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SELECTED ISSUES AND FEATURES OF UNDERGRADUATE  
INSTRUCTION IN AGRICULTURAL ECONOMICS

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## INTRODUCTION

In recent years, increased attention has been focused on understanding graduate education in agricultural economics. The profession's interest in this area has been demonstrated through sponsorship of workshops on curriculum development, improvement of undergraduate instruction and teaching programs in agribusiness.<sup>1</sup> Creation of an AAEA Distinguished Undergraduate Teacher Award, establishment of sections of the annual meetings devoted to teaching and curricula, and opening of the contributed papers section competition to undergraduate students all represent increased recognition of undergraduate education.

Departments come to grips with the quality of their undergraduate educational programs in a very real sense as they evaluate courses and program offerings. It was this type of exercise that led to development of the current paper, which draws heavily on information obtained at the University of Kentucky.<sup>2</sup>

A mail survey of agricultural economics departments in the United States and Canada was conducted as part of the review process.<sup>3</sup> This was used as one means of identifying trends or developments that might provide new insights or guidelines to follow in future program structure. Information

concerning enrollment, employment of recent graduates, student profiles and characteristics of various agricultural economics departments was obtained from the survey. The scope of this paper is limited primarily to a discussion of data pertaining to agricultural economics department structure and to issues related to their undergraduate programs.

OVERVIEW OF UNDERGRADUATE  
PROGRAMS IN AGRICULTURAL ECONOMICS

A brief look at some of the features of programs currently being offered will establish current status of these programs throughout the United States and Canada. Since not all features could be covered, only the more meaningful and important ones are discussed below.

## Enrollment

The trend in enrollment in agricultural economics programs has been upward during the five-year study period. For all regions, average enrollment increased 22 percent, from 97 in 1970-71 to 118 in 1974-75 (Table 1). This compares with a six-percent increase in enrollment for all Land Grant institutions, and a 39 percent increase in undergraduate enrollment in colleges of agriculture over the period 1971-74.<sup>4</sup> While the South experienced a higher rate of increase than other U.S. regions, the region still

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<sup>1</sup>Over the past fifteen years, several workshops dealing with undergraduate education have been sponsored. Their sessions were held at Harvard University in 1962, Bemidji State College, 1963, Virginia Polytechnic Institute in 1966, and University of Florida in 1972.

<sup>2</sup>Financial support for this review was furnished by the Southern Regional Education Board.

<sup>3</sup>The questionnaire was sent to 84 institutions. Usable responses were received from 49 institutions—39 land grant universities, two 1890 land grants, three nonland grant schools and four public universities in Canada. Such a small response was received from the nonland grant schools, that it was decided to delete them from the calculations so as not to bias results.

<sup>4</sup>These data were obtained from the office of Research and Information, National Association of State Universities and Land Grant Colleges.

**TABLE 1. AVERAGE ENROLLMENT AND SIZE OF FACULTY IN AGRICULTURAL ECONOMICS DEPARTMENTS BY REGION FOR SELECTED YEARS**

Years	Region					
	Northeast	South	North Central	West	Canada	All Regions
<b>Enrollment</b>						
1970-71	105	73	175	74	24	97
1971-72	110	75	167	78	22	98
1972-73	116	85	157	73	34	99
1973-74	118	89	164	75	44	104
1974-75	130	101	188	86	48	118
Percent Increase	24	38	7	16	100	22
<b>Faculty Size</b>						
	(frequency)					
0-10	1	4		1	1	7
11-20	3	4		6	2	15
21-30		2	2	1	1	6
31-40	1	1	2	2		6
41-50		2	5			7
51-60			2			2
61 and over	1	2				3
Totals	6	15	11	10	4	46
Average Size	27	27	41	20	17	28

SOURCE: Survey of Agricultural Economics Departments.

ranks third in average enrollment behind the north central and northeast regions.

Of 46 respondents to the question regarding relative size of undergraduate enrollment in agricultural economics *vis-a-vis* other departmental programs within their respective colleges, only five institutions indicated that agricultural economics was largest. Nineteen indicated that animal science represented the largest program and seven listed forestry (Table 2).

Regionally, two southern institutions indicated that agricultural economics was the largest department in their colleges, one in the north central region, one in the western region and one from Canada. No respondent from the northeast region ranked agricultural economics as the largest department.

#### Faculty Size

In terms of number of faculty members, average department size for all regions was 28. Largest departments are found in the north central region (averaging 41 members). The South and Northeast share second place with an average of 27 members. Twelve institutions reported faculties of over 40 members.<sup>5</sup> Seven of these were located in the north central region and four were in the South (Table 1).

<sup>5</sup>These figures may be somewhat misleading in that some departments include both agricultural economics and economics faculty, agricultural economics and rural sociology, etc.

**TABLE 2. LARGEST DEPARTMENT ACCORDING TO SIZE OF UNDERGRADUATE ENROLLMENT, 1975**

Department	Frequency with which respective departments were ranked largest by region					
	Northeast	South	North Central	West	Canada	All Regions
Agricultural Economics		2	1	1	1	5
Animal Science	3	3	7	4	2	19
Agronomy				1	1	2
Forestry	2	3	1	1		7
Veterinary Science		1				1
Vocational Education		2				2
Natural Resources				2		2
Horticulture	1	1				2
Biological Science		2				2
Other		1	2			3
Totals	6	15	11	9	4	45

SOURCE: Survey of Agricultural Economics Departments.

As might be anticipated, survey data indicated that, in general, larger faculty size meant smaller percentage of faculty members involved in undergraduate teaching. Undergraduate teaching involvement ranged from a 79 percent average of the faculty in departments with ten members or less, to an average of 39 percent in departments with more than 60 faculty members (Table 3). Apparently, larger faculties can better afford the luxury of specialization, which allows some faculty to be released from undergraduate teaching responsibility. Variation by region in the United States was small, with a range (when averaged over each region) from 53 percent in the North Central to 77 percent in the West. Canadian institutions reported that, on average, 97 percent of their faculty members were involved in undergraduate teaching.

A similar situation exists in terms of undergraduate advising, i.e., there is an inverse relationship between faculty size and percentage of faculty involved in undergraduate advising. In smaller departments, nearly 70 percent of the faculty were involved in undergraduate advising, whereas in the largest departments that involvement dropped to ten percent (see Table 3). About a third of surveyed departments indicated that all faculty members were involved in advising students. In terms of average advising loads, over three-fifths (62 percent) indicated 19 or fewer advisees per advisor. The largest number reported (by

**TABLE 3. PERCENTAGE OF AGRICULTURAL ECONOMICS FACULTY MEMBERS INVOLVED IN UNDERGRADUATE INSTRUCTION AND ADVISING BY SIZE OF DEPARTMENT FACULTY, 1975**

Faculty Size	Involvement in Undergraduate Instruction	Advisors as Percent of TOTAL FACULTY	Advisors as Percent of Faculty Teaching Undergraduate Courses
1-10	79	68	89
11-20	82	53	67
21-30	66	38	58
31-40	57	42	69
41-50	51	36	71
51-60	48	26	55
Over 60	39	10	24

SOURCE: Survey of Agricultural Economics Departments.

one institution) was an average of 50 advisees per advisor.

#### Commitment to a Strong Undergraduate Program

Support by both faculty and administration is essential to establishment and maintenance of an adequate program. This support is more likely to be forthcoming if benefits of undergraduate programs are clearly understood. Administrators are gaining increasing awareness as a result of public pressures, often conveyed by legislators. Faculty members, even though some may be more heavily involved in research and/or graduate programs and thus not directly involved in undergraduate teaching, must recognize that a strong undergraduate program ultimately complements their research programs through improving quantity and quality of students feeding into the graduate program. Some highly successful graduate programs in our discipline rely heavily on their internal programs as sources of students.

In terms of administration attitudes, the existing annual merit reward and academic promotion system in many institutions may not be sufficiently supportive of developing a strong undergraduate program. The institutional system should insure that rewards to faculty investment of time and effort in undergraduate programs are at least as high as opportunity costs. This is necessary to insure that individuals with both ability and desire to become involved in undergraduate programs are not financially disadvantaged. Perhaps more importantly, the system should also insure that equally satisfactory

performance in the undergraduate area will lead to a similar pattern and time frame for promotion as that followed by individuals engaged in other activities.

Direct financial reward alone, however, may not be the only factor causing reluctance on the part of faculty members to make large commitments to undergraduate programs. Goodwin [1], in a paper presented at the 1975 meetings of the AAEA, pointed out that "... it is rare that one department of agricultural economics will approach a faculty member in another on the basis of that man's demonstrated ability to teach." Thus, potentially reduced mobility on the part of the individual who devotes himself primarily to teaching is another consideration.

The observation that administrators must make strong commitment to success of undergraduate programs if they are to achieve their full potential is nothing new. This has been discussed many times in many places over the years. For example, in 1966, Snodgrass [5] asked 163 professors in 31 departments of agricultural economics, "Do you feel that undergraduate teaching receives sufficient recognition in your particular environment?" Fifty-seven percent (94 professors) replied that it received insufficient recognition. Of these 94 professors, 88 percent mentioned less prestige, 51 percent mentioned lower pay, and 62 percent thought promotions were slower. It does not appear likely that this appraisal of teaching reward has changed radically in the intervening ten years.

In our study, we surveyed the degree of upper level administrative support for undergraduate teaching, as perceived by department chairmen. The following ratings were obtained; very high, 9 percent; high, 37 percent; average, 41 percent; low, 11 percent.<sup>6</sup> On the basis of this reply, it does not appear that there is a great deal of dissatisfaction at the departmental administrative level, with support given by deans and university administrators to the undergraduate program. Unfortunately, we do not have necessary data to determine the extent of difference in perceptions of department chairmen and professors.

It is always possible, of course, that individual efforts devoted to improving teaching may not be on par with efforts put into other aspects of the profession such as research. Evaluation and information feedback should be made an integral part of effective resident instruction. Teachers should be willing to encourage open evaluation of their teaching

<sup>6</sup>This question, directed to department chairmen, requested that they rate their college of agriculture deans and university administration in terms of emphasis on, and reward for, development of an excellent undergraduate teaching program *vis a vis* graduate instruction, extension and research.

effectiveness by students and peers, similar to research and extension program evaluation. A cautionary comment made in this context some years ago by Hildreth [2] at an AAEA teaching workshop seems appropriate. He noted, "... techniques for more adequate evaluation of effective teaching are needed. But the faculty are not blameless. To the extent that you are unrewarded in undergraduate instruction because you do not devote the effort necessary to 'make the grade' as a scholar and scientist, you deserve what you get."

An individual development of a sound, high-quality teaching program can demonstrate scholarship in the discipline in much the same way as research. On the other hand, teaching *can* become a low-input form of academic sinecure. Assuming use of an evaluation system similar to those in research and extension, the innovative, enthusiastic scholar, with both ability and primary interest in teaching, should not suffer consequential to colleagues who pursue a different focus.

#### TRAINING NEEDS, AND PROFILE OF UNDERGRADUATE AGRICULTURAL ECONOMIC MAJORS

Over the years, numerous authors have pointed out the importance of maintaining currency in our teaching programs. There is general recognition that the job environment in which our students must compete is constantly changing. This changing nature of our profession was capsulized in a recent article by Manderscheid [3]. He noted, "... not only is the world of work that today's graduates enter different from the world of work into which we entered, but the world of work from which our graduates will retire is quite different from that into which they will enter."

As educational planners, we are faced with the dual challenge of developing programs that will provide our graduates with the requisite training to cope with current job demands, while at the same time equipping them to adjust to future changes in market demand.

Effective, responsive programs must also take necessary steps to ensure that capability to identify major directional shifts in the market, and flexibility to react in a meaningful way, are institutionalized within the system. Although arriving at general agreement on training needs to meet current job opportunities appears to be fairly easy, this task is greatly complicated by continual expansion of potential employment areas.

#### Student Placement

Our survey indicated that agricultural economics graduates are accepting positions with credit and

banking institutions, retailing and wholesaling firms, government agencies, management consulting firms, production agriculture, and a myriad of other employers. Responding institutions indicated that approximately one-third of their graduates accepted employment with agribusiness firms. Almost one-fifth returned to production agriculture, with a relatively higher proportion in the north central region. Most of the remainder found employment in government, nonagricultural industries or entered graduate school (Table 4).

Average starting salaries of agricultural economics graduates in the South compared favorably with those received in all other regions except the north central. A weighted average based upon salary range midpoints showed starting salaries in the north central region to be \$600-\$800 above other regions (Table 4).

#### Program Options

Presumably, these varied employers are seeking somewhat differently trained personnel to recruit. One way in which a number of departments around the country have responded is to establish a variety of options within their respective undergraduate

TABLE 4. INITIAL EMPLOYMENT FIELDS AND AVERAGE STARTING SALARIES OF AGRICULTURAL ECONOMICS GRADUATES BY REGION, 1975

	Region					All Regions
	Northeast	South	North Central	West	Canada	
	(Percentage) <sup>1</sup>					
<b>Employment</b>						
Farming	9	12	27	22	19	18
Agricultural Industry	35	36	36	19	20	31
Graduate School	17	11	13	16	15	14
Non-Agricultural Industry	13	12	12	4	6	10
Government	11	17	6	10	38	14
Military	7	7	3	2	0	4
<b>Salary</b>						
	(Frequency)					
\$7001-8000	1	1		1	1	4
8001-9000	1	6	2	2	2	13
9001-10,000	2	5	5	3		15
10,001-11,000	1	2	2	1		6
11,001-12,000					1	1
<b>Average<sup>2</sup></b>	\$8900	\$9070	\$9700	\$9701	\$9000	

SOURCE: Survey of agricultural economics departments.

<sup>1</sup> Average of percentages reported by each department in the region.

<sup>2</sup> Weighted average based on midpoint of each range.

programs. Our survey indicated that offered program options ranged from the more traditional farm management, marketing and general agricultural economics to very specialized programs—such as veterinary business management and forestry economics. In general, grouping of options within departments reflects a tendency to hold onto traditional ones while expanding into new areas of emphasis in the profession. This is reflected by the fact that 36 respondents offer a curriculum in agribusiness and 25 offer one in general agricultural economics.

Our survey suggests that, in many cases, differences among requirements in the various options are quite small. Perhaps only three or four courses might distinguish one option from another. The options may nevertheless be quite useful, both as a means of differentiating the product and in attracting students to the discipline. They may also serve as useful mechanisms for student guidance and counseling, and for structuring programs which will more nearly meet individual interests and career goals.

While the list of options is quite long (Table 5), enrollment data by option were not available, and,

**TABLE 5. PROGRAM OPTIONS OFFERED BY DEPARTMENTS OF AGRICULTURAL ECONOMICS BY REGIONS, 1975**

Option <sup>1</sup>	Region					All Regions
	Northeast	South	North Central	West	Canada	
	(frequency)					
Agribusiness	4	11	8	9	4	36
Agricultural Economics	3	8	5	6	3	25
Farm Management	2	2	4		1	9
Marketing	1		3	1		5
Farm & Ranch Management		2	2	4	1	9
Resource Economics	6	4	3	3	1	17
Veterinary Business Management		1	1			2
International Agriculture	1		1	2		4
Agricultural Finance	1		1			2
Rural Development	1	3			1	5
Community Development		3		1		4
Pre-law		1	1			2
Economic Analysis			1	1		2
Public Policy/Public Affairs	1		2			3
Food & Fiber Distribution	1	2				3
Agricultural Production			2	2		4
Pre-professional Agri. Econ	1	1	1	1		4

SOURCE: Survey of Agricultural Economics Departments.

<sup>1</sup>The following options were also offered but listed by only one department.

Recreation and Park Management	Social Science
Environmental Studies	Food Systems Management
Quantitative Methods	Food Industry Management
Forestry Economics	Grain and Input Marketing

thus, prevented evaluation of student demand for some of the specialized options. One nontraditional field receiving increasing attention in agricultural economics is law. Currently, two departments offer a pre-law option, and six of the 39 respondents (15 percent) have one or more lawyers on their staff. One of these would like to add another lawyer to its faculty, while an additional department is considering establishment of a law position.

### Student Profile

Increasing percentages of agricultural college enrollees from nonfarm backgrounds is a continuing trend. Of 44 institution respondents, 54 percent indicated that more than half of their students came from farms, but almost a fifth indicated less than 25 percent from farms. Regionally, the North Central and the South reported a strong farm representation, while the Northeast indicated a substantially smaller percent (Table 6).

This factor introduces a new dimension into planning and implementation of undergraduate teaching programs. Decisions have ramifications for both undergraduate and graduate programs. Although there appears to be general agreement that the change in student body composition needs to be considered in developing increasingly responsive programs, there is no consensus regarding directions that this change should take. For example, a substantial number of educators see the need for *increased* requirements in the applied biological science areas, particularly agronomy and animal science, as well as increased emphasis in such areas of agricultural economics as farm management. The rationale for this position is that every agricultural economics graduate should be at least broadly conversant with the technical and

**TABLE 6. SHARE OF AGRICULTURAL ECONOMICS UNDERGRADUATE MAJORS WITH A FARM BACKGROUND BY REGION**

Percentage of Students with Farm Background	Regions					All Regions
	Northeast	South	North Central	West	Canada	
	(number and percent) <sup>1</sup>					
1-24	1 (67)	1 (7)	1 (9)	1 (11)		7 (16)
26-50	2 (33)	5 (33)	2 (18)	3 (33)	1 (33)	13 (30)
51-75		7 (47)	5 (46)	3 (33)	2 (67)	17 (38)
Over 75		2 (13)	3 (27)	2 (25)		7 (16)
Totals	6 (100)	15 (100)	11 (100)	9 (100)	3 (100)	44 (100)

SOURCE: Survey of Agricultural Economics Departments.

<sup>1</sup>Number in parenthesis represent percent of total in each category.

practical farming aspects which farm background students have acquired through experience, and that course requirements must do whatever is possible to fill the gap for the city-bred. This concern is more appropriately directed toward those planning to specialize in some commercial agriculture curriculum than toward those in natural resource economics, rural development, etc.

Another group of educators, viewing changed student composition, would opt for reduced emphasis on applied biological science areas as general requirements, arguing that the future jobs for the bulk of our students will require little conversancy with technical applied aspects of farming. In this view, employment opportunities are going to be primarily in the area of agribusiness—sales, finance, management—and every credit hour spent in “technical agriculture” means one less hour that will be available for work in computer science, statistics, accounting, business management, communications, etc.

From the employer perspective, it is likely that many jobs in commercial agriculture were filled primarily from agronomy and animal science graduates. More recently, however, some employers are turning to agricultural economics departments in search of individuals who have combined skills in management and agricultural economics with training in technical agriculture areas. A flexible program which permits students to complete the necessary training as agricultural economists, but which also provides course work in technical agriculture, may substantially broaden graduate employment opportunities.<sup>7</sup>

It is unlikely that there is a uniquely “correct” position. Different institutions, because of their geographic locations, varying agricultural patterns and job markets, will doubtless face different sets of educational needs for their clientele. A recognition of the issue does, however, suggest a need for developing flexibility within programs to better meet this diversity of training needs.

Along with changing student profile, agricultural students appear to be changing in attitude toward their educational programs and courses. Within the past several years, most instructors have observed that students have become less willing to unquestionably accept doctrine as delivered from the podium. They are more apt to challenge, to criticize and to press for more current information and better-prepared instructional programs. They are more willing to expend some effort, along with faculty members, in developing recommendations for curriculum improve-

ment. These, if properly utilized, can prove to be a valuable resource. Instructors and programs sensitive to this changing set of attitudes and willing to make changes can benefit greatly. Those who are not may be in for increasingly difficult times.

### Potential Growth Areas

In planning for educational needs of students in years ahead it is necessary to make some “educated predictions” as to what the major market demand areas will be, and then to structure programs which will facilitate providing the required product. In discussing curricula, Nicholls [4] has pointed out that as a profession we must be, “. . . alert to the opportunities for developing new markets for our services both traditional and new . . .,” lest we become a declining industry. This advice is as appropriate today as it was in 1960.

Respondents to our survey were requested to identify and rank program areas which they felt would have largest student enrollment during the next five to ten years. Choices included farm management/production economics; agribusiness management; natural resource economics; community and rural development economics; and “others,” with the request that the latter be specified.

Two-thirds of the respondents identified agribusiness management as the prime future growth area. Second, third and fourth places were assigned to farm management/production economics, natural resource economics and rural development, respectively (Table 7). There appeared to be a fairly high degree

**TABLE 7. AREAS OF GREATEST ANTICIPATED GROWTH IN UNDERGRADUATE ENROLLMENT IN AGRICULTURAL ECONOMICS IN THE NEXT DECADE**

Areas of Undergraduate Instruction	Percentage of Responding Institutions Specifying Each Category			
	Greatest Growth Area	Second	Third	Fourth
Agribusiness Management	62	19	13	4
Farm Management/Production Economics	16	44	18	18
Natural Resource Economics	11	14	53	14
Rural Development	7	17	15	50
Others	4	6	3	14
Totals	100	100	100	100

SOURCE: Survey of Agricultural Economics Departments.

<sup>7</sup>It should be noted that this option is provided in many programs and has been available for a number of years.

of consensus in regard to ranking accorded specified areas.

It is apparent, of course, that the areas selected for ranking are rather aggregative, and may contain within them several important and readily identifiable subareas. For example, within agribusiness management, one might elect to separate out marketing, financial management or other fields. Many would argue for a clean separation of farm management and production economics.

### CONCLUSIONS AND IMPLICATIONS

Results of this survey of agricultural economics departments indicate several trends and developments which should be considered when revising or developing new undergraduate programs. These trends and developments may not be uniform for all departments, but a familiarity with some of the changes occurring in the profession should nevertheless prove useful.

Although an upward trend in agricultural enrollment is apparent over the past few years, the rate of growth in agricultural economics has not kept pace with the increase in colleges of agriculture as a whole. This suggests that our programs may not be adequately addressing the needs of students.

Developing and maintaining a quality undergraduate program in agriculture economics, with increasing numbers of students and slowly growing budgets, will require increased faculty time, resources and support. This support is unlikely to be forthcoming unless rewards for teachers are at least as high as their opportunity costs. Ultimately, responsibility for providing necessary incentives falls upon an institution's administrators.

The survey also indicated that an increasing number of agricultural economics majors are coming from nonfarm backgrounds. This factor may necessitate some structural adjustments, since we have

normally assumed that our majors are experienced in practical agriculture when they enter college. If students are required to take technical agriculture courses to fill this void, less time will be available for courses in agricultural economics and closely related areas. This suggests the importance of providing flexibility to accommodate student needs.

The type of employment that our graduates are entering has implications for the type of curriculum and training that needs to be provided. Results of our survey indicate that graduates are finding employment in agriculturally related industries, nonagricultural industries and government, as well as returning to the farm. Since the type of training required by most of these employment areas is rapidly changing, departments should more closely monitor their programs to insure that proficiency training in both traditional and newer areas is available.

One means to meet the diverse needs of these employment areas and to counsel and advise students concerning career opportunities is to establish options within the undergraduate program. Selection and structuring of these options may be very important to the student in terms of obtaining employment and subsequent job performance.

Survey respondents suggest that agribusiness management is the area of agricultural economics which appears likely to experience the greatest enrollment expansion. Assessments of growth areas within our discipline will be increasingly needed, not only to counsel students effectively for their future careers and to modify course offerings, but also for longer-term resource allocation.

Basically, what we are concerned with is how well our educational process is equipping graduates for job performance and for assuring satisfying, productive roles in society. As higher education moves into a period of greater accountability, the type of product trained and its social and economic utility will be a major factor in the evaluation of our discipline.

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