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## Invited and Selected Paper Abstracts

WAEA Annual Meetings, Denver, Colorado  
July 11–15, 2003

### *Invited Paper Abstracts*

#### WAEA PRESIDENTIAL ADDRESS

**“What Have We Learned About Public Land Allocation in the 200 Years Since Lewis and Clark?” E. Bruce Godfrey (Utah State Univ.).**

The Louisiana Purchase and the departure of Lewis and Clark on their epic journey occurred in 1803. These two events ushered in a period of land disposal that was without precedent in this nation’s history. Several land disposal acts were passed to encourage settlement of the West and to allow individuals to acquire title to public lands. However, the land disposal acts were generally a failure west of the 100th meridian and resulted in administration of the remaining public lands by several federal agencies. The reasons for the failure of the land disposal acts in the West are outlined and compared to the current problems of allocating use of publicly owned lands. This comparison suggests the same basic problems that led to the failure of the land disposal acts in the last century plague public land management decisions today. Furthermore, these problems will probably exist in the future, and it is likely their resolution will be difficult.

#### WAEA DISTINGUISHED SCHOLAR ADDRESS

**“Lottery of Economic Success: The Role of Luck, Skills, and Endowments in Determining Who Gets the Toys.” Philip R. Wandschneider (Wash. State Univ.).**

What determines the distribution of toys, income, and wealth in the economic system? In this lecture, I present the case that chance is as important as (marginal) economic productivity or social position in affecting the distribution of income and wealth. A board game metaphor is used, where the winners of the game of life are those who get the greatest income and wealth, stipulating that income and wealth are neither necessary nor sufficient conditions for happiness or well-being. The game starts with a birth lottery, in which each player receives an initial endowment. The player’s endowment depends purely on the contingency of the player’s birth circumstance.

As the game progresses, a player builds financial, human, and social capital, and then enters the labor market. Her progress in career (job slots) and wealth accumulation depends on her stocks of human, financial, and social capital interacting with luck. Personal qualities, including risk aversion and physical and psychological attributes, affect both opportunities and choices. The player’s choice is like placing a bet, with the stake being the player’s effort and endowment, and the payout generated by a combination of structural factors and chance. I argue that chance affects the strategies and psychology of economic agents in the economic game. System legitimacy, innovation, and lottery mentality exemplify factors influenced by chance. In conclusion, I argue that an inclusive model of economic distribution should embrace social position, marginal productivity, and randomness, integrated through game theory and behavioral economics.

### *Selected Paper Abstracts*

**SESSION: *Strategies to Induce Provision of Environmental Benefits by Farmers.* Moderator: Bonnie G. Colby (Univ. of Ariz.).**

**“Assessing the Strengths and Weaknesses of Voluntary Programs to Facilitate Salmon Restoration.” Ray G. Huffaker (Wash. State Univ.).**

Federal reallocation of water from irrigation to endangered-species protection has spawned numerous proposals by conservation groups, farm groups, federal agency officials, and politicians to protect farmers against financial harm caused by such curtailment. The paper discusses the extent to which “market” policies (including permanent farmland buyouts, short-term leases of irrigation water rights during low-flow years, and water banking), and “agricultural water conservation” policies (creating incentives for farmers to adopt water-saving technologies in the conveyance and application of irrigation water) can be expected to achieve their objectives of increasing instream flows for endangered species while mitigating financial harm to irrigators.

**“Comparing the Effectiveness of Alternate Strategies Towards Everglades Restoration.” Donna J. Lee (Univ. of Fla.).**

Multiple state and federal agencies are combining forces and funds to the tune of \$8.4 billion over 30 years in the largest ecosystem restoration effort yet attempted. Massive replumbing of the Florida Everglades is expected to improve wetland water quantity, and a series of compulsory, voluntary, and centralized strategies are being implemented to improve water quality. Results show the average variable cost of the centralized strategy exceeds ten times the average variable cost of the combined private compulsory and voluntary strategies. Mechanisms are suggested for providing private agents with incentive to increase investment in decentralized, voluntary strategies.

**“Expanding Institutional Arrangements for Acquiring Water for Environmental Purposes: Transactions Evidence for the Western United States.” John B. Loomis and Katherine Quattlebaum (Colo. State Univ.).**

Market purchases of water rights for environmental purposes in the West involved 88,850 acre-feet of water with a total value of \$54 million. Annual water leasing for environmental purposes yielded 1.72 million acre-feet leased in the West at a cost of \$52 million. The most frequent reasons for agency transactions are wildlife, recreation, and fisheries. The average price for water rights is \$609 per acre-foot and \$30 per acre-foot of water leased.

**SESSION: Technical Efficiency and Cost Functions. Moderator: Brian K. Coffey (Kans. State Univ.).**

**“An Extension of Generalized Quadratic Box-Cox Models Using Response Transformation Models: A Case Study of Measuring Technical Efficiency of New York Dairy Producers.” Morteza Haghiri (Mount Allison Univ., Canada) and Alireza Simchi (Univ. of Regina, Canada).**

An extension of estimating generalized quadratic Box-Cox models is proposed by using the stochastic nonparametric method of response transformation models. The relationship between variables of the model was determined contemporaneously by utilizing the additivity and variance stabilization approach. Technical efficiency scores of sample observations obtained from New York dairy producers were then computed for the period 1990 to 2000. The results show that New York dairy farmers were, on average, 66.3% technically efficient.

**“A Translog Cost Function Analysis of U.S. Agriculture: 1948–1999.” Kenneth W. Erickson (USDA/Economic Research Service), Charles B. Moss (Univ. of Florida), Richard Nehring, and V. Eldon Ball (USDA/Economic Research Service).**

This study examines the implications of the short-run specification of the standard, static translog cost function and the possible implications of nonstationarity by estimating a dynamic translog cost specification complete with dynamic share equations for the United States using an empirical approach developed by Urga and Walters. The short-run, dynamic specification is superior to the long-run, static model because it yields more significant parameter estimates and results that are consistent with economic theory.

**“Economies of Scope and Scale Efficiency Gains Due to Diversification.” Glenn Helmers (Univ. of Nebr.) and Saleem Shaik (Miss. State Univ.).**

Using a nonparametric linear programming approach, our contribution is to examine if efficiency gains in Western crop production are realized due to diversification, and to demonstrate that the diversification efficiency gains realized are a product of economies of scope efficiency gains and scale efficiency gains. The analysis employed cropping sector data for six major crops for the period 1975–1996. Results indicate efficiency gains are realized due to diversification for all the two-crop combinations.

**“Determinants of Technical Inefficiency in Farm Production: The Case of NDE Farmers in Ondo State, Nigeria.” Ebenezer O. Ogunyinka (Kans. State Univ.) and Igbekele A. Ajibefun (Federal Univ. of Technology, Nigeria).**

This study estimates the determinants of technical inefficiency among participating farmers in the Ondo State chapter of the National Directorate of Employment program in Nigeria. Using a tobit analysis, it was found that extension visits and higher education were significant factors influencing technical efficiency. These findings suggest that sound practical education, efficient inputs supply strategy, and public awareness of efficient technology are key factors necessary for policy consideration.

**SESSION: Water Issues in Production Agriculture. Moderator: Stephen Davies (Colo. State Univ.).**

**“Linking Hydrologic and Economic Modeling to Evaluate Waterlogging and Soil Salin-**

**ization in the Arkansas River Basin.” Eric E. Houk (Calif. State Univ., Stanislaus), W. Marshall Frasier, and Eric C. Schuck (Colo. State Univ.).**

Detailed hydrologic modeling is integrated with economic analysis to estimate the agricultural losses associated with waterlogging and soil salinization within the Arkansas River Basin. Annual impacts are estimated over a three-year time period for each irrigated field located within the study area. The average annual loss associated with waterlogging and soil salinity was estimated at approximately \$68/acre. This represents the potential of increasing average annual profits by an estimated 39% if these combined effects were removed.

**“Assessing the Determinants of Irrigated Crop Choices in the Kansas High Plains.” Ya Ding and Jeffrey M. Peterson (Kans. State Univ.).**

Because water application rates differ across crops, the long-run changes in water use are explained to a large degree by changes in irrigators' crop choices. This study used micro-level data to quantify the factors which determine irrigators' crop choices in the Kansas High Plains. Results indicate that cropping decisions depend heavily on crop prices, input costs, and hydrologic conditions. Irrigation technology is also found to be an influential factor in cropping decisions.

**“The Impact of Farm Size on Irrigation Practices and On-Farm Irrigation Efficiency in the Elephant Butte Irrigation District.” Rhonda Skaggs and Zohrab Samani (N. Mex. State Univ.).**

Irrigation practices and on-farm irrigation efficiency for different sized pecan farms in southern New Mexico were explored using data from Elephant Butte Irrigation District, field measurements, and interviews with water users. Small farms tend to have longer irrigation durations, inadequate irrigation infrastructure, appear motivated to minimize costs of operating their small farms, and derive significant utility from current irrigation practices. Implications for technical improvements to increase irrigation efficiency and release water for nonagricultural uses are discussed.

**“The Impact of the 2002 Drought on Colorado's Beef Industry.” W. Marshall Frasier, Eric C. Schuck, and Wendy J. Umberger (Colo. State Univ.).**

Colorado experienced the worst drought in the state's history in 2002. The effects of this drought

fell particularly heavily on livestock producers. This research examines the decision to cull herds in response to drought. Econometric results indicate that while the drought increased culling rates among producers, federal assistance programs generally reduced the effects of drought significantly.

**SESSION: *Contingent Valuation and Willingness to Pay*. Moderator: Larry Van Tassell (Univ. of Idaho).**

**“The Role of Uncertainty on the Divergence Between Willingness-to-Pay and Willingness-to-Accept Measures.” Murat Isik (Univ. of Idaho).**

This study develops a model to examine the extent to which uncertainty about the value of a good or environmental quality improvement can lead to a discrepancy between willingness-to-accept (WTA) and willingness-to-pay (WTP) measures. Indirect utility function parameters, degree of uncertainty about the environmental quality improvement, and risk aversion determine the extent to which WTP and WTA can differ. These results have implications for design and implementation of contingent valuation surveys.

**“Linking Contingent Behavior and Input-Output Models: Evaluating Tourism Effects of Wildlife Management Options in Jackson Hole, Wyoming.” John B. Loomis and Lynne Caughlan (Colo. State Univ.).**

This paper links intended visitation estimates to input-output models to calculate employment impacts of alternative wildlife management strategies. The survey described alternative management actions and effects on elk and bison populations. Visitors were asked if they would change their number of visits. No active management yields one-third the bison and half the elk population. Visitors surveyed said they would take 20% fewer trips, resulting in an 11.3% decrease in employment in Teton County, Wyoming.

**“Using Random Parameters to Account for Heterogeneous Preferences in Contingent Valuation of Open Space.” Laura Nahuelhual-Munoz (Universidad Austral de Chile), John B. Loomis (Colo. State Univ.), and Maria L. Loureiro (Norwegian Agr. Econ. Research Institute).**

The willingness-to-pay (WTP) estimates of a random parameters logit (RPL) model were compared to a traditional logit model for modeling dichotomous choice CVM responses. The RPL model confirmed the existence of heterogeneity

for open space, as reflected in significant standard deviations of the random parameters. Our results indicate that some respondents have positive WTP while others have negative WTP for additional acres. This variation in tastes remained after individual characteristics were included in the model.

**“Valuing Characteristics of Transferable Deer Hunting Permits in Kansas.” Justin Taylor and Thomas L. Marsh (Kans. State Univ.).**

The novel use of transferable deer hunting permits in Kansas has altered property rights to a traditionally government rationed good, providing the institutional framework and incentives for competitive market activity. This paper investigates how attributes of the permit itself, spatial determinants, and the socioeconomic characteristics of the consumer-hunter influence market price. Findings provide valuable insight into factors that are important to Kansas interest groups, the state’s economy, and to structuring transferable permits for wildlife programs.

**SESSION: Agricultural Water Management Technologies, Institutions, and Policies Affecting Economic Viability and Environmental Quality. Chair: Raymond Supalla (Univ. of Nebr.).**

**“Technological Developments Affecting Irrigation Water Management: Recent Progress and Future Prospects.” Grant E. Cardon (Colo. State Univ.).**

This paper presents an overview of the history of on-farm irrigation water application, major technological advances over the last 100 years, and discusses emerging and future irrigation water management technologies and strategies. Advances in irrigation technology have had significant impact on the optimization of farm operations for maximum return and minimum negative impact. In the future, likely increases in the rapidity of engineering advances, and complexity of global environmental politics and perspective, offer many new and difficult challenges to the adoption and optimization of irrigation management options.

**“Economics, Law, and the Evolution of Water Management in the American West.” Chennat Gopalakrishnan (Univ. of Hawaii).**

The linkages among economics, laws, and institutions in the ownership, allocation, and appropriation of water in the American West are studied. Results indicate that prevailing laws for

water allocation and management, especially the Doctrine of Prior Appropriation, have failed to perform effectively. The case for alternative legal and institutional regimes such as the Public Trust Doctrine, contingent water markets, water banking, water leasing, and public-private partnerships is developed.

**SESSION: Economics of Alternative Cropping Systems. Moderator: Philip Wandschneider (Wash. State Univ.).**

**“How Do We Get There from Here? Transition Crops for Continuous Dryland Systems on High Plains.” Paul A. Burgener, Dillon M. Feuz, and Drew J. Lyon (Univ. of Nebr.).**

Changes in dryland crop production technology and agricultural policy have increased interest among Great Plains producers for systems without fallow. Winter wheat establishment is difficult immediately following long-season crops. The use of short-season crops to transition between summer crops and winter wheat was evaluated. Economic returns from these crops suggest that fallow may still be the method to return to winter wheat. The only crop to outperform fallow in this study was the oat/pea mixture. Other crops evaluated were less profitable than the fallow. The corn, dry beans, spring canola, and proso millet did not perform at a competitive level.

**“Estimation of the Supply Response Model for the Canadian Prairie: An Application of the Minimum Expected Loss Approach.” Morteza Haghiri (Mount Allison Univ., Canada), Hartley W. Furtan (Univ. of Saskatchewan), and Alireza Simchi (Univ. of Regina, Canada).**

The minimum expected loss approach is used to estimate the short- and long-run supply elasticities for barley in the prairies during the period of 1950–2001. Unlike preceding studies, a policy variable, i.e., the feed grain policy, is incorporated into the model to measure its impact on the production of barley in the prairies. A Monte Carlo experiment with 1,000 replications was conducted and the estimated long-run supply response elasticity for barley was found to be equal to 0.536.

**“The Economics of Sustainable Agriculture Alternatives on the Semiarid Canadian Prairies.” Allan M. Walburger (Univ. of Lethbridge), Ross H. McKenzie (Alberta Agricul., Food, and Rural Devel.), and Kristie Ulrich (Univ. of Lethbridge).**

The economic performance of rotations with reduced summer fallow frequency, legume crop

alternatives, and manure applications was evaluated. A farm-level economic model was formulated to simulate crop selection under uncertainty and risk aversion. The results suggest introduction of a legume-wheat rotation would increase net returns. Risk-averse producers would be expected to plant a combination of legume-wheat and fallow-wheat rotations. Rotations with manure applications were less profitable than those receiving chemical fertilizers.

**“An Operational Approach for Evaluating Investment Risk: An Application to the No-Till Transition.” Bharat M. Upadhyay and Douglas L. Young (Wash. State Univ.).**

This study analyzes short- and long-term safety-first business risk associated with 26 no-till transition strategies over six transitional years and four farm types in eastern Washington. Risk-return results revealed that speed of adoption has a larger effect in successful transition than drill acquisition sequences, higher equity and larger farm have greater chance of success, and slow acreage expansion with a custom or rental drill is preferred until yield penalty is eliminated.

**SESSION: *Agribusiness Management Issues.* Moderator: Hayley Chouinard (Wash. State Univ.).**

**“Lock Congestion and Its Impact on Grain Barge Rates on the Upper Mississippi River.” Tun-Hsiang Yu, Stephen W. Fuller, and David A. Bessler (Tex. A&M Univ.).**

Anticipated increases in lock delay on the upper Mississippi River have generated great concern about its future navigational efficiency on U.S. agriculture. This paper identifies selected factors affecting lock delay on the River's busiest locks and examines the impact of lock delay on grain barge rates. Results show that traffic level, lock unavailability, and delay at nearby locks affect lock delay. Barge rates are affected by lock delay; however, the impact is modest.

**“Preliminary Analysis of the Drivers of Sales Growth in the Utah Nursery Industry.” Ruby Ward (Utah State Univ.) and Lynn Hunnicutt (Pacific Lutheran Univ.).**

Sales at independent garden centers in Utah expanded rapidly during the last decade, followed by a period of slow to no growth. This may be due to economic conditions such as housing starts. There is some evidence that construction and weather have played a role; the relationship seems to be somewhat dependent upon the type of product. Sales of trees and shrubs show a higher

relation to construction than bedding plants and hanging baskets.

**“Estimation of a Veterinary Practice Profit Function.” Jasper Fanning and Thomas Marsh (Kans. State Univ.).**

With little to no real growth in veterinarian income over the past two decades, research identifying factors that influence veterinary practice profits is needed. Veterinary practice profits were analyzed by estimating a quadratic indirect profit function. Preliminary results indicate that supply response is inelastic, consistent with a priori expectations. Non-veterinary labor is identified as the most elastic input with an elasticity of  $-1.94$ . Veterinary practice profits are highly variable and appear to be influenced by level of management.

**“Contract Incentives in the Washington Processed Potato Industry.” Kynda R. Curtis (Univ. of Nev., Reno), Jill J. McCluskey, and Thomas I. Wahl (Wash. State Univ.).**

The processed potato industry is highly vertically coordinated through the use of production contracts, which are primarily used to combat market thinness and provide incentives for potato quality. We conclude, through the use of a two-period principal-agent model, that contracts are effective at increasing potato load quality over the spot market alternative. Additionally, processors are able to gauge grower ability levels at the end of the first contract period, which leads to ratcheting in future periods.

**SESSION: *Economic Impact Analysis of Animal Health Outbreaks on U.S. Meat, Poultry, and Dairy Product Market Sector.* Chairs: James Pritchett and Dawn D. Thilmany (Colo. State Univ.).**

**“The Potential Impact of an FMD Outbreak in the United States.” Philip L. Paarlberg, John G. Lee (Purdue Univ.), and Ann H. Seitzinger (USDA, Ft. Collins, CO).**

This paper surveys research on the potential impacts of foot-and-mouth disease (FMD) on the United States. Two themes are examined. One theme is setting import barriers in the presence of an FMD risk. That research shows the importance of accurate estimates of the welfare effects of an outbreak. The second theme focuses on improving estimates of a potential outbreak. The paper concludes with observations about future research directions regarding the economic impacts of livestock diseases.

**“Economic Impacts of a Disease Outbreak in the United States.” James Pritchett, Kamina Rosenstiel, and Dawn D. Thilmany (Colo. State Univ.).**

Animal health outbreaks are a significant threat to the animal product marketing sectors because the impacts of an outbreak can be quite costly and far reaching. This paper discusses a conceptual framework that quantifies potential losses due to an animal disease outbreak by developing a model to estimate and shock technical and economic relationships. Technical relationships embody the growth, development, and slaughter of livestock as well as relationships underlying the fabrication of meat products, while economic relationships link marketing channels.

**SESSION: Farm Management Issues. Moderator: Eric C. Schuck (Colo. State Univ.).**

**“Production Value of Burn Rights in Bluegrass Seed Production in Northern Idaho.” Larry Van Tassell (Univ. of Idaho).**

Alternative seed yield and stand life scenarios were examined to determine an annual equivalent value associated with a restriction on burning bluegrass residue. Annualized differences between the burn and no-burn alternatives varied from \$22 to \$166 per acre depending upon the scenario examined, with a most likely value of approximately \$100 per acre. The market for bluegrass residue was a major factor in the profitability of raising bluegrass seed under a non-thermal production alternative.

**“Soil Organic Matter—The Missing Piece of the Productivity Puzzle?” Hubert Lagae, Ken Barberick, and Stephen Davies (Colo. State Univ.).**

Soil organic matter (OM) is an important and understudied area in farm management. It enhances soil structure, can play an important role in carbon sequestration, and has a role in the breakdown of pesticides, among other qualities. This paper reports that OM has a significant positive effect on wheat yield. At a first site, with lower OM, the value of increasing organic matter ranged from \$21.65 to \$104.32 per hectare, while at the second site, these values ranged from \$8.28 to \$39.89. These results can be compared to the cost of increasing OM to determine the optimal level.

**“Economically Optimal Nitrogen Fertilization for Yield and Protein in Hard Red Spring Wheat.” Dustin A. Baker, Douglas L. Young (Wash. State Univ.), David R. Huggins**

**(USDA/ARS, Pullman, Wash.), and William L. Pan (Wash. State Univ.).**

At high premium/discount (P/D) structures for hard red spring wheat, the P/D structure dominated nitrogen (N) and wheat prices in determining optimal N levels. Net return maximizing yields varied only modestly with changes in N and wheat prices. In all scenarios, as P/D incentives increased, net return maximizing N levels exceeded the levels that maximized yield. At the lowest P/D structures, it was most profitable to fertilize for slightly less than 14% protein.

**SESSION: Legal and Organization Issues. Moderator: Michael A. Boland (Kans. State Univ.).**

**“The Law and Economics of Federal Reserve Wheat Held in Private Storage Warehouses.” Hayley Chouinard, Thomas Heckeley, Ray G. Huffaker, and Thomas I. Wahl (Wash. State Univ.).**

Changes in governmental procedure for selling federal reserve wheat enabled buyers to exert predatory market behavior on warehouses storing federal wheat and competing with them in the grain market. We find that the government was uncompelled legally to continue protecting warehouses against such behavior. In weakening protection, the government reasonably responded to legal/economic pressures to maximize revenue in reserve-wheat sales expeditiously to comply with the Anti-Deficiency Act. An equity-based argument for public compensation of warehouses suffering financial harm in the July 2002 sales exists, since they were led by government officials to believe that the same level of protection would persist.

**“Understanding Organizational Innovation in Cooperatives: An Ownership Rights Approach.” Fabio R. Chaddad (Wash. State Univ.) and Michael L. Cook (Univ. of Mo.).**

This paper examines new agricultural cooperative organizational models from an ownership rights perspective. We argue that new cooperative organizational models differ in the way ownership rights are assigned to the economic agents tied contractually to the firm. The paper proposes a typology in which the traditional cooperative structure and the investor-oriented firm are characterized as polar organizational forms. The typology also includes five nontraditional models which cooperatives may adopt to ameliorate perceived financial constraints.

**SESSION: Genetically Modified Crops and Food.** Moderator: Russell Tronstad (Univ. of Ariz.).

**“Factors Affecting the Likelihood of Corn Rootworm Bt Seed Adoption.”** James Payne, Jorge Fernandez-Cornejo, and Stan Daberkow (USDA/Economic Research Service).

The likelihood of adopting corn rootworm (CRW) Bt seed technology was analyzed using an ordered logit model. Data used to estimate the model came from the USDA's 2001 Agricultural Resource Management Survey (ARMS). Statistically significant variables include operator age, farm type, farm size, rootworm loss and current treatment for rootworm, off-farm labor, and Bt technology for corn borer. The likelihood of adoption was not related to crop rotation, tillage system, new variant CRW region, or education.

**“Optimal Plant Population for Ultra-Narrow-Row Cotton Production as Influenced by Lint and Transgenic Seed Prices.”** James A. Larson, C. Owen Gwathmey, and Roland K. Roberts (Univ. of Tenn.).

Farmers are concerned about the high costs of transgenic seed and technology fees associated with the large plant population densities recommended for ultra-narrow-row cotton. This study evaluated the effects of alternative plant population density decision criteria on net revenues under different lint price and transgenic seed cost scenarios. Results indicate that farmers may be able to maximize profits by seeding for a target plant population density of 63,000 plants/acre.

**SESSION: Consumer Red Meat Preferences and Purchase Decisions.** Moderator: Thomas L. Marsh (Kans. State Univ.).

**“The Importance of Beef Tenderness, Marbling, and Production Methods to U.S. Consumers.”** Dillon M. Feuz (Univ. of Nebr.), Wendy J. Umberger (Colo. State Univ.), Chris R. Calkins, Sebastian Perversi, and Bethany Sitz (Univ. of Nebr.).

Consumers tasted steak samples and participated in an experimental auction to determine their willingness to pay. Samples differed in marbling, tenderness, country of origin, and aging methods. Marbling and tenderness had significant impacts on consumer satisfaction. Samples from Australia were rated lower than U.S. samples, and bids were \$1.07 per pound lower than for the U.S. samples. Aging method impacted taste panel ratings and bids. Panelists' flavor rating had the largest impact on willingness to pay.

**“Consumers' Preferences and Willingness to Pay for Beef Originating from the U.S., Canada, and Australia.”** Wendy J. Umberger (Colo. State Univ.), Dillon M. Feuz, Chris R. Calkins, and Bethany Sitz (Univ. of Nebr.).

Consumers participated in an experimental auction and taste panel to elicit willingness to pay for beef originating from the United States, Australia, and Canada. Consumers were willing to pay an average of 19% more for a “Guaranteed U.S.” steak than for an unlabeled steak. However, a segment of the population preferred the taste and these consumers were willing to pay a premium for beef originating from Australia, and 34% of the consumers preferred the taste and were willing to pay a premium for Canadian steak. Premiums were 31% and 10% more for the U.S. steak than for Australian and Canadian steaks, respectively.

**“Modeling Disaggregated Meat Product Purchase Decisions.”** Brian K. Coffey and Ted C. Schroeder (Kans. State Univ.).

National panel dairy data of meat purchases spanning seven years are used to analyze consumer purchases of 10 disaggregated meat products. A Tobit model is employed to determine the probability of a household purchasing a product and what factors influence the quantity of product purchased. Results show that there are substitution effects within livestock species. Additionally, relative own-price elasticities are sometimes quite different between products that are substitutes.

**SESSION: Topics in International Agricultural Trade.** Moderator: James Mintert (Kans. State Univ.).

**“Changing Seasonal Patterns in Domestic and Import Supply for U.S. Fresh Grapes: An Examination of Seasonal Unit Root Processes.”** Laura Nahuelhual-Munoz (Universidad Austral de Chile), Jay Breidt, and Stephen Davies (Colo. State Univ.).

Seasonal fluctuations are usually modeled as deterministic assuming that events which influence these fluctuations do not change over time. However, agents' expectations and preferences, and technical change in production and storage techniques can create nonstationary seasonal influences. To examine determinants of changing seasonal effects, this paper revises a method by Pick and Arnade (1998) to evaluate phase and amplitude shifts causing seasonal unit root processes. As a case study, the import supply of U.S. fresh grapes from Chile is examined using these methods. Both inflation and real interest rates appear to drive nonstationary behavior.



**“An Analysis of Florida Fresh Tomato Shipments Under the U.S.-Mexico Suspension Agreement.” Gary D. Thompson, Satheesh Aradhyula, and Russell Tronstad (Univ. of Ariz.).**

Weekly winter tomato shipments from Florida for 1990/91 to 2001/02 were estimated to see if their shipments surge beyond normal seasonal and annual levels when the reference price is binding. Florida was found to increase weekly shipments by 4.34 million pounds per week when the low price in Nogales for either VineRipe or Roma varieties was equal to the reference price. Incorporating acreage and weather data to purge seasonal components could produce a different result.

**“The Welfare Effects of State Trading Enterprises: The Case of U.S.-Canada Malting Barley Trade.” Fengxia Dong (Iowa State Univ.) and Kyle Stiegert (Univ. of Wisc.).**

The United States is the largest importer of Canadian six-row malting barley. With single-desk marketing function and price pooling, the Canadian Wheat Board (CWB) may have a great impact on the U.S. malting barley market. This study analyzes the welfare effects of state trading enterprises (STEs) as they apply to the U.S.-Canada malting barley trade. A policy simulation was developed to determine the redistributive efficiency of single STE, a competitive structure, and a structure with oligopolistic midlemen.

**SESSION: *Environmental and Land Resource Issues.* Moderator: John B. Loomis (Colo. State Univ.).**

**“Modeling Multi-Farm Spatial Interdependence Using National Data Coverages: A Regional Application to Manure Management.” Marcel Aillery, Noel Gollehon, Marc Ribaud, Vince Breneman (USDA/Economic Research Service), and Jean Agapoff (USDA/Farm Service Agency).**

A regional modeling framework using national data series is developed to estimate the total and net costs of land applying manure under new federal guidelines for manure management. The model, applied to the Chesapeake Bay watershed, integrates aggregated farm-level survey data with GIS spatial data to generate manure hauling distances and costs. Findings suggest that spatial factors underlying competition for land to spread manure are an important consideration in assessing costs to the animal sector.

**SESSION: *Willingness to Pay for Value-Added Bred Heifer Characteristics.* Moderator: Ted C. Schroeder (Kans. State Univ.).**

**“Willingness to Pay for Added Bred Heifer Characteristics.” Joe L. Parcell, David J. Patterson, Richard F. Randle, Monty S. Kerley, K. C. Olson, and Michael F. Smith (Univ. of Mo.).**

This research reports on buyers' perceptions and willingness to pay for replacement heifers produced through a rigorous, third-party verified, production protocol. Survey respondents indicated an economically significant willingness to pay for heifer characteristics which included: pen uniformity, synchronized breeding and calving dates, artificial insemination and established pregnancy from a high-accuracy calving ease sire, and frame size and muscling of the heifers.

**“Models Estimating Beef Quality and Yield Grade Discounts.” Robert J. Hogan, Jr., and Clement E. Ward (Okla. State Univ.).**

Grid pricing of fed cattle consists of premiums and discounts for carcass characteristics. The two most variable carcass premiums and discounts are the Choice-Select discount and the yield grade 3-yield grade 4/5 discount. This paper presents models intended to explain the movement of these two discount series. Results indicate a partial adjustment model with two lags best describes each discount series. Seasonality is also evident in both quality grade and yield grade discount models.

**“An Analysis of the Economic Contribution of Sub-therapeutic Antibiotics Use in the Beef Cattle Industry.” Kamina Rosenstiel, Heather Lambert, and James Pritchett (Colo. State Univ.).**

Studies are being conducted to show a link between sub-therapeutic antibiotic use and problems in human health. The concern with feeding cattle antibiotics is the potential for antibiotic-resistant strains of disease. Regulations to eliminate antibiotics from feedlots are being contemplated. This paper estimates the economic contribution of sub-therapeutic antibiotics to the beef cattle industry in the United States. Regression analysis determined there was a negative impact on feedlot production efficiency and profitability.

**SESSION: *Irrigation and Water Quality Issues.* Moderator: Allan Walburger (Univ. of Lethbridge).**

**“Price-Responsiveness of Demand for Irrigation Water Withdrawals versus Consumptive Use: Estimates and Policy Implications.”** Susanne M. Scheierling, Robert A. Young, and Grant E. Cardon (Colo. State Univ.).

A mathematical programming model of irrigation water demand in northeastern Colorado is developed to analyze the effect of hypothetical price increases on both the demand for withdrawals and a derived demand for consumptive use. Scenarios representing alternative assumptions regarding substitutability of other resources for water are studied. We find that consumptive use demand tends to be significantly less price-responsive than withdrawal demand under all scenarios. Demand elasticity estimates are quite sensitive to model specification.

**“The Role of Water Quality and Institutional Structure in Irrigation Technology Choice.”** Eric C. Schuck, W. Marshall Frasier (Colo. State Univ.), Gareth Paul Green (Seattle Univ.), and Blake Green (Colo. State Univ.).

Reducing irrigation applications can reduce saline runoff. Adoption of more technically efficient irrigation systems is one way to reduce water applications. In Colorado, most irrigation water is delivered through privately developed mutual ditch companies or through privately operated wells which may not have discernible prices. Results indicate both water delivery institution and water quality influence the adoption of more technically efficient irrigation systems, and that adoption rates depend strongly upon the type of institution used to obtain water.

**“Opportunity Costs of Water Leasing: Irrigation, Instream Flow, and Wetland Considerations in the Laramie Basin, Wyoming.”** Dannele E. Peck (Ore. State Univ.), Donald M. McLeod, James R. Lovvorn, and John P. Hewlett (Univ. of Wyo.).

Flood irrigated agriculture in Wyoming has created many wetlands that rely on irrigation for water. The Laramie Basin is a proposed water source for Platte River instream flow enhancement for endangered species. Traditional water transfer programs would allow contribution, but change Laramie Basin agriculture and cause significant wetland losses. Alternatively, a rotating short-term water lease program is proposed, and cost per acre-foot estimated. The program would allow contribution to regional water demands, but avoid large changes to agriculture and thus limit local wetland loss.

**SESSION: Innovations in Agricultural Economics Education.** Moderator: Jill J. McCluskey (Wash. State Univ.).

**“Mutual Gains from Team Learning: A Guided Design SDM Classroom Exercise.”** Paul N. Wilson (Univ. of Ariz.).

Although team learning represents significant challenges infrequently tackled in the academic classroom, the ability to effectively work in groups is a highly valued skill in industry and government organizations. This exercise measures and attempts to explain the mutual gains realized by students in a decision-making problem using a team-based learning strategy. Results from 280 students on 62 teams reveal that team learning produces far more “miracle” than “monster” decisions. Team-based learning exercises may not significantly benefit the top 10–15% of the students in our classes, but the learning by the remaining students may increase substantially from wisely designed, appropriately timed, and effectively implemented small group classroom projects.

**“Undergraduate Perceptions of the Need for an Agricultural Entrepreneurship Curriculum.”** Joe L. Parcell and Michael S. Sykuta (Univ. of Mo.).

Interest in agri-entrepreneurship is increasing rapidly. While rural community stakeholders believe economic growth can come from entrepreneurship, little is being done within colleges of agriculture to prepare students to become entrepreneurs. We report the results of an undergraduate student survey of University of Missouri College of Agriculture students. Findings show that students are interested in this topic and that students lack knowledge in several key areas typically needed to develop an entrepreneurship mentality.

**“Risk Management Education in the West Using RightRisk.”** Jay Parsons and Dana L. Hoag (Colo. State Univ.).

We have developed a risk management educational program using a simulation game called RightRisk. The game provides farmers and ranchers a chance to try managing risk in hands-on, realistic scenarios that won't leave them broke if they make mistakes. Our experience has shown that simulation games have the ability to turn passive learners into active learners. RightRisk has been a very popular and effective educational tool used in risk management extension workshops throughout the West.

**SESSION: Topics in Livestock and Meat Marketing. Moderator: Matthew Diersen (S. Dak. State Univ.).**

**“Evaluating Price Differences and Response by Meat Cut, Grade, and Feature Price.” Dawn Thilmany, Oscar Arana, and Stephen Davies (Colo. State Univ.).**

The new retail meat price series developed and reported by the USDA’s Economic Research Service is intended to supply a richer, more reliable data set to analyze meat price behavior. This paper presents an overview of the new pork retail price data, as well as initial cross-section, time-series dynamic price analysis on wholesale-to-retail price transmission. Findings suggest that retail price responses for pork cuts are significantly affected by lagged prices and by current and lagged wholesale prices, as well as by the volume of sales and feature volume share.

**“Livestock Basis Forecasts: How Beneficial Is the Inclusion of Current Information?” Glynn T. Tonsor, Kevin C. Dhuyvetter, and James R. Mintert (Kans. State Univ.).**

Successful risk management strategies are contingent on the ability to accurately forecast basis. This study evaluates the effect that incorporating current basis information into historical-average-based forecasts has on forecasting accuracy when forecasting live and feeder cattle basis in an out-of-sample framework. Results suggest forecasters should incorporate a portion of the difference in the current week’s basis and the historical average when making projections. The optimal amount of current information to include in the forecast declines as the forecasting horizon increases.

**“Effect of Captive Supply on Farm-to-Wholesale Beef Marketing Margin.” Dustin L. Pendell, Ted C. Schroeder, and Phillip Knoeber (Kans. State Univ.).**

Debates about captive supplies have been ongoing for more than a decade. This study investigates the effects captive supplies have on the beef farm-to-wholesale marketing margin. A relative price spread (RPS) model is used to estimate beef farm-to-wholesale marketing margins. Estimates indicate that forward contracts and marketing agreements have a small positive relationship with margins that is marginally significant. Packer fed cattle may or may not be related to margins, depending upon model specification.

**“The Impact of HACCP on Factor Demand and Output Supply Elasticities of Red Meat.” William Nganje (N. Dak. State Univ.) and Michael Mazzocco (Univ. of Ill.).**

This study uses firm-level data during the hazard analysis critical control point (HACCP) implementation period (1997–2000) to analyze the impact of HACCP on input demand and output supply elasticities of firms in the red meat industry and derive implications for efficiency and moral hazard issues associated with the implementation of HACCP systems. The results show that HACCP causes factor demand for labor, material, and capital to be less inelastic, while the elasticity of output supply did not change significantly. The interdependent relationships among HACCP and input prices and output resulted in efficiency gains.

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

**“Using Trade Data and Import Demand Models to Assess Domestic and International Policy Issues: A Case Study of Saudi Arabian Agriculture.” Mahdi Al Sultan and Stephen Davies (Colo. State Univ.).**

Many import demand models have been used to examine effects of increased income or changes in international policies on the pattern of imports. In contrast, this paper uses these models to assess both domestic and international policy issues. A restriction using a trade identity relates domestic demand and supply elasticities to import demand elasticities in the estimation. The restricted import demand model is estimated for eight agricultural products of Saudi Arabia. There appear to be five goods that are higher-valued final products and three that are imported as inputs to production.

**“A New Dimension for the Reliability Tests of Estimates from ARMS Data.” C. S. Kim, Charlie Hallahan, William Lindamood, and James Payne (USDA/Economic Research Service).**

Quality validation of the USDA’s Agricultural Resource Management Survey (ARMS)-Phase II estimates is based on sample size and the coefficient of variation (CV). However, CV is not a meaningful measure without some assurance that the population mean ( $\mu$ ) lies within a pre-assigned precision level. We attempt to inform ARMS data users of why USDA provides the CV for each estimate, and to explain how the CV can be used for testing the reliability of an estimator by distinguishing publishability from reliability.

**“Agricultural Land Values: Revisited.” Saleem Shaik (Miss. State Univ.) and Glenn A. Helmers (Univ. of Nebr.).**

This paper incorporates farm factors that include farm cash receipts, government payments, real interest rates; farm risk; and non-farm factors in explaining agricultural land values using the capitalization model. Furthermore, the importance of farm bills in explaining agricultural land values is examined. An empirical application to U.S. state-level data from 1951–2001 is performed using the two-way random effects panel econometric model. Results reveal the importance of risk, farm bills, along with other farm and non-farm factors.

**“The Regional Incidence of U.S. Agricultural Policy: Measurement and Empirical Evidence for the Corn Belt, Northern and Southern Plains, and Mountain States.” Richard Nehring, V. Eldon Ball, and Kenneth Erickson (USDA/Economic Research Service).**

We examine the regional distribution of farm commodity payments and off-farm income at the crop reporting district level, and by production region, over time for selected regions. Unlike previous studies, we include off-farm income in the analysis and focus on the distributive effects of government payments in the region. We find that commodity programs affect regions very differently, and the inclusion of off-farm income suggests much lower inequality in producer “supports” than do measures which exclude off-farm income.

**SESSION: Livestock Price Discovery and Mandatory Price Reporting. Moderator: Joe Parcell (Univ. of Mo.).**

**“Merits of Value Discovery Alternatives for Fed Cattle and Carcasses.” Clement E. Ward (Okla. State Univ.), Ted C. Schroeder (Kans. State Univ.), Tommy L. Wheeler (USDA Meat Animal Research Center), James Mintert, and James S. Drouillard (Kans. State Univ.).**

Fed cattle pricing methods are changing rapidly. Live-weight and dressed-weight pricing are being replaced by grid pricing. However, there are several issues related to grid pricing. This paper discusses pros and cons with alternative base prices, raises issues regarding appropriateness of premium-discount grids, and reviews the status of instrument measurement of carcass attributes. Considerable further research is needed to help the industry move to a *true* value-based pricing system.

**“Price Efficiency of Grid versus Live Pricing.” Russell Tronstad and John Marchello (Univ. of Ariz.).**

Boxed beef primal cuts, lean trim, fat, and by-products were weighed and priced for each animal to reflect true consumer value. These values were then used to test the difference between grid and live pricing. Grid pricing did not significantly improve price efficiency over live pricing for all types of cattle, although it improved average accuracy by \$5/head. Genetic-management information and computer video imaging could help capture pricing information that goes beyond grid pricing.

**“Observations from Mandatory Livestock Price Reporting for Analysts and Researchers.” Matthew Diersen (S. Dak. State Univ.).**

The Livestock Mandatory Reporting Act of 1999 eliminated many direct cattle price reports, but added new reports and information. Analysts have more details about prices for formula and forward contracted cattle. Analysts also have better insight into short-run supply from committed and delivered cattle reports and swine scheduled reports. The scope of information will facilitate and influence future research into pricing behavior, short-run aggregate supply, and captive supply.

**“Did the Voluntary Price Reporting System Fail to Provide Price Transparency in the Cash Market for Dressed Steers? Evidence from South Dakota.” Scott W. Fausti and Matthew Diersen (S. Dak. State Univ.).**

The accuracy of the former USDA voluntary price reporting system is investigated for dressed weight slaughter steers. Market transparency and price discovery in the cash market is evaluated by comparing South Dakota mandatory price reports with Nebraska voluntary price reports. The informational value of voluntary reports is evaluated using criteria established in the market integration literature. The empirical results indicate the price series are cointegrated and shocks were transmitted in a timely fashion.

**SESSION: International Food Security Issues. Moderator: Saleem Shaik (Miss. State Univ.).**

**“Optimal Dietary Blending for Household Food Security in Southwestern Nigeria: Lessons from Published Data.” Ebenezer O. Ogunyinka and David W. Norman (Kans. State Univ.).**

This study estimates the optimal dietary intake of Lagos State, Nigeria, residents. Analysis of the available data indicates overconsumption of all

nutrients, suggesting that the common nutrition-related health problems in Lagos State could be attributed to excessive nutrient intake. Consumption at the optimal level would ensure adequate nutrients at a cost within people's income limitations. The results, however, revealed the inadequacies of using published data for the analysis. An independent diet recall survey is therefore recommended.

**"Investing in Hope: AIDS, Life Expectancy, and Human Capital Accumulation." Rui Huang (Univ. of Calif.-Berkeley), Lilyan E. Fulginiti, and E. Wesley Peterson (Univ. of Nebr.).**

This research investigates theoretically and empirically the impact of shortened life expectancy on human capital attainment and the long-run growth rate. In a three-period overlapping generation model with uncertainty of life expectancy and technical advances, the agent optimizes his/her human capital scope and quality, which in

turn decides his/her productivity. An increase in life expectancy was found to raise education level, but its effects on the scope of human capital are ambiguous. Our empirical investigation using the macro-data for the sub-Saharan countries confirmed the view that health conditions are highly correlated with education and growth.

**"An Analysis of Household Food Expenditure Systems in Tanzania." January M. Mafuru and Thomas L. Marsh (Kans. State Univ.).**

This paper analyzes urban and rural food consumption in Tanzania using the generalized translog (GTL) expenditure system. We reject a pooled model in favor of two separate urban and rural models. Results indicate that subsistence consumption has a significant effect on food demand in rural areas, but it is less important in urban areas. Hence, ignoring differences between urban and rural regions can lead to incorrect inferences and policy recommendations.