



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

1983

*Ext*  
*ALLENDALE COUNTY*  
*Farm Management*  
*Co*

An Introduction To  
RISK RATED MANAGEMENT STRATEGIES

FOR FARMERS AND RANCHERS

by

John Holt\*

~~GRANT FOUNDATION OF  
AGRICULTURAL ECONOMICS  
LIBRARY~~

SEP 20 1983

Everyone knows that Agriculture is a risky business, but incorporating risk management strategies into Extension work is double tough. Well, maybe it's triple tough, because any reasonably complete approach to teaching risk management must find a way to incorporate production, marketing and financial risk into the teaching materials. And those materials must "fly" with farmers. These materials will fly; they have all been used with farmers; used in various contexts to teach risk management concepts. And the reception has been good: The concepts are catching on, and the strategies are being used.

Our goal was to develop a complete approach to teaching farmers how to incorporate risk directly into their decision making processes. Knowing that farmers relate best to examples, especially their own example, we wanted a realistic way to include production, marketing, and financial risk for the total operation, for as many enterprises as desired, and one flexible enough to fit any operation. The microcomputer program developed for that purpose is the centerpiece, or perhaps the crowning achievement, of this work.

---

\*JOHN HOLT is an Extension Farm Management Specialist, Food and Resource Economics Department, Institute of Food and Agricultural Sciences, University of Florida, Gainesville. Paper presented at the Risk Rated Management Strategies Symposium at the annual meeting of the American Agricultural Economics Association held at Purdue University, West Lafayette, Indiana on July 31-August 3, 1983.

AAEA paper presented at AEA annual meetings,  
West Lafayette, July 31-Aug. 3, 1983

But a microcomputer program by itself would not be enough. Decision making, like any other complicated activity, needs an underlying rationale, and a way to practice applying the strategies. Otherwise, the audience would leave the meeting unscathed, as they sometimes have managed to do in the past. Our belief is that any Extension educator will be able to use these techniques effectively. If, that is, he is willing to take a little risk, and try something new. The expected payoff is seeing farmers improve their ability to manage risk on their operations.

### Concepts and Materials

First there is risk. The essence of risk is variability, and the need is to be able to incorporate variability into decision making. Farmers don't view windfall profits, or upside variability, as being risk. Therefore, we bow to common usage and define risk as the chance of an undesired outcome. The procedures, of course, allow for calculation of outcomes being greater than expected, as well as worse.

Visuals are provided which make it easy to explain the idea of variability and distribution of outcomes. An essential teaching point here is that good decisions (ex ante) can have bad outcomes. A game is provided which uses 12 outcomes from realistic agricultural decision scenarios to get farmers to feel at ease with the idea of outcome variability, and thus give some practice in risk management decisions.

The role of profit merits mention. Profit is at least partly a return to risk, and that aspect is emphasized in this material. Farmers must survive in the short-run to profit in the long run, and cannot blindly choose high risk ventures, hoping to reap large profits. Nor can they

continually choose the minimum risk strategy and expect significant profits. The game is geared so that production and marketing decisions affect profitability which affects financial position. Ten rounds of decisions provide practice in decision making under risk, and give ample opportunity to make the teaching points mentioned. The game also makes it easy to show the inter-related nature of objectives, risk management strategies for achieving objectives, unexpected outcomes, and financial position.

Games are, well, games, and some professionals have been reluctant to use them to teach concept, and have instead used them at the end of a meeting just to provide practice in decision making. Either approach works well.

If time doesn't permit, or inclination guide, one to use the game, there is a detailed example of risk management in feeding cattle. This program is available on a hand-held calculator also, if that approach pleases the professor. This example, supported by a very extensive set of overheads and a detailed text, makes all the essential teaching points mentioned above. The setting is as real world as one can get, and the example indicates how hedging enables the profit-minded producer to increase his scale of operation without sizeably increasing his total risk exposure, including financial risk. The material featuring the cattle feeding example is different enough in its approach to employing risk management strategies that both it and the game can be used. Either, of course, can be used alone.

The *piece de resistance* of the package is the microcomputer program. The whole farm risk rating model calculates the risk associated with each enterprise and for all combinations of enterprises. It drives off a stored set of budgets, incorporating a user-friendly approach to modifying budgets to fit the locale of concern. Facility with distributions comes into play here.

Yield variability is described first with an expected yield, or the single most likely outcome. There is a 50-50 chance of yields being greater or less than expected. Then the optimistic yield is described as that yield which has a one-in-six chance of being that high or higher, and pessimistic yields are treated similarly on the low side. Price variability is described, again following the 1/6 chance of falling in the optimistic and pessimistic tails of the distribution. Thus this approach gives an approximation of the normal distribution and permits an estimation of profit for the total farm.

The program can handle cash sales, contracting or hedging, and various marketing strategies can be tried to test their effect on expected profitability. Financial risk can be incorporated by entering loan repayments as a cost which must be covered. Extra runs give a feel for how borrowings may impact the overall business, given the described yield and price variability.

The user specifies yield and price variability, marketing options, enterprise choices and levels, such as 300 acres of corn, 150 acres of beans, and 1,000 head of feeder pigs. The output for each enterprise can be expected returns, expected variable costs, expected fixed costs, and optimistic, expected and pessimistic net returns above variable costs. The same results can be obtained for the total farm enterprises plus the percent chance that net return will be greater than variable and total costs. Another option gives the percent chance that net return will be greater than a desired return to equity.

There is no optimization involved. If the plan doesn't meet objectives, then the budgets can be reworked, prices or yields changed, enterprise choices modified, or loan levels changed. The new run gives a feel for the impact on the total operation of any changes made.

Conclusion

So now there is a way to incorporate yield, price, and financial risk into a decision aid that can consider many enterprises, both crop and live-stock, and estimates profitability of the total farm operation. We have not had such a tool before. The essence of risk management is not to avoid risks, but to make decisions that improve the prospects for profitability. This package can help do that.

Try it. You'll like it!