

Selected Papers

Session: Quantitative Methods in Regional Economics Analysis. Moderator: Bruce Weber (Oregon State University)

"Farmland Conversion to Nonagriculture Sectors in the Taiwan Economy: A General Equilibrium Analysis." Shih-Hsun Hsu (National Taiwan University, Taipei, Taiwan)

This paper assesses the economywide impacts of farmland conversion policy. To capture the direct and indirect linkages between agriculture and other sectors of the domestic economy, a ORANI-type general equilibrium framework of Dixon et al. (1982) is used. Simulation results show that at the sector level land rental price is very sensitive to land supply increase. Moreover, results clearly demonstrate the high opportunity cost to non-agriculture sectors of restrictions on farmland conversion.

"Development and Application of a Supply-Determined Multiregional Social Accounting Matrix for Urban and Rural Northern Nevada." Thomas R. Harris, Karl A. McArthur, and Shawn W. Stoddard (University of Nevada, Reno)

This paper develops procedures to determine impacts of a supply shock through a multiregional Social Accounting Matrix (SAM). The multiregional SAM was modified to a mixed exogenous/endogenous structure which allow the assessing of a supply-determined level of rural range livestock production on the northern Nevada urban and rural economies.

"Economies of Size for North Dakota County Government Services and Implications for Consolidation Policies." Mark A. Krause (North Dakota State University)

Estimated economies of size vary greatly among county government services in North Dakota. Large economies exist for general government and highway services. Small economies exist for welfare services, and dis-economies exist for public safety services be-

yond a county population of 18,000. Therefore, consolidation of all county services is not supported.

Session: Impacts and Prescriptions of the Conservation Reserve Program. Moderator: Joseph Atwood (Montana State University)

"Choices for the CRP: Research Results and Group Agendas." Dana L. Hoag and Jennie Hughes (Colorado State University)

The reauthorization of the Conservation Reserve Program (CRP) in the Farm Bill of 1995 will be based on research on past performance and pressure by social interest groups. This paper summarizes over 400 research studies and fifteen interviews with special interest groups. The comparison will help policy makers develop more informed decisions.

"Soil Erosion Achievements of the CRP in Missouri." Kevin P. Smith (University of Missouri)

With predominantly vegetative cover, the Conservation Reserve Program (CRP) has made a substantial reduction in soil erosion. Any extended CRP or CRP-like policy stemming from the Farm Bill of 1995 will address highly erodible cropland and other environmentally sensitive lands. Soil erosion benefits on CRP and non-CRP croplands in Missouri are measured.

"An Economic Evaluation of the Conservation Reserve Program's Impacts on Wind Erosion in the West." J. S. Hughes, P. C. Huszar, and D. L. Hoag (Colorado State University)

The benefits and costs of the Conservation Reserve Program in reducing wind erosion in the West are evaluated. Previous studies have ignored the off-site wind erosion benefits, therefore, we focus on determining if

these benefits are sufficient to cover the costs of the program minus other previously measured benefits.

“Factors Affecting Post-CRP Land-Use Intentions in the Northern Plains.” Larry Janssen (South Dakota State University)

Post-CRP land-use intentions of Conservation Reserve Program contract holders in South Dakota are examined. Results from logistic regression models indicate CRP crop base acres, farm commodity and conservation program provisions, and livestock/hay management are major factors affecting post-CRP land-use plans.

Session: Rural Populations and Community Revitalization. Moderator: Michael Woods (Oklahoma State University)

“Cropland Diversions and Rural Nonfarm Population Change.” Evert Van der Sluis (University of Nebraska) and Willis Peterson (University of Minnesota)

A data set of 100 farming-dependent counties over four decades is analyzed to determine the impact of acreage reduction programs on the rural nonfarm population. Results of a simultaneous equation model suggest that the programs had a negative influence on rural nonfarm population.

“Labor Shortages in Low-Wage, Low-Unemployment States: A Policy Option.” John A. Sondey (South Dakota State University)

Low-wage, low-unemployment midwestern states reflect manufacturers' interest in sitting within their borders. However, labor shortages have deterred some firms from immigrating. State policy to encourage optimal immigration should be carefully structured, protecting the states' most abundant resource—land.

“An Entrepreneurial Approach to Community Development.” Robert J. Tosterud (University of South Dakota)

Entrepreneurship principles and methods are used to develop a model of small community

economic development. A yearlong series of events, workshops, and surveys is administered to increase creativity, entrepreneurship, and leadership and, thereby, to help citizens discover and exploit economic opportunities. The model is currently being tested in Tyndall, South Dakota, population 1200.

Session: Stocker Supplementation, Crop Fertilization, and Hopper Eradication. Moderator: Paul N. Wilson (University of Arizona)

“Optimal Energy Supplementation Strategies for Wheat Pasture Stocker Cattle under Forage Production Uncertainty.” Nouhoun Coulibaly (Oklahoma State University) and Daniel J. Bernardo (Kansas State University)

A stochastic decision model is developed to estimate utility maximizing energy supplementation levels for stocker cattle grazing wheat pasture. Forage production variability is incorporated using the Gaussian quadrature approach to numerical integration. Optimal supplementation rates increase as risk aversion increases. Daily supplementation levels are also sensitive to feed costs and cattle prices, ranging from zero to over six pounds per head.

“Forage Value and Grasshopper Treatment Thresholds.” James Pritchett and Mel D. Skold (Colorado State University)

Grasshoppers are significant pests on western rangelands, and control programs are publicly sponsored. Current treatment decisions are based on biological (noneconomic) criteria. This analysis illustrates the benefits of including forage values in treatment decisions. Results imply that uniform control policies are inefficient. Policy recommendations are discussed.

“Incorporating the Quality of Hay into the Optimal Choice of Fertilization and Harvest Date: A Method and Application.” Nancy A. Norton, Richard T.

Clark, Pat E. Reece, and Kent M. Eskridge (University of Nebraska, Lincoln)

Changes in grass-hay quality are valued with linear programming and regression techniques and incorporated into a net value (NV) maximization routine. Adjusting harvest date and nitrogen fertilizer to alter quality can increase NV by \$25/acre. For water quality reasons, the producer can reduce nitrogen by 37 lbs./acre for less than \$1/acre loss in NV.

"Economics of Nitrogen Fertilization in Sugarbeet Production." Bozheng Yang, Larry W. VanTassel, and Alan D. Blaylock (University of Wyoming)

An economic evaluation was conducted to determine the most cost-effective method of fertilizer application for sugarbeets. Point injection produced the most revenue over fertilizer costs, followed by broadcasting and knife banding. Optimal fertilizer use was approximately the same for point injection and knife banding and was highest for broadcasting.

Session: Evaluation of Environmental Policies. Moderator: Molly Espey (University of Nevada, Reno)

"Economic Evaluation of Stream Habitat Improvement Projects in Wyoming." Robert S. Dalton, Chris Bastian, and James J. Jacobs (University of Wyoming)

The contingent valuation method was used to estimate consumer surplus for trout fishing associated with habitat improvement work on Wyoming streams. Cluster analysis was used to stratify the market based on anglers' reasons for fishing. Results indicate anglers prefer improvements which increase the probability of catching large trout.

"Assessing Costs of Environmental Policies and Avoidance-Cost Estimates of Benefits." Manzoor E. Chowdhury and Ronald D. Lacewell (Texas A&M University)

Along with the costs of imposing environmental policies, an efficient strategy for managing nonpoint pollution must also account for the benefits of increased water quality. The costs of bottled water, used as avoidance-cost

estimates of benefits, are compared with the costs of selected environmental policies for the Seymour aquifer region of north-central Texas.

"Critical Environmental Costs of the Paraguay-Paraná Waterway Project in South America." Enrique H. Bucher (University of Córdoba, Argentina) and Paul C. Huszar (Colorado State University)

The proposed Paraguay-Paraná waterway project, known as Hidrovia, would improve and develop year-round navigation from Cáceres, Brazil, to the harbor of Nueva Palmira, Uruguay. This paper established a critical value for the environmental costs that, if included in the evaluation of the project, would make the project economically unfeasible.

"Forest, Agriculture, and Agroforestry Systems on Marginal Lands: A Profitability and Cash-Flow Stability Analysis." Douglas White (Colorado State University) and J. R. Deep Ford (University of Vermont)

Traditional agriculture decreases yields on marginal lands, whereas agroforestry systems maintain soil productivity. This paper presents a theoretical and empirical analysis of the trade-off decision, profits versus cash-flow stability. Using the highlands regions of Guatemala, it was determined that agroforestry systems are profitable even at high discount rates.

Session: Farm Finance and Crop Insurance Decisions. Moderator: Cole Gustafson (North Dakota State University)

"Forecasting Borrowers' Success or Failure with Financial Ratios." Elton K. Tophoj, Larry J. Held, and Alan Schroeder (University of Wyoming)

Can future success or failure of agricultural operations be accurately predicted, and if so, which financial ratios are most important? Results from a sample of FmHA bor-

rowers indicate the debt-to-asset ratio can correctly anticipate success or failure up to 77% of the time, four years in advance.

“Evaluating the Variability of Return on Investment for a Sample of Kansas Farms.” Barry M. Purdy, Michael R. Langemeier, and Allen M. Featherstone (Kansas State University)

A sample of Kansas farms was used to identify the most important factors affecting financial performance among farms and over time. Age of operator, land tenure, farm type, leverage, diversification of sales and acres, and gross farm income significantly affected return on investment.

“Optimal Crop Insurance Coverage under Current Premium Rate Structures.” Raymond E. Massey and Roger Selley (University of Nebraska, Lincoln)

The Crop Insurance Reform Act of 1994 will cause many producers to consider multiple peril crop insurance for the first time. For some producers, profit maximization and risk minimization goals may simultaneously be accomplished by purchasing maximum insurance coverage, resulting in increased cost to taxpayers.

“Preferences for Crop Insurance When Farmers Are Diversified.” Steven Blank and Jeffrey McDonald (University of California, Davis)

This case study uses California cross-sectional survey data to compare the relative effects of three types of characteristics which are expected to influence crop insurance preferences. In general, model results indicate that insurance preferences are a function of both the commodities produced and the risk environment faced by individual growers.

Session: Applications of Quantitative Analysis Techniques. Moderator: Thomas R. Harris (University of Nevada, Reno)

“Adjustment Costs in Cigarette Manufacturing under Rational Expectations: Health Information, Government Policies,

and Market Structure.” Anthony N. Rezitis and William E. Foster (North Carolina State University)

A dynamic factor demand model for U.S. cigarette manufacturing is developed under rational expectations incorporating health information and government policies. Short- and long-run elasticities of substitution are estimated and the adjustment cost and industry market-power hypotheses are tested.

“The Willingness to Pay for Rural Water Supplies.” Steven Piper and Jonathan Plat (Bureau of Reclamation, Denver)

Contingent valuation data gathered in four regions of the western United States are used to estimate the willingness to pay for improved domestic water supplies. Willingness to pay models are also estimated. The survey samples indicated average willingness to pay ranged from \$4.83 to \$15.64 per month.

“Watching the Fuel Gauge: An International Model of Automobile Fuel Economy.” Molly Espey (University of Nevada, Reno)

The role of fuel prices, income, government taxation, and technological change in influencing the consumer's choice of fuel economy is examined. The consumer's choice of automobile fuel efficiency is less sensitive to fuel prices and income than previously believed. This study also found that fuel price and automobile taxation differentials account for most of the differences in automobile fuel economy across countries.

“Gathering Information about a Population Difficult to Quantify: A Qualitative Approach.” Annette Levi and Ron Hodgson (California State University, Chico)

Four groups of agricultural employees were assessed on their knowledge of the California Agricultural Labor Relations Act. Information was also gathered to develop an effective plan to inform workers. Workers are somewhat aware of their right to organ-

ize but need to be further informed by media and trusted community leaders.

Session: Farm and Ranch Management Issues. Moderator: Dawn Thilmany (Utah State University)

“The Effect of Calf Weight and Age on Returns to Retained Ownership: A Target-MOTAD Approach.” Dillon M. Feuz and Jack A. Schulte (South Dakota State University)

Calf weight distribution from a cow herd was incorporated into a Target-MOTAD model of retained ownership. All steer calves and heavy heifer calves were placed directly in a feedlot and sold as slaughter animals for the profit-maximizing and risk-minimizing solutions. Risk minimization involved selling medium weight heifers at weaning.

“Estimating Biases toward Sustainable Agriculture from Crop-Based Programs.” Glenn A. Helmers, Steven L. Elmore (University of Nebraska), Joseph A. Atwood (Montana State University), and Kevin J. Bernhardt (University of Nebraska)

Crop-base commodity programs result in positive and negative biases toward sustainable agriculture. The objective of this analysis was to quantify those biases. The results found only potential and small biases. A model with yield-cost and machinery-labor interactions between crops was found to be the most appropriate of four models.

“Determining Conservation Reserve Program (CRP) Lease-Price Elasticity in Colorado.” Mary Riddel and Melvin Skold (Colorado State University)

Empirical analysis of data obtained from a survey of CRP contract holders in Colorado reveals that CRP lease price is inelastic with respect to wheat price variation. Hence, policies formulated to reduce the expected return from wheat will not result in proportionate reduction in CRP rental rates.

“Forecasting with Scenario Analysis: An Application to the U.S. Beef Cattle Indus-

try.” Larry W. VanTassell, Dale J. Menkhaus, and Kiersta S. Utermohlen (University of Wyoming)

Scenario analysis was used to develop three scenarios that the U.S. beef industry will most likely face over the next ten years. Nine major factors were identified as being most consequential. Scenarios indicated that profit margins of producers will narrow, with demand tending to stabilize or decrease.

Session: Imports, Exports, and Trade Policies. Moderator: Myles Watts (Montana State University)

“Export Credit Guarantees: A Welfare and Strategic Analysis.” D. Demcey Johnson (North Dakota State University)

This paper develops an analytical model of export credit guarantees, as provided to selected importers of wheat and other commodities under U.S. GSM programs. Welfare effects are illustrated graphically and strategic implications are examined through model simulations.

“U.S. Banana Import Demand.” Joaquin Arias (Oklahoma State University), Amy Larsen Sparks (USDA), and David Heneberry (Oklahoma State University)

In this paper, import demand for bananas is examined for the U.S. market. The model is used to explain the competitive relationship among major Latin American banana suppliers. Appropriate tests for functional form, weak separability, and exogeneity of the conditional expenditure variable are performed.

“The Economic Effects of U.S. Lamb Imports.” Barry Munsell, Glen Whipple, and Dale Menkhaus (University of Wyoming)

Theoretical and empirical models of the U.S. sheep industry are developed. The empirical model is simulated to determine the impact of a complete ban on lamb imports

on actors in U.S. lamb and wool markets during 1989–92. The model indicates the U.S. sheep producers' lamb and wool outputs and revenue economic surplus would be enhanced by a quota on lamb imports, while foreign wool producers' surplus would decline.

“Which Bull’s-Eye? Revealed Objectives of Wheat EEP Targeting: 1986–92.”
Stephen L. Haley and David W. Skully
(USDA/ERS, Commercial Agriculture Division)

This paper is part of a research program on the export enhancement program (EEP) for wheat. Simulation models determine the combination of objectives most consistent with the observed distribution of EEP subsidies for 1986–92. Export promotion and retaliation against Canada are revealed to be at least as important as retaliation against the EU.

Session: Semi- and Nonparametric Analysis.
Moderator: David K. Lambert (University of Nevada, Reno)

“A New Method of Estimating Stochastic Production Functions.”
Safer Al-Kahtani and E. Sofian Badr El-Dine
(King Saud University, Saudi Arabia)

The purpose of this paper is to develop a new method of estimating production inefficiency with frontier production functions. A composed additive disturbance term is specified as the sum of symmetric and nonpositive random variables. A normal equation is derived to estimate the coefficients and inefficiency measures.

“Semiparametric Estimation of Yield Loss due to Mistiming of Crop Operations.”
Amresh Hanchate
(Case Western Reserve University)

Timing is critical for crop cultivation. If, in addition to production data, we have timing information, how should the impact of timing on yield differences across farms be estimated? This paper proposes a semiparametric regression method of estimating a production function using timing dates and input data as

explanatory variables.

“Relative Efficiency in Food Processing Industries: An Application of Data Envelopment Analysis.”
Michael A. Mazocco and L. Martin Cloutier
(University of Illinois)

Data envelopment analysis (DEA) is applied to primary input and output data in a small sample of food processing plants. Efficiency scores are obtained for meat processing and dairy processing plants aggregated at the three-digit SIC level. Results indicate a wide range of technical efficiency among similar plants.

“Productivity in LDC Agriculture: Nonparametric Malmquist Measures.”
Lilyan E. Fulginiti
(Iowa State University) and Richard K. Perrin
(University of Nebraska)

This paper examines changes in agriculture productivity in 18 developing countries over the period 1961–85. We use the quantity-based Malmquist index approach. About half of these countries have experienced productivity declines in agriculture. The countries that tax agriculture most heavily had the most negative rates of productivity change.

Session: Consumer Demand Analysis.
Moderator: Joan Fulton
(Colorado State University)

“Consumer Food Safety Concerns and the Consumption of Fresh Produce.”
Han Qiang and Shida R. Henneberry
(Oklahoma State University)

Consumer concerns about chemical residues in/on fresh produce have been growing in recent years. This study finds that these concerns have had significant impacts on the consumption of most major fresh produce items in the United States from 1970 to 1992.

“Structural Change in Potato Demand: Tuber or Not Tuber?”
Timothy J. Richards, Albert Kagan, Richard Adu-

Asamoah, and Pamela Mischen (Arizona State University)

A dynamic LA/AIDS model of U.S. staple carbohydrate consumption investigates the possibility of structural change between 1970 and 1991. Test of parameter stability indicates a convenience-driven change towards frozen potato, rice, and pasta consumption. Frozen potato price flexibility increases with demands for convenience, whereas, dehydrated potato flexibility falls.

"The Impact of Structural Changes on the American Diet: A Comparison of the 1960s and the 1990s." John D. Schmitz and Nancy Mather (University of Wyoming)

The 1970s and 1980s were a time of changing nutrition information and awareness, food safety concerns, and lifestyles. Shifts in food demand are estimated and food consumption levels before and after this transition are compared. Impacts of prices, food budgets, and structural changes on the diet are identified.

"Incorporating Population Distribution Changes in Aggregate Demand Functions: The Case of Chinese Expenditure Data." Hongqi Shi, Ron Mittelhammer, and Thomas I. Wahl (Washington State University)

This paper assesses the effects of population distribution changes on aggregate demand functions using China's urban consumer expenditure survey data. The results indicate that the distribution changes have significant effects on demand elasticities.

Session: Land Values, Lease Characteristics, and Wheat Varieties. Moderator: Larry W. VanTassell (University of Wyoming)

"Demand for Grazing on Public Lands: A Disequilibrium Analysis Using Panel Data and Flexible Functional Form." Rangesan Narayanan, Arunava Bhattacharyya, and Thomas R. Harris (University of Nevada, Reno)

A demand function for grazing on western public rangelands is estimated using a disequilibrium market model. A twenty-six-year

data panel of ten western states is used. State- and time-specific price elasticities of demand for grazing are calculated. Own-price elasticity of demands for public rangelands is inelastic.

"Determinants of Private Rangeland Lease Rates in the Western United States." Scott M. McNeley and Larry W. VanTassell (University of Wyoming)

This study examines the responsiveness of private rangeland lease rates to market conditions over the past three decades. Private rangeland lease rates in the eleven western states have been influenced by lagged cattle prices, hay prices, prices paid for inputs, and lagged lease rates. Implications for public grazing fees are also drawn.

"The Determinants of Wheat Variety Selection in Kansas, 1974-93. Lori Porter and Andrew P. Barkley (Kansas State University)

Regression analysis is used to quantify the relationship between planted wheat varieties and characteristics relating to production and end-use qualities. Results indicate that Kansas wheat producers consider end-use qualities, production characteristics, yields, and previous decisions when selecting wheat varieties. Adjustment to higher quality wheat will require several years.

"Tenant Satisfaction with Land Leases: Are Factors Other Than Type and Terms Important?" Ralph Bierlen, Lucas D. Parsch, and Diana M. Danforth (University of Arkansas)

Ordered probit models are used to determine tenant satisfaction with land leases. Results for Arkansas tenants indicate that lease terms are important, but lease type is not. Other significant factors are longevity of lease, tenant ability to bargain effectively, tenant relation to landlord, land quality, and yield variability.

Session: Topics in Risk Analysis. Moderator: Arunava Bhattacharyya (University of Nevada, Reno)

“Refutable Implications of the Firm Model under Risk.” Atanu Saha and C. Richard Shumway (Texas A&M University)

Indirect utility function curvature properties are shown to be necessary and sufficient for refutable behavioral postulates in the form of comparative static results, reciprocity relations, and restrictions on output and input responses for firm models under risk. These implications are not rejected when they are tested using firm-level data.

“Graphical Sensitivity Analysis for Generalized Stochastic Dominance.” Francis McCamley and Richard K. Rudel (University of Missouri, Columbia)

This paper suggests that graphs could replace or supplement the limited sensitivity analyses which sometimes accompany applications of generalized stochastic dominance (GSD). One graphical approach is suggested and illustrated for two versions of the GSD criterion. The approach is applied to a simple problem involving nine probability distributions.

“The Importance of Utility Functional Form in Modeling Producers’ Risk Preferences.” Jeffrey Gillespie (Louisiana State University) and Vernon R. Eidman (University of Minnesota)

Constant absolute risk aversion is assumed in many studies analyzing producers’ decisions under risk. While convenient, this assumption may result in major errors when agents are decreasingly absolute risk averse. This study examines some computational advances and functional forms allowing greater estimation precision and analyzes the implications for decision analysis.

Session: Commodity Markets, Futures, and Hedging. Moderator: Allen Featherstone (Kansas State University)

“An Assessment of Risks and Returns from Soybean Marketing Strategies in Nebraska.” George H. Pfeiffer, Cary L. Sandell, and James G. Kendrick (University of Nebraska, Lincoln)

Profitability of 372 soybean marketing strategies were evaluated from 1979 to 1992. Significant risk premiums existed in the May–June period, suggesting the importance of pricing early in the year. Little advantage to unprotected storage was found. A premium above storage cost was possible by hedging while the basis closed.

“Mean Reversion in Cotton Futures Prices: Implications for Hedging Strategies and Trading Profits.” Changping Chen, Emmett Elam, and Don Ethridge (Texas Tech University)

This study found that when the planting time price of December cotton futures was high relative to the long-term average, the harvest price would tend to be lower and vice versa. This process is called mean reversion. Hedging/speculation strategies, devised to take advantage of mean reversion, showed significant returns in a fourteen-year simulation.

“Comparison of Minimum Variance and Target-MOTAD Futures Market Positions When Local Crop Yield Estimates Are Available.” Richard K. Rudel, Kenneth D. Kephart, and Francis McCamley (University of Missouri, Columbia)

This paper considers the use of local crop yield estimates to help adjust growing season futures market positions for Missouri soft wheat producers. Minimum variance adjustable futures positions based on an extension of the work of Mathews and Holthausen are compared with positions based on a Target-MOTAD model.

“Measuring Hedging Potential with Basis Risk: Applications for California Cattle Producers.” Dawn Thilmany (Utah State University) and Steven C. Blank (University of California, Davis)

This study analyzes the relationship between a hedger’s objectives and the potential for hedging in the California cattle market. Although evidence of correlation between futures and local cash prices exists, it varies across time, space, and product form. Potential for utility maximization is

widely offered by these markets but not for risk minimization.

Session: Crop and Livestock Market Analysis. Moderator: Changping Chen (Texas Tech University)

“Price Asymmetry in the Livestock Marketing Channel: An Error Correction Representation.” Samarendu Mohanty (University of Nebraska, Lincoln), Jacinto Fabiosa, and Darnell B. Smith (Iowa State University)

This study examines price asymmetry in the livestock marketing channel using an error correction model (ECM). The results suggest that both wholesale and retail price asymmetry are present in the beef marketing channel, but there was no evidence of price asymmetry in the pork marketing channel.

“Fed Cattle Price Discovery: Research Results from Experimental Simulation.” C. E. Ward, S. R. Koontz, D. S. Peel, and J. N. Trapp (Oklahoma State University)

Results are reported from price discovery research on 2,682 simulated fed cattle transaction prices. Results were consistent with prior research conducted with primary data from cattle feedlots. The authors argue—but cannot prove—that their Fed Cattle Market Simulator can be used for research to derive inferences about the feeding-packing industry.

“Factors Influencing the Economic Impacts of Establishing a Utility Trade for Wheat in the PNW Region.” John Foltz, Jurgen Kropf, and Larry Makus (University of Idaho)

Pacific Northwest grain firms were surveyed regarding a utility wheat grade. Respondents indicated less effort should be given to establishing a utility wheat grade relative to reducing unfair trade and other methods of improving service to importers. Smaller and very large operations felt they would incur significant problems with the program.

“Economic Analysis of the Effectiveness of Cotton’s Generic Promotion.” Ping Zhang,

Stanley M. Fletcher (University of Georgia), and Don E. Ethridge (Texas Tech University)

Effectiveness of cotton generic promotion is analyzed in a multifiber demand system for the period 1978 to 1993. Results suggest that generic promotion had a significant impact on U.S. domestic cotton consumption. Estimated positive net returns resulting from the generic promotion imply that cotton producers have benefited from such investments.

Session: Production Economics. Moderator: Rangesan Narayanan (University of Nevada, Reno)

“A Comparison of Crop Production Functions for Irrigated Corn in Western Kansas Using Simulated Yield Data.” Richard V. Llewelyn and Allen M. Featherstone (Kansas State University)

Simulated Kansas data are used to estimate corn response to nitrogen and water for quadratic, square root, Mitscherlich-Baule, and linear von Liebig functions. The von Liebig is superior to the square root and Mitscherlich-Baule but not the quadratic. Costs of incorrectly using the quadratic are relatively low, but substantial costs exist when incorrectly using the von Liebig.

“A Cointegration Analysis of Agricultural Production Relationships.” Hongil Lim and C. Richard Shumway (Texas A&M University)

U.S. crop and livestock production relationships are examined using time-series econometrics and alternative functional forms. Cointegrated models are estimated. Test results are sensitive both to the time-series specification and functional form. The normalized quadratic is the preferred functional form, but the translog’s estimates exhibit greater theoretical consistency.

“A Bioeconomic Decision Model for Profitable Weed Management in Dry Peas.” Tae-Jin Kwon (Korea Rural Eco-

conomic Institute) and Douglas L. Young (Washington State University)

In comparison to herbicide rates used in a six-year experiment, a bioeconomic model for peas recommended increases in preplant-incorporated and postemergence grass herbicides but reductions in other herbicides. The model behaved consistently with agronomic and economic theory in response to changes in weed populations, herbicide costs, and crop prices.

"Adoption of Trichomoniasis Vaccine by Nevada Cattle Ranchers." Arunava Bhat-tacharyya and Thomas R. Harris (University of Nevada, Reno)

Rate of adoption of Trichomoniasis foetus vaccine is studied using a multinomial logit model of survey data. Results indicate wide differences among five categories of respondents. Potential adoption rate is 62%. Cooperative extension program, use of computers, veterinary check-up, herd size, and education significantly influence the probability of early adoption.

Session: Factors Influencing the Adoption of Sustainable Agricultural Practices. Moderator: Douglas Franklin (South Dakota State University)

"Irrigation Maintenance Incentives without Coercion." Michael J. Luzius (Colorado State University)

A game theoretic approach is used to describe how the incentives of water users to maintain irrigation ditches vary spatially and intertemporally. Expressions are derived which relate water loss due to seepage and the discount rate, time, and distance. These relationships are then linked to irrigation policies in developing countries.

"Adoption of Nonchemical Pest Management Practices: Results from a Survey of Independent Crop Consultants." Walter Ferguson, Jet Yeet (USDA/ERS), and Mi-

chael Fitzner (USDA/Cooperative State Research, Education, and Extension Service)

This paper analyzes results from a 1994 survey of independent crop consultants to determine the level of adoption by farmers of nonchemical pest management practices and to determine the major factors aiding and limiting adoption. Consultants indicated that the major limitations to adoption are lack of available tactics and potential lower yields.

"Power of Various Socioeconomic, Agronomic, Demographic, and Physical Characteristics in Predicting a Producer's Conventional versus Sustainable Farm System Orientation." Kevin J. Bernhardt and Glenn A. Helmers (University of Nebraska, Lincoln)

Important for inducing adoption of sustainable agriculture practices is understanding the characteristics of conventional/sustainable systems. Discriminant analysis is used to examine how well various socioeconomic, agronomic, demographic, and physical characteristics predict conventional/sustainable systems. Farm structure, cropping practices, and demographic characteristics contain explanatory power while organizational affiliation is weak.

"Analyses of Two Pilot 'Green' Payment Programs: Integrated Crop Management and Water Quality Incentive Program." Lon Henning, Tom Dobbs, Burton Pflueger, and John Bischoff (South Dakota State University)

The goal of this study is to determine if recently introduced "green payment" programs offer sufficient incentives to induce more sustainable farming practices and systems. Data from case farms were analyzed to estimate profitability before and after participation in two pilot programs.