Preface

Multidisciplinary Problem-solving and Subject-matter Work

This guest-edited issue of *Agricultural Economics* was commissioned to increase the proportion of multidisciplinary subject-matter and problem-solving articles in the Journal. The need for such an issue is considered in the inside cover of each issue of the Journal where it is stressed that the aim and scope of the Journal is to publish articles falling into:

"...three categories. (1) Disciplinary work: improvement of theories, techniques and descriptive knowledge of economics and its contributing disciplines such as statistics, mathematics and philosophy. (2) Multi-disciplinary subject matter areas: energy, technical change, institutional change, natural resources, farm management, rural communities, marketing, human development and the environment – areas which are important to fairly well-defined groups of public and private decision-makers facing well-defined sets of problems. (3) Problem solving: the definition, solution and management of specific practical problems. Work in each of these three categories may deal with teaching, extension and out-reach, consulting, advising, entrepreneurship and administration, as well as research."

When the Executive Committee approved establishment of the Journal, it specified "Balance... (among) the three categories is (to be) maintained with invited papers and special issues devoted to specific topics under the editorship of guest editors from time to time." (Johnson, 1986b, p. 30). As noted elsewhere (Johnson, 1986a, p. 222), specific efforts of agricultural economists may involve mixtures of the problem-solving, subject-matter, and disciplinary work defined in my IAAE presidential address in Malagu, Spain (1986b).

As financing, conduct, administration, evaluation, and philosophic orientations vary among the three types of work (Johnson, 1986a, chapters 13–16), it is helpful to classify efforts and their components into these three types of work so as to understand better (1) how to evaluate them, (2) the
processes that generate them, and (3) the philosophic orientation appropriate for each of them.

Disciplinary work is synergistic and complementary with problem-solving and subject-matter work. Though the latter two are multidisciplinary, they often play the important disciplinary role of revealing important disciplinary shortcomings to be overcome by disciplinary work. Reciprocally, disciplinary work makes basic contributions to the problem-solving and subject-matter work expected from agricultural economists. This synergism is an important reason why the Journal gives balanced attention to the three types of work done by agricultural economists. A related reason for balancing emphasis on subject-matter and problem-solving against disciplinary articles in the Journal is that the "teaching, extension and out-reach, consulting, advising, entrepreneurship and administration" writings of agricultural economists (which it is the policy of the Journal to publish) are often multidisciplinary subject-matter and problem-solving in nature. Inclusion of articles about such efforts should (1) stimulate and strengthen our disciplinary work by revealing disciplinary shortcomings and, hence, opportunities, (2) provide publication opportunities for agricultural economists doing the practical kinds of work they do as well as those doing more esoteric, abstract, disciplinary kinds of research, and (3) keep students and young staff members in touch with the full-range of work done by agricultural economists. Recent papers attesting to the importance of practical multidisciplinary subject-matter and problem-solving work includes those by Schuh (1984) and by Just and Rausser (1989).

It also seems worthwhile noting in the prefatory remarks to an issue of the Journal devoted to problem-solving and subject-matter articles that such efforts, one, are as ephemeral as the problems or sets of problems they address and, hence, are less durable than more disciplinary contributions to a discipline that has maintained itself in academia for a very long period of time – even centuries (Johnson, 1986a, chapter 16), two, are to be judged by different criteria than disciplinary efforts (Johnson, 1986a, chapter 15), three, should be judged by different peers (Johnson, 1986a, pp. 212–214) since decision makers and affected people as well as disciplinarians are involved, and, four, often involve knowledge of values and prescriptive knowledge as well as value-free knowledge that requires, in turn, a broader philosophic orientation than the more specialized knowledge generated in the disciplinary and applied disciplinary work of agricultural economists.

Articles in this issue. Included in this issue are three multidisciplinary problem-solving articles by (1) Tefertiller, McKee and Perry on citrus blackfly control, (2) Hawkins and Lerohl on a marketing problem of pork producers in Alberta, Canada, and (3) Martinez, Sain and Yates on a policy
problem in Haiti involving fertilizer pricing and distribution policies. In addition, this issue contains five multidisciplinary subject-matter articles by (1) Hiemstra on the Federal (U.S.A.) Agricultural Mortgage Corporation, (2) De la Torre, Fickenschere and Luft on using 'zip' or postal codes to identify rural subgroups with different unmet medical needs, (3) Dijkhuizen, Renkema and Stelwagen on modeling animal health control, (4) Öhlmér on the use of on-farm computers in Sweden, and (5) Wagner and Kuhlmann on an integrated decision support system (IDSS) for capital-intensive farming.

Of the three multidisciplinary problem-solving articles published herein, the paper by Tefertiller et al. clearly indicates the multidisciplinary of a problem-solving effort. It also illustrates that problem-solving efforts may involve little original research depending instead on knowledge brought together from many sources. Further, it also indicates something about the interplay between distributions of political, market, and administrative power with knowledge in resolving a conflict (problem) about whether to use biological or chemical means of controlling the citrus blackfly in Florida. As a case study, this paper has much to teach to agricultural economists about making contributions to problem-solving processes.

The Hawkins-Lerohl paper dealing with a market problem of Albertan pork producers tends to fall in the penumbra so commonly encountered between problem-solving and subject-matter work. Clearly, Albertan hog producers had a problem of finding out which kind of pork to produce and how it could be effectively marketed. Equally clearly, a number of individuals and organizations contributed multidisciplinary subject-matter knowledge to the resolution of the problem. The two authors of the article tended to be participants in the supporting subject-matter work more than actual problem solvers. The problem was actually resolved by Albertan governmental officials and persons representing organizations of Albertan pork producers using results from several different subject-matter efforts. Thus, the article nicely illustrates the contributions agricultural economists make to the resolution of problems through subject-matter efforts.

The last of the problem-solving articles is the one by Martinez et al. The paper is classified here has a problem-solving paper despite its little, “Towards farm-based policy analysis: concepts applied in Haiti.” The farming systems approach was used in Haiti to define and resolve a problem encountered in setting Haitian fertilizer policy. Like most problem-solving work, the work was multidisciplinary in nature. Biological and physical agricultural science knowledge along with limited sociological and elementary economic knowledge was obtained using a farming system approach along with modest amounts of political and administrative knowledge to reach a decision as to how to adjust Haitian fertilizer policy. While the specific problem solved is of little general interest, the authors develop a
more general useful set of procedural steps for using on farm multidisciplinary research to solve a class of policy problems.

The five subject-matter articles included herein range widely across the interests of agricultural economists. The Hiemstra article nicely illustrates the kind of multidisciplinary subject-matter research often expected of civil servants. It is entitled “Production and uses of subject-matter research in federal service: observations from research on Farmer Mac.” ‘Farmer Mac’ and the acronym FAMAC stand for Federal Agricultural Mortgage Corporation. The author documents the sequence of events involved in doing this research, the time horizons that were involved, and the uses made of it in the U.S. government. Clearly, the research reported does not have enduring value for the discipline of economics yet it illustrates research that is very important and useful in governmental processes. From the Hiemstra article prospective young civil servants can learn much about the kind of work they will often be expected to do and somethin about the satisfactions they can derive from contributing subject-matter research to the resolution of obviously important practical problems in government. The subject-matter researcher often derives his or her sense of worth from making such relevant contributions, whereas the more disciplinary researcher often derives his or her sense of worth from contributions ‘of enduring value’ to the discipline of economics.

The article entitled “The zip (postal) code difference: methods to improve identification of rural sub-groups” by de la Torre et al. is also a contributory multidisciplinary subject-matter article. In doing subject-matter research on rural health care and on rural ethnic and poverty problems, the authors have experienced great difficulty in identifying rural groups needing various forms of assistance – it was this kind of difficulty which led them into the multidisciplinary subject-matter effort they report in their article. The difficulty they address has, in the past, resulted in failure of health policies implemented in rural settings but designed for urban areas. Problems-solving rural health care administrators, medical professionals, and social scientists need demographic, health, and incoming data classified according to the rurality of geographic areas. The authors explore the possibility of using the national postal codes (zip codes) to categorize data on rural areas into semi-rural, rural, and frontier. The article is multidisciplinary as it deals at least as much with medicine, sociology, and geography as economics.

The remaining three papers are subject-matter papers related to farm management, itself a multidisciplinary subject-matter area of work. For a number of years, farm management has been adjusting to and taking advantage of opportunities created by the advent of (1) improved, more efficient small computers with enhanced capabilities, and (2) improved
software. These papers consider new areas of farm management and the use of new equipment and software.

The first of the three articles is by Dijkhuizen et al., entitled “Modeling to support animal health control.” This interesting article makes the case for increased attention to a new multidisciplinary area of work involving economics which can be labeled ‘animal health care management’. This new subject-matter area, like the article, is multidisciplinary. The authors are two farm management (already multidisciplinary) and a veterinary scholars. Even though multidisciplinary, the article is not problem-solving; instead, it defines and considers an important underdeveloped subject important for livestock producers faced with animal health care problems in the Netherlands and elsewhere. As is so often the case for the subject-matter work to which economists contribute, the subject is so multidisciplinary that the important contribution of agricultural economists is not a large part of the total effort. Much knowledge is used from animal pathology and animal husbandry as well as from computer science and statistics and epidemiology. The article draws substantially on what has become known as the ‘integrated decision support system’ (IDSS) literature in farm management. Its contribution, however, goes beyond IDSS to formulate a new multidisciplinary subject-matter area, namely animal health care management.

Of the two remaining articles, one by Öhlmér is entitled “On-farm computers for farm management in Sweden.” Öhlmér’s Swedish and more limited international survey of computer use on farms is a contribution to the multidisciplinary sub-area of farm management identified with the IDSS acronym. His realistic appraisal of how computers and IDSS fit into farm management is instructive for farm management scholars, farm managers, IDSS specialists, computer scientists, and computer ‘jockeys’. Öhlmér envisions that private sector agents servicing farmers and public-sector advisors will have to shift from doing management for farmers to teaching farmers how to do the tasks and then supporting them in the interpretation and analysis of information.

The Wagner–Kuhlmann article is entitled “Concept and implementation of an integrated decision support system (IDSS) for capital-intensive farming.” Persons unfamiliar with the multidisciplinary subject-matter work considered in the IDSS literature of farm management will find the article informative. This article is more detailed than the Öhlmér article but is not as specialized by type of farm and subject matter within a type of farm as the Dijkhuizen et al. article. Wagner and Kuhlmann show in detail how IDSS concepts fit in or can be integrated into management systems for capital-intensive farms. The three articles by Dijkhuizen et al., Öhlmér, and Wagner and Kuhlmann demonstrate effectively the useful contributions
economists can make in what is essentially a multidisciplinary field – farm
management and its sub-areas.

GLENN L. JOHNSON
Past President, IAAE
Department of Agricultural Economics, Michigan State University
East Lansing, MI 48824-1039, USA

REFERENCES