Selected Paper Abstracts

WAEA Annual Meetings, Long Beach, California
July 28–31, 2002

SESSION: *Natural Resource Economics I.* Moderator: Glenn A. Helmers (Univ. of Nebr.).

"Comparing the Economic Effects of Wildfire on Recreation Demand in Montana and Colorado." Hayley Hesseln (Univ. of Mont.), John B. Loomis (Colo. State Univ.), and Armando González-Cabán (USDA/Forest Service, Riverside, Calif.).

Survey data were collected on the actual number of visits and intended number of visits if the recreation area had experienced a recent high-intensity crown fire, a recent prescribed fire, or an old crown fire. A travel cost demand model was estimated. Results indicate that Montana hikers take more trips and have higher net benefits ($43 per day trip) than Colorado visitors ($22). Their demand functions react similarly to forest fires. Trips and benefits per trip in both states increase slightly as an area recovers from a prescribed fire.

"Computable General Equilibrium Modeling of Rangeland Fires in Northern Nevada." Thomas R. Harris (Univ. of Nev.), Chang K. Seung (Calif. Air Resources Board), Tim Darden, and William W. Riggs (Univ. of Nev.).

A dynamic CGE model for five northeastern Nevada counties was developed to assess the impacts of a 1.6 million acre rangeland fire. The model is designed to analyze the role of markets and prices in estimating economic losses due to rangeland fire as opposed to fixed-price inter-industry analysis.

"Using Mixture Distributions to Represent Heterogeneous Preferences for a Mixed Public Good." Laura Nahuelhual-Muñoz, Maria Loureiro, and John Loomis (Colo. State Univ.).

Some public programs jointly provide a mix of public goods and bads. Thus some individuals would pay for the program, while others would not. We estimate parametric and nonparametric spike models that account for positive and negative preferences as well as indifference. We then calculate a *net* willingness to pay (WTP of gainers minus WTA of losers). We illustrate the models using data on valuation of prescribed burning of forests, which reduces the risk of wildfires but produces smoke emissions (the public bad). We compare the approaches to estimate the net WTP and contrast these results with a standard logit.

"Environmental Risk Assessment Under Environmental Standard and Safety-First Constraints." Ashley Wood Renck (Tex. A&M, Commerce), Walaiporn Intarapapong (Miss. State Univ.), and Diane Hite (Auburn Univ.).

The uncertainty of weather conditions could pose some challenge in achieving environmental targets. In this study, a bioeconomic model is used to calculate the impacts of alternative management systems. Under different safety-first constraints on the levels of environmental runoff, obtained from APEX, optimal net return of alternative cropping practices is estimated.

SESSION: *Teaching and Extension Methods.* Moderator: Dillon M. Feuz (Univ. of Nebr.).

"Ethical Negotiation Tactics Among Students at Land Grant Universities." Gregory M. Perry (Oreg. State Univ.), Patricia A. Duffy (Auburn Univ.), Lindon J. Robison (Mich. State Univ.), and Clair J. Nixon (Tex. A&M).

Students at four universities were surveyed regarding the acceptability of 16 marginally ethical negotiation tactics. Econometric results suggest that gender, church attendance, community service, aggressive/cooperative attitudes, and personal relationships all influence ethical behavior. Honor students may tend to be more accepting of unethical negotiation practices.

"A Template for Online Homework: Frankenstein's Monster or Robo TA?" Roger A. Dahlgran (Univ. of Ariz.).

This paper describes the programming procedures required to implement online homework and evaluates the application of these procedures based on use in the author's course. The description of the procedures utilizes a template showing two representative applications from the author's introductory econometrics course. In one, students are to collect and record data, and in the other, students are to perform econometric analysis on the data. The web address for the template is arec.arizona.edu/RoboTA. The use of online homework in the author's Economics of Futures Market course revealed the benefit-cost tradeoff is between the savings of instructional time spent grading homework and increased instructional time spent developing homework assignments. Online homework is favored by (1) large class sizes; (2) numerous, difficult to grade, numerical

homework assignments; (3) continuity of these conditions; and (4) the availability of adaptable programming solutions. Online homework was not found to be more effective in helping students learn, though in some instances automation can lead to more assignments and these additional assignments can be beneficial. The implementation of online homework was associated with perceptions of greater usefulness of the course web site and lectures.

"Teaching Marketing and Management to an Extension Audience in an Inter-Disciplinary Setting." Richard T. Clark, Dillon M. Feuz, Don C. Adams, Brent Plugge, Patrick Reece, Byron Stolzenburg, and Jerry Volesky (Univ. of Nebr.).

The paper discusses how economists utilize an inter-disciplinary workshop to teach marketing and management concepts to beef cattle producers and beef industry advisors. Range and animal scientists along with economists teach concepts in the classroom and then demonstrate these concepts with hands-on field activities in an eight-day Ranch Practicum, spread over an eight-month period.

SESSION: *International Trade Issues I.* Moderator: Stephen Devadoss (Univ. of Idaho).

"Sectoral Impacts of the North American Free Trade Agreement: Has Agriculture Benefited Less than Other Sectors?" Ricardo Cavazos Cepeda and Gary D. Thompson (Univ. of Ariz.).

Seven years following the implementation of NAFTA, it is now possible to econometrically estimate the Agreement's effects on the bilateral trade patterns of different sectors. An econometric model was specified using import demand and export supply models as a guide, and explicitly accounts for exchange rate volatility, growth in import demand due to changes in GDP, and rest-of-the-world effects. Indicator variables were included to measure the effects of NAFTA. Quarterly observations from 1989–2001 on disaggregated one-digit SITC categories were summed and classified into three sectors: agriculture, manufacturing, and an ROW category. Estimation results indicate NAFTA has generally had a statistically discernable, positive impact on manufacturing trade, but not on agriculture. Trade elasticities suggest: (1) GDP is not a powerful determinant of agricultural trade flows, but it is for manufactures; (2) real exchange rates have less lagged effects in manufactures than in agriculture; and (3) ROW trade flows are both competing and complementary to trade flows from NAFTA countries.

"Domestic Support and WTO Negotiations from Developing Countries' Perspectives." Stephen Devadoss (Univ. of Idaho).

Agriculture was at the forefront of the WTO negotiations in Doha, Qatar, because of developing countries' disenchantment with the agricultural policies of rich countries. This study focuses on the issues surrounding the negotiation of the domestic support reductions by addressing the concern of developing countries about the lavish farm subsidy programs of developed countries.

SESSION: *GMO Foods and Other Food Pricing Issues.* Moderator: Michael A. Mazzocco (Univ. of Ill.).

"The Impact of Intermediate Input Price Changes on Food Prices: An Analysis of 'From-the-Ground-Up' Effects." Chinkook Lee (ERS/USDA).

The impact of intermediate input price increases on food prices is analyzed assuming producers can pass through increased production costs to final consumers. Five scenarios of input price increases are empirically examined. Findings reveal that the meat processing sector has a strong dependence on intermediate inputs (livestock) and an increase in livestock price would have a greater impact on processed meat prices than any other intermediate input price increases. Price increases in the service sector would result in overall increases in food prices; increases in intermediate agricultural commodities and price increases in nondurable goods have more influence on food price increases than durable goods.

"Consumer Response to GMO Foods: Branding, Certification, and Consumer Characteristics." Gregory A. Baker (Santa Clara Univ.) and Michael A. Mazzocco (Univ. of Ill.).

Two consumer choice models were developed using conjoint analysis to evaluate the effect of potential strategies to gain consumer acceptance of GMO foods. Results indicate that a government certification program would be more effective than the use of a familiar brand in assuring consumers of the safety of GMO foods.

"Determinants of Fast Food Consumption." Jasper Fanning, Thomas Marsh (Kans. State Univ.), and Kyle Stiegert (Univ. of Wisc.).

Socioeconomic determinants are investigated for both the likelihood of consuming fast food and

household expenditure on fast food using the 1994–1998 USDA Continuing Survey of Food Intakes by Individuals. A logit model is used to estimate an empirical relationship between the probability an individual will consume fast food and socioeconomic variables. A tobit model is used to estimate an empirical relationship between expenditure on fast food and socioeconomic variables. Significant socioeconomic variables impacting the likelihood of consuming fast food and household expenditure on fast food included age, income, household size, hours at work, eating occasion, and education level.

"Hawaii Public Opinion on Agricultural Products Derived from Genetically Modified Organism (GMO) Technology." Na Wen, Catherine Chan-Halbrendt, James Weatherford, and Shuk Wah Carol Mak (Univ. of Hawaii at Manoa).

This paper investigates Hawaii public opinion on agricultural products and processes using GMO technology. Telephone interviews were conducted with individuals on each island of Hawaii. Our findings show that the favorability ratings toward the attributes of GMO technological application differ based on the nature of GMO benefits. The most significant associations were the sociodemographic variables of gender and island of residence. Age, education, and ethnic background also significantly influenced the attitude of respondents toward some GMO attributes. The fewest significant associations were "heard of GMO" and "income."

SESSION: *Feeder Cattle Economics.* Moderator: B. Wade Brorsen (Okla. State Univ.).

"The Economic Value of Preconditioning Programs in Beef Production Systems." Deb L. Roeber and Wendy J. Umberger (Colo. State Univ.).

Net returns to feeding were calculated for preconditioning. The added value to cattle feeders, without accounting for death loss, from purchasing preconditioned calves over calves of unknown origin is $46.83/head and $49.54/head for the CPH and GT calves, respectively. As a result, a feedlot operator could pay $8.50/cwt and $9/cwt more per 550-pound CPH and GT feeder calves, respectively, and still maintain the same level of profit.

"Asymmetric Value of Preconditioning Programs for Feeder Cattle." R. Keith Avent, Clement E. Ward, and David L. Lalman (Okla. State Univ.).

Preconditioning involves ranch management practices to improve health of calves. Two questions persist regarding preconditioning. Do buyers pay a price premium close to expected performance benefits? Is there information asymmetry in value to buyers compared with the premium they pay? Using two sets of market data, estimated premiums for preconditioned calves ranged from $1.96/cwt to $3.36/cwt. While feedlot managers expect performance differences favoring preconditioned calves, feedlot closeout data failed to confirm their expectations. Preconditioned cattle had significantly lower cost of gain and medicine costs than sale barn high-risk cattle, but lower average daily gain and higher death loss.

"Efficiency of Market Price Signals for Feeder Cattle Frame Size and Muscling." Hub B. Baggett, IV, Clement E. Ward (Okla. State Univ.), and Dan M. Childs (Noble Foundation).

Do price differences buyers pay for frame size and muscle thickness accurately reflect performance and profitability differences? An experiment revealed stocker and feedlot average daily gain for different groups of cattle differed little, while feed efficiency, days fed, and harvest weight varied more. Small-framed and #1 muscled cattle were most feed efficient. Dressing percentage, hot carcass weight, adjusted fat thickness, and rib-eye area differed among frame sizes, while yield grade and hot carcass weight differed between muscle scores. Stocker, feedlot, and combined profits were largest for small-framed cattle. Fewer profitability differences were noted for #1 and #2 muscling.

"Derivation and Optimization of a Stochastic Livestock Weight Gain Response to Stocking Density Model." Simeon Kaitibie, Francis M. Epplin, B. Wade Brorsen, Gerald W. Horn, Eugene G. Krenzer, Jr., and Steven I. Paisley (Okla. State Univ.).

A stochastic livestock weight gain response to a stocking density model was derived and used to determine the profit-maximizing stocking density on dual-purpose winter wheat pasture based upon the quantity of available fall forage. Statistical tests favored the use of the stochastic plateau function relative to a conventional nonstochastic specification.

SESSION: *Natural Resource Economics II.* Moderator: Dana L. Hoag (Colo. State Univ.).

"Optimal Waterfowl Hunting Management Strategies for Private Landowners: A

Minnesota Case Study." Thomas Flottemesch and Kynda Curtis (Wash. State Univ.).

A bio-economic model based upon waterfowl population, habitat, and hunting data in the state of Minnesota is used to examine the optimal management strategy of a waterfowl hunting enterprise on privately owned land. Various state-sponsored incentive programs are then analyzed for their effect on hunting and waterfowl equilibrium levels, as well as the economic viability of the hunting enterprise. A waterfowl habitat and maintenance cost reimbursement incentive program is found to be the most effective at inducing additional hunting opportunities in Minnesota, while providing economic incentives for private landowners to actively manage their land.

"The Importance of Tariff Structure in Conservation Pricing." Eric Schuck (Colo. State Univ.) and Gareth P. Green (Seattle Univ.).

Recent policy initiatives by the Bureau of Reclamation promote adoption of conservation pricing by irrigation districts. Conservation prices are volumetric prices for irrigation water, but most irrigation districts charge for their water through the acreage served. Consequently, adoption of conservation prices requires an adjustment not only of prices but also of tariff structure by irrigation districts. Simulation results for an irrigation district in California show that movement from acreage-based to volumetric prices may or may not achieve water conservation depending upon how the two prices move relative to each other.

SESSION: *Agribusiness Issues.* Moderator: Thomas L. Marsh (Kans. State Univ.).

"The Economic Nature of Social Capital in Buyer-Seller Transactions." Paul N. Wilson and Andrew McClelland (Univ. of Ariz.).

Social scientists, including numerous economists, have explored the incidence and importance of social capital embedded networks as a governance mechanism in business operations. The buyer-seller dyads represented by 12 large-scale dairies and seven feed suppliers were studied to contribute to our understanding of embedded networks in business-to-business transactions. A high incidence of semi-strong and strong form trust was found in these buyer-seller networks. Trust embedded in these business networks facilitates economic exchange through uncertainty management, information sharing, and time savings.

"Does Industrial Concentration Raise Productivity in Food Industries?" Munisamy Gopinath (Oreg. State Univ.), Daniel Pick (ERS/USDA), and Yonghai Li (Oreg. State Univ.).

This study investigates the productivity-industrial concentration relationship in U.S. food industries. We identify a critical level of industrial concentration beyond which its relationship with productivity growth becomes negative. The welfare effects of an increase in concentration—productivity growth and deadweight loss—are computed. Welfare loss from increasing concentration is substantially offset by gains from productivity growth.

"Economies of Scale in the Greenhouse Floriculture Industry." Sara K. Schumacher and Thomas L. Marsh (Kans. State Univ.).

This study investigates the cost structure of the floriculture industry in the United States. Using a normalized quadratic cost function, economies of scale and input elasticities are estimated. Results suggest that economies of scale exist in the floriculture industry. As producers become large and more automated, they have a cost advantage, due to size, over smaller producers who are producing the same output mix. The existence of economies of scale suggests that average grower size may increase in the future as growers increase in size to take advantage of cost efficiencies associated with larger producers.

"Biased Technological Progress in the U.S. Farm Sector: A Structural Perspective." C. S. Kim, R. McElroy, Ashok Mishra, and C. Hallahan (ERS/USDA).

Concentration in U.S. agricultural production has been increasing, as evidenced by fewer but larger farm operations. Results show that the marginal rate of technical substitution of labor for financial capital, and the marginal product of capital relative to that of labor, have increased as farm size increases.

SESSION: *Economics of Crop Rotations and Crop Insurance.* Moderator: Larry J. Held (Univ. of Wyo.).

"An Examination of Different Types of Adverse Selection in Federal Crop Insurance." Saleem Shaik (Miss. State Univ.) and Joseph Atwood (Mont. State Univ.).

Different types of adverse selection—type of insurance product, type of unit, type of coverage, and number of actual yields reported in federal

crop insurance—are examined utilizing binomial and ordered logit discrete choice models for all U.S. cotton producers over 1997–2000. The associated costs of adverse selection in U.S. cotton range from $32 million to $359 million for the four-year period.

"Risk-Return Analysis of Incorporating Annual Legumes and Lamb Grazing with Dryland Crop Rotations." Larry J. Held, Andrew A. Haag, James M. Krall, Ronald H. Delaney, and Stephen D. Miller (Univ. of Wyo.).

Profitability and risk, 1988–2001, are examined for lamb-grazed field pea as a fallow alternative with wheat, or an extended wheat-sunflower-millet rotation. Switching from conventional wheat-fallow to an extended rotation with grazed-peas increases profitability (2.3% to 7.3%), and reduces risk (below 0% target in only two versus seven of 14 years).

"An Empirical Evaluation of Yield Performance and Cross-Crop Yield Correlation." Barry K. Goodwin (Ohio State Univ.) and Ashok K. Mishra (ERS/USDA).

This analysis considers two aspects of yield performance using a large sample of data collected from individual U.S. farms. In the first, observable farm and operator characteristics are related to relative yield performance. In general, larger, more diversified farms have higher relative yields. In addition, more intensive use of productive inputs tends to be associated with higher yields. In a second segment of the analysis, we focus on the extent to which yield performance for different crops on a single farm tend to be correlated. Results suggest that farms in major growing regions tend to have greater correlation of crop yields. Further, larger, more specialized farms tend to have more consistent yield performance across crops. Implications for whole-farm insurance contracts are discussed.

"An Economic Analysis of Intensive Dryland Cropping Systems for the Central Great Plains." Paul A. Burgener (Univ. of Nebr.), Dennis A. Kaan (Colo. State Univ.), Daniel O'Brien (Kans. State Univ.), and Dillon M. Feuz (Univ. of Nebr.).

Changes in dryland crop production and agricultural policy have increased interest among Central Great Plains producers in intensive crop rotations. The winter wheat-fallow production system is compared to intensive cropping systems. The differences in production costs and crop diversity are used to evaluate the economic returns associated with each cropping system. Annualized net returns are used to determine profitability of each cropping system, while stochastic dominance is used to evaluate risk. There is little difference from the most profitable to least profitable of the systems, but the risk evaluation favors the low-cost rotations including wheat, proso millet, and fallow.

SESSION: *Agricultural Policy and Land Economics.* Moderator: Russell E. Tronstad (Univ. of Ariz.).

"Is American Agriculture Near the End of Its 'Life Cycle'?" Steven C. Blank (Univ. of Calif., Davis).

A number of industries have appeared, flourished, and then faded from the American economy. The increasing globalization of agricultural markets appears to be changing the economics of the American agriculture sector, thus putting it at risk of fading away. In this paper, the Product Life Cycle Model is modified to create a test of the general hypothesis that American production agriculture is nearing the end of its economic life. A methodology to test the hypothesis is proposed and then applied in an empirical analysis. Finally, the results and their implications for the American production agriculture sector are discussed.

"The Structure, Performance, and Sustainability of Agriculture in the Mountain Region." Kenneth W. Erickson, Robert A. Hoppe, and Robert W. Dubman (ERS/USDA).

Farmers in the Mountain Region—in both metro and nonmetro areas—face growth in population and nonfarm employment that affects land use and how farmers operate their businesses. Even in remote locations, the move by people to amenity areas may result in farmers changing their operations. Sustainable agriculture, already practiced by Mountain Region farmers to some extent, may help farming to continue. Nonfarm people also have an interest in the continuation of agriculture and the adaptation of sustainable practices, in order to help preserve the amenities which make the region attractive to migrants. Growth in the region does provide some benefits to farmers, however. Growth can help keep the value of farmland up through nonfarm demand for land. In addition, the greater availability of jobs means off-farm work is available to households operating farms. Off-farm work is particularly important, given the concentrated distribution of farm income.

"The Agrarian Myth: How Has It Affected Agricultural Policy?" Ashley Wood Renck (Tex. A&M, Commerce).

This paper addresses the role the agrarian myth has played in forming agricultural policy. The independent farmer as the backbone of democracy is an oft-repeated supposition that has been the basis for countless government policies ranging from land tenure to food assistance programs. The objectives of this paper are: first, to explore the effect the agrarian myth has had on past agricultural policy—particularly policy which was favorable to farmers; and second, to explore how the changing market structure in agriculture is affecting public goodwill farmers have enjoyed for over 200 years.

"Measuring the Poverty Reduction Potential of Land in Rural Mexico." Frederico Finan, Elisabeth Sadoulet, and Alain de Janvry (Univ. of Calif., Berkeley).

While access to land is back high on the policy agenda as an instrument to attack poverty, strong reservations have been expressed as to the effectiveness of this strategy. This paper establishes the conditions under which access to land can help reduce poverty in rural communities where poverty is extensive. For this purpose, we use household data gathered in 1997 by the Mexican Program for Education, Health, and Nutrition. Using nonparametric regression methods to estimate the relationship between land and welfare, findings reveal that, for small landholders, an additional hectare of land increases welfare on average by 1.3 times the earnings of an agricultural worker. Further, for non-indigenous small farmers with at least primary education and access to a road, the welfare benefit of additional land is on average seven times higher than for those without these attributes.

SESSION: *Livestock Economics.* Moderator: Larry W. VanTassell (Univ. of Idaho).

"Potential Economic Impacts of the Revised Environmental Protection Agency 'CAFO Rule.'" Shannon L. Ferrell (Okla. City Univ. Law Review), Joseph E. Williams, and Arthur L. Stoecker (Okla. State Univ.).

The EPA has proposed sweeping changes to its "CAFO Rule." These include a zero-discharge requirement for waste storage facilities, and provisions that restrict the application of animal wastes to cropland based on the phosphorus uptake potential of the crop grown. This project sought to analyze the potential impacts of these new requirements. While the modifications needed to bring swine operations into compliance with the zero-discharge rule may be as simple as a one-time modification to the facilities' waste management structures, the most significant impact of the proposed regulations will likely be the need to acquire more land for waste application in order to comply with the phosphorus-based limitations, which could well create an economically insurmountable obstacle to many swine operations.

"Optimizing in the Presence of Variable Growth Paths in Livestock." Jay R. Parsons, Dana L. Hoag, W. Marshall Frasier, and Stephen R. Koontz (Colo. State Univ.).

This paper addresses the economic impacts of growth variability on market timing decisions in an all-in/all-out production system. Marketing decisions based on the pen average are determined to be different than those based on the entire distribution of output levels. A case study data set of 350 swine provides verification of our theoretical construct.

SESSION: *Land Value Economics.* Moderator: Paul A. Burgener (Univ. of Nebr.).

"Determining the Effects of Land Characteristics on Farmland Values in South-Central Idaho." Orestes Vasquez, Khaliela S. Wright, James R. Nelson, and Joel R. Hamilton (Univ. of Idaho).

This study focuses on evaluating the effects of different attributes that impact irrigated farmland values in south-central Idaho. Results indicate that study area farmland values are largely determined by agricultural productivity (profitability) related factors. However, estimated "development increment values" for parcels which seemed to be under development pressure in the study are explainable by nonagricultural variables.

"Closing the Barn Door: Construction and Endangered Species Restrictions." Daniel E. Osgood (Univ. of Ariz.), John List (Univ. of Md.), and Michael Margolis (Resources for the Future).

This study tests if the endangered species protection process accelerates construction by developers seeking to avoid potential restrictions. The case of the pygmy owl outside of Tucson, Arizona, is used as a natural experiment. It is found that the protection process has accelerated development.

"An Option Value Approach to Valuing Preservation Properties." Jason A. Winfree, Jill J. McCluskey, and Ron C. Mittelhammer (Wash. State Univ.).

The theoretical basis for this analysis is an option value model with stochastic returns. Sales transactions data for farmland preservation purposes are used to explain land values. We find that land, when it would be best used for development but is not developed, has a significantly higher price.

"Livestock Industry Location and Residential Property Values in Weld County, Colorado: A Spatial Hedonic Model." Dooho Park, Andrew F. Seidl, and Stephen P. Davies (Colo. State Univ.).

A spatial hedonic approach is applied to estimate the influence of livestock operations on residential housing prices in a fast-growing, but traditionally agricultural, area of northern Colorado. Results show that the number of beef and dairy operations positively influence real estate values within a certain size, potentially signaling a positive rural lifestyle effect. However, the number of hog and sheep operations has the opposite effect. In addition, the influence of the livestock sector on housing prices differs by home value. The cheaper the house, the more negative is the impact of an additional livestock operation. In contrast, the higher the housing value, the more negative is the impact of more animals, or size of operation rather than number of operations. As expected, impacts decrease with increasing distance from the housing unit to the livestock operation.

SESSION: *Water Economics.* Moderator: Bruce A. Weber (Oreg. State Univ.).

"Conflict over Water in the Upper Klamath Basin: The Potential Role for Market-Based Allocations." William K. Jaeger and Bruce A. Weber (Oreg. State Univ.).

This paper examines how alternative water allocation mechanisms might have affected the impact of the 2001 irrigation curtailment in the Upper Klamath Basin, when irrigation was severely curtailed from the federal Klamath Reclamation Project due to ESA-related biological opinions. Per acre marginal water values vary by a factor of 20 across Project and non-Project irrigated lands in the region. Simulation models indicate that the costs of the 2001 curtailment could have been lowered by 75% had efficient water transfers between Project and non-Project irrigators been possible. A regional input-output model suggests the regional economic impacts could have similarly been reduced.

"Identifying Cost-Effective Sources for Water Transfers from Agriculture to Endangered Species Preservation in the Platte River Basin." Eric E. Houk and W. Marshall Frasier (Colo. State Univ.).

Discrete sequential stochastic programming is coupled with the MODSIM basinwide hydrologic model to estimate the foregone agricultural value associated with water transfers for habitat restoration. Findings reveal that although water transfers originating farther upstream result in less water yield at the habitat, they can be more cost-effective.

"Institutional Transformation of Irrigation Management in Northern China." Siwa Msangi (Univ. of Calif., Davis).

The deepening water shortages in North China has raised considerable concern among policy makers, over time. The failure of collective irrigation management to provide incentives for water saving has prompted irrigation districts to promote village-level institutional reforms of water management. In this paper, the current extent of village-level irrigation reform is examined, and the incentives and determinants that lead reform are identified. Analysis of cross-section data shows that government policy pressure drives the decision to adopt some type of management reform, whereas village-level characteristics are key in determining what specific type of irrigation management practice is chosen.

SESSION: *Agricultural Price Analysis.* Moderator: Dawn Thilmany (Colo. State Univ.).

"Price Risk Management in White Corn Production." James G. Pritchett (Colo. State Univ.) and Lining Li (Purdue Univ.).

White corn garners a premium over commodity corn, but suffers from additional price risk and yield drag. Using a simple bootstrap procedure, this research considers whether white corn premiums compensate for yield drag and evaluates the relative merits of various pre-harvest marketing alternatives including contracts, cross-hedges, and cash sales.

"Price Relationships for Mexican Fresh Tomatoes in U.S. and Mexican Terminal Markets." Luz E. Padilla (Univ. Autónoma de Zacatecas), Dawn Thilmany, and Stephen P. Davis (Colo. State Univ.).

Tomato trade between the United States and Mexico has grown significantly during the past decade, with significant implications for markets in both countries. This research examines how terminal market prices for Mexican fresh tomatoes are being affected by price dynamics in distant, integrated markets by analyzing reaction patterns to various innovation shocks. We conclude that a high interdependence in the price formation process between Mexican markets and Los Angeles, as well as among Mexican markets, exists.

"The Widening Corn Basis in South Dakota: Factors Affecting and the Impact of the Loan Deficiency Payment." Amy Dykema, Nicole L. Klein, and Gary Taylor (S. Dak. State Univ.).

The corn basis in South Dakota has widened by 25¢ on average during the 1990s. This study examines the impact of the Loan Deficiency Payment (LDP) and other factors on basis. An OLS model was estimated using monthly data from 1990 through 2001. Results indicate that LDP (with an elasticity of 0.3972) does have an impact on basis.

SESSION: *Research Methods.* Moderator: Wendy J. Umberger (Colo. State Univ.).

"Global Optimization Methods." Lonnie K. Hamm and B. Wade Brorsen (Okla. State Univ.).

Training a neural network is a difficult optimization problem because of numerous local minimums. Many global search algorithms have been used to train neural networks. However, local search algorithms are more efficient with computational resources, and therefore numerous random restarts with a local algorithm may be more effective than a global algorithm. This study uses Monte Carlo simulations to determine the relative efficiency of a local search algorithm to nine stochastic global algorithms. The computational requirements of the global algorithms are several times higher than the local algorithm, and there is little gain in using the global algorithms to train neural networks.

"Testing the Initial Endowment Effect in Experimental Auctions." Maria L. Loureiro, Wendy J. Umberger, and Susan Hine (Colo. State Univ.).

Experimental economic auctions are frequently used as alternative methods of eliciting consumer willingness to pay (WTP) for private goods. In experimental auctions, participants are usually given an initial endowment or cash compensation that will cover the costs associated with their bids in the experiment as well as their participation time. In this paper, we analyze participants' bids in a randomly binding second-price auction to test the effect of the initial endowment on participants' WTP estimates. Three different endowments—$2, $4, and $6—are used to compensate participants in an experimental auction. Participants receiving $4 or $6 as an initial endowment bid statistically higher than those receiving only $2. Our findings illustrate that an initial compensation closer to the participants' value of time may inflate their bids, and consequently may not be an efficient compensation mechanism to elicit true WTP for private goods. New ways of compensating participants in experimental auctions should be investigated.

SESSION: *Beef and Cattle Economics.* Moderator: Richard T. Clark (Univ. of Nebr.).

"Quality Preference of Beef Merchandisers for Imported Beef: The South Korean Case." Renee Kim (Univ. of Manitoba).

This paper illustrates a methodology called choice modeling (CM) that allows a comparison between beef quality preference profiles of three different merchandising groups in South Korea. The CM data were collected from three equally proportioned numbers of retailer, wholesaler, and importer groups in South Korea by a mail survey. Multinomial logit model (MNL) estimation of the CM data showed that all three merchandising groups currently define their preference for an imported beef cut with narrow range and specificity. Construction of a preferred product profile of a beef cut for each merchandising group provides a basis for designing differentiated marketing programs targeted at different stages of the beef supply chain.

"Forward Contract Information Impacts on Pricing and Production Efficiencies in a Simulated Fed Cattle Market." Chris T. Bastian (Univ. of Wyo.), Stephen R. Koontz (Colo. State Univ.), and Dale J. Menkhaus (Univ. of Wyo.).

As policy makers strive to maintain competitiveness in agricultural markets, the impacts of altering market information sets must be evaluated. An experiment was designed to assess the price and production impacts of forward contract information. Results suggest this information reduced price level and dispersion. Production efficiency was improved in the spot market.

"Regional Demand for Natural Beef Products: Urban versus Rural Willingness to Pay and Target Consumers." Ed Sparling (Colo. State Univ.), Jennifer Grannis (USDA/APHIS), and Dawn D. Thilmany (Colo. State Univ.).

Interest in and sales of natural meats continue to grow, with increased offerings in supermarkets and other mainstream marketing channels. Still, little is known about interest in various production attributes and methods to target likely customers. This study focuses on the market for natural meat, including freezer beef offerings, in Colorado with special attention to whether rural and urban consumers differ in their interests and propensities to purchase.

"Are Cattle on Feed Report Revisions Random, and Does Industry Anticipate Them?" Jeffrey B. Mills and Ted C. Schroeder (Kans. State Univ.).

Cattle on Feed (COF) reports are an important source of beef supply information. This study investigates whether COF report revisions are unbiased, random, and anticipated. Findings show initial COF reports are biased, but the bias is economically small. Revisions to COF estimates are not random. Market analysts do not correctly anticipate revisions.

SESSION: *Land Ownership and Leases.* Moderator: James Nelson (Univ. of Idaho).

"Transition of Agricultural Land Ownership and Use." Russell Tronstad, Daniel Osgood (Univ. of Ariz.), and Robert E. Young (Univ. of Mo.).

A natural propensity was found which indicates that most agricultural producers believe their land will be operated by one or more of their children when they retire. However, results also indicate producers would be responsive to selling their land for development if urban housing offers a higher return.

"Valuation of Ranchette Amenities: A Hedonic Price Approach." Sanchita Sengupta and Daniel Osgood (Univ. of Ariz.).

Throughout the Western United States, production ranches are being subdivided into recreation-oriented "ranchettes." This paper presents a hedonic model for ranchettes, introducing the use of remote sensing vegetative indices and neighborhood characteristics. It is found that increased greenness, access to roads, cities, and proximity to open space increase sale prices.

"How Urban Pressure Affected Farm Size Distribution and On-Farm Land Use in U.S. Fast-Growth Counties: 1950–1997." Kenneth S. Krupa and Marlow Vesterby (ERS/USDA).

Between 1950 and 1997, 17 U.S. fast-growth counties had more small farms and fewer large farms than the national average. On-farm land uses declined: woodland (−85%), miscellaneous land (−64%), pasture/range (−40%), total cropland (−18%), and cropland harvested (−2%). Fourteen counties had farmland in the Conservation Reserve Program (CRP).

"Economic Evaluation of Cropshare and Cash Lease Contracts in South Dakota and Nebraska." Larry Janssen (S. Dak. State Univ.), John Cole (Southwest State Univ.), Xuan Xu (S. Dak. State Univ.), and Bruce Johnson (Univ. of Nebr., Lincoln).

Factors influencing choice of share or cash rental leases for cropland are examined using a 1996 data set containing 1,071 lease contracts in Nebraska and in South Dakota. Logistic regression results indicate tenant's age, capital position, and relationship with landlord were more important than leased land use or crop management variables.

SESSION: *Labor Economics and Community Development.* Moderator: R. Garth Taylor (Univ. of Idaho).

"Investing in Farm Worker Housing: A Multi-Season Peak-Load Analysis of Washington State Data." Eivis Qenani-Petrela, Philip R. Wandschneider, Ron Mittelhammer, and Jill McCluskey (Wash. State Univ.).

This research develops cost-effective investment rules for farm worker housing and applies the model to farm worker housing in the State of Washington. The State must meet varying seasonal farm worker housing needs at minimum expense. In this study, we examine investment rules to choose among different housing technologies in order to minimize the total costs of housing consistent with achieving welfare goals. The research extends existing peak-load models to the multi-season planning cycle case and applies the approach empirically to a new subject area.

"Valuing Idaho Wineries with a Travel Cost Model." Philip Wandschneider (Wash. State Univ.), Stacie Woodall, John Foltz, and R. G. Taylor (Univ. of Idaho).

Many wineries produce a dual product: commercial wine and wine tourism. Growth of wine

tourism has been phenomenal, while grape production has glutted the market. The demand for wine tourism visits for Canyon County in southern Idaho was estimated using the travel cost method (TCM). The value of wine tourism in Canyon County was estimated to be $5.40 per person per trip, and trip demand was highly inelastic (0.5). Elasticities of other trip demand function variables were estimated and analyzed, with a view to marketing of Idaho's emerging wine tourism industry.

"Initial Applications of Fuzzy Set Procedures for Estimation of Export Base Employment." Roy W. Thomsen, Thomas R. Harris, and G. Cornelis van Kooten (Univ. of Nev., Reno).

Current export base methods that calculate basic and non-basic employment are too restrictive because they fail to account for uncertainty involved in the process. This paper shows the assignment of industries as either basic *or* non-basic by the location quotient procedure does not consistently represent the data for Nevada counties. Using fuzzy set procedures and membership functions in conjunction with the location quotient allows more flexibility in terms of matching the data for each industry in the region of interest. Using fuzzy set procedures, we determine the proportion of employment that is basic and non-basic in nine non-governmental industries.

SESSION: *Economics of Capital Improvements and Technology Adoption.* Moderator: Phil Wandschneider (Wash. State Univ.).

"How Do Farmers Who Adopt Multiple Conservation Practices Differ from Their Neighbors?" Bharat M. Upadhyay, Douglas L. Young, Holly H. Wang, and Philip R. Wandschneider (Wash. State Univ.).

This study analyzes three key conservation practices exhibited through the adoption behaviors of 266 farmers in eastern Washington State. Results revealed that (1) multiple-practice adopters contrast more sharply with nonadopters than do adopters of a single conservation practice, and (2) single-practice adopters differ more from zero-practice adopters than from other farmers.

"Investment in Remote Sensing and Variable Rate Technologies Under Stochastic Pest Population and Output Prices: Implications for Pesticide Use." Murat Isik (Iowa State Univ.), Darren Hudson, and Keith Coble (Miss. State Univ.).

Remote sensing technology offers an opportunity to increase the amount of site-specific information about field characteristics such as pest populations. Coupled with variable rate technologies, this added information has the potential to provide environmental benefits through reduced pesticide applications. However, producers face a complicated adoption decision because output prices and crop yields are uncertain. A model is developed to examine the potential value of remote sensing information to pesticide applications in an option-value framework. Simulations suggest that remote sensing information decreases pesticide use, but uncertainty and irreversibility are likely to limit technological adoption by farmers. Potential cost-share subsidies are discussed.

"Optimum Windbreak Spacing in Great Plains Agriculture." Andrew Haag, Glenn Helmers, and James Brandle (Univ. of Nebr.).

Integer programming determined an optimum windbreak pattern for corn and soybean production. Direct costs included windbreak establishment, annual maintenance, and removal. Crop yields were included as a linearized function. The net return results for the optimum pattern were 12% and 16% over conventional production for corn and soybeans, respectively.

"Capital Improvement Feasibility Under Price and Production Risk: The Cow-Calf Model." Gary J. May (Iowa State Univ.), Rodney D. Jones, Kevin C. Dhuyvetter, and Michael R. Langemeier (Kans. State Univ.).

Given the stochastic nature of livestock prices and weather, deterministic capital budgeting estimates for range and pasture improvements may not provide adequate risk information. Assigning probabilities to investment returns, however, will help producers incorporate risk into their investment decisions. This research develops a model designed to estimate probabilistic NPV and payback period values for range/pasture improvement projects. Results are derived by simulating productivity changes and livestock prices. As an example, a $15/acre investment in cross fencing and stock water was evaluated. The investment generated an average 20-year NPV of $4 to $6 per acre and payback period of 5–7 years.

SESSION: *International Trade Issues II.* Moderator: Maria L. Loureiro (Colo. State Univ.).

"Inequality in World GDP Distribution." Muhammad S. Anwer and R. K. Sampath (Colo. State Univ.).

A substantial increase was found in international gross domestic product (GDP) inequality during 1962–1992. Asia has the highest inequality, with an increase of 40%. Inequality increased 23% when OPEC was included under the less developed countries (LDCs) category; otherwise inequality increased 14%. LDCs' exports and investments have an inverse effect on inequality, whereas population has a very strong positive effect.

"Imperfect Substitutes, Deferred Producer Payment System, and State Trading Enterprises: An Empirical Test of Leadership in the Global Malting Barley Markets." Fengxia Dong (Kans. State Univ.), Kyle Stiegert (Univ. of Wisc.), and Thomas L. Marsh (Kans. State Univ.).

This paper derives an applicable method to evaluate the market power and to test the hypothesis of rent-shifting behavior in the international malting barley market. In this market, CWB and ABB operate as state trading enterprises, and the exported product is an imperfect substitute.

"Domestic Support and Trade Barriers for Vertically Linked and Differentiated Goods: An Examination of EU Policy in the Processing Tomato Industry." Bradley J. Rickard and Daniel A. Sumner (Univ. of Calif., Davis).

This analysis employs an equilibrium displacement model to assess the effects of policy reform in an industry with a relatively high level of domestic support applied to the farm-produced product in the European Union, and a relatively low level of support applied to processed products as border measures. A sensitivity analysis uses a range of values for key parameters, generated from a distribution, to produce a range of results. Our results indicate that greater market access for California's processed tomato products can be achieved through reform in border measures and, furthermore, reducing import tariffs will increase EU taxpayer costs and indirectly place reform pressure on the EU domestic support regime.

"Do Fair Trade and Eco-labeling in Coffee Wake Up the Consumer Conscience?" Justus Lotade and Maria L. Loureiro (Colo. State Univ.).

The topic of consumer response toward credence goods is becoming increasingly important in the literature. In this study, a face-to-face survey was conducted during the spring of 2002 in order to identify consumer preferences for ethical and environmentally friendly labeling programs in coffee. Valuation questions regarding the fair trade, shade, and organic labels were asked using a payment card format, after consumers were previously informed about each particular labeling program. Results suggest that consumers are very receptive toward both fair trade and shade coffee labels, and consequently are willing to pay higher premiums for these labeling programs than for the organic.

SESSION: *Fed Cattle Pricing and Feeder Cattle Hedging.* Moderator: Rodney Holcomb (Okla. State Univ.).

"Bidding for Cattle in the Texas Panhandle." John M. Crespi (Kans. State Univ.) and Richard J. Sexton (Univ. of Calif., Davis).

Four beef processing plants operate in the Texas Panhandle region and bid to procure cattle from area feedlots in a form of first-price, sealed-bid auction. These auctions have many features that distinguish them from standard auctions. Using transactions-level data for the Panhandle region, we estimated packer bid functions and, via a simulation framework, compared the extant bidding environment to an alternative framework. The simulated auctions on average produced higher revenue to sellers, more frequent sales to the plant that valued the lot of cattle most highly, and more switching by feedlots among competing packers. These results are attributed to packers' failure to bid consistently on the available lots of cattle in the region. Alternative explanations are offered for this behavior.

"Estimating the Effects of Factors Influencing Grid Pricing Revenue." Ted C. Schroeder, Brian K. Coffey (Kans. State Univ.), and Gary W. Brester (Mont. State Univ.).

Beef carcasses, carcass premiums, carcass discounts, and grain prices are simulated. Random carcasses are priced according to random sets of market conditions defining a distribution of total and net revenues. Sensitivity analysis is performed to determine the total effect on revenue and net revenue of managing any of the interrelated carcass traits.

"Spatial Analysis of Feeder Cattle Hedging Risk." Brian K. Coffey (Kans. State Univ.), John D. Anderson (Miss. State Univ.), and Joe Parcell (Univ. of Mo.).

Optimal hedge ratios are estimated for various weights of feeder cattle in four cash markets based

on Chicago Mercantile Exchange data from 1992 through 1999. Three-month uniform hedges are simulated for every weight, contract, and cash market combination. Hedging effectiveness is compared empirically across locations to identify spatial differences in hedging risk.

"Basis Variability on the Feeder Cattle Contract versus the Failed Stocker Contract." Sebastian Perversi, Dillon Feuz (Univ. of Nebr.), and Wendy Umberger (Colo. State Univ.).

Basis variability is compared across markets, over time, between stocker and feeder cattle, and the impact of market volume is determined. Variability was found to be significantly greater with the stocker contract. Volume varied seasonally by market. Increased market volume significantly reduced basis variability. Increased variability in market volume significantly increased basis variability.