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## Abstracts of Selected Papers

NAREA Annual Meetings, Québec City, June 29 to July 1, 2008

**SESSION: *Policy, Land Values, and Urban/ Rural Interactions*. Moderator: Stephen Clark (Nova Scotia Agricultural College)**

**“Modeling Urban-Rural Interactions in Agricultural and Forested Landscapes.” Kathleen Bell (University of Maine).**

This research focuses on the changing landscapes of Maine’s rural communities. A spatial economic model of land-cover change is developed to explore transitions among agricultural, forest, and developed land cover classes. The empirical analysis speaks to both the persistence and conversion of agricultural and forest lands across levels of urbanization.

**SESSION: *Labeling and Certification of Credence Attributes*. Moderator: David Just (Cornell University)**

**“The Effectiveness of COOL in the Seafood Industry.” Siny Joseph and Nathalie Lavoie (University of Massachusetts).**

Partial implementation of COOL (country-of-origin labeling) is shown to have a diversion effect of low quality seafood into the non-labeled market. Numerical simulation results indicate that, despite the diversion, consumer welfare is greater in the presence of COOL (partial implementation) compared to the absence of COOL.

**SESSION: *The Market for Organic Foods*. Moderator: Cheryl Brown (West Virginia University)**

**“Estimating Organic Milk Purchasing Behavior in a Censored Demand System.” Edward Jaenicke and Mitsuko Chikasada (Pennsylvania State University) and Carolyn Dimitri (Economic Research Service, USDA).**

Including organic milk within a demand system, we overcome two related empirical problems—missing prices for non-purchasing households and many households with zero expenditures. We find that demand for organic milk is about twice as (price) elastic as conventional milk and seven times as expenditure elastic.

**“Consumer Demand for Organic Produce: Evidence from Homescan Data.” Chung Huang (University of Georgia), Biing-Hwan Lin (Economic Research Service, USDA), and Travis Smith (University of Georgia).**

The objective of this study is to examine American consumers’ purchasing patterns for organic produce using the 2004 Nielsen Homescan data. A multinomial logistic model is specified and estimated to determine how socio-demographic factors affect the probability that a household will belong to a specific category of organic user group.

**“Are Consumers Paying for What They Think They Are? Willingness to Pay for Natural and Organic Foods Before and After Definitions.” Alexis Solano and John Bernard (University of Delaware).**

Even with premiums above their conventional counterparts, sales of organic and natural foods have increased. However, consumers may not understand these terms and their expressed willingness to pay (WTP) may be inaccurate. Auction experiments and surveys were used to examine consumer knowledge of the terms and WTP changes after definitions.

**SESSION: *Employment and Regional Development*. Moderator: Pascal Ghazalian (University of Lethbridge)**

**“Microenterprises and Their Effects on U.S. Regional Economic Growth.” Sarah Larochelle, James McConnon, Jr., and Todd Gabe (University of Maine).**

This study explores the importance of microenterprises on U.S. regional economic growth. Using a Carlino-Mills type model, we find that the percentage of establishments employing one to four employees has a positive and significant effect on county-level employment growth but a negative impact on population growth during the 1990s.

**SESSION: *Food vs. Fuels: The Economics of***

**Bio-Fuels. Moderator: Ryan Cardwell (University of Manitoba)**

**“Economic Viability of Dedicated Energy Crops in U.S. and Canadian Crop Portfolios: A Stochastic Dominance Analysis.” Subbu Kumarappan and Satish Joshi (Michigan State University) and Heather McLean (University of Toronto).**

The economic returns required for perennial energy crops (switchgrass) to become competitive with annual crops (corn, soybeans, and wheat) are estimated using a stochastic dominance criterion. The development of a cellulosic ethanol industry can dramatically alter the agricultural cropping patterns in the United States and Canada by shifting land from portfolios of annual crops such as corn, soybeans, wheat, and cotton, and from fallow lands, to perennial crops.

**SESSION: *What We Have Learned from Applying Market-Based Concepts to Water Quality Problems: Implications for Research, Education, and Policy.* Moderator: Charles Abdalla (Pennsylvania State University)**

**“Implications for Research, Education, and Policy.” Kurt Stephenson (Virginia Tech) and Leonard Shabman (Resources for the Future).**

Water quality trading is increasingly touted by regulatory agencies, NGOs, and industry organizations as an innovative market-based policy reform. As implemented, such trading programs fail to measure up to the objectives and designs of market-based policy. The most common myths about water quality trading programs are explained.

**“Assessing Performance of Water Policies and Programs Using Market-Based Concepts: Opportunities and Challenges.” Doug Parker (University of Maryland).**

The majority of trading and other market-based programs base their performance assessment on physical water quality parameters. There are many additional categories of potential outcomes that could be considered. Assessing these outcomes is essential to proper evaluation of water quality trading programs, and to knowing if and how well the programs work.

**“Pennsylvania’s Experience with Nutrient Trad-**

**ing.” Willard Delavan (Pennsylvania Department of Environmental Protection).**

This paper describes the ongoing development of Pennsylvania’s nutrient trading program and dispels some common misconceptions about the process from an insider’s perspective. It also discusses program progress, and approaches to overcoming hurdles to successful implementation.

**“Dealing with Water Quality and More at a River Basin Scale: Experience with Trading and Other Concepts in the Willamette River Basin.” Charles Abdalla (Pennsylvania State University/Oregon State University).**

Market-based approaches are being promoted to help water meet quality standards. A coalition in Oregon’s Willamette River basin is attempting to use trading and banks to address water quality and sustainability goals. Little systematic information is available concerning performance of such programs. This paper will help fill this knowledge gap.

**SESSION: *Farm Income.* Moderator: Barrett Kirwan (University of Maryland)**

**“Impact of Rising Fertilizer Prices on U.S. Farm Income, 2000 to 2007.” Wen-yuan Huang (Economic Research Service, USDA).**

Percent increase in fertilizer prices was more than double the percent increase in commodity prices from 2000 to 2006. Increased fertilizer costs, however, were offset by increased net cash income, which was more than 5 times the increased fertilizer costs for corn growers, and 27 times for soybean growers.

**“Is Small Beautiful? An Analysis of Financial Performance of Organic Dairy Farms in the Northeastern United States.” Sanjib Bhuyan, Michael Postel, Andrew Toole, and Barbara O’Neill (Rutgers University).**

Small dairy farms have been disappearing over the years in the Northeast. At the same time, demand for organic milk has been consistently rising. Using farm financial data, we examine whether producing organic milk is a profitable alternative for dairy farmers in the Northeast, where most dairy farms are small.

**“Forage Procurement in U.S. Milk Production: Grow It or Purchase It?” Jeffrey Gilles-**

**pie (Louisiana State University) and Richard Nehring, Carmen Sandretto, and Charlie Halahan (Economic Research Service, USDA).**

As the U.S. dairy industry has shifted west and farm size has increased, farms have become more specialized, many producing either milk or forage. This study examines the dairy farms that purchase forage and determines whether profitability differs between forage-purchasing dairy farms and traditional farms vertically integrated with forage production.

**SESSION: Conservation I: Land and Sky. Moderator: Wesley Musser (University of Maryland)**

**“Participation in the Canadian Voluntary Climate Registry (VCR) Program.” Donna Harrington (University of Vermont) and Keith Brouhle (Grinnell College).**

This study analyzes firms’ engagement in the VCR Program using dynamic probit and ordered probit models. We find that participation in the VCR Program is among non-manufacturing firms. Overall, the quality of submitted action plans have improved, particularly among higher past performers and electric utility and manufacturing firms.

**“Willingness to Pay for Natural Resources in a Small Mountain Community.” Sarah Cline and Andrew Seidl (Colorado State University).**

Stated and revealed preference data from a survey of visitors to a small mountain area is used to estimate willingness to pay to avoid decreases in open space and water quality. A joint estimation of recreation demand and willingness to pay allows for the identification of use and non-use values.

**“Effect of Proximity on Preferences for Land Preservation and Sustainable Management.” Allison Borchers and Joshua Duke (University of Delaware).**

This paper looks at public support for preservation and sustainable management practices of a local, actively farmed, large land parcel. This study extends existing research by addressing not only land preservation but also management. In addition, a targeted sampling technique allows inference about the relationship between preference and residential proximity.

**“Cost-Benefit Analysis of the National Cooperative Soil Survey Program.” Archana Pradhan and Jerald Fletcher (West Virginia University).**

This paper discusses benefits derived from the National Cooperative Soil Survey using agency budgets to produce and manage soil information as a proxy for cost, while benefits for major crops derived from the availability of soil information are estimated using a fixed effects panel data approach.

**SESSION: Managing Environmental Problems. Moderator: Jim Unterschultz (University of Alberta)**

**“Unanticipated Consequences of Regional Pollution Control Policies: Criteria Pollutant Emissions and the Regional Greenhouse Gas Initiative.” Timothy Olesniewicz and Jonathan Rubin (University of Maine).**

The Regional Greenhouse Gas Initiative (RGGI) is a regional policy to reduce CO<sub>2</sub> emissions from the electricity sector in the northeastern United States. This research uses an econometric model involving fuel usage, electricity generation, and emissions to determine potential spatial shifts in criteria pollutant emissions as a result of RGGI.

**“Observability, Non-Point Source Pollution, and Information Costs.” Laura McCann (University of Missouri), Haluk Gedikoglu (University of Wisconsin), and Bob Broz, John Lory, and Ray Massey (University Missouri).**

Observability of the impact of environmental practices by farmers themselves, as well as by regulators, is an issue with non-point source pollution. Our results show that practices that have more obvious effects on water quality are more likely to be adopted, which has implications for educational programs.

**“Pollution Control and Sediment Management for Reservoir Sustainability.” Yoon Lee, Ayman Abou-Zeid, and Farhed Shah (University of Connecticut).**

Agricultural pollution and sedimentation caused by water runoff may reduce the long-term benefits of reservoirs. A model is developed to simultaneously determine optimal strategies for watershed pollution management and reservoir-level

sediment control. Application to Lake Nubia indicates the need for collaboration between Egypt and the Sudan.

**SESSION: *Meat, Markets, and Mega-Stores.***  
**Moderator: Jared Carlberg (University of Manitoba)**

**“Supermarket Chain Level Analysis of Vertical and Horizontal Competition in the Presence of Strong Store Brands.” Michael Cohen and Ronald Cotterill (University of Connecticut).**

Store brands are thought to improve retailer position relative to leading brand manufacturers and to reduce retail prices. A structural approach shows how store brands affect the distribution of channel profits in equilibrium. We use scanner data of milk sales at leading retail chains in Boston to show that store brands improve retail profits while reducing wholesale profits and retail prices.

**“Coping with the Bully: Wal-Mart’s Oligopsony Power over Retail Workers.” Alessandro Bonanno (University of Connecticut).**

This paper presents a structural model to test for the oligopsony power of Wal-Mart in local input markets, presenting estimates of the power of the company over retail workers. Preliminary findings validate the hypothesis that Wal-Mart depresses wages through an increase in retail oligopsony power over workers.

**SESSION: *Economics of Food Safety.*** **Moderator: Maurice Doyon (Laval University)**

**“Valuing Improvements in Food Safety: Do We Get It Right?” Mario Teisl (University of Maine) and Brian Roe (Ohio State University).**

We present results from a long-term study aimed at valuing changes in food safety. The regressions work well and the valuation estimates meet the scope test. We find that current USDA valuation estimates understate the benefits of food safety programs and give undue priority to illnesses resulting in mortality.

**SESSION: *Advances in Benefit Transfer.*** **Moderator: William Wheeler (U.S. Environmental Protection Agency)**

**“The Pure Characteristics Approach to Benefit Transfer.” Nicolai Kuminoff, Kevin Boyle, Chris Parmeter, and Jaren Pope (Virginia Tech).**

We compare the validity of benefit function transfers based on two revealed preference frameworks: the random utility travel-cost model, and a new pure characteristics model (PCM). The PCM is the first benefit transfer framework to explicitly address uncertainty by providing upper and lower bounds on point estimates for benefits measures.

**“Demonstration and Evaluation of Structural Benefit Transfer and Bayesian Benefit Transfer for Valuing Welfare Impacts of Saltwater Beach Quality Changes.” Christine Poulos and George Van Houtven (RTI International), Daniel Phaneuf (North Carolina State University), George Parsons (University of Delaware), and Matt Massey (U.S. Environmental Protection Agency).**

Our study uses Structural Benefit Transfer and Bayesian Benefit Transfer with available information—studies of saltwater beach use and data from the Coastal Module of the National Survey of Recreation and the Environment—to measure the economic losses due to beach closures and erosion in North Carolina’s Southern Banks region.

**“Selection Effects in Meta-Valuation Function Transfers.” Randall Rosenberger (Oregon State University) and Robert Johnston (University of Connecticut).**

Seemingly independent influences on and choices in conducting and reporting primary research may bias a stock of knowledge. We discuss the cultural context of four types of selection effects, including their detection, evidence of them from the literature, and their implications for future benefit transfers and primary research.

**“Meta-Analysis, Benefit Transfer, and Methodological Covariates: Implications for Transfer Error.” Robert Johnston (University of Connecticut) and Ryan Stapler (ENTRIX, Inc.).**

This paper characterizes the impact of methodological variables on error within meta-analysis benefit transfer. Using cross-validation, we contrast errors for the hypothetical ideal case in which “correct” methodological covariate treatments are known to those under common empiri-

cal treatments. Results characterize the influence of unknown methodological variable values on transfer accuracy.

**“An Experiment in Transferring Stated Choice Methods and Values across Ecosystem Regions in the United States.”** John Hoehn, Frank Lupi, and Michael Kaplowitz (Michigan State University).

The research tested hypotheses regarding the interregional transfer of a stated choice questionnaire and estimated values. The presentation reports on (i) the use of qualitative methods to develop hypotheses, (ii) the development of test variables from the qualitative research results, and (iii) statistical tests evaluating the performance of the interregional transfer.

**SESSION: Supply Chains and Market Structure.** Moderator: Jean-Philippe Gervais (Laval University)

**“A Description of the Illicit Agricultural and Wildlife Trade.”** Peyton Ferrier (Economic Research Service, USDA).

This study reviews the illicit agricultural and wildlife trade. Based on inspections and interdiction data, illicit trade primarily involves luxury, ethnic, and specialty goods; is disproportionately larger for goods originating from Mexico and China; is significantly large for wildlife illicit trade, as 0.4 percent of all inspected wildlife imports are refused import; and is measured with great uncertainty.

**“Accounting for a Non-Linear Long-Run Equilibrium Relationship in a Vector Error Correction Model: An Application to the German Apple Market.”** Linde Goetz and Stephan von Cramon-Taubadel (University of Goettingen).

In this paper we analyze price transmission within a regime-specific vector error correction model (VECM), capturing not only non-linearity in the short-run adjustment process, as threshold VECM and Markov-switching VECM frameworks do, but also in the long-run equilibrium relationship, employing the Gonzalo and Pitarakis test for threshold cointegration.

**SESSION: Assessing Willingness to Pay: Methods and Applications.** Moderator: Robert Johnston (University of Connecticut)

**“Asian Indian Willingness to Pay More for Ethnic Produce: A Study in the East Coast Region of the United States.”** Ramu Govindasamy, Venkata Puduri, and James Simon (Rutgers University).

The main objective of this study is to identify Asian Indian ethnic consumers' preferences towards willingness to pay more for ethnic produce. Therefore, this paper proposes to investigate “who is willing to pay more for ethnic produce” based on consumer behavioral, attitudinal, and demographic characteristics.

**SESSION: Innovation in the Household, Farm, and Marketplace.** Moderator: Randy Rosenberg (Oregon State University)

**“Impact of Genetically Engineered Cotton Adoption on Quality-Adjusted Pesticide Use in the United States.”** Alexandre Vialou (University of Maryland) and Jorge Fernandez-Cornejo and Richard Nehring (Economic Research Service, USDA).

Uncertainties remain about the long-term impact of genetically engineered crops on pesticide consumption. After adjusting for the spatial and temporal heterogeneity in the composition of the pesticides, results suggest that adoption of herbicide-tolerant and Bt cotton have led to a significant decrease in the consumption of quality-adjusted pesticides.

**“The Potential Role of Universities in Facilitating Home-Shoring Activities.”** Douglas Morris and Lyndon Goodridge (University of New Hampshire).

Firms out-sourcing activities were asked if they would be interested in returning activities to the United States if a pool of human resources with prerequisite skills was available. The reported skills matched the skills obtained from a consumer survey of individuals indicating a willingness to work from home. Both groups fully supported using a university program to match skills and provide training.

**SESSION: Conservation II: On the Farm.** Moderator: Joshua Duke (University of Delaware)

**“Identifying Conservation Priority Areas in the Eastern Panhandle Region of West Virginia.”** Sudiksha Joshi and Michael Strager

**(West Virginia University).**

Studies that analyze the economic tradeoffs of conservation areas are limited. This study examines ways to determine the minimum area required to attain various conservation goals given budgetary constraints. The regional results can be used to direct conservation efforts to a more localized level.

**“Conservation of Pond-Breeding Amphibians at the Rural-Urban Fringe Using a Spatially Realistic Ecosystem Constraint.” Dana Marie Bauer (Boston University) and Stephen Swallow and Peter Paton (University of Rhode Island).**

The major cause of wetland species decline is thought to be habitat loss and degradation. This paper applies a spatially realistic land use allocation model to a wetland ecosystem landscape. The social costs of alternative land use policies are examined. The analysis highlights the importance of heterogeneity and spatial scale.

**“Can Smallholders Successfully Adopt Reduced-Till Agriculture? The Dual Role of Crop Residue.” Nicholas Magnan (University of California, Davis).**

A common explanation for why smallholders fail to adopt reduced-till agriculture is that they have a high implicit value for crop residue as animal feed. This paper uses a household model to estimate the value of crop residue to different types of smallholders using survey data from Morocco.

**“Empirical Analysis of New Jersey Farmers’ Attitude Toward Environmental Conservation Goals.” Edmund Tavernier and Stephanie Luk (Rutgers University).**

This study uses the ordered logistic model to investigate the perception of New Jersey farmers toward environmental policy goals. In particular the paper examines the attitude of farmers toward the provision of federal and technical assistance for the management of animal wastes.

**SESSION: *Dietary Quality and Obesity*. Moderator: Cheryl Brown (West Virginia University)**

**“Carbonated Soft Drink Consumption: Implications for Obesity Policy.” Kristen Fantuzzi**

**and Rigoberto Lopez (University of Connecticut).**

A random coefficients demand model is estimated with 26 brands of carbonated soft drinks in 20 different U.S. cities, involving 40,000 consumer observations. The results are then linked to consumers’ body mass indexes. Results confirm that a positive taste for calories significantly increases the likelihood of obesity. Taxation and education policies to address the obesity epidemic are presented.

**“Snacks and Their Effects on Obesity.” Gayaneh Kyureghian (Texas A&M University).**

We examine the effects of snacking on obesity by categorizing them into Type I—snacks plus other meals—and Type II—snacks instead of other meals—and by food source. Type II (Type I) snacks and snacks at (away from) home are hypothesized to have negative (positive) effects on body mass index.

**SESSION: *Empirical Trade*. Moderator: Bruno Larue (Laval University)**

**“Transportation, Air Quality, and Trade.” Linda Fernandez (University of California, Riverside).**

Econometric analysis of panel data on transportation flows and air quality helps to answer the questions: Has NAFTA resulted in more air pollution at border ports due to transportation? Have policies related to trucking, fuel, and preclearance programs helped to alleviate delays and reduced air pollution at the transboundary ports?

**“U.S. Red Meat and Poultry Exports to North America: Are Exchange Rates a Factor?” Keithly Jones and Michael McConnell (Economic Research Service, USDA) and Andrew Muhammad (Mississippi State University).**

An AIDS model, incorporating exchange rates, was used to examine U.S. red meat and poultry export-demand to NAFTA countries. Preliminary results suggest consistency with demand theory. Exchange rates appeared to influence export demand for some meats more than others. The devalued U.S. currency significantly and positively affected U.S. beef and turkey exports to Mexico and Canada.

**SESSION: Forest Economics. Moderator: Jerry Fletcher (West Virginia University)**

**“Real Exchange Rate and Deforestation in Ghana.” Patrick Obeng-Asiedu and Boris Bravo-Ureta (University of Connecticut) and Yerfi Fosu (University of Science and Technology, Ghana).**

Deforestation is an important factor in global climate change as well as a root cause in the loss of biodiversity. This study examines the effects of the real exchange rate on deforestation in Ghana using an econometric model based on optimal control theory. The depreciation of the real exchange rate—which was caused by general restrictive monetary and fiscal policies, trade liberalization, and unprecedented nominal exchange rate depreciation—tended to stimulate increases in the relative producer prices of cocoa and coffee.

**SESSION: Farm Management I: Structural and Policy Changes. Moderator: Todd Schmit (Cornell University)**

**“Soybean Rust in the United States During 2006: Farmer Perceptions and Behaviors Under USDA’s Coordinated Management Framework.” Michael Livingston (Economic Research Service, USDA).**

The determinants of U.S. soybean producers’ prior beliefs regarding the likelihood of Asian soybean rust outbreaks and their rust management responses are examined using ARMS survey data collected in 2006. Previously published estimates of soybean rust’s economic impacts and the value of a public soybean rust management system are reported.

**“Non-Farm Business Ownership by Farm Families in the United States.” Faqir Bagi (Economic Research Service, USDA).**

This paper presents estimates of a logit model using USDA’s 2006 ARMS data. It shows that the odds of non-farm business ownership by farm families are related to farm size, operator’s age, education, marriage, spouse’s education, farm’s tenure, typology, organization, and off-farm wages.

**SESSION: Changing Demand for Foods. Moderator: Brady Deaton (University of Guelph)**

**“Asian Consumers’ Willingness to Buy Locally Grown Ethnic Produce: A Study from the East Coast of the United States.” Venkata Puduri and Ramu Govindasamy (Rutgers University).**

This study aims to document and quantify the Asian ethnic produce market in relation to identifying opportunities for farmers in northeastern states to grow these prospective crops. The study analyzes the impacts of Asian consumers’ socio-economic attributes on their willingness to buy locally grown ethnic produce.

**SESSION: Agricultural Water Use. Moderator: George Criner (University of Maine)**

**“Efficiency and Watershed Payments: How Will Farmers Respond?” Peter Maille and Alan Collins (West Virginia University).**

We investigate how water quality payments affect farmers’ risk and expected income, and consequently, farmers’ participation in an economic experiment. By estimating a variance-covariance matrix of income-generating agricultural activities, and including water payments, we test how risk and expected income are affected, and how abatement can differentially affect farms.

**SESSION: Trade Policy. Moderator: Bill Kerr (University of Saskatchewan)**

**“Green Trade Agreements: A Comparison of the United States, Canada, and the WTO.” Dale Colyer (West Virginia University).**

Environmental provisions have been incorporated in U.S. and Canadian trade agreements and are part of the Doha Round negotiations of the WTO. However, they remain limited and are controversial, and their impacts on environmental improvement are, at best, mixed. This paper compares environmental approaches in Canadian, U.S., and proposed WTO agreements.

**SESSION: Modeling Impacts of Bio-fuel Tax Credits, Tariffs, and Mandates. Moderator: Utpal Vasavada (Economic Research Service, USDA)**

**“Modeling U.S. Biofuel Policies: How Do They Work?” C.S. Kim, Stan Daberkow, and Glenn Schaible (Economic Research Service, USDA).**

We develop an economic simulation model that can be used to evaluate the economic impacts of



alternative biofuel policies associated with the expansion of U.S. domestic biofuels production. Our model complements the existing theoretical models, but treats policy instruments as endogenous and incorporates a multi-market equilibrium approach.

**“Modeling Market Impacts of Bio-Fuel Tax Credits, Tariffs, and Mandates.” Stan Daberkow (Economic Research Service, USDA), Harry de Gorter (Cornell University), C.S. Kim (Economic Research Service, USDA), Chad Hart (Iowa State University), and Pat Westhoff (University of Missouri).**

A number of economic consequences have been linked to recent U.S. bio-fuels legislation, including major price changes in agricultural markets, land-use shifts, livestock sector impacts, food price changes, and agricultural and petroleum trade implications. Given the variety of policy tools involved—such as mandates, tax credits, and tariffs—economists need to adapt their models accordingly.

**“Analyzing the Welfare Economics of Biofuel Policies.” David Just and Harry de Gorter (Cornell University).**

A welfare theoretic framework is developed to analyze a tax exemption, mandate, tariff, and farm subsidies for biofuel production. Market effects of a tax exemption are minimal under a binding mandate. Exporters like Brazil are better off with the elimination of the tax exemption and tariff while maintaining the mandate.

**“Biofuel Issues in a Stochastic World.” Patrick Westhoff (University of Missouri) and Seth Meyer and Wyatt Thompson (FAPRI and University of Missouri).**

Tax credits, tariffs, and use mandates all encourage U.S. production of biofuels. Effects of these measures are very sensitive to market conditions. The paper utilizes a stochastic model of world agricultural and biofuel markets to examine how these policy instruments affect markets under different conditioning assumptions.

**SESSION: *Traceability and Food Safety: When Bad Things Happen to Good Animals.* Moderator: Cheryl Brown (West Virginia University)**

**“Efficient Incentives in Livestock Disease Man-**

**agement with Asymmetric Spatial Externalities.” Rodrigo Salcedo Du Bois (Pennsylvania State University).**

Low expenditure in disease management increases the risk of disease for society. However, policy interventions are usually designed considering uniform exposure to externalities. This study considers differentiated externality bearing according to the spatial distribution of farms and/or the characteristics of the environmental system in which they are located.

**SESSION: *Farm Management II: Dairy and Beef.* Moderator: Sanjib Bhuyan (Rutgers University)**

**“Estimation of Treatment Effects of Recombinant Bovine Somatotropin Using Matching Samples.” Loren Tauer (Cornell University).**

The production and cost impacts of recombinant Bovine Somatotropin on New York dairy farms were estimated by comparing matching farms each year for the period 1994 through 2004. Production per cow for the average treatment effect for the treated increased 2,060 pounds per cow, and cost reduction was \$0.73 per hundred-weight of milk produced.

**“Dairy Farm Management Adjustments to Biofuels-Induced Changes in Agricultural Markets.” Todd Schmit, Dolapo Enahoro, and Richard Boisvert (Cornell University).**

Recent expansion of the U.S. biofuels industry and corresponding increased demands for grains and oilseeds affect the structure of commodity markets. The effects of increased feed prices and price volatility on optimal dairy farm management adjustments, whole-farm profitability and risk, and the environment are identified using risk programming methods.

**SESSION: *Dairy Industry Economics.* Moderator: Kurt Klein (University of Lethbridge)**

**“Dairy Resource Management: A Comparison of Conventional and Pasture-Based Systems.” Richard Nehring (Economic Research Service, USDA), Catherine Morrison-Paul (University of California, Davis), Jeffrey Gillespie (Louisiana State University), and Charles Hallahan and Carmen Sandretto (Economic Research Service, USDA).**

Dairy production trends from 1996 to 2006 for eastern traditional dairy states were tracked, and measures of technical efficiency for conventional and pasture-based dairy farms were estimated using USDA's Agricultural Resource Management Survey data. This allows for comparisons of relative economic and environmental performances of dairy farms by size and type.

**"Costs and Returns to Northeast Organic Dairy Farms: Findings From a Three-Year Study in Vermont and Maine."** Robert Parsons and Qingbin Wang (University of Vermont) and Timothy Dalton (Kansas State University).

Findings from a three-year study of organic dairy farms in Vermont and Maine indicate that their profitability has increased significantly since 2004, with the average farm moving from negative to positive return on equity. Also, the average herd size increased from 48 to 62, but per-cow milk production remained almost constant.

**SESSION: *Responding to Risk*. Moderator: Glenn Fox (University of Guelph)**

**"Futures Market Effects of Food Scares: A Wavelet-Based Analysis."** Gabriel Power and Dmitry Vedenov (Texas A&M University).

The impact of food scare events (mad cow disease, avian flu) on prices and consumption has attracted substantial research interest lately. New results relating mad cow disease to cattle futures using wavelet-based analysis are providing evidence of different (univariate) reactions and different (multivariate) co-movement patterns across the spectrum of time horizons.

**SESSION: *Experimental Economics Applied to Food and Farm*. Moderator: Kent Messer (University of Delaware)**

**"Differences in Willingness to Pay and Consumer Demand for Organic and Non-GM Fresh and Processed Foods."** Na He and John Bernard (University of Delaware).

Auction experiments were conducted in a four-state area to determine differences in premiums that consumers were willing to pay for fresh and processed organic and non-GM foods. Bids were analyzed using a two-limit tobit model. Demand curves were constructed from the bids, and own-

and cross-price elasticity measures were analyzed.

**"What Is It About Organic Produce? An Experimental Analysis of Potatoes and Sweet Corn."** Daria Bernard and John Bernard (University of Delaware).

Auction experiments were conducted in a four-state area to determine which attributes of organic potatoes and sweet corn consumers were most willing to pay for. Results indicate that consumers value the individual attributes of no pesticide use and no genetic modification separately more than when combined and marketed as organic.

**"Effectiveness of the Agglomeration Bonus in the Presence of Technological Interdependencies: A Case Study of the Peak District (UK)."** Simanti Banerjee, James Shortle, and Anthony Kwasnica (Pennsylvania State University), Paul Armsworth (University of Sheffield), and Nick Hanley (University of Stirling).

This paper focuses on the effectiveness of the Agglomeration Bonus in achieving spatially coordinated management of natural habitats on farmlands in the presence of technological interdependencies in farm operations. Here we focus on the Peak District (UK), where spatially contiguous management increases the population of important local bird species.

**SESSION: *Farm Management III: Risk*. Moderator: Derek Brewin (University of Manitoba)**

**"The Optimal Contract Duration and Portfolio Effects for Maryland Dairy Farmers' Participation in Livestock Gross Margin-Dairy Crop Insurance."** Laoura Maratou, Wesley Musser, and Howard Leathers (University of Maryland).

The optimal contract duration and portfolio effects for Maryland farmers participating in the new livestock gross margin-dairy crop insurance are estimated with a quadratic programming portfolio model. Policy implications exist because this insurance is a new product in Maryland and other states.

**"Insuring Swine Mortality in Ontario: Feasibility of Policy Options and Designs."** Aksell Leiva and Yufei Jin (Agricorp).

Livestock insurance has emerged as a possible response to address mortality and other losses caused by animal disease. This paper discusses the broad policy options available at the federal and provincial level and evaluates the feasibility of alternative designs based on a representative swine production system of Ontario.

**SESSION: *Land Use and Property*. Moderator: Jacqueline Geoghegan (Clark University)**

**“Urban Agglomeration Economies in the U.S. Greenhouse and Nursery Production.” Meiluan Cheng and Nelson Bills (Cornell University).**

U.S. greenhouse and nursery production is highly concentrated in metropolitan counties, especially in the Northeast, Southeast, and Pacific regions. The spatial econometric methods used in this paper examine the influence of localization economies, urbanization economies, and firm-internal factors on greenhouse and nursery production in these three regions.

**“Open-Space Preservation and Its Impact on Local Public Choice.” Katerina Gnedenko, Dennis Heffley, and Farhed Shah (University of Connecticut).**

The maximization of total property value requires some amount of open space preservation. This amount of preservation will not normally result from the unrestricted operation of property markets. We investigate the phenomenon of public intervention (zoning or appropriate fiscal instruments) to achieve an optimal mix of open space and development.

**“Economic Considerations in Construction and Demolition Debris Management: Results of a National Survey.” Andria Vachon, John Halstead, and Jenna Jambeck (University of New Hampshire).**

Construction and demolition (C&D) debris is a significant waste stream in the United States. A national survey of mixed material C&D recycling facilities was conducted to help understand the climate of the industry. The findings will help stakeholders in decision making processes make informed decisions that will work economically and environmentally.

**SESSION: *Empirical Methods Applied to Valua-***

***tion Models*. Moderator: Doug Parker (University of Maryland)**

**“Evidence from the Maine Light-Duty Vehicle Market: Do Consumers Care When Green Vehicles Turn Greener?” Eleanor Bacani and Mario Teisl (University of Maine).**

This paper evaluates the impact and importance of eco-information programs in eliciting a “greener” buying behavior among consumers in the light-duty vehicle market of Maine. The effects of vehicle attributes and demographics on the variability of purchased vehicles are also examined.

**“A Comparison of Bayesian and Classical Estimation Frameworks in the Context of Spatial Hedonic Modeling.” Gaurav Ghosh and Fernando Carriazo-Osorio (Pennsylvania State University).**

Three estimation frameworks—least squares, maximum likelihood, and hierarchical Bayesian—are compared empirically in the context of spatial hedonic property value models. We focus on the estimative and predictive capabilities of the frameworks and look for evidence of bias, efficiency, and robustness in the estimates and predictions.

**SESSION: *Agri-Environmental Policy*. Moderator: Kathleen Bell (University of Maine)**

**“Modeling Residential Growth at the Parcel and Pixel Level: An Economic Model with an Application to Landscape Permeability.” Robb Freeman and Kathleen Bell (University of Maine).**

An interdisciplinary approach to modeling of the effects of residential housing growth on landscape permeability for wood frogs (*Rana sylvatica*), a vernal pool-breeding species, is developed. The approach models probability of development for each parcel, housing location on each parcel, and permeability of predicted future landscapes.

**SESSION: *Transaction Cost and Organizational Structure*. Moderator: Jill Hobbs (University of Saskatchewan)**

**“Costing the Bathwater Along with the Baby: Using Transaction Costs in Environmental Pol-**

**icy Decision Making.”** Anthea Coggan, Leonie Pearson, and Stuart Whitten (CSIRO-Australia) and Jeff Bennett (Australian National University).

Transaction costs should be included in policy decision processes. We develop a framework to do this for environmental policies and test some relationship postulations about transaction costs and policy choice. We find that while the concept is robust, anecdotal and case study evidence indicates that it is difficult to apply.

**“Agent-Based Modeling Approach to Designing Water Quality Markets with Transaction Costs.”** Nga Nguyen and James Shortle (Pennsylvania State University).

The implications of transaction costs for market design of point-nonpoint source water pollution trading are examined in an agent-based simulation framework. We study individual polluters' trade strategies and their evolution, and explore the emergent outcomes of markets under the presence of transaction costs.

**SESSION: *Linkages Between Trade, Growth, and Productivity*.** Moderator: Collins Ayoo (University of Calgary)

**“Measuring Agricultural Productivity Growth in Middle East and North Africa Countries.”** Mounir Belloumi (University of Sousse, Tunisia) and Mohamed Salah Matoussi (Tunis El Manar University, Tunisia).

This paper investigates the patterns of agricultural productivity growth in Middle East and North Africa countries during the period 1970–2000. We use a nonparametric, output-based Malmquist index to examine whether our estimates confirm or invalidate the previous studies' results indicating the decline of agricultural productivity in developing countries.

**“International Trade and Productivity in Transitional Agriculture: The Role of Product Tradability in the Chilean Case.”** David Fleming and David Abler (Pennsylvania State University).

Using an agricultural tradability index (TI), a cross-sectional analysis of Chilean farms evaluates the impact of trade on crop yields in two groups: (i) farms producing traditional crops, and

(ii) farms producing both traditional and non-traditional crops. Using a switching regression model, results show that TI positively affects farm yields of both groups, but with a larger effect on the latter.

**SESSION: *Bioeconomic Approaches to Environmental Management*.** Moderator: Peter Boxall (University of Alberta)

**“Biophysical Economic Analysis of Drainage Management Systems in the Mississippi River Basin.”** John Westra and Augustus Matekole (Louisiana State University).

Open-field ditch drainage systems aggravate runoff and nutrient leaching problems on farms, especially during the off-season. This study uses a biophysical economic model to identify, evaluate, and determine multifunctional benefits of implementing and establishing controlled drainage in conjunction with other best management practices in the Mississippi River Basin.

**“Non-Market Co-Benefits and Economic Feasibility of On-Farm Biogas Energy Production.”** Emmanuel Yiridoe, Robert Gordon, and Bettina Brown (Nova Scotia Agricultural College).

Standard analysis of the financial feasibility of on-farm biogas energy production emphasizes financial benefits to farmers, but abstracts from the non-market environmental co-benefits associated with anaerobic digestion of livestock manure. Incorporating the non-market co-benefits from biogas energy production extends the standard economic feasibility analysis, and provides important insights.

**“Promoting ‘Green’ Agriculture in the Amazon: Matching Methods for Evaluating an NGO-Sponsored Sustainability Program.”** Erin Sills (North Carolina State University) and Jill Caviglia-Harris (Salisbury University).

Frontier development in the Brazilian Amazon has resulted in large expanses of deforested land. Conservation efforts in this area focus on promoting agricultural practices that can both absorb labor and generate ecosystem services. Using propensity score matching methods, this paper investigates the impact of participation in an internationally sponsored agricultural program that pro-

notes sustainable agricultural practices in the heavily deforested state of Rondônia, Brazil.

**SESSION: Carbon Markets and Management.** Moderator: Mario Teisl (University of Maine)

**“Assessing the Profitability of Wetland Restoration for Carbon Sequestration.”** LeRoy Hansen (Economic Research Service, USDA).

The present value of carbon sequestration by newly created prairie pothole wetlands (PPWs) is \$25–\$4,500/acre, assuming future carbon values remain constant. But increases are expected and may increase present-value estimates by several orders of magnitude. Conversely, the cost of creating and preserving PPWs has averaged \$1,100 per acre since 1994.

**“A Case Study of Carbon Management in China.”** Hui Su, Haixiao Huang, and Jerald Fletcher (West Virginia University).

As a case study for a carbon capture and storage (CCS) project, this paper presents a profit-maximizing programming model of CO<sub>2</sub> point sources and associated geological storage reservoirs to obtain its CCS supply curve. CCS opportunities for the coals-to-liquids plant are identified, and the implications for carbon management are discussed.

**SESSION: Subsidize It and They Will Come: Analyzing Policy Impacts.** Moderator: James Rude (University of Alberta)

**“The Deadweight Loss of Farm Program Payment Limits.”** Barrett Kirwan (University of Maryland).

The extent to which agricultural subsidy payment limits distort producer behavior is an important, unanswered question. Using administrative Farm Services Agency (FSA) data, I exploit the payment limit changes induced by the 2002 Farm Bill to implement a regression-discontinuity-type design. I find substantial behavioral response among cotton and rice producers causing large deadweight loss.

**“Subsidies for Sale: Application and Expansion of the Grossman-Helpman Model of Political Economy to the U.S. History of Tax Incentives for Ethanol Production.”** Charles Rhodes (University of Connecticut).

The Grossman-Helpman model is expanded and tested for its power to explain increasing government transfers to the ethanol industry, despite the questionable, perhaps non-existent, benefits from ethanol production. Ethanol proponents claim that increased ethanol use will relieve U.S. dependence on foreign oil, lower air pollution, and help farmers. But given historical production costs compared to oil prices, there would be little or no ethanol production without subsidies.

**SESSION: Market and Trade Impacts of Animal Disease Control Policies: The Case of BSE.** Moderator: Parveen Setia (Animal and Plant Health Inspection Services, USDA)

**“Analysis of Expected Price and Welfare Effects of the Most Recent Relaxation of U.S. BSE Import Restrictions for Canadian Cattle and Beef.”** Frank Fillo (Animal and Plant Health Inspection Service, USDA).

In November 2007, the United States broadened its imports of Canadian cattle and beef following a reexamination of associated BSE risks. In the economic analysis supporting this action, expected price and welfare impacts were evaluated for the major commodities affected, and the net benefits of alternative policies were compared.

**“Protein Feed Market Effects of Regulatory Responses to Bovine Spongiform Encephalopathy.”** Kenneth Mathews, Jr., and Michael McConnell (Economic Research Service, USDA).

Using policy responses to BSE as the basis for demonstrating the economic effects of restrictive feed policies on protein feed markets, we find that substitution occurs within the context of increasing availability of corn-based ethanol co-products and the existence of good protein substitutes.