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EDUCATING THE UNDERGRADUATE AGRIBUSINESS MAJOR

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Abstract

Undergraduate programs in agribusiness education have attracted much interest in recent years. Many university facilities have developed agribusiness educational programs and others are considering the development of such programs. As these programs evolve throughout the country, there are many questions which relate to the structure and future directions of these educational efforts. A review of the issues related to agribusiness program development is presented. A planning process that can be used to focus on the many agribusiness educational issues and provide insight into agribusiness program development is outlined.

Key words: agribusiness education, educated person, curriculum planning, competency based education, core based curriculum model

The term agribusiness was first used by Davis and Goldberg in 1957 to describe a major segment of the economy, the food and fiber sector. Since that time agribusiness has become a part of the agricultural economist's vocabulary and sphere of interest. The sector has also been recognized as a professional career field by employers and employees alike. Attendant to these developments was the emergence of agribusiness as a separate field of study at many universities. Although agribusiness programs have been successful at most universities, a number of issues that concern them have been raised at the national level. Several study commissions have identified the decline and devaluation of the undergraduate degree as a major problem confronting the country (Boyer; American Association of Colleges). These findings have caused many universities to assess and initiate changes in their baccalaureate degree programs. Enrollment trends in Colleges of Agriculture and potential shortages of human capital in agriculture (RICOP), at least in part, led to the establishment of the National Agribusiness Education Commission. Reporting a serious shortfall in the

number of agricultural graduates trained in agribusiness and allied fields, the commission issued a call for industry, government, and universities to enhance efforts to bring new approaches and resources to agribusiness education. An overarching concern associated with these findings is the need for universities to provide educational programs consistent with the industry's human capital requirements that will allow U.S. agriculture to maintain a competitive position in world markets.

The agricultural economics profession has also highlighted undergraduate educational needs. Manderscheid, in his 1988 AAEA presidential address, discussed undergraduate educational opportunities in the face of declining enrollments. Adrian's 1990 SAEA presidential address reviewed the status, challenges, and opportunities of undergraduate education in southern Agricultural Economics departments. More recently, the Inaugural Symposium of the International Agribusiness Management Association emphasized global agribusiness for the 90s while a special agribusiness education conference focused on identifying future agribusiness human resource needs and reviewing innovative agribusiness education programs (Farm Foundation).

These conferences and discussions have prompted numerous suggestions concerning the appropriate structure and content of undergraduate agribusiness programs. Whether in a department or at a national conference, experience reveals that there are normally as many different ideas of agribusiness education as there are participants. Such discussions are necessary and thought provoking; however, it is difficult to reach a meaningful consensus or conclusion without an adequate framework for these deliberations.

This paper focuses on presenting a framework that can be used by faculty or others to guide the development or review of undergraduate agribusiness educational programs. The paper first gives a perspective of the agribusiness sector and of trends expected to affect undergraduate agribusiness edu-

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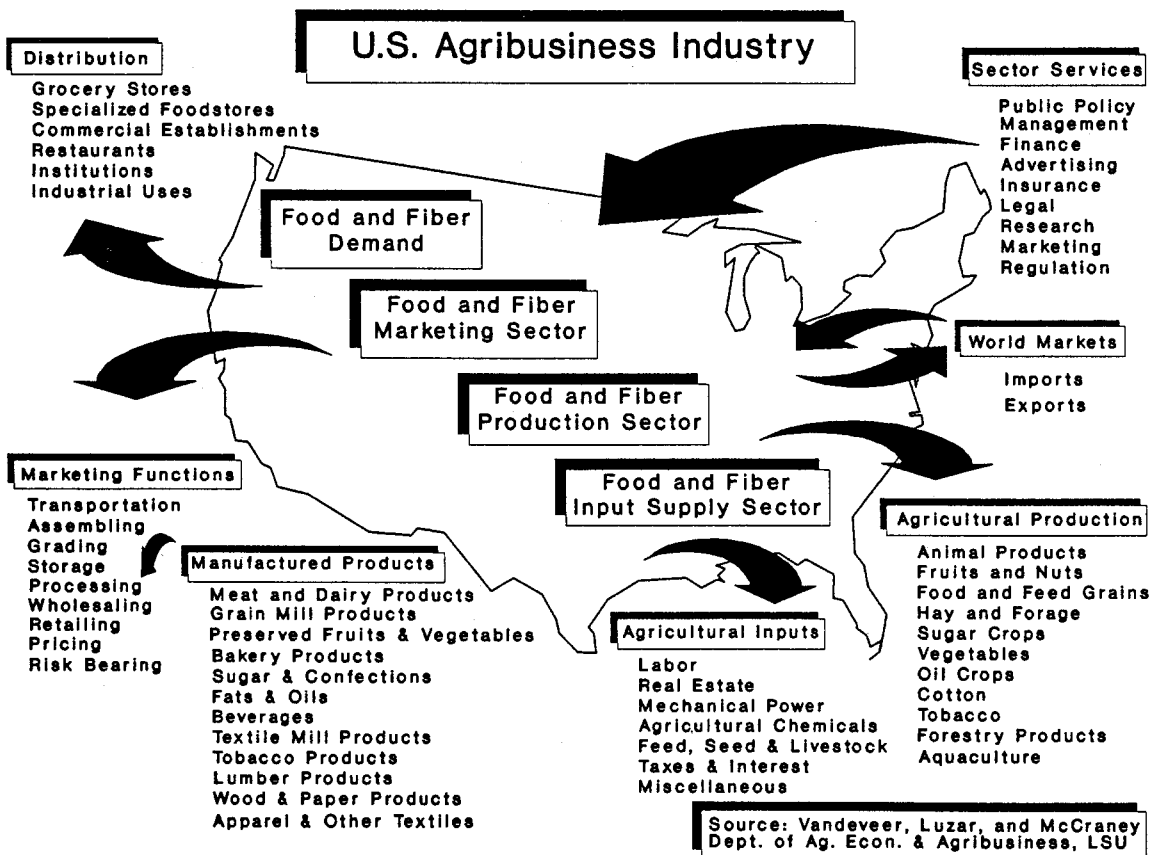


Figure 1. U.S. agribusiness industry

cation. Issues related to development of these programs are then presented, followed by a discussion of curricular planning processes and of a concept of the educated person used in developing the suggested framework.

AGRIBUSINESS PERSPECTIVE

Davis and Goldberg defined agribusiness as "...the sum of all operations involved in the manufacture and distribution of farm supplies; production operations of the farm; and the storage, processing and distribution of farm commodities and items made from them" (p.2). The agribusiness industry represents a vast, complex system of businesses that supports the production sector of agriculture, and includes all businesses involved in providing a wide range of food and fiber products for consumption. As shown in Figure 1, the industry consists of the input supply, production, and marketing sectors, and food and fiber demand components.

Consistent with the scope of the industry, agricultural economics faculty and others have developed undergraduate programs in agribusiness to provide an educational base for graduates to pursue a wide range of careers. By 1990, there were more than 70 agribusiness programs in the U.S. and more than 30

such programs in other countries (Goldberg). These programs are attractive from a university perspective because they integrate knowledge from existing fields of study including agriculture, business, economics, and agricultural economics. Similarly, they are attractive to students because of their multidisciplinary approach and the wide array of available career opportunities in the agribusiness industry. Agribusiness programs have been successful because graduates have been provided a broad knowledge base that has simultaneously enhanced both career and personal growth opportunities. In general, the outlook for employment opportunities for future agribusiness graduates continues to be favorable (Coulter).

If agribusiness educational programs are to remain competitive in the future, strong programs reflective of changing industry needs must be available to attract quality students into such programs. Important trends affecting the agribusiness industry include the globalization of agriculture, the restructuring of agriculture, the industrialization of agriculture, technological development, environmental pressures, governmental public policy, and nutrition awareness (Downey). Goldberg notes that the agribusiness industry has grown into an eco-

conomic sector encompassing one-half the world's labor force, one-half the world's assets, and one-half of consumer expenditures. This suggests that agribusiness graduates will be part of an increasingly complex industry that is highly competitive and influenced by technological development, consumer desires, ecological concerns, and public policy. Agribusiness programs must be sufficiently flexible so that shifts in the relative emphasis of disciplinary subject matter areas as well as an increased emphasis on the integration of subject matter across disciplinary areas can occur.

ISSUES AND CONCERNS

Several educational issues have a direct bearing on the development of undergraduate agribusiness programs. National studies in the mid-1980s pointed to a crisis in higher education (Boyer; Association of American Colleges). At the heart of these discussions are the general education components that should be part of a college education and represented in the concept of a well-educated person.¹ These reports also make strong arguments for faculty to add structure to curricula and to make curricula consistent with their views of a well-educated person.

While it is difficult to argue with the desirability of general education requirements and the concept of an educated person, adding these requirements creates special problems for an already broad-based agribusiness degree program. Litzenberg notes that "... in agribusiness education, we find ourselves filling up four years—or five years—or six—with courses, until there is hardly room for any electives. The specific skills needed in finance, marketing, and management to complement courses from the College of Agriculture simply fill up the schedule" (p.2). Connor suggests that general education for agricultural students needs to be expanded only moderately, in such areas as international understanding, domestic and global cultural awareness, computer science, and food/agriculture/natural resource institutions.

At issue here is the breadth versus depth of subject matter, a point which Mandersheid addressed by cautioning the profession to avoid overspecialization in undergraduate programs. He notes that today's graduates will probably change careers three times and jobs seven times during their working lifetime. If his statement is correct, an appropriate education must be based on learning principles, concepts, and critical thought processes, rather than on detailed

subject matter that might more appropriately be learned on the job.

Another issue relates to the uniqueness of agribusiness educational programs. Sonka and Hudson define five distinctive characteristics of the agribusiness industry. They note that distinctive characteristics do not themselves imply a need for targeted educational programs; however, in the agribusiness sector, these characteristics suggest a need for special skills and knowledge to facilitate efficient and effective managerial decisions. Similarly, within agricultural economics departments, there is also the question of designing programs (Connor, Hite, Mandersheid). Should there be one curriculum based on agribusiness management and another based on agricultural economics, or should there be one major with options? Connor warns that departments are mixing disciplinary and professional education under one major to the detriment of both. However, Ervin notes that following a two-discipline approach would cause agribusiness majors to look like business majors and agricultural economics majors to look like economics majors.

As agribusiness educational programs evolve, another question relates to who should have input into the curriculum development process. In addressing this question, Adrian concludes that departmental faculty should define the priorities and make curricular decisions because they are held accountable for the program. However, Coffey points out that there are several stakeholders of a curriculum including students, parents, employers, campus administration, alumni, industry leaders, and professional associations. He concludes that in setting curricula, a compromise reflecting the vision of the faculty, the wishes of the student, and needs of the employer should be struck.

Similarly, there is the question of who is to administer agribusiness educational programs. Will these programs be departmental, college, university, or joint programs? Connor indicates that the time has come for colleges to define homogenous program areas such as applied natural science, natural resources, or business management for which more specific requirements can be developed. The National Agribusiness Education Commission report has encouraged cooperation between Colleges of Agriculture and of Business (Downey).

Instructional methods and expertise are important concerns in developing agribusiness educational programs. Connor indicates that teaching ap-

¹The term general education is used in this article to represent those areas of study that are fundamental to the education of all college students. Areas such as the arts, humanities, analytical reasoning, and natural and social sciences are examples.

proaches other than lecture or lecture/laboratory need to be explored. He calls for a greater emphasis on a liberal arts approach to education, which stresses critical thinking, writing, ethics/values, problem solving, and leadership development. Closely related to the issue of teaching is the concern for faculty development. Ervin notes that changed faculty adjustments are necessary to implement new curricula and that sabbatical leaves aimed at teaching improvement should be encouraged. Litzenberg's observation on the scarcity of capable professors to teach agribusiness courses highlights the need for faculty development in developing agribusiness programs.

The perception of agribusiness programs by faculty, employers, and students is expected to become increasingly important in agribusiness educational efforts. Beck notes that agribusiness is one of the most misunderstood and maligned programs in colleges/departments of agriculture. He indicates that misunderstanding the role and content of agricultural business programs comes both from the offering institution and from employers. Beck suggests that one of the reasons businesses are turning increasingly to business schools in recruiting graduates is that employers do not believe that colleges of agriculture offer the desired training in their curricula.

An issue central to the development of agribusiness programs is curriculum structure and the concept of the educated person. The Association of American Colleges report proposes a return to coherence in curriculum and a curricular framework of nine student learning experiences. The nine learning experiences and skills outlined by the American Association of Colleges are: (1) inquiry, abstract logical thinking, critical analysis; (2) literacy, writing, reading, speaking, listening; (3) understanding numerical data; (4) historical consciousness; (5) science; (6) values; (7) art; (8) international and multicultural experiences; and (9) study in depth. Although space does not allow a detailed comparison, the identification of these learning experiences and skills seems to be highly consistent with the findings of the agribusiness management aptitude and skill survey conducted by Litzenberg and Schneider. Results from this survey generally indicate that while interpersonal and communication skills are desirable to most agribusinesses, the agribusiness industry as a whole is looking for a wide range of other skills and aptitudes. In light of these findings, one might conclude that, in planning agribusiness educational programs, faculty need to think in terms of the educated person.

While the issues relevant to developing agribusiness educational programs have received much attention in the literature, relatively little attention has been given to procedures or planning processes that departmental faculty or other groups might use in developing such programs. Ervin calls for agricultural economists to use a conceptual framework which includes the concept of the educated person and the goals of the curriculum for curricular discussion, evaluation, and reform. However, Ervin's and other studies stop short of describing a framework that might be used by agricultural economics faculty in developing innovative approaches for existing curricula and developing new curricula. Given the breadth and the scope of the agribusiness industry, it is generally felt that the concept of the educated person can be useful in guiding agribusiness educational development efforts. In addition, curricula planning processes and modelling efforts are needed to bring into focus the many issues and concerns that are either directly or indirectly related to the development of agribusiness educational programs.

CURRICULUM PLANNING

A cursory review of the curriculum development literature suggests that one interpretation of the word curriculum is that it is a plan of some kind. Beauchamp defines curriculum as a written plan depicting the scope and arrangement of the projected educational program for a school. He also indicates there are many relationships which have to be described within this plan, and he then uses the concept of a curriculum system to describe these relationships. The curriculum system involves (1) choice of the arena for curriculum decision making, (2) the selection of persons involved in curriculum planning, (3) organization for and techniques used in curriculum planning, (4) actual writing of the curriculum, (5) implementing the curriculum, (6) evaluating the curriculum, and (7) providing for feedback and modification of the curriculum (p. 62). This framework incorporates the processes of planning, implementation, and evaluation in development of a curriculum. More importantly, it calls attention to identification of the environment within which the curriculum is developed and helps to clarify the decision-making process in planning the curriculum.

Consistent with the concept of a curriculum system, Sledge et al. have outlined two planning processes for curriculum development. Mission-based and competency-based curricular development processes are depicted as systematic approaches to curriculum development and recommended for consideration by colleges of agriculture and natural resources. Important underlying assumptions are

that curriculum processes are uniquely institution-specific and are related to the goals of an individual department, college, and/or university.

The mission-based curricular development process represents an integrative and systematic approach to curricula planning (Sledge et al.). It is conceptual in nature and based on the premise that curricular planning and design relate closely and consistently to an institution's mission. Within this mission, curricular planners identify aims and goals of education and the skill areas to be achieved by students. Once the goals are established, core curricular components are then determined for majors, options, and minors, and provisions are made for electives. In this process, faculty and administrators must decide what emphasis will be given to various curricular components and when the emphasis will be given. For example, given the goals of the program, relatively greater emphasis might be given to general education components in the first two years of the program, while in the latter two years, the emphasis might shift to professional skills (while continuing the emphasis on communication skills). The process also includes provisions for curriculum assessment, which provides feedback into mission and goal development. Although different in scope, this approach is consistent with Batie's discussion of missions of undergraduate curriculum in agricultural sciences.

Competency-based education aims at developing student competencies through specific instructional strategies (Miller and Seller). The competency-based planning process, as proposed by Sledge et al., includes two primary assumptions. The first assumption is that the curriculum planning process involves all who are affected by the program. This means that faculty, students, administrators, and employers are included in both planning and evaluating the curriculum. Secondly, it is assumed that the curriculum encompasses all activities under the jurisdiction of the university including classes, extracurricular activities, cooperative education programs, internships, and other related activities.

In designing a competency-based curriculum, it is important that at least three parameters that serve as input and feedback in the planning process be considered. These parameters are: the experience and background of students entering the curriculum; institutional characteristics such as missions, resources, and industry cooperation; and the identified competencies, skills, and attitudes needed by graduates to be successful in life. Additional input may be solicited from consultants with expertise in curriculum development.

An equally important dimension of the competency-based curricular planning process is curriculum evaluation (assessment) and curriculum revision. Evaluation is based on information from all participants including faculty, students, graduates, employers, administrators, and others either directly or indirectly involved in the educational program. Within the evaluation process, it must be determined if student backgrounds, competency requirements, and institutional missions and goals have changed. These changes are noted in the evaluation and can be incorporated through a mechanism that provides feedback into curriculum planning and decision processes. Other issues that can be addressed in the evaluation process include the recruitment and placement of students.

A focal point in both the mission-based and the competency-based approaches is the actual planning and development of the curriculum. In development of the curriculum, a model (design) is generally used to identify curriculum content and content relationships. Moreover, curricular models and designs serve as guides to define learning experiences needed for students to achieve the desired curriculum goals. Sledge et al. suggest that curricular models are institution specific and that institutions must be careful to adapt such models to meet their own missions and goals.

Several models have been proposed to be used by colleges of agriculture in revitalizing their curricula. These include capstone-based, core-based, experienced-based, conventional pyramid, and major-based models (Sledge et al.). Space limitations do not permit a discussion of these models; however, the core-based curricula model appears to be well suited to agribusiness educational program development. The core-based model is consistent with Beck's plea for agricultural economists to recognize the components of an agribusiness program, and it highlights the interdisciplinary nature of an educational process. The model includes provisions for both the depth and breadth of knowledge and is consistent with the concept of the educated person. The core-based model is more fully discussed and illustrated in the section that follows.

AGRIBUSINESS CURRICULUM DEVELOPMENT: A FRAMEWORK

The competency-based curricular approach has been used by Mather et al. to develop programs in agricultural economics. The authors view this approach as useful for guiding the development of agribusiness undergraduate programs. The competency-based approach as originally presented by Sledge et al. was adapted by the authors to illustrate

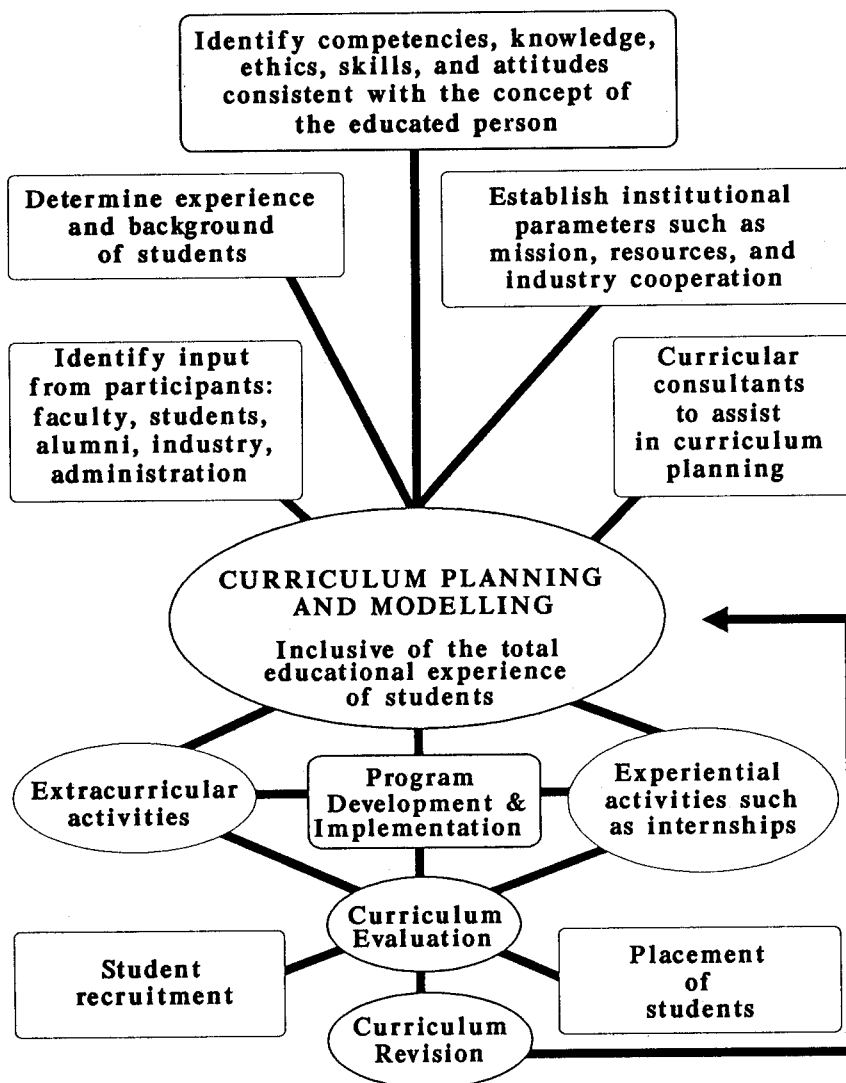


Figure 2. Competency-based curricular planning process, adapted from Sledge et al

a planning process for an agribusiness undergraduate curriculum (Figure 2).

Three distinctive inputs feed into the curricular planning process (Figure 2). The first input includes the concept of the educated person. The concept of the educated person is used to identify the competencies, skills, attitudes, and other characteristics,

such as adaptability, necessary for a graduate to be successful in life. Other parameters which feed into curricular planning and design include the determination of experiences and backgrounds of students coming into the program, and the identification of institutional parameters. Student background is especially relevant to agribusiness programs because

of the integration of technical agriculture, business, and economics subject matter. Programs have to be planned to accommodate students coming from both rural and urban areas, as well as international students. Institutional parameters include such items as mission statements, admission and graduation requirements within the various levels of the university, and the administrative structure of the university. These considerations are again particularly important in planning an agribusiness curriculum because of the interdisciplinary focus of the program. Other related considerations include faculty strengths, departmental resources, and industry cooperation and support.

Curriculum planning and design are posed at the center of the competency-based process and highlight two important planning activities that are relevant to agribusiness education. As illustrated, the competency-based process defines the scope of the curriculum. The scope of curricular planning is defined to be inclusive of the total educational process, including formal classroom instruction as well as extracurricular activities and experience-based learning, such as internships and cooperative education projects. Secondly, the planning process involves all who are affected by the curriculum. As illustrated in Figure 2, input in the planning process may be solicited from faculty, students, alumni, administrators, and industry representatives. In addition, consultants with expertise in higher education curricular planning may be called in to help focus committee planning activities. Thus, this process defines who provides input into the planning process as well as what is to be planned.

With the inputs in the planning process identified, curricular committees can begin to plan curricula. Curricula committees must discuss the goals and the model (design) to be used in the educational program, and multi-faceted dimensions of the educational process are expected to evolve from these discussions. These discussions are expected to revolve around subject matter areas (including core subject matter areas) in the educational program as well as around issues concerning program structure, including options and flexibility, teaching approaches, program rigor, and educational background of students. At this stage, curricular modelling efforts are expected to provide committees with the basis for focusing on the issues and provide a framework for curricula development.

Implementation is viewed to be of strategic importance to the curriculum planning process. Curriculum revision implies changes in subject matter areas, teaching approaches, and attitudes toward curriculum. Provisions and plans must be made to encour-

age teaching faculty to accept and use innovations in the curriculum. Plans could include various means for involving faculty in course development, conducting workshops on curriculum development and teaching methods, and identifying various approaches to be used in faculty development.

An equally important component of the curricular planning process is evaluation. Evaluation may involve the original curricular planning committee or a completely new committee. The curricular planning committee may have a better understanding of what was planned; however, there might be a built-in bias in their evaluation. While this built-in bias is not expected from a new committee, the new committee would not be expected to have the same background on the program which could create inconsistencies in program evaluation, and thus could affect the effectiveness of the overall curriculum planning process.

Curricular evaluation (assessment) and curriculum revision provide feedback into the curricular planning process. According to Beauchamp, every aspect of the curriculum system must be brought under the microscope of evaluation. Moreover, he notes that there are at least four dimensions of curriculum evaluation: (1) evaluation of instructor use of curriculum, (2) evaluation of curriculum design, (3) evaluation of student outcomes, and (4) evaluation of the entire curriculum system. Thus, evaluation must be based on information from all participants in the process, including faculty, students, employers, administrators, and others either directly or indirectly involved in the educational program. Within the evaluation process, it must be determined if student backgrounds, competency requirements, and institutional missions and goals have changed. Changes that are noted in the evaluation can be incorporated in curricular planning through the feedback mechanism.

Curriculum evaluation also includes student recruitment and placement components, which are particularly important for undergraduate agribusiness programs. Litzenberg has noted the need to recruit the right bright students and Beck notes the need to improve the understanding of curriculum among agribusiness firms. One of the reasons agribusinesses have been turning to other fields of study is that they are not finding the right students in sufficient numbers in agribusiness educational programs. These considerations highlight the need to include recruiting and student placement activities within the agribusiness curricular planning process.

As suggested, curriculum modelling is a focal point in the curricular planning process (Figure 2). A modelling approach which appears to have rele-

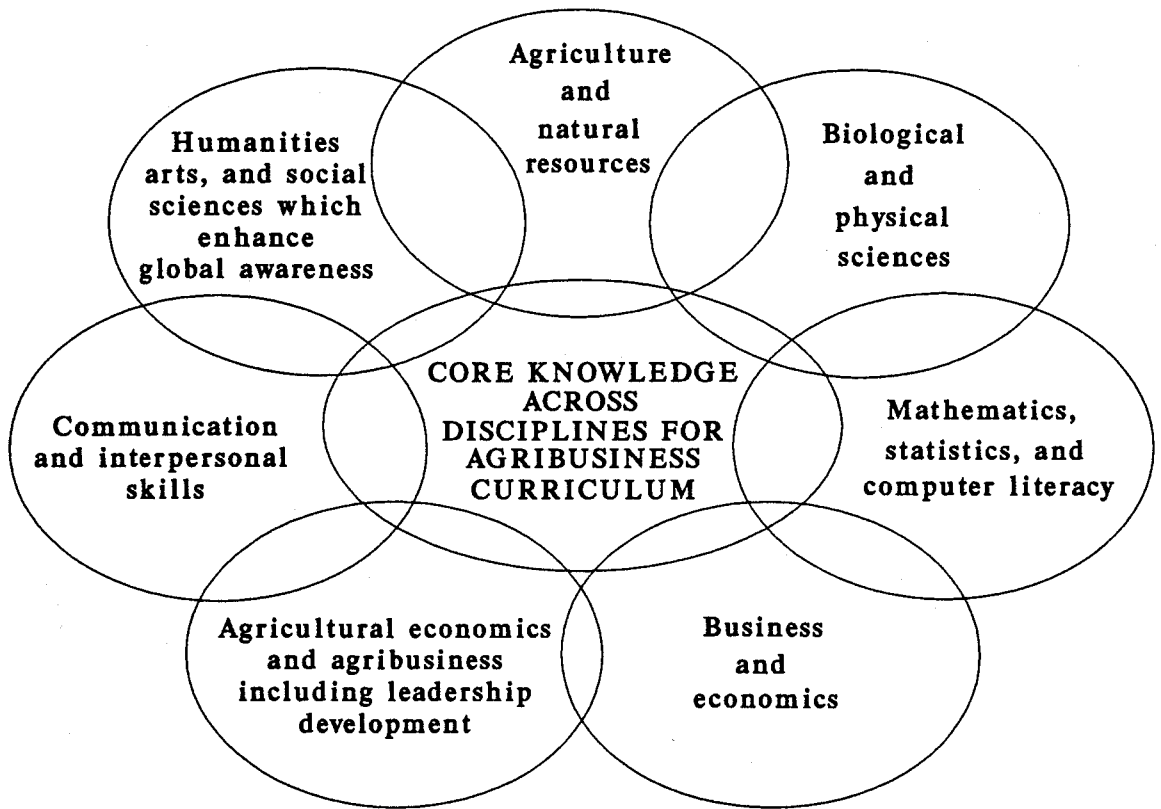


Figure 3. Agribusiness core-based curriculum model, adapted from Sledge et al

vance to agribusiness curricular development is the core-based curricular design. Sledge et al. describe the core-based curriculum model in concept as "...functioning as does an organism that responds to its environment, allowing for a selective flow of knowledge and internal balancing and interaction with the knowledge assimilated into the organism. The selectivity of knowledge incorporated into the model will be influenced by the college's faculty, students, and employers, and by society. These influences will take into account the body of knowledge and its growth, changes in employment competence needs, the student learning levels, and society's expectations"(p. 123).

The core-based model for an agribusiness educational program is presented in Figure 3 (adapted from Sledge et al.). This model recognizes knowledge from seven general discipline areas. The model includes provisions for addressing both depth and breadth of knowledge development that are consistent with the concept of an educated person and the planning processes in agribusiness education. For example, if one moves outward from the center of the model, depth of knowledge is gained whereas if one moves around the model, breadth of knowledge is gained. The model also includes provisions for a

core knowledge across the disciplines for students receiving a degree in agribusiness.

The model also emphasizes the interdisciplinary relationships within agribusiness education. These relationships are illustrated by the overlapping of discipline clusters. Within the core knowledge, curricular planners must give attention to interactions within discipline clusters and to the establishment of prerequisite knowledge and coherence. For example, if faculty are concerned about international and multicultural awareness in the program, then courses from the humanities and social sciences can be included, and knowledge from these courses can be integrated into major courses and other specialized subject matter courses.

As applied to agribusiness education, the model is expected to accommodate a wide range of students with different academic and cultural backgrounds. While maintaining an acceptable level of training for all graduates, the model allows flexibility to add depth of training for exceptional students. The breadth of training and the interdisciplinary focus of knowledge is also expected to provide the student with a basis for lifelong learning. In general, the model represents a holistic educational approach aimed at allowing the graduate to receive and assimilate information in a problem-solving framework.

CONCLUSIONS

Agribusiness is an agriculturally and technologically based industry with a broad range of employment opportunities. In the future, factors that are expected to influence this industry are trends toward international trade, industrialization of agriculture, technological development, environmental and food safety issues, and governmental public policy. These trends raise important questions which relate to future agribusiness educational needs. The educated agribusiness graduate included in a curriculum planning process can provide a means to allow institutions to identify the issues in agribusiness education and to focus on educational needs of agribusiness graduates. The concept of the educated person is particularly useful in planning agribusiness programs because of the wide range of skills and careers needed within the agribusiness industry. Litzenberg and Schneider report that while good interpersonal and communication skills are common among agribusinesses, each segment of the industry has its own shopping list of other skills. In addition, the concept of the educated person is consistent with the recognized need for lifelong learning to support career changes within the industry as well as career changes outside the industry.

The competency-based curricular development process represents a holistic approach to planning agribusiness educational programs. It provides an integrated planning framework by which curricular planning committees and faculty within agricultural economics departments can bring into focus the many issues related to agribusiness programs. The framework is institution-specific and provides faculty and administrators the opportunity to define the educated agribusiness graduate. Moreover, the

framework provides faculty with the opportunity to identify and define all dimensions of the educational process. Program evaluation and assessment along with feedback into curricular planning processes are expected to be consistent with the goals of program enhancement and to keep programs current with agribusiness industry needs. This process is expected to clarify educational programs and provide insight into curricula structure within agricultural economics departments. Moreover, it is expected to be useful in establishing how undergraduate agribusiness programs fit within the scheme of higher education. In addition, this process is expected to provide faculty with a better understanding and an improved perspective of recruiting and placement needs in agribusiness educational programs.

Although various models may be used to guide curriculum development, the core-based model highlights the concept of the educated agribusiness graduate and the interdisciplinary nature of agribusiness. The model is flexible and may be used to accommodate a wide range of students with different aptitudes, skills, and interests. Furthermore, the model offers flexibility in developing breadth and depth in agribusiness educational programs.

In general, the competency-based planning process represents an organized and on-going framework that may be used by individual faculties or other groups to address agribusiness educational needs. The planning process can provide a means for achieving balance between what is perceived by faculty as an educated person and what industry perceives as the necessary skills. This process or other planning processes are needed in addressing the many issues which relate to educating the undergraduate agribusiness major.

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