

AAEA 1998 Selected Paper Session

**Agricultural Production and the Environment, with a Focus on Climate**

**Discussion**

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The four papers in this session are related through their emphasis on agricultural production. Two papers examine the probable impacts of global climate change and of weather forecasting on agricultural production at a regional level. The two remaining papers focus on the interrelationship of production agriculture and the environment.

The paper by Walburger and Klein, Impacts of Global Warming on Cropping Practices in Alberta, considers the probable impact of climate change on Alberta agriculture using a scenario-based approach. Under several alternative climate scenarios, they find that it is likely that crop yields will increase and planting and harvest dates move forward. This may be positive for the Alberta agriculture sector, and land prices are expected to increase accordingly.

The paper by Hill, et al., The Value of El Niño Forecast Methods For the U.S. Winter Wheat Producers, Do They Differ?, examines the potential impacts of two intermediate run weather forecasting methods on decisions made by winter wheat producers in Washington, Texas

and Kansas. They find that a five-phase approach to forecasting El Niño and Southern Oscillation effects is more valuable to producers than the commonly used three-phase approach.

Both of these papers consider the potential impacts on agricultural producers of changes in weather and climate. In Alberta, these climate changes are found to have positive effects on producer economic welfare. In Washington, Texas and Kansas, weather analysis and forecasts which provide more detail can be profitably used by agricultural producers.

These kinds of studies are important in that agricultural producers must become increasingly adept in a changing world. The phase-out of U.S. agricultural programs and the need to adjust to free market conditions have meant that agricultural producers will be making decisions with a greater need for information and for an understanding of the entire agricultural production system, both the biology and the economics. Better weather and climate information will be of major importance, but costly to obtain. One challenge for the agricultural economics profession is to comprehend how agricultural producers will be affected by changes in the natural environment. A second important undertaking is to understand the value of this information to agricultural producers, to compare that value with the cost of obtaining and analyzing the data, and to evaluate and suggest ways to enhance the overall efficiency of the agricultural system.

The other two papers in this session deal with the challenges to agricultural producers posed by the regulatory environment. The paper by Jones and D'Souza, Trading Poultry Litter at the Watershed Level: A Goal Focusing Application, investigates proposed solutions to the waste problems which come with increasing poultry production. They examine methods to distribute this litter, considering the potential impacts on watersheds.

The paper by Van Tassell, Bartlett and Mitchell, A Futuristic Look at the Use of Grazed Forages in the Western United States, takes an expert-opinion-based approach to evaluating the probable future of livestock production on rangelands. They find a consensus that livestock populations will likely decrease while wildlife populations will rise. This is due in part to increasing regulatory pressures.

These last two papers point to another environmental force with which agricultural producers must cope: government regulation. While producers are now experiencing "freedom to farm", the demise of agricultural support programs and decreasing government intervention in one aspect of their businesses, they find increasing government concern in other areas. As much as many of the populace want affordable and high quality foodstuffs, they also want a clean and safe natural environment. The challenge for agricultural and resource economists is to examine and quantify the costs and benefits of regulations and pollution avoidance and/or mitigation measures and the potential impacts on agricultural and resource production. A second focus should be on developing mechanisms, such as tradable permits, which allow markets to work to solve these problems perhaps more efficiently than second best approaches.

In summary, all of these papers address issues important to the future of agricultural production and make notable contributions to the literature. Whether the pressures for change come from weather and climate or regulation, the agricultural sector is in the midst of rapid and continuous change. Some of this change is structural in nature and may alter the fundamentals of agricultural and resource operations and markets. Economists must contribute an understanding of the causes, processes and consequences of these changes so as to better prepare the agricultural and resource sectors to prosper.

## References

- Hill, Harvey S.J., J. Park, J.W. Mjelde, W. Rosenthal, H.A. Love and S.W. Fuller. The Value of El Niño Forecast Methods For the U.S. Winter Wheat Producers, Do They Differ? Selected Paper, American Agricultural Economics Association Annual Meetings, Salt Lake City, August 1998.
- Jones, K. and G. D'Souza. Trading Poultry Litter at the Watershed Level: A Goal Focusing Application. Selected Paper, American Agricultural Economics Association Annual Meetings, Salt Lake City, August 1998.
- Van Tassell, L.W., E.T. Bartlett and J.E. Mitchell. A Futuristic Look at the Use of Grazed Forages in the Western United States. Selected Paper, American Agricultural Economics Association Annual Meetings, Salt Lake City, August 1998.
- Walburger, A.M. and K.K. Klein. Impacts of Global Warming on Cropping Practices in Alberta. Selected Paper, American Agricultural Economics Association Annual Meetings, Salt Lake City, August 1998.