

An Assessment Of Agricultural Education Graduates' Preparation For Careers In Teaching And Industry

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Abstract

This study investigated an agricultural education program's ability to prepare students for careers in teaching and industry positions within the agriculture, food, and fiber industry. The study sought to assess the employability skills needed by agricultural education graduates and evaluate the contribution of the agricultural education curriculum in developing these skills. This was a census study of agricultural education graduates at the University of Missouri from May 1989 through May 1998. Agricultural education graduates indicated the employability skills needed by teachers of agriculture did not differ from those skills needed by individuals with careers in the agriculture, food, and fiber industry. Ten out of fifteen employability skills were rated as having a major impact on the graduates' ability to successfully perform the responsibilities of their positions. Also, graduates indicated the agricultural education curriculum successfully prepared them for the employability skills needed for careers in teaching and industry. Graduates were satisfied with the overall quality of the agricultural education program and were especially satisfied with the professional competence of the agricultural education faculty. Graduates with careers in industry indicated they were receiving very little support upon graduation from the University. The future value of a degree from an institution of higher learning is of great importance as students look for a place to garner advanced learning. Therefore, the faculty at the University of Missouri must find a way to increase support for graduates with industry careers upon graduation. This support can increase the value of a degree and enhance continued graduate satisfaction in the program. Graduates with careers in teaching and industry were dissatisfied with the quality of computer support at the institution. Technology is an important part of current and future situations in education. It is imperative that the institution, college, and department at the University of Missouri continue to upgrade and implement new computer technologies for student use.

Introduction/Theoretical Framework

Agricultural education programs in colleges and universities have expanded their focus beyond the preparation of teachers to encompass more diverse educational opportunities designed to meet the needs of a broader base of students. Programs have been developed and redesigned around a broad curricula in hopes of carrying the profession into the 21st century. Scanlon, Bruening, and Cordero (1996) stated if agricultural education programs are to survive, they must be dynamic and able to adjust to new situations and environments that help to improve the on-the-job effectiveness of future graduates.

For more than a decade this effort to define the mission and purpose of agricultural education programs at the college/university level has challenged the profession. In 1990, Fuller, the distinguished lecturer at the professions' annual meeting, noted agricultural education

programs must position themselves appropriately in the free market place of higher education and move beyond the preparation of teachers in agriculture. Several questions must be asked during this age of diversification. Will this diversification impact the quality of instruction students receive in a teacher preparation program? Will diversified programs adequately prepare agricultural education graduates to succeed in their chosen career track? Will this diversification impact the ability of agricultural education programs to meet the needs of a broadened curriculum base, while at the same time not sacrifice the preparation of teachers which continues to be the primary mission of most programs?

Agricultural education programs at the university level must continue to diversify to maintain enrollment levels for survival. Newcomb (1993) stated departments that intend to prosper must scan the horizon and identify needs that are not being adequately served and foster relationships with new client groups.

Barrick (1993) developed a conceptual model for the Department of Agricultural Education at The Ohio State University. In the model, diversity played a major role in the scope of the program. He noted that while teacher preparation is the central mission of an agricultural education program, departments must encompass more than teacher preparation in the teaching/learning process. In addition to teacher preparation, Barrick suggested agricultural education programs were capable of providing learning and career preparation in human resource development and management, leadership development, communications, and social science research methodology and data analysis.

Barrick's example illustrates the shift in scope of agricultural education programs in higher education across the country. It should be noted for this shift to be effective in meeting the needs of diverse students, programs should utilize follow-up procedures to ensure they are providing students with the necessary information to be successful in a variety of career opportunities.

Mattox (1974) concluded that a large percentage of prospective agriculture teachers, who had completed a teacher certification program, entered other careers or left teaching after a short period of time. In a study covering the past thirty years, Brown (1995) concluded that half of the agricultural education graduates elected not to enter the teaching profession. Vaughn (1999) stated that secondary agricultural education programs must attract and retain high quality teachers to ensure a successful future. Not only do programs have to provide high quality teachers to fill the current demand, but they must also focus on providing high quality industry professionals. Therefore, it is imperative that programs attract high quality students eager to be successful in a variety of career options and provide them with the tools necessary for success.

Agricultural education programs must maintain the satisfaction of students with varying interests and degree plans. Students in agricultural education programs must be prepared to enter the workforce in a variety of careers. With the shift in scope and expansion of opportunities within agricultural education, are programs capable of meeting the needs of students who possess diverse career interests? Can programs simultaneously prepare students for careers in teaching and the agriculture, food, and fiber industry?

Purpose/Objectives

The purpose of this study was to assess an agricultural education program's ability to prepare students for careers in teaching and industry positions in the agriculture, food, and fiber industry. To accomplish the purpose, this study sought to assess the employability skills needed by agricultural education graduates and to evaluate the contribution of the agricultural education curriculum in developing these skills. The following research objectives were formulated to guide the study:

1. Describe the employment and occupational status of agricultural education graduates.
2. Assess the employability skills needed by agricultural education graduates.
3. Assess the contribution of the agricultural education curriculum to the development of employability skills.
4. Assess the agricultural education program's ability to prepare students for careers in teaching and industry.

Methods/Procedures

The research method employed was descriptive survey. The population consisted of a census of agricultural education graduates ($N = 105$) at the University of Missouri from May 1989 through May 1998.

A questionnaire with 67 forced-choice and three open-ended questions was utilized. The questionnaire consisted of six sections: educational status, occupational status, factors influencing position/occupational changes, educational experiences, program and advising, and open-ended questions. A panel of experts consisting of agricultural education faculty established content and face validity. A pilot test was conducted with 16 graduating agricultural education students to establish the instrument's reliability. Cronbach's alpha coefficients ranged from .82 for the quality of academic advising section to .69 for the employability skills section.

The Dillman Total Design Method (Dillman, 1978) was followed for the data collection process. Postcards announcing the forthcoming questionnaire were mailed two weeks prior to mailing the complete questionnaire package which consisted of a cover letter, questionnaire, and pre-paid return envelope. Follow-up consisted of a postcard sent to all nonrespondents ten days after the mailing of the complete package. A second complete package was mailed to nonrespondents ten days after the follow-up postcard. A total of 81 graduates responded for a response rate of 77%. Nonresponse error was controlled by comparing late respondents to on-time respondents as outlined by Krushat and Molnar (1993) who noted late respondents tend to reply similarly to nonrespondents. A comparison of these groups revealed no differences in the responses of late and on-time respondents.

Results/Findings

The first objective sought to describe the employment and occupational status of the agricultural education graduates. A majority of the graduates (87.7%) were employed full-time while a limited number (3.7%) were continuing their education on a full-time basis (Figure 1). A few of the graduates (3.7%) were continuing their education part-time and were employed.

The remaining graduates (4.9%) were classified as other and included employed part-time and caring for family/home full-time.

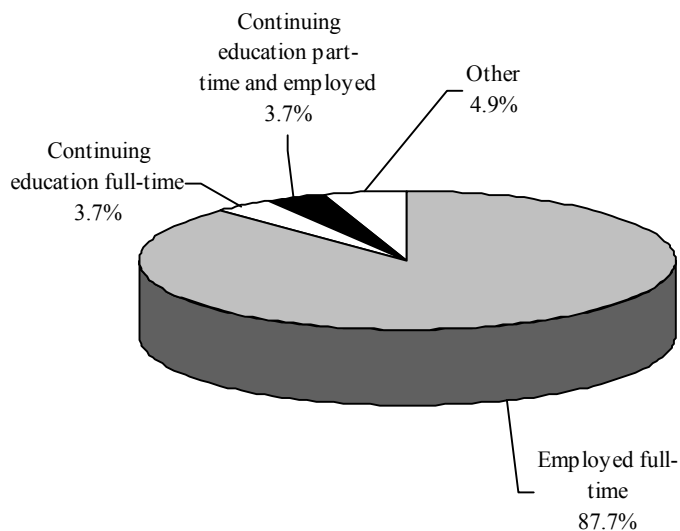


Figure 1. Employment Status (n=81)

The agricultural education graduates held a variety of occupations. The greatest number of graduates (63%) were employed as secondary agriculture teachers (Figure 2). Graduates also reported being employed in the areas of sales (12.3%), communications (6.2%), and industry education (7.4%). Industry education included extension, higher education, and technical support/service positions. A small number of graduates (3.7%) reported they were self-employed. Looking exclusively at individuals who graduated with teacher certification, approximately 90% taught secondary agriculture at some point and more than 75% indicated they were currently teaching in a secondary agriculture program.

The purpose of the second objective was to assess the employability skills needed by agricultural education graduates in their chosen careers. Graduates were provided with 15 employability skills and were asked to indicate the level of importance of each skill to the success of their occupation. For comparison purposes, graduates were categorized into two career areas: Teaching and industry (Table 1).

Graduates currently in a teaching career indicated verbal communication ($\bar{M} = 3.9$) was the most important skill for career success. Other high ranking skills needed for career success included leadership ($\bar{M} = 3.9$), written communication skills ($\bar{M} = 3.8$), getting along with people ($\bar{M} = 3.8$), planning and completing projects ($\bar{M} = 3.8$), analyzing information to make decisions ($\bar{M} = 3.8$), and defining/solving problems ($\bar{M} = 3.8$). Overall 10 of the 15 employability skills had a mean importance rating of 3.5 or higher, indicating a need for the skills in performing the requirements of a career in teaching. None of the five remaining employability skills were rated below moderately important.

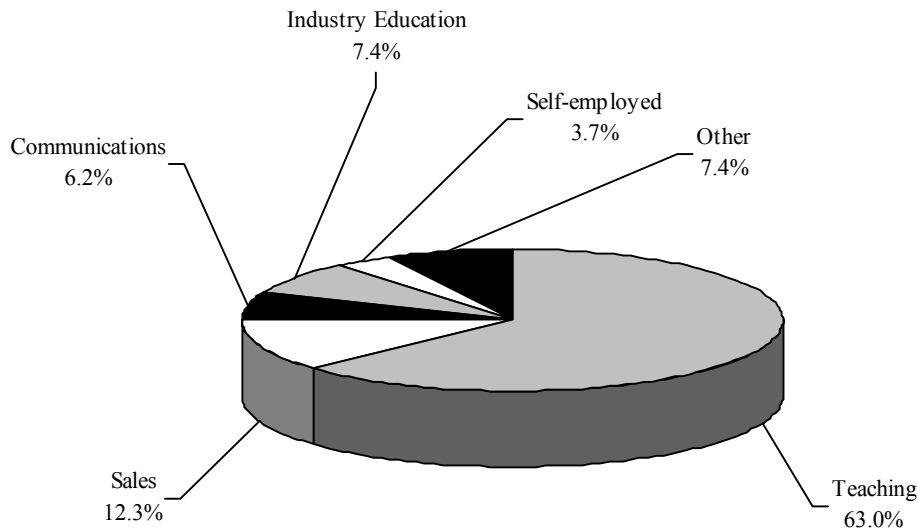


Figure 2. Occupational Status ($n = 81$)

Graduates working in industry indicated getting along with people ($\bar{M} = 3.8$) was the most important skill for success in their occupations. Other important skills needed for success included verbal communication ($\bar{M} = 3.8$), planning and completing projects ($\bar{M} = 3.7$), and analyzing information to effectively make decisions ($\bar{M} = 3.7$). Graduates with careers in industry rated nine of the 15 employability skills with a mean importance of 3.5 or higher, indicating a need for the skills in performing the requirements of their positions in industry. None of the remaining six employability skills were rated below moderately important.

A comparison of the employability skills needed by graduates possessing careers in teaching with graduates possessing careers in the agriculture, food, and fiber industry revealed no major differences. Graduates with teaching careers ranked leadership and written communication skills higher than graduates with careers in industry. Conversely, graduates with careers in industry ranked working with people of differing attitudes and opinions higher. The six lowest ranked employability skills were the same for both career options.

The third objective sought to assess the contribution of the agricultural education curriculum to the development of employability skills. Graduates were provided 15 employability skills and asked to indicate the agricultural education curriculum's contribution to the development of each skill (Table 2).

Table 1
Employability Skills Needed by Agricultural Education Graduates

Skills	Teaching (n=51)			Industry (n=29)		
	Rank	<u>M</u>	<u>SD</u>	Rank	<u>M</u>	<u>SD</u>
Verbal communication skills	1	3.96	.20	2	3.83	.38
Leadership skills	2	3.92	.27	8	3.66	.48
Written communication skills	3	3.88	.33	7	3.72	.45
Getting along with people	3	3.88	.33	1	3.86	.35
Planning and completing projects	5	3.82	.39	3	3.79	.41
Analyzing information to effectively make decisions	6	3.80	.40	3	3.79	.41
Defining and solving problems	6	3.80	.45	5	3.76	.44
Working as a team member	8	3.78	.42	10	3.48	.69
Working with different attitudes and opinions	9	3.76	.47	5	3.76	.44
Accessing and using a variety of information sources	10	3.73	.53	9	3.55	.57
Exercising the rights, responsibilities, and privileges of a citizen	11	3.49	.54	13	3.21	.73
Analyzing and drawing conclusions from various types of data	12	3.39	.63	10	3.48	.51
Understanding international issues	13	3.22	.76	15	3.07	.65
Understanding the interaction of humans and the environment	14	3.10	.83	12	3.28	.70
Understanding cultural and ethnic differences	15	3.06	.83	14	3.14	.74

Note. Scale: 1 = No Importance; 2 = Minor Importance; 3 = Moderate Importance; 4 = Major Importance

Table 2
Contribution of Agricultural Education Curriculum in Developing Employability Skills

Skills	Teaching (n=51)			Industry (n=29)		
	Rank	<u>M</u>	<u>SD</u>	Rank	<u>M</u>	<u>SD</u>
Verbal communication skills	1	3.47	.70	3	3.38	.73
Written communication skills	2	3.43	.64	1	3.69	.54
Working as a team member	3	3.33	.68	5	3.24	.74
Leadership skills	4	3.27	.70	6	3.21	.77
Accessing and using a variety of information sources	4	3.27	.78	2	3.41	.68
Defining and solving problems	6	3.25	.72	8	3.07	.88
Planning and completing projects	7	3.22	.61	7	3.17	.71
Analyzing information to effectively make decisions	8	3.06	.81	8	3.07	.75
Analyzing and drawing conclusions from various types of data	9	3.02	.73	10	2.93	.75
Working with different attitudes and opinions	10	2.96	.77	10	2.93	.84
Getting along with people	11	2.94	.83	4	3.34	.73
Understanding the interaction of humans and the environment	12	2.63	.77	13	2.62	.86
Exercising the rights, responsibilities, and privileges of a citizen	13	2.57	.81	12	2.76	1.02
Understanding international issues	14	2.33	.74	14	2.48	.63
Understanding cultural and ethnic differences	15	2.22	.81	15	2.24	.79

Note. Scale: 1 = No Contribution; 2 = Minor Contribution; 3 = Moderate Contribution; 4 = Major Contribution

Graduates teaching agriculture at the secondary level indicated the agricultural education curriculum had the greatest contribution toward the development of skills in verbal communication ($\underline{M} = 3.4$), written communication ($\underline{M} = 3.4$), working cooperatively and as a team member ($\underline{M} = 3.3$), leadership ($\underline{M} = 3.2$), accessing and using a variety of information sources ($\underline{M} = 3.2$), defining/solving problems ($\underline{M} = 3.2$), and planning and completing projects ($\underline{M} = 3.2$). Graduates indicated the curriculum contributed least to their skill development in understanding international issues ($\underline{M} = 2.3$) and understanding cultural and ethnic differences ($\underline{M} = 2.2$).

Graduates with careers in industry indicated the agricultural education curriculum had between a moderate and major contribution toward nine of the 15 employability skills. Graduates indicated the curriculum had the greatest contribution toward developing skills in written communication ($\underline{M} = 3.7$), accessing and using a variety of information sources ($\underline{M} = 3.4$), verbal communication ($\underline{M} = 3.4$), and getting along with people (interpersonal skills) ($\underline{M} = 3.3$). Graduates indicated the curriculum contributed least to their skill development in understanding international issues ($\underline{M} = 2.5$) and understanding cultural and ethnic differences ($\underline{M} = 2.2$).

A comparison between career options indicated the only major difference, with regard to the contributions of the agricultural education curriculum, existed on the skill of getting along with people (interpersonal skills). Graduates with industry careers ($\underline{M} = 3.3$) rated the agricultural education curriculum higher than graduates with teaching careers ($\underline{M} = 2.9$) on the development of this skill.

The final objective sought to assess the agricultural education program's ability to prepare individuals for careers in teaching and industry. Two factors were considered: Quality of the program toward career preparation and academic advising. Graduates were asked to rate 16 statements regarding the quality of the agricultural education program toward their career preparation (Table 3).

Graduates in teaching careers indicated they were satisfied with the overall quality of the agricultural education program. The top five rated items for graduates in teaching careers were: Professional competence of the agricultural education faculty ($\underline{M} = 3.8$), overall quality of the agricultural education program ($\underline{M} = 3.6$), availability of required agricultural education courses ($\underline{M} = 3.6$), job placement services ($\underline{M} = 3.5$), and internship experiences ($\underline{M} = 3.5$).

Graduates with positions in industry indicated they were also satisfied with the overall quality of the agricultural education program. Graduates with careers in industry ranked their top five items as follows: Internship experiences ($\underline{M} = 3.6$), professional competence of agricultural education faculty ($\underline{M} = 3.5$), availability of required agricultural education courses ($\underline{M} = 3.4$), quality of students in agricultural education ($\underline{M} = 3.3$), and quality of instruction in agricultural education courses ($\underline{M} = 3.2$).

Graduates with careers in both teaching and industry ranked quality of computer support ($\underline{M} = 2.8$, teaching; $\underline{M} = 2.4$ industry) and classroom facilities in agricultural education ($\underline{M} = 2.8$, teaching; $\underline{M} = 2.6$, industry) as the two weakest areas of the program. A comparison of the two career options indicated the greatest difference existed regarding job placement services and support since graduation. Graduates with careers in teaching rated the statement "support since graduation" nearly three-quarters of a point higher and "job placement services" nearly a half a point higher than graduates with careers in industry.

Table 3
Quality of the Agricultural Education Program

Program Quality Statements	Teaching (n=51)			Industry (n=29)		
	Rank	<u>M</u>	<u>SD</u>	Rank	<u>M</u>	<u>SD</u>
Professional competence of agricultural education faculty	1	3.76	.48	2	3.48	.63
Overall quality of the program	2	3.59	.54	6	3.21	.62
Availability of required courses	3	3.55	.50	3	3.43	.57
Job placement services	4	3.53	.71	7	3.12	.73
Internship experiences	5	3.49	.80	1	3.61	.63
Support since graduation	6	3.42	.68	14	2.71	.96
Quality of instruction	7	3.35	.59	5	3.24	.58
Opportunity to evaluate teaching in required courses	8	3.33	.62	11	2.96	.71
Organization of the curriculum	9	3.27	.67	10	3.03	.68
Quality of students	9	3.27	.60	4	3.34	.61
Availability of student organizations	11	3.12	.71	13	2.86	.79
Quality of courses in preparing for graduate school	12	3.08	.80	12	2.94	.77
Quality of courses in preparing for employment	13	3.04	.72	8	3.07	.46
Availability of required courses outside agricultural education	14	2.90	.78	8	3.07	.59
Classroom facilities in agricultural education	15	2.78	.64	15	2.64	.83
Quality of computer support	16	2.76	.78	16	2.38	.77

Note. Scale: 1 = Poor; 2 = Fair; 3 = Good; 4 = Excellent

Graduates were asked to indicate their level of satisfaction with the academic advising received (Table 4). Graduates with teaching careers were satisfied with the academic advising, ranking each quality statement between good and excellent. The highest rated items were: Opportunities for interaction with the agricultural education faculty ($\underline{M} = 3.6$), adviser's interest in me as a person ($\underline{M} = 3.6$), and availability of adviser ($\underline{M} = 3.6$).

Table 4
Quality of Advising

Advising Quality Statements	<u>Teaching (n=51)</u>			<u>Industry (n=29)</u>		
	Rank	<u>M</u>	<u>SD</u>	Rank	<u>M</u>	<u>SD</u>
Interaction with the agricultural education faculty	1	3.63	.66	1	3.59	.63
Adviser's interest in me as a person	1	3.63	.77	1	3.59	.63
Availability of adviser	1	3.63	.69	3	3.55	.63
Adviser's help in planning degree program	4	3.40	.73	5	3.17	.71
Quality of career advising	5	3.28	.76	7	2.86	.76
Appropriateness of referrals to other campus resources	6	3.20	.75	4	3.26	.75
Clarity of degree requirements	7	3.04	.85	6	3.07	.80

Note. Scale: 1 = Poor; 2 = Fair; 3 = Good; 4 = Excellent

Graduates with industry positions indicated they were also satisfied with their academic advising. They also ranked opportunities for interaction with the agricultural education faculty ($\underline{M} = 3.6$), adviser's interest in me as a person ($\underline{M} = 3.6$), and availability of adviser ($\underline{M} = 3.6$) as the top three advising qualities. Quality of career advising ($\underline{M} = 2.9$) was the lowest rated item.

Conclusions/Recommendations/Implications

Approximately 95% of the agricultural education graduates were gainfully employed, employed and continuing their education part-time, or continuing their education full-time. The remaining graduates were employed part-time or caring for their families in the home. The employment status of graduates provides evidence to the value of an agricultural education degree, whether that degree leads to employment opportunities or the pursuit of an advanced or professional degree.

A majority of the graduates were teaching agriculture at the secondary level and one-fourth of the graduates were employed in industry positions in the areas of sales,

communications, and education. When considering only individuals who graduated in the teacher certification option, nine out of ten had taught at some point in their working career. Furthermore, three-fourths of these individuals indicated they were currently teaching agriculture at the secondary level. These findings exceeded national statistics that indicated only 56% of agricultural education graduates certified to teach entered teaching (Camp, 1998).

In general, the employability skills needed by teachers of agriculture did not differ from those skills needed by graduates with careers in the agriculture, food, and fiber industry. Using effective verbal communication skills was the highest rated employability skill. Ten of the fifteen employability skills were rated at or above 3.5, indicating these skills had a major impact on the graduates' ability to successfully perform the responsibilities of their positions.

Graduates indicated the agricultural education curriculum successfully prepared them for the employability skills needed for careers in teaching and industry. Of the ten employability skills rated as having a major impact on the ability to successfully perform the responsibilities of their job, graduates rated the agricultural education curriculum as having at least a moderate contribution to developing all ten skills.

Graduates indicated they were satisfied with the overall quality of the agricultural education program. Of the top five quality statements, graduates in both teaching and industry careers indicated they were especially satisfied with the professional competence of the agricultural education faculty. Graduates with careers in industry were most satisfied with internship opportunities provided to them while they attended the University. Graduates were also satisfied with the availability of required agricultural education courses.

Graduates with careers in teaching and industry indicated their experience with an adviser was positive. Graduates were satisfied with the ability to interact with the faculty and the adviser's interest in them and their interests. However, graduates with careers in industry rated the quality of career advising substantially lower than the other advising statements, implying a need for faculty improvement.

Graduates with careers in industry indicated they were receiving very little support upon graduation from the University. The future value of a degree from an institution of higher learning is of great importance as students look for a place to garner advanced learning. Therefore, it is recommended that the faculty in this program find a way to increase support for graduates with industry careers upon graduation. This support can increase the value of a degree and enhance continued graduate satisfaction in the program.

Graduates with careers in teaching and industry were both dissatisfied with the quality of computer support at the institution. Technology is an important part of the current and future situations in education. It is imperative that the institution, college, and department at this institution continue to upgrade and implement new computer technology for student use. Again, the availability of necessary technology can enhance the value of a degree and the satisfaction of graduates from a program.

The current findings give credence to the strength and versatility of the agricultural education curriculum, program, and advising in preparing individuals for careers in teaching and industry. The information gained from this study should be used in developing recruitment materials and promoting the agricultural education degree offered at the University of Missouri. The information should be shared with current students to dispel myths regarding the degree program and the program's ability to prepare students for careers in the agriculture, food, and fiber industry. Research regarding factors that influence students to select a career option should

be undertaken to gain a perspective on the profile of students in each option. Furthermore, research should be expanded to investigate the factors that influence people to enter an industry or teaching profession upon graduation without regard to degree program area.

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An Assessment Of Agricultural Education Graduates' Preparation For Careers In Teaching And Industry

A Critique

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Overview

In this study, 105 agricultural education program graduates at the University of Missouri over a ten year period were surveyed to assess the ability of program to prepare graduates for teaching and industry positions in the agriculture, food and fiber industry. Eighty-one, or 77 percent responded to the survey. Overall, graduates indicated that they were satisfied with their preparation, advice and support. Graduates who were teaching expressed greater satisfaction than those employed in industry. The greatest dissatisfaction was expressed regarding computer support.

Strengths

The study included responses from graduates who were teaching as well as those from business and industry. The 77 percent response rate from a survey that included responses from graduates up to ten years ago is a compliment to the program in and of itself. Employability skills needed by graduates in teaching and industry were identified and ranked. Information about the quality of the agricultural education program were identified and ranked. The data can be used to improve the program in the future.

Concerns

The methodology section of the paper provided little information about the questionnaire development procedures. Although addressed in a general way, no specific reference was made back to the three questions posed earlier in the paper regarding the way agricultural education would respond to the increased diversification of the program.

Questions

How was the questionnaire developed? Was the questionnaire adopted or adapted from a former study or was it created specifically for the current study? Were any other instruments identified in the literature search? Have other studies been conducted of agricultural education graduates? What were the author's conclusions regarding the diversity of program questions raised in the introduction section of the paper?

Commendations

The major strength of the study was the author's willingness to conduct a self-assessment on the ongoing program to find out its strengths and weakness. The study provided a design and format that other agricultural education programs can use to obtain feedback on curriculum, teaching, advising, and follow-up support of students after graduation. The study also shows that data collected for self-assessment purposes can produce results useful for program revision and improvement.