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# Taking Research Methods to the Farm: Discussion

**Nathan B. Smith**

The theme of this paper session is Taking Research Methods to the Farm. The three papers presented today highlight successful programming efforts that have focused on providing agricultural producers with a technical tool to analyze their unique situations and decisions. An underlying theme of the session is collaboration between research and extension. The session organizers mentioned in their proposal that the common model of extension programs is to disseminate relevant information learned from research methods without access to the actual research methods or analytical tools. This is largely true when it comes to statistical analysis, econometrics, and mathematical programming. However, the development of personal computers and software programs does provide extension educators with a valuable analytical tool that allows producers to access the tool and analysis. Spreadsheet decision aids can be found on several university websites. Their applications, however, are typically limited to more straightforward, basic farm-management decisions. Extension specialists have learned over time to simplify results and decision tools whenever possible. Producers are mainly interested in the answer, and they want it now.

The session organizers mentioned in their proposal that producers are becoming more technologically advanced. I agree with the statement in large part. I see the needs of producers becoming more specific and complex. The answers and solutions producers are seeking to problems they face require more technical expertise. Today's producers are more educated and technically proficient, especially in regard to production technology. By my ob-

servations, farming has become more of a systems approach in which blanket recommendations no longer solve the problem for everyone. Leading agricultural economists forecast that agriculture is moving to a bimodal system of production. The implication of this trend in extension will be working with two basic groups of producers. One group makes up the majority of farm numbers, known as hobby farms. These farms are owned and managed by small, part-time producers that have a need for basic information and expertise. The second group makes up the majority of agricultural production, known as commercial farms. These farms are larger in scale and run by family members or managers with a higher level of education and a high degree of technical proficiency. Their problems are more specific and complex, requiring an understanding of risk concepts. Commercial farms need more assistance in strategic planning, developing business plans, and analyzing risk. This second group, in my opinion, presents an opportunity for incorporation of research methods in extension programming and developing risk education programs. The three articles presented in this session are examples of major efforts in providing a single tool that addresses strategic planning decisions and farm business plans. Each effort is unique in design for reaching a large number of producers.

The Klose et al. paper describes a decision-support system called the Financial and Risk Management (FARM) Assistance program. The authors describe the program's uniqueness as the incorporation of risk analysis through stochastic simulation to generate a 10-year *pro*

*forma* financial analysis. They state that the analysis is most comparable with capital budgeting or investment analysis. The article focuses on the research method and development of the program. Model results are given to producers, mainly with a few simple bottom-line variables, but risk of financial projections are included as well as averages. Klose et al. state that the producers learn from the method as well as the results. Model complexity and flexibility to handle all sorts of situations were mentioned as major hurdles. The research challenge was to develop a model that handled real-world situations and risk. Some important points were brought out besides the research challenges of developing the model. The \$250 fee charged to producers is far short of the actual cost of development. Finding the right people to deliver the program is identified as a key to success. A research justification for undertaking the modeling challenge was the development of a database of actual farm data that is often too costly to collect. Thus, a win-win situation is created between research and extension.

The Richardson and Outlaw paper discusses the development and delivery of a Web-based Monte Carlo simulation model. This is a unique model that was heavily used following the passage of the 2002 Farm Bill. The authors were in the right place at the right time. Advances in computer technology, Internet delivery, and risk simulation came together to meet a great and timely need for major row-crop producers across the country. The model specifically addresses the one-time opportunity to update base acres and yields afforded by 2002 Farm Bill. The original version of the Base and Yield Analyzer (BYA) was programmed in Excel. The authors experienced a common problem with spreadsheets—not everyone is able to use the tool for reasons such as the type of spreadsheet program chosen, required add-ins, and spreadsheet version. In their particular case, county agents did not have Excel; Quattro Pro was the supported spreadsheet program of the Texas Cooperative Extension Service. However, the majority of producers are likely to have a version of Excel on their computers. Thus, the

authors decided to go with Web delivery. An important point brought out by the authors was that Web delivery provided more control for updating the program. The BYA proved to be a valuable tool for extension, Farm Service Agency personnel, and producers across the United States.

Doye's paper describes a farm business planning tool called Integrated Farm Financial Statements (IFFS). This program resulted from the farm crisis in the mid-1980s in an effort to evaluate and project farm financial plans. Extension delivers the program to Oklahoma producers in one-on-one sessions. A synergy was developed in the Intensive Financial Management and Planning Support program in using IFFS in their training and working with farm families. Again, finding the right people to deliver the program is a key to success.

IFFS, like the other two programs presented in this session, has required a significant amount of human capital and programming resources to develop a user-friendly tool that has the flexibility to handle many different producer situations. Doye explains that over time, IFFS has been improved and features added to allow risk analysis, multiyear plans, and integration of Excel-based enterprise budgets with whole-farm financial planning. This attempt at a risk analyzer proved to be too complex at the time due to computer requirements. Doye refers to links between research and extension as fuzzy links. There was not a direct link with research during development of IFFS except that it resulted from a M.S. thesis project. Research data was used, but there was a challenge in adapting research methodologies. The long-term success of IFFS is attributed to people, money, and leadership.

The three programs presented in today's session are great examples of successful delivery of more advanced, research-based programs in the form of a decision tool. The FARM Assistance and Base and Yield Analyzer are particularly unique with respect to the extension-research partnership leading to the utilization of risk simulation in the results and information delivery. Some important factors for success are evident from these articles.

First was the proactive nature of the presenters in anticipating the need for their program. Each program was precipitated by a financial crisis or policy change. Timing is important to make an impact. All three programs required a large budget outlay. Federal and state support were necessary because of the time and effort in programming, delivery, and software support. Doye mentioned support from administration as essential for IFFS. The pursuit of model flexibility to handle most producer situations led to larger and even more complex models than imagined. Program and software support were underestimated by the authors. Such endeavors with software require ongoing continuous support for producers to continue to use them.

Resources for farm management and policy education are limited, as Doye mentioned, and becoming more scarce. This lack of expertise and resources at the university level makes it very difficult to support these types of programs. Partnering between extension and research is more the exception than the rule. Perhaps cross-state and cross-agency collaboration can become a win-win strategy for future research-method programs at the farm level. Though not a focus in the articles, partnering with other government agencies is also an important ingredient to success, particularly

when related to policy issues. Thinking outside of the normal avenue and partnering with agencies can be a win-win situation. There are obvious challenges to dealing with partners who have different incentives and agendas. Richardson and Outlaw were able to successfully meet the challenge of delivery of risk-based education versus FSA's goal of a tool allowing for updating base acres and yields.

One potential benefit from farm-decision programs is data collection for further research. Klose et al. have done a good job of collecting data, as it was one of the stated goals. Richardson and Outlaw collected use data and showed what else should have been collected to better evaluate and show impact, as well as use for research. IFFS missed the boat in not collecting data from the financial plans over time.

The authors are to be commended for the development of excellent programs that can make a major impact on individual farming operations. Hopefully, we can learn from their experiences and foster more opportunities for collaborative work that involves research methods with decision making at the farm level. The need for risk-based education programs and decision tools will only be greater as agriculture moves to become more globally competitive and government support becomes less tied to production.

