

The Stalemate in Food and Agricultural Research, Teaching, and Extension

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J. M. Keynes, "The difficulty lies not in new ideas, but in escaping from old ones" (1).

For more than a century, the land-grant colleges of agriculture (LGCAs) helped ensure a bountiful food supply for the United States. Now the LGCAs' well-being and even survival are threatened.

Recognizing the need to educate people in a society that was primarily rural and agricultural, Congress passed the Morrill Act in 1862, thereby establishing one or more land-grant universities (LGUs) in each state of the United States. The act provided for a grant of public lands that were to be used to maintain colleges to teach agriculture and the "mechanic arts." These LGCAs launched the concept in this country of higher education in the public service, often referred to as the land-grant philosophy (2, 3). Although teaching agriculture was the initial (and continuing) emphasis, additional funding was added over the next 52 years for agricultural research and extension of research results directly to the user (3-6).

This three-pronged approach of teaching, research, and then extension contributed to major changes in the farming sector and society as a whole. Better educated farmers became progressively more efficient, and the United States soon became an important breadbasket for the world. Within a few generations (1920 through 1970), however, family and commercial farmers became a minority in American society. Low returns relative to labor and capital requirements, when compared with incomes enjoyed in other types of employment, prompted many farmers to leave agriculture (7). The resulting reduction in the rural population and concomitant urbanization have resulted in an uneasy status for the LGCAs.

Circumscribed Mind-Set

The central theme in the history of American agriculture has been the interplay between agrarian tradition and modernization, and the eventual triumph of the latter. Agricultural colleges not only have been affected by this interplay but have influenced its outcome. The LGCAs continue to identify with the agrarian tradition

of their origins and thus to have difficulty adjusting to changing social conditions, to modern urban and consumer interests, and to the increasing interdependence of rural, urban, and global communities (8). A stereotyped perception by the general populace that agriculture represents farming and ranching has generated a limited image that has had a negative impact on enrollment and funding (9). Those within the LGCAs view their state of affairs differently than the way the public views them. The public, for example, tends to see agriculture as a competitor for natural resources—land, air, and water—and fails to appreciate that these same natural resources ensure a reliable supply of high-quality food at reasonable prices. LGCAs are generally seen as concerned with the special interests of farming and agribusiness, not with food supply and nutrition. That is to say, colleges of agriculture would generally be classified as irrelevant by the American public (10).

About 1950, the agricultural industry, long served by the LGCAs, became fearful of being overwhelmed by the dominance of urban interests. Agricultural groups banded together, evolving into a sometimes militant, politically active minority. Efforts to broaden LGCAs' programs to serve a wider audience frequently met with political resistance from this group, who viewed such expansion as threatening to their interests. Thus, the colleges find themselves between a rock and a hard place—dependent on traditional clientele for assured support, yet aware that they need to do a better job of serving the interests of the general public (11).

Table 1. Proposed missions, then and now.*

1966†	1992‡
Science and technology of modern agriculture	Human food and fiber system Agricultural systems Life sciences and biotechnology
Environmental science Urban and non-farm resource use	Environmental quality Natural resources and human well-being
Rural people and their institutions	
International agriculture	

*Most appropriate missions, not in order of priority.

†(3). ‡(11).

Recurring Challenges

As early as 1966, a need to broaden the LGCAs' missions was anticipated (3) (Table 1). A 1992 survey of leaders from LGUs identified, as appropriate, missions very similar to those proposed in 1966, with the exception that greater emphasis was given to environmental quality (11).

Professional leaders from the LGCAs suggested a broader mission for their colleges for teaching and extension, but not for research. Offering relevant curricula that would be attractive to undergraduate and graduate students from both urban and rural communities was seen as the dominant challenge to the teaching program. Significant factors in addressing the challenge were improving the quality of the learning environment, student advising, and faculty teaching. Today's extension program, it was recognized, must confront a complex agricultural industry, community urbanization, and rapidly changing societal interests. Restructuring programs to address the total human food and fiber system, which incorporates elements of health, safety, energy efficiency, and environmental quality, was granted considerable importance.

Although recognizing the necessity of extending outreach in teaching and extension, these leaders held to a traditional, farm-oriented view for the research segment of the college. Here, they saw as the major challenge the "development of an agriculture that is economically viable, internationally competitive, and environmentally sensitive" (11). The relevance of agricultural research to social and environmental issues pertinent to human health and welfare was deemed less significant than direct agricultural concerns.

Nevertheless, in spite of the conflict of expectations for the triad of teaching, research, and extension, the same LGU leaders professed the need to improve the balance and synergy among the triad as being essential. These conflicting opinions need to be rectified or a broader mission will not be served.

Some institutions have been successful in developing new curricula, have embarked on research programs based on molecular biology, and are exploring modern methods for extending information to new clientele. In general, however, LGCAs are baffled by efforts to identify and address the challenges they confront. Leaders in the LGCAs are, however, well aware of this dilemma and are gravely concerned for the future of their institutions. The question is, why has so little progress been achieved toward meeting the challenges first identified 30 years ago?

(Continued on page 1007)

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(Continued from page 881)

Resolving the Challenges

It becomes increasingly evident that changes in the agricultural industries, expanding general interest in environmental quality and food safety, competition for natural resources, and the pressure of a growing population will force the LGCA to address a broader interface of agricultural issues and issues relevant to society in general. A reduction in the focus on agriculture must be anticipated, along with an increase in emphasis on life sciences, food quality, environmental concerns, and rural-urban interfaces.

The original LGCA model was appropriate for its time, but the modern environment at scientific and agricultural universities calls for a new model (12). These colleges must relate more closely to the parent universities in which they reside (13). Agricultural education and research may be seen as academic crown jewels or merely country cousins (14). The LGCA's faculty may have developed an insular mentality, living apart rather than blending with the mainstream of the intellectual life of their institutions (10). It remains to be seen whether this faculty can continue and serve the multiple functions of a modern LGU (15). The need for interdisciplinary, interdepartmental, and multidisciplinary research has increased to such an extent that a new type of organization may be required. The mix of disciplines and departments needs reassessment (16).

If institutional change is essential in order for the land-grant colleges to remain relevant, from what institutions should leadership emanate? A report in 1992 by the Office of Science and Technology proposed that the U.S. Department of Agriculture (USDA) must lead in developing a responsive LGCA system (15). However, for the past half century, efforts of the USDA have been largely dedicated to spe-

cific programs directed to groups of farmers, consumers, and other special interests. Emphasis has shifted from scientific to political goals, causing some to question the appropriateness of USDA leadership. This shift in emphasis has contributed to problems of coordination between the USDA and the LGCA (10, 17).

The professional leaders of the LGUs surveyed in 1992 downplayed the importance of federal governmental leadership and felt that college leadership, and to a certain extent campus and departmental leadership, would be the important factor in precipitating change within their own colleges (11). Their viewpoints suggest that the time has come for LGCA to reduce their dependence on the USDA and their national organizations and seize the opportunity to develop pertinent and rational missions that undergird their own teaching, research, and extension programs. To achieve the desired results, ongoing consultation with urban, environmental, and consumer groups, in addition to the agricultural community, must be utilized. Attention should focus on the general topic of the human food and fiber system from production through consumption—all pertinent to current societal needs in which agriculture is the basic component. Environmental quality ought to be an integrating theme throughout, but each individual LGCA should find its own way to contribute, in keeping with its own regional circumstances.

Summary

The development of leaders and colleges with the vision and ability to create an environment for both short- and long-term responses to societal concerns will be critical for the survival of these LGCA. They will need help in escaping from old ideas, which means escaping from old organizations built on the past. A new sponsoring organization is needed to aid in this effort. With a new intellectual foundation, and the future firmly

in mind, then and only then should a new national organization be instituted.

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