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Invited Paper Abstracts

WAEA PRESIDENTIAL ADDRESS

"The Challenge to Think Big as American Agriculture Shrinks." Steven C. Blank (Univ. of Calif., Davis).

A multi-part test is proposed for the hypothesis that American production agriculture is shrinking. The results of the three tests presented here are consistent with a shrinking American agricultural sector that is on the verge of, but not yet in, the final decline stage of its "life cycle." The sector is clearly shrinking in relative size and importance, and in absolute size, and its economic performance has been weak for decades. These changes in agriculture and their implications for the agricultural economics profession are discussed. Finally, (at least) two challenges to American agriculture and the agricultural economics profession are raised.

WAEA FELLOWS ADDRESS

"Water Rights and Efficient Transfers." B. Delworth Gardner (Prof. Emeritus of Economics, Brigham Young Univ., and Prof. Emeritus of Agricultural Economics, Univ. of Calif., Davis).

For more than half a century, in nearly all Western states, the regulatory agencies (the State Engineer or equivalent) used impairment of other water rights as the primary criterion for approving or rejecting change applications to move water to higher valued uses. In recent years, however, protests to change applications have been brought by "stakeholders" who do not own water rights, but who argue they are affected by water transfers. Under the impairment rule, these parties do not have statutory standing to protest successfully. But they have brought legal suits to block transfers, and the courts have considered whether additional criteria involving "impacts on social welfare" are needed to evaluate transfers. State Supreme Court rulings on such suits in Utah and Nevada are reviewed as prototype cases. The Utah court held that additional "social welfare" criteria must be utilized by the State Engineer in evaluating change applications, whereas the Nevada court held that such criteria were already incorporated in existing water statutes and administrative practice. The critical question

raised in the paper is whether existing state regulatory agencies can effectively implement a real "social welfare" criterion to evaluate change applications. The conclusion is that they probably cannot, and that if they try, water allocations will be politicized to a much greater extent than they are now, and efficient market transfers will be impeded if not completely prevented.

INVITED PAPER SESSION ONE. Presiding: Gary W. Brester (Mont. State Univ.).

"Transgenic Crops and the Environment: The Economics of Precaution." David E. Ervin (Portland State Univ. and Winrock International), Sandra S. Batie (Mich. State Univ.), Chantal Line Carpentier (Commission for Environmental Cooperation, Montreal), and Rick Welsh (Clarkson Univ.).

Standard risk-benefit analysis, as embodied in the U.S. regulatory process, addresses environmental risks of transgenic crops. However, it does so mainly by reducing Type I error; that is, the error of inappropriately banning the release of a transgenic crop that, in reality, has negligible environmental risks. There is a need for a more fully developed and articulated "economics of precaution" that extends beyond standard risk-benefit models and considers Type II errors, uncertainties, and "surprises." While a more cautious approach does not imply a moratorium on all transgenic crops, it does imply the need for more economic, environmental, and social research.

"Agriculture as a Managed Ecosystem: Policy Implications." John M. Antle and Susan M. Capalbo (Mont. State Univ.).

One of the greatest challenges facing agriculture is to resolve conflicts caused by a growing competition for the services of the soil, water, and other natural resources. To meet this challenge, research is needed that is integrated across the relevant sciences to better understand and predict the properties of agricultural production systems in the dimensions associated with sustainability. With this capability it would be possible to move beyond the current regime of policies driven by income redistribution to more science-based agricultural policies which recognize the tradeoffs associated with competing uses of our natural resources.

**INVITED PAPER SESSION TWO. Presiding:
James Mintert (Kans. State Univ.).**

"Economics of Exotic Pest Policy: Principles and Issues, Including WTO Sanitary and Phytosanitary Rules." Daniel A. Sumner (Univ. of Calif., Davis).

Economic models suggest that collective action for exotic pests follow biological, not political boundaries. Actual exotic pest policy in the United States and the Sanitary and Phytosanitary WTO Agreement of 1994 recognize this principle. Three cases illustrate actual and potential policy responses to exotic pests. For foot-and-mouth disease, simulations show that costs of an outbreak in the United States would be huge and international trade impacts are important. Ex ante analysis of citrus canker outbreaks show costs of eradication depend on spread, and export implications. Analysis of actual rice blast in California shows how a pest can enter despite considerable exclusion efforts. The optimal policy response to the introduction is to accept establishment, not eradication.

"Biotechnology and Low-Income Nations, with an Emphasis on China." Jikun Huang

(Center for Chinese Agricultural Policy, Beijing, China), Scott Rozelle (Univ. of Calif., Davis), and Carl Pray (Rutgers Univ.).

As the world debates the promises and dangers of plant biotechnology in North America and Europe, a new source of plant biotechnology discoveries is emerging within China. The primary goal of this paper is to provide an overview of the resources invested in, and the output of, plant biotechnology in China from the viewpoints of both those who are creating it and those who are using it. Based on our data, we find that China has the largest plant biotechnology capacity outside of North America, and is far ahead of almost all other developing countries. The government's public investment in plant biotechnology has created a long list of new genetically modified crops. Moreover, China's farmers were not only among the first in the world to adopt GM varieties, they are cultivating more area of GM plants than any other smallholder agriculture. Our analysis shows that Bt varieties of cotton reduced the costs of production, increased the income, and possibly improved the health of poor farmers in China, and that the economic benefits from the government varieties were far higher than the current cost of all plant biotechnology research in China.