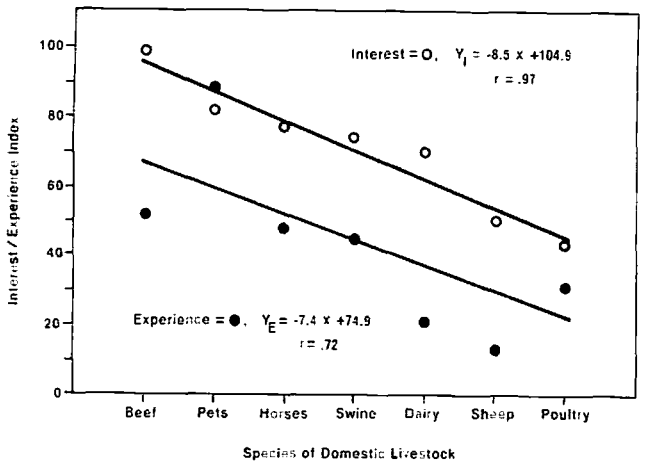

Figure 1. Relationship between interest in and experience with various species of domestic livestock based on responses by students entering the Animal Science program at UMC.

The correlation between interest in and experience with a particular species of domestic animal was not surprising for students of this age group (Figure 1). The interest ranking among the livestock species appears to reflect the general make up of the animal industry in Missouri.

Conclusion

University professors have all too often been accused of teaching a course the same way year after year without any indepth knowledge about the students that they are teaching. This study was the first phase in our attempt to counteract this charge. From these data it can be concluded that, in general, the students entering our Animal Science Program form two distinct groups. The first group is composed of those students with a limited amount of farming experience and in which farming is a minor family income source (approximately ⅔ of our students). The second group consisted of students in which farming is a major family income source and a significant amount of farm experience has been acquired (approximately ⅓ of our students).

Having completed the first phase of our re-evaluation process, the next phase is to use the student profile data in our course modification and development. Traditional modification will include expansion of supporting laboratory sections in introductory and advanced courses, increased student participation in our internship program and the reorganization of the curricula to enhance the interaction among those students with varying degrees of farm experience. We will continue to administer the profile questionnaire to our entering students in an effort to keep in touch with the nature of our student population.

Literature Cited

Anderson, V.L., and R.A. McLean. 1974. *Design of Experiments: a realistic approach.* New York: Marcel Dekker.

Beaulieu, L.J., and G.L. Zachariah. 1984. A profile of students enrolled in the University of Florida's College of Agriculture. *College of Agriculture, Institute of Food and Agricultural Sciences,* University of Florida, Gainesville.

Bussell, R.L., I.A. Costa, R.E. Spencer and L.M. Aleamoni. 1971. *MERMAC Testing Questionnaire Analysis: programs written for IBM system/360.* Champaign: University of Illinois Press.

Hasslen, H. 1983. How are agricultural colleges responding to needs of nonfarm students? *Journal of Agronomic Education* 12:4-5.

Heffernan, W.D., and R.R. Campbell. 1983. *The two new faces of Missouri agriculture: a dual extension service for a dual agriculture.* Department of Rural Sociology, College of Agriculture, University of Missouri-Columbia.

Helsel, D.G., and L.B. Hughes, Jr. 1984. Urban students in agriculture: the challenge. *Journal of Agronomic Education* 13:31-33.

Martin, W.B. 1981. *New Perspectives on Teaching and Learning.* San Francisco: Jossey-Bass Inc.

RICOP. 1985. Fall 1984 enrollment report national association of state universities and land grant colleges. *NACTA J.* 29(1):6-13.

Snedecor, G.W., and W.G. Cochran. 1976. *Statistical Methods, Sixth Edition.* Ames: The Iowa State University Press.

Strand, Jr., I.E., and M.S. McIntosh. 1981. Case study: Changes in student backgrounds and employment opportunities challenge agricultural curricula. *NACTA J.* 25(4):7-9.

Waldren, R.P., A.M. Parkhurst and J.K. Ward. 1983. Differences between rural and urban students. *NACTA J.* 27(4):8-13.

Product Evaluation Of Instructional Programs

David C. Drueckhammer
and James P. Key

Abstract

Sixty-seven percent of the graduates of the College of Agriculture at Oklahoma State University responding to a questionnaire indicated their employment was closely related to their field of college study. Most indicated that instructors, equipment and facilities and course content were adequate. However, job placement facilities needed some improvement. Degree programs were indicated to be of much benefit to the career development of respondents, and most would still seek a degree in Agriculture if they could remake their decision regarding college study.

Public institutions of education have always had the obligation to be accountable to the people they serve. Evaluation of and corresponding changes in the institution are internal functions, but too often the impetus for change comes from outside (McComas, 1971). Generally, an internal response to outside stimuli is of a defensive nature. Leaders within the educational institution should take the initiative in developing proper programs of evaluation because, according to Holzemer (1976), evaluation of instructional and training programs must be done if the

Drueckhammer is assistant professor of Agricultural Education in the Department of Agricultural Sciences, Technology and Education at the University of Southwestern Louisiana, Lafayette, Louisiana, 70504. Key is a professor of Agricultural Education at Oklahoma State University, Stillwater, Oklahoma.

faculty and administration are to make their programs effective.

Consequently, selection of the proper evaluation is important and may often require outside assistance. This good evaluation program should include several types of evaluation. Generally, public education institutions base their evaluation programs just on student evaluation of instruction plus results obtained by outside evaluation teams. In the opinion of the authors, both of these strategies should be used with the addition of a third strategy, product evaluation. Product evaluation, currently, is one of the most important measures used to evaluate the degree to which the objectives and goals of an instructional program are being met (Wentling, 1980). A follow-up survey of completers of the instructional program, as one form of product evaluation, can be very beneficial to the education institution wishing to improve the instructional program.

This sort of follow-up survey was conducted on the undergraduate program of the College of Agriculture at Oklahoma State University (OSU) as a means of product evaluation. In order to achieve the desired evaluation with this study, the following objectives were formulated:

1. Determine current employment status.
2. Find the relationship between the graduate's baccalaureate major and his or her employment since receiving the degree.
3. Determine the graduate's opinion of the adequacy of training, job placement services, instructional facilities, and instructional equipment.

Table 1. Distribution by major of responses to a survey of 1525 Oklahoma State University College of Agriculture graduates as to the impact of their OSU program on their career development.

Major	Number of Respondents
Agricultural Communications	14
Agricultural Economics	216
Agricultural Education	117
Agricultural Engineering	29
Agricultural (General)	24
Agronomy	96
Animal Science	236
Biochemistry	9
Entomology	7
Forestry	62
Horticulture	62
Landscape Architecture	38
Mechanical Agriculture	18
Plant Pathology	5
Pre-Veterinary Medicine	17
	950

Methods of Conducting Survey

A 30-item questionnaire was developed with the assistance of the faculty of the College of Agriculture and was then field-tested. Addresses of the 1,525 College of Agriculture Bachelor of Science degree graduates for the years of 1979 through 1983 were obtained from the OSU Alumni Association. After two mailings of the instrument, with proper cover letter and instructions, a 62.29% response rate was obtained.

Table 2. Summary of Relationship of Degree Area to First and Present Employment.

	Employment was in field of college study		Employment closely related to field of college study		Employment was somewhat related to field of college study		Employment had little relationship to field of college study		Employment had no relationship to field of college study	
Degree major	First %	Present %	First %	Present %	First %	Present %	First %	Present %	First %	Present %
Agricultural Communications	28.57	7.14	21.42	7.14	7.14	14.29	14.29	21.43	28.57	50.00
Agricultural Economics	30.58	26.92	26.70	24.52	25.24	22.60	6.31	14.42	11.17	11.54
Agricultural Education	63.72	56.14	12.39	14.03	10.62	15.79	7.08	9.65	6.19	4.39
Agricultural Engineering	42.86	25.00	25.00	25.00	25.00	25.00	7.14	17.86	0.00	7.14
Agriculture (General)	45.83	45.83	25.00	16.67	8.33	16.67	8.33	8.33	12.50	12.50
Agronomy	53.41	55.06	22.73	20.22	9.09	10.11	5.68	7.87	9.09	6.74
Animal Sciences	42.59	40.62	22.22	23.21	12.96	14.29	8.80	8.04	13.43	13.84
Biochemistry	22.22	42.86	22.22	28.57	22.22	14.29	22.22	0.00	11.12	14.29
Entomology	66.66	0.00	16.67	0.00	16.67	57.14	0.00	42.86	0.00	0.00
Forestry	41.67	28.81	8.33	15.25	8.33	11.86	15.00	13.56	26.67	30.51
Horticulture	60.66	51.67	26.23	11.67	3.28	5.00	3.28	8.33	6.55	23.33
Landscape Architecture	73.68	76.32	18.42	5.26	5.26	5.26	0.00	5.26	2.63	7.89
Mechanized Agriculture	33.33	33.33	16.67	22.22	27.78	22.22	16.67	0.00	5.55	22.22
Plant Pathology	33.33	0.00	0.00	0.00	33.33	75.00	0.00	0.00	33.34	25.00
Pre-veterinary Medicine	70.59	88.23	25.53	11.77	5.88	0.00	0.00	0.00	0.00	0.00
Total	**46.23**	**42.15**	**21.17**	**19.43**	**14.30**	**15.37**	**7.43**	**9.99**	**10.87**	**13.06**

Findings

The number of respondents by undergraduate major is shown in Table 1. The graduates were asked questions about the relationship of their first and their present employment to their major field of study. The results are shown in Table 2.

Sixty-seven percent of the total respondents indicated that their first full-time employment after receiving their degree was in their field of college study or closely related to their field of college study. However, there was a large variation between majors in these categories. In most majors the graduates' present employment was less related to their field of college study than was their first employment after receiving their degree.

Responses to questions rating quality of instructors, course content quality and usefulness, quality of equipment and facilities used in instruction, effectiveness of B.S. degree programs as preparation for first employment, and the benefit the degree programs have provided in term of career development are shown in Table 3. Data are reported in mean scores from questions that used a 1-5 scale, 5 for respondent ranking. The response categories represented by the means are also reported in Table 3. The reponse means for instructor quality, course content quality and usefulness, and quality of equipment and facilities used in instruction were positive. However, some majors had means that were neutral. Effectiveness of the B.S. degree program as preparation for first employment likewise had a positive total response mean with only some degree major areas neutral. The B.S. degree from the College of Agriculture was indicated to be of "much benefit" to the respondents in their careers, although some majors had a mean in the "moderate benefit" category.

Forty percent of the respondents indicated that they did not seek help from the OSU College of Agriculture job placement office. The respondents who did use the job placement services rated the office as providing an adequate quality of services. The facilities used by the OSU College of Agriculture job placement office were indicated to be of average quality.

Most respondents appear to be satisfied with the overall quality of their degree program. Seventy-five percent indicated they would again seek a degree in Agriculture at OSU if they could remake their decision regarding the area of college study.

Conclusions

Most graduates of the OSU College of Agriculture find employment that is closely related to their field of college study, indicating that graduates were trained in areas for which employment was available and that the training received by the graduates was sufficient to enable them to secure employment in their chosen area of Agriculture.

The quality of instructors, equipment and facilities, and course content are adequate, but improvement is needed in some major areas.

Some improvement of the College of Agriculture job placement facilities is recommended, along with an investigation as to why a large percentage of the graduates do not seek help from the placement office.

Other information has been obtained from the study that will be useful in recommending improvements of departments within the College. The findings suggest a need for systematic, planned follow-up of graduates in order to promote continual improvement and updating of degree programs. We also recommend simular surveys be conducted by other agricultural institutions as a part of their total evaluation program. Copies of our survey are available upon request from Dr. D.C. Drueckhammer, University of Southwestern Louisiana, Dept. of Ag. Sciences, Technology and Education, Lafayette, Louisiana, 70504.

Table 3. Summary of Perceptions of Instructional Program Quality and Effectiveness

Degree Major	Instructors		Course Content		Equipment and Facilities		Preparation for First Position		Benefit in Career	
	Mean	Category	Mean	Category	Mean	Category	Mean	Category	Mean	Category
Ag. Com.	3.50	Good	3.21	Average	4.00	Good	3.07	Average	3.07	Mod. benefit
Ag. Ec.	4.21	Good	3.98	Good	3.98	Good	3.73	Good	3.50	Much benefit
Ag. Ed.	3.92	Good	3.66	Good	4.11	Good	3.69	Good	3.67	Much benefit
Ag. Eng.	3.76	Good	3.38	Average	3.86	Good	3.48	Average	3.34	Mod. benefit
Ag., Gen.	4.00	Good	3.75	Good	3.83	Good	3.61	Good	3.25	Mod. benefit
Agronomy	3.74	Good	3.64	Good	3.53	Good	3.36	Average	3.50	Much benefit
Animal Science	4.10	Good	3.93	Good	3.84	Good	3.57	Good	3.47	Mod. benefit
Biochemistry	4.00	Good	4.11	Good	3.22	Average	3.78	Good	4.00	Much benefit
Entomology	3.43	Average	3.29	Average	3.57	Good	3.29	Average	3.43	Mod. benefit
Forestry	3.76	Good	3.85	Good	3.47	Average	3.54	Good	3.38	Mod. benefit
Horticulture	4.24	Good	3.97	Good	3.97	Good	3.60	Good	3.57	Much benefit
Landscape Arch.	4.13	Good	3.89	Good	3.10	Average	3.71	Good	3.89	Much benefit
Mech. Ag.	4.44	Good	4.00	Good	4.22	Good	3.72	Good	3.56	Much benefit
Plant Pathology	3.00	Average	2.50	Average	3.25	Average	2.75	Average	3.00	Mod. benefit
Pre-Vet. Med.	3.82	Good	3.82	Good	3.88	Good	3.81	Good	3.50	Much benefit
Total	**4.02**	**Good**	**3.83**	**Good**	3.83	Good	3.60	Good	3.51	Much benefit