Revolutionizing Higher Education in Agriculture

Framework, Principles, and Agenda for Action

Edited by H. O. Kunkel and C. L. Skaggs

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As the study of concepts of change in higher education in agriculture and related areas evolved, several facts became evident. The entire food, agricultural, and natural resources scene has changed in the last decade. Congress has written a farm bill that for the first time in history is not fashioned in the agrarian tradition. The market system for much of agriculture, particularly animal agriculture and horticultural crops, has been restructured, involving centralized processing plants, corporate supply of transport, and distribution through corporate-controlled outlets. Much of the production is industrialized. The job market for graduates requires increasing flexibility but, in fact, seems to be growing. The educational system serves a much broader constituent base. Far more individuals than those of the traditional constituency have interests in food, agriculture, and the natural resources.

The system of higher education in agriculture and related areas is not a trivial system. It has vitality, importance to society, and intrinsic values as a body of knowledge. But its external and internal environments are undergoing massive changes. The system is asked to respond.

Increasing numbers of institutions of higher education in agriculture and related areas have been individually reexamining their programs and engaging in efforts to revitalize their programs. The growing awareness of the importance of systemic (meaning comprehensive, fundamental) change to the continued relevance and vitality of higher education in agriculture has created a need for both understanding of the theoretical bases of agricultural higher education and for suggestions and guidance. To begin to meet this need, a USDA Higher Education Programs Challenge Grant to Texas A&M University and Alabama A&M University, entitled Theoretical Bases of Systemic Change in Higher Education in Agriculture, was activated 1 September 1993. A second Challenge Grant, entitled Strategies for Implementation of Systemic Changes in Higher Education in Agriculture, was awarded to Texas A&M University on 1 September 1994. The stated objectives were (1) to develop theoretical bases and propose principles for systemic change in undergraduate
education in agriculture, (2) to seek validation of the proposed guidelines, and (3) to provide guidance for implementation of change in colleges of agriculture that wish to make such changes. The first edition of this book was directed at the first objective, the development of concepts for systemic change, and provides a basis for movement toward further, ongoing objectives of the project. This second edition extends across all three objectives.

In the initial phase, faculty members of five universities, Alabama A&M University, University of Connecticut, Cornell University, Rutgers University, and Texas A&M University, were brought together to engage in the process of discovery and development of applicable theoretical principles. Such principles and theories are expected to lead to goals that individual institutions might use to implement change. If accepted by the agricultural higher education community, such principles and theories might be used as bases for the general reconstruction of higher education in agriculture in the twenty-first century. It follows that, if new principles are accepted by the agricultural higher education community, then strategies for implementation need to be created and adopted.

One purpose of this effort is to promote articulation of a variety of views to strengthen the cogency and coherence of the several arguments. All too often, positions on higher education rely on an assortment of “illustrative examples” or deeply held convictions that are scantily supported and weakly argued. That is not enough. It is more important than ever that an interdisciplinary pluralism of perspectives be built and that we learn from it.

The principles and theories for systemic change in higher education in agriculture will need continued refinement, debate, and discussion. So will the strategies for implementation.

What is ultimately important, however, is that there be a sense of ownership by the faculties in the individual colleges, schools, and departments of agriculture. It is to initiate that process that this effort was undertaken.

The twenty-member, initial Work Group on Systemic Change in Undergraduate Education in Agriculture was designated by the respective offices of the deans of agriculture at the cooperating institutions. Focus groups of students were selected by members of the Work Group. Collectively, the membership consisted of faculty in a multiplicity of disciplines, including agricultural and resource economics, agricultural education, agronomy, soils, animal sciences, food sciences, horticulture, forestry and other natural resources, wildlife and fisheries sciences, ethics and policy, and human nutrition. The same range of disciplines characterized the faculty members brought together for workshops that focused on implementation. In the preparations of their contributions, the participants drew on their own resources as well as those of others whose contributed knowledge was integrated in the thought processes. All members of the Work Group engaged in discussions on their
own campuses and at the workshops at Washington, D.C., and College Station, Texas. A smaller number of the group participated in the implementation workshops in College Station, Texas, and Ithaca, New York, in 1997 and 1998, respectively. Significantly, a restated generic purpose of colleges of agriculture was accepted by the group.

This book consists of two parts: (1) the framework and (2) the focus on implementation.

The chapters in part 1 consist of theoretical and conceptual analyses of the issues and underpinnings of higher education in agriculture. In these chapters, the contributing authors express judgments that may seem similar, but each is framed differently in the context of the chapter. These chapters are essays that should contribute to the understanding of the purpose and essence of higher education in agriculture and its kindred subject areas and the process of systemic change.

Part 2 consists of the examination of strategies for implementation of the changes suggested by theory and principle. These chapters are derived from the two national implementation workshops, in which different approaches to implementation were expressed by plenary speakers and were discussed by the participants. They build upon and add to the theories and principles of the first phase.

This book presents concepts. It does not provide a blueprint for carrying out individual institutional systemic change, although it has a closing agenda for action. The recommendations are general by design. They are intended to be primarily part of the process of the rethinking needed to bring higher education in agriculture into the twenty-first century, as a viable and necessary component of higher education in the United States.

The future is clearly in the minds of the contributors and participants of the study. An early review of the manuscript noted that the concepts developed in this study are also in a constant state of accelerating change. Technology, information generation and use, the understanding of learning process, and social values are all changing. We agree. Perhaps, it would have been better, if possible, to explore the expected future change of the context and concepts that were established in this study. It is clearly evident that the complexities of the biological, economic, and social bases of agriculture and natural resources will be far greater in the twenty-first century than any time in the past. The future is uncertain. But the fact is noted that the concepts that guide higher education are also unstable.

Having largely met the challenge of educating young professionals in a fairly well defined food and agriculture system over the past decades, colleges of agriculture must now face the even greater challenge of education of young men and women to be flexible enough to find profitable work in the great
diversity of careers related to food, agriculture, and the human environment that will be the norm of the future in an environment that we know will be increasingly complex. To the extent that this report leads to efforts to face and meet this challenge through discussion, debate, new initiatives, and extension of initiatives already in progress, the efforts will be considered to be worthwhile.

This report is a team effort. The participants in the studies were bold thinkers. They were imaginative and innovative. They were dedicated to the undergraduate students, to research and outreach, and to building the strength and vitality of the system of higher education in agriculture, food, and the natural resources. As editors, we do not change what they have said.

Our thanks go to all of the individuals who contributed to this report by providing important information and unique views of higher education. We are especially grateful to Dr. K. Jane Coulter of Science and Education Resources Development, Cooperative State Research, Extension and Education Service, USDA, for her interest and interaction with us. We are grateful to Dean Edward Hiler, Texas A&M University, Dean David Call, Cornell University, Interim Dean John Brand, University of Connecticut, and Dean James Shuford, Alabama A&M University, for their early support of the concept of the project.

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How to Use This Book

It is easy to be cynical about systemic change. One idea is that reports such as this serve as mandates for action. Administrators and legislators may act on the summary bullets for which the body of the report is assumed to provide in-depth analysis and support. But this form of action will not likely go beyond incremental improvement or adjustment. If systemic change in agricultural colleges is brought about from within, it will not be based upon argument so thin that it can be summarized in bullets. It will not be brought about by people too busy to read a book or to spend time talking and arguing with their colleagues, and a corollary is that it will not happen at colleges where the institutional values do not support the commitment of faculty time for the task of collectively formulating an institutional vision. At such colleges, systemic change will come, but it will be imposed from without.

Systemic change will come from within when key people, administrators and faculty, invest time in arriving at a common language and an agreement that there is a problem. They need not agree on the solutions, but a common language is necessary in order to assure that disagreements are substantive, rather than terminological. Given the specialization that is the norm in our universities, however, this common language will not come automatically, or even easily, but will require a significant investment of time and energy. Students should be included as well. Educational institutions will need to encourage the contributions of students to decision making concerning education.

Those in the key group will have to frame a vision collaboratively. A way toward one’s own vision is to first consider the vision of others. The key group must do this in seminar fashion (which is, after all, the way it was done among faculties for centuries). This book can facilitate change more effectively if it is used as a prod or a touchstone for a careful and painstaking group reflection and debate than if it is used as a mandate for administrative decision. Used in this fashion, it will matter less that what has been said here is applicable to a particular setting than that these ideas provide a basis for the conversations that will build a common language and a common sense of the
problem definition. There is also a larger aspect that transcends the individual college of agriculture. New curricular and teaching methodologies and resources might be led by the professional system, including the land grant system, and the professional and learned societies. Regional symposia and conferences draw faculty from all disciplines, mainly for the purpose of improving the skills and resources of individual faculty members. Such regional conferences can become increasingly concerned with institutional improvement. Here, too, a common language is needed. This book, again, can facilitate change if used in reflection and debate.
Revolutionizing Higher Education in Agriculture
The Framework and Principles for Changes

Since the publication of the report of the 1991 USDA-National Research Council (NRC) national conference on professional education of the undergraduate, “Agriculture and the Undergraduate” (NRC, 1992), efforts have significantly expanded to build new models for higher education in the agricultural sciences and their closely related areas. Occurring is healthy rethinking of education in agriculture and natural resources as well as of the broader missions of the land grant colleges of agriculture, food, and natural resources.

Change is imperative. The complexities of agriculture, food systems, and natural resources demand that the content and context of undergraduate and professional education reflect the diversity of needs in graduates in the future. Add to this the revolutions in some of the underlying sciences and technologies: economics, ecology, molecular biology, physiology, computer technology, biotechnology, and more. The traditional approaches can no longer suffice. Integration and hierarchical considerations are essential.

At the same time that this study developed, a number of efforts were underway to develop the model(s) for the new generations of higher education in agriculture and related areas. The National Research Council undertook a study of the future of the land grant colleges of agriculture (NRC, 1996). The W. K. Kellogg Foundation sponsored a nationwide initiative for development of the food systems professional education by the year 2020. The Board on Agriculture of the National Association of State Universities and Land Grant Colleges (NASULGC) developed a system of listening and synthesis efforts to complement the Kellogg initiative and built a consensus report (Carpenter and Fisher, 1996). In addition, James H. Meyer, who lists this study (Kunkel et al., 1996) as also one that reflected national concerns, has written extensively on the past and future of the land grant college of agriculture (Meyer 1992, 1993, 1997, 1998).