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Selected Papers

Session: Economics of Production, Weather, and English Literature. Moderator: Daniel Bernardo (Oklahoma State University).

"Functional Form and Analytic Simplification in Agricultural Production Analysis." Pedro A. Villezca-Becerra (Universidad Autonoma, Chapingo, Mexico) and C. Richard Shumway (Texas A&M University).

Parametric tests of production nonjointness and separability were conducted in four geographically diverse states. Using three locally flexible functional forms, results indicate that some model simplification clearly is justifiable in all states. The extent of justified simplification, however, is affected both by state and choice of functional form.

"An Evaluation of SCS Streamflow Outlook Based on Adaptive Crop Combinations." Eric A. Wenberg, Larry J. Held, and James J. Jacobs (University of Wyoming).

The value of SCS water supply outlook information is examined in the context of adjusting crop combinations and irrigation rates for a 1,000-acre Wyoming farm facing variable water supplies. Compared to using average water expectations, SCS outlook yielded added returns ranging from \$5.43 to \$10.20/acre and lower income variability.

"Role of Decision Maker Expectations in Affecting the Value of Climate Information." Michael A. Mazzocco, Bruce J. Sherrick, Steven T. Sonka (University of Illinois), and Peter J. Lamb (University of Oklahoma).

The value of climate information is affected by decision makers' prior beliefs. Subjective climate probabilities elicited from a sample of farmers are shown to be consistent with venture theory of the formulation of subjective beliefs.

"With Apologies to Shakespeare: To Plant or Not to Plant, That Is the Question." James A. Larson (ERS/USDA) and Harry P. Mapp (Oklahoma State University).

Three parts of the cotton planting decision problem are examined: time of planting, seeding rate, and variety maturity length.

Calendar date (open loop) and soil temperature determined (open loop with feedback) planting strategies are simulated using 1948-90 weather data. Stochastic dominance and value of information criteria are used to evaluate net income.

Session: International Trade and Development. Moderator: Julian Alston (University of California-Davis).

"The U.S.-Canadian Free Trade Agreement: Implications for Fresh Vegetable Trade." Amy Sparks (ERS/USDA).

This paper uses parameter estimates from an Armington-type model to simulate the impacts of the U.S.-Canadian free trade agreement (FTA) on fresh vegetable trade between the two countries. Simulations are based on assumed increases in GDP and population. Results indicate that aggregate national vegetable demands in both countries will show larger increases with enactment of the FTA.

"Resource Constraints in Economic Development: The Case of Cameroon." A. Reza Hoshmand (California State Polytechnic University).

An attempt is made to determine the projected gap between investment requirement and domestic savings and import requirements and export earnings for Cameroon. Using a dual-gap model, resource constraints are identified. A comparison of the estimated resource gap is made with the sixth (five-year) Development Plan of Cameroon. It was found that the trade gap is the dominant gap. However, the absolute magnitude of the gap appears to be underestimated by the Plan for both the savings-investment and export-import gaps.

"Latin American External Debt and Its Effects on U.S. Feed Grain Exports." Eduardo Arce-Diaz and Barry K. Goodwin (Kansas State University).

This paper evaluates the effects of external debt and debt payments on imports of U.S. feed grains by seven Latin American countries. The results indicate that higher debt levels correspond to increased imports, suggesting that debt was used to finance consumption. However, recently increasing debt payments have decreased imports.

“Weekly Price Dynamics in International Wheat Markets.” Gyu D. Cho (Kansas State University).

A vector autoregressive model was used to evaluate weekly price dynamics in international wheat markets. The effects of exchange rates and ocean freight rates also were investigated. The results suggest that there are significant dynamic relationships between the prices and ocean freight rates and exchange rates.

Session: Methods for Supply and Demand Analysis. Moderator: Bill Phillips (University of Alberta).

“Sequential Irrigation Decisions with Stochastic Water Supply.” James F. Booker, Genevieve Briand, and Ari M. Michelsen (University of Wyoming).

A discrete stochastic programming model was used to simulate sequential irrigation decisions when water supply is a stochastic allotment. The expected value of producer net income was relatively insensitive to expectations. Estimated consumptive use values were consistent with water values in irrigated hay production derived from standard linear programming models.

“Comparisons of Several Methods of Estimating Linear Demand and Consumer Surplus: Some Unexpected Experimental Results.” Dedi M. M. Riyadi and William G. Brown (Oregon State University).

For a “true” linear demand function, TOBIT most accurately estimated the travel cost (TC) coefficient with censored Monte Carlo experimental data. However, OLS sometimes more accurately estimated consumer surplus from these same data. An unexpected identity between OLS fitted to censored data and the zone average TC model was discovered.

“U.S. Demand for Edible Peanuts.” Ping Zhang, Dale H. Carley, and Stanley M. Fletcher (University of Georgia).

Using the cumsum squared test and data from 1965–90, a structural change in the demand for edible peanuts, after the change in the peanut program in 1978, was identified. Total edible peanut demand was both price and income inelastic, while elasticities

varied among peanuts used in different peanut products.

“Is Japanese Meat Demand a Direct or Inverse AIDS Demand System?” Thomas I. Wahl, Ron C. Mittelhammer (Washington State University), and Dermot J. Hayes (Iowa State University).

The appropriateness of using the direct AIDS and/or inverse AIDS (IAIDS) demand systems for representing the structure of Japanese meat demand is analyzed. A nonnested systems specification test indicated the compatibility of AIDS, and the incompatibility of IAIDS, with the data. Implications for demand modeling are discussed.

Session: Natural Resource and Environmental Issues. Moderator: Ron Griffin (Texas A&M University).

“The National Costs of Endangered Fish: Public and Private Perspectives.” Roger Mann (BioSystems Analysis, Inc.) and Norman K. Whittlesey (Washington State University).

This paper evaluates the economic costs of the Endangered Species Act (ESA) in three cases involving endangered fish. It is shown that, because of prevailing inefficiencies, some measures to improve fish habitat could have national economic benefits exceeding their costs, but vested interests and institutional factors inhibit economical change.

“Money Can Grow on Trees.” David Stallings and Carlos A. Arnade (ERS/USDA).

The serious issue of deforestation concentrates on two problems: consumption that exceeds replacement and the lack of property rights. The authors identify a financial instrument that uses forests as collateral, and, using dynamic optimization, demonstrate how these “tree bonds” may be used to help preserve forests.

“Net Social Benefits of Preserving Biodiversity in Old-Growth Forests.” G. C. van Kooten and J. Janmaat (University of British Columbia).

This study examines the economic feasibility of maintaining within old-growth reserves all species that use old growth. Estimates of the present worth of old growth

in timber production are compared with the trade-effect, recreation, and preservation benefits from reserving old growth in British Columbia. The differences between these values are attributed to the unmeasured components of the non-timber value of preserving old growth. For reasonable values of these lower bounds, less than one-half of the old-growth area would be preserved.

"Optimal Management of a Coral Reef: A Study of Hanauma Bay, Hawaii." Donna J. Lee and Charmaine M. Gallagher (University of Hawaii).

Hanauma Bay is an underwater state park in Hawaii exhibiting the classic problems of a common-property resource. Long-term heavy use and severe environmental degradation have elicited recent legislative action. Efficient park management, however, is confounded by a lack of information about the critical functional relationships. The research develops a control model for managing a coral reef ecosystem to guide future legislative efforts.

Session: Beef Production and Management Economics. Moderator: R. Clyde Greer (Montana State University).

"Retained Ownership Revisited: The Economic Significance of Genetic Variability." Dillon M. Feuz, John J. Wagner (South Dakota State University), and Larry J. Held (University of Wyoming).

Genetic and biological variability of calves placed into different retained ownership programs are examined. The genetic ability to grade choice is a critical factor influencing profitability of retaining calves to a slaughter weight. Weaning weight influences the type of retained ownership program for which a calf will be most profitable.

"A Stochastic Dominance Evaluation of Alternative Western Ranching Systems." Elizabeth R. Edens, Larry J. Held (University of Wyoming), and Dillon M. Feuz (South Dakota State University).

Riskiness of range livestock systems is analyzed with stochastic dominance. Although pure stocker systems appear to be too risky for even mildly risk averse producers, diversifying a few stockers with mixed short/long yearling sales is efficient

over a wide range of risk aversion, while a cow-calf system is inefficient overall.

"Economic Tradeoffs Between Livestock Grazing and Wildlife Habitat on Oklahoma Rangelands." Daniel J. Bernardo, Greg W. Boudreau, and Terrence G. Bidwell (Oklahoma State University).

A ranch-level optimization model was developed to evaluate the economic tradeoff between livestock grazing and quail/deer habitat objectives on Oklahoma rangelands. Small improvements in wildlife habitat are shown to be attainable at a relatively low cost; however, significant costs and reductions in livestock income are incurred to produce excellent quality habitat.

"Beef Production from Alternative Forage Systems in the Nebraska Sandhills." Sean A. Coady, James B. Lamb, Richard T. Clark, Don C. Adams, and Mick J. Knott (University of Nebraska).

Two hundred forty cows were assigned to six treatments with three winter forage strategies: range grazing, hay, and meadow grazing (WR, WH, and WM), and two spring forage strategies: hay and meadow grazing (SH and SM). Results indicate that returns are maximized with a winter meadow grazing-spring meadow grazing strategy.

Session: Agricultural Marketing: Eggs, Milk, and Toast. Moderator: Larry Makus (University of Idaho).

"An Analysis of Spent Hen Prices and Egg Producer Net Returns." Chris Fawson, T. F. Glover, Deevon Bailey, and John L. Park (Utah State University).

Prices for cull (spent) laying hens have declined dramatically since 1989 due to increasing relative processing costs for spent hens compared to other types of chicken meat. This study examines the impact of decreasing spent hen prices on the net returns of egg producers. While the long-run supply response of egg producers may result in no reduction in profit because of declining spent hen prices, short-run prices will decline.

"Dairy Farmers' Evaluation of Southern Dairy Cooperatives." Sukant K. Misra, Dale H. Carley, and Stanley M. Fletcher (University of Georgia).

Survey data of 2,538 dairy farmers located in 12 southern states were used to analyze the factors influencing farmers' degree of satisfaction with the overall performance of milk marketing cooperatives. Results from an ordered probit model indicate that a combination of factors influence dairy farmers' assessment of the overall performance of cooperatives.

"USDA Crop Reports and Their Impacts on Uncertainty and Expectations in Grain Futures Markets." Kevin P. McNew and Juan A. Espinosa (North Carolina State University).

The theory of option pricing is used to derive the mean and standard deviation implied by market prices. Empirical results show that USDA crop reports reduce the uncertainty of the market participants but do not significantly alter the market's expected price for corn and soybeans.

"The Profitability of Cleaning U.S. Wheat: Is a Market Premium Necessary?" Brian D. Adam, Phil Kenkel, and Kim Anderson (Oklahoma State University).

Buyer complaints about poor quality U.S. wheat have led to proposals to enforce minimum dockage levels for exports. Economic-engineering estimates for cleaning to .35% dockage suggest that a price premium of \$.005 to \$.04/bushel, depending on type and size of machine, is necessary for cleaning to be profitable.

Session: Consumer Considerations in Marketing. Moderator: Amy Sparks (ERS/USDA).

"The Effects of Perceived Product Attributes on the Perception of Beef." Dale J. Menkhaus, Damien P. M. Colin, Glen D. Whipple, and Ray A. Field (University of Wyoming).

The objective of this study was to identify perceived characteristics of beef which impact quality perception. Results indicate that concerns with beef related to cholesterol and calorie content, artificial ingredients, convenience characteristics, how beef is displayed in the store, and expense each significantly adversely affected quality perception.

"The Impact of Nutritional Information on the Demands for Dairy Products." John Schmitz (University of Wyoming).

A demand system is invoked to study how nutritional information impacts dairy consumption. Whole and lowfat milk are disaggregated to facilitate the study of consumption within this category. Results indicate that nutritional awareness has decreased consumption of whole milk and frozen products and increased consumption of lowfat milk and cheese.

"The Role of Food Safety and Environmental Concerns in Organic Food Preference in Washington State." Jennifer L. Wilkins, Dorothy Z. Price, David W. Price, and Douglas L. Young (Washington State University).

A questionnaire was mailed to 600 consumers in Washington state to assess the role of food safety and environmental concerns in preference for organic foods. Organic preference was correlated with food safety and food-related environmental concerns. Food safety and environmental concerns were significant explanatory variables for organic food preference.

"The Impact of Socio-Demographic Variables on Consumers' Valuation of Food Characteristics: The Case of Breakfast Cereals." Hongqi Shi and David W. Price (Washington State University).

Understanding consumers' implicit values of food characteristics has important policy implications for both private firms and policy makers. In this paper, the hedonic technique was used to estimate the impact of socio-demographic variables on consumers' valuations of the characteristics of breakfast cereals using the 1987-88 USDA Nationwide Food Consumption Survey.

Session: Apples, Landscaping, and Regional Economics. Moderator: John Ellis (Washington State University).

"Fresh Apple Packing Costs in Chihuahua, Mexico, and Southern New Mexico." Carmen L. Espinoza and Constance L. Falk (New Mexico State University).

Apple packing costs were estimated for Cuauhtemoc, Mexico, and Las Cruces, New Mexico. Annual packing costs were

\$368,118 less and initial investment was \$706,657 less in Mexico than in New Mexico, primarily due to labor and administrative cost differences. Mexico's cost advantage also depends on investment in high-technology orchards.

"Landscape Services and Their Role in the U.S. Economy." Linda J. Cox, James R. Hollyer (University of Hawaii), and Julie Leones (University of Arizona).

Landscape services are becoming more important in the U.S. economy relative to agricultural production. This paper defines landscape services, analyzes the data currently available on them, and discusses how statistical reporting systems could be changed to facilitate the collection of information on landscape services in the U.S. economy.

"Revisiting the Rise in State Per Capita Income Inequality: A Look at Shifts in Income Composition and Cyclical Change." Gary W. Smith (Washington State University).

This paper evaluates whether long-term trend and short-run macroeconomic conditions exerted separate effects on the pattern of state per capita income inequality and assesses how the major components of personal income have individually affected inequality. Results show that the net effects of individual income components are quite different.

"Incorporation of Expectations into Export-Base Models." Thomas R. Harris and Rangesan Narayanan (University of Nevada).

Expectations theories were applied to export-base modeling. Export-base models estimated the impacts of anticipated and unanticipated basic sector employment on nonbasic sector employment in two rural Nevada counties. Also, symmetry of responses by nonbasic sectors to positive and negative unanticipated basic sector employment was tested.

Session: Poultry and Livestock Production Economics. Moderator: George Pfeiffer (University of Nebraska).

"The Field Testing of XLAYER: An Empirical Estimate of the Value of Expert System Technology in Poultry Layer Management." Ed Schmisser (Oregon State University).

Field testing of an expert computer program, designed to identify and remedy layer management problems, revealed lost income opportunities varied from \$.21 to \$.34 per bird during the first production cycle of two 40,000 bird flocks. Losses reflected the value of management information and maximum economics benefit of this technology.

"Economic Impacts of pST on a Farrow-to-Finish Hog Farm Operation." Ramu Govindasamy, Donald Liu, and James Kliebenstein (Iowa State University).

This study evaluates the impact of pST on the optimal management strategy of a farrow-to-finish hog farm operation in a dynamic production framework. The introduction of pST has significant impact on optimal daily rate of gain, marketing weight, input combination, and profit.

"Measuring Historical Risk in Quarterly Milk Prices." Wesley N. Musser, Beth Pride Ford, and Robert D. Yonkers (Pennsylvania State University).

Various methods have been used to detrend historical data to estimate risk indices. A perception of increasing milk price risk over time allows evaluation of several techniques to detrend data. Risk measures from a least squares regression model and an ARIMA model were consistent with the hypothesis of increasing risk.

"Determinants of Cattle Finishing Profitability." Michael Langemeier, Ted Schroeder, and James Mintert (Kansas State University).

Data from a western Kansas feedlot were used to quantify the impact of price and performance factors on the variability in cattle finishing profitability. Sale prices, feeder prices, and corn prices had the most impact on profit variability over time.

Session: Environmental Concerns in Fertilizer and Water Use. Moderator: Doug Jose (University of Nebraska).

"Fertilizer Reductions through Elimination of the ARP Program." Glenn A. Helmers and Tobias J. Wehrman (University of Nebraska).

The impact of the Acreage Reserve Program (ARP) on nitrogen use is estimated. A rep-

representative farm is programmed under the current feedgrain program and under a "bushelage" program where there is an output market quota but all cropland can be used. The results demonstrate significant nitrogen reductions by elimination of the ARP.

"Level of Environmental Concern, Technical Knowledge, and Nitrogen Management Practices of Irrigated Corn Producers." Roger Selley, Raymond J. Supalla, and Sally Bredeweg (University of Nebraska).

Survey results from 445 irrigated corn producers in central Nebraska were analyzed concerning their water quality-related knowledge, attitudes, and practices. Producers expressed agreement that water quality was a problem and that they need to consider the environment in selecting production practices. However, some producers still significantly over-apply nitrogen.

"Economic Versus Environmental Risk: Nitrogen Fertilizer Management in Great Plains Corn Production." Gordon L. Carriker (Kansas State University).

The economic and environmental tradeoffs from managing nitrogen fertilizer in Great Plains corn production are examined. Simulated corn yields and a mass-balance approximation of environmental loading of nitrates are employed in the evaluation of net return risk under several economic incentive schemes to reduce nonpoint nitrate pollution. Results suggest more risk averse farmers are likely to better manage nitrogen in response to the flex acreage provisions and/or economic incentives to reduce effluents.

"Efficient Pollution Abatement with Multiple Competing Environmental Objectives and Limited Resources: A Multiple Objective Programming Application to Surface Irrigated Agriculture." Jeff Connor and Abdelli Smida (Oregon State University).

A multi-objective programming model is used to explicitly identify how alternative agricultural pollution abatement policies involve trading off competing environmental objectives against one another. Results indicate that in surface irrigated agricultural settings with limited financial resources, incremental reductions of nitrate leaching beyond a certain threshold may have a high opportunity cost in terms of sediment loss.

Session: Food, Agricultural Policy, and Land Prices. Moderator: Ed Bradley (University of Wyoming).

"Quality Labeling vs. Quality Regulations." T. F. Glover (Utah State University).

Welfare impacts of informative policy such as labeling in a market with asymmetric information are derived in order to analyze effects of supplying information about the quality of food products to consumers. Comparison is made of supplying quality information relative to setting minimum legal quality.

"The Cyclical Behavior of Agricultural Land Prices." Deqin Cai (Oregon State University) and H. Alan Love (Texas A&M University).

Nonparametric statistics are used to analyze the volatility, persistence, and co-movement of agricultural land prices in 48 states for the period 1910-89. The main focus is on possible changes in the cyclical behavior of land prices after the introduction of agricultural policy in 1933.

"Distorted U.S. Cotton Exports Demand under Textile Import Control." Koji Yanagishima and Abner W. Womack (University of Missouri).

U.S. cotton export is considered as an input factor demand from an intertemporal foreign textile production decision under multifiber arrangement and price uncertainties. Empirically estimated results indicate that a liberalization of textile trade may result in reduced foreign textile production and thus a declined demand for U.S. cotton.

"Food Security and Macroeconomic Policy Reform in Kenya." Stacey Rosen and Shakhla Shapouri (ERS/USDA).

This study analyzes Kenya's food security policies during the 1980s. The paper includes discussions of food market performance and policies. This is followed by projections of the effects of various policy changes and market conditions on grain production, consumption, and imports over a five-year period.

Session: Cattle and Sheep Marketing Issues. Moderator: Deevon Bailey (Utah State University).

“Factors Affecting Bidding Activity for Fed Cattle.” Ted C. Schroeder, James Mintert (Kansas State University), and Rodney Jones (Virginia Tech University).

The number of bids and bidders impact prices. Factors affecting the number of bids and bidders on fed cattle transactions were investigated. Higher quality cattle received more bids. Seller resistance to accepting the first bid impacted the number of bids and bidders. Bidding activity differences existed across feedyards and packers.

“Comparative Analysis of Cattle Slaughtering and Fabricating Costs.” Clement E. Ward (Oklahoma State University).

Economies of size studies typically use either economic engineering or statistical cost analysis. Results were compared from two recent studies in cattle slaughtering, each of which followed a different approach. Results of the comparison were similar in many ways, yet the comparison of minimum cost and optimum volume differed significantly.

“The Market Efficiency of Feeder Cattle Futures After Cash Settlement.” Chris T. Bastian (University of Wyoming), Robert D. Carver (University of Idaho), and Dale J. Menkhaus (University of Wyoming).

Granger tests were used to test temporal associations between feeder cattle futures prices and the U.S. Feeder Steer Price (USFSP). Results indicate the USFSP plays an important price discovery role in the feeder futures market, which suggests this market may be less efficient at discovering forward prices after cash settlement.

“Examining Structural Change and Cyclical Length in the U.S. Sheep Industry.” Larry W. VanTassell and Glen D. Whipple (University of Wyoming).

The cyclical nature of the sheep industry was examined from 1924–90. Tests for structural change also were conducted. Results indicate that cyclical length in inventory and prices has decreased over time, with a current 10- and 27-year cycle for stock sheep and a 10- and 25-year cycle for lamb prices.

Session: Teaching, Trade, Quality, and Efficiency. Moderator: Tom Dickinson (California State University).

“Agrarian Ideology: Implications for Teaching, Student Recruitment, and Retention.” Rhonda Skaggs (New Mexico State University).

Myers–Briggs Type Indicator (MBTI) results show agriculture students to be different from typical college students. Agrarian beliefs and values are consistent with agriculture student behavioral preferences identified by MBTI results. Agrarianism can be an obstacle to agriculture student recruitment/retention, and should be explored early in students’ undergraduate careers.

“The Effect of Income on Intra-Industry Trade: Time Series Tests for the NAFTA Countries.” Bradley J. McDonald (ERS/USDA) and Tracy Hart (University of California–Berkeley).

Theoretical models predict a positive relationship between per capita income and the level of intra-industry trade. This paper uses recently published intra-industry trade indices to conduct time series tests of the importance of this relationship.

“The Mechanics of Minimum Quality Standards.” David W. Skully (ERS/USDA).

Minimum quality standards (MQS) are indirect instruments of volume control. A model of Federal Marketing Order (FMO) choice of MQS is developed to examine how MQSs are employed to regulate imports under different assumptions about FMO discretion over MQS, and about different market structures of international trade.

“Farm Efficiency and Education: A Reconsideration.” N. G. Kalaitzandonakes (University of Missouri).

Equal amounts of education influence different individuals in distinct ways as they combine with diverse talents and personal characteristics. Thus, education is not considered here to be a homogeneous factor of production, but rather an imperfect indicator of a farmer’s managerial ability. Such ability is assumed latent and directly related to farm efficiency.

Session: Quantitative Research Methods and Models. Moderator: Don Lybecker (Colorado State University).

“Modeling Truncation Via the Logistic and Normal Distributions: An Application to

Ranch Land Price Analysis.” Feng Xu (University of Missouri), Ron C. Mittelhammer (Washington State University), and L. Allen Torell (New Mexico State University). This study presents an empirical method of modeling truncation using the logistic and normal distributions. The method is applied in estimating ranch land hedonic price functions. Results show that truncation is significant using either of the distributions.

“Reducing the Interpretive Dimensionality Curse of Dynamic Programming with CART: An Application to Range Cow Culling Decisions.” Russell Tronstad and Russell Gum (University of Arizona).

Classification and Regression Tree (CART) analysis was assessed for analyzing the decision matrix from dynamic programming problems. CART reduced 1,100 possible state space combinations to 15 terminal nodes with an overall correct accuracy of 95%. The economic effectiveness of CART was essentially 100% since misclassifications occurred where the cost of a mistake was low.

“Hedonism and Altruism as Determinants of Consumer Valuation of Pesticide Residual-Free Produce.” Robert D. Weaver, A. E. Luloff, and David J. Evans (Pennsylvania State University).

Hedonism and altruism as determinants of consumer willingness-to-pay for chemical residue-free tomatoes are examined. Analyses of in-store consumer survey results confirm the roles of traditional economic factors, but suggest concern for external harms from chemical pesticide use may also influence consumers’ willingness-to-pay.

“Maximum Likelihood Estimation of a Bivariate Two-Limit Model.” J. S. Shonkwiler and T. R. Harris (University of Nevada). A bivariate likelihood function for a two-limit tobit model is developed and applied to estimation of rural resident shopping patterns. Comparison of results from the univariate and bivariate models shows that parameters are estimated with more precision and derivatives of the conditional expectations are larger under the bivariate procedure.

Session: Resource Economics and Management. Moderator: Doug Franklin (South Dakota State University).

“An Investigation into the Validity and Reliability of Contingent Visitation Behavior.” John B. Loomis (University of California-Davis).

A test-retest analysis indicates reliability of responses regarding intention to visit, annual number of trips, and length of stay for three different lake levels. Comparison of actual length of stay at the same lake level indicates validity of this type of contingent visitation behavior. Contingent visitation behavior is a promising approach to estimate changes in recreation use for both efficiency and regional economic analyses.

“The Influence of Grower Attributes on the Adoption of IPM Techniques in Vegetable Production in Florida, Michigan, and Texas.” Jorge Fernandez-Cornejo, E. Douglas Beach, and Wen-Yuan Huang (ERS/USDA).

The influence of farm structure and other factors on the adoption of integrated pest management (IPM) techniques in three populations of vegetable growers with different degrees of adoption is studied using a logit framework. Size, operator labor, irrigation, and some risk proxies are some of the significant factors discussed.

“A Risk and Water Quality Analysis of Alternative Irrigation Technologies Under Different Irrigation Management Strategies.” K. Bradley Watkins and Harry P. Mapp (Oklahoma State University).

Net return distributions and chemical movements are simulated for four irrigation technology/management strategy combinations. Stochastic dominance analysis is used to identify risk-efficient combinations, while environmentally-efficient combinations are determined based on chemical movement averages. The results imply that tradeoffs may exist between risk efficiency and environmental quality.

“An Economic Investigation of Edwards Aquifer Water Use Tradeoffs.” R. Lynn Williams (Texas A&M University), Carl R. Dillon (University of Arkansas), and Bruce A. McCarl (Texas A&M University).

Alternative aquifer management strategies are evaluated for their effects on the average price of the resource and on consumers’ and producers’ surplus using a discrete stochastic optimization model for allocation of

groundwater. Results indicate the existence of welfare gains from the emergence of a market for water rights.

Session: Farm Management and Efficiency Considerations. Moderator: James Wade (University of Arizona).

“Input Price and Quantity Components in Low Cost/High Profit Grain Production.”

John D. Hibbard, Robert H. Hornbaker, and David C. White (University of Illinois). This study examines the relationship between the level of chemical inputs and farm profitability. A positive approach is taken to examine the contribution of lower input prices and reduce quantities in low-cost farms. Findings indicate the lower cost producers achieve the cost savings and maintain profits through lower quantities of inputs. Moreover, the majority of the input reduction is in fertilizers.

“Technical Efficiency: A Comparison of Four Frontier Methods.” David L. Neff (University of Arkansas) and Phillip Garcia (University of Illinois).

This analysis examines the technical efficiency of a homogeneous sample of central Illinois grain farms over four, two-year aggregate time periods using four production frontier methods. Significant differences are found between nonparametric and parametric estimates of farm technical efficiency and efficiency distributions. The results are consistent over time.

“How Farm Growth Is Related to Farmer Age.” H. Frederick Gale, Jr. (ERS/USDA).

The life cycle of the farm operator influences growth of North Dakota wheat farms. Young farmers experience rapid farm growth, which tapers off after about age 35. Older farmers tend to reduce farm size as retirement age approaches. Life cycle effects are an important influence on industry structure and dynamics.

“A Logit Model of Cotton Producer Participation in Commercial Scout Programs.” Walter L. Ferguson and Jet Yee (ERS/USDA).

A logit model is estimated using survey data collected from cotton farmers to identify factors impacting the probability of producers' participation in a commercial scout

program. Results indicate the probability of participation is influenced by yield, pesticide use, irrigation, and producers' education, age, tenure, and enrollment in federal crop insurance.

Session: Agricultural Finance, Risk, Taxes, and Predictions. Moderator: Roger Selley (University of Nebraska).

“Systematic Risk, Unanticipated Inflation, Excess Returns, and Texas Cropland Investments.” Charles B. Dodson (Texas Tech University).

The Capital Asset Pricing Model Under Inflation was used to analyze the relationship between Texas cropland returns, unanticipated inflation, and systematic market risk. The results indicated that cropland returns added no systematic risk to a well-diversified portfolio in any of the counties analyzed, but were influenced by unanticipated inflation.

“Implications of Reduced Capital Gains Taxation for Farmers.” Ron Durst and Michael Compson (ERS/USDA).

This paper examines the implications of a reduction in the capital gains tax rate for farmers. Effective tax rates for real capital gains under current law and various preferential tax treatment alternatives are estimated. Implications for farmland values and for tax burdens for current owners of farmland also are examined.

“Profit and Loss Sharing in Agriculture: An Application of Islamic Banking.” Laurence M. Crane and David J. Leatham (Texas A&M University).

This study reviews profit and loss sharing instruments used in Islamic banking. It is argued that profit and loss sharing instruments also can be used by U.S. financial intermediaries to provide external equity capital needed to finance agricultural production. Such an innovation would help reduce financial risk in agriculture.

“The Effects of Including Bankruptcy on Dynamic Investment Decisions.” Frank S. Novak (University of Alberta) and Gary D. Schnitkey (Ohio State University).

This paper evaluates the effects of including the costs of bankruptcy in a dynamic model

of off-farm investment decisions using a stochastic dynamic programming model (SDP) which incorporates the stochastic dynamic nature of investment returns and the interrelationships between financial structure and investment decisions when the costs of bankruptcy are considered. Findings suggest that ignoring bankruptcy costs in determining investment decisions results in large bankruptcy probabilities.

"An Analysis of the Canadian Gross Revenue Insurance Plan for Southern Saskatchewan." J. Janmaat and G. C. van Kooten (University of British Columbia).

The Gross Revenue Insurance Plan (GRIP) is a program that allows farmers to insure their per hectare revenues of a select group of crops. A stochastic dynamic programming model of the profit maximizing farmer has been constructed to evaluate the moral hazard implications of the GRIP. Findings suggest there is a very strong incentive to cut back the investment made in the crop. Net present value to the grower is in the range of \$200–500 per hectare, most of which accumulates in the first four years of the program.

"Functional Form and Predictive Accuracy of Dual Profit Functions." Fermin Ornelas (ARS/USDA, Weslaco, Texas) and C. Richard Shumway (Texas A&M University).

Three flexible functional forms are evaluated. Box–Cox results indicate that for Texas, the normalized quadratic is the preferred functional form, followed by the generalized Leontief. Predictive accuracy results are ambiguous between the generalized Leontief and the normalized quadratic. Consistency of results favors the normalized quadratic.

Session: Consumers, Advertising, Futures, and Rail Rates. Moderator: Ted Schroeder (Kansas State University).

"Estimation of Consumer Demand for Major Foods in China." Martin H. Yeh and Yongsheng Ye (University of Manitoba).

This paper presents an econometric analysis of consumer demand for major foods in

China. Three groups of models of translog, quadratic expenditure systems, and linear expenditure systems with both static and dynamic specifications under a dual approach are employed in estimating the demand systems. A complete analysis of price and income elasticities is made and the marginal budget shares are presented as well.

"A Factor Analysis Approach to Measuring the Effectiveness of Advertising." X. M. Gao (University of Arkansas) and L. J. Lee (University of Florida).

This study presents a latent variable factor analysis approach in measuring effectiveness of advertising in changing consumer demand. It is assumed that advertising affects latent consumers' perception of the advertised goods and thus influences their purchasing behavior. Consumer purchase and retail store advertising, which includes newspaper advertising, within-store display, and point-of-purchase display of three fruit juices, are studied in an extended Rotterdam model.

"Comparison of Simultaneous and Independent Methods of Estimating Growing Season Futures Positions for Producers of Corn and Soybeans." Francis McCamley and Richard K. Rudel (University of Missouri). Simultaneous estimation of optimal growing season futures positions for producers who grow both corn and soybeans is compared to independent estimation. The effect of restricting futures positions to whole contracts also is examined. Although the results varied more by location than method, there was a consistent gain from simultaneous estimation.

"Discrimination in Rail Rates Before and After the Staggers Act." Elmo T. Falcon (Consultant) and Dale G. Anderson (University of Nebraska).

Extent and patterns of economic discrimination, before and after the Staggers Rail Act of 1980, are explored using econometric procedures. Price/cost differences were generally associated with elasticity indicators such as relative port access, local demand, and product value. Discrimination increased against smaller shippers, lessened against larger ones, and declined overall.