Issues in Organic Farming and "Eco-Labeling"

Moderator: Tim Dalton, University of Maine

Economic Effects of Organic Farming: The Case of Selected Fruits and Vegetables. Jorge Fernandez-Cornejo and Sharon Jans, ERS/USDA.
This paper presents econometric estimates of the effect of adopting selected fruits and vegetables, including strawberries and tomatoes, on yields, revenues, and farm profits. The model accounts for self-selection, simultaneity, and is theoretically consistent. Data are obtained from 1998 USDA survey, which, for the first time, provides data on organic and conventional operations growing these produce. The empirical results show that, controlling for other factors, adoption of organic farming has a negative effect on yields and profits (adoption decreases yields and profits). This effect, while statistically significant, is small. Economics of organic farming appears to improve with time since certification.

Eco-Labeling Wood Products: How the Characteristics of the Labeling Policy Impacts their Effectiveness. Mario F. Teisl and Kelly O'Brien, University of Maine.
We administered a mail survey to a nationally representative sample of U.S. residents. In the survey, respondents viewed different types of eco-labels on wood products; tasks were designed to determine how the characteristics of the labeling program affect product choice. Simply, eco-seals did not effect consumer choice. More detailed disclosure of environmental information did significantly affect choice. Voluntary disclosures sometimes alter choice, however, these mostly fall short of mandatory regimes.

Made in the Shade: Eco-Labels to Manage Production Externalities. Bruce A. Larson, University of Connecticut.
Using the case of shade-grown coffee, this paper examines two aspects of the economic impacts of 'eco-labels' for credence attributes. First, although the conditions may be right for a shade-coffee label to increase supply of shade-grown coffee, the additional supply induced by the creation of the label is likely to be small. And second, using a nested constant-elasticity-of-substitution preference structure, theoretically consistent demands are derived under less restrictive assumptions than currently found in the literature. A numerical simulation shows the effect of relative prices and alternative preference structures on consumer demands for both products.

An Empirical Evaluation of Producers' Satisfaction with Organic Farming Returns: A Logistic Analysis. Ramu Govindasamy and Marc DeCongelio, Rutgers University.
The purpose of this study was to develop a profile of northeastern organic growers and determine if grower characteristics influence their satisfaction with the return from organic production. Of the 166 observations used in this model, 80 indicated they were satisfied with returns from organic farming while 86 were less than satisfied. The results indicate that those who reported using logos were 17% more likely to be satisfied with their returns from organic farming. Those who, in addition to organic practices, also used IPM techniques were 21% more likely to be satisfied with their returns from organic farming.

Environmental Economics I: Valuation of Non-Market Commodities

Moderator: Joan Poor, Rochester Institute of Technology

Voluntary Provision of Public Goods: An Experimental Economics Study. Donald Epp and John Wicinas, The Pennsylvania State University.
An economic experiment examined conditions that increase voluntary contributions to a public good. Three groups of university students participated. Points were allocated to either a fund where the points were returned at the end of the round or to a fund that could return substantially more points, but divided them equally among all players. Information about the game and about public goods increased voluntary contributions slightly. Increasing the number of players that could communicate about contribution levels increased contributions. Assurance that other players actually contributed what they promised increased contributions in some instances. The most significant increase in voluntary contributions was due to membership in a group (fraternity in this case) which gave players important ties beyond the ex-

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periment. Possible implications for public policy are discussed.

How Questionnaire Devices Affect Responses in a Stated Choice Survey. Matthew Heberling (U.S. EPA), Ann Fisher, and Jim Shortle, Nick Hanley, The Pennsylvania State University.
One concern about the stated choice approach to nonmarket valuation is the learning burden it places on respondents. Questionnaire devices to enhance learning have been proposed as means to improve response quality. We test the effects of specific learning devices in a survey of anglers' choices of Mid-Atlantic freshwater fishing sites. Results support the hypothesis that learning devices are not needed if (1) the choice setting is one in which respondents have real world experience, and (2) the questionnaire is designed carefully to capture the attributes that respondents consider when making choices.

Testing the Validity of Benefit Transfers: A Site Correspondence Model. Randall Rosenberger, West Virginia University.
Several factors can affect the validity and reliability of benefit transfers. This paper uses regression analysis to investigate the systematic effects of differences in sample and site characteristics on the magnitude of error associated with an experimental benefit transfer. Validity measures are derived through various specifications of multi-site and single-site travel cost demand models for hiking on a variety of trails in Colorado. The results show that some characteristics account for a large portion of error in the benefit transfer application. Meta-analysis is used to develop a calibrated benefit transfer function that results in more accurate and reliable transfer measures.

An Appropriate Welfare Measure of Wildlife Damage. Lori Heigh and Kim Rollins, University of Guelph.
This paper derives the welfare loss to landowners from wildlife damage, which is not the same as the value of yield loss. The paper then estimates the welfare loss to Ontario landowners using willingness to tolerate losses as an indication of on-farm wildlife benefits. Results for Ontario fieldcrop producers in 1998 suggest that the welfare loss is 50% of the value of the yield loss. Willingness to tolerate losses varies by several variables including wildlife species and crop type, with willingness to tolerate thresholds highest for geese damage and lowest for raccoon damage. Thresholds for annual damage by crop types varied from about $1,200 to about $2,800 per farm (Canadian dollars).

Issues in Consumer Demand

Moderator: Harry M. Kaiser, Cornell University

Factors Affecting CSA Economic Success: Community Demographics and Operator Characteristics. Daniel A. Lass and T. Robert Fetter, University of Massachusetts.
Factors affecting community supported agriculture (CSA) success were investigated under alternative postulates of profit maximization and cost minimization. CSA survey data were combined with Census data to estimate the profit, cost and price functions. CSA farms provide shareholders a bundle of produce called a share. Results suggest that community characteristics are important to CSA success through effects on share prices. Cost function estimation was more successful than profit function estimation by all standard summary measures. Results were consistent with behavior where share prices are set and shareholder commitments made in winter and production decisions are made given these constraints.

Regulated Recreationists: The Case of Angler Catch, Harvest and Fishery Choice. David O. Scrogin, University of Central Florida, Kevin Boyle, University of Maine, George Parsons, University of Delaware, Andrew Plantinga, Oregon State University
Imposition of regulations on recreational fishing results from public pressures. Variation in the stringency of regulations may influence angler expectations of catch and harvest, fishery choice, and welfare. We explore these issues in the case of freshwater anglers in Maine. Given the dependency of harvest on catch, we use a two-stage count data model in conjunction with a random utility model to quantify the effects of regulations on anglers. Findings indicate that regulations are often large and significant determinants of fishery choice, catch and harvest. Simulated amendments to the system of regulations lead to negligible impacts on angler welfare.

Estimation of Food Demand Systems: Evidence from Micro Household Data in Urban China. Kang Ernest Liu and Wen S. Chern, The Ohio State University.
The purpose of this study is to estimate food demand systems using micro household data from China. Chinese urban household consumption data, collected and released by the National Bureau of Statistics (NBS), People's Republic of China 1998, is employed in this study. Following Dong and Gould (1999), the Linear Approximated Almost Ideal Demand System (LA/AIDS), developed by Deaton and Muellbauer (1980), is estimated. Nine food categories and five demographic factors are included. The results show that demographic characteristics play a key role in analyzing food consumption in urban China. However, the censored and

uncensored demand systems show a similarity with respect to expenditure and price elasticities.

China's Urban Consumer Demand for Dairy Products and Implications for Trade. Wei Zhang, Qingbin Wang, University of Vermont, Cheng Fang, Iowa State University.
China's economic reform has brought about significant changes in food consumption patterns and trade behavior. This study uses data from the 1998 China Urban Household Survey to examine consumer demand for milk, milk powder and sour milk and discusses the implications for U.S. dairy exports. While the estimated demand elasticities indicate that China's demand for dairy products, especially milk and sour milk, will continue to increase as income increases, an examination of China's dairy market and trade policy suggests that China's dairy imports are likely to increase and China will be a significant market for U.S. dairy products.

Issues in International Trade

Moderator: Susan Leetmaa, USDA/ERS

Impacts of NAFTA on U.S.-Mexico Agricultural Trade. Dale Colyer, West Virginia University.
Data for 1989–99 indicate that U.S.-Mexico trade has increased substantially under NAFTA. Regression analyses do not provide strong evidence that NAFTA has been an important factor since the data indicate a continuation of previous trends. NAFTA resulted in trade under TRQs for previously prohibited products and enabled other trade to continue increasing.

Reconciling Trade and the Environment: A Cost Sharing Approach. Quingshui Zhou, Dale Colyer, and Tim Phipps, West Virginia University.
This paper reviews the entwined issue of trade and the environment: its two-way effects and reconciliation. It discusses concerns over how environmental control affects domestic economies with respect to their trade positions and how international trade affects the environment. The global interest of the environment and the need of a cooperative solution are emphasized. It is argued that the international pollution trading system is infeasible in view of organizational cost and enforcement, and proposes to treat environmental consequences resulting from trade as international public goods. A cost sharing approach—Gini Ratio Equilibrium is recommended for the public good provision problem.

The Impact of EU Export Subsidy Elimination on World Markets. Susan Leetmaa, USDA/ERS
In the Uruguay Round Agreement on Agriculture GATT contracting parties agreed to reduce the volume and value of subsidized exports. The upcoming WTO round on agriculture may impose further disciplines on export subsidies. The European Union (EU) accounts for nearly 90% of export subsidy expenditures. This study finds that if the EU eliminated subsidies it would continue to have exportable surpluses of all grains and would to be unable to export beef. The impact on world markets would be most pronounced for wheat, as EU exports would increase following production shifts out of less competitive crops, driving down price.

Growth Modeling in Transition Economies. Jennifer A. Kuntz and John Mackenzie, University of Delaware.
We analyze post-communist growth in 25 Central and Eastern European countries, focusing on variations in institutional performance correlated with cultural categories defined by Huntington: Western, Islamic, and Orthodox. The degree of consensus to adopt Western-style market-enhancing institutions varies dramatically across countries. Western or Orthodox nations endured larger declines in GDP in the early years of transition, followed by faster recovery than their Islamic counterparts.

Production Economics I: Input Modeling

Moderator: Dan Lass, University of Massachusetts

A New Model of Induced Bias in Technical Change. Yir-Hueih Lukh, National Tsing Hua University
This paper proposes an integrated method to examine the bias of technical change induced by agricultural education, research, and extension. The dynamic adjustment framework proposed by Luh (2000) is modified to accommodate the possible bias effects induced by accumulated knowledge. In addition, instead of using the graphical method frequently used in the literature, this study applies the cointegration tests to address the va-

lidity of the inducement mechanism. The results suggest technical change induced by accumulated knowledge is biased towards the use of intermediate inputs. Nevertheless, for the other two inputs, labor and capital, there is no evidence supporting such bias effects.

Economies of Scope of Multi-Product Firms: A Flexible Fixed Cost Quadratic Model Analysis. Edouard Mafoua and Robin Brumfield, Rutgers University.
This study used the flexible fixed cost quadratic (FFCQ) function to analyze the economies of scope of multiproduct firms using farm-level panel data. This functional form provides information on the decomposition of scope economies into fixed-cost ($SCOPE_{FC}$) and variable-cost ($SCOPE_{VC}$) components. Decreasing product-specific scale economies for corn or soybeans, and nearly constant returns to scale for wheat along with strong scope economies between products were sufficient conditions for subaddivity of the FFCQ function. Corn-soybeans-wheat farms as well as corn-soybean farms were found cost efficient from joint production. They are able to lower the cost of producing crops in the same farm by spreading fixed costs over two or three products and/or by exploiting product cost complementarity, or diversifying risks. Scale economies and scope economies of corn-soybean farms are larger than those of corn-soybean-wheat farms.

Resource Economics I: Revealed Preference Methods

Moderator: Wendy Harper, Wellesley College

A Hedonic Analysis of the Effects of an Exotic Invader (*Myriophyllum heterophyllum*) on New Hampshire Lakefront Properties. Jodi Michaud, Shanna Burt, John M. Halstead, University of New Hampshire, and Julie P. Gibbs, U.S. Army Corps of Engineers.
Introduced species are a major threat to the planet's ecosystems, and one of the major causes of species extinction. This study deals with some of the economic impacts of one of these "invaders," variable milfoil. Variable milfoil can clog water bodies, cause boating and swimming hazards, and crowd out native species. This study analyzed the effects of variable milfoil on shoreline property values at selected New Hampshire lakes. Results indicate that property values on lakes experiencing milfoil infestation are about 16% lower than similar properties on uninfested lakes. Results are highly sensitive to specification of the hedonic equation.

Capitalization of Housing Spaces into Housing Values: Can Agricultural Easement Programs Pay for Themselves? Jackie Geoghegan, Clark University, Lori Lynch, and Shawn Bucholtz, University of Maryland.
As agricultural and forest land have been converted to residential and commercial uses, concerns about the preservation of open space have grown. To better inform policy decisions this paper investigates the value of open space, for near-by residential landowners in four Maryland counties. We estimate a hedonic model using residential transactions and include the traditional hedonic explanatory variables and variables calculated using a GIS, including the amount of permanent" and "developable" open space near each transaction. We test whether parcels near permanent open space receive higher prices than those with developable open space or little or no open space.

Implicit Discount Rates for Health. Tammy Barlow McDonald, University of Massachusetts.
This research estimates rates of time preference using a stated preference survey of Massachusetts residents. The results are consistent with the previous finding in the literature that discount rates decline as the time horizon involved increases. Individuals have positive rates of discount for programs that save lives in the future from an unspecified threat. However, in the specific context of groundwater protection, they place equal value on risk reduction this year and risk reduction ten years from now. These findings suggest that rates of discount for certain types of health risks may be very low or zero.

Rural and Regional Economic Development

Moderator: Janelle Larson, Penn State University

Information Technology Use by Local Governments in the Northeast: Assessment and Needs. Timothy W. Kelsey, Michael J. Dougherty, and Michael Hattery, The Pennsylvania State University.
Parallel mail surveys to local government officials were conducted in New York, Pennsylvania, and West Virginia during spring 2000. Responses indicate that most local governments have access to computers and the Internet, and use the Internet for a variety of purposes. The potential for using distance education means for deliv-

ering extension training programs for local government officials is discussed, considering both access to the technology and individual official's interest in participating in training using such means. The potential for delivering Cooperative Extension training programs in local government and economic development via information technology is explored.

The Impact of Wal-Mart on Host Towns and Surrounding Communities in Maine. Georgeanne Artz, Iowa State University, and James McConnon, University of Maine.
Retail market structure has changed dramatically over the last decade impacting many communities throughout the Northeast. Discount retailers like Wal-Mart have grown rapidly in recent years and are capturing an increasing share of the retail market in the Northeast. There is some evidence to suggest that the proliferation of discount retailers in the Northeast has accelerated the decline of retail sales in rural areas and changed the nature of retailing throughout the region. This paper reports the results of a research project that documented and analyzed changes in retail market structure resulting from the growth of Wal-Mart in Maine.

The Effects of Industry Concentration on Establishment Startups in Maine Cities. Todd Gabe, University of Maine.
We examine the effects of industry concentration on the incidence of new business startups over a three-year period in 5,504 local industries in Maine. Our analysis focuses on the relationship between startups and the concentration of industry, and the effects of the average age and size of incumbent establishments on new business activity. Estimates from a zero-inflated Poisson model indicate a positive relationship between the number of startups and the industry location quotient, which is used to measure industry concentration. Our findings also reveal a negative relationship between startups and the age and size of establishments in the local industry.

Organized Symposium: Alternative Dairy Policy Proposals Critical to the Northeast Dairy Industry. Moderator: Jim Dunn, The Pennsylvania State University. Organizer: Kenneth W. Bailey, The Pennsylvania State University. Presenters: Mike Brown, National All Jersey; Mark Stephenson, Cornell University; Daniel Smith, Northeast Dairy Compact Commission; Doug Morris, University of New Hampshire.
There are a number of important policy issues currently under consideration that are relevant to the Northeast dairy industry. Hearings on Class III/IV prices under federal orders were conducted in the spring of 2000. USDA recently announced a major change in the support program for butter and nonfat dry milk. The Northeast Interstate Dairy Compact is scheduled to be eliminated this fall. This symposium analyzed a number of these important policy issues. Those include an examination of the Northeast Dairy Compact and it's impact, as well as income support policies under consideration for the upcoming 2002 Farm Bill.

Resources Economics II: Issues in Land Use

Moderator: Doug Morris, University of New Hampshire

The Sources of Public Support for PDR Programs: An Analytical Hierarchy Procedure. Joshua Duke, Rhonda Aull Hyde, and Nuray Coban, University of Delaware.
Recent literature has questioned whether PDR programs are cost-effectively securing the characteristics of preserved land, which the public most desires. Analytical hierarchy process is used to identify the relative weights the public places on the environmental, agricultural, growth control, and open-space services of preserved land. An application to Delaware residents found that agricultural and environmental attributes were most important. A further study of the qualities of these attributes shows that the public favors agricultural land preservation because it protects a rural way of life, which also is seen to protect human-regarding environmental quality.

Targeting Conservation Contracts in Heterogeneous Landscapes: A Distance Function Approach and Application to Watershed Management. Paul Ferraro, Cornell University.
Conservation contracting with private landowners is an important tool for generating environmental amenities. Using GIS data from a New York conservation contracting initiative, I compare the cost-effectiveness of different targeting approaches advocated by academics and practitioners and contrast these approaches with an alternative approach that does not rely on a parametric

specification of an environmental benefit function. The nonparametric approach performs well compared with three parametric benefit function specifications, yields contract portfolios that dominate portfolios derived under other targeting rules, and provides information in a form is appropriate for a complex decision-making environment that cannot be completely modeled.

Parcels Characteristics' Influence on the Price of Development Rights in Agricultural Land Preservation Programs. Lori Lynch and Sabrina J. Lovell, University of Maryland.
The effect of parcel characteristics on the price paid for the development rights in farmland preservation programs was analyzed for three Maryland counties. Spatial data for individual parcels was collected on acres, percent of prime soils, current land use (cropland, forest, pasture), distance to nearest town, distance to nearest urban center, waterfront, and proximity to preserved parcels. Correcting for spatial correlation, we found that per acre price increased with proximity to the city and decreased with proximity to nearest town, acres, cropland, pasture. County-level PDR and TDR programs paid more than the state program.

A Benefit-Cost Analysis of the Cooperative Forest Management Program in Connecticut. Tomasyn Goode, Stephen Broderick, Farhed Shah, and Tsoung-Chao Lee, University of Connecticut.
Connecticut's publicly financed Cooperative Forestry Management (CFM) program provides stewardship advice and technical assistance to forest landowners, and referrals to private forestry consultants. These stakeholders were surveyed to assess the credibility, impacts, and cost-effectiveness of the CFM program. Survey results show that both landowner clients and private consultants have a high regard for knowledge levels and objectivity of CFM staff foresters. The surveys also included contingent valuation questions designed to help estimate program benefits in monetary terms. Comparing these estimates with program costs indicates that CFM generates substantial net societal benefits beyond non-market value to the public at large.

Marketing I: Agricultural Products Marketing

Moderator: Alberto Manalo, University of New Hampshire

The Role of University Researchers in Marketing Research: An Application in the Northeastern Apple Industry. Kristin Rowles and Brian Henehan, Cornell University.
In today's market, producers of agricultural commodities and value-added food products feel increasing pressure to enhance their marketing abilities. Successful marketing strategies are dependent upon analysis of current and reliable marketing information, but the availability of such information is limited for many producers by the cost of marketing research. This paper describes a university research project that seeks to provide this information to an industry whose producers are particularly in need of new and modified marketing strategies: the processing apple industry in the northeastern U.S.

An Examination of Grower Attitudes and Perceptions Toward Fruit & Vegetable Marketing Co-ops in the Mid-Atlantic Region. Sanjib Bhuyan, Rutgers University.
Lack of member interest, participation, and/or understanding of cooperative principles may lead to a co-op's failure or lack of success. The aim of this study is was to identify and evaluate problems and prospects of fruit and vegetable cooperatives in the Mid-Atlantic region *as related to growers'* values, attitudes, and perceptions. Results show that members see a *need for improvement* in the leadership and business management skills in their respective co-ops. In addition, most members were *not satisfied* with their cooperatives' current marketing strategies. Results also indicate *gaps in* expectations and communication between members and management.

The Horticultural Economy of Maryland. Robert A. Chase, University of Maryland.
The purpose of this paper is to analyze the size, associated impacts, and expenditure intensity of the horticultural economy in Maryland. With 1999 receipts of $256 million, horticulture is the second largest, and fastest growing segment of Maryland agriculture. Estimates of total expenditures, sales, and jobs associated with the design and installation of various landscape types in Maryland are presented. Economic impacts of sales are then estimated with multipliers derived from three horticultural sectors (i.e., greenhouse and nursery products, landscape and horticultural services, lawn and garden equipment) in the IMPLAN model for Maryland. The economic contributions of horticultural and other aspects of agricultural production in Maryland are then compared, with the final section providing forecasts of the Maryland State horticultural economy.

Agriculture on the Urban Fringe

Moderator: Jim McConnon, University of Maine

The Exit of Farmers in Southeastern Pennsylvania. Janelle Larson, Jill L. Findeis, Stephen M. Smith, and Yanguo Wang, The Pennsylvania State University
The study examined farmers' departure from agriculture in southeastern Pennsylvania. Logistic regression analysis shows dairy and livestock producers are less likely to continue in operation. Differential assessment is the policy that significantly increases the probability of a farmer to continue operation. Farms with off-farm employment are less likely to continue in operation, and older, less educated farmers are more likely to exit farming. As farmers retire, the issue of what happens to the agricultural land arises. Much of the land remains in agriculture, as more than 70% of respondents stated at least some of the land is being farmed.

An Undue Burden on Farmers? Real Property Taxes and Gross Farm Income. Jayson Harper and Tim Kelsey, The Pennsylvania State University.
Real property taxes as a percentage of farm gross revenues varied across different farm types in Pennsylvania, with field crop farms on average having the largest burden (5.4% of gross revenues) and dairy farms on average having the smallest burden (1.7% of gross revenues). For all farm types statewide, the real property tax burden decreased as gross revenues increased. There were strong regional differences, suggesting the real property tax is more burdensome to farmers in some counties than in others. Yet average property taxes are generally not large relative to other farm expenses, although for some farms they can be significant. This suggests that simply reducing (or even eliminating) the tax burden through special tax assessments likely will not have a large impact on most Pennsylvania farms.

Measuring the Effectiveness of Planning and Land Use Regulations in Pennsylvania. Tim Kelsey, Stanford Lembeck, and George Fasic, The Pennsylvania State University.
Two separate but related surveys were used to measure the effectiveness of land use planning in Pennsylvania. The first survey was sent to every borough and township in Pennsylvania. The second survey was sent to all county planning directors (with the exception of Philadelphia County). Survey results suggest that land use planning in Pennsylvania is not very effective. Many municipalities have the basic planning tools, but relatively few have any of the more specialized tools they are authorized to use. Those communities having the basic tools too often reported the tools play little role in decision-making.

Marketing II: Organization and Pricing Issues

Moderator: Neil Pelsue, University of Vermont

Price Transmissions and Asymmetric Adjustment in the U.S. Vegetable Market. Benjamin Onyango and Ferdaus Hossain, Rutgers, The State University of New Jersey.
This study investigates the presence of *threshold* behavior and *asymmetric adjustment* in price transmission between retail and grower prices of *fresh-market* vegetables. Using monthly prices and the cointegration method under asymmetric adjustment, the nature of price transmission is investigated for five vegetable products: cabbage, tomato, carrots, celery, and onion. Empirical evidence suggests existence of threshold behavior and asymmetric adjustment in prices for all commodities except onions. Results show that retail prices adjust rapidly (very slowly) whenever the retail-grower price margin shrinks (increases). Granger causality test suggests that causality runs from grower to retail price and not the other way around.

Hedging Futures and Options with Weighted Expected Utility. Jonathan Tuthill and Darren Frechette, The Pennsylvania State University.
Weighted expected utility is a superior generalization of expected utility that accounts for Allais Paradox type behavior. Our hedging model uses weighted expected utility to optimally calculate futures and options hedge ratios. In weighted expected utility we have two ways of measuring agent's attitudes towards risk, sensitivity and eccentricity. We find that futures hedge ratios depend of sensitivity when eccentricity is low, but as we increase

eccentricity the futures hedge ratios converge to a value slightly less then the minimum variance hedge. When we include futures and options we find that options hedge ratios decrease as we increase eccentricity.

Captive Supply through Forward Contracting: A Spectre Behind Price Volatility? Ming-Chin Chin and Robert Weaver, The Pennsylvania State University.
Theoretical and simulation results clarify the role of procurement contracting in determining spot price levels and volatility. A generic model determines market share across quality. Actual supply is specified as price dependent and stochastic. Simulation examines sensitivity of price level and volatility to extent of forward contracting, risk aversion, and ability to adjust spot market demand (recontracting). The results show that as forward contacting increases mean spot price decreases and variance increases. This effect increases as risk aversion decreases and as the extent of recontracting adjustment in spot demand decreases.

Impact of Vertical Mergers on Food Industry Profitability: An Empirical Evaluation. Sanjib Bhuyan, Rutgers University.
Vertical integration is an important business strategy among firms in the U.S. food industries. However, most of the existing studies focus on transaction-cost issues or foreclosure issues and avoid an important question: How does vertical integration affect profitability? Our objective is to test one of the perceived benefits of vertical integration improved profitability of the integrated firm. Findings show that increased vertical mergers in food industries would lower profits.

Tests of Market Power in U.S. Food Industries. Albert J. Reed, Economic Research Service, United States Department of Agriculture, J. Stephen Clark, Nova Scotia Agricultural College, J. William Levedahl, Economic Research Service, United States Department of Agriculture.
This paper presents tests of market power in U.S. Food industries as deviations from the competitive norm. The model maintains fewer hypotheses than other models that explicitly model non-competitive behavior including heterogeneous firms, heterogeneous consumers and variable proportions. Consideration is given to which primary goods can be aggregated into a composite commodity. Cointegration techniques are used to estimate the long run relationships. Test include monopoly power, monopsony power, symmetry and constant returns and are parametric and non-parametric in nature. Results find more evidence in favor of competitive markets, although some tests indicate market power exists, particularly in dairy and eggs.

Environmental Economics II: Woods and Water

Moderator: Jim Opaluch, University of Rhode Island

Controlling Excess Storm Water Runoff with Tradable Credits. Hale Thurston, Haynes Goddard, David Szlag, and Beth Lemberg, U.S. EPA.
Storm water flow off impervious surface can lead to stream degradation, habitat alteration, low base flows and toxic loading. We show that a properly designed tradable runoff credit (TRC) system creates economic incentives for landowners to employ best management practices (BMP) to maintain a waterway "in regime." Attributes such as percent impervious surface, soil type, etc., determine a given parcel's credit requirements. As a case study, we show that the TRC system is a low-cost method for attaining reductions in storm water runoff in a small watershed in Cincinnati, Ohio.

Green Technologies to Manage Urban Storm Water Run-Off. Bret Gelso and Jeff Peterson, Kansas State University.
This essay discusses a numerically simulated model of a city planner who chooses optimal combinations of water treatment plants and natural methods of controlling storm water runoff. City planners may be confronted with the problem of finding optimal allocations of treatment facilities and alternative control methods. Results identify socially optimal levels of green investments and water treatment facilities.

Designing Multidimensional Environmental Programs: Assessing Tradeoffs and Substitution in Watershed Management Plans. Robert Johnston, Steven Swallow, Chad Allen, and Lynn Smith, University of Rhode Island.
Efforts to value particular dimensions of environmental quality may misrepresent true social values if dimensions of environmental quality interact, and researchers nonetheless seek to value single dimensions in isolation. While prior work illustrates that substitution among environmental improvements may occur, questions remain regarding the practical implications of such interactions for micro-level policy evaluation, and whether similar effects occur when policies unavoidably include improvements in some resources and degradations in oth-

ers. This paper identifies potential effects of preference interactions among watershed management components, with an emphasis on whether resource interactions can create substantial shifts in willingness to pay for policy changes.

Valuation of Damages to Recreational Fishing in Maine's Lakes from an Integrated Assessment of Acid Deposition. Petra Warlimont and Jonathan Rubin, University of Maine.
Burning fossil fuels releases sulfur and nitrogen oxides into the atmosphere where they convert to sulfuric and nitric acids, widely accepted as a major cause of environmental damage to forests, streams and lakes. This study attempts to place an economic value on the impact of acid rain on recreational fishing in Maine lakes. A key objective was to determine whether additional reductions in deposition are necessary to prevent adverse ecological effects. We value anglers' economic well-being by analyzing the changes in catch rates due to fish-kill from acidic deposition. Results will be used in a random utility model in order to place an economic value on fishing sites.

Factors Affecting Consumer Evaluation of Environmentally-Labeled Forest Products. Kelly O'Brien and Mario Teisl, University of Maine.
We explore how the disclosure of different environmental attributes, and the consumers' participation in outdoor recreation, impact their choices of environmentally labeled forest products. We find that consumers are generally willing to pay for forest products that have improved environmental attributes. However, participation in outdoor recreation did not alter respondent purchase behavior or willingness to pay for environmentally improved characteristics. This is surprising given that most other research has indicated that participation in outdoor recreation increases an individual's level of environmental concern. Apparently, these impacts on concern do not necessarily translate into changes in purchasing behavior.

The Environmental-Agricultural Interface

Moderator: Alan Collins, West Virginia University

Financial and Environmental Impacts of Alternative Phosphorus Management Practices on Vermont Dairy Farms. Wei Zhang, Robert Parsons and Don Meals, University of Vermont.
The goal of this research is to provide policymakers and farmers insight on the economic cost and environment protection efficiency of alternative phosphorus management practices. Three sizes of Vermont dairy farms are examined using the coupling of the Farm Level Income and Policy Simulation Modeling System (FLIPSim) and the Geographic Information System Phosphorus Loading Model (GISPLM). *Feed Reformulation* and two BMP programs *Conservation cropping + Row crop field buffer + Nutrient management* and *Conservation cropping + Row crop field buffer + Nutrient management + Residual Management* are recommended by GISPLM at a cost of $43.50/kg. Financial impacts are examined using FLIPSim.

Transition in the Connecticut Dairy Industry: Understanding Farm Size, Entry and Exits. Jeremy Foltz, University of Connecticut.
This paper investigates the forces behind farm exits and changes in herd-size among Connecticut dairy farms. The analysis uses two methods, a Markov chain analysis and a panel data regression estimation. Results show that farmers at both ends of the size distribution were likely to leave the farming business in Connecticut. The results provide evidence that price policies have the greatest influence on farm structure.

Production II: Risk and Pricing

Moderator: Kevin Boyle, University of Maine

Pricing of Options with Stochastic Volatilities: Applications to Agricultural Commodities Contracts. Nasibrola Lordkipanidze and William Tomek, Cornell University.
The empirical evidence for long memory in the volatility of prices is strong for both corn and soybean futures markets. This paper examines whether the stochastic volatility model that captures key statistical characteristics of the commodity futures prices—a long memory in volatility and a fractional dimension of underlying probability distribution—provides improvement over a standard Black-Scholes options pricing model. The volatility

is modeled as an Ornstein-Ulenbeck process driven by fractional Brownian motion. The inclusion of a long-memory stochastic volatility is found to have a significant impact upon the term structure of implied volatilities, and should be able to provide better estimates of in- and out-of-the-money options' prices.

Risk Attitudes, Perceptions, and Risk Management Strategies: Case for New Jersey Farmers. Adesoji O. Adelaja, Ferdaus Hossain, and Benjamin Onyango, Rutgers University.
This paper summarizes the results of survey of a random sample of 2500 farmers drawn from New Jersey (fruit, vegetable, field crops and livestock) producers. The survey was conducted towards the end of March and April 2001. The paper presents results of statistical analyses that identify the role of various socio-economic and farm characteristics on farmers' perceptions and attitudes towards risk, risk sources and risk management strategies. The results will contribute towards the formulation of risk management program and development of a knowledge base to guide the design and implementation of the program.

Impact of Financial Decisions on Productivity Growth in the U.S. Food Manufacturing Industry. Ferdaus Hossain and Ruchi Jain, Rutgers University.
This paper examines how financing decision by firms affect production, input demands, profitability, and productivity of U.S. food manufacturing industry. Empirical results shows that output supply, variable input demands, profitability and productivity are affected by agency costs of debt and signaling benefits of dividend payments. Signaling benefit contributed for about 3.75% of the growth in productivity, while agency cost accounted for about 11.25% reduction in growth. Thus, positive signaling benefits of dividend payment was more than offset by the agency cost of debt in the productivity growth in the U.S. food manufacturing industry.

Estimating the Value of Indemnity Payments for Plum Pox Virus. Jayson Harper and Lynn Kime, The Pennsylvania State University.
Discovery of plum pox virus (PPV), in Adams County, Pennsylvania late in fall 1999 was a devastating economic blow to the affected peach and nectarine growers. The only option available to eradicate PPV is the removal and burning of infected trees, so growers lose not only the value of current production, but also experience major disruptions in future income streams. Indemnity payments are based on the difference between the present value of the cash flows expected prior to the discovery of PPV and the present value of the new reality of tree removal, a three-year moratorium on replanting, and reestablishment. Future cash flows are discounted to reflect the interest rate on capital, the anticipated annual rate of inflation over the life of the investment, and the riskiness of the investment.

The Adoption and Impact of Management Intensive Rotational Grazing on Connecticut Dairy Farms. Jeremy Foltz and Gillis Lang, University of Connecticut.
This work uses a random sample of Connecticut dairy farmers to estimates adoption, cost, productivity, and profit functions for management intensive rotational grazing. MIRG adoptors are shown to be more education and have less rented agricultural land. MIRG adoption had no significant effects on costs or productivity but lowered profits. Given the difficulty in finding land that is easily accessible to barns in Connecticut, there would seem to be little room for expansion of rotational grazing.

Agricultural Policy and Miscellaneous

Moderator: John Halstead, University of New Hampshire

A Combinatorial Model for Selecting Branch Office Locations for a Farm Credit ACA. Timi Scaletta, Jeffrey Stokes, and James Dunn, The Pennsylvania State University
A combinatorial model is developed to determine optimal branch locations for a farm credit ACA (Agricultural Credit Association). Three ACAs in Pennsylvania recently merged to form AgChoice Farm Credit ACA. To improve efficiency, the branch offices were reorganized including closing several branches. The purpose of this study is to examine alternative Farm Credit configurations to learn more about the process of how banks can become more efficient. To accomplish this objective, a model is developed to determine the optimal number, size, and location of branch offices following a merger between three Farm Credit ACAs in Pennsylvania.

Decomposing Inequality by Income Source: Evidence from Rural Nicaragua. Maria Gonzalez and Jeremy Foltz, University of Connecticut.
This paper investigates the impact that different sources of income have on the rural income distribution by analyzing the results of a rural household survey in a specific area of Nicaragua. Using novel decomposition techniques we identify the contribution of different sources of rural household income to total income inequality. While the results are specific to Nicaragua, the methods

demonstrated in the paper are useful to understanding inequality and income sources in U.S. agriculture. The results indicate the important role that off-farm income can play in the economic development of rural Nicaragua.

Political Action Committee Contributions and House Voting on Peanut Price Supports. Holly A. Ameden and Sean B. Cash, University of California-Berkeley. Policymakers have long debated the merits of U.S. agricultural commodity programs. Several analysts have investigated the possibility that these programs continue to enjoy support from lawmakers because of focused campaign contributions by interest groups. In this paper, we consider the case of Congressional votes relating to the U.S. peanut price support program. We extend previous simultaneous equations models to investigate the interaction of campaign contributions and voting behavior. We utilize GMM instrumental variables techniques to address concerns about behavioral assumptions underlying previous work. Our model suggests that contributions have significant influence on legislators' votes on subsidy reform.