ECONOMIC IMPACTS OF CHEMICAL USE REDUCTION ON THE SOUTH:DISCUSSION

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I agree with the authors (Taylor, Penson, Smith and Knutson) that agricultural economists can and should attempt to shed light on the topic of a reduction or elimination of chemical use in agriculture. It is an issue that has been raised and is not likely to go away in the near future. Reasoned judgments must be made based on the best available data and analyses and not the perceptions, sometimes without basis in scientific fact, of special interest groups.

The points made in the paper are geared to a professional audience that is familiar with the topic and the analytical concepts involved, as opposed to a general audience. In the setting where this paper is being presented, namely a professional association, such an approach is appropriate.

As the authors indicate, the issue is difficult to address, and because of the way regulations, administrative procedures, and laws are currently written, reducing chemical use by a given percentage is precluded as an option. If scenarios were to be developed consistent with existing authorities, the scenarios would be too complex and costly to analyze. For example, EPA, which is charged by Congress with administering FIFRA, regulates pesticides on a case by case basis.

The economic models available for analysis of this issue are not adequate. The changes that will occur, or could occur, could be greater than any changes that have occurred in the past. Consequently, potential results are difficult to interpret.

We, in the Economic Research Service, are doing some work in this area. Our analysis involves a version of the model the authors use, AGSIM, developed by Bob Taylor, for a number of major field crops, a CGE Model that addresses the general economy, and the California Agricultural Resource Model (CARM) for fruits and vegetables. In terms of point estimates, we have some differences, but they are not appreciable.

While there is difficulty in making point estimates, I think it is safe to say that elimination of chemicals in agriculture will have large impacts and that the effects on consumer prices will be great. Prices to consumers will increase as production declines; and diversity of production will change. We know that production changes will differ among commodities. Fruits and vegetables will be hardest hit while major field crops, with the exception of peanuts, will be affected less. The jury is still out on livestock, but it is possible that production would decline as input prices increase.

Some of the predicted changes may be on the high side. For example, the forecast corn price effects resulting from a decrease in herbicide use may be larger than expected. Projected changes in fruit and vegetable prices resulting from elimination of chemicals, however, could be on the low side. At this point it is not possible to make sound objective judgments, but only raise some questions. What is needed is a concerted effort to develop estimates of changes in yield and quality that would result from changing or eliminating chemical use in agriculture. These data (or estimates) are hard to develop, but it can be done and a consensus can be developed. Help is needed from all of us, especially the biological scientists, to develop these estimates.

Economic impacts will be greatest in the short and intermediate term, with output decreasing and prices increasing. The changes will be substantial, but we don't know and can't predict how great they will be. In the longer term, as biotechnology develops, technology transfer occurs, diets change, and other changes occur, economic impacts will lessen. The time frame, however, in which these events will occur is not known.

The role of imports needs to be explicitly considered. If ground water is the concern, then perhaps imports should be allowed. If pesticide residues on imported food are the concern, then perhaps imports should be restricted or costly regulatory mechanisms to ensure food safety should be put in place.

In summary, I believe this paper attempts to place in perspective changes that could occur if chemicals were eliminated in agriculture. It is possible to disagree with particular point estimates of change that the authors have made. I believe, however, the important points are that changes resulting from an elimination of chemicals in agriculture will be con-

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siderable; current models are not equipped to address the extent of change, but can indicate direction; and more effort needs to be made in estimating yield and quality changes associated with changes in agricultural chemical use.