Introduction

Abstracts
In order to view the abstracts, you may either click on the link of the abstract in the schedule, or you may click on the Abstract link above to page through various abstracts.

Attendee Listing
To view a complete listing with email addresses of the attendee list, please click the Attendee Listing link above, you may also gain access to the Presenter's email address by clicking on their name in the schedule below.

March 25, Thursday
2:30-5:00 pm Pre Conference Breakout Session:
"Empirical and Analytical Connections for Mean - Variance Analysis: Implications for Applied Researchers."
Discussion Leader: Lindon Robison

7:00-9:00 pm Welcome Reception, sponsored by the National Crop Insurance Services and the National Cotton Council.

March 26, Friday
8:15-8:30 am Welcome and Announcements
Committee Chairman, Local Arrangements Chairman and Program Chairman

8:30-9:30 am Current Issues in Crop Insurance, Two Views.
    Mark Lange, National Cotton Council
    James Driscoll, Risk Management Agency

9:30-10:00 am Estimating Systems of Acreage Equations for FLEX acres in the Corn Belt
    Matt Holt, North Carolina State University

10:00-10:15 am Break

10:15-10:45 am Information Quality and Technology Adoption:
The Case of Bt Cotton
    Michele Marra, North Carolina State University

10:45-11:30 am Optimal Storage by Crop Producers
    Paul Fackler, North Carolina State University

11:30-1:30 pm Lunch

1:30-2:00 pm The Stability of Stochastic Ecological-Economic Systems:
The Case of Persistence and Resilience.
    Amit Batabyal, Utah State University

2:00-2:30 pm Opportunities for Innovations in the Risk Management Strategies of Cooperatives
SRIEG 70 – Agricultural Risk and Environmental Management
Gulf Shores, AL – March, 1999

Introduction

The Southern Regional Information Exchange Group, SRIEG 70 includes researchers and extension economists in agricultural and resource economics from land grant universities and other USDA units around the country, representatives of federal agencies involved in agricultural, resource, and health economics, farm commodity group representatives, and interested parties from the insurance industry. The precursors to the group began in the mid-1970's as Western Regional Research Project W-149, with the upcoming 2000 meeting making the group's 25th year. Since its beginning the group has met every year to discuss new developments and applications relating to agricultural risk (both to and from agricultural production), the risks associated with the interface between agriculture and the environment, and policy responses to these risks.

This year marks the second time that a conference web page of paper abstracts is used to disseminate the information from the conference as an alternative to a proceedings volume. This web page allows us to make these papers available to a very wide audience at low cost and in a timely manner. This web page approach also helps ensure that none of the information presented at the conference is lost.

The email address of each presenting author is included within a link to their paper abstracts that anyone interested can request an up-to-date copy of the paper directly from the author(s).
We wish to acknowledge the Farm Foundation's continuing support of our work over many years, including the preparation of this conference summary. Support of The National Cotton Council and National Crop Insurance Services is also gratefully acknowledged. The efforts of Dr. C. Robert Taylor and the support from the Department of Agricultural Economics and the Experiment Station at Auburn University are much appreciated. The Department of Agricultural Economics and Economics, and the Experiment Station at Montana State University also provided support.

Abstracts

*Estimating Systems of Acreage Equations for FLEX Acres in the Corn Belt*

**Matt Holt**  
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Abstract:

We show that the first-order differential acreage allocation model developed by Bettendorf and Bloome and Barten and Vanloot and based on certainty equivalent profit maximization may be extended to a levels version. The levels model, referred to as a linear approximate acreage allocation model, is potentially useful when panel or cross-sectional data are employed. An empirical application with U.S. state-level corn normal flex acreage data, 1991-1995, indicates the feasibility of the approach. Estimated price and scale elasticities are generally larger than previous estimates, and are perhaps indicative of acreage response under the provisions of the 1996 Farm Act.

*Information Quality and Technology Adoption: An Examination of Early Bt Cotton Adoption in the Southeast*

**Michele C. Marra,**  
**Bryan J. Hubbell,** and  
**Gerald A. Carlson**  
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Abstract:

Bt cotton was one of the first genetically engineered crops to be available commercially, in 1996. A survey was taken of southeastern cotton farmers during the winter of 1996-97 to learn about their decision to adopt this new technology. The purpose of this paper is to focus on the various forms of information about Bt cotton profitability that was available to these farmers and to assess their relative importance in the farmers' 1996 and 1997 adoption decisions. A model of the individual farmer's
decision to adopt is developed to incorporate two recent theories of the role of information in technology adoption at the farm level; the "effective information" hypothesis put forth by Fisher, Arnold and Gibbs (AJAE, 1997) and the "popularity" hypothesis outlined by Ellison and Fudenberg (JPE, 1993).

On-farm, county level and state level estimates of Bt cotton profitability and county level and state level proportions of cotton acres planted to Bt cotton in 1996 are used to test the information hypotheses. We find that there is a trade-off in information effectiveness between the "nearness" of the information to the potential adopter (its unbiased-ness) and the precision of the estimate. That is, while on-farm profitability estimates played a major role in the 1997 adoption decisions, the state level estimate was more important than the appropriate county level estimate in determining the farmer's 1997 adoption decision. Neither of the popularity measures (state or county level proportions of Bt cotton acres) seem to be important. Human capital and farm characteristics explain much of the 1996 adoption decision, but are not as important in the second-year adoption decision. In 1997 the various estimates of profitability available to the farmer play a major role, as measured by the total percentage change in the probability of adoption explained by a percentage change in all the profitability information variables, in the adoption decision. The presence of insect resistance to conventional insecticides (the pyrethroids) on the farm (an indirect estimate of potential Bt cotton profitability) was the single most important determinant of initial adoption for farmers throughout the Southeast.
Abstract:

Beginning with the seminal work of Arrow and Hurwicz (1958), there now exists a vast literature in economics on the subject of the stability of economic systems. This notwithstanding, to the best of our knowledge, the economics literature does not contain any studies of the stability of jointly determined, stochastic ecological-economic systems. Consequently, the objective of this paper is to identify and mathematically characterize two stability concepts for such systems.

Keywords: Persistence, Resilience, Stability, Stochastic ecological-economic system JEL Classification: C62, Q29

Opportunities for Innovations in the Risk Management Strategies of Cooperatives

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Abstract:

A primary incentive for farmers to create or participate in a cooperative is the coop's ability to mitigate risk. The cooperative does so by selling farm products into markets where and when prices are less variable. The cooperative, however, may be exposed to substantial catastrophic risks that would affect farm yields and significantly reduce their product-input levels. Through capital markets, cooperatives could shift or share their systemic risk exposure and thereby enhance their risk mitigation role for farmer owners. They could also offer additional insurance to protect their members from independent risk. This paper reviews the motivations for cooperatives to enter capital markets and discusses the appropriateness of alternative risk sharing instruments for the cooperative model. Cooperatives have a long history of using contingent claim markets to manage price risk; this paper demonstrates how the same principles can be applied to using capital market instruments for yield risk.

Optimal Risk Contracts in Agriculture

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Abstract:

Though farmers who produce under contract bear less risk than those who market their own output, the risk such farmers bear is often still large. Theory suggests that this residual risk may be important for incentive reasons, and ought to depend on the distribution of a likelihood ratio statistic.
Using data on a variety of contracts used to govern the production of fruits and vegetables in California, I relate the risk growers actually face under contract to the risk that theory suggests they ought to bear. The theory does well at explaining much of the variation in risk across commodities.

The Behavioral Implications of Legal Risk in Agriculture: Farmland Preservation Programs and Institutional Change

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Abstract:

The USDA's Risk Management Agency identifies five primary sources of risk facing farmers: production risks, marketing risks, financial risk, legal issues associated with agriculture, and human resource issues. The legal issues source is then parsed into structural issues, contract arrangements, statutory obligations, tort liability, and environmental liability. Several researchers have begun to separate these legal issues and offer farmers understandable policy advice on each issue. Although this has greatly simplified broader risk management for individuals, these analyses are mainly static in nature. This paper argues that there is a more general context of legal risk, which arises from institutional change. In other terms, the (exogenous) legal-institutional component of the constraint set in a farmer's optimization problem may change over time.

Many have a general sense, although empirical evidence is lacking, that many institutional components of agriculture are approached as if they will exist in perpetuity or, in the case of statutes, that they will be interpreted strictly and consistently. This is especially apparent in farmland protection programs. ARight-to-farm@ laws, for example, are statutorily prescribed institutions, which are intended to protect farmers a priori from a nuisance action brought by encroaching residential development. However, it may be unwise for farmers to rely on the intent of these laws, which is to protect them from litigation at common law, CARE v. Southview Farm, 34 F.3d 114 (1994). Another example of the transitory nature of seemingly perpetual institutions is the purchase of development rights (PDR), which in this case may allow farmers to benefit from institutional change. Indeed, some academics acknowledge that PDR programs actually involve the exchange of privileges rather than property rights. At bottom, this means that farmers who sell their Adevelopment rights@ now may still be able to develop their land in the future if they gain statutory authorization or some other social sanction.

Private decision making would be greatly improved if such institutional change could be incorporated into legal risk management in agriculture. This paper develops an economic model that explains private decision making about legal risk, in general, and farmland preservation programs, in particular. This model will lead to an empirical or numerical specification, which will inform the sensitivity of current decisions to uncertain institutional change. The theoretical model centers on optimization of a production function subject to an outside option for land use and uncertainty over several exogenous institutional arrangements. Of course, the farmer's decisions may affect future institutional arrangements, too (in the Southview case, the farmer's choice of manure disposal technology led the court to ignore the right-to-farm law). This leads to a refinement of the farmer's problem, in which future institutional arrangements are made partially endogenous. The goal of this model is to suggest how the uncertainty about future
legal institutions affects agricultural decision-making. At one level, it is important to enrich the current literature on legal risk by identifying the broader uncertainty inherent in institutional change. At a policy level, however, it would be ideal to derive a bounded estimate of the private and social cost of this uncertainty. Such an estimate would not only lead to better private decisions about agricultural risk management, but it would give policy makers, and others who affect institutional change, a better sense of the costs of their actions.

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**Investor behavior and the persistence of poorly-performing mutual funds**

David W. Harless and Steven P. Peterson  
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*Journal of Economic Behavior and Organization*  
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**Abstract:**

Recent studies tentatively suggest some mutual funds have near-term, persistent positive performance, but reinforce earlier findings that other funds have long-term, persistent negative performance. In this paper we ask how consistently underperforming mutual funds are able to persist nevertheless. We compare two models: One model incorporates the assumption that investors choose funds on the basis of past risk-adjusted returns. The other model, motivated by the representativeness heuristic, assumes investors react to recent returns without considering the predictive validity of returns. Our analysis of a sample of no-load growth funds supports a model of investor behavior combining two extremes: when choosing among funds investors respond to returns ignoring differences in systematic risk and expenses, but upon choosing a fund they stick fast forsaking the sensitivity to returns displayed in evaluating funds.

Keyword(s): JEL classification:D80; G11

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**Effects of Risk on Environmental Protection Costs and Opportunities in Agriculture**

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**Abstract:**

Reducing environmental damage from agriculture is an important policy goal in the U.S. and in many other countries. Policymakers, researchers, farmers, and farm advisors continue to search for ways to develop and extend more environmentally friendly agricultural production practices. Policy analysts seek to estimate the costs of reducing environmental damage from agriculture. The economic risks of new environmental technologies may affect farmer's adoption decisions and perceived costs. Adopting such
practices could reduce the yields from livestock and crop enterprises, increase the costs of producing such enterprises, and/or increase farm debt and risk of being unable to meet debt service requirements.

If risk is an important barrier to adoption of environmentally friendly technologies, then reducing the risks may have a high payoff to society. Risk reduction may lower the cost of inducing farmers to accept environmentally friendly practices to meet water quality goals. A variety of methods are available to reduce risks including insurance, cost-sharing of water quality protection practices, and helping farmers monitor the performance of environmental protection practices.

The idea that environmental protection practices are risk increasing has powerful appeal among many economists and other observers in part because adoption of environmental protection practices can be viewed within the general context of technology adoption. Social scientists have long argued that uncertainty is an important influence on farmer's decisions to adopt new technology. Economists discussed the potential for technology adoption in terms of learning and subjective probability assessments of profitability while sociologists emphasized the importance of trialability and complexity of innovations.

A number of studies are reviewed which used various methods including simulation, mathematical programming, econometric analyses, personal interview surveys, and analytical methods to evaluate the effects of risk. A large number of studies focus on the effects of environmental protection on firm economic risks. The importance of risk often appears to depend on site specific conditions. Some studies find that risk and risk aversion significantly affects the potential for adoption of agricultural protection practices and/or the costs of achieving water quality protection goals. Environmental protection may increase farmer's business risks by requiring riskier crop and/or livestock production methods and may increase financial risks by requiring increased investments. Some studies find that risk has potentially important effects on environmental protection decisions even when farmers are not risk averse. However, an equally important number of studies find that risk has little or no effect on decisions to adopt environmental protection practices or the costs of such practices.

While economists have focused attention on firm economic risks, they have neglected other important areas. For example, several studies reviewed found that the level of certainty of achieving specified pollution reductions had a large effect on the farm cost of environmental reductions. However, few studies consider how the value of environmental resources is affected by uncertainty about environmental loadings from agriculture. This lack of attention is due in part to the difficulty of estimating nonpoint source pollution flows and damages to water resources and the economic costs of damages. There has been little attention to how farmers assess the risks of noncompliance with environmental protection regulations, an important consideration as agencies determine enforcement strategies.

Policymakers need to proceed cautiously in devising risk management institutions as a method of encouraging adoption of environmentally friendly agricultural practices. Practices qualifying for risk reduction efforts should be carefully screened to determine if risk does inhibit their adoption. The way in which risk affects adoption should also be determined. Practices which farmers perceive to have high risks may be good candidates for insurance schemes. Actuarially neutral insurance can provide a win-win opportunity for the farmer and society by shifting the cost of risk to society which is in a better position to bear the risk. Some farmers who adopt practices may learn that economic risks of such practices are lower than previously perceived, thus making insurance unnecessary after a trial period.

Further research is needed to determine the types of practices and site-specific conditions under which risk is an important factor in farmer's adoption decisions. Further research should also focus on how the risks of agricultural nonpoint source pollution affects the economic value of environmental resources.
Measurement of Price Risk in Revenue Insurance: 
Implications of Distributional Assumptions

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Abstract:

A variety of crop revenue insurance programs have recently been introduced. A critical component of revenue insurance contracts is a measure of the risk associated with stochastic prices. Forward-looking, market based measures of price risk which are often available in the form of options premia are preferable. Such measures are not available for every crop, however. As an alternative, some current revenue insurance programs utilize historical price data to construct measures of price risk. This paper evaluates distributional implications of alternative methods for estimating price risk and deriving insurance premium rates. We utilize a variety of specification tests to evaluate distributional assumptions. Conditional heteroscedasticity models are used to determine the extent to which price distributions may be characterized by non-constant variances. In addition, these models are used to identify variables which may be used for conditioning distributions for rating purposes. Discrete mixtures of normals provide flexible parametric specifications capable of recognizing the skewness and kurtosis present in commodity prices.

This research was supported by the Economic Research Service of the USDA. The views expressed herein are those of the authors and not necessarily those of the Economic Research Service or the U.S. Department of Agriculture.

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OVERVIEW OF RISK MANAGEMENT

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Abstract:

In reaction to the phasing out of federal price and income supports, the last Farm Bill mandated that the USDA initiate increased educational programs in risk management. This paper was written for a conference for lenders, agribusiness personnel, government personnel, and others involved with advising
farmers. It is a non-technical survey of my knowledge of the potential management responses of farmers to different sources of risk. The paper begins with a summary of basic principles of risk management, risk-returns tradeoffs and diversification. Then, management responses from five major sources of risk, production, prices, finances, legal and environmental, and human resources are reviewed in an extension format.