of personal involvement, concern and preference) was fairly prominent in the contexts of business success, managing family, and the interaction between business and family for both genders" (p. 127). Cole (2000) finds that family business members deal with each other in work and family contexts which creates a relationship in which two people are managing two relationships simultaneously. She concludes therapists may need to assist family business members in finding ways to cope with these dual relationships. The literature overwhelmingly indicates that if education programs for family businesses are to be successful they must recognize and integrate business management concepts with family relationships.

Danes and Lee (2004) investigate business-generated tensions for farm owning couples. The authors find that wives reported higher tension in four out of seven business tension areas than their partners. Profit was the highest priority for husbands, while wives identified good family relationships as their highest priority. Transferring family financial resources to the business and having preschool age children was associated with increased tensions for both wives and husbands. The authors also find that, for husbands, keeping the business within the family was associated with increased tensions. This research suggests that important sources of tension for family farms are the interrelationship between family and business finances as well as family business succession.

Zimmerman and Fetsch (1994) find that family members who improve communication and involve all family members to create a shared vision and strategic plan increases family functioning and decreases family business related stress. Heleba et al. (2004) present an approach for farm business succession workshops. They conclude that while providing technical information regarding estate taxes, business entities, and business transfer tools were essential, farmers needed information and support on family communication and goal-setting to develop good farm succession plans.

Overall the above literature indicates that educational programs targeted at family businesses, and more specifically at family farm businesses, needs to incorporate family relationships into the curriculum. Information which deals with important areas of intersection between the family and the business such as finances and estate planning is important, particularly as it relates to financial risk management. Finally, education regarding family communication and goal-setting are potentially important components to incorporate into risk management curricula.

3. Objectives

The overall objective of the multi-state, grant-funded project, "Risk Management for Ag Families" was to develop, deliver, and assess the impact of a risk management education program that employed an integrated approach to risk management, farm operation,

personal finance, and human relations in a family business orientation. Specific objectives included the following:

1. To develop, present, and evaluate a series of educational programs for family farm operators in the Northern Great Plains of the United States, specifically in northeastern Wyoming, northwestern South Dakota, southwestern North Dakota, and southeastern Montana—employing an integrated approach to risk management, farm and personal finance, and human relations.
2. To introduce producers to computer programs for use in class and at home to analyze possibilities and formulate plans related to risk management and family finance.
3. To assess the impact of this program in order to make a contribution to educators and other professionals providing non-credit educational programs to agriculturalists.

4. Conceptual Model

A conceptual model which illustrates the important interactions that should be considered when developing an agricultural risk management curriculum was adopted for this project. The overarching model used to guide the curriculum and content in Risk Management for Ag Families came from the Enterprising Rural Families™ course developed by University of Wyoming educators as well as family business specialists from Canada and Australia. The heart of this model, illustrated in Figure 1, is a Venn diagram with three circles representing individual, family, and business. At the intersection of these three circles is the family business, symbolizing the interaction and dynamics that must be accounted for in any educational offering dealing with the family business. The outside circle symbolizes that all is contained within a community. Developing curricula with this conceptual model in mind should make risk management education for family businesses more effective.

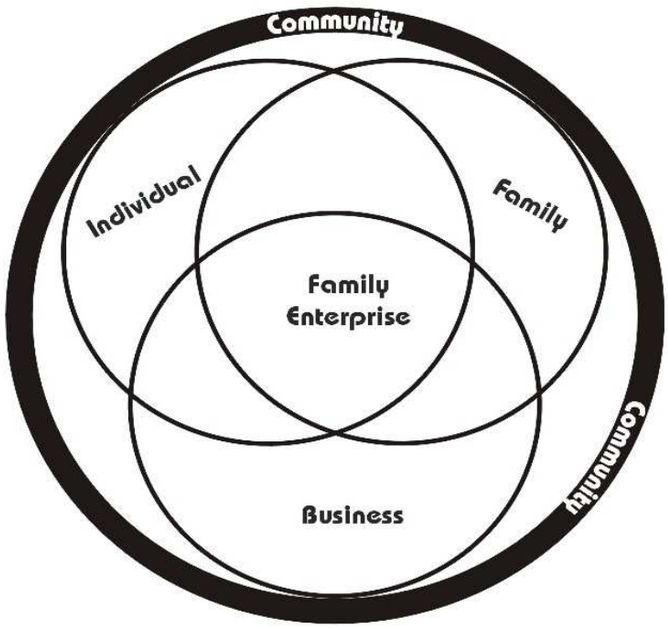


Fig. 1. Conceptual model of family business

5. Project Design and Methods

A train-the-trainer workshop was held November 3-5, 2003, at the Cooperative Extension Service Facility in Gillette, Wyoming. This workshop was delivered to 28 extension educators from North Dakota, Montana, South Dakota, and Wyoming. The three day program included an educational program as well as an overview of materials to be used in the Risk Management for Ag Families workshops to be held in the four-state region. Along with training on actual program content and materials, educators were provided with a supporting website and instruction on the program evaluation design.

Extension field educators from the four participating states recruited agricultural producers willing to participate in educational workshops and commit to completing pre- and post-workshop evaluations. Advertising via press releases and Cooperative Extension publications targeted service areas in the four states. Program attendees were encouraged to participate and complete all activities and questionnaires via incentives designed by the researchers and extension educators involved. Each participant agreeing to the evaluation process signed a form indicating that they understood their rights as well as potential risks associated with participation as per University of Wyoming Institutional Review Board guidelines. A total of 40 individuals participated in educational sessions; 4 in Wyoming, 11 in Montana, 10 in North Dakota, and 15 in South Dakota.

Four educational workshops were presented in each of the cooperating states. Each workshop ran two to three hours in duration, per guidelines in the literature. Workshops included hands-on sessions using computer laboratories and active learning exercises to apply new concepts. Educational programs introduced concepts and familiarized participants with specific software and web-based programs related to risk management, farm and family finance, and human relations.

Educational program curricula for four sessions included curricula on risk simulation, family finance, surviving in agriculture, and family business risks. This content was taught using the following educational tools:

- *RightRisk* is a risk simulation game designed to help farmers and ranchers understand and explore risk management decisions and evaluate the effects of those decisions. The game reinforces an understanding of personal risk preferences and risk-taking behavior for teams involved in the simulation as well.
- *Planning for Financial Stability and Security: Managing Your Family Finances* covered concepts and tools to assist producers and their families with financial management. This session was designed to give families the tools to deal with personal financial management and potentially reduce pressures related to the interaction between family and business finances. PowerPay™ was introduced as a way to manage personal debt. Information regarding estate planning also was included as part of the workshop content.
- *Can I Survive in Ag: Why Producers Need to Understand Financial Analysis* guides participants through an in depth measurement of business performance, the impact of family financial structure, and the role of government programs in the viability of today's agricultural operations. Specifically, a simulation involving spreadsheets

linking the firm's financial statements and key variables such as profit and family living withdrawal is used to demonstrate these interactions.

- *Risks in the Family Business* draws from concepts in the Enterprising Rural Families course to focus on the distinctive risks that characterize family businesses: the interaction of individuals, the family, the business, and the surrounding community. Course concepts included differences in risks for family versus non-family owned businesses, developing balance between family and business, family communications related to goal-setting, conflict resolution, and taking the first steps toward estate transfer.

6. Questionnaire Instruments and Administration

6.1 Instruments

In order to ascertain the potential impact of the Risk Management for Ag Families project, a comprehensive evaluation was planned for each producer workshop. The evaluation process consisted of pre- and post-session questionnaires for each of the four teaching sessions, as well as a general pre- and post-program questionnaire and a follow-up survey. These questionnaires and the survey design were approved by the University of Wyoming Institutional Review Board prior to the train-the-trainer workshop. Specific instruments included:

A *general pre-program questionnaire* completed at the first workshop attended by each participant was designed to measure baseline risk management knowledge and attitude. This questionnaire also requested basic demographic information such as age, gender, education, size and type of operation, and business structure, as well as identification information including name, address, state, and zip code used to facilitate the follow-up mail questionnaire.

Workshop-specific pre- and post-session questionnaires were delivered at each of the four workshops. Pre-session questionnaires completed at the beginning of each workshop were designed to measure base levels of understanding and knowledge of subject matter to be taught in each of the four workshops. Post-session questionnaires, completed at the end of each workshop, were used to measure changes in the level of understanding and knowledge of subject matter just after each workshop.

A *general, post-program questionnaire*, completed at the end of the fourth workshop, was designed to measure changes in general risk management knowledge and attitude and plans for incorporating cumulative information learned from all four sessions. The total number of workshops each participant attended was also recorded. A drawing for a savings bond conducted at end of fourth workshop served as an incentive for participants to complete all of the workshop-specific and general program questionnaires.

A *follow-up mail questionnaire* was sent to each participant who agreed to participate in the evaluation study two months after the final workshop. This mail survey followed a modified Dillman design (Dillman, 2000). The mailing included a cover letter, questionnaire, and stamped return envelope followed by a one-week follow-up post card. A third mailing with cover letter, questionnaire, and stamped return envelope was sent to participants who

had not responded one week later. The follow-up questionnaire was designed to measure specific knowledge and attitudes related to subject matter of each workshop and what new information and skills were incorporated into each participant's approach to risk management that they learned from the workshops.

6.2 Administration

At the initial workshop, using the evaluation participation form as a guide, trainers explained the importance of program evaluation and invited participation in the evaluation process. Voluntary participation and confidentiality of results were emphasized. A drawing for a prize was announced to be held at the end of the fourth workshop as an incentive for participation with the probability of winning increased by attendance at each of the four workshops.

Attendees who agreed to participate were asked to read and sign the evaluation participation form and complete the general pre-program questionnaire and the pre-session questionnaire. After each workshop, trainers administered post-session questionnaires. The general post-program questionnaire was also administered following the final workshop with a reminder about the importance of completing the two-month follow-up questionnaire to be mailed for evaluating how useful information in the Risk Management for Ag Families program had been. Trainers completed a spreadsheet with information contained in each questionnaire they administered.

Following the workshop series, all questionnaires and the evaluation participation forms were mailed to researchers at the University of Wyoming. Approximately two months following the workshop series, a follow-up questionnaire and reminders were mailed to those participants engaged in the evaluation study. The coordination and mailing of the mail questionnaires was handled by the University of Wyoming Department of Agricultural and Applied Economics.

7. Analysis

The objectives of the analysis portion of this study are to ascertain: 1) did family farm operators benefit from the risk management training, that is, was there an educational impact? and 2) what sessions or points within each session were most helpful?

The sample of 40 family farm members from four states participating in the Risk Management for Ag Families workshops and workshop evaluations was self-selecting and therefore not statistically representative of any population. Thus, the results of this analysis should be considered a pilot study regarding the potential impact of the curriculum.

Sampling for this study—which was self-selecting and not a random sample—requires nonparametric methods, free from sampling requirements, to measure association. In order to test for differences between pre and post program and session questionnaire responses in this analysis, the Wilcoxon Signed Ranks test statistic was chosen. This test is a nonparametric alternative to the paired-samples t-test and checks for significant associations between dependent single-sample pairs. It is appropriate for nominal and ordinal categorical data (i.e., counts and ranks) with two to nine categories (Norusis, 2005).

The Wilcoxon test assumes only that the sample is drawn from a symmetric distribution and has no requirement for a random sample or minimum sample size. It is more powerful than the simple Sign Test as it gives information about the size of the difference (recorded in a Z-test statistic with associated two-tailed p-value—H_0: difference between two members of a pair is 0). The Wilcoxon Signed Ranks test uses only the rankings of the observations to look for associations between variables. To calculate the test statistic the combined sample of n1+n2 measurements are ranked from 1 to n1+n2 and means of the ranks computed for observations in each sample. The test statistic compares these mean ranks (Sprent, 1993). For this analysis p-values less than or equal to 0.05 are considered significant.

8. Results

8.1 General Program Questionnaire

A comparison of the general pre-program with post-program and the follow-up questionnaire results serve to answer the first objective for the evaluation portion of this study: Did producers benefit from the Risk Management for Ag Families training program, or 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. Knowledge regarding a series of specific risk management tools and strategies showed significant improvement with regards to production, marketing, financial, human, and strategic planning risk, reported in table 1. The category in this listing with the least significant improvement was legal risk. This is likely related to the fact that the curricula in the four workshops did not directly address the area of legal risk. It is interesting to note that this category also showed the lowest initial knowledge levels overall, implying that legal risk may be a topic to consider for future training sessions.

Table 1. General risk management pre- versus post-program results: Question 4

"How knowledgeable are you about the risk management tools and strategies within the following categories?"	Pre-Program Mean[a]	Post-Program Mean[a]	Post – Pre Z Test Statistics[b]	p-value (2-tailed)
Production	5.6	6.6	-2.82	0.005**
Marketing	4.4	5.5	-2.76	0.006**
Financial	5.3	6.5	-3.03	0.002**
Legal	3.8	4.7	-2.30	0.021*
Human	4.4	5.9	-3.51	0.000**
Strategic Planning	4.3	6.1	-3.17	0.000**

[a] Means calculated from a 9-item Likert scale: 1 = "Not Knowledgeable," 9 = "Very Knowledgeable."
[b] Wilcoxon Signed Ranks Test (based on negative ranks).
** indicates significance at α = 0.01, * indicates significance at α = 0.05.

Significant improvement was also shown in general risk management questions regarding satisfaction with "my knowledge of risk management alternatives available," "my current risk management plan," "my current business goals are measurable and attainable," and intention to "re-evaluate my risk management plan in the near future." Specific results are presented in table 2.

Table 2. General risk management pre- versus post-program results: Questions 5-9

	Pre-Program Mean[a]	Post-Program Mean[a]	Follow-up Mean[a]	Post – Pre / Follow-up – Post Z Test Statistics[b]	p-value (2-tailed)
I am satisfied with my knowledge of risk management alternatives.	2.4	3.6	3.2	-4.186	0.000**
I am satisfied with my current risk management plan.	2.6	3.2		-3.022	0.003**
I intend to re-evaluate my risk management plan in the near future.	3.8	4.2		-2.558	0.011*
I am satisfied with my current strategic plan for my operation.	3.0	3.0	3.3	-0.272	0.785
I am satisfied my current business goals are measurable and obtainable.	3.2	3.6		-2.645	0.008**

[a] Means are calculated from a 5-item Likert scale: 1 = "Strongly Disagree," 5 = "Strongly Agree."
[b] Wilcoxon Signed Ranks Test (based on negative ranks).
** Indicates significance at α = 0.01, * indicates significance at α = 0.05.

8.2 Specific Session Questionnaires

What sessions or points within each session were most helpful to participants? In order to answer this second objective of the evaluation portion of this study, an analysis comparing pre- and post-questionnaire results for each session was conducted. Results presented focus on surviving in agriculture, family finance, and risks in family business session responses.

Only a few questions on the *Surviving Ag* session questionnaires elicited a significant change in answers after the workshop. This appears to mainly be due to participants who were already well versed or had strong opinions regarding their finances before the session.

An increase was noted in producers who reported completing Accrual Adjusted Income statements after the Surviving Ag session (Z = -1.732, p-value = 0.001). There was no significant change in those reporting completing Balance Sheet, Cash Flow, and Income statements, or Schedule F Tax Forms. Producers reported that they evaluated historical data more after the Surviving Ag session, but no change was seen in budget preparation. Table 3 shows a high pre-session mean for budget preparation of 73 percent, suggesting that most participants already prepared budgets before training.

Table 3. Surviving Ag session pre- versus post-workshop results

Do you evaluate your financial position by preparing budgets for the coming year or analyzing historic financial performance?	Pre-Program Mean[a]	Post-Program Mean[a]	Post– Pre Z Test Statistics[b]	p-value (2-tailed)
Prepare budgets	0.73	0.77	-0.816	0.414
Analyze historic data	0.67	0.91	-2.828	0.005**

[a] Mean is calculated from binary responses: 1 for "Yes"/affirmative response to "Check all that apply," and 0 for "No" and unchecked list items, making it an intuitive percentage measure.
[b] Wilcoxon Signed Ranks Test (based on negative ranks).
** Indicates significance at α = 0.01, * indicates significance at α = 0.05.

Post-session results for the *Family Finance* session questionnaire generally moved from "Agree" to "Strongly Agree" response categories. These questions largely focused on alternatives for family financial risk management, communication about family finances, and family finance goal setting and decision making. All but one of the questions in this area showed significant improvement. An additional question regarding estate transfer concepts also showed significant improvement in attitude. Results are reported in table 4.

Table 4. Family finance session pre- versus post-workshop results

	Pre-Program Mean[a]	Post-Program Mean[a]	Post– Pre Z Test Statistics[b]	p-value (2-tailed)
I am aware of the importance of involving family members in decisions about family finances.	4.4	4.8	-2.500	0.012*
I understand the importance of developing a process for making decisions about family.	4.1	4.6	-3.419	0.001**
I am aware that successful financial management requires goals that are defined, planned, and progress is made to achieve them.	4.2	4.7	-3.217	0.001**
I understand that successful family financial management includes the ability to define problems, explore options, and develop solutions.	4.4	4.6	-1.508	0.132
I know that preparation for the transfer of my property includes three areas of estate planning.	3.7	4.2	-2.521	0.012*

[a] Means are calculated from a 5-item Likert scale: 1 = "Strongly Disagree," 5 = "Strongly Agree."
[b] Wilcoxon Signed Ranks Test (based on negative ranks).
** Indicates significance at α = 0.01, * indicates significance at α = 0.05.

The *Risks in Family Business* workshop elicited the most positive responses of the four workshops. There were strong positive changes in responses to all but one of the statements. Only "I employ management techniques to assess family-business balance" did not change significantly at the 0.01 level. This result may have been related to the present tense-wording of this question; respondents may have simply replied honestly about what they currently do rather than relating workshop material to their response. See table 5 for specific results.

Table 5. Risks in family business session pre- versus post-workshop results

	Pre-Program Mean [a]	Post-Program Mean [a]	Post Pre Z Test Statistics[b]	p-value (2-tailed)
I am aware of the alternatives available in managing family business risk.	3.3	4.2	-3.779	0.000**
I employ management techniques to assess family-business balance.	3.2	3.5	-1.263	.0207*
I understand the difference between family and business systems.	3.2	4.3	-4.083	0.000**
I am aware of how my family makes decisions regarding family business risks.	3.4	4.0	-3.286	0.001**
I am aware of the unique financial challenges facing families in business.	4.2	4.5	-2.558	0.011*
A family business enterprise works harmoniously when individual, family, business, and community are in balance.	4.2	4.6	-3.273	0.001**
I know how the four systems of family enterprise work together to create a successful enterprise.	2.8	4.2	-4.743	0.000**

[a] Means are calculated from a 5-item Likert scale: 1 = "Strongly Disagree," 5 = "Strongly Agree."
[b] Wilcoxon Signed Ranks Test (based on negative ranks).
** Indicates significance at α = 0.01, * indicates significance at α = 0.05.

8.3 Follow-up Questionnaire

The follow-up questionnaire, sent two months after the final workshop, had a response rate of 67.5 percent (27 responses/40 participants). Response rates per question tapered off to as low as 11 item responses (N) near the end of the questionnaire. Despite the small sample size and some item non-response, it is still interesting to note several areas which received a more enthusiastic response from those producers who did respond.

More than 75 percent of respondents indicated "ways to reduce costs" had been evaluated to reduce production risks; "gathering market news" to reduce market risk; "Develop family goals for family finances" to reduce family finance risk; "Analyze my net worth over a period of time," "Develop budgets for the coming year," and "Analyze ways to improve net income" to reduce business finance risk; and "We are working to understand the four systems of family enterprise" had been evaluated to reduce family business risk since the workshop series. Responses are enumerated in table 6.

Table 6. Follow-up questionnaire results: alternatives evaluated to reduce specific risks.

	N	Mean [a]
Production Risk		
A new business enterprise	22	0.27
Ways to reduce my costs	27	0.81*
Crop insurance	27	0.52
Adopting new technology/production practices	27	0.67
Market Risk		
Forward contracting	28	0.36
Futures/Options	28	0.32
Crop insurance	26	0.54
Gathering market news/analysis to help me market my product	27	0.78*
Family Finance Risk		
Multiple family members included in family finance decisions	24	0.63
Develop a process for making family finance	23	0.48
Develop family goals for family finances	24	0.92*
Develop a plan for transferring my property or	24	0.63
Business's Financial Risk.		
Develop a plan to prepare financial statements	23	0.70
Analyze what has happened to my net worth over a period of time	24	0.83*
Develop budgets for the coming year	25	0.80*
Analyze ways to improve net income	24	0.88*
Family Business Risks		
We are working to assess family-business balance	24	0.58
Working to understand family decisions regarding business risks	17	0.35
Working to improve family communication about business risks	21	0.67
Working to understand four systems of family enterprise	11	0.82*

[a] Mean is calculated from binary responses: 1 for "Yes"/affirmative response to "Check all that apply," and 0 for "No" and unchecked list items, making it an intuitive percentage measure.

These follow-up results show at least intermediate-term impact from the workshop series, and indicate that family finances and understanding the unique risks associated with a family business were being integrated into their risk management decision making. Every respondent indicated specific areas that they had evaluated in the two months since the workshop series to reduce production, marketing, family finance, and business financial risks.

9. Conclusions

Did producers benefit from the risk management training program? Overall, responses to program evaluations indicate a positive impact on knowledge levels relating to risk management and the importance of incorporating family aspects into risk management decision making. Moreover, responses to the follow-up questionnaire indicate that respondents had taken steps to adjust their risk management, as it related to training provided in the workshop series. Every respondent indicated specific areas which they had evaluated in the two months since the workshop series to reduce production, marketing, family finance, and business financial risks. More than half the respondents reported evaluating overall risk management and strategic plans and 78 percent reported evaluating their production risk.

What sessions or points within each session were most helpful? The specific financial definitions such as the Accrual Adjusted Income statement may have been clarified in the Surviving Ag session; however, producers who participated were already well educated in most of the financial areas discussed. For example: most participants already prepared budgets before training, and the vast majority of participants demonstrated general financial competency.

Family Finance session responses showed general movement from “Agree” to “Strongly Agree” for statements regarding general knowledge. Questions regarding a pre-formed process for family finance and financial management showed significant improvement in attitude. These results indicate that a major impact of this session was to evaluate family financial management as an important component of a risk management plan 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 amongst survey respondents. Overall, workshops incorporating family relationships with risk management concepts seemed to show the greatest increase in knowledge.

Given the importance of family business and the prevalence of family involvement in farm businesses, it is somewhat surprising that most agricultural risk management education curricula do not seem to integrate traditional risk management concepts with family systems concepts. This paper presents a case for doing just that. We propose a conceptual model to guide curriculum development for extension programs on agricultural risk

management targeting family farm businesses. Moreover, the paucity of research into the impacts of risk management education programs and the implication for effective knowledge-transfer makes this an important area for further investigation. Overall, our pilot study results suggest that an outreach curriculum which employs an integrated approach to risk management, farm business operation, and personal finance and human relations under a family business framework had a positive impact. Such knowledge should be useful to outreach education professionals as they provide outreach education and conduct research into risk management behaviour.

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Risk management is an important part of governance sciences and has applications in several domains ranging from enterprise risk management to environmental surveillance. The ideas and approaches described in the book deal with general aspects of risk management as well as the peculiarities arising from given application domains. With contributions from researchers and practitioners in different fields, Advances in Risk Management will provide you with valuable insights into the evolution of models, methodologies and technologies necessary for an effective implementation of risk management systems.

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InTech Europe
University Campus STeP Ri
Slavka Krautzeka 83/A
51000 Rijeka, Croatia
Phone: +385 (51) 770 447
Fax: +385 (51) 686 166
www.intechopen.com

InTech China
Unit 405, Office Block, Hotel Equatorial Shanghai
No.65, Yan An Road (West), Shanghai, 200040, China
中国上海市延安西路65号上海国际贵都大饭店办公楼405单元
Phone: +86-21-62489820
Fax: +86-21-62489821

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