

Updating Today's College Curriculum For Tomorrow's Agriculture

Gerald D. Coorts

College curricula must be dynamic and constantly modified in order to graduate students who are at the "cutting-edge" of knowledge and technology. Many changes are now occurring which will stimulate new directions in curricula in higher education — including agriculture. These changes include (a) states increasing graduation requirements for high school students, (b) state governing boards increasing requirements for admission into college, and (c) remedial/developmental skills programs being phased out in universities across the country, with the expectation that any deficiencies remaining upon graduation from high school will be corrected at a community/junior college.

The end result of these changes should be better-prepared students matriculating in our colleges. To challenge these students, faculty must be encouraged and rewarded for reviewing and upgrading their courses. Lecture notes and laboratory exercises must be continually updated and should present state-of-the-art information.

Concurrent with the development of curricula in secondary education to prepare high school graduates better for success in college is the need to review college curricula to assure adequate preparation of college graduates for employment in the newly emerging fields of biotechnology and "high-tech." Many curricula in agriculture have been modified to require more basic science courses, and at a higher level. It is interesting to note that some of this modification has led to increased specialization at a time when we are told that students need to be more broadly educated and trained.

Seven Curricula Needs

In modifying curricula for the future, the writer believes the following seven needs should be taken into consideration:

1. There is a continuing need for computer literacy by both faculty and students. Once they are introduced to the ease of operation of the computer, they readily see its application. More software packages need to be developed, for use in all areas of agriculture, which are compatible with the many computer systems now on the market.

Coorts is Dean of the College of Agriculture and Home Economics and Professor of Agriculture at Tennessee Technological University, Cookeville, TN 38505.

2. There is need to continue improving communication skills of our students (both verbal and written). Many institutions are making use of the program "Writing Across the Curriculum" to improve writing skills. In our School of Agriculture, a new course, "Communications and Public Relations in Agriculture," has been developed and is required of all majors.

3. Curricular adjustments will need to be made for those students who do not have practical agricultural experience prior to college. A special course may be needed on terminology and machinery commonly used on the farm. This course could be readily adapted as a self-tutorial course since the materials serve this purpose well. In addition, there is a need to offer and even require course offerings which include work experience in our university farms and greenhouses to provide students with hands-on training in operating equipment, working with various specialty corps, managing animals, etc. Internships and co-op programs also provide invaluable experience to the upperclass student.

4. There is a need to interact with other departments and colleges outside of agriculture on our campuses to integrate agricultural science in the form of examples and case studies to enrich the education of students in majors outside of agriculture. A professor in our College of Arts and Sciences is offering a new Honors Course "Issues in Science and Technology" with the first section on "Agriculture in Transition."

5. There is a need for better understanding of international agriculture and other cultures. Several Colleges of Agriculture with sizeable international programs have developed International Farms growing non-traditional crops and using non-mechanized tillage methods. Consideration should be given to encouraging, perhaps even requiring, proficiency in another language to facilitate this understanding, as well as provide opportunities for our graduates to work in less-developed countries.

6. There is a need to develop curricula with less specialization (and thereby fewer production-oriented courses) to produce graduates who are more broadly trained to meet the job market of the future which will require greater breadth of knowledge. Industry will provide the specialized training (including their production methods) needed by new employees.

NACTA JOURNAL — JUNE 1987

7. There is a need to consider new approaches to teaching agriculture to our students. The National Agriculture and National Resources Curriculum Project initiated in 1981 has had as its primary goal strengthening education programs in renewable natural resources and agriculture which are offered by U.S. colleges and universities. The national project's first activity was a needs assessment. The assessment identified the need to incorporate within the curriculum a course(s) on food and agricultural systems. The systems approach to food and agricultural problems uses different styles of learning and problem solving. It attempts to bring together concepts and methodologies from philosophy, cognitive psychology, experiential or problem-based learning and a variety of approaches within the so-called "systems movement."

Courses developed in support of this approach are based on the premise that individuals can change their learning styles in ways which can make them much more effective as improvers of complex problem situations. The course and curriculum materials have been presented to faculty and administrative participants at three workshops in 1986 with two additional workshops scheduled for 1987. Course and curriculum materials are currently being developed in a second area on "Ethical Aspects of Food, Agriculture

and Natural Resource Policy." Workshops for this course are scheduled with the first one being held in Lexington, Kentucky in June, 1987.

Conclusion

The five-year plan for the food and agricultural sciences by the Joint Council on Food and Agricultural Sciences states as one of its goals is to "strengthen higher education degree programs in the food and agricultural sciences in order to graduate professionals at the forefront of knowledge and technology." To meet this goal, a major objective is to stimulate colleges and universities to pursue curricular revisions and development. Therefore, the challenge for agriculture faculty of today is to continue to modify curricula in order to provide the very best education for students to meet our society's agricultural employment needs now and in the future.

References

- Five-Year Plan for the Food and Agricultural Sciences. March 1986. Joint Council on Food and Agricultural Sciences, USDA, Washington, D.C.
- Kinneavy, James L. 1983. "Writing Across the Curriculum." In *Professions 33*, New York: The Modern Language Association.
- Wilson, K. *Systems Approaches to Food, Agriculture and Natural Resource Problems*. (to be published August 1987 by John Wiley and Sons, Inc., New York.)