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## DISCUSSION: POLICY CONSIDERATIONS OF EMERGING INFORMATION TECHNOLOGIES

Joe T. Davis

The development and adoption of information technologies to the marketing and production of food and fiber has raised numerous issues which our profession will have to address in years to come. Professor Sporleder has presented an outline which can direct our thinking concerning the policy issues arising from the use of these new technologies in the agricultural sector. I agree with his statement that society has entered the "information age" and would add that the agricultural sector is experiencing this transformation along with other segments of the economy. The decade of the 1980's will most likely be remembered as a period of rapid technological development and adoption, especially in the area of computer use and information delivery.

This discussion will attempt to accomplish three objectives: (1) to discuss the evolution of the issues raised in the paper, (2) to refine some of the issues, particularly those relating directly to the land-grant system, and (3) to offer differing viewpoints on some of the implications presented.

Considerable time was taken to present what was called "traditional farm structure and marketing policy issues" which covered the areas of control, market access, thin markets, and public information availability. There is no particular argument concerning these issues relating to markets and production activities; however, the linkage to the emerging technologies associated with information delivery was somewhat unclear. The author indicated that these issues were presented to enhance the articulation of those issues created by emerging information technologies. When the issues related to information were presented, the relationship of these traditional issues to the new ones was not clear. There was an element of control involved in the issue of access to information; however, I do not believe that this is in the same vein as the traditional policy issue of "Who Will Control Agriculture?" Also, the traditional issues of control, market access, and thin markets were said to be a subset of

the issue of market structure impacts emerging from the adoption of this new technology. Does this indicate that a new dimension of structural issues has been created as a result of the new technology and that the traditional ones are just a part of this set or does this indicate that the new technology may impact or change the nature of the traditional issues?

Although the linkage between the traditional issues and the emerging issues associated with information technologies was not altogether clear, the identification of some broad issues associated with this new technology was well presented. I have no particular arguments with this list of issues and agree with Dr. Sporleder that it would be impossible to enumerate all the issues dealing with this subject. My comments relative to the issues created by emerging information technology will be to supplement those presented and to specifically address those issues which will face the administration and faculties of our land-grant system.

The degree of involvement by land-grant universities and state extension services in the information field is not well defined. The degree of involvement can range from operating and maintaining a complete system to being a casual observer of what is occurring in the private sector. The issue is how much involvement should these units have and will all states be involved? The answer more than likely will not be all or nothing but will lie somewhere between these extremes. The number of states involved will vary depending on their particular situation, funding, clientele needs, and other external factors. Some universities may play an important role in the development and testing of new methods, systems, and techniques and not provide the service or maintain the system after development. The university system has performed this role in numerous other areas and would not be departing from their mission or method of operation in accepting this role. Other institutions may go beyond this development role and maintain the system for their clients.

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The extension service and the university community are an unmatched source of information and will play a role either directly or indirectly in providing information and data to information delivery systems. The issue is should the universities take a passive or aggressive role in this area? Some would argue that the appropriate role should only involve providing information which will be delivered by private systems and not be involved with the maintenance of the actual system. This results in the question of control and as Dr. Sporleder indicated, brings up the problem of developing data bases from public information and repackaging that information for sale. This is not completely new since a tremendous amount of our current information ends up in outlets for which producers and consumers must pay a fee.

A university that decides to operate an information delivery system will face many operational and policy decisions. Administrators will have to decide if the service will be provided free or if users will be charged. If a fee structure is used, how much should be charged? Should the fee cover the full cost of operation or only a portion of the cost? The large investment cost and manpower needs of these systems may themselves become an issue. Decisions will have to be made concerning the priority of this service relative to the other programs of the experiment station and the extension service. Will this service be continued at the expense of some other activities during periods of reduced budgets and program cutbacks?

A closely related issue concerns whether our information is appropriate for inclusion on an electronic information delivery system. There is some indication that much of the extension and research productivity has such a long life that it is not economical or beneficial to include these on such a system. These systems may be desirable for the more rapidly changing information and data and for those information items that are rather perishable. This issue must be addressed and decisions reached concerning the appropriate method of delivery for our output.

The issue of whether the public sector will meet the needs of our farm clientele in the development of information systems will eventually face decisionmakers. The cost effectiveness of most of the large computer based systems resides in the spreading of the high fixed cost over a large number of users. Since farm producers are so few in number relative to the total population and are located in areas where linkage to communication networks will cost more than the urban areas, private industry may choose to service the larger urban areas and not meet the demands of the farm producer. If this happens, how will the land-grant system respond?

The issue of collaborative arrangements for information delivery must be explored. This will involve arrangements between public and private firms, universities and cooperatives, and among universities. These arrangements could impact the cost effectiveness of the large information systems as well as allowing the expertise of the various participants to be fully utilized. The duplication of information and effort could undoubtedly be reduced through some type of collaborative arrangements.

There are several conclusions and implications which Dr. Sporleder has presented in this paper which cause some concern on my part. I agree that there is not a tremendous amount of empirical research available in this area and that some statements and implications cannot be substantiated one way or another but theory and work in other areas seem to shed some light on the issues contained in this paper.

The implication that these new information technologies can impact the structure of agriculture at the farm level has some very significant ramifications. I would agree that this is possible under some rather specific assumptions, however, these assumptions were not enumerated in the paper. As a result, the linkage is not all that intuitive to me. I would argue that the impacts are more likely to occur in the area of conduct and efficiency of the market than on the structure of the farm sector or the marketing firms. This assumes that the information stays in the public domain and that the information systems simply deliver the information in a more efficient and timely manner.

The statement that information technologies have no clear relationship to vertical coordination enhancement is very hard for me to accept. It may well be that the misunderstanding comes from differing definitions of vertical coordination or information technologies. My particular view of the coordination mechanisms would include private treaties, vertical ownership, cooperatives, bargaining associations, and information systems. If the information system influences the flow of information within the market which affects the level of knowledge and the level of uncertainty, then there must have been some degree of coordination achieved by that system. It is my contention that the new information technologies which are available to the agricultural sector will in fact lead to such improvements and thus will have an impact on vertical coordination.

Dr. Sporleder indicated that the development of electronic cash markets may be compared to "inventing a better buggy whip" since the trend is toward non-cash transactions in agriculture. I agree with the trend; however, only about 30 percent of the total farm output is under contracting and vertical integration. Although the

trend is for increased activities in these areas, it is hard for me to believe that the electronic cash market alternatives may not hold some promise for the remaining 70 percent of product sold.

The paper which Dr. Sporleder has presented gives the profession an opportunity to begin to identify and prioritize the issues surrounding the development and utilization of information technologies in the agricultural sector. There may

be considerable disagreement concerning the issues which need to be addressed but this represents a first step in an open discussion of the issues and the possible policy implication surrounding this new technology and its use. Our profession must take the leadership in this area and analyze the problems associated with these issues. Decisionmakers at the state and national levels will have to address these issues and develop policies which are consistent with the goals and objectives of the land-grant system.

