# Curriculum Development in Agricultural Economics: A Historical Perspective

by

John Sjo*

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*Professor of Agricultural Economics, Department of Economics, Kansas State University.

Prepared for presentation as an invited paper at the AAEA annual meetings, Pennsylvania State University, 1976.

# Curriculum Development in Agricultural Economics: A Historical Perspective

In agricultural economics we have had a half century of experience developing curricula. By the early 1920's most land grant universities had instruction in applying economic principles to agricultural production and marketing. Some universities had separate departments and curricula; others offered agricultural economics courses in production departments, often agronomy.

A survey of early university catalogs and the Journal of Farm Economics establishes that the basic curriculum-development issues were recognized and defined in our profession's infancy. Our association established a committee on teaching in 1919. That committee's reports from then through 1923 are statements on issues that still continue. At the 1925 annual meetings one session dealt with "Should there be two four-year curricula in agricultural colleges, one based primarily upon the natural sciences and the other upon economics, accounting, statistics?" That topic still causes lively discussion among faculty in colleges of agriculture and is not yet resolved.

In this paper I present several curriculum issues and attempt to show how agricultural economists have responded to those issues over time. Those recurring curriculum issues deal with the balance between:

1. Natural and social sciences.
2. Theoretical and applied courses.
3. Structure and flexibility in a curriculum.
4. Institutional and quantitative approaches to studying

agricultural economics.

5. Professional and general education.

All are issues of balance among objectives. In each the controversy is not to exclude or include one or the other. Even the most extreme advocates on each side of each issue have not demanded an all or nothing solution. In some instances the advocates on both sides have desired more of both. However, when the credit-hour requirement in a curriculum is already fully used to meet present objectives, increasing credit hours to achieve more fully one objective can be done only by giving up credit hours used to meet another objective. Unless the total curriculum requirements are increased or more effective instructional methods are used, additions cannot exceed deletions. Curriculum builders and remodelers must balance the competing demands within the total credit hours required for a degree.

Curricula are thus the result of compromises between advocates of each set of objectives. As personnel change, as economic conditions change, as the state of knowledge in the discipline change, and as the capabilities of students change in a department, the balance is disturbed and the debate over optimum emphasis begins again and continues until a new balance is found. Curriculum development is a dynamic process. There is no one best curriculum nor one that survives unchanged even a few years. Yet the debate over curriculum is narrowly limited. Changes in agricultural economic curricula have been neither fundamental nor drastic. Changes have been limited and slow. No drastic new issues have, or are likely to, come forward. Curriculum development has been, and continues to be, a slow evolutionary process. What appears to be a dramatic change in any given case usually is only catching up after a long period without change.

My discussion is on historical curriculum development as it related to the five issues listed. To prepare for the discussion, I collected data on allocating credit hours among competing objectives at Kansas State University, 1920-76. Other universities may have made the shifts in allocations before or after Kansas State, but I think they have been remarkably consistent among the many universities, despite no organized effort to achieve consistency. The consistency came as faculty exchanged information and, more importantly, because departments have faculty who have studied and worked at several universities. That provides within a department broad experience with curricula and moderates any drive to uniqueness.

The balance between natural and social sciences. Nichols, in his 1960 Association Meeting presidential address, said:

> The development of a satisfactory undergraduate curriculum in agricultural economics is at best peculiarly difficult, since our field has two important taproots rather than one. One of these taproots provides the bio-physical elements and the other the socio-economic elements, both of which are equally vital to our professional good health. Unfortunately, as part of the agriculture curriculum, agricultural economics has typically suffered from a lack of nutritional balance, with the bio-physical taproot having developed an excessive number of small lateral roots and subroots, while the socio-economic taproot has frequently atrophied or even died. Where this has happened, it is in part attributable to circumstances largely beyond the control of the agricultural economics faculty, which frequently

> has been a minority interest in the agricultural faculty who fix general undergraduate requirements for the pre-major years. Perhaps as often, however, the agricultural economics faculty has not even recognized that it does in fact have a minority interest which, if vigorously prosecuted, could win for its pre-majors a broader and more appropriate preparation for their major work than the standard junior-college requirements in technical agricultural subjects can provide. [3]

That issue of balance between the natural and social science base of undergraduate agricultural economics curricula was identified by the association's first teaching committee and it remains an issue today. It is reflected in curriculum history at Kansas State University.

I analyzed comparative emphases on the natural and social sciences at Kansas State, 1920 to 1976 (Tables 1, 2).

In 1920, 61 percent of the total credit hours was allocated to natural science courses; 11 percent, to social science courses. That "balance" changed little until 1950. During those 30 years all departments followed a common-core agricultural curriculum. The core curriculum was almost exclusively natural science, theoretical and applied. Social sciences were electives. By the 1950's pressure had mounted for a more equitable allocation of courses, particularly for agricultural economics majors. Two adjustments were made: (1) slightly increasing the social science requirement, theoretical and applied; and (2) establishing an agricultural economics curriculum separate from the core curriculum. In it required natural sciences made up 34 percent of total credit hours and the minimum in the social sciences was 25 percent of total credit hours.

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I analyzed comparative emphases on the natural and social sciences at Kansas State, 1920 to 1976 (Tables 1, 2).

In 1920, 61 percent of the total credit hours was allocated to natural science courses; 11 percent, to social science courses. That "balance" changed little until 1950. During those 30 years all departments followed a common-core agricultural curriculum. The core curriculum was almost exclusively natural science, theoretical and applied. Social sciences were electives. By the 1950's pressure had mounted for a more equitable allocation of courses, particularly for agricultural economics majors. Two adjustments were made: (1) slightly increasing the social science requirement, theoretical and applied; and (2) establishing an agricultural economics curriculum separate from the core curriculum. In it required natural sciences made up 34 percent of total credit hours and the minimum in the social sciences was 25 percent of total credit hours.

ble 2. Minimum requirements, principles and their application, in the natural sciences and social sciences compared, Agricultural Economics, Kansas State University, 1920 to 1975.

| *Curriculum by Years* | | *Minimum Requirements Compared* | | | | *Total Credit Hours* |
|---|---|---|---|---|---|---|
| | | NATURAL SCIENCES | | SOCIAL SCIENCES | | |
| | | Credit Hours | Percent | Credit Hours | Percent | |
| 20 | Agriculture, Agricultural Economics Major | 83 | 61.5 | 15 | 11.1 | 135 |
| 30 | Agriculture, Agricultural Economics Major | 71 | 55.5 | 18 | 14.0 | 128 |
| 40 | Agriculture, Agricultural Economics Major | 72 | 55.8 | 18 | 14.0 | 129 |
| 50 | Agriculture, Agricultural Economics Major | 68 | 53.1 | 18 | 14.0 | 128 |
| | Agriculture Administration | 44 | 34.4 | 32 | 25.0 | 128 |
| 55 | Agriculture, Agricultural Economics Major | 60 | 46.9 | 18 | 14.0 | 128 |
| | Agricultural Economics | | | | | |
| | Agricultural Administration Option | 56 | 42.4 | 35 | 26.5 | 132 |
| | Rural Banking Option | 48 | 36.4 | 45 | 34.1 | 132 |
| | Agricultural Business and Industries Option | 48 | 36.4 | 25 | 18.9 | 132 |
| | Technical Agricultural Economics | 30 | 21.4 | 45 | 32.1 | 140 |
| 50 | Agriculture, Agricultural Economics Major | | | | | |
| | Agricultural Administration Program | 60 | 44.1 | 25 | 18.4 | 136 |
| | Agricultural Business and Industries Program | 60 | 44.1 | 25 | 18.4 | 136 |
| | Technical Agricultural Economics Program | 60 | 44.1 | 26 | 18.4 | 136 |
| 70 | Agriculture, Agricultural Economics Major | | | | | |
| | Science Option | 40 | 31.3 | 20 | 15.6 | 128 |
| | Business and Industries Option | 38 | 29.7 | 36 | 28.1 | 128 |
| | Production Option | 39 | 30.5 | 33 | 25.8 | 128 |
| | Services Option | 37 | 28.9 | 33 | 25.8 | 128 |
| 75 | Agricultural Economics | | | | | |
| | Agribusiness Management Option | 21 | 16.7 | 36 | 28.6 | 126 |
| | Farm Management Option | 30 | 23.8 | 36 | 28.6 | 126 |
| | Agricultural Programs Option | 21 | 16.7 | 36 | 28.6 | 126 |
| | Professional Agricultural Economics Option | 21 | 16.7 | 36 | 28.6 | 126 |

So the question "Should there be two curricula in agriculture?" raised in 1925 was answered in 1950.

Undergraduate students, in 1950, for the first time could choose to be primarily an agriculturalist with some social science education or primarily a social scientist with some natural science education. The separate curriculum was formal recognition by college of agriculture faculty that agricultural economics basic science needs differ from those of agricultural sciences. Through the 1950's the two-curriculum system was maintained. In 1960 Kansas State returned to the core curriculum concept with minimum requirements specified. However, in the new core curriculum, social sciences were given increased emphasis, not only for agricultural economics majors but also for all agricultural students. At Kansas State that curriculum required a minimum of 44 percent natural science courses and 18 percent social sciences for all agricultural students. The core curriculum was almost equally divided among biological, physical, and social sciences. That not only provided the agricultural economics students with a stronger foundation in social science principles, but also provided other agricultural students a strong introduction to the social sciences.

In 1972 the Department of Agricultural Economics proposed, and was granted, a curriculum separate from the core agricultural curriculum. The agricultural faculty without dissent, thus, recognized the uniqueness of agricultural economics in the college of agriculture. They concurred that agricultural economics students need as strong a social science base as agronomy or animal science students need a strong natural science base. The new curriculum required agricultural economics students to

complete a minimum of 17 percent of their credit hours in the natural sciences and 29 percent in the social sciences.

The balance between theoretical and applied courses. The debate between the advocates of theory courses and of applied courses in colleges of agriculture has resulted in greater emphasis on applied courses. In 1920 the minimum of theoretical courses in the biological, physical, and social sciences for all agricultural students was 35 percent (47 credit hours) of the total credit hours (Table 3); the minimum of applied courses, was 42 percent (57 credit hours). Gradually through the 1950's the emphasis shifted to applied courses. But then the combined applied and theoretical science requirements declined as emphasis on communications and liberal arts (humanities) increased. In the 1970's credit hours required in applied sciences have increased while credit hours in the theoretical sciences have decreased.

Looking at only the social sciences, we find the total theoretical and applied courses increased from 21 credit hours minimum since 1920 to 42 credit hours minimum now, with the greatest shift to the theoretical social sciences. In 1920 six credit hours of applied courses were required compared with 24 in 1975. Because there has been a trend toward teaching both applied and theoretical topics in each course, considerable theory often is now taught in applied courses.

Besides the issue of emphasis, we have debated sequencing applied and theoretical science courses. Should a student take a farm management course before he takes a production economics course, or vice versa? Although the record shows switches from one view to the other, it usually has been resolved by mixing theoretical and applied courses throughout

Table 3. Minimum theoretical and applied course requirements for B.S. degree in agricultural economics, Kansas State University, 1920 to 1975.

| Curriculum by Years | Curriculum Requirements | | | | Curriculum Electives | | | | Curriculum Total | | | | Social Sciences | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Theoretical | | Applied | | Theoretical | | Applied | | Theoretical | | Applied | | Theoretical | Applied |
| | Cr. Hrs. | % | Cr. Hrs. | % | Cr. Hrs. | % | Cr. Hrs. | % | Cr. Hrs. | % | Cr. Hrs. | % | | |
| 1920 Agriculture, Agricultural Economics Major | 41 | 30.4 | 36 | 26.7 | 6 | 4.4 | 21 | 15.5 | 47 | 34.8 | 57 | 42.2 | 6 | 15 |
| 1930 Agriculture, Agricultural Economics Major | 39 | 30.5 | 29 | 22.6 | 6 | 4.7 | 21 | 16.4 | 45 | 35.2 | 50 | 39.0 | 6 | 18 |
| 1940 Agriculture, Agricultural Economics Major | 43 | 33.6 | 29 | 22.6 | 6 | 4.7 | 21 | 16.4 | 49 | 38.3 | 50 | 39.0 | 9 | 15 |
| 1950 Agriculture, Agricultural Economics Major | 39 | 30.5 | 29 | 22.6 | 0 | 0.0 | 21 | 16.4 | 39 | 30.5 | 50 | 39.0 | 3 | 15 |
| Agricultural Administration | 26 | 20.3 | 27 | 21.1 | 0 | 0.0 | 24 | 18.7 | 26 | 20.3 | 51 | 39.8 | 9 | 23 |
| 1955 Agriculture, Agricultural Economics Major | 41 | 32.0 | 26 | 20.3 | 0 | 0.0 | 21 | 16.4 | 41 | 32.0 | 47 | 36.4 | 3 | 15 |
| Agricultural Economics | | | | | | | | | | | | | | |
| Agricultural Administration Option | 28 | 21.2 | 44 | 33.3 | 0 | 0.0 | 15 | 11.7 | 28 | 21.2 | 59 | 45.0 | 9 | 24 |
| Rural Banking Option | 33 | 25.0 | 48 | 36.4 | 0 | 0.0 | 15 | 11.7 | 33 | 25.0 | 63 | 48.1 | 14 | 31 |
| Agricultural Business and Industries Option | 34 | 25.7 | 44 | 33.3 | 0 | 0.0 | 15 | 11.7 | 34 | 25.7 | 59 | 45.0 | 15 | 12 |
| Technical Agricultural Economics | 34 | 24.3 | 29 | 20.7 | 9 | 6.4 | 9 | 6.4 | 45 | 30.7 | 38 | 27.1 | 24 | 21 |
| 1960 Agriculture, Agricultural Economics Major | | | | | | | | | | | | | | |
| Agricultural Administration Program | 45 | 33.1 | 28 | 20.5 | 0 | 0.0 | 12 | 8.8 | 45 | 33.1 | 40 | 29.3 | 9 | 16 |
| Agricultural Business and Industries Program | 45 | 33.1 | 28 | 20.5 | 0 | 0.0 | 12 | 8.8 | 45 | 33.1 | 40 | 29.3 | 9 | 16 |
| Technical Agricultural Economics Program | 45 | 33.1 | 28 | 20.5 | 0 | 0.0 | 12 | 8.8 | 45 | 33.1 | 40 | 29.3 | 9 | 16 |
| 1970 Agriculture, Agricultural Economics Major | | | | | | | | | | | | | | |
| Science Option | 39 | 30.5 | 26 | 20.3 | 0 | 0.0 | 29 | 22.7 | 39 | 30.5 | 55 | 43.0 | 9 | 24 |
| Business and Industries Option | 24 | 18.7 | 46 | 35.9 | 0 | 0.0 | 29 | 22.7 | 24 | 18.7 | 75 | 58.6 | 9 | 27 |
| Production Option | 27 | 21.1 | 28 | 21.9 | 0 | 0.0 | 29 | 22.7 | 27 | 21.1 | 57 | 44.6 | 9 | 24 |
| Services Option | 20 | 15.6 | 20 | 15.6 | 0 | 0.0 | 29 | 22.7 | 20 | 15.6 | 49 | 38.3 | 9 | 24 |
| 1975 Agricultural Economics | | | | | | | | | | | | | | |
| Agribusiness Management Option | 21 | 16.7 | 32 | 25.4 | 6 | 4.8 | 21 | 16.7 | 27 | 21.5 | 53 | 42.1 | 18 | 24 |
| Farm Management Option | 21 | 16.7 | 35 | 27.8 | 6 | 4.8 | 18 | 14.3 | 27 | 21.5 | 53 | 42.1 | 18 | 24 |
| Agricultural Programs Option | 21 | 16.7 | 35 | 27.8 | 9 | 7.1 | 9 | 7.1 | 30 | 23.8 | 44 | 34.9 | 21 | 24 |
| Professional Agricultural Economics Option | 21 | 16.7 | 25 | 19.8 | 6 | 4.8 | 15 | 11.9 | 27 | 21.5 | 40 | 31.7 | 18 | 24 |

the four years. In the first two years emphasis has been on the theoretical; in the last two, on the applied.

The balance between structure and flexibility in a curriculum. Faculty in colleges of agriculture traditionally have set rather narrow constraints on students and advisers in developing individual programs of study within curricula. Usually, the greater the professionalism and specialization of the department, the narrower the constraints. There is more consensus among entomologists and veterinarians on what their graduates should be prepared to do, than there is among agricultural economists on what agricultural economics graduates should be prepared to do. Agricultural economics tends to be similar to the liberal arts departments in that respect. Without a firm commitment to narrow professional education, agricultural economists have opted for less structured undergraduate programs than have other agricultural scientists.

Since 1920 the trend at Kansas State has been to less structured programs. The number of required and elective credit hours and their percentages of total credit hours are shown in Table 4. The elective portion indicates flexibility in the program. In 1920, 32 percent of the program of study was electives. The space age of the 1950's caused a new emphasis on natural sciences. The percentage of electives gradually declined through the 1950's, then moved toward greater flexibility during the 1960's, with continued increase in electives in the 1970's. Today 35 percent of the credit hours is elective.

The trend from constraints to more flexibility followed the characteristics of the agricultural students. In the past agricultural students were the first generation of their families to seek university education.

Table 4. Curriculum flexibility compared, Agricultural Economics, Kansas State University, 1920 to 1975.

| | *Curriculum by Years* | *Credit Hours* | | | | *Total* |
|---|---|---|---|---|---|---|
| | | REQUIRED | | ELECTIVES | | |
| | | Number | Percent | Number | Percent | |
| 1920 | Agriculture, Agricultural Economics Major | 92 | 68.1 | 43 | 31.9 | 135 |
| 1930 | Agriculture, Agricultural Economics Major | 82 | 64.1 | 46 | 35.9 | 128 |
| 1940 | Agriculture, Agricultural Economics Major | 83 | 64.3 | 46 | 35.7 | 129 |
| 1950 | Agriculture, Agricultural Economics Major | 90 | 70.3 | 38 | 29.7 | 128 |
| | Agricultural Administration | 87 | 70.0 | 41 | 30.0 | 128 |
| 1955 | Agriculture, Agricultural Economics Major | 92 | 71.9 | 36 | 28.1 | 128 |
| | Agricultural Economics | | | | | |
| | Agricultural Administration Option | 102 | 77.3 | 30 | 22.7 | 132 |
| | Rural Banking Option | 111 | 84.1 | 21 | 15.9 | 132 |
| | Agricultural Business and Industries Option | 108 | 81.8 | 24 | 18.2 | 132 |
| | Technical Agricultural Economics | 108 | 77.1 | 32 | 22.9 | 140 |
| 1960 | Agriculture, Agricultural Economics Major | | | | | |
| | Agricultural Administration Program | 103 | 75.7 | 33 | 24.3 | 136 |
| | Agricultural Business and Industries Program | 103 | 75.7 | 33 | 24.3 | 136 |
| | Technical Agricultural Economics Program | 103 | 75.7 | 33 | 24.3 | 136 |
| 1970 | Agriculture, Agricultural Economics Major | | | | | |
| | Science Option | 75 | 58.6 | 53 | 41.4 | 128 |
| | Business and Industries Option | 82 | 64.1 | 46 | 35.9 | 128 |
| | Production Option | 71 | 55.5 | 57 | 44.5 | 128 |
| | Services Option | 69 | 53.9 | 59 | 46.1 | 128 |
| 1975 | Agricultural Economics | | | | | |
| | Agricultural Management Option | 78 | 61.9 | 48 | 38.1 | 126 |
| | Farm Management Option | 81 | 64.3 | 45 | 35.7 | 126 |
| | Agricultural Programs Option | 81 | 64.3 | 45 | 35.7 | 126 |
| | Professional Agricultural Economics Option | 75 | 59.5 | 51 | 40.5 | 126 |

Compared with other university students they had less aptitude for university study and viewed education mainly as a job training experience [1]. A fairly structured program provided the guidance needed by that type of student. Gradually our students are coming from families with wider educational experiences and with higher regards for the intrinsic value of knowledge itself. Those students have a basis for making a wider range of curriculum choices. Today agricultural students have stronger educational backgrounds, and I hypothesize that they have less need for highly structured curricula.

Structure in a curriculum is also affected by course sequencing within the curriculum. The Kansas State curriculum, 1920 to 1960, shows sequencing of courses firmly established through the freshman, sophomore, and junior years. Only the senior year, largely open for electives, was left unsequenced. Since 1960 the sequencing has been limited primarily to the freshman year with some in the sophomore year. The last two years are left largely unstructured. A factor influencing the structuring of the first two years is the increasing number of transfers from two-year community colleges. Two-year sequencing provides guidance for the community colleges and assures their students that their courses will transfer.

The balance between institutional and quantitative approaches to studying agricultural economics. Jones, Lard, and Manderscheid [2] in 1972 and Sjo, Orazem, and Biere [4] in 1973 discussed using quantitative methods in undergraduate agricultural economics. Both groups urged more emphasis on quantitative methods. Evidence of the emphasis is found in the number of measurement-type courses required of students.

Measurement courses usually are those in mathematics, statistics, computer science, accounting, and quantitative agricultural economics. Including those courses has three basic purposes: First, understanding "the language" of quantitative methods is necessary to study economic theory; second, understanding measurement techniques is necessary to know when a technique is useful and how useful it is; third, experience in using the methods and techniques studied are necessary to apply quantitative methods to economic problems.

At Kansas State no quantitative methods courses were required until 1955 (Table 5). Many students took such courses as electives, but a student could earn a B. S. degree without a single credit in quantitative methods. In 1955, one course, College Algebra, was required of all agricultural students. Agricultural economics students were also required to take a course in statistics. Today agricultural economics students are required to complete four courses: College Algebra, Analytical Processes, Statistics, and Accounting.

Throughout the history of the department some quantitative methods have been taught as a part of individual agricultural economics courses. Farm management and agribusiness management courses include sections on accounting, budgeting, and electronic data processing. In the early years laboratory work was emphasized so students learned to use measurement techniques. While that was done little emphasis was given to studying the theoretical basis of the techniques. In the 1950's most laboratory components were dropped and courses in mathematics, statistics, and accounting were added.

In 1972 we reinstated the laboratory components of several courses,

Table 5. Minimum analytical methods requirements, Kansas State University, 1920 to 1975.

| | *Curriculum by Years* | *Credit Hours* | *Percent of Total Credit Hours* |
|---|---|---|---|
| 1920 | Agriculture, Agricultural Economics Major | 0 | 0 |
| 1930 | Agriculture, Agricultural Economics Major | 0 | 0 |
| 1940 | Agriculture, Agricultural Economics Major | 0 | 0 |
| 1950 | Agriculture, Agricultural Economics Major | 0 | 0 |
| | Agricultural Administration | 0 | 0 |
| 1955 | Agriculture, Agricultural Economics Major | 3 | 2.3 |
| | Agricultural Economics | | |
| | Agricultural Administration Option | 8 | 6.0 |
| | Rural Banking Option | 8 | 6.0 |
| | Agricultural Business and Industries Option | 8 | 6.0 |
| | Technical Agricultural Economics | 27 | 19.3 |
| 1960 | Agriculture, Agricultural Economics Major | | |
| | Agricultural Administration Program | 9 | 6.6 |
| | Agricultural Business and Industries Program | 9 | 6.6 |
| | Technical Agricultural Economics Program | 17 | 12.5 |
| 1970 | Agriculture, Agricultural Economics Major | | |
| | Science Option | 12 | 9.4 |
| | Business and Industries Option | 9 | 7.0 |
| | Production Option | 6 | 4.7 |
| | Services Option | 9 | 7.0 |
| 1975 | Agricultural Economics | | |
| | Agricultural Management Option | 9 | 7.1 |
| | Farm Management Option | 9 | 7.1 |
| | Agricultural Programs Option | 9 | 7.1 |
| | Professional Agricultural Economics Option | 15 | 11.9 |

e.g., Farm Management, Agricultural Economic Statistics, Price Analysis, Quantity Methods in Agricultural Marketing Firms. Each student now completes one agricultural economics course at the 700 level (undergraduate-graduate courses) in the application of quantitative methods.

The balance between professional and general education. The heritage of the Land Grant system is to offer professional education, preparation for employment, without sacrificing classical education, preparation for a richer and fuller life.

How much of the curriculum should be devoted to each? Agricultural economists usually find it difficult in a college of agriculture, where the emphasis is on professionalism, to convince faculty in the other agricultural departments to include liberal education courses in a curriculum. Agricultural economics is less professional than other agricultural departments yet more professional than the liberal arts departments. In a few universities agricultural economics is offered in colleges other than agriculture, but in most cases agricultural economists are faced with the task of convincing production agriculturalists that agricultural economics undergraduates ought to have a mix of professional and liberal arts education. It was not until 1940 that agricultural economics students at Kansas State were required to take any humanities or social science courses. Before that the department encouraged students to use electives for that purpose. Today students are required to take at least 12 hours of basic social sciences, six hours of humanities, and they may use the twenty-plus hours of general electives for more liberal arts courses. When they do, their programs are more like those of liberal arts graduates than other agricultural graduates. Students choosing

to be more like other agricultural graduates use the general electives for professional courses.

Another effort to broaden the education of undergraduates stresses acquisition of communication skills. In 1920 about 8 percent of an agricultural economics student's curriculum was communication courses. Today it is about 11 percent (Table 6). That increase was in response to information gained in a survey of alumni.

As employment opportunities in agribusiness increased so did the need for broad educational experience and strong communication skills. Agricultural economics graduates often must compete with business administration and liberal arts graduates rather than with productional agricultural students for employment. The curriculum trend to greater breadth reflects that situation.

## OTHER ISSUES

The curriculum development process has provided other debates. Some faculty have argued that the strong micro and production orientation of agricultural economics gives a distorted view of agricultural economics. In times of national economic distress caused by inflation, unemployment, and balance-of-payment problems, arguments are strong for more emphasis on macroeconomics. Yet macroeconomics, except agricultural policy, is largely excluded from most agricultural economics curricula. Similarly agricultural economics includes little instruction in consumption economics. The debate over those two issues is not a quest for balance, but mostly over including or excluding them. Kansas State's first move, in 1972 to macroeconomics was for a minimum six credit hours. We have no minimum

Table 6. Minimum communication requirements, Kansas State University, 1920 to 1975.

| | Curriculum by Years | Credit Hours | Percent of Total Credit Hours |
|---|---|---|---|
| 1920 | Agriculture, Agricultural Economics Major | 11 | 8.1 |
| 1930 | Agriculture, Agricultural Economics Major | 10 | 7.8 |
| 1940 | Agriculture, Agricultural Economics Major | 10 | 7.8 |
| 1950 | Agriculture, Agricultural Economics Major | 10 | 7.8 |
| | Agricultural Administration | 10 | 7.8 |
| 1955 | Agriculture, Agricultural Economics Major | 10 | 7.6 |
| | Agricultural Economics | | |
| | Agricultural Administration Option | 10 | 7.6 |
| | Rural Banking Option | 10 | 7.6 |
| | Agricultural Business and Industries Option | 10 | 7.6 |
| | Technical Agricultural Economics | 9 | 6.4 |
| 1960 | Agriculture, Agricultural Economics Major | | |
| | Agricultural Administration Program | 11 | 8.1 |
| | Agricultural Business and Industries Program | 11 | 8.1 |
| | Technical Agricultural Economics Program | 11 | 8.1 |
| 1970 | Agriculture, Agricultural Economics Major | | |
| | Science Option | 10 | 7.8 |
| | Business and Industries Option | 10 | 7.8 |
| | Production Option | 10 | 7.8 |
| | Services Option | 13 | 10.2 |
| 1975 | Agricultural Economics | | |
| | Agricultural Management Option | 14 | 11.1 |
| | Farm Management Option | 14 | 11.1 |
| | Agricultural Programs Option | 14 | 11.1 |
| | Professional Agricultural Economics Option | 14 | 11.1 |

requirement for consumption economics.

A curriculum is an aggregation of courses fit together to achieve some objective. The subject matter covered in specific courses is undergoing continuous change. Those changes have impact on a curriculum. Agricultural marketing has included study of form, time, place, and exchange utility functions, but today form, time, and place are treated as a continuation of the production process rather than as marketing. Marketing is moving to a study of the exchange function and attendant problems such as the futures market, hedging, market structure, and pricing problems. Need for resource acquisition management, financial management, risk management, and labor management is causing existing courses to be revised or new courses added to include those topics.

## SUMMARY AND IMPLICATIONS

The striking characteristic of our half century of curriculum development experience in agricultural economics has been the recurring and sometimes continuous effort to balance several pairs of objective continuums, e.g., natural vs. social science, theory vs. application, structure vs. flexibility, descriptive vs. quantitative, and training vs. education. There has been little effort to exclude either of any pair. And there have been no sharp or drastic breaks with previous curricula. Most of the debate has been over small shifts from the old positions on each continuum.

The educational experiences of present graduate students influence future curriculum development. As they become faculty members, I would expect them to push curriculum changes that reflect their experiences.

For example, they will want to strengthen the analytical skills of undergraduates. That means substituting more quantitative and theoretical courses for present courses. We can expect new courses that introduce students to steady-state economics, to quality-of-life concepts, institutional economics, and macroeconomics.

Some faculty have been disappointed in the effectiveness of service courses, particularly those in mathematics and communications, to improve the skills of our students in those areas. If that disappointment becomes great enough, I look for a push for greater departmental self-sufficiency.

Several resources, both goods and services, if used at all previously, were used at so much lower costs than at present that little emphasis was given to the economics of their use. Increasing costs of energy, pest and disease control, fertilizers, and water will increase interest in economics that deal with those problems.

Although the principle that agricultural economics's base-science needs differ from other agricultural curricula is well established, some universities have not recognized that principle in their curricula. Departments of Agricultural Economics in those universities will push for changes that recognize it. In the most urban states agricultural economics instruction may be in colleges other than agriculture.

There is no evidence that totally new issues will arise or for drastic changes in the balance situation. External and internal influences will continue to jar the balance so that new ones must be found. Curriculum development has been an evolutionary, not a revolutionary process. I think that is its future.

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