Selected Paper Abstracts

ORGANIZED SYMPOSIUM: *Price Discovery in Livestock Markets: What Is the Role of Public Universities?* **Organizers/Chairpersons: Ted C. Schroeder (Kans. State Univ.) and Clement E. Ward (Okla. State Univ.).**

"Price Discovery Issues and Trends in Cattle and Hog Markets." Ted C. Schroeder (Kans. State Univ.) and Clement E. Ward (Okla. State Univ.).

Fed cattle and hog cash markets are being replaced by contracts and marketing agreements. These markets are thinning, yet they are relied upon heavily for price discovery. What role should university research and extension play in this evolution?

"Research Programs to Address Price Discovery Concerns." Stephen R. Koontz (Colo. State Univ.) and Wayne D. Purcell (Va. Tech).

Market efficiency questions have been extensively addressed in previous research. However, all past work assumes the existence of well-reported cash markets. Changes in markets suggest this is unlikely. New Research needs to focus on nontraditional topics such as experimental economics and institutional questions.

SESSION: *Economics and Adoption of Production Technology.* **Moderator: Michael R. Langemeier (Kans. State Univ.).**

"Drip Irrigation in the Desert: Adoption, Implications, and Obstacles." Rhonda K. Skaggs (N. Mex. State Univ.).

Logistic regression procedures are used to predict current use and plans for future adoption of drip irrigation systems by southern New Mexico chile pepper producers. Results tended to confirm findings from previous studies of irrigation technology adoption decisions. This research provides information not previously available to extension personnel, other chile pepper researchers, and the chile industry.

"Using Remote Sensing to Analyze Spatial and Temporal Variability in Wheat Yields and Returns." Harry P. Mapp, Mohammad Asim, and John Solie (Okla. State Univ.).

Remote sensing provides a low-cost method for wheat farmers to identify spatial and temporal

yield variability at the field level. The technology is more promising in fields with highly variable yields. Availability of satellite images at a time when management practices can be altered is of great importance.

"End-User Gains from Input Characteristics Improvement." David K. Lambert and William W. Wilson (N. Dak. State Univ.).

Uncertainty regarding input quality can affect production decisions. Even when technology is known, variability in input characteristics can reduce production levels, increase costs, and reduce firm profitability. In the case of food processing, input characteristics may vary by lot, though expected quality among shipments may be the same. A Target MOTAD formulation is developed to achieve desired end-user traits of baked goods where baking characteristics follow a conditional distribution. The value of improved flour consistency is determined under an objective of minimizing wheat procurement cost.

"Economics of Transgenic Sugar Beets." Paul A. Burgener, Dillon M. Feuz, and Robert Wilson (Univ. of Nebr.).

Root yield increased with the use of Roundup-Ready and Liberty-Link sugar beets compared to a post-emergence weed control standard. Herbicide costs were reduced and net returns were increased with the transgenic beets.

SESSION: *Empirical Estimation.* **Moderator: Ronald C. Mittelhammer (Wash. State Univ.).**

"Truncated Regression in Empirical Estimation." Thomas L. Marsh (Kans. State Univ.) and Ronald C. Mittelhammer (Wash. State Univ.).

Alternative regression estimators (maximum likelihood, Bayesian, and maximum entropy) with truncated parameter and error supports are illustrated for the general linear model. Results are provided from Monte Carlo experiments and an empirical application.

"Nonparametric Estimation of a Set of Similar Densities." Alan P. Ker (Univ. of Ariz.).

Often it is necessary to estimate a set of densities $\{f_1, f_2, ..., f_Q\}$ which are thought to be of similar structure. A class of nonparametric meth-

ods is developed that offer greater efficiency if the set of densities are similar, while not losing much (if any) efficiency if the set of densities are dissimilar. The developed estimator attains the optimal nonparametric rate $O(n^{-4/5})$. Finally, extensive simulations using the Marron and Wand test densities indicate real practical potential.

"Stock Market Reaction to Food Recalls: A GARCH Application." Hongjing Li, Victoria Salin (Tex. A&M Univ.), Neal H. Hooker (Ohio State Univ.), and David Leatham (Tex. A&M Univ.).

This study examines the effect of food recalls on the stock prices of three listed companies using a market model which accounts for GARCH effects. We build from earlier event studies and volatility analyses by factoring in different error structures. These recalls are found to significantly affect the stock return rates of all three companies, thereby providing additional evidence that reinforces the event studies. However, no statistically significant differences in the conditional stock price volatilities were observed.

"Agricultural Reform in APEC: Estimating the Effect on Welfare and Rural-Urban Income Divergence." John Gilbert (Wash. State Univ.), Robert Scollay (Univ. of Auckland), and Thomas Wahl (Wash. State Univ.).

We describe a recursive dynamic CGE model used to estimate the effects of agricultural reform in APEC. The linkages incorporate intra-category labor movements in response to wage differentials, allowing direct analysis of rural/urban wage divergence.

SESSION: *Water Law and Economics.* Moderator: Philip R. Wandschneider (Wash. State Univ.).

"The Uneasy Hierarchy of Federal and State Water Laws and Policies." Ray G. Huffaker (Wash. State Univ.), Ari M. Michelsen (Tex. A&M Univ.), Joel Hamilton (Univ. of Idaho), and W. Marshall Frasier (Colo. State Univ.).

Water allocation in the West is regulated by a volcanic hierarchy of federal and state laws and policies. This paper considers why the federal government has intervened in water policy (a traditional area of state control), and explores the parameters of actual and potential federal intervention. The paper also examines the problems with relying on traditional state policy to allocate water among competing private and public uses

in the modern era without continued federal intervention.

"Estimating the Value of Outdoor Recreation on the Snake River Reservoirs Using a Disequilibrium Travel Cost Model." Donn M. Johnson (Quinnipiac Univ.), John R. McKean (Agr. Enterprises, Inc., Ft. Collins, CO), and R. Garth Taylor (Univ. of Idaho).

A survey conducted at the four Lower Snake River reservoirs, during May–October 1997, was used to measure willingness to pay for recreation trips. The demand analysis utilized a disequilibrium labor market travel cost model that assumed recreationists did not (or could not) give up earnings in exchange for more free time. Consumer surplus was estimated at $71.31 per person per trip. After adjusting for nonresponse bias, annual willingness to pay for recreation at the reservoirs was $31,578,464.

"Irrigation Water Rate Reform and Endogenous Technological Change." Eric C. Schuck (N. Dak. State Univ.), Gareth Paul Green (Seattle Univ.), and David L. Sunding (Univ. of Calif., Berkeley).

Irrigation water rate reform leads to adjustments in both water consumption and acreage allocations. Results indicate groundwater substitution limits the effectiveness of water rate reform in the short run. Long-run effects include movement out of annual crops into more profitable perennial crops—movement which does not necessarily reduce overall water consumption.

"Analyzing the Impact of a Rainfall Insurance Contract on Water Market Efficiency and Water Use Incentives." Kimberly A. Zeuli (Univ. of Ky.), Cynthia Morgan (U.S. Environmental Protection Agency), and Jerry R. Skees (Univ. of Ky.).

This paper introduces the use of a rainfall index contract to decrease water market risk, thereby creating a more efficient market. A water market in Australia is used as an illustration of the concept.

ORGANIZED SYMPOSIUM: *Economics of Terrestrial Carbon Sequestration in Forest Ecosystems.* Organizer/Chairperson: G. C. van Kooten (Univ. of British Columbia).

"Forestry Strategies for Carbon Uptake Under Uncertainty." Brad Stennes (Can. Forest Service), Emina Krcmar-Nozic, G.

Cornelis van Kooten, and Ilan Vertinsky (Univ. of British Columbia).

Land use change and forest management strategies for carbon uptake are investigated for the boreal forest of northeastern British Columbia. Deterministic cost-of-mitigation analysis indicates that afforestation does offer some potential for low-cost carbon uptake. Strategies to meet carbon uptake and other objectives using traditional multiple scenarios are compared to one that applies fuzzy measures to uncertainties in timber yield, carbon targets, and policy targets. The case study shows that the arbitrary choice of uncertain parameters, often done when employing multiple scenarios, is not appropriate and thus these uncertainties must be modeled explicitly.

"Managing Canada's Boreal Forest Carbon Stock Under Carbon Incentives." Grant Hauer (Univ. of Alberta), David T. Price (Can. Forest Service), and Tim Williamson (Univ. of Alberta).

This paper examines the response of a forestry firm operating in a long-term tenure situation to carbon sequestration incentives. The modeling framework is stochastic linear programming so that responses may be examined under risk of fire. A carbon budget model that includes living forest biomass and carbon stored in forest products is incorporated into a forest-level analysis. The risk-neutral forestry firm increases carbon stocks under carbon incentives and risk of fire.

"The Cost of Carbon Sequestration in Global Forests Under Alternative Policy Mechanisms." Brent Sohngen (Ohio State Univ.) and Robert Mendelsohn (Yale Univ.).

In recent years, attention has been focused on the possibility of sequestering carbon in forests to help mitigate potential future climate change. This paper develops a dynamic model of global forest carbon sequestration which captures key differences in land quality, land management, and carbon density in forest types throughout the world. The dynamic features of the model allow timber markets to adjust and adapt to future changes in timber supply. Marginal cost curves for several different policies are estimated and presented.

"Carbon Preparedness of Canadian Companies: Is There Too Much Reliance on the Forestry Option?" Taku Takahashi, G. Cornelis van Kooten, M. Nakamura, and Ilan Vertinsky (Univ. of British Columbia).

The effectiveness of Canadian climate change policies to reduce CO_2 emissions is analyzed using the results of a survey of industrial firms. Larger firms and those in the energy-intensive sector are more committed to climate change mitigation than other firms. Attitudinal variables and stakeholder preferences have a limited and complex impact on firms' decisions. Overall, voluntary programs are unlikely to make a significant contribution to emissions reduction.

SESSION: *Environmental, Land, and Recreational Economics.* Moderator: Paul Barkley (Wash. State Univ.).

"An Expected Utility Model for PAC Campaign Contributions: An Application to Contribution Strategies for Environmental PACs." Mary Riddel (Univ. of Nev., Las Vegas).

This paper develops a theoretical and empirical model of campaign contributions from environmental PACs to senatorial candidates. Environmental PACs choose the level of campaign contributions to maximize their expected utility in terms of advocacy and pro-environmental votes. A two-stage empirical model of candidate donations and the likelihood of winning the election is developed that allows for endogeneity between donations and the expected election outcome.

"Pollution Abatement Regulation, Property Rights, and the Political Economy." Steven P. Cassou (Kans. State Univ.) and Stephen F. Hamilton (Univ. of Ariz.).

This paper considers the relative merits of price and quantity instruments for pollution abatement regulation. We find the optimal fiscal policy associated with either instrument yields an identical steady-state environment; however, price controls support superior output, growth, and welfare outcomes. The results also have important political economy implications. In particular, we find that standards outperform taxes in the short run, which provides an incentive for regulators to adopt suboptimal environmental policy.

"The Political Economy of Federal Land Exchanges, 1960–1999." Molly Espey (Clemson Univ.).

This research reviews the history of federal land exchanges and estimates the influence of various economic, legal, and political factors on the occurrence of federal land exchanges over time.

"Flood Easements." Eric A. DeVuyst (N. Dak. State Univ.), Rick L. Hirschi (West. Ill. Univ.), and John B. Braden (Univ. of Ill.).

We examine the efficiency of current flood risk allocation and the use of flood easements as a means of reallocating flood risk. Our results indicate that flood easements may provide positive net benefits.

"Do Hypothetical Choices Reflect Actual Behavior?" M. K. Haener, P. C. Boxall, and W. L. Adamowicz (Univ. of Alberta).

This study examines the ability of revealed preference (RP), site-specific stated preference (SP), transferred SP, and various joint RP-SP models to predict aggregate and individual recreation site choice behavior in a holdout sample.

SESSION: *Community and Regional Impacts.*
Moderator: Neil Meyer (Univ. of Idaho).

"Adding Value to Tourism: Two Case Studies of Ecotourism Enterprises." Roger H. Coupal and David Taylor (Univ. of Wyo.).

Small private educational enterprises and ecotourism schools represent a modest but growing source of jobs and income in many small communities. The purpose of this study is to estimate the economic impact these organizations have in small communities. Two case studies evaluate the economic impacts: the economic impact of the Teton Science School on Teton County, Wyoming, and the economic impact of the Dinosaur Museum on Hot Springs County, Wyoming.

"Replacement of Timber Harvest and Manufacturing with Recreational Visitors as Economic Base: The Case of Valley County, Idaho." Marisa C. Guaderrama, Neil Meyer, Aaron Harp, and R. Garth Taylor (Univ. of Idaho).

An input/output model was used to predict the impact of a 60% reduction in the timber industry. Results show the timber industry would experience a total reduction of $43.2 million and 826 jobs. Recreation would have to increase 4- to 20-fold, depending on the activity, to compensate.

"Transfer Payments, Farm Program Payments, and Taxes: The Role of the Federal Government in the Great Plains." Sam M. Cordes (Univ. of Nebr.) and Evert Van der Sluis (S. Dak. State Univ.).

Three levels of analysis are used in examining federal spending in the Great Plains region: individual states, metro and nonmetro counties for the entire region, and a sub-state analysis for Nebraska and South Dakota. The economy of this region is substantially more dependent upon federal spending than the nation as a whole, and is a major net importer of federal funds. As the degree of rurality increases, so does the dependency on federal spending.

"In-migrants to the Northern Great Plains: Survey Results from Nebraska and South Dakota." F. Larry Leistritz (N. Dak. State Univ.), Sam M. Cordes, John C. Allen, Rebecca Filkins (Univ. of Nebr.), and Randall S. Sell (N. Dak. State Univ.).

Recent in-migrants to Nebraska and North Dakota were surveyed to determine their socioeconomic and demographic profile, where they came from and why, and how satisfied they were with their new location. Examples of findings follow: new residents are younger and better educated than existing residents; many in-migrants have some type of family or prior connection to their new location; and most were pleased with their decision to relocate to these two states.

"Measuring the Impacts of Economic Development and Growth on County Government Expenditures: Some Preliminary Results." Thomas R. Harris, Yuanfang Lin, and J. Scott Shonkwiler (Univ. of Nev., Reno).

With economic growth and development, rural county decision makers require information about the fiscal impacts of development decisions. For this paper, county per capita expenditure equations were derived for rural Nevada counties. A two-way fixed effects model was employed to complete a county per capita expenditure analysis.

SESSION: *Economics of Livestock Production.* **Moderator:** Larry Van Tassell (Univ. of Idaho).

"An Alternative Method for Analyzing Forage/Livestock Systems." Damona Doye (Okla. State Univ.), Karen Smith (Univ. of Tenn.), Francis Epplin, Darrel Kletke (Okla. State Univ.), and Mark Moseley (USDA/NRCS, Okla.).

A mixed integer program solves for profit-maximizing forage and beef enterprises. Dry matter, total digestible nutrients, and crude protein characterize livestock nutritional needs and production of warm and cool season forages.

"Custom versus Owner Harvesting of Hay for Beef Cattle Operations." Santosh Nair (Clemson Univ.), Larry W. Van Tassell (Univ. of Idaho), and John Hewlett (Univ. of Wyo.).

Relative costs of owning versus custom harvesting hay while considering the timeliness of harvest were examined. Timeliness of harvest as it related to hay yield and quality was valued for five classes of cattle using a linear programming/simulation model. As variation in timeliness of harvest decreased between custom and owner harvesting, the range in quality and yield also narrowed. Breakeven acreage was lower for livestock with higher nutrient requirements.

"Economics of Adding Fat and Increasing Lysine: Calorie Ratios in Diets for Growing-Finishing Pigs." Manuel De La Llata, Michael Langemeier, Steve Dritz, Michael Tokach, Robert Goodband, and Jim Nelssen (Kans. State Univ.).

The objective of this study was to evaluate the economics of dietary added fat and lysine:calorie ratio for growing-finishing pigs reared in a commercial setting. Two levels of fat and four lysine:calorie ratios were examined. Monthly prices of corn, soybean meal, fat, and hog carcasses for a 10-year period were used to calculate feed cost per kg of gain, and income over feed cost per pig for each treatment.

"Production Efficiency Under a Small-holder Dairy Production System." Aloyce R. M. Kaliba and Allen M. Featherstone (Kans. State Univ.).

This study examines the productive efficiency of smallholder dairy farmers in Central Tanzania. Technical, allocative, scale, and overall efficiency for a set of sample farmers were estimated using Färe's nonparametric procedures. The relationship between efficiency and socioeconomic characteristics of the farmers was then measured. Results suggest output can be maintained by reducing input costs. Availability of labor and extension services increased allocative efficiency.

"A Theoretical and Empirical Investigation of the Supply Response in the U.S. Beef-Cattle Industry." David M. Aadland, DeeVon Bailey, and Shelly Feng (Utah State Univ.).

Previous research has suggested there may be a negative short-run supply response for cows and heifers to a permanent increase in the price of cattle. We build a dynamic, rational expectations model which predicts that supply response is generally positive, even for permanent shocks

in the short run, and nests the negative supply response as a special case for appropriately restricted demand shocks.

ORGANIZED SYMPOSIUM: *Who Pays State-Local Taxes? Dynamic and General Equilibrium Tax Incidence Models.* Organizer/ Chairperson: Bruce A. Weber (Oreg. State Univ.).

"The Distribution of State-Local Tax Burdens in CGE Models." Paul D. Warner, Edward C. Waters (Oreg. Legis. Revenue Office), and Bruce A. Weber (Oreg. State Univ.).

This paper describes the political context for the legislative mandate for a "tax incidence model" and the use of a CGE model for distributional analysis of tax burdens. The Oregon Tax Incidence Model, an ongoing collaboration between Oregon State University and the Oregon Legislative Revenue Office, is a CGE model developed with IMPLAN (augmented with state government data on taxes and income distribution) to examine two types of impacts of tax changes: feedback effects on personal income, and impacts on the distribution of tax burdens by income class.

"Providing Quantitative Assessments of Public Policy in Rural and Urban Washington State." David Holland (Wash. State Univ.).

A general equilibrium model that allows impact assessment by household type by rural/urban regions was constructed using information in the PUMS data. The use of the model was illustrated with a case study of an agricultural productivity change in Washington State.

"Fiscal Impacts of Reduced Gaming Exports: A CGE Analysis." Chang Seung and Thomas R. Harris (Univ. of Nev., Reno).

This study employs Nevada Computable General Equilibrium (CGE) models to predict potential fiscal impacts of an expanding national legalized gaming industry. Three variants of the CGE model using different assumptions as to factor mobility were used. Results indicate that Nevada fiscal impacts are sensitive to alternative factor mobility assumptions.

SESSION: *Fishery Economics.* Moderator: Scott Matulich (Wash. State Univ.).

"Modeling the Economic Effect of Fishery Attributes on Participation Rates: The Kenai Peninsula Marine Sport Fishery." S. Todd

Lee (Nat. Marine Fisheries Service, Seattle), Mark Herrmann (Univ. of Alaska), Keith R. Criddle (Utah State Univ.), and Charles Hamel (N. Pacific Fisheries Mgmt. Council).

Knowledge about factors that influence recreational anglers' participation decisions is important to fishery managers. This study shows how hybrid stated preference questions can be used to estimate the effects of fishery attributes on participation rates and consumer net economic benefits. A nonlinear model specification allows for substitution and complementary effects across attributes, and the possibility of nonlinear marginal utility. The data come from a postal survey of anglers who sport fished in the marine waters off the Kenai Peninsula, Alaska. We use a random effects probit model to account for the panel nature of the data.

"A Requiem for the IFQ in U.S. Fisheries?" Keith R. Criddle (Utah State Univ.) and Seth Macinko (Univ. of Conn.).

Despite their apparent economic benefits to harvesters, Individual Fishing Quotas (IFQs) have only been adopted in three U.S. fisheries: Mid-Atlantic surf clam and ocean quahog, South Atlantic wreckfish, and North Pacific halibut and sablefish. During 1996, Congress temporarily blocked implementation of additional IFQ programs in U.S. fisheries, leading to emergence of a new institutional structure, the fishing cooperative. Ironically, while IFQs are widely thought to be best designed at the local/regional level, part of the appeal of the cooperative model is that it appears to shortcut the often-protracted nature of the local/regional political process.

"Factor Productivity in Regulated Open-Access Fisheries." James E. Wilen (Univ. of Calif., Davis) and Frances R. Homans (Univ. of Minn.).

This paper develops a novel way of estimating changes of total factor productivity in a regulated open-access fishery. The method capitalizes on the notion that productivity changes ought to be reflected in changes in regulatory behavior.

"Markets in Regulated Open-Access Fisheries." Frances R. Homans (Univ. of Minn.) and James E. Wilen (Univ. of Calif., Davis).

This paper develops a comprehensive model of a regulated open-access fishery that includes the market for output in both fresh and processed forms. The model helps to explain the inferior product mix prevalent in regulated fisheries.

SESSION: *Agricultural Policy I.* Moderator: Rhonda Skaggs (N. Mex. State Univ.).

"The Capitalized Value of Policy: Effects of Quota Characteristics, Liquidity, and Policy Default Risk." Daniel A. Sumner (Univ. of Calif., Davis) and Norbert L. W. Wilson (Auburn Univ.).

From the net present value model, we econometrically estimated variables that influenced the price of California dairy quota. Variables representing policy events were statistically significant and negative, suggesting the existence of default policy risk.

"Environmental Policy Influences on Livestock Stocking and Location Decisions." Dooho Park, Andrew Seidl, Stephen P. Davies, and W. Marshall Frasier (Colo. State Univ.).

This paper explores environmental regulations and stocking and location decisions of the U.S. livestock industry. Results indicate either that industry may drive policy rather than the converse, or that structural change in the industry may be driven in part by size or legal structure discriminating regulations.

"Distributional Analysis of U.S. Farm Household Income." Jeffrey W. Hopkins and Mitchell Morehart (USDA/Economic Research Service).

The possibility of a post-FAIR safety net invites a distributional analysis of farm household well-being. Partial regional poverty orderings are presented employing dominance criteria for alternative poverty definitions using 1998 income, expenditure, and wealth data.

"Minimum Wage and Food Prices: An Analysis of Price Pass-Through Effects." Chinkook Lee and Gerald Schluter (USDA/Economic Research Service).

Although the food industry employs a disproportionate share of minimum-wage workers, an analysis of price pass-through of a minimum wage increase suggests a $.50 increase in the minimum wage would minimally affect food prices.

SESSION: *Value of Cattle and Beef Quality.* Moderator: DeeVon Bailey (Utah State Univ.).

"Determinants of Profit Variability in Fed Cattle Grid Pricing." R. Allen McDonald and Ted C. Schroeder (Kans. State Univ.).

Comparing results for two data sets of cattle sold using two different grid structures, this study determines the relative impacts of price, cattle quality, and feeding performance factors on profit per head. Grid base price and feeder cattle price are the most important determinants of profit over time in both grids.

"Wholesale Demand for USDA Quality Graded Beef and Effects of Seasonality." Jayson L. Lusk (Miss. State Univ.) and Thomas L. Marsh (Kans. State Univ.).

Factor demand estimates suggest that retailers demand Choice beef more inelastic than Select. Choice and Select beef are complements during the fall and winter; however, during the summer grill months, little substitution exists.

"Impact of Alternative Grid Pricing Structures on Cattle Marketing Decisions." Heather C. Greer and James N. Trapp (Okla. State Univ.).

This research uses growth models, logistic regression, and an optimization process to determine the optimal number of days cattle should be on feed given different grid pricing structures.

"Returns to Market Timing and Sorting of Fed Cattle." Stephen R. Koontz, Dana L. Hoag (Colo. State Univ.), Jodine L. Walker, and John R. Brethour (Kans. State Univ.).

This research examines returns to sorting fed cattle prior to marketing using ultrasound. The returns are $11 to $25 per head depending on the number of sort groups. Sorting faces declining returns. Returns can be viewed as the costs imposed by institutional constraints that limit comingling.

"The Value of Beef Flavor: Consumer Willingness to Pay for Marbling in Beef Steaks." Wendy J. Umberger, Dillon M. Feuz, Chris R. Calkins, and Karen Killinger (Univ. of Nebr.).

Willingness to pay (WTP) for marbling in beef steaks was measured using Vickrey auctions. After tasting and bidding on USDA Choice and Select steaks, Chicago and San Francisco consumers were willing to pay a premium for the Choice steak.

"Consumer Preference for Domestic vs. International Beef." Dillon M. Feuz, Wendy J. Umberger, Chris R. Calkins, and Karen Killinger (Univ. of Nebr.).

A Vickrey auction was used to measure Chicago and San Francisco consumers' willingness to pay (WTP) for domestic corn-fed versus imported grass-fed beef. On average, consumers were willing to pay a significant premium for the domestic beef.

ORGANIZED SYMPOSIUM: *The Status of Women in Agricultural Economics.* Organizer: Dawn D. Thilmany (Colo. State Univ.); Chairperson: Lorie Srivastava (Mich. State Univ.).

"The CWAE Tracking Survey: Objectives, Methods, and Results." Cheryl DeVuyst (N. Dak. State Univ.).

The 1998 Committee on Women in Agricultural Economics (CWAE) Tracking Survey examines the progress of agricultural economics professionals over time, with special emphasis on women and minority populations. This paper presents the background, objectives, and basic demographics of survey respondents.

"Agricultural Economists' Performance and Pay: An Analysis of Land Grant University Salaries." Lorie Srivastava (Mich. State Univ.) and Dawn D. Thilmany (Colo. State Univ.).

Analysis of the 1998 Committee on Women in Agricultural Economics (CWAE) Tracking Survey includes detailed frequency, performance, and pay measures for all types of employers. The econometric analysis of academic salaries shows the importance of salary to an individual, the individual's rank, experience, refereed journal articles, and book chapters appear to have the greatest effect on salary.

"Career Choices and Challenges Among Agricultural Economists: Analysis of the 1998 CWAE Tracking Survey." Susan Hine (Colo. State Univ.) and Laura M. Cheney (Mich. State Univ.).

This paper examines the findings of the 1998 Committee on Women in Agricultural Economics (CWAE) Tracking Survey, which show that those challenges encountered by women and minorities in the agricultural economics profession seem to differ from their white male counterparts.

SESSION: *Recreational Demand Modeling.* Moderator: Sabina L. Shaikh (Univ. of British Columbia).

"Brand Choice and Purchase Frequency Revisited: An Application to Recreation Behavior." W. Douglass Shaw and J. Scott Shonkwiler (Univ. of Nev., Reno).

Consumption of outdoor recreation is most often measured using an individual's recreational trips. Adding the trips made on a number of choice occasions seems the obvious way to aggregate this good, but this leads to problems in defining a meaningful price index. An alternative approach using the Hicks-Leontief conditions for aggregation is proposed.

"Gains from Incorporating On-Site Time Information in Recreation Demand Models: Preliminary Simulation Results." Daniel K. Lew (Univ. of Calif., Davis).

This paper focuses on the gains in precision of welfare estimates obtained by incorporating complementary recreation information (on-site time and number of trips) in a discrete-choice model of recreation demand. Simulation techniques are used to show how treating time as a continuous variable increases the efficiency of the estimated parameters.

"Testing Significance of Multi-Destination and Multi-Purpose Trip Effects in a Travel Cost Method Demand Model for Whale Watching Trips." John B. Loomis, Shizuka Yorizane (Colo. State Univ.), and Douglas Larson (Univ. of Calif., Davis).

Inclusion of multi-destination and multi-purpose visitors yields a visitor willingness to pay of $75 that is not statistically different from the single-destination trip value of $43/person/day.

"The Welfare Implications of Alternative Deer Management Strategies: A Dynamic Exercise." Kurt A. Schwabe (Univ. of Calif., Riverside) and Pete Schuhmann (Univ. of N.C.).

The objective of this research is to use a random utility model within a bioeconomic framework to illustrate the welfare implications of alternative deer management strategies in Ohio.

SESSION: *Risk and Uncertainty.* Moderator: Thomas L. Marsh (Kans. State Univ.).

"Target MOTAD for Risk Lovers: An Alternative Version." Richard Rudel and Francis McCamley (Univ. of Mo.).

An earlier paper presented a direct expected utility maximization version of Target MOTAD for risk lovers. This paper presents an indirect expected utility maximization version which is more like Tauer's Target MOTAD model.

"A Comparative Analysis of Risk Preference Elicitation Procedures Using Mail Survey Results." Scott W. Fausti (S. Dak. State Univ.) and Jeffrey Gillespie (La. State Univ.).

Very little work has addressed the issue of whether there is consistency across alternative risk preference elicitation procedures in a mail survey context. A mail survey of Louisiana and South Dakota cow-calf producers was conducted to determine if there is rank order consistency. Six risk elicitation procedures were compared. The conclusion drawn from the study is: The simpler the risk elicitation procedure used in a mail survey the better.

"Efficiency Measurement for Risk-Averse Producers." Paul V. Preckel (Purdue Univ.), Mohamed Ahmed, and Simeon Ehui (International Livestock Research Institute, Addis Ababa, Ethiopia).

This paper develops and tests a nearly nonparametric procedure for measuring efficiency for risk-averse decision-making agents. Preliminary results from a small Monte Carlo experiment indicate that the approach is vastly superior to ignoring risk aversion when measuring efficiency.

"Evaluating Environmental Risks Using Safety-First Constraints." Zeyuan Qiu, Tony Prato, and Francis McCamley (Univ. of Mo.).

A model based on an upper partial moment concept is developed to impose safety-first constraints on environmental objectives. It allows decision makers to specify environmental goals and the required probabilities of achieving those goals.

"Shadow Price Implications of Second-Degree Stochastic Dominance Efficiency." Francis McCamley and Richard K. Rudel (Univ. of Mo.).

Second-degree stochastic dominance (SSD) can be applied to problems having continuous variables. A model is presented which, for any SSD efficient solution, facilitates exploration of the set of shadow prices consistent with SSD.

SESSION: *Agricultural Policy II.* Moderator: Douglas L. Young (Wash. State Univ.).

"Effects of Bt Cotton Adoption: Regional Differences and Commodity Program Effects."

George Frisvold, Russell Tronstad, and Jorgen Mortensen (Univ. of Ariz.).

The authors use a multi-region programming model to estimate welfare impacts of U.S. Bt cotton adoption. From 1996–98, average adopter gains ranged from $1.19–$1.42 per dollar spent on Bt seed premiums, even under a low-impact scenario. In 1998, increased Loan Deficiency Payments mitigated technology-induced price declines, accounting for over 75% of the gain in producer surplus.

"Private and Public Costs and Benefits of Eradicating Yellow Starthistle in California." Karen M. Jetter, Karen M. Klonsky, and Daniel A. Sumner (Univ. of Calif., Davis).

This paper examines how a successful public introductory biological control program affects private rangeland costs, and how rangeland restoration benefits wilderness areas, with respect to the control of California's most widespread invasive plant—yellow starthistle.

"Cropping Diversity and Farm Programs." Elwin G. Smith (Agriculture and Agri-Food Canada) and Douglas L. Young (Wash. State Univ.).

Cropping diversity in the United States border counties and Canada was impacted by farm programs. U.S. wheat acreage and loan rate were the main programs impacting diversity. Diversity increased in Canada during the 1990s, and in the U.S. since 1996.

"Operational Efficiency of the U.S./Canada Wheat Pool: A Game Theory Analysis." William Nganje, Won W. Koo, Demcey Johnson, June Park, and Richard Taylor (N. Dak. State Univ.).

This paper develops a game theory optimization model of market efficiency and derives conditions under which voluntary pooling is sustained for U.S./Canada durum and hard red spring wheat producers. Analysis reveals that U.S. and Canadian farmers can capture significant efficiency gains from pooling by internalizing benefits from grain blending and logistics. The model is used to analyze diverse factors affecting the sustainability of such a pool.

"The Impact of Value-Adding on Western Canadian Agriculture." James Unterschultz, Kwamena Quagrainie, and Scott Jeffrey (Univ. of Alberta).

This study examines the levels of the Canadian food system and simulates the potential impact of increased domestic demand for farm commodities. Results suggest increases in commodity prices cannot be realized in the short term from increased domestic demand.

ORGANIZED SYMPOSIUM: *Designing Agribusiness Capstone Courses: Objectives and Strategies.* **Organizer/Chairperson: Gary F. Fairchild (Univ. of Fla.).**

"Designing an Agribusiness Capstone Course in a Non-Land Grant, Business School Environment." Gregory A. Baker (Santa Clara Univ.).

The course objectives, course content, instructional methods, and methods of performance assessment for capstone courses at both the graduate and undergraduate levels are presented and discussed. Particular attention is paid to the unique attributes of capstone courses in food and agribusiness management.

"Using Business Simulations and Issue Debates to Facilitate Synthesis in Agribusiness Capstone Courses." Gary F. Fairchild and Timothy G. Taylor (Univ. of Fla.).

Issue debates and discussions contribute to capstone objectives. Business-strategy simulations make decisions and consequences a reality, challenge students in a team-based competitive environment, create synthesis, and build a bridge to the world of agribusiness.

SESSION: *Natural Resources: International Trade and Development.* **Moderator: R. Garth Taylor (Univ. of Idaho).**

"Trade Barriers and Market Segmentation: The Impact of Institutional Constraints on Water Market Prices." Ereney Hadjigeorgalis (Universidad de Talca, Chile).

Using data on short-term lease and permanent water rights transactions, this paper tests for market segmentation in the constrained permanent rights and unconstrained water spot market of the Limari River Basin of Chile.

"A Bertrand Model of Trade and Environmental Policy in an Open Economy." Qing Xu and Amitrajeet A. Batabyal (Utah State Univ.).

Using a Bertrand model, environmental policy is analyzed in a two-country world in which national governments and polluting firms behave

strategically. Reasonable circumstances exist in which the conduct of one-sided environmental policy is immiserizing. Further, when the two countries are similar, the joint policy instrument is the most desirable pollution control instrument; however, when the countries are dissimilar, no clear desirable choice emerges.

"Forest Management Practices by Indigenous and Migratory Populations in Brazil: Diversification and Deforestation." Jill L. Caviglia (Salisbury State Univ.) and Erin O. Sills (N.C. State Univ.).

Of the small farmers who populate the Brazilian Amazon, colonists are believed to deforest more and diversify less than natives. We test these hypotheses with data from surveys of indigenous farmers in the Tapajós National Forest, Pará, and recent migrants in Ouro Preto do Oeste, Rondônia. We find that natives deforest less than colonists, deforestation is not consistently related to diversification, and cattle wealth is a significant explanatory factor in both deforestation and diversification.

"Deforestation and Agroforestry Adoption in Tropical Forests: Can We Generalize? Some Results from Campeche, Mexico, and Rondônia, Brazil." James F. Casey (Wash. and Lee Univ.) and Jill L. Caviglia (Salisbury State Univ.).

This research uses farm-level data to determine whether some universal conclusions can be drawn about agroforestry adoption by peasant farmers in developing countries by comparing the land use choices of farmers in Rondônia, Brazil, and Campeche, Mexico. Education level and degree of exposure to agroforestry information significantly influence adoption of agroforestry, and deforestation levels for farmers are influenced by size of the farm lots. We find that policies which address imperfect information in developing countries are likely to decrease deforestation as well as improve the well-being of residents.

SESSION: *Public and Private Land Use Issues.* Moderator: Andrew F. Seidl (Colo. State Univ.).

"Is the Profit Motive an Important Determinant of Grazing Land Use and Rancher Motives?" L. Allen Torell and S. A. Bailey (N. Mex. State Univ.).

Research and observation have shown that recreation, consumptive values, and quality of life are the most important factors in the ranch purchase decision. We investigate the relative importance profit and consumptive values have had in determining the value of western ranches. We evaluate what ranch attributes have been important determinants of ranchland values, and discuss the inappropriate public land policy conclusions that can and have been reached by ignoring the consumptive reasons for ranch purchases.

"Influence of Land Tenure Arrangements on Grazing Management Incentives." Gary J. May, Rodney Jones, Michael Langemeier, and Kevin Dhuyvetter (Kans. State Univ.).

Grazing lease terms potentially influence the tenant's incentive to preserve vegetative cover. Profit-maximizing stocking rates were identified assuming 1-, 4-, 8-, and 12-year leases on a "per acre" and "per head" basis. Optimal stocking rate differences among lease alternatives did not appear large enough to impact on range condition.

"Cooperative Solutions to Open Access Competition for Land Among Municipalities." Elizabeth E. H. Garner, Andrew F. Seidl, and Dana L. Hoag (Colo. State Univ.).

Economic and sociological influences of municipalities often reach beyond their boundaries. Local governments may maximize tax base to provide services to their residents. Competition for land (tax base) is cast as an open-access problem and, through a simple game theoretic example, cooperation is shown to improve regional welfare. Tax base sharing provides a tool for municipalities to take advantage of potential gains to cooperation by reducing transactions costs and internalizing externalities created by competition.

"Opportunities for the Purchase of Conservation Easements in Wyoming." Donald M. McLeod, Jonathan Gates, and Katherine Inman (Univ. of Wyo.).

A conservation easement referendum is linked to a willingness-to-participate (seller) or a willingness-to-pay/volunteer (buyer) model by an instrumental variable. Referendum support was driven by demand for recreational lands and policy perceptions. Location and income source drove the seller model; program brokers, length of residence, and policy response drove the buyer model.

"The Impact of Corporate Farming Regulations on the Kansas Pork Industry." Laura Gow and Michael Langemeier (Kans. State Univ.).

Differences in regulations pertaining to livestock operations exist between states and even within

different counties within states. Kansas' approach to the regulatory process of corporate livestock operations, such as hog farms and dairies, is unique in that it allows individual counties to vote on whether or not corporate farms should be permitted within their borders. This study examines the impacts of county corporate hog farm regulations on county hog inventories in Kansas.

SESSION: *Agriculture and the Environment.* Moderator: Eric C. Schuck (N. Dak. State Univ.).

"Confined Animal Production and Manure Nutrients." Noel Gollehon, Margriet Caswell, Marc Ribaudo (USDA/Economic Research Service), Bob Kellogg, and Charles Lander (USDA/Nat. Resources Conserv. Service).

Using data from the Census of Agriculture, we estimate manure nutrient production and nutrient uptake for major field crops and pastureland on farms with confined livestock. We illustrate areas where nutrient production exceeds on-farm uptake potential.

"Optimal Rate of Applied Nitrogen and Choice of Reduced Tillage System." Kolado Bocoum and Arthur Stoecker (Okla. State Univ.).

Decomposition was used to determine the optimal private and social tillage systems and nitrogen use on a wheat farm. The optimal private system was more erosive and used more nitrogen than did the optimal social system.

"Ex Post Liability vs. Ex Ante Bonding as Instruments for Addressing Environmental Impacts of Genetically Modified Crops." Siân Mooney (Mont. State Univ.) and David Gerard (Polit. Econ. Research Center, Bozeman, Mont.).

We investigate bonds as an ex ante tool to address potential environmental damages from genetically modified crops and compare bonds to ex post liability. These mechanisms are complements, but shift the burden of proof between plaintiff and defendant.

"Edge-Effect Externalities and Location Incentives: The Case of California Certified Organic Farmers." Dawn C. Parker (Univ. of Calif., Davis).

Organic farmers are potentially impacted by negative spatial spillovers from neighboring conventional farms, including pesticide drift and GMO contamination. This paper tests the hypothesis that these "edge-effect externalities" impact locations and patterns of production of certified organic farming operations. Using cross-sectional data on all agricultural parcels in a two-county region of California's Sacramento Valley, statistically significant differences in landscape pattern between certified organic parcels and nonorganic parcels, consistent with avoidance of edge-effect externalities, are demonstrated.

"Dynamic Spreadsheet Programming to Select the Most Cost Efficient Manure Handling System." Rita Carreira and Arthur Stoecker (Okla. State Univ.).

Least-cost systems were selected with a macro-controlled spreadsheet. The cost of managing swine manure in Oklahoma was lower in the state's semi-arid regions under both nitrogen and phosphorus constraints.

SESSION: *Product Characteristics and Quality Attributes.* Moderator: Joe Parcell (Univ. of Mo.).

"Reputation Dynamics of the Label 'Washington Apples.'" Maria L. Loureiro and Jill J. McCluskey (Wash. State Univ.).

A dynamic discrete time model is presented to analyze the evolution of the collective reputation of the "Washington Apples" label and its effect on apple prices. Based on preliminary results, factors which heavily influence price are: the variety of the apple, if it is on-season (implying also that the fruit is fresh), the region where those apples are being sold, if they are packaged in a bag or a box, and if they are advertised with the "Washington Apples" logo.

"Impacts of Economic Adulteration on the U.S. Honey Industry." Gary F. Fairchild (Univ. of Fla.), Oral Capps, Jr., and John P. Nichols (Tex. A&M Univ.).

This paper provides a background perspective on economic adulteration, industry perspectives on the extent of economic adulteration in the U.S. honey industry, estimates of potential economic impacts, and a discussion of relevant trends and issues.

"Milling Industry Demand for Wheat-by-Class." Justin J. Terry and Thomas L. Marsh (Kans. State Univ.).

Own- and cross-price elasticities were estimated for U.S. wheat classes from derived demand func-

tions. In general, soft wheat varieties were less responsive to own-price than were hard wheat varieties.

"Japanese Millers' Preferences for Wheat and Flour: A Stated Preference Analysis." Renee Kim (Univ. of Manitoba), James Unterschultz, and Michele Veeman (Univ. of Alberta).

This paper reports on an evaluation of the preferences of Japanese millers for characteristics of wheat and flour used in processing noodles, based on multinomial logit models that analyze data from stated choice experiments.

"Refining the U.S. Peanut Grading System." B. Wade Brorsen, Edgar F. Pebe-Diaz, Kim B. Anderson (Okla. State Univ.), and Phil Kenkel (Univ. of Tenn.).

A low-cost way to improve peanut grading would be to stop rounding percentages to whole numbers. Rounding increases regrading, causes the wrong samples to be regraded, and provides an incentive to take overweight samples.

SESSION: *Agribusiness.* Moderator: Jay E. Noel (Calif. Polytechnic State Univ.).

"Testing the Efficacy of the Cal-Bred Program: Breeders' Awards and the Gambler's Corner Solution." James Ahern and Jay E. Noel (Calif. Polytechnic State Univ.).

State-supported horse racing performance incentives to producers were assessed with an interactive racing utility model utilizing two years (1997–1998) of California race-by-race data from all thoroughbred races run in the state. The contributions of state-bred horses in restricted and open races were found to be positive and significant.

"The Impact of HACCP on Costs and Product Exit: Evidence from Meat Processors in Texas." Neal H. Hooker (Ohio State Univ.), Rodolfo M. Nayga, Jr., and John W. Siebert (Tex. A&M Univ.).

Detailed information on the firm-level costs of food safety risk mitigation strategies is reported. Survey data for small and very small Texas meat processors are modeled to determine what affects compliance costs. Economies of scale in implementing HACCP-based systems are investigated, as is the role of facility modification. We find that even after controlling for scale, very small plants

still incur higher compliance costs than small plants. We present evidence of both economies of scale and diseconomies of scope in implementing HACCP in smaller meat processors in Texas.

"The Economics of Organic Farming in the U.S.: The Case of Strawberry Production." Jorge Fernandez-Cornejo and Sharon Jans (USDA/Economic Research Service).

Controlling for other factors, the effect of adoption of organic farming for strawberry producers on yields and variable profits is negative and statistically significant but small. The econometric method used accounts for self-selectivity and simultaneity, and is theoretically consistent.

"Procurement Strategies: Impacts of Quality Risks in Hard Wheat." William W. Wilson, Bruce Dahl, and Demcey Johnson (N. Dak. State Univ.).

Analytical models were developed to evaluate cost/risk tradeoffs of three alternative procurement strategies in the case of hard red spring (HRS) wheat. Results indicate a naive strategy has the lowest expected cost, but a high probability of not conforming to end-use requirements. Two alternative specifications for the constant share strategy result in high probabilities of meeting requirements, but at higher costs. The opportunistic strategy results in a higher probability of meeting specifications than either of the two alternatives at a comparable cost.

"Slotting Allowances, Failure Fees, and Asymmetric Information in the Grocery Supply Chain." Cheryl DeVuyst (N. Dak. State Univ.).

Predicting demand for new products is difficult for retail grocers. This study explores terms of trade, including slotting allowances and failure fees, as mechanisms to screen demand distributions of new products.

SESSION: *Commodity Price Dynamics.* Moderator: Stephen R. Koontz (Colo. State Univ.).

"An Examination of Futures Price Determination Through the Lens of Market Integration." Roger A. Dahlgran (Univ. of Ariz.).

This paper develops a general model of cash and futures markets for a storable commodity. We then examine the characteristics these markets must possess if they are informationally efficient, if they are conformable for testing price discovery,

and if they are integrated in the short or long run. We find that if futures markets are informationally efficient, their prices are not determined simultaneously with cash prices. The extreme assumptions associated with informational efficiency highlight the deficiency of the concept.

"Intertemporal Price Adjustments and Arbitrage Opportunities in Regional Hog Markets." James Muwanga (Makerere Univ., Uganda) and Donald L. Snyder (Utah State Univ.).

Vector autoregression and error correction models were utilized to examine price adjustments in selected spatially separated U.S. hog markets. Results indicate that direct hog markets in the Southeast are leaders in the price discovery process. Also, price differences typically did not persist between markets and times.

"The Relationship Between Barge Rates and Grain Price Spreads: An Application of Lead-Lag Analysis." Gregory K. Price (USDA/Economic Research Service).

Geweke's test for causality is used to determine the causal relationship between barge rates and commodity price spreads. While contemporaneous price spreads influence barge rates, past and current barge rates are found to influence price spreads, suggesting that firms have some market power over setting rates.

"What Moves Wholesale and Farm-Level Dairy Prices: NASS Surveys or Chicago Markets?" Robert D. Weaver and William C. Natcher (Penn State Univ.).

Under the current multiple-component dairy pricing system, class prices are a function of monthly NASS survey prices. This paper examines the hypothesis that central market CME prices convey the same information as NASS prices. The analysis examines their dynamic interrelationships in both conditional means and volatility through multivariate error correction models and optimal multivariate GARCH models. The results suggest NASS prices provide no new information that is not already incorporated in the CME prices.

"Dairy Futures Trading and Cash Price Volatility." William C. Natcher and Robert D. Weaver (Penn State Univ.).

This paper presents empirical evidence concerning the impact of futures trading on cash price performance in the dairy sector. The analysis explores causal structure of multivariate relation-

ships across conditional means and variances. The results comment on the role of futures in determining cash prices, and how futures trading has affected the volatility of cash prices. We find that the butter markets are not instantaneously efficient in a univariate sense or across cash and futures.

SESSION: *Production and Farm Management Issues.* Moderator: L. Allen Torell (N. Mex. State Univ.).

"Public Capital, R&D, Agricultural Production, and Endogenous Growth." Alejandro Onofri (Univ. of Nebr.).

Growth in the U.S. agricultural sector is examined under the conditions hypothesized by endogenous growth theory. Public capital and R&D are explicitly considered to capture the effect of public inputs. Results partly support this hypothesis.

"The Role of Environmental Education in Predicting Adoption of Wind Erosion Control Practices." H. Holly Wang, Douglas L. Young, and Oumou M. Camara (Wash. State Univ.).

Logit and ordered probit analyses were used to identify factors affecting reduced tillage adoption, continuous spring cropping use, and the number of changes made in response to wind erosion. We found problem perceptions or common socioeconomic variables did not explain adoption of these practices, but participating in an educational program did.

"Organic Row Crops in a Diversified Farm Portfolio." Rick L. Hirschi (West. Ill. Univ.).

This paper estimates and compares the costs and returns of an organic row-crop rotation to the returns of a conventional row-crop rotation in the Midwest, and explores some of the sources of risk associated with organic row-crop production. The paper concludes by modeling the optimal land use of a risk-averse producer assuming a producer is able to grow both organic and conventional row crops.

"Optimal Pesticide Rate Modeling: Aggregation and Econometric Issues." Douglas L. Young (Wash. State Univ.), Elwin Smith (Agric. and Agri-Food Canada), and Tae-Jin Kwon (Korea Rural Econ. Institute, Seoul).

Exponential weed control and seven yield damage functions were estimated for a bioeconomic

weed control model for winter wheat. Concavity with respect to herbicide rate was observed for most damage functions at normal weed densities and label rates. Bioeconomic modeling also provides appropriate information for pesticide-crop-specific managerial and policy decisions.

"Farm Characteristics that Influence Net Farm Income Variability and Losses." Jerry W. Dunn and Jeffery R. Williams (Kans. State Univ.).

Farm-level, cross-section, and panel data were used with econometric methods to examine relationships between variability in net farm income and explanatory variables including government payments, gross crop income, gross livestock income, costs, efficiency measures, and other socioeconomic characteristics such as age, leverage, percentage of land rented, and enterprise diversification.

SESSION: *Regional Economics of Labor and Industry.* Moderator: Roger H. Coupal (Univ. of Wyo.).

"Socioeconomic Conditions for, and Impacts of, Establishing and Operating a New Generation Cooperative: The Case of the South Dakota Soybean Processors." Paula Loewe and Evert Van der Sluis (S. Dak. State Univ.).

Residents were surveyed and local leaders were interviewed about perceived socioeconomic impacts of the South Dakota Soybean Processors Cooperative on their community. Results showed that perceived social and economic benefits exceeded costs.

"Measuring Benefits for Regional Transit Systems." Ken Casavant (Wash. State Univ.), R. Douglas Scott, III (Center for Infectious Diseases, Atlanta), and Kathleen Painter (Wash. State Univ.).

We present a strategy for measuring the total benefits of regional transit systems, including both direct and indirect (or nonuser) benefits. Focus groups are employed to identify all potential benefits of publicly provided transit. Then, a Contingent Valuation Method survey is conducted to place a dollar value on these benefits. Different methods of aggregating results are presented that produce a range of estimates of the total benefits for two regions in Washington State.

"Dynamic Labor Responses to Employment Shocks: A County-Level Analysis." Martin

L. Shields and Jason Novak (Penn State Univ.).

Using data for Pennsylvania counties, we develop impulse response functions to investigate local responses to labor demand shocks. We find employment shocks are entirely mitigated by migration in 13 years. The results suggest (1) there exists a long-term equilibrium unemployment rate, and (2) local employment growth is not a panacea for chronic unemployment.

"Individual Characteristics, Spatial Labor Market Differences, and Amenity Influences on Nonmetro/Metro Migration Patterns." Dwight W. Adamson (S. Dak. State Univ.), David E. Clark (Marquette Univ.), and Mark D. Partridge (St. Cloud State Univ.).

This paper explores whether local economic activity and location-specific amenities have different effects on metropolitan and nonmetropolitan wages, and how regional labor market differences and locality amenities affect metro and nonmetro migration decisions of workers.

"An Input Factor Demand Model for the Sawmilling Industry of the Lake States." James R. G. McQueen and Karen Potter-Witter (Mich. State Univ.).

A translog restricted variable cost function was estimated for sawmills of Michigan, Minnesota, and Wisconsin. Demand for labor was found to be very elastic with an own-price elasticity of -3.1. The own-price elasticity of sawlogs was 1.8. Cross-price elasticity of labor for sawlogs was 5.5, and cross-price elasticity of sawlogs for labor was -1.0. It is possible for sawlog consumption to increase with increasing price if lumber price increases by a larger amount.

SESSION: *Consumer Demand for GMO, Organic, and Natural Foods.* Moderator: H. Holly Wang (Wash. State Univ.).

"Demand for Organic and Conventional Beverage Milk." Lewrene K. Glaser (USDA/ Economic Research Service) and Gary D. Thompson (Univ. of Ariz.).

National-level scanner data for mainstream supermarkets are employed to assess market shares and price premiums, as well as to estimate key demand elasticities for sales of organic milk. Own-price elasticities suggest considerable response to lower organic prices. Cross-price elasticities indicate organic and branded milks are usually substitutes but with considerable asymmetry in responses; branded prices affect organic

purchases much more than the converse. Expenditure elasticities imply that as milk expenditures decline, quantities purchased of organic milk will increase. Jointly, the elasticities suggest considerable response to changing retail prices.

"Marginal Value of Quality Attributes for Natural Beef." Michael Boland and Ted C. Schroeder (Kans. State Univ.).

Length of aging and grain feeding (both measured in days), and protein source (soybeans, etc.) were significant variables in explaining retail price for 11 primal cuts of natural beef.

"Consumer Preference for Specific Attributes in Natural Beef Products." Jennifer Grannis (Colo. State Univ.), Neal H. Hooker (Ohio State Univ.), and Dawn D. Thilmany (Colo. State Univ.).

This study examines consumer willingness to pay for a locally produced, natural beef product in the Intermountain West. We investigate the importance of several production characteristics to determine how important they are to consumers, especially the target group willing to pay premium prices. Concern about hormones is consistently higher than other animal- and environmentally-friendly attributes, while concern about local production is ranked lowest among the respondents.

"Measuring Scale Consistency, Auction Performance, and Consumer Willingness to Pay for Non-Genetically Modified Corn Chips." Jayson L. Lusk (Miss. State Univ.), M. Scott Daniel, Darrell R. Mark (Kans. State Univ.), and Christine M. Lusk (Miss. State Univ.).

Consumer willingness to pay for corn chips made with non-genetically modified ingredients is elicited from a survey and 1st and 2nd price auctions. Scale differential questions from the survey accurately predict consumer willingness to pay. In a small sample, most participants were unwilling to pay for non-genetically modified corn chips, although a few offered a significant premium.

SESSION: *Firm/Industry Behavior and Market Coordination.* **Moderator: Kevin Dhuyvetter (Kans. State Univ.).**

"Non-Optimal Output and Changing Risk Preference at the Aggregate Level." Paula Gutman and H. Holly Wang (Wash. State Univ.).

Northwest pear shipment rates, during the 1990s, appear to be non-optimal under profit maximization. Empirical results are consistent with the hypothesis of expected utility maximization and a changing risk preference at the aggregate level. The magnitude of price flexibility matters for signing comparative static results for an imperfectly competitive industry.

"An Empirical Analysis of the Demand for Wholesale Pork Primals: Seasonality and Structural Change." Joe Parcell (Univ. of Mo.).

A set of inverse wholesale pork primal demand models was estimated to determine seasonal price fluctuations and to examine whether the flexibilities have changed in absolute magnitude over time. Results of this analysis indicate that the own-quantity flexibility for some primals differed by season. It was determined that the own-quantity flexibility increased in magnitude (absolute value) over time for some of the primal cuts evaluated here, while others were unchanged or increased.

"Price, Profit, and Market Impacts from Meat Packing Firm Mergers in an Experimental Market for Fed Cattle." Clement E. Ward and Jong-In Lee (Okla. State Univ.).

The Fed Cattle Market Simulator (FCMS) was used to estimate impacts from meat packing firm mergers. Experimental mergers involved the two smaller packers in one case and two larger packers in another. Market prices during the mergers were significantly higher than prior to the merger despite significantly higher Herfindahl-Hirschman indexes during the merger periods. For both mergers, profits of the merged firm exceeded profits of rivals. Management appeared to affect how effectively the merged packers operated.

"A Game-Theoretic Analysis of Procurement in the Beef Packing Industry." Jared G. Carlberg and Clement E. Ward (Okla. State Univ.).

Structural and behavioral changes in the U.S. beef packing industry have been the subject of extensive research. A review of theoretical and practical limitations of previous approaches, namely structure-conduct-performance and conjectural variation, suggests an alternative approach is warranted. Game theory is argued to be applicable in beef packing. A basic game theory model identifying key elements applicable to beef packing is presented.

SESSION: *International Trade and Agriculture.* Moderator: George B. Frisvold (Univ. of Ariz.).

"Accounting for Agriculture Decline with Economic Growth in Taiwan." Ling Sun, Lilyan E. Fulginiti, and E. Wesley F. Peterson (Univ. of Nebr.).

We examine the potential explanations, as the country opens to international trade, for the relative decline of the agricultural sector in a growing small economy with initial comparative advantage in this sector. The role of relative prices, factor endowments, and technical change on agriculture in Taiwan is investigated using time-series methods. Rapid capital accumulation had a strong negative effect, while technical change shows a small bias in favor of the sector.

"Mexican-U.S. Tomato Trade: An Analysis of Volume, Transaction Cost, and Prices." Luz E. Padilla and Dawn D. Thilmany (Colo. State Univ.).

This study develops a U.S.-Mexico tomato trade model, with special focus on the interdependence between trading costs and the volume of Mexican imports. As expected, the exchange rate is a significant determinant of trading costs, but the level of tariffs was insignificant in both the trading and tomato supply equations. The shipping point price level and volume of imports also appear to affect these costs.

"European Monetary Union and Forest Products Pricing in Europe." Riitta Hänninen, Susanna Laaksonen-Craig (Finnish Forest Research Institute, Helsinki), and Anne Toppinen (Oreg. State Univ.).

Exchange rate pass-through is examined using a markup model for the United Kingdom and German pulp and newsprint markets for the period 1986–97. Results indicate low degrees of pass-through, consistent with competitive markets for pulp and paper.

"Effects of International Price Distortions on Grains Supply and Demand in Argentina." Boubaker Ben-Belhassen, Abner W. Womack, and Patrick C. Westhoff (Univ. of Mo.).

This paper analyzes the impacts of distorting policies on the Argentine grains sector using a partial-equilibrium econometric model. The U.S. Export Enhancement Program (EEP) and the EU-proposed Common Agricultural Policy (CAP) reforms are found to hurt Argentina's cereals prospects.

SESSION: *Risk, Supply, and Demand Issues.* Moderator: Roger Dahlgran (Univ. of Ariz.).

"Price Variability and Financial Risk for Sugar Beet Growers." William Nganje and Gwen Stoltman (N. Dak. State Univ.).

This paper develops a framework to characterize and analyze the impact of price risk faced by sugar beet growers in the Red River Valley and derives implications for capital markets. Other sources of risk incorporated in the analysis are yields and production cost. Results reveal that a sugar beet price less than $36 per ton could significantly handicap a farmer's ability to generate sufficient profit to cover capital debt and family living expenses. The hypothesis that the loan rate for sugar truncates the distribution of net returns and protects growers against declining beet prices was not validated.

"Impacts of Supply Risks on Malting Barley Procurement: A Discrete Stochastic Programming Model." Demcey Johnson, Eric A. DeVuyst, and William Nganje (N. Dak. State Univ.).

Discrete stochastic programming is used to analyze barley procurement decisions. Multiple sources of risk are incorporated. The model is used to analyze the factors affecting U.S. imports of malting barley.

"Estimating Consumer Demands Across the Development Spectrum: Maximum-Likelihood Estimates of an Implicit Direct Additivity Model." John A. L. Cranfield (Univ. of Manitoba), Paul V. Preckel, James S. Eales, and Thomas W. Hertel (Purdue Univ.).

Consumer demands are estimated across the development spectrum using a demand system possessing nonlinear Engel effects. For food, marginal budget shares range from 0.5 in Ethiopia to 0.05 in the United States, while Engel elasticities range from 0.95 in Ethiopia to 0.1 in the USA.

SESSION: *Policy and Environmental Analysis in Agricultural Production.* Moderator: Edward Bradley (Univ. of Wyo.).

"An Examination of the Tradeoff Between Return to Land and Management, Risk, and Water Quality for Crop Rotations in Eastern and Central Kansas." Ty Stucky, Michael R. Langemeier, Richard Nelson, Dale Fjell, and Dan Devlin (Kans. State Univ.).

The objectives of this study were (1) to determine whether using different combinations of crop rotations and tillage scenarios could reduce nonsource pollution in eastern and central Kansas, and (2) to estimate the impact on net return per acre from these reductions. Water quality parameters examined included runoff, soil erosion, NO_3 loss in surface runoff, organic N loss with sediment, mineral N loss, soluble P loss in runoff, and P loss with sediment.

"Effects of Alternative Irrigation Allocations on Water Use, Net Returns, and Marginal User Costs." Nancy A. Norton, Richard T. Clark, and Joel P. Schneekloth (Univ. of Nebr./WCREC).

A model of irrigator behavior in a Nebraska district with per acre water use constraints (and banking of conserved water allowed) revealed that water use is less than current profit-maximizing levels. Results reflect positive in-situ values (marginal user costs) of water for potential future use or marketing of conserved water. Values vary by soil type.

"Assessing the Benefits of IPM in Pear Insect Control with Small Data Samples." Jeffrey Connor (Oreg. State Univ.), Bradley Higbee (USDA/ARS, Yakima, Wash.), Richard Hilton (OSU/Southern Oreg. Exp. Sta., Medford), Daniel Porter (Oreg. State Univ.), Stephan Welter (Univ. of Calif., Berkeley), and William Boggess (Oreg. State Univ.).

Per acre savings for an integrated pest management (IPM) program in pear are estimated using a method feasible with small skewed samples. Results show higher cost in California's Central Valley, significant savings in Central Washington and Southern Oregon, and declining cost over time in Central Washington.

"Milk Quality and Marketing Orders." Daniel A. Sumner and Joseph V. Balagtas (Univ. of Calif., Davis).

Marketing regulations distort the quality mix of U.S. milk, resulting in excess quality and deadweight loss. Analyzing panel data, we find empirical evidence linking regulated pricing schemes to regional and temporal patterns in milk quality.