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Abstracts of Invited and Selected Papers and Organized Symposia

WAEA Annual Meetings, Honolulu, Hawaii
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Invited Paper Abstract

WAEA PRESIDENTIAL ADDRESS

“Enhancing Our Impact Amidst Controversy.” Ted C. Schroeder (Kans. State Univ.).

Agricultural economists are increasingly being called upon to provide expertise and analysis regarding controversial issues of importance to our stakeholders. That we are being called upon is no surprise as we have a lot to offer, and many times assessment of economic costs and benefits is central to the debate. However, agricultural economists have substantive disagreements on controversial issues relevant to the industries we study. At times, in part because particular stakeholders do not like our message and because we often disagree among ourselves, our motives, objectivity, and credibility are questioned and/or our message is dismissed entirely. Universities rely heavily on public support for program success. Public support is enhanced by providing reliable, timely, accessible, understandable, and valuable research and education to existing clientele and expanding our clientele base. When our message is not well liked by stakeholders, public support often declines. Therefore, the challenge is how to maintain broad public support while addressing controversial issues. This paper offers insights that help to explain why our motives, objectivity, and credibility might be questioned. My main purpose is to provide a set of recommendations for increasing our relevance and impact in research on controversial issues.

Selected Paper Abstracts

SESSION: *Spatial and Intertemporal Markets.*
Chair: Ted C. Schroeder (Kans. State Univ.).

“Spatial Market Integration in Regional Cattle Markets.” Dustin L. Pendell and Ted C. Schroeder (Kans. State Univ.).

Geographic markets are extremely important to agriculture because agricultural products are bulky and/or perishable, and production and consumption areas are separated. This study investi-

gates how mandatory price reporting has influenced the degree of spatial market integration between U.S. regional fed cattle markets. Results indicate the market prices across the regional cattle markets are cointegrated. In addition, the amount of time it took for one market to react to the other market's change in price varied across the three time periods examined in this study. This suggests mandatory price reporting has not substantially increased market integration.

“How Much Value Is There in a Producer Branded Bred Heifer Program?” Todd Gerlt, Joe L. Parcell, Melvin Brees, David J. Patterson, and Richard Randle (Univ. of Mo.).

Agricultural producers are pursuing many methods by which to add value. Typically, some type of change in commodity form is used to add value. However, there exist methods by which added value occurs through intensive management practices, particularly in seedstock production. We investigated the brand premium to a producer-owned quality-based bred heifer program. Results indicated that producers garner in excess of a \$100/head premium, while potentially reducing future search/advertising costs through building brand loyalty.

“Price Determinants of Show Quality Quarter Horses.” Mykel R. Taylor, Kevin C. Dhuyvetter, Terry L. Kastens, Megan Douthit, and Thomas L. Marsh (Kans. State Univ.).

This study estimates the price determinants of show quality Quarter Horses sold at auction. Several characteristics, including genetic and physical traits, the quality of pedigree, and sale order, affect price. Sale price is positively affected by a strong performance record of the horse as well as the performance record of the horse's offspring. A common practice at horse auctions is for the seller to reject the final bid offered and not sell the horse. The market prices predicted by the model for these horses indicate that they are not under-valued by the final bids, based on their characteristics.

“A Forward-Looking General Equilibrium Approach to Explaining Participation in Spot and Options Markets for Water.” Ram

Ranjan (Univ. of Fla.), Noel Gollehon, and Marcel Aillery (USDA/Economic Research Service).

This paper models the participation decision of water right holders under alternative water marketing structures. A two-period model considers a single water buyer and multiple agricultural water sellers. In the first period, the buyer offers an option and exercise price for water purchases in an options market. Sellers may enter this market or wait for spot market development. In the second period, water supplies are known and the spot market meets the buyer's residual demand. The seller's decision to enter either market depends on various factors, including profitability, market size, water demand, water supply uncertainty, and agricultural demand and productivity.

"Cross-Hedging PNW Soft White Wheat: Chicago, Kansas City, or Minneapolis?" Xiaomei Chen (Wash. State Univ.), Larry D. Makus (Univ. of Idaho), and H. Holly Wang (Wash. State Univ.).

A mean-variance model is used to determine which futures contract (Chicago-CBOT, Kansas City-KCBOT, or Minneapolis-MGE) provides the best risk management effect for cross-hedging PNW soft white wheat. Results show KCBOT is the best choice for risk protection in most cases, while CBOT is in the middle, and MGE ranks the lowest. The rank changes with risk aversion level and transaction cost.

SESSION: International Trade Policy and Institutions. Chair: Jack E. Houston (Univ. of Ga.).

"Water Users' Associations in Armenia: Current Situation and Future Trends." Jack E. Houston (Univ. of Ga.) and Arusyak Alaverdyan (The World Bank).

Experiences of water consumers' cooperatives collected in Armenia during the past six years have been mixed. Some cooperatives have provided evidence of being capable of organizing themselves and responding to the needs of their members more effectively than any central governmental organization. However, many other aspects are still unresolved. Created in 2001, the State Committee for Water Economy (SCWE) agreed recently to follow a more participatory approach in establishment of Water Users' Associations and, on the basis of positive experiences worldwide, SCWE is willing also to scale up the process to the level of Water Users' Federations.

"Growth Convergence in South America." Mauricio Bittencourt (Ohio State Univ.).

This study analyzed the influence of structural change on GDP convergence in Argentina, Brazil, and Uruguay (A-B-U) in the context of a Keynesian model with balance-of-payments constraints. Empirical evidence suggests that income and structural convergence were associated in the post-World War II period. The differences in industrial and economic policies in A-B-U may have contributed to explain the intensity of the process of structural change in these countries. A-B-U exhibited a different ability to reshape their institutions with a view to encouraging industrial transformation. The Brazilian industrial policy seems to have been more efficient in promoting structural convergence.

"Consumer Attitudes Toward Genetically Modified Foods in Romania." (Kynda R. Curtis and Klaus Moeltner (Univ. of Nev., Reno).

This study evaluates consumer attitudes toward genetically modified (GM) food products in Romania, providing an important piece of the puzzle for developing nations. Study results show that consumers in Romania are opposed to GM food consumption, similar to consumers in Western Europe, but contrary to results from studies in other developing nations. Results based on a jointly estimated bivariate probit WTP model for GM sunflower oil and table potatoes, combined with a latent risk perception ordered probit model, reveal that risk perceptions are the primary determinants of consumer WTP for GM food products. Risk perceptions carry across GM foods, indicating homogeneity in consumer perceptions of these goods.

"Optimal Tariff Analysis of India's Apple Import Restrictions." Stephen Devadoss (Univ. of Idaho).

When government policy makers, particularly in a developing country, impose a tariff on imports, they generally select an arbitrary tariff rate or a rate proposed by domestic interest groups such as producers. Such a tariff rate generally does not maximize welfare gain or minimize welfare loss, i.e., it is not an optimal tariff. In this study, we investigate whether India's ad valorem tariff of 50% on apple imports is optimal, and estimate the optimal tariff and welfare impacts. Our findings show that the Indian government policy is not only welfare reducing but is harmful if the excess supply is elastic. The findings underscore the importance of conducting economic studies and determining the optimal policy parameters as opposed to selecting them arbitrarily to meet the needs of a particular group.

SESSION: Economics of Sub-regional Water Demand. Chair: Eric C. Schuck (Colo. State Univ.).

"Benefits of Controlling Saline Water in Colorado." Lindsey Ellingson (Colo. State Univ.), Eric Houk (Calif. State Univ., Stanislaus), Eric C. Schuck, and W. Marshall Frasier (Colo. State Univ.).

The Arkansas River in Colorado is confronted with a salinity issue; the majority of this salinity problem is due to agricultural runoff caused by irrigation. Reducing applications of irrigation water through adoption of more technically efficient irrigation systems is one means of improving water quality in the Arkansas River basin. This research uses positive mathematical programming to model the cropping practices of the farms along the Arkansas River. It examines the effect of acreage and profit levels of these farms given the choice of changing their irrigation technologies.

"Forecasting Broiler Water Demand: Econometric and Time-Series Analysis." Jack E. Houston, Murali Adhikari, and Laxmi Paudel (Univ. of Ga.).

A profit maximization model and an ARIMA model were developed to forecast water demand for broiler production. Broiler production decisions are made in three successive stages: primary broiler breeding flock, hatchery flock, and finishing broiler production. The forecasted numbers of broilers from structural and ARIMA models depart significantly from a USGS physical model. Analysis indicates 15% slippage in water demand forecasting related to disregarding the role of economic variables. It was also found that an appropriate lag structure can fully capture the information used in structural models, assuming no structural change.

"Predicting Household Water Consumption Under a Block Price Structure." Hanas A. Cader, Thomas L. Marsh, and Jeffrey M. Peterson (Kans. State Univ.).

This study focuses on estimating the variations in per capita water consumption and predicting the shares of consumption by pricing blocks in eight Kansas regions. Previous studies have considered household or micro-level consumption, but few have focused on aggregate-level consumption across different regions. A probit model was used to estimate the consumption shares in individual blocks for each region. Per capita water consumption varies significantly across the regions; as we move from western to eastern

Kansas, shares of the lower consumption block decrease, and higher consumption block shares are likely to increase.

SESSION: Production and Efficiency. Chair: Kenneth Erickson (USDA/ERS).

"Assessing Organic Production Efficiency: A Stochastic Distance Function Approach." Luanne Lohr and Timothy A. Park (Univ. of Ga.).

A stochastic distance function frontier was estimated using data from a national survey of organic farmers to evaluate the effect of farm-specific attributes on efficiency. Farm-specific and regional variables that shift efficiency were incorporated into the multi-output distance function, including organic farming experience, use of soil-improving inputs, and farmer involvement in research. Participation in research projects reduced the level of on-farm technical inefficiency, with mean technical efficiency of participating farmers 25% higher than that of nonparticipating farmers. The results suggest that differences in productivity across organic farmers are closely linked to input use and observable management decisions.

"Cost Efficiency of U.S. Peanut Producers and Welfare Effects of Substitution of Quota with Marketing Assistance Loan Program." Denis A. Nadolnyak and Stanley M. Fletcher (Univ. of Ga.), and Valentina M. Hartarska (Auburn Univ.).

This paper presents results of cost efficiency analysis of peanut production in the Southeastern region of the United States. Estimation results are used in a discussion of farm-level effects of the 2002 Farm Act which substituted quota support with the marketing assistance loan program. The finding that quota ownership did not affect cost efficiency suggests that quota owners were not discriminated against by the policy change. The results also support previously observed U-shaped average production costs attributed to high management intensity, as well as high allocative inefficiency related to the original quota assignments. These results must be treated with caution because of the highly regulated nature of peanut production.

"Simulation of Harvesting Asparagus: Mechanical versus Manual." Tiziano Cembali, Raymond J. Folwell, and Trent Ball (Wash. State Univ.).

Asparagus harvesting methods and strategies have remained unchanged in Washington State

since inception. A bioeconomic model was developed to determine the profit-optimizing frequency of harvesting for manual and mechanical harvesting techniques. The mechanical harvester is economically viable if the harvester cuts 72.3% and 73.55% of what a hand crew would cut for process and fresh utilization, respectively. The results indicate that decreasing the frequency of harvest increases profit for asparagus used in processing. This research is the first attempt to address the problem of asparagus harvesting with a bioeconomic model.

SESSION: Teaching and Assessment. Chair: Andrew Barkley (Kans. State Univ.).

“Development of a Multi-Disciplinary Experiential Education Class in Organic Farming Using the Community Supported Agriculture Model.” Constance L. Falk, Pauline Pao, and Christopher S. Cramer (N. Mex. State Univ.).

This paper examines an organic production class managed as a Community Supported Agriculture (CSA) venture at New Mexico State University. CSA farms sell shares to members who receive weekly assortments of the farm's output. The project, Organic Agriculture Students Inspiring Sustainability (OASIS), provides students with a multi-disciplinary experiential educational opportunity, investigates organic, drip-irrigated farming in the Chihuahuan desert, and trials vegetable, flower, and herb varieties. Feedback from students and conflicts arising from multiple project objectives have shaped the class. Although enthusiastically embraced by the community, OASIS is challenged by land constraints and the end of federal funding.

“Business Environmental Risk Management.” Chris R. Boessen and Raymond E. Massey (Univ. of Mo.).

This presentation showcases a successful, continuing, and expanding extension project in Missouri that assists farmers in managing their environmental risks. The project is centered around a website (www.cares.missouri.edu/berm) which allows farmers to identify a parcel of land on an aerial photograph and obtain a report cataloging various environmental sensitivities related to that parcel. Information contained in the report is linked to websites providing additional educational guides, regulatory concerns, and financial and technical assistance. The program aims to help farmers understand how to manage their business with the dual objectives of environmental protection and profitability.

“Assessment of Student Learning: A Quantitative Approach.” Andrew Barkley (Kans. State Univ.).

This study identifies and quantifies the determinants of student learning in introductory agricultural economics. Learning outcomes were measured by multiple-choice examinations administered on the first and last days of the course. Learning is defined as the difference between pre- and post-test scores. Students with higher GPA and ACT scores learned more. As in previous research, females and nonwhites learned less than white males. Students who studied more learned more. Student learning style had a large, statistically significant effect on learning outcomes. The results identify areas for future improvement, including program effectiveness, assessment of student learning, teacher effectiveness, and student performance.

“Efficacy of Payments for Eliciting On-Time Manuscript Reviews: A Natural Experiment.” Gary D. Thompson, Satheesh Aradhyula, George B. Frisvold, and Russell E. Tronstad (Univ. of Ariz.).

Data from a natural before-and-after experiment in which journal referees were paid a stipend for on-time first-round reviews are employed to judge whether stipends expedite reviews. Parameter estimates from a multivariate duration model accounting for unobserved heterogeneity suggest stipends do expedite reviews. In the first year of payments, average review times were shortened by more than a week. Limited econometric evidence suggests, however, the effect of stipends may have attenuated slightly in the second year of the experiment. The present study using data from a single journal tends to corroborate Hamermesh's previous empirical findings based on cross-sectional data.

SESSION: Quantitative Methods. Chair: Ray G. Huffaker (Wash. State Univ.).

“Empirical Phase-Space Analysis of Dynamic Economic Systems: Methods of Resolution Enhancement, with an Application to Agricultural Exports.” Ray G. Huffaker, Ron Mittelhammer, and Jonathan Yoder (Wash. State Univ.).

The phase diagram is often used to characterize theoretical economic dynamics, but its empirical counterpart is rarely used in economics. One reason is that discrete sampling of continuous-time variables can limit interpretability of the phase-space representation. We compare the effectiveness of three methods for providing interpretable

phase-space representations of discrete data while minimizing the risk of spurious inference: smoothing, interpolation, and spectral decomposition. We find that spectral decomposition is most useful. Unlike the other methods, it provides a statistical basis for separating low-frequency from high-frequency movements and provides a statistical basis for interpolation between data points based on estimated spectra.

“Estimation of Quadratic AIDS Model Using GMM and Semiparametric Bayesian Bootstrap of Simultaneous Systems: An Application to Japanese Meat Demand.” Thomas Heckelei (Univ. of Bonn, Germany), Ron C. Mittelhammer, and Jing Xi (Wash. State Univ.).

This paper motivates and applies a variant of the Bayesian Bootstrap Multivariate Regression by Heckelei and Mittelhammer (2003) to a non-linear QUAIDS model representation of Japanese meat demand that includes endogenous regressors. The methodology is first given an alternative and more elegant motivation to that of Heckelei and Mittelhammer, and then extended to incorporate microtheoretic restrictions and to be applicable in the context of a simultaneous equation model. The results of this Bayesian application are compared to the classically estimated model, as well as to results based on an earlier approach used by Heckelei, Mittelhammer, and Wahl (1996).

“An Error-Components Two-Stage Least-Squares Model of Corporate Finance and Governance: The Case of the U.S. Food-Away-From-Home Industry.” Steven Vickner (Utah State Univ.) and Steve Davies (Colo. State Univ.).

This paper estimates an error-components 2SLS model of corporate finance and governance for a sample of 12 publicly held companies in the food-away-from-home industry from 1996 to 2002. Due to entry and exit, the panel data set was unbalanced. The empirical principal-agent model indicated wealth creation, CEO compensation, and CEO ownership were jointly determined; more wealth created led to higher pay, a larger stake in the company led to more wealth created, and higher levels of compensation and wealth led to greater ownership. Future research will explore the impact of food safety strategies on the system.

“Reliability of Programming Software: Comparison of SHAZAM and SAS.” Oluwarotimi Odeh and Allen M. Featherstone (Kans. State Univ.).

This paper examines the reliability of two programming software packages: SHAZAM and SAS. Using the latest versions of both packages, our results show that the order of arrangement of output and input equations impacts estimated parameter values in SHAZAM but has no effect on results from SAS. Based on the study results, statistical and economic impacts also reveal that the inconsistency in the SHAZAM software package alters statistical and economic results from research analysis.

SESSION: Consumer Food Preferences. Chair: Oral Capps, Jr. (Tex. A&M Univ.).

“Using AC Nielsen Homescan Data to Assess Unilateral Price Effects of Mergers and Acquisition Activity Among Manufacturers of Ice Cream.” Matthew C. Stockton and Oral Capps, Jr. (Tex. A&M Univ.).

To date, measuring unilateral price effects associated with merger and acquisition activity has been based on time-series scanner data. Price elasticities estimated from these data typically are subject to inventory effects, thereby inflating their magnitude. We propose the use of cross-sectional data derived from the 1999 AC Nielsen Homescan panel, allowing the estimation of elasticities to be free from inventory effects. For illustration purposes, we consider hypothetical mergers of nine ice cream brands in San Antonio. A matrix of uncompensated own-price and cross-price elasticities is estimated using a censored LA/AIDS model. Based on these estimates, we then simulate price changes associated with the respective mergers. Only the merger of the ice cream brands with the largest market shares is found to have a statistically significant unilateral price effect.

“A Demand System Analysis of Non-alcoholic Beverages: Censoring, Data Frequency, and Demographic Effects on Elasticities.” Grant Pittman and Oral Capps, Jr. (Tex. A&M Univ.).

The non-alcoholic beverage industry has changed dramatically over the past two decades largely due to differences in consumer tastes and preferences as well as availability of new products. Using the 1999 AC Nielsen Homescan panel involving 7,195 U.S. households, we estimate, based on the LA/AIDS model, uncompensated and compensated own-price and cross-price elasticities of demand for 16 non-alcoholic beverage categories. A censoring-correction technique is used to estimate this demand system because all non-alcoholic beverages are not consumed by sample

households. Comparisons of the respective elasticities are made with and without correcting for censoring and the inclusion of demographics as well as the use of annual data versus quarterly data. This work provides a definitive examination of the impact of censoring, time frequency, and demographics on price elasticities of selected non-alcoholic beverages.

"Consumer Preference and Willingness to Pay for U.S. versus Australian and Canadian Beef." Dillon M. Feuz (Univ. of Nebr.), Wendy J. Umberger (Colo. State Univ.), Sebastian Perversi, Chris R. Calkins, and Bethany Sitz (Univ. of Nebr.).

Consumers from Chicago and Denver participated in an experimental auction and taste panel to elicit preferences for beef originating from the United States, Australia, and Canada. On average, consumers were willing to pay premiums of 31% and 10% more for the U.S. steak than for the Australian and Canadian steaks, respectively. However, it appears that a segment of the population prefers the taste and is willing to pay a premium for beef originating from Australia. A larger segment of the experimental population (34% of the consumers) preferred the taste and was willing to pay a premium for the Canadian steak.

"The Willingness to Pay for Calcium." Timothy K.M. Beatty (Univ. of Brit. Columbia) and Hayley H. Chouinard (Wash. State Univ.).

We use supermarket scanner data to analyze household purchase decisions of enriched and non-enriched refrigerated orange juice. Education and the presence of young children are found to significantly increase the probability that a household will purchase calcium. A number of policy instruments are considered. We find that increasing the level of information available to the household at the time of purchase and price policies are both effective at increasing calcium intake, but may have different impacts across households.

SESSION: Managing Risks. Chair: Jay Parsons (Colo. State Univ.).

"A Profile of Whole Farm Risk and Returns in Texas." Burge Linton, Steven L. Klose, Joe L. Outlaw, and David P. Anderson (Tex. A&M Univ.).

A profile of the risk-return relationship is developed for producers in Texas based on individual data and strategic planning simulation analyses. While the overall risk-return relationship is posi-

tive, as expected, unique opportunities and problems exist for some producers. A comparison of different groups of operations reveals the nature and degree to which various characteristics, such as size, location, irrigation, and enterprise mix, impact the whole farm risk-return tradeoff agricultural producers face.

"Variable Productivity Within Groups and the Jensen Effect." Jay Parsons and Dana L. Hoag (Colo. State Univ.).

Nonlinear relationships and uncertainty provide an abundance of opportunities to apply Jensen's inequality in empirical settings. Past research has acknowledged Jensen's inequality but never formalized its treatment in production economics. This paper formalizes the treatment of Jensen's inequality in a group production setting. The concepts of the *Jensen effect* and an *aggregation premium* are introduced to aid in the discussion of how an adjustment needs to be made in group optimization to account for the fact that the marginal productivity of an average individual in a group is not equivalent to the average marginal productivity across all individuals within the group.

"Optimal Rotation of Idaho Potatoes Under Associated Pricing Risk and Disease Risk." Penny Myers, Joe Sherburn, R. G. Taylor, Chris McIntosh, and Paul Patterson (Univ. of Idaho).

Idaho's potato growers face increasing price and production risks due to structural changes in the industry. Consolidation of potato processing plants has given processors the ability to shift production, thereby increasing bargaining power. Processors possess the power to manipulate preseason contracts and open market prices. Growers responded to increased price risk by shortening crop rotations, consequently increasing exposure to disease risk. A discrete stochastic sequential programming model was developed to analyze the effects of a shortened rotation with incorporated price and production risk. Output illustrates the optimal rotation cycles under alternative rotation scenarios that reduce risks and maximize expected revenue.

"Intertemporal Decisions of Farmers' Risk Management: A Dynamic Optimization of Generalized Expected Utility." Wen Du and H. Holly Wang (Wash. State Univ.).

We examine farmers' intertemporal choices of hedging ratio and crop insurance coverage, in the presence of government payment programs, in a multi-period wheat production environment by

using a generalized expected utility (GEU) model. We consider a stochastic trend process to identify and simulate the long-term time-series patterns in wheat yields, cash prices, and futures prices. The stochastic dynamic optimization is solved numerically based on simulated data. Results indicate that the GEU is feasible in modeling farmers' intertemporal risk management decisions. The comparison between the GEU model and other commonly used expected utility models further implies the GEU is more flexible in specifying farmers' intertemporal preferences separately and completely.

SESSION: *Community and Regional Economics*. Chair: Dawn D. Thilmany (Colo. State Univ.).

"The Regional Effects of Waterlogging and Soil Salinization on a Rural County in the Arkansas River Basin of Colorado." Eric E. Houk (Calif. State Univ., Stanislaus), Marshall Frasier, and Eric C. Schuck (Colo. State Univ.).

Rural counties along the Arkansas River of Colorado are being negatively affected as a result of irrigation-induced waterlogging and soil salinization. Mathematical programming is first used to estimate the direct costs of these effects on agricultural production; then input-output analysis is used to estimate the indirect and induced impacts that are occurring. The average direct loss to agricultural production in Otero County, Colorado, was estimated to be approximately \$68/acre. When the indirect and induced impacts are included, the total costs associated with waterlogging and soil salinization are estimated to increase by approximately 20% within this county.

"The Green and Golf Industries of Colorado: Assessing Economic and Resource Impacts." Phil Watson, Steve Davies, and Dawn D. Thilmany (Colo. State Univ.).

Colorado experienced a multiyear, chronic regional drought in the early 2000s, raising more public concerns about water utilization by green industries, including golf. The economic role of the golf course industry in Colorado is quite sizeable, with direct revenues estimated at \$560 million in 2002, and a broader impact of \$1.2 billion dollars, once related equipment purchases, tourism impacts, and taxes from bolstered real estate values are considered. We show that this economic activity signals very high value use of land and water resources compared to some of the alternative agricultural and residential lawn uses, but that there are still some opportunities to

conserve water when course superintendents are given incentives.

"Effects of Structural Change and Urbanization on U.S. Agriculture: 54 Fast Growth Counties, 1950–1997." Kenneth S. Krupa and Marlow Vesterby (USDA/ERS).

In 54 U.S. fast growth counties, the inflation-adjusted market value of crops and livestock in 1997 increased by \$14.2 billion compared to 1950. And agriculture shifted from extensive to intensive operations and from producing low-value to high-value commodities. In 1997, the average market value of crops and livestock in the 54 fast growth counties equaled 75% of the average market value in non-fast growth counties.

"Impact of Alternative Property and Sales Tax Policies on Texas Representative Farms." J. Marc Raulston, Joe L. Outlaw, James W. Richardson, and Steven L. Klose (Tex. A&M Univ.).

The call for school finance reform has threatened to modify or possibly remove the current property and sales and use tax exemptions presently benefitting Texas agricultural producers. This study utilizes a whole farm simulation model to evaluate the economic and financial impact of three alternative sales and/or property tax policy changes on Texas farms, dairies, and ranches, along with their respective landowners. Results indicate that removing sales tax exemptions would most adversely impact producers, while removing property tax exemptions has a more negative effect on landowners.

SESSION: *Agribusiness Management*. Chair: Michael A. Boland (Kans. State Univ.).

"Diversification and Firm Performance in the Food Economy." Sara K. Schumacher and Michael A. Boland (Kans. State Univ.).

The effects of diversification on firm value in the food economy are analyzed within four major sectors: processing, wholesale, retail, and restaurant. We find that diversification in the food economy contributes to positive excess firm value. Processing firms are most likely to diversify while restaurant firms have the largest positive diversification effect.

"Changing Productivity and Exports in the Australian Meat Processing Industries." Nilufar Jahan (Australian Bureau of Agr. and Resour. Econ., Canberra).

The meat processing industry is a significant contributor to the Australian economy. It gener-

ates substantial employment and export earnings. Consequently, the growth of the meat processing industry is an important issue for Australia. The meat processing industry and its share in total Australian agriculture exports grew marginally over the last few years. The aim of this paper is to quantitatively analyze the effects of productivity changes, as measured by the total factor productivity (TFP) on the share of meat in total agricultural exports.

“Retail Beef Cut Prices: Impacts of and Implications for Promotion and R&D Dollars.”

Kelly D. Erwin, Chris T. Bastian, Dale J. Menkhaus, and Warrie J. Means (Univ. of Wyo.).

This research assessed the impact of promotion and research from the Beef Checkoff Program on selected beef cut prices and carcass value. Selected monthly cut prices for the period 1990–2002 were analyzed using ratios and trends to sort cuts into high, medium, and low value groups. The prices of low and middle value cuts were positively and significantly affected by promotion according to econometric analyses. The total effect of every \$1 million spent in promotion on retail beef price was 17.6¢ per pound. This translates into about a 2% increase per carcass to the producer.

“The Costs of Segregating Non-Transgenic Grains at Country Elevators in South Dakota.” Bashir A. Qasmi, Evert Van der Sluis, and Clayton J. Wilhelm (S. Dak. State Univ.).

Genetically modified grains have rapidly become popular among producers across the United States. Some consumers, particularly in the EU, South Korea, and Japan, are unwilling to purchase products containing ingredients from genetically modified or transgenic crops. This paper develops a model to represent costs of segregating non-transgenic grains at country elevators and simulates these costs at representative elevators in South Dakota under alternative scenarios employing a case study approach. The overall cost of segregating non-transgenic grains under a zero rejection rate ranged from 1.5 to 21.7, 1.2 to 11.3, and 1.3 to 16.4 cents per bushel for corn, soybeans, and wheat, respectively.

“Segregating Transgenic Grains: Results of a Survey Among Country Elevators in South Dakota.” Evert Van der Sluis, Bashir A. Qasmi, and Clayton J. Wilhelm (S. Dak. State Univ.).

Using responses from a mail survey conducted among 203 South Dakota grain elevator managers in 2002, we analyzed the degree to which the

elevators were prepared to segregate non-transgenic from commodity grains. Only 17% and 2% reported having buyers inquire about segregated non-transgenic or identity-preserved corn, and such soybeans, respectively. Among those handling corn (soybeans), 53% (58%) were willing to participate in non-transgenic corn (soybean) markets at an average premium of 28¢ (37¢) per bushel. It appears that one in five elevators is able to participate in segregating non-transgenic and commodity grains without additional capital outlays.

SESSION: Agricultural Finance and Diversification. Chair: Cheryl DeVuyst (N. Dak. State Univ.).

“The Portfolios of Family Farms.” Valentina Hartarska (Auburn Univ.).

This paper builds on recent developments in the dynamic household portfolio theory and the theory of intra-household bargaining. A conceptual framework and an empirical model are developed to study how off-farm income affects the allocation of resources between farming and risky financial assets in the portfolios of family farms. The empirical model uses data of Alabama family farms. Results indicate that the demographic characteristics of the household affect portfolio choices.

“Comprehensive Financial Analysis of Value Added Impacts on Farm Resources.” Melvin Brees and Joe Parcell (Univ. of Mo.).

When faced with making decisions to invest in value added enterprises or farm expansion, producers typically narrow their focus to expected returns and feasibility of the investment itself. However, these investments often have significant capital investment requirements with delayed returns, and may have negative impacts on family cash flow and resources used in the farm business. This study demonstrates how value added investment and farm enterprise expansion affect business resources and increase the need for financial management to maintain financial health of the business.

“The Impacts of Risk Aversion, Time Preference, and Intertemporal Substitutability on Farmers’ Risk Management Behavior.” Wen Du and H. Holly Wang (Wash. State Univ.).

This paper applies a generalized expected utility model to dynamic agricultural risk analysis. We explore the impacts of risk aversion, time preference, and intertemporal substitutability on farmers’ optimal risk management portfolio selec-

tion. Further, we introduce a welfare measure into the model to investigate the impacts of U.S. government programs and market institutions on farmers' welfare. We find farmers' optimal hedge ratio sensitive to changes in the preferences. The policy impact analysis shows government payment programs have a greater effect on farmers' choices than crop insurance, and crop insurance outperforms hedging. Both crop insurance and government payments are influential to farmers' welfare improvement.

SESSION: *Production, Resources, and the Environment.* Chair: Dana Hoag (Colo. State Univ.).

"Heat Treatment as an Alternative to Methyl Bromide for Structural Treatment of Food-Processing Facilities: An Economic Analysis." Oluwarotimi Odeh, Sreedhar Upendram, and Bhadriraju Subrahmanyam (Kans. State Univ.).

Methyl bromide, a space fumigant used in food-processing facilities, is expected to be phased out in the United States by 2005 under the Montreal Protocol. Use of elevated temperatures ($\geq 50^{\circ}\text{C}$) for 24–36 hours is a viable alternative to methyl bromide fumigation. We estimated the amount of heat energy required to reach 50°C and above using Cost Calculator. Further, we examined efficiency of natural gas, steam, and electricity by varying temperature and treatment period parameters. Besides providing baseline data for successful heat treatment, this study can be used to predict the most efficient heaters for different temperatures and seasons.

"Managing Resistance Evolution to Single- and Dual-Toxin Bt Crops and Pyrethroids Using Refugia with Potential Non-Compliance, Heterogeneous Producers, and Mobile Pests." Michael J. Livingston and Jorge Fernandez-Cornejo (USDA/ERS), Nicholas Storer (DOW Agrosiences LLC), Fred Gould, George Kennedy, and John Van Duyn (N.C. State Univ.), and Gerald Carlson (N.C. State Univ., retired).

We examined resistance evolution and profitability using a stochastic, spatial model of producer and insect behavior. Thirty-six farmers chose Bt cotton fields to plant to maximize annual profit, subject to a refuge requirement, assuming all others planted the maximum. Annualized returns declined, but the rate of pyrethroid resistance evolution increased with the refuge; and resistance to both Bt toxins never occurred. Under no refuge requirement, 10 producers planted at least

a 20% refuge initially, which declined with time. However, at least four producers always behaved similarly, suggesting not all producers need additional incentives to comply with the U.S. EPA's requirement.

"A Demand Study: How Producers in Eastern Colorado Value and Demand Livestock Manure." Heather Lambert, Sue Hine, Dana Hoag, and Mike Lacy (Colo. State Univ.).

In eastern Colorado, there are many confined animal operations with either not enough land or no land available to spread the manure produced. Given this, we hypothesize that there is a surplus of manure. This study seeks to determine the demand schedule for livestock manure in eastern Colorado and uses logit analysis to estimate producers' willingness to pay. Using this demand schedule, we can measure the severity of the problem to discover efficient solutions for alleviating the problem of excess manure.

"Modeling the Impacts of Alternative Invasive Species Management Policies on Perennial Fruit Production and Consumption." Zishun Zhao, Ricardo I. Diaz-Carcamo, and Thomas I. Wahl (Wash. State Univ.).

Perennial fruit production features a dynamic process with an evolving productive stock. Changing demographics due to shocks, coupled with a complex biological process, make it particularly difficult to evaluate the effects of an invasive species and related government management policies. We develop a dynamic general equilibrium framework for perennial fruit driven by the population dynamics of the productive stock and economic decisions. A stochastic invasive species introduction and dissemination mechanism is used to link the economic model to invasive species management policies. With various policy variables incorporated, the model is capable of evaluating the effects of alternative policy combinations and to design optimal invasive species management policies.

"Economic Analysis of Alternative Lignocellulosic Sources for Ethanol Production." Brian K. Herbst, Joe L. Outlaw, David P. Anderson, Michael H. Lau, Steven L. Klose, and Mark T. Holtzapple (Tex. A&M Univ.).

Over the past five years, there has been a significant increase in ethanol production in the United States. With the majority of the ethanol production in the United States using feed grains for feedstock, there has been a push to produce ethanol from biomass. The primary objective of this research is to compare the feasibility of

constructing and operating a feed grain based versus a lignocellulosic based ethanol production facility in Texas. The lignocellulosic based ethanol plant has a higher net cash income, ending cash reserves, and net present value than the feed grain based ethanol plant.

SESSION: Agricultural Production and Research Policy. Chair: Philip L. Paarlberg (Purdue Univ.).

"Economically Determined Livestock Quarantine Zones." Philip L. Paarlberg (Purdue Univ.), Ann H. Seitzinger (USDA/APHIS), and John G. Lee (Purdue Univ.).

This paper examines economic factors present when setting quarantine zones for contagious livestock diseases such as foot-and-mouth disease (FMD). A conceptual model explores the tradeoffs as zone size expands. One tradeoff is between the cost of economic activity inside the zone and the benefits of reduced disease spread. There are also agricultural and non-agricultural price effects to consider. Two hypothetical counties are constructed to illustrate the ideas. Town or city location is critical to the size. Livestock density is inversely related to zone size, with low density regions able to reduce disease spread at relatively low cost.

"Exogenous Shocks to the Beef Industry: An Examination of Non-Therapeutic Antibiotics." Kamina Johnson, James Pritchett, and Dawn Thilmany (Colo. State Univ.).

Food safety is a serious concern in the meat products industry, and the use of non-therapeutic dosages of antimicrobials in livestock feed is a controversial issue. This study quantifies some of the economic impacts from a ban of non-therapeutic antibiotic use in the beef industry. A quarterly equilibrium simulation model captures the biological relationship between cattle and its feed, as well as the flow and stock relationships of cattle inventories at each stage of production. Economic effects include direct impacts at the feedlot level and indirect effects at the cow-calf, wholesale, and retail sectors.

"Option Values and Externalities from Public/Private Interaction in Agricultural Research." Jason A. Winfree (Univ. of Mich.), Jill J. McCluskey (Wash. State Univ.), and Gordon C. Rausser (Univ. of Calif.-Berkeley).

While most private firms try to maximize profits, universities typically attempt to maximize the welfare of the greater society. There is overlap between the two objectives in terms of information gathered and research results. We examine the

value of information and research to private companies and estimate the investment returns to the private companies. Since many of these partnerships require an initial investment, we can estimate both the perceived value to the company of having an option to negotiate patents and the perceived value of the patents, since companies are then required to pay for a percentage of each patent.

"Obsolescence of Utility Patents and R&D Risk in the Consolidated U.S. Seed Market." Soyoko Umeno and Jay P. Kesan (Univ. of Ill.).

Patents acknowledge that many inventions become obsolete in the economy due to changes in consumer preferences or emergence of new technologies. Obsolescence of these inventions is likely to reduce R&D incentives, resulting in underinvestment in R&D activities. We estimate a revenue function developed by Pakes and Schankerman, whose outputs are obsolescence rates of utility patents for and R&D risk indicators associated with seed/plant, pharmaceutical product, motor vehicle, and semiconductor inventions. Estimation results speculate a selection and elimination process for R&D projects for reducing R&D risk, and suggest industry-specific approaches to enforcement of intellectual property rights for promoting R&D activities.

SESSION: Beef Marketing Issues. Chair: Clement E. Ward (Okla. State Univ.).

"Hedonic Models: What Is the Value of Replication?" Joe L. Parcell, Chris Boessen, Richard Randle, and David Patterson (Univ. of Mo.).

Agricultural economists have used hedonic models to estimate implicit marginal values of characteristics of numerous commodities. Empirical applications of hedonic models have been extensive in agricultural research. A recent literature search yielded over 400 references under the heading "hedonic" or "characteristic demand" in AGRICOLA. Using five periods of price-quality data for a quality bred heifer program, the objective of this study is to evaluate parameter stability, i.e., model fragility, over time. We find that characteristics values change in magnitude over time and across location.

"Market Adjustment Insights: Primary vs. Secondary Data." Clement E. Ward and Jonathan T. Hornung (Okla. State Univ.).

Producers, researchers, and policy makers have an interest in market effects from meatpacking

plant closings and openings. This paper presents results from a study taking a dual approach to determining impacts from an anticipated hog slaughtering plant opening and an unexpected fed cattle slaughtering plant closing. Secondary data are used in a price differences and partial adjustment model. Primary data are used in a logit model. Results indicate a clearer price effect from the plant opening than the plant closing. Primary data provide additional insight into the dynamics related to the two plant events.

"Preconditioning Beef Calves: Are Expected Premiums Sufficient to Justify the Practice?"

Kevin C. Dhuyvetter (Kans. State Univ.).

The concept of preconditioning calves has been around for a long time, yet adoption of the practice has been slow. Current trends in the beef industry likely will increase interest in preconditioning programs. This research estimates premiums received for preconditioned calves and the expected returns from a preconditioning program. Preconditioned calves sold in the fall received a premium of approximately \$4.50 to \$5.50/cwt relative to non-preconditioned calves. Premiums were lower for calves sold in the winter, heavier calves, and when cattle markets were strong. Based on a 45-day post-weaning preconditioning program, cow-calf producers can increase returns about \$14/head compared to selling calves at weaning.

"The Economic Value of Selection Indices for Buyers of Replacement Bulls." Allan M. Walburger (Univ. of Lethbridge) and Steve P. Miller (CGIL, Univ. of Guelph).

The complexity of selecting replacement bulls based on EPDs and ABCs was explored. Economic selection indices may help the decision-making process by providing economic weights for each trait and thus illustrate the appropriate economic tradeoffs. Beef Improvement Ontario publishes two economic selection indices for Ontario producers who are selecting bulls in the Bull Evaluation Program: *Beef Builder* and *Prime Plus* (PP). The implicit values for bull attributes obtained from these indices were compared to those obtained from actual sale prices. The evidence suggests that buyers may be following or influenced by the PP index, which targets the high-end restaurant market.

"Estimating the Economic Values Associated with EPDs for Angus Bulls at Auction."

Tyler Turner, Kevin C. Dhuyvetter, Thomas L. Marsh, and Rodney Jones (Kans. State Univ.).

The genetic traits that an Angus bull possesses convey the reproductive and economic value of the animal to potential buyers. This paper examines and draws comparisons between the value of actual production weights and production EPDs, while also establishing values for ultrasound EPDs. Results indicate that only one EPD, birth weight, was valued by buyers more than its corresponding actual weight, though actual weights and EPDs significantly impacted price. Ultrasound EPDs were also found to be significant, suggesting buyers of Angus bulls consider carcass information when purchasing bulls.

SESSION: Information, Labeling, and Diet.

Chair: Wendy J. Umberger (Colo. State Univ.).

"Effects of Information and Information Source on Preferences for Food Irradiation." Wendee Grady and John A. Fox (Kans. State Univ.).

We investigate effects of information and alternative information sources on consumer acceptance of irradiation. In a mail survey, one-third of the sample received no information about irradiation other than a brief statement describing its purpose. The remaining two-thirds received a brochure about irradiation—one-third receiving a brochure attributed to a government source, the other receiving an identical brochure attributed to an industry source. Both brochures had a positive impact on attitudes toward irradiation, willingness to purchase irradiated products, and willingness to pay for irradiated hamburger. Information attributed to the government source resulted in higher willingness-to-pay premiums than did information attributed to industry.

"Food Safety, Country-of-Origin, Traceability, and Tenderness: What's Most Important in Beef Purchasing Decisions?" Wendy J. Umberger (Colo. State Univ.) and Maria L. Loureiro (IDEGA-Universidade de Santiago de Compostela, Spain).

This paper reports the main findings obtained from a U.S. consumer choice experiment regarding perceptions of food safety and meat attributes, and the extent to which these attitudes translate into willingness to pay (WTP) for labeled ribeye steaks. The results indicate that USDA food safety inspection labels are more important to consumers than any of the other included attributes, including country-of-origin labeling.

"Country of Origin Labeling." Quan Li (American Express), Jill J. McCluskey, and Thomas I. Wahl (Wash. State Univ.).

Data were obtained from consumer surveys in several grocery stores in Seattle and Vancouver in 2003. The survey included a stated-choice experiment in which consumers were asked to choose between beef steaks with various combinations of attributes. A multinomial nonlinear nested logit model is used to examine the potential effect of country of origin and consumer characteristics on the probability of beef product being purchased. The estimated models are used to assess relative importance of the beef attributes and the potential benefits or costs to labeling beef by country of origin.

"Native American Obesity: An Economic Model of the 'Thrifty Gene' Theory." Timothy J. Richards and Paul M. Patterson (Ariz. State Univ. East, Mesa).

Nutritionists believe the high incidence of obesity among Native Americans is due to a genetic predisposition to overeating fats and carbohydrates, called the "thrifty gene." Economists explain obesity as a result of a "rational addiction" to calories. This study tests for evidence of each of these explanations using a two-stage household production approach. Using scanner data from a panel of Native and non-Native supermarkets, we find weak evidence of a rational addiction, but strong support for the "thrifty gene" theory. Consequently, price-based policies designed to change Native dietary patterns are not likely to be as successful as once thought.

SESSION: Marketing and Trade Policy. Chair: H. Holly Wang (Wash. State Univ.).

"The Crowding-Out Effects of the 2002 Farm Bill on Hedging: Evidence from Pacific Northwest Grain Farms." H. Holly Wang (Wash. State Univ.), Larry D. Makus (Univ. of Idaho), and Xiaomei Chen (Wash. State Univ.).

An expected utility maximization model is used to assess risk management behavior of U.S. non-irrigated crop producers under provisions of the 2002 Farm Bill, which added a Counter-Cyclical Payment (CCP) program. Results suggest U.S. farm program payments have a substitute effect on futures hedging. Hedging is not utilized extensively unless the CCP and Loan Deficiency Payment programs are eliminated from the payments, or the expected market prices are very high relative to the government target price. Hedging with futures plays a significant role in the presence of government payment programs only if the futures hedge has no transaction cost.

"Estimating the Supply and Demand for Ethanol." Joe L. Outlaw, David P. Anderson, James W. Richardson, Michael Lau, and Steven L. Klose (Tex. A&M Univ.).

Over the past five years, ethanol production in the United States has more than doubled. Ethanol, which is mainly used as a replacement for methyl tertiary butyl ether (MTBE), is a renewable energy source made primarily from corn. Much of the increase in ethanol production can be attributed to agricultural interests, principally corn producers, wanting to find alternative uses/markets for their commodities. Significant investments have been made in ethanol production facilities without much information about future supply and demand for ethanol. This paper estimates equations for the supply and demand for ethanol using 3SLS. On the supply side, the price of corn and quantity of MTBE were important variables, while the prices of ethanol, MTBE, and size of the subsidy were key variables influencing demand.

"Third-Country Effects on the Market Shares of U.S. Wheat in Asian Countries." Won W. Koo and Hyun Jin (N. Dak. State Univ.).

Market shares of U.S. wheat in Asian countries have decreased from 65% to 35% during the last two decades. The decreased U.S. market shares may be associated with sales displaced by competing suppliers such as Australia and Canada. The objective of this study is to examine the effects of changes in the value of the U.S. dollar and its volatility on U.S. market share of wheat in Asian countries. To analyze the impact of competition among the exporting countries, a third-country effect model, similar to that of Cushman (1986), was developed. The empirical results of the panel estimation show that the U.S. currency value and volatility are important factors affecting market shares of U.S. wheat in Asian countries. Among the third-country effect variables, Australian wheat price and the volatility of Canadian and Australian currency values in the Asian markets have significant effects on the market shares.

SESSION: Managing Agricultural Environmental Impacts. Chair: Murat Isik (Univ. of Idaho).

"Alternative Policies for Allocating Water Use in a River System Under Externalities and Environmental Constraints." Murat Isik (Univ. of Idaho).

Various conservation policies have been designed in the United States to encourage farmers

to adopt best management practices and water conservation technologies. This paper examines the implications of alternative policies in a river system under spillover effects and environmental constraints. The results indicate that ignoring spillover effects would lead to inappropriate policy recommendations in meeting the water quality and quantity goals. The spillover effects need to be taken into account to achieve these objectives efficiently. Cost-share subsidy policies would not be effective in encouraging water conservation in river systems. These results have policy implications for cost-effective approaches to achieve environmental goals.

"To Pay or Not to Pay: Incentives Embodied in APHIS Indemnity Payments for Controlling Invasive Species." Michael J. Roberts (USDA/ERS), Ram Ranjan (Univ. of Fla.), and Michael J. Livingston (USDA/ERS).

Invasive species management is complicated by the fact that both prevention and control measures have public-good attributes: all producers gain from any single producer's prevention and control efforts. The USDA's Animal and Plant Health Inspection Service (APHIS) may destroy infected crops and compensate farmers to eradicate or slow infestations. Compensation ensures that farmers find and report infestations. Without these payments, farmers may monitor their fields too little and may not report infestations. Compensation may also cause farmers to reduce prevention efforts. An optimal carrot-and-stick policy rewards monitoring and reporting, punishes non-reporting, and shares infestation liabilities between APHIS and producers.

"The Role of Environmental Regulation on Concentrations of U.S. Livestock Sectors." Murat Isik (Univ. of Idaho).

The industrialization of U.S. beef, dairy, hog, and poultry sectors has received considerable attention. There have been regional shifts in the geographical location of livestock inventories and farms. This paper examines the trends in concentrations of livestock sectors and determines whether environmental regulations impact the concentrations. An entropy-based geographical concentration measure is used to determine the extent of concentrations of beef, dairy, hog, and poultry inventories and farms. The results show that livestock productions on a national level and within states are becoming more geographically concentrated. The geographical concentration is negatively related to the stringency of state environmental regulations.

"Controlling Hypoxia in the Gulf of Mexico at Its Sources: Easements or Taxes?" JunJie Wu and Katsuya Tanaka (Oreg. State Univ.).

This paper integrates economic and physical models to estimate the social cost for reducing nitrogen loads to surface waters within the Upper Mississippi River Basin and Gulf of Mexico under alternative policies. Results suggest that a fertilizer-use tax is more cost-effective than the three conservation easement policies examined here. Among the easement policies, incentive payments for conservation tillage are most cost-effective, but can reduce nitrate-N concentrations by only a limited level. The potential for incentive payments for corn-soybean rotations is even more limited. Payments for cropland retirement can significantly reduce nitrate-N concentrations, but also are least cost-effective among the four policies considered.

SESSION: Valuing Resources and the Environment. Chair: John Loomis (Colo. State Univ.).

"The Plight of an Unlucky River Rat: Political Economy and Idaho's Four Rivers Lottery for Whitewater Rafting." Hayley Chouinard and Jonathan Yoder (Wash. State Univ.).

Lotteries are used to distribute whitewater rafting access rights on a number of rivers in the United States, and post-lottery permit transfer is prohibited. We examine the political-economic motivation for transfer restrictions and the distributional and welfare effects on them. We argue that the restrictions affect the distribution of rents between the rafting community and non-rafters. For a given lottery outcome, transferability increases total welfare, but allowing post-lottery transfer provides a pecuniary incentive for non-rafters to enter the lottery and extract rents by the sale of permits if they win. We then discuss possibilities for politically feasible welfare-improving policy changes.

"The Intervening Opportunity Value of a Fishing Site." John R. McKean (AEI Economic Consultants, Masonville, CO), Donn Johnson (Quinnipiac Univ.), and R.G. Taylor (Univ. of Idaho).

A recreational site located en route to other recreation sites has an additional locational value for multi-site visitors. Such is the case of the Snake Reservoirs in eastern Washington, which were an "intervening recreational opportunity" for 40% of the anglers in the sample who visited a second site. A non-equilibrating labor market travel cost model was used to estimate the recreation value

of the study site after adjustment for visitation to the complementary intervening site. Multi-site visitors had unique price variables and additional pecuniary and time price variables to adjust for visitation to this complementary site.

“Testing Travel Cost Method Benefit Transferability of BLM Recreation Areas: Implications for National Benefit Estimates and Public Land Management.” John Loomis and Wendy Doyle (Colo. State Univ.), Roy Allen (Wyo. Bureau of Land Management), and Ashley Goldhor-Wilcock (Bureau of Land Management, Washington, DC).

Survey data were collected at selected Bureau of Land Management (BLM) recreation sites in order to estimate count data Travel Cost Demand models. Preliminary results suggest statistically significant differences in demand functions and consumer surplus per day between campgrounds in Oregon (average value of \$48 per day) and those in Colorado/Wyoming. Within Oregon, we find the average consumer surplus per day is not significantly different for the Coast Range (\$42) and the Klamath area (\$66), despite the likelihood ratio test showing a statistical difference for some of the non-price demand shift coefficients.

SESSION: Financial Implications of U.S. Farm Policy. Chair: James W. Richardson (Tex. A&M Univ.).

“Potential Budget Reconciliation Decisions: Does It Matter What Tools Are Adjusted?” Joe L. Outlaw, James W. Richardson, and David P. Anderson (Tex. A&M Univ.).

The federal budget deficit is expected to reach \$550 billion by the end of fiscal year 2004. Many in Washington are discussing the need for budget reconciliation, which has typically been the way to reduce government spending. Production data for Iowa corn and Texas cotton are used to assess whether production risk matters in determining what farm program tool is preferred when changes are made to achieve cuts. The results indicate that production risk matters less than the levels of future prices when deciding which policy tool to cut.

“Comparing the 1996 and 2002 Farm Bills.” Gregory Ibendahl (Miss. State Univ.).

The 2002 farm bill represents a big change from the 1996 farm bill. The new bill introduces greater complexity through direct and counter-cyclical payments. A comparison of the 1996 and 2002 farm bills is needed to estimate how all the changes affect farmers and to guide future farm

bill policy. This paper uses simulation analysis to estimate 10 years of net income under the 1996 and 2002 farm bills for three Kentucky counties. Results indicate that both net income and income variance are very similar in all three counties. Changing the projected prices for the simulation affects income under both farm bills almost equally.

“Regional Changes in the Distribution of Net Value Added in U.S. Agriculture, 1960–2002.” Kenneth W. Erickson (USDA/ERS), Steven C. Blank (Univ. of Calif., Davis), Charles B. Moss (Univ. of Fla.), and Ashok K. Mishra (USDA/ERS).

This paper examines the effects of structural changes on the distribution of net value added and the difference between net value added and agricultural income over time. We present and discuss the changes in the distribution of net value added (land, labor, capital, and farm income) over time. Net value added by U.S. agriculture grew significantly from \$18 billion in 1960 to \$95 billion in 1996. We examine regional differences in net value added using the Theil entropy measure. The inequality (dispersion) of net value added increased over time. The increased inequality in net value added represented both increases in regional dispersion in net value added and increases in the average inequality in net value added in each region. Thus, the net value added is becoming less alike across the United States. We also examine the inequality in the components of net value added. The greatest dispersion occurred in returns to land followed by returns to capital. Therefore, changes in the dispersion of net value added by agriculture are explained by differences in the payments to non-operator landlords and capital.

“Marketing Loan Program Operation and the Need for a Cash Market.” Cesar L. Revoredo (Univ. of Cambridge), Denis A. Nadolnyak, and Stanley M. Fletcher (Univ. of Ga., Griffin).

This paper analyzes the peculiarities of the operation of the marketing loan program in the U.S. peanut market. In particular, we examine several loan repayment rate-setting rules given different government objectives. The goal of program cost minimization is achieved to a lesser extent under the spot market price repayment rate setting than when the USDA is selling peanuts on behalf of the producers. However, bargaining between processors and the USDA discourages development of efficient spot markets and is not necessarily welfare enhancing.

Deciding whether program cost minimization is worth neglecting the cash market requires passing a heavily normative judgment.

“Profit Patterns in the U.S. and the West, 1992 and 1997: What County-Level Data Reveal.” Penelope Korb (USDA/ERS), Steven C. Blank (Univ. of Calif., Davis), and Kenneth W. Erickson (USDA/ERS).

We examine whether there are spatial relationships in U.S. production agriculture’s profitability across regions and over time. We test the traditional view that factor markets (approximately) adjust to equalize agriculture’s net returns over space and time using county-level data from the USDA’s 1992 and 1997 *Census of Agriculture*. We estimate Gini coefficients and calculate the Theil Entropy Measure (TMI) to examine changes in the concentration of returns over space and time, and to decompose the variation in inequality in returns into two components: the percentage of total variation in returns due to within-region inequality, and the percentage of variation in returns due to between-region variation in returns. Although factor markets (approximately) adjust to equalize net returns over space and time, there is still considerable variability in returns within regions and within states. Use of county-level (*Census of Agriculture*) and farm-level data (ARMS Survey) helps to highlight these differences. In general, farm-level Gini coefficients have remained fairly constant but show a mild increase in concentration since the 1996 FAIR Act. The TMI analysis reveals that in 1997 about 54% of the variation in total returns (net cash returns) was due to within-region variation, and about 46% was due to (average) between-region variation (compared to 53% and 47% in 1992). Total U.S. inequality of net cash returns increased from 0.14 in 1992 to 0.21 in 1997.

SESSION: Emerging Technologies and Invasive Species. Chair: Chris T. Bastian (Univ. of Wyo.).

“Economic Analysis of Harvest Practices for Alfalfa with Infestations of Verticillium Wilt.” James N. Sedman, Chris T. Bastian, Larry J. Held, Fred A. Gray, and David W. Koch (Univ. of Wyo.).

The objectives of this research were to determine the most economical harvest strategy for alfalfa fields infested with *Verticillium* wilt and to determine the optimal period for stand replacement for each harvest method. Two cuttings plus fall grazing was the most economical harvest method. The optimal replacement analysis found

that the appropriate replacement period was considerably shorter for infected stands than normal practice. The results indicate producers should consider replacing stands within two to three years in the presence of the disease. Prolonging the life of infected stands loses considerable returns.

“Diffusion of Bt Cotton and Insecticide Use.” George B. Frisvold (Univ. of Ariz.).

Controlling for differences in infestations and prices and correcting for the endogeneity of adoption, Bt cotton significantly reduced insecticide use on target pests. Reduced applications per total U.S. cotton acres ranged from 0.5 in 1996 to 1.8 in 2003. Reductions per infested acres ranged from 0.67 to 2.3.

“Managerial Intensity and the Adoption of Agricultural Innovations.” Jorge Fernandez-Cornejo (USDA/ERS) and Malaya Southern (American Univ.).

We model the interaction of off-farm work and adoption of a relatively managerial-intensive technology (yield monitors, a major component of precision agriculture), and the impact of adopting this technology on farm household income (from on- and off-farm sources) after controlling for such interaction. The model is estimated for the case of adoption among corn farmers using a nationwide farm survey for 2001. Adoption of yield monitors significantly decreases off-farm household income for U.S. corn farmers, after controlling for other factors. In addition, neither on-farm household income nor total household income is statistically significantly affected by adoption.

“Effects of Joint Product Management Strategies on *E. Coli* 0157:H7 and Feedlot Profits.” William R. Perry, Thomas Marsh, Rodney Jones, M. W. Sanderson, and J. M. Sargeant (Kans. State Univ.), D. D. Griffin (Univ. of Nebr.), and R. A. Smith (Okla. State Univ.).

The objective of this study was to determine the indirect effect of *E. Coli* 0157:H7 on potential feedlot profits by measuring the effects of management practices on *E. Coli* 0157:H7 levels and cattle performance. Certain feedlot management practices were identified that have a joint impact on cattle performance and *E. Coli* 0157:H7 prevalence. The specific management strategies were not robust through a sensitivity analysis and should be interpreted with caution. The general categories of management strategies, including feed and water management, wildlife management, rationing, and environmental management, were robust and consistent with past research.

Organized Symposia

SESSION: Conducting Price and Demand Analysis with Detailed Data Series: Unique Applications and Empirical Challenges. Organizer and Chair: Dawn Thilmany (Colo. State Univ.).

Presenters: Brian K. Coffey, Ted Schroeder, and Tom Marsh (Kans. State Univ.); Kamina Johnson, Amanda Ziehl, Stephen Davies, Wendy Umberger, and Dawn Thilmany (Colo. State Univ.). **Discussant:** Bill Hahn (USDA/ERS).

Given increasing interest in livestock and meat market behavior, the increasing complexity of understanding disaggregated consumer demand for meat products, and growing availability of more detailed retail price and sales data, a discussion of the potential gains to applied research and methodological issues that will emerge with new research directions is warranted. **Coffey, Schroeder, and Marsh** explored the potential benefits and methodological challenges of consumer demand analysis with a longitudinal survey of household meat purchases, providing rich detail about specific consumption choices over time, and allowing for analysis of how food safety and health issues influence behavior. A Generalized Maximum Entropy system was proposed to address issues such as data that are unknown (e.g., prices of products not purchased) and estimating demand systems with unbalanced panel data.

The livestock industry has historically been a major focus of analyses to determine if various levels of the marketing channel are exercising oligopolistic/oligopsonistic power. Following Schroeter and Azzam's (1991) approach, **Johnson, Ziehl, Davies, and Thilmany** use the new USDA retail scanner price series for meat to analyze the pork wholesale-to-retail margin using a system of equations, including a risk variable. Analysis of the marketing margin suggests that the retailer exercises oligopsonistic power over the wholesaler, and that output price risk faced by the retailer is an important factor in margin determination. **Ziehl, Umberger, and Thilmany** used the same data series to show how a panel approach could be used to examine price and sales volume relationships among beef primals, allowing disaggregation of the beef carcass, but requiring methods to account for any fixed effects from meat characteristics (grade and whether cuts are boneless). They found that wholesale-to-retail beef price shocks were mostly unidirectional, similar to past research, but that there were significant differences among the beef primals.

SESSION: Western Ranching as a Way of Life: Implications for Land Use Policy and Sustainable Rangelands. Organized by the presenters.

Presenters: L. Allen Torell (N. Mex. State Univ.); Neil R. Rimbey (Univ. of Idaho); John A. Tanaka (Oreg. State Univ.), Daniel W. McCollum (U.S. Forest Service, Rocky Mt. Research Station), and Octavio A. Ramirez (N. Mex. State Univ.).

In this symposium we document the declining importance of livestock production and the growing importance of recreation, wildlife, and scenic attributes in determining the market value of western ranches. Rates of investment return from livestock production are relatively low, and recent surveys show that nearly half of western ranchers depend on the ranch for less than 22% of disposable income. Expectations of capital gains, the way of life, the ranching tradition, and the desire to live in a rural setting are the primary motives for ranch ownership.

Hedonic ranch value models developed for Idaho, Oregon, and Nevada, and separately for New Mexico, indicate that a variable but small part (< 25%) of ranchland value is explained by ranch earnings. Location at a high elevation with desirable scenic attributes and with running water and wildlife present was found to contribute greatly to ranchland value. Grazing permits have market value for all the same reasons deeded lands have value, and it has little to do with a capitalized cost advantage or the value of livestock. Significant policy issues arise when it is recognized that the lifestyle and the strong desire to own a ranch influence ranchland values more than income earning potential. More restrictive and costly grazing policies would not be expected to greatly decrease the market value of western ranches without a strong tie between production and land value. With minimal investment returns, western ranchers can demonstrate a need for low grazing fees and government subsidy programs. But justification for these programs is unclear if the investment motive is a lifestyle choice. It is also unclear what it means for rangeland sustainability when those purchasing ranches have little if any training and expertise in rangeland management and the motivation is an investment they can touch, feel, and experience.

SESSION: Management in Economic Analysis. Organizer: Paul N. Wilson (Univ. of Ariz.); Chair: Ray Massey (Univ. of Mo.).

Michael Boland, Kansas State University ("What Can Economists Learn from the Management

Discipline?") led off the organized symposium with a brief exploration of the key theories and principles in management from the perspective of an applied economist. Some attention was given to how managerial concepts can be incorporated into our traditional economic models. **Steve Blank**, University of California-Davis ("A Theory of Management: The Fourth Resource"), reviewed the existing economic literature for the instances where management is an important economic variable explaining technological change, firm growth, sustained profitability, etc. Going beyond the traditional inputs of capital, labor, and land, Steve explored how economists can reformulate our mainstream production theory to capture the contribution to economic progress. **Paul Wilson**, University of Arizona ("Integrating Humanness into the Theory of the Firm"), concluded the presentations by relating the emerging literature on social capital and trust to the operations of the business firm. He presented empirical support for the important role of human relationships in the economic performance of the firm. These social capital-embedded relationships save time, reduce uncertainty, and dampen the risks associated with imperfect information in the marketplace. A wide-ranging discussion followed the three presentations. **Ray Massey**, University of Missouri, served as Moderator.

SESSION: Multi-State Risk Management Education Efforts in the West: Challenges and Funding Opportunities. Organizer and Chair: **Chris Bastian** (Univ. of Wyo.).

Presenters: J. Parsons (Colo. State Univ.), D. Hoag (Colo. State Univ.), J. P. Hewlett (Univ. of Wyo.), C. Bastian (Univ. of Wyo.), W. Gray (Univ. of Idaho), D. Griffith (Mont. State Univ.), J. Jenkins (Wash. State Univ.), D. Kaan (Colo. State Univ.), W. Riggs (Univ. of Nev., Reno), R. Sharp (Colo. State Univ.), T. Teegerstrom (Univ. of Ariz.), J. Tranel (Colo. State Univ.), R. Tronstad (Univ. of Ariz.), H. Rosenberg (Univ. of Calif., Berkeley), R. Carkner (Wash. State Univ.), L. Owen (Brit. Columbia Ministry of Agr., Food and Fisheries, Canada), R. Weigel (Univ. of Wyo.), G. Gordon (Univ. of Wyo.), W. R. Taylor (Univ. of Wyo.), J. Reeve (Dept. of Primary Industries, Australia), and J. Newkirk (Wash. State Univ.).

This session presented three multi-state or international risk management education efforts underway in the West and the Western Center for Risk Management Education's funding goals and procedures to stimulate thought regarding poten-

tial collaboration among Western Agricultural Economics Association members. *RightRisk* is an educational program that uses software to teach risk management in extension workshops and through the internet. With over 74 workshops in 10 states and 42,000 website hits, the program demonstrates what collaboration can produce. A preexisting history of cooperation among *RightRisk* team members and strong financial support for development and program delivery enhance project collaboration. *AgHelp Wanted: Guidelines for Managing Agricultural Labor*, a full-color 250-page book, presents principles, practical examples, and legal considerations comprising six chapters. The companion website provides supplementary material online (<http://AgHelpWanted.org>). Organized under the Western Farm Management Extension Committee, the authors span six western states and one Canadian province. The team collaborated on book outline, design, and authorship of materials. Project challenges included diversity of agricultural clientele, inadequate state extension resources, and available funding sources. *Enterprising Rural Families: Making It Work™* is an international online course for the rural family in business. Instructors from the United States, Canada, and Australia created a course focusing on three main components of a family business: individuals, the family unit development, and the business enterprise. Challenges to this collaboration included employment changes of instructors, time and priority differences, and organizational support for team members. Finally, all of these efforts were enhanced by the Western Center for Risk Management Education at Washington State University, which is one of four regional Risk Management Education Centers supported by USDA CSREES grants, with funds from the Federal Crop Insurance Fund. Educational projects are selected annually for investment through a competitive grants program. The decision process focuses on program participants' results or impacts.

SESSION: Regional Differences in the Demand for Nonalcoholic Beverages. Organizers: **Oral Capps, Jr.** (Tex. A&M Univ.) and **Annette Clauson** (USDA/Economic Research Service).

With consumption patterns changing considerably in the last 10 years and heightened awareness of obesity issues, the presentations in this symposium use 1998–2001 AC Nielsen data to estimate regional consumption trends and differences, nutrient intake, calorie intake, and any significant changes or shifts in beverages consumed at home from 1998 to 2001.

Grant Pittman (Texas A&M University) discussed the necessary steps, software, tools, and data trouble-shooting techniques used in preparing the data for this project. While the selection of beverage data modules might sound simple, AC Nielsen monthly household-level data contain millions of purchase records. The process of obtaining a usable data set included determining which of the hundreds of modules would be selected for analysis and converting all of the nonalcoholic beverages into the same unit of liquid gallons. After the data were converted to gallons and the price per gallon was calculated, the next steps of aggregating the data modules into broader categories, determining statistical methods for dealing with outliers and zero expenditures, and the final data preparations necessary for the demand equations were presented.

Joanne Guthrie (USDA/Economic Research Service) discussed results of the beverage nutrient and calorie information obtained from the AC Nielsen data analyses. As a category, beverages vary tremendously in their energy (calorie) content and nutrient composition. Therefore, beverage choice may have an important influence on dietary quality and obesity risk. Given the emphasis on nutrition by USDA, media stories on obesity, and recent reports of banning selected vending machine sales in schools, this presentation sheds light on any regional changes made by consumers from 1999 to 2001 on calorie, calcium, vitamin C, and caffeine intake from beverages consumed at home. Recent analysis by Capps, Clauson, Guthrie, Pittman, and Stockton, using the 1999 AC Nielsen Homescan data, found that on average, 10% of USDA recommended daily calorie intake comes from nonalcoholic beverages consumed at home, and the major contributors are carbonated soft drinks, fruit drinks, and pow-

dered soft drinks. Understanding any changes in beverage choices made by households is important because beverage preferences established at home influence choices made outside the home.

Oral Capps, Jr. (Texas A&M University) presented information on the drivers of demand for household purchase patterns of nonalcoholic beverages from 1998–2001. These data include information on household demographics and transaction details in four U.S. census regions (East, West, Central, and South). The nonalcoholic beverages considered were milk, fruit juices and drinks, tea, coffee, bottled water, powdered soft drinks, carbonated soft drinks, and sport drinks. Using various statistical techniques, differences were identified in the consumption of nonalcoholic beverages, nutrient and calorie intakes associated with nonalcoholic beverages, and in the probabilities of purchases of nonalcoholic beverages between 1998 and 2001. The analysis included a comparison of own-price, cross-price, and income elasticities of demand for nonalcoholic beverages in households surveyed in the four census regions.

Annette Clauson (USDA/Economic Research Service) reviewed some of the policy implications and forecasting techniques for analyzing beverage choices made by households from 1998–2001. Examining the demand for and forecasting the consumption of nonalcoholic beverages by income segment and region would be useful to policy analysts. In recent decades there has been a steady rise in the consumption of food prepared away from home. Nevertheless, the home food supply is still the most important source of soft drinks consumed by children and plays an important role in overall beverage consumption. Using the 1998–2001 AC Nielsen data analyses as a benchmark, different forecasting techniques were explored for answering policy questions.