Improving the Quality of Higher Education in Agriculture Globally in the 21st Century: Constraints and Opportunities

David G. Acker
Director, International Agriculture Programs
College of Agriculture
Iowa State University

Outstanding research paper from the 15th Annual Meeting of the Association for International Agricultural and Extension Education, Trinidad–Tobago, March 22-26, 1999.

Abstract

Agricultural knowledge systems play a central role in developing and disseminating knowledge, information and technologies relevant to improving global food security and environmental sustainability. Formal agricultural education is one component of agricultural knowledge systems. This article argues that current agricultural education systems are in need of fundamental reform to support improvements in global food security and environmental sustainability. Constraints and opportunities are presented relative to improving the quality of higher education in agriculture globally. Challenges discussed are the lack of global cooperation, the limited frame of reference associated with educational nationalism, underutilized sources of knowledge, the need for globalization of educational content, gender imbalances among students and faculty members, narrow disciplinary approaches used in organizing learning, and the narrow definition of scholarship and its impact on recognition systems at institutions engaged in higher education in agriculture. Advances in communication technology coupled with a rebirth of global cooperation make it possible to achieve significant advances in higher education in agriculture.

Introduction

At the World Food Summit of 1996, representatives agreed to a target of reducing the number of malnourished people worldwide by 50% before the year 2015. Alex McCalla (1998) of the World Bank makes the case that knowledge will be an increasingly important driver in expanding food production. This article begins with the premise that agricultural knowledge systems play a central role in developing and disseminating knowledge, information and technologies relevant to food security and environmental sustainability. This article focuses on one component of the agricultural knowledge system: institutions providing higher education in agriculture. It attempts to present a global perspective, including issues pertinent to both developed and developing countries. It examines the comprehensive field of higher education about agriculture and the multitude of disciplines of which it is comprised. It also presents a case for global cooperation in solving problems of mutual and widespread interest. The article argues that current systems of higher education in agriculture are in need of fundamental reform to support improvements in global food security and environmental sustainability.

In 1997, the Agricultural Education Group of the Food and Agriculture Organization (FAO) of the United Nations published a study entitled *Issues and Opportunities for Agricultural Education and Training in the 1990s and Beyond*. It pointed to the failure of agricultural education and training in many developing countries to adapt to a changing world and presented a thoughtful analysis of the underlying issues (FAO, 1997). The study examined agricultural education and training at all levels. Issues such as relevance of education offerings to the needs of farmers, the commercialization of agriculture, the
degradation of the environment and the role of women were all examined through the FAO expert consultation process that preceded the publication of this study. Van Crowder (et al., 1998) presents an excellent summary of constraints facing agricultural education and training in developing countries. Building on the FAO expert consultation, their paper focuses on the challenges internal to national systems of agricultural education, including aspects of curriculum content and educational processes. They argue that inter-university alliances “offer a means to capitalize on individual university strengths and to reduce costs reflected in the duplication of efforts.” Developing countries, however, have no monopoly on problems associated with agricultural education and training.

This philosophical article is based on recent literature, the outcomes of several conferences, and the author’s observation of agricultural education in roughly 20 countries. While the obstacles are significant at a global level it is certainly true that not all pertain to every country nor are the solutions the same in every instance. It is dangerous to generalize about higher education in agriculture on a global basis because of the tremendous variety of institutions and settings. However, it may be useful to adopt a global perspective in analyzing several general constraints as a basis for developing alternative solutions appropriate to different settings.

Constraints and Opportunities

Lack of Global Cooperation

The current landscape of cooperation among entities engaged in higher education in agriculture is a “patchwork” rather than a network. The patterns of this cooperation are easily legible. First, national and regional cooperation is fairly well defined. Examples include AMEAS (Asociacion Mexicana de Educacion Agricola Superior) in Mexico, the Board on Agriculture of the National Association of State Universities and Land Grant Colleges in the United States, and the Inter-university Conference for Agricultural and Related Sciences in Europe. These voluntary associations are composed of institutions engaged in higher education in agriculture. They share information and collectively offer advice on national and regional policy matters. Such cooperation exists in Africa on a sub-regional basis in organizations such as the Southern Africa Development Conference.

Second, many professional and disciplinary organizations are open to members worldwide. However, true global cooperation is limited by distances and costs associated with attendance at meetings. For example, the International Association of Agricultural Economics attracts professionals from around the world. However, participants from Western Europe and North America account for the majority of attendees at its conferences. Representation of developing countries is limited, an example of the unintended exclusion of some systems from global cooperation. In a rather ominous, cautionary note, Alex McCalla (1998) states that those who are not part of the global system will be left behind.

Third, there are a number of international or multilateral agencies engaged in serving higher education in agriculture, either directly or tangentially. However, specialized mandates and missions can constrain true global cooperation. For example, the U.N. Educational, Scientific, and Cultural Organization focuses on education in developing nations but does not concentrate on agricultural education. FAO focuses on agriculture - including agricultural education - but primarily in developing nations. The Organization for Economic Cooperation and Development has an interest in higher education but works principally with its members in industrialized nations.

This patchwork of organizations and jurisdictions is inadequate in supporting cooperation on a global, multi-regional basis inclusive of both developing and developed countries. Such benefits as inter-university student and faculty mobility, curriculum
sharing, and cross-fertilization of thought improve with the scale of interactions offered by global university cooperation. With the development of communication technology, a truly global association may now be feasible.

Educational Nationalism

Provincial or nationalistic views are a significant constraint to the improvement of systems of higher education in agriculture. Too frequently, there is a tendency to believe that “our approach is best.” While pride of ownership can be a powerful, positive force, it has often led to isolation and insularity of national education systems. The fallout from such inward looking systems may include poor programmatic articulation between national systems, constrained international mobility of students among systems, duplication of curriculum development efforts, and the professional inbreeding that occurs when generation after generation of faculty are trained in the same system. Such agricultural education systems earn themselves a name used by Professor Vernon Ruttan: “island empires” - institutions unable or unwilling to build bridges to learn from each other.

One simple example relevant to agricultural education and extension professionals illustrates how professional organizations could lead the process of uniting “island empires.” The example relates to the exchange of scholarship between the US-based Association for International Agricultural and Extension Education (AIAEE) and European agricultural and extension education professionals. At present there are surprisingly few AIAEE members who attend European professional meetings such as the high quality European Seminar on Extension Education and only a few Europeans who attend AIAEE. Fortunately, there is growing cooperation between the US-based AIAEE Journal of International Agricultural and Extension Education and the European-based Journal of Agricultural Education and Extension (formerly the European Journal of Agricultural Education and Extension). Professor Jet Proost at Wageningen University and Research Centre is the editor of the latter journal. She and the journal’s editorial board have made a special effort to solicit papers from international scholars and have changed the name of the journal to reflect this global orientation. More recently, the AIAEE journal published abstracts from the European counterpart journal. Ideas such as a joint annual issue, advertising of US, European and other relevant conferences in both journals, and possibly a joint meeting of the two groups, are relatively easy to organize and will help to reduce the isolation of these two professional groups. In an age of constantly improving global communication, further cooperation should be possible.

Sources of Knowledge

Every scholar dreams of international recognition for his or her major research breakthrough. Unfortunately, too many of us get carried away hoping for, but not insuring, uniqueness. Agricultural educators need to teach their students (and to show by example) that good scholarship means working to uncover prior accomplishments by other researchers and “doing our homework” in searching the literature. But the dream to pioneer a new concept, approach or understanding can be achieved. We need to counsel our students in their research efforts to measure what counts, not just to count what can easily be measured. The shelves are full of studies that counted something easily accessible but virtually without scholarly significance. We need to strive for greater significance and to publish in internationally accessible journals so others can build on our work.

Another dimension of the question regarding sources of knowledge pertains to an under-recognized source within society. Typically, we rely on research-based information generated by scientists to fill our lectures, textbooks and extension bulletins. But let us consider a different paradigm related to sources of knowledge. Understanding indigenous knowledge systems is crucial to informing agricultural education professionals about the
accumulated wisdom of individuals and families involved directly in cultivating the soil and in animal husbandry. Indeed, the combination of these two types of information can form a much more global and holistic view of the subject matter of agricultural disciplines (Warren, 1991; Scott, 1998).

Globalization of Educational Content

Agribusinesses operate in a global market and require a workforce prepared accordingly. Globalization of the substance of the student learning experience is a key pathway to preparing a global workforce. Educators in the field of agriculture need to operate with an expanded frame of reference to ensure a balance of domestic and international educational content. In a recent commentary Acker and Scanes (1998) argue that all learning for agriculture students should include global dimensions to prepare for global careers, to enhance appreciation for diversity, and as a key element in a quality education. The initiative called Globalizing Agricultural Science and Education Programs for America (GASEPA, 1997) reinforces a similar viewpoint. GASEPA is a national effort involving land grant universities and the US Department of Agriculture in promoting a philosophy in which research, extension and teaching include an increasingly strong global dimension. Further support for this notion is found in a report of the American Council on Education (1998) which states that “the United States needs many more people who understand how other peoples think.” The report goes on to say that university education “has a leadership role to play in developing a globally literate citizenry and workforce.” Simply stated, global skills, global perspectives, and global citizenship are now a fundamental prerequisite for success in agribusiness careers.

Gender Imbalances

Although there are some notable exceptions, women are generally underrepresented among students in agriculture programs, particularly at higher education levels. This is especially true in certain African countries (Acker, McBreen & Taylor, 1998). The same problem, not surprisingly, is also true among faculty ranks in agriculture disciplines.

Agriculture fields are unattractive to women students and professionals. These fields can be made more attractive through inducements such as scholarships to study in non-traditional areas, career planning and guidance from supportive mentors, and specially designed support structures at colleges of agriculture. Budget priorities among international donors and university administrators need to address these issues.

Greater levels of participation by women in higher education in agriculture can yield a variety of benefits to society. Among these are the establishment of a greater pool of highly trained women in agriculture to lead policy reform, research, education, and development planning efforts that reflect the specific needs of women and families. Ultimately, food security and population control, especially as evidenced in sub-Saharan Africa, benefit from better-educated women.

Narrow Disciplinary Approach

Agricultural education systems are largely organized around disciplines and many of those disciplines have long histories and traditions. Yet, as we know, problems in the real world do not normally present themselves in neat disciplinary boxes. Education should be aimed at developing broad thinkers to be problem solvers, not just technicians who have mastered a specific body of knowledge. Van Crowder (et al., 1998) share this concern.

A narrow definition of agriculture can lead to a narrow interpretation of what is appropriate in an agricultural education program. In some institutions agriculture is defined largely in terms of plant and animal production while at others the social dimensions inherent to agriculture are more widely recognized. In this process of learning, students need to examine agriculture from a systems perspective.
including social, biological and physical systems.

We need to address the question of balance in agriculture students’ learning experiences. There is growing consensus that agriculture students study too little in the areas of foreign languages, policy, ethics, communication, social sciences, and the environment. However, required classes in a student’s discipline often fill a significant portion of their undergraduate programs. A B.S. program may require five or six years to complete. Thus, without the elimination of some disciplinary requirements the students’ programs will have little room for emerging areas of study.

We need to prepare students for the world of work of tomorrow when graduates will have multiple careers. Strong cases have been made for moving more aggressively away from memorization of facts and a reductionist approach. These approaches are being replaced by an increase in real life experiences, experiences that teach students how to learn throughout their lives and careers and to present a more systems oriented, holistic view of agriculture. It is significant that the W.K. Kellogg Foundation’s thrust to reform agricultural education uses the phrase “food systems professions” suggesting a very broad view of the soil-to-table continuum.

Narrow Definition of Scholarship

In university systems there is a tendency to equate scholarship with the processes and products of research endeavors. In the United States, “research universities” are roughly patterned on a Germanic model in which research productivity has traditionally been a key indicator of professorial performance. In other countries, the relative worth of research contributions in recognition schemes depends on the traditions or model of education emulated by the institution, on its perceived role in society, and on whether graduate education is offered and research emphasized.

An emerging notion promotes the view that scholarship can take many forms. Professor Ernest Boyer, in his book Scholarship Reconsidered: Priorities of the Professoriate worked from the premise that “to sustain the vitality of higher education in our time, a new vision of scholarship is required, one dedicated not only to the renewal of the academy but, ultimately, to the renewal of society itself” (Boyer, 1992). Boyer suggested that we recognize the scholarship of teaching, discovery, integration and application. In his typology, the scholarship of discovery is that form of scholarship we often call basic research and equate with scholarly productivity. But Boyer presents a convincing case for recognizing the scholarship of achievement in teaching, in endeavors related to the integration of knowledge from disparate sources to provide new understandings, and in the creative application of knowledge such as in extension work. Reform efforts need to come to grips with this question if institutions are to balance the reward structure among those involved in research, extension, and teaching activities. Healthier, more balanced institutions should evolve from this process.

Conclusions

The author concludes that professional agricultural educators need to think strategically about what needs to be accomplished to prepare human resources required for feeding the world’s population and protecting its environment in the 21st century, and, where necessary, be prepared to shed traditions that constrain the professions. Making major improvements in the quality of higher agricultural education worldwide will depend on a variety of interrelated changes. Some changes will require efforts at the individual institution level while others will require global cooperation heretofore unknown in the field.

Higher education in agriculture suffers from myopic views of its role in the societies it serves and its role in the global change processes in which it could exercise considerably greater leadership. But this shortcoming is curable.
There is a continuing need to re-invent and reform to remain current, relevant and effective. We need to be both global and local in all that we do in agricultural education. There is a case for global cooperation as a driver in this process of improving higher education in agriculture. Such cooperation can help speed the pace of reforms and to enrich the process as new ideas are borrowed from other systems.

Mutual improvement of the education system should be the aim of global cooperation; the aim should not be to develop some form of centralized global control. The history of distant or central control of educational content and processes is filled with many examples of failures. In the recent book by Professor James Scott “Seeing Like a State” the point is made that centrally planned economies attempt to homogenize societies to make them easier to administer. Efforts to globalize agricultural education curricula could easily fall victim to the same homogenization and standardization. A different approach has been taken in the European Union. Their efforts to align and harmonize curricula and credit transfer (e.g. the European Credit Transfer System) have worked to avoid homogenization and standardization.

There is currently a window of opportunity for global cooperation in solving problems outlined in this paper. Major conferences were held in 1998 in Argentina, France, Russia, and Ukraine to examine the topic of reform in higher education. A new Global Consortium of Higher Education and Research for Agriculture, headed by Martin Jischke, President of Iowa State University, was formed in 1998 to forge links among agricultural universities and related agencies worldwide for the purpose of mutual improvement of institutions engaged in human resources development and research in support of global food security and environmental sustainability. Further information may be found on the Consortium’s web site: http://www.iastate.edu/~gcau/

There are significant implications for the target set at the World Food Summit of 1996. Higher education in agriculture will play a key role in either achieving or failing to achieve the goals agreed to by the world community. The choice is in our hands.

References


