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## Invited Paper Abstracts

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

### WAEA PRESIDENTIAL ADDRESS

#### **“Deterministic Modeling Is Good.” Ray G. Huffaker (Wash. State Univ.).**

The risk literature in agricultural economics claims that deterministic methods inherently disregard uncertainty, and thus strongly discourages using them to model economic behavior. The Presidential Address applied principles of randomness drawn from the philosophy of science literature to test this claim, and to formulate proper implications for the use of deterministic methods under uncertainty. The results characterize the range of circumstances for which deterministic methods offer a scientifically credible alternative to probabilistic methods in accounting for uncertainty.

### WAEA FELLOWS ADDRESS

#### **“Liberalizing Agricultural Trade: Will It Ever Be a Reality?” Alex F. McCalla (Univ. of Calif., Davis).**

Eight years after the signing of the Uruguay Round Agreement on Agriculture, there has been precious little agricultural trade liberalization. The new round of negotiations, the Doha Round, is proceeding slowly. And the major force for liberalization last time—the United States—has just passed a decidedly illiberal, expensive, and trade-distorting Farm Bill which, in most people’s judgment, has made the United States an impotent hypocrite never to be listened to again. Despite the fact that the major beneficiaries of agricultural trade liberalization would be poor developing countries (a post-9/11 priority), little progress will be made until rich countries stop throwing money at their generally better off large farmers. It is a sad story indeed. Even though agriculture is now under WTO rules, real liberalization remains as elusive as ever.

#### **INVITED PAPER SESSION: *Coordinating Science and Technology in the Agricultural Biotechnology Revolution.* Organizer/Moderator: Steven Buccola (Oreg. State Univ.).**

#### **“The Role of Patents in Inducing Research to Produce Science and Technology: Case Studies of Rice Genomics and Plant Transformation Technologies.” Carl E. Pray and Anwar Naseem (Rutgers Univ.).**

This paper examines the role of patents in the development and use of two platform technologies for plant biotechnology—plant transformation techniques and structural genomics. We find that patents were important in inducing private firms to develop these platform technologies. Private development led to the commercialization of more GM varieties, more rapidly than would have been the case otherwise. We did identify a number of examples of GM varieties that were slowed down by the patents on tools. However, our preliminary assessment of the evidence suggests that the benefits from patents on tools outweigh the costs.

#### **“Are There Synergies or Tradeoffs Between Articles and Patents in University Ag-Biotech Research?” Kwansoo Kim (Seoul Nat’l. Univ.), Jeremy D. Foltz, and Bradford L. Barham (Univ. of Wisc., Madison).**

This paper searches for evidence of synergies or tradeoffs associated with the rise of ag-biotech patenting at Land Grant universities by examining whether journal articles and patents are complementary or competing activities in ag-biotech research. The work estimates nonparametric regressions of expansion paths of universities in a multi-product world of articles and patents to check for consistency with economies of scope and scale. The results are strongly consistent with scope and scale economies between basic research as represented by journal articles and commercial research as represented by patents across both quantity and quality space.

#### **“Information Pathways in Biotechnological Innovation: The Demand for Intellectual Property.” Steven Buccola (Oreg. State Univ.), Yin Xia (Univ. of Mo., Columbia), and Terri Lomax (Oreg. State Univ.).**

We develop a theory of the laboratory demand for intellectual property in modern biotechnology. The theory is illustrated by reviewing the laboratory steps taken in the development of golden rice and virus-resistant papaya. Included are identification of donor genes and promoters, choice of vector, and use of transmission and regeneration methods. We show that the scientist must choose at each stage between using a patentable procedure or developing her own procedure (“inventing-around”). Such choice optimally depends

on expected cost, and hence can be characterized in an ex ante cost function. The model is used to develop testable hypotheses about intellectual property demand.

**“Clearinghouses for Intellectual Property Rights: The Cases of Agricultural and Medical Biotechnology.” Gregory Graff and David Zilberman (Univ. of Calif., Davis).**

An intellectual property clearinghouse is a market-supporting institutional innovation proposed to reduce transaction costs for the commercialization of innovations by increasing transparency about ownership of intellectual property rights (IPRs) and providing mechanisms for pre-commitment or fast negotiation of licenses, thereby expanding the set of IPRs accessible for follow-on research and product development. The first examples of a clearinghouse mechanism to emerge in biotechnology are primarily being used to promote market differentiation and technology transfer into developing countries. This paper provides case studies in three new initiatives that play at least some of the roles of an IPR clearinghouse. Because considerations for licensing vary across the different kinds of owners of IP, we are seeing separate clearinghouse organizations designed for public- and private-sector IP owners. In fact, it appears that developing countries may have easier access to company IPRs than to university IPRs. Organizational structures may change as biotechnologies evolve and mature, and we may see in the longer run the emergence of several blocs that will swap rights to different kinds of biotechnologies.

**INVITED PAPER SESSION: *Farmland Prices as an Indicator of Competitiveness in the New Global Economy: Prospects for California and Western U.S. Agriculture.* Organizers: Kenneth W. Erickson and Ashok K. Mishra (ERS/USDA); Moderator: Ashok K. Mishra.**

**“California Agricultural Land Values.” Gary Rudolf (Calif. chapter, American Society of Farm Managers and Rural Appraisers).**

This paper examines key factors affecting California farmland values within the state, regions within the state, and on specific properties. Although estimates of the average annual percentage change in California farmland prices are useful indicators of farmland market conditions, there are great variations in farmland prices across the state even within the same land use types. In fact, because of many variable factors, such as variations in foreign competition, trade agreements, fluctuations in the value of the dollar,

governmental regulations, state of the economy, crop production levels, crop quality, and water issues, we may see wider year-to-year variations in California farmland values in the future.

**“Recent Advances in Estimating State-Level Farmland Values: A USDA/NASS Perspective.” Linda Hutton (USDA/National Agricultural Statistics Service).**

This paper discusses recent advances in USDA/NASS’s methodology and procedures for estimating state-level farmland values. It reviews NASS’s mission, discusses the importance of developing consistent and comparable farmland value estimates, and describes recent advances in NASS’s farmland values survey design, data collection, processing, and dissemination.

**“Western U.S. Farmland Markets: What Drives Price Differences?” Allen M. Featherstone, Terry L. Kastens, and Kevin C. Dhuyvetter (Kans. State Univ.).**

Rent-to-value ratios for agricultural land vary widely from state to state, leading to questions about whether agricultural land is consistently priced among states. The taxation of land can affect ownership patterns in addition to the value of land both among states and within states. Maximum bid models are used to assess different tax policy options and their effect on the value of land and land ownership patterns. Results suggest that taxation and nonagricultural growth play a major role in explaining differences in land value among states. Thus, land value differences reflect many other factors in addition to the underlying productivity.

**“Estimating Western Farmland Values: The Effect of Return on Assets, Productivity Growth, and Urbanization Over Time.” Charles B. Moss (Univ. of Fla.).**

Changes in farmland values have been a perennial subject of agricultural research. This continued interest results from the dominance of farmland values on the agricultural balance sheet and the importance of farmland in the production process. This study examines the impact of urban pressure on farmland values in the western United States and the impact of technological change. In estimating the impact of these factors, the study uses recent advances in econometric techniques that both account for nonstationarity in the data and allow for the use of cross-sectional data. The results indicate that both urban pressure and changes in technology cause farmland values to increase over time.