

Land-Grant College of Agriculture's Role In Meeting the World Food Crisis

Lester V. Manderscheid

Abstract

The recent shortages and price increases for food and energy cause us to reexamine the role of the land-grant college of agriculture. Agriculture's status in both the sciences and the humanities is explored. Reducing the isolation of agricultural scientists from the basic disciplines and renewing the emphasis on the humanistic element are called for. Teaching agriculture as a liberal education subject and increased humanistic content for agricultural majors are cited as curricular implications.

Two recent worldwide concerns cause us to reexamine the role of the land-grant college of agriculture. The first of these was the rapid elimination of surpluses of farm commodities and the subsequent concern over starvation and shortages. A second and related series of events concerned the embargo on oil shipments and the decision of the petroleum exporting countries to significantly increase oil prices. These forces have led to a massive increase in interest in agriculture and energy. Questions are being asked about the adequacy of food and energy supplies, the prices they will command, the socio-political systems for controlling their allocation, and the basic philosophic question of who is responsible for any deaths due to starvation.

The latter concern has plagued man for centuries. However, the relative abundance of U.S. agricultural stockpiles and production has let a generation forget about the difficulties of choice faced under starvation conditions. Recent events have stimulated articles such as Garrett Hardin's "Lifeboat Ethics: The Case Against Helping the Poor" in which he argues that "the less provident and able will multiply at the expense of the abler and more provident, bringing eventual ruin upon all." (1)

We in the land-grant colleges of agriculture are faced with a unique challenge in reshaping our teaching, research and extension missions. Never have our leaders or the general public been more interested in understanding agriculture and food systems. If we can respond quickly and with the right kind of information, we can expect that the recent increase in student enrollments will be matched by increased support for our research and extension activities.

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What revisions do we need to make in our mission? Do we abandon our traditional emphasis? Do we seek new clientele? In this writer's view, the land-grant college of agriculture does not need to drastically overhaul its missions to meet the new challenges. There are, however, several adjustments that will enhance our ability to meet the new demands being placed upon us. Rather than trying to discuss the full range of changes that are needed, this paper will focus on those changes that are relevant in our teaching programs because they complement our research and extension programs.

Agriculture as a Scientific Discipline

"Few scientists think of agriculture as a chief or the model science. Many, indeed, do not consider it a science at all. Yet it was the first science — the mother of sciences; it remains a science which makes human life possible and it may well be that, before the century is over, the success or failure of science as a whole will be judged by the success or failure of agriculture." (2)

This quotation reminds us that agriculture is based on a scientific foundation and that further progress in food production requires further development of the scientific foundation. The authors suggest that agriculture's strongest claim to consideration as a scientific undertaking may have come with the rise of cybernetics or systems theory. Farmers have always understood and perceived of agriculture as a system. They knew that the interaction of animals, soil, water, climate, supply and demand were all part of the agricultural system and that no component could be ignored without risk of failure. They suggest we are now much better able to control these components and to quantify their impact. The Mayers (3) say, "Further study of this system demands the coordination of all the sciences from physics to sociology. We find ourselves ill prepared individually and institutionally to meet the challenge."

The recent emphasis on ecological perspectives has already caused us to again view agriculture and food production as part of an ecological system. The systems approach has forced us to recognize the many interfaces and interactions that had been too often overlooked. Our courses and curricula increasingly reflect the interdependence within the agricultural system and the linkages of the agricultural system to nature and to the rest of the economy. We know that it is no longer sufficient to

produce food if no one has the income with which to acquire it. We no longer treat streams as a free dumping ground for waste products. We recognize the great specialization that has developed within food production and the need to coordinate all of the components in the complex system if food is to reach the distant consumer.

Isolation of Agriculture

As agriculture has developed in the land-grant university, it has become increasingly isolated from the basic scientific disciplines. The early professors of agriculture were often trained in a basic discipline of botany or economics or chemistry or physics. As colleges of agriculture grew, the professorships grew to departments and the faculties established professional associations that recognized the applied problems. As a result, both within the university and within the scientific community there has developed an isolation of the agricultural scientist from the rest of the scientific community. If this were simply an institutional isolation, there would be little concern or worry. The question we must ask is whether there is also an intellectual isolation. And if there is an intellectual isolation, is that isolation contributing to a less productive college of agriculture than we might otherwise obtain? The recent allegations of several studies of the agricultural research enterprise suggest that at least some persons believe that both institutional and intellectual isolation have occurred and that these have led to a less productive agricultural research program than might be desired. If we agree, then the university has an obligation to begin reducing the isolation—by joint appointments, revised hiring practice, or other appropriate devices.

Agriculture as a Humanitarian Discipline

As early as 1912 a circular of the U.S. Department of Agriculture said (4), "These [referring to rural economics in sociology] all involve the human element in agriculture and country life. They tend to raise the college courses in agriculture above the materialistic plane, to emphasize broadly the human interest that properly inheres in agricultural studies, and thus to inspire both faculties and students in agricultural colleges with a higher sense of the wide responsibilities attaching to leadership in agricultural affairs. Pedagogically, they serve to show that agriculture, when broadly treated, is to be enrolled among the humanities as well as the sciences; ethically, they point out the vital connection between agricultural sciences; ethically they point out the vital connection between agricultural science and the welfare of rural people and even of all mankind."

Concerns about lifeboat ethics (1) remind us that decisions regarding agriculture and food involve components outside the usual realm of the scientific disciplines. The humanities, with their strong tradition of intuition and creative imagination and with their willingness to embrace ethical and moral judgments, must be

called upon to address the problems currently being faced in the area of agricultural and food policy.

But, if we are to begin to bridge the gulf that now separates most of us in agriculture from those in the humanities, how do we begin? First is a recognition of the need for dialogue in developing sincere attempts to bridge the gaps that currently exist. There are several hopeful indicators that bridging the gap is not only possible, but is already underway. For example, there is the professional career of John Brewster who served for many years with the U.S. Department of Agriculture (5). More recently there is the bulletin from the Economic Research Service of the U.S. Department of Agriculture entitled "Beliefs and Values in American Farming" (6). Then there is the recent book by Johnson and Zerby which reflects the collaborative efforts of an agricultural economist and philosopher (7).

References to the philosophy of science literature have deliberately been omitted because we are concerned here not with the philosophy of science but with the use of humanitarian insights in connection with the insights of the traditional agriculturalists to reach appropriate decisions. Stent (8) argues that there is a limit to the scientific understanding of man. He maintains that, while we need to continue our scientific investigation of human behavior, we need to recognize simultaneously the importance of the function of "sole" or "self." Failure to recognize the limits of science leads to incorrect prescriptions. Similarly, failure of the humanist to recognize the scientific realities leads to incorrect prescriptions.

Merging Humanities and Agriculture

Bridging the gap between the agricultural sciences and the humanities will not be easy. We need to interest more humanists in applying their skills to the problems faced by agriculturalists. Do we have the imagination to incorporate humanists into our agricultural experiment station efforts as one way to stimulate greater interest on their part in our problems? Do we have the courage to admit that reason is not the only clue to truth and to work with humanists who believe with Kingman Brewster that "reason is not the only clue to truth. Intuition and creative imagination have their role in perception as well as an expression in learning as well as in life. Not all that can be perceived can be analyzed, let alone weighted and measured. Not all that is worth expressing can be programmed. Not all that is true can be proven by objective evidence." (9)

Some Curricular Implications

In another context, this writer has addressed curricular revisions for programs in agricultural economics (10). Some of the themes that were developed in that article are appropriate for the land-grant college of agriculture as it considers curricular revisions in response to the recent concerns about world food problems. Two themes are particularly relevant. First is the need for increasing humanitarian content of the training of future leaders for agriculture. The second is the need

to revise our offerings within the college to provide true liberal education for the nonagricultural students. Let us briefly examine each of these.

We have noted that agriculture should be considered in the humanities as well as in the sciences. Yet, many colleges do little to prepare the future leaders of agriculture in the basic humanities outside of worrying about their ability to communicate. While communications ability is important, the content of the message to be communicated is also vital. We desperately need agricultural leaders who can communicate not only the scientific and systems aspects of agriculture but also the human difficulties of some of the basic choices. We need to know the increased number of calories of food available for human consumption if the sacred cow of India is considered no longer sacred. We also need to know the social, political, and cultural implications of such a decision for the Indian population. This example illustrates the complexity of many decisions. Many such decisions and choices face us every day. Consider the decisions on increasing U.S. food aid and whether to tie food aid to political decisions in the developing countries. Or, should the poor pay more for food stamps and should food stamps for children be tied to the willingness of parents to seek employment or limit family size?

Just as agricultural leaders need a better understanding of the humanities, the general public needs a much better understanding of agriculture and food supply. We need to reevaluate our course offerings for the rest of the university to determine whether we can package programs that would be truly liberal education for the student in the liberal arts or in professional programs outside of agriculture. Could we design, for example, a year-long sequence that conveyed the basic concepts of agriculture as an interconnected system with scientific roots in the physical and biological as well as social sciences and interactions with the humanities? Why can't we convince the rest of the university faculty that the

truest form of liberal education is studying the food system in its complexity and interrelatedness? It is a unique opportunity for students to understand the process by which food, the most essential ingredient for continued life, is obtained, while at the same time receiving a liberal education reflecting the integration and synthesis of the natural sciences, the social sciences, and the humanities.

Properly developed components from such a program could become important elements of an extension or continuing education program. There is great need for such an education because of the increasing number of people with no first-hand experience in farming and agriculture. It is to be hoped that leadership and an educated public would quickly recognize the fraudulent nature of many of the quack cures for the world food problem that currently obtain support.

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THE CHANGING MISSION

The Two-Year Agricultural Junior College In Response to the World Food Situation

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Abstract

A broader scope is defined as current courses are modified while retaining academic integrity. Examples are given to indicate one institution's response to the world food crisis.

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Traditionally junior and community colleges have offered educational programs to meet the needs of the immediate community. At Northeastern Junior College, the world food crisis broadened the scope of attention already given to effective production methods and heightened the emphasis on economic and political implications.

Within the agriculture division during the last 10 years there have been significant curricular changes that