

**PERCEPTIONS ABOUT UNDERGRADUATE PROGRAMS:
A STUDY OF RECENT GRADUATES OF
THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES
AT MICHIGAN STATE UNIVERSITY
AND THEIR EMPLOYERS**

BY

Gwyn Ann Heyboer

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ABSTRACT

PERCEPTIONS ABOUT UNDERGRADUATE PROGRAMS: A STUDY OF RECENT GRADUATES OF THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE UNIVERSITY AND THEIR EMPLOYERS

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This study was conducted to assess the undergraduate programs within the College of Agriculture and Natural Resources (CANR) at Michigan State University. The specific areas within the study included educational programs, quality of instruction, academic advising, extra-curricular activities and employment information.

The target population of the study comprised of 3,400 CANR bachelor's degree graduates from summer semester 1993 through spring semester 1998. Two questionnaires were designed for the study -- one for the alumni and one for their employers.

Findings of this study provide indications for improvement. Alumni were very satisfied with their courses however, indicated that they need more preparation in the areas of computer skills and knowledge of career opportunities. Academic advisors were also rated highly in terms of academic advising; yet the alumni indicated a need for improvement in career advising. Extracurricular activities were a very positive aspect of the graduates' educational experience, and one they found useful in preparation for their employment. Employers rated the alumni highly in terms of the preparation by the college and their career performance. However, both the employers and alumni suggested mathematics, computer skills and writing skills as areas needing improvement.

To my parents, Jack and Barb Heyboer,
my sister Jennifer, Spencer, Hannah
and to my true friends who are always there for me in both the
good times and bad times.

"You can gain strength, courage and confidence by every experience in which you
really stop to look fear in the face...
you must do the thing which you think you cannot do."

Eleanor Roosevelt

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CHAPTER I

INTRODUCTION OF THE STUDY

Introduction

Educators, administrators, employers and students have discussed the topic of improving agricultural undergraduate programs at major universities for many years. Evaluation, used as a tool, helps not only to determine the necessary improvements in program planning, but also to expand the thought process of change. As the agricultural industry changes over time, the educational systems pertaining to agricultural and related subjects must not fall behind. Sufficient evidence provides the assumption of change as an absolute need in the curricula of agriculture, and probably necessary in most, if not all, colleges of agriculture (Kunkel, Maw, and Skaggs, 1996).

This study researched the perceptions of undergraduate alumni and their employers toward the undergraduate degree programs within the College of Agriculture and Natural Resources (CANR) at Michigan State University (MSU). For the purposes of this study, the target population consisted of graduates from all departments within the CANR of MSU between the summer semester 1993 through spring semester 1998, and their current employers.

Such information gives educators and administrators feedback on the appropriateness and applicability of undergraduate experiences. Undergraduate programs require periodic reviews by faculty and external reviewers to ensure curricula and courses

are not only kept up to date and relevant, but also to provide a forum for interaction between faculty, individuals from outside the university community, and students on curriculum matters (Heinze, 1989).

Background

Many observers of higher education believe an excellent undergraduate preparation helps students in maintaining a balance between the concept of core knowledge, which are things most educated people know or should know, and skills and information necessary for expertise in a major field, discipline, or profession (The Council to Review Undergraduate Education [CRUE], 1988). Due to a constantly changing social, professional and educational world, undergraduate programs require monitoring and maintenance to ensure the students are receiving a quality education. Over time, undergraduate programs have seen many changes. During the 1980's many universities within the United States felt a sense of disarray, confusion, self-examination, severe criticism from within and without, dedicated planning efforts, and change in higher education (Kunkel et al., 1996).

The quality of education relies on many factors including the skills employers expect graduates to possess. The important skills students learn during their educational experience allow them to formulate questions, learn enough about the conflicting views present in contemporary society to make informed decisions, think critically, and express individual ideas in speaking and writing (CRUE, 1988). As the workplace continuously reorganizes over time, graduates should possess the abilities and skills necessary for

adapting to changes in relation to society as a whole.

Undergraduate programs focusing on Agriculture are broadly defined in the following statement: 'Colleges of Agriculture and related areas of the future may be redefined as the academic structures providing the educational, scientific and scholarly framework for understanding, managing, and using biological and ecological systems and the relevant human resource systems for the benefit of human and natural societies and their communities' (Kunkel et al., 1996).

This definition of undergraduate educational programs resulted from a movement of evaluation and a time of change. Beginning as early as 1980, agricultural industry representatives publicly criticized the quality of higher education programs in general and particularly agricultural education programs. These representatives addressed many issues including the undergraduate's lack of practical experience, inability to solve problems and communicate effectively, lack of leadership, management and accounting skills, and an inability to "get along" (Love & Yoder, 1989).

Michigan State University (MSU), was the first college in the world to offer credits for agricultural related subjects as deemed necessary by the Michigan Legislature in 1855 (Heinze, 1989). The Morrill Act initiated the growth of land-grant colleges throughout the nation.

The Morrill Act included a founding principle of land-grant colleges, and relates specifically to the CANR at MSU. The mandate for undergraduate education within the CANR, as most properly described in the Morrill Act of 1862, stated that each state was

to provide: "...at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts... in order to promote the liberal and practical education of the industrial classes in pursuit and professions of life" (Heinze, 1989, 21). The demand set forth from the Morrill Act for a practical, applied education based on an understanding of both scientific and classical knowledge relative to the needs of the time was the founding principle of land-grant universities (Heinze, 1989).

In 1987, the Provost of Michigan State University appointed the Council to Review Undergraduate Education (CRUE) to determine the success of the University in terms of the mission statement approved by the Board of Trustees in 1982. The mission statement is as follows:

At the undergraduate level, the University offers strong, comprehensive programs in the liberal arts and sciences and in major professional areas which include a significant general education component. Michigan State University provides opportunities for students of varying interests, abilities, backgrounds and expectations. Underlying all education programs is the belief that an educated person is one who becomes an effective and productive citizen. Such a person contributes to society intellectually through analytical abilities and in the insightful use of knowledge; economically, through productive application of skills; socially, through an understanding of the world and for individual and group beliefs and traditions; ethically, through sensitivity and faithfulness to examined values; and politically, through the use of reason in the affairs of state. Mindful of such purposes, Michigan State is committed to graduating men and women with diverse backgrounds who are active learners, ready to assume the responsibilities of leadership wherever opportunities arise (CRUE, 1988, p.95).

More specifically, CRUE evaluated and recommended changes from an analysis

of not only the undergraduate admissions and graduation requirements, but also the character and content of the undergraduate education at MSU (CRUE, 1988). The information gathered from the study assisted in ensuring the appropriateness of the MSU undergraduate education programs. Through several methods, CRUE made 72 recommendations to improve undergraduate education at MSU.

Following the report of CRUE, the department chairpersons recommended a college-wide task force be assembled to review the undergraduate programs specifically within the CANR. The Task Force for Curricular Revitalization (TCR) compiled many recommendations to improve the quality of undergraduate programs within CANR.

Statement of the Problem

The CANR has kept a historical mandate providing quality undergraduate programs which prepare students for challenging and rewarding careers in the fields related to natural resources, agriculture, food, materials and regions, and communities (Heinze, 1989). One avenue, for continuing this mandate set forth by the University and making improvements within the educational program, explores the strengths and weaknesses of programs.

There have been no formal studies conducted that explored the perceptions of undergraduates and their employers toward the undergraduate degree programs within the entire CANR.

Need for the Study

The necessity for this study relies on the absence of evaluating program effectiveness through alumni and employers in the past. A survey of graduates and employers will provide the CANR with feedback on program effectiveness. Thus, improvements can be made to better prepare students for their future employment.

The educational departments can use the feedback gathered on CANR undergraduate programs as a valuable tool. Comments and criticisms from external groups such as employers may be relevant in making decisions regarding curricular matters (Flores, 1995). Thus, this study gives the CANR information to assist in diminishing the gap between the University and the professional world.

Continuous review of undergraduate programs will allow the CANR to properly adhere courses with the appropriate rationale. Consequently, this study can be considered both timely and important to the CANR.

Purpose

The purpose of this study was to develop a process of evaluating the effectiveness of the CANR undergraduate programs toward alumni and employers. Alumni and graduating seniors have a unique perspective in evaluating faculty, courses in their major field of study, and curricular offerings (Brandenburg, Braskamp, & Ory, 1984). The results of the study are intended for faculty, administrators and students.

Objectives

- 1. Assess the perceptions of alumni toward their educational programs including courses taken and educational preparation.**
- 2. Explore the opinions of the alumni about the quality of instruction received within the college.**
- 3. Ascertain the opinions of alumni about their academic and career advising.**
- 4. Determine whether the alumni found participation in extracurricular activities useful in relation to their current employment.**
- 5. Identify employment information of graduates within the college.**
- 6. Seek the opinions of employers about the graduates' preparation by the college and their career performance.**
- 7. Find any difference between the alumni's perception toward their overall educational preparation and gender, internship participation, on-campus organization participation and year of graduation.**
- 8. Identify any difference between the alumni and employers concerning the alumni's preparation for work by the college.**
- 9. Find any difference between participation in internships and the length of time graduates' took to their first position with their satisfaction with their current position.**

Operational Definition of Terms

The researcher, for purposes of the study, defines the following terms within the

context of the study.

Assessment: "...assessment is the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development" (Erwin, 1991, p. 15).

College of Agriculture and Natural Resources Programs/Departments: The various departments from which degrees are offered from within the CANR.

Effectiveness: A measure of the degree to which a program reaches its goals.

Extra-curricular activities: Activities related to MSU but are not necessarily requirements for graduation within all majors including internships, on-campus organizations, clubs and teams, and overseas study programs.

Follow-up study: An exploration of the educational experiences and perceptions of alumni, which can be utilized to improve an educational program.

Graduates/Alumni: Persons who have completed the requirements for a Bachelor of Science degree from within the CANR at MSU. For this study, graduates of the college between 1993 and 1998 were considered.

Internships: Employment experiences for students arranged and monitored by the CANR at Michigan State University.

Abbreviations

MSU.	Michigan State University
CANR.	College of Agriculture and Natural Resources
CRUE.	The Council to Review Undergraduate Education

TCR. The Task Force for Curricular Revitalization

Assumptions

1. All respondents will understand the questionnaire directions and truthfully answer the questions.
2. Graduates from within the CANR and their employers, will fill out the questionnaire.
3. The respondents will express their opinions and attitudes truthfully and without restraint.

Limitations

The population of this study is limited to CANR graduates from 1993 to 1998 and their current employers. An employer population did not exist -- we requested the alumni to give the instrument to their respective employers. This study assumes that the alumni identified appropriate employers and that they represent the views of employing agencies. The relatively low response rate of 34 percent is another limitation of this study.

CHAPTER II

LITERATURE REVIEW

Definition and Purpose of Evaluation

Many authors have defined evaluation in different ways depending on the purpose of the study. According to Cronbach (1983), we may define evaluation broadly as the collection and use of information to make decisions concerning educational programs. In a report of program review in education, evaluation was defined as both program approval and program review. Program approval offers a process of evaluating new program proposals, and program review provides evaluation of programs already in existence (Barak, 1982).

For the purpose of this study, evaluation has been defined with an educational aspect. "Educational evaluation is the process of making judgments about the merit, value, or worth of educational programs" (Borg et.al, 1996, 680).

Evaluations of educational programs are conducted for various reasons depending on the need of the institution and the particular situation. In a survey conducted in 1979, which included approximately one-third of the country's post-secondary institutions, the respondents had different views of program evaluation. The respondents viewed program evaluation as a process for program improvement, a means for setting institutional priorities and resource allocations, and others viewed it as another euphemism for program curtailment or elimination (Barak, 1982). When asked why they decided to

involve themselves in internal program reviews, the surveyed institutions mainly indicated they wanted to improve their academic programs. Many respondents pointed out that without knowing the strengths and weaknesses of educational programs, such improvements were virtually impossible (Barak, 1982).

Cronbach (1983) distinguished among the purposes of evaluation and formulated three types of decisions for using evaluation:

1. **Course improvement:** This type of decision focuses on what instructional materials and methods are satisfactory and where the changes are needed.
2. **Decisions about individuals:** This type identifies the needs of the student for the sake of planning instruction, judging the student's merit for the purpose of selection and grouping, and acquainting the student with their progress and deficiencies.
3. **Administrative Regulation:** This type judges the school system, individual teachers etc.

Although occasionally it may be necessary to conduct an evaluation due to some external mandate, the real strength of evaluation lies in its potential to bring about educational improvement (Flores, 1995).

Evaluation Models

Evaluation models are used to assist a researcher in not only having a clear understanding of evaluation, but also to create a framework for the particular study.

Following are eight major evaluation models (Cronbach, 1983):

1. **Systems Analysis:** This approach assumes few quantitative output measures, generally test scores, and tries to relate the variation on test scores to differences in programs. Often the data results from giving a survey and the outcomes are related to the programs through correlation analyses. Recently, experimental designs have been implemented.
2. **Behavioral Objectives:** The program objectives are spelled out in terms of particular pupil performances that can be reduced to distinct student behaviors. The behaviors are measured by norm-reformed or criterion-referenced tests.
3. **Decision Making:** The structure of this model consists of decisions to be made with the evaluator supplying the information on the particular decision. Usually, questionnaires or interview surveys are the design, and the decision-makers are administrators and managers.
4. **Goal Free:** The Goal Free model reduces bias of searching only for the specified intents by the developer through not informing the evaluator of the intents. Consequently, the evaluator searches for all possible outcomes.
5. **Art Criticism:** This model utilizes an experienced and trained educational critic to judge the important facets of educational programs.
6. **Accreditation:** This model involved schools who cooperatively evaluate each other according to a set of external standards.
7. **Adversary:** The adversary model presents the pros and cons of a program

through quasi-legal procedures. This system ensures the presentation of both sides and often takes form of trial-by-jury.

8. Transaction: The eighth model focuses on the educational process including the classroom, school and program. It uses informal methods of investigation with case studies as the major methodology.

Evaluation of Undergraduate Education Programs

Over the past ten years, dramatic developments have occurred within the area of educational evaluation. It went through a time of relative inactivity in the 1950s however, this period followed a time of revitalization in the mid1960s through the influence of articles by Cronbach, Scriven, Stake and Stufflebeam (Cronbach, 1983).

Educational evaluation, the process of making judgments about the merit, value, or worth of educational programs, has grown remarkably since 1965 and at this time, the U.S. government mandated that all educational programs receiving federal funding must spend a portion of those funds on program evaluation (Borg et al., 1996). An interest has been initiated in educational evaluation as a result of public administrators viewing it as a tool in policy analysis, political decision-making process and program management (Borg et al., 1996).

Educational evaluation closely relates to the approach of Stufflebeam's and his colleagues' in an extensive sense of organizational decision making (Erwin, 1991). A part of their CIPP model will be used for the purpose of this study. The CIPP model was formulated by Danielle Stufflebeam and his colleagues to show how evaluation can relate

to the decision-making process in program management (Borg et al., 1996). CIPP stands for context evaluation, input evaluation, process evaluation and product evaluation.

Following are summaries of the four parts of the CIPP model according to Borg et al.(1996):

1. Context Evaluation: The first part of the model involves identifying the needs and problems within a specific educational setting.
2. Input Evaluation: The second part of the model focuses on the judgments of resources and strategies needed to accomplish certain program goals and objectives. Input evaluation allows decision makers to choose the best possible resources and strategies within a certain constraint.
3. Process Evaluation: The third part of the model involves collecting evaluative data once a program has been designed and operates. Process evaluation may be used to monitor the day-to-day operation of a program or to keep records of program events over a period of time.
4. Product Evaluation: The fourth element of the model determines the extent to which the goals of a program have been achieved. Program administrators can use the data to make decisions on continuing and modifying programs.

Each of these types of evaluation requires that three tasks be performed. These tasks are delineating the kinds of information needed to make decisions, obtaining the information, and synthesizing the information so it can be utilized in making decisions (Borg et al., 1996).

This study will focus on the effectiveness of the CANR undergraduate program at MSU and the perceptions of former students and their employers. Thus, the fourth type of evaluation in the CIPP model, product evaluation, pertains to this study.

An objective of a product evaluation ascertains the extent to which the program has met the needs of the group it intended to serve. Furthermore, a product evaluation looks broadly at the effects of the program, including intended and unintended effects and positive and negative outcomes (Cronbach, 1983). Two uses of product evaluation include deciding whether a program should be continued, repeated, or extended, and secondly providing direction for changing a program to better serve the target audience (Stufflebeam, 1983). According to Cronbach (1983), there are many instruments, which can be used in program evaluation such as group interviews, case studies, surveys or a jury trial.

Evaluation of the CANR

In 1987, the Provost of MSU appointed CRUE to determine the success of the University in terms of the mission statement approved by the Board of Trustees in 1982. Through several methods, CRUE made 72 recommendations to improve undergraduate education at MSU. Following the report of CRUE, the department chairpersons recommended a college-wide task force be assembled to review the undergraduate programs specifically within the CANR (Heinze, 1989). The Task Force for Curricular Revitalization (TCR) compiled many recommendations to improve the quality of undergraduate programs within CANR.

Some of the recommendations set forth by the TCR were used to establish standards for the majors/degree programs within the college. In terms of courses, the standards indicate that the degree programs should:

- a. Stimulate the development of literacy, writing, reading, speaking and listening.
- b. Encourage inquiry, abstract logical thinking and critical analysis
- c. Include problem identification and solution
- d. Help develop interpersonal skills and teamwork
- e. Help cultivate the use of the scientific methods
- f. Consider human, social and political implications
- g. Include discussion of the implications of personal and professional ethics
- h. Incorporate international or cross-cultural perspectives
- i. Utilize microcomputer applications (Standards for Undergraduate Majors, nd)

In addition to the above recommendations for courses, specific standards were set for the areas of writing, oral communication, mathematics and statistics, and computer literacy. In the area of writing, the standards include areas such as editing, proofreading, feedback and the use of communication technologies. In terms of oral communication the standards indicate the necessity of delivery of oral presentations, meaningful feedback from instructors/peers and practice with various forms and styles of oral communication that are appropriate for a student's profession (Standards for undergraduate programs, nd). In the area of mathematics each major or degree program should require the basic core courses along with additional instruction in mathematics, statistics and computation

that is appropriate to their discipline. Additionally, each major or degree program must satisfy a computer literacy requirement that includes the study of basic microcomputer operations and applications to their specific discipline (Standards for undergraduate programs, nd).

Assessment of Educational Programs

Assessment of general student-based outcomes began in the early part of the twentieth century with a study of 1,589 members of the 1894 graduating classes at Harvard, Wisconsin, California, Chicago and ten other large colleges and universities (Bergquist, Gould, & Greenburg, 1981). According to Banta (1997), assessment was founded on expectations for more efficient educational programs and greater effective student learning. For the purpose of this study, assessment has been defined as the following: "...assessment is the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development" (Erwin, 1991, 15).

According to Bergquist et.al. (1981), studies of outcome assessment in higher education usually follow one the following means:

1. Investigations of changes during college years, of achievements, personalities, attitudes, and behaviors.
2. Surveys of students and alumni concerning the views of their college experiences.
3. Investigations of attitudes, economic status and behavior of adult

respondents possibly through a census or public-opinion poll.

4. Multiple regression studies designed to study the separate impact of education on income, career choice, health, voting behavior etc.
5. Individual case histories.
6. Critical and analytical studies not including empirical data.

One need for assessment comes from within higher education. Several major reports on higher education have shown that institutions are not as effective as they could be, and are working toward curriculum reforms (Erwin, 1991). These reports question the quality of education, call for the assessment of student progress, challenge us to think broadly about goals of education and propose we compare a student's academic achievement with the student's involvement on campus (Erwin, 1991).

Assessment can play a vital role for learning at an institution. According the Erwin (1991), the two major purposes of assessment are improvement (formative evaluation) and accountability (summative evaluation). Data collected in a formative evaluation are used to "form" or improve education. Summative evaluation programs are utilized to make decisions about the contribution of programs or individuals.

According to Banta (1997), there has been enough experience in outcome assessment of higher education to form some solid principles. At this point in the history of outcome assessment in higher education, we believe there has been sufficient experience to relate our own generalizations about successful practice to some solid principles that can guide future work in the field (Banta, 1997). Ten principles of good

practice are as follows (Banta, 1997):

1. Assessment of student learning begins with educational values.
2. Assessment can be most effective when it reflects the understanding of learning as multidimensional, integrated, and revealed in performance over time.
3. Assessment works best when the program it seeks to improve has clear, explicitly stated purposes.
4. Assessment requires attention to outcomes and also equally to the experiences that lead to those outcomes.
5. Assessment works best when it is ongoing, not episodic.
6. Assessment fosters wider improvement when representatives from across the educational community are involved.
7. Assessment makes a difference when it begins with issues of use and illuminates questions people really care about.
8. Assessment is most likely to lead to improvement as a part of a larger set of conditions that promote change.
9. Through assessment, educators meet responsibilities to students and to the public.
10. Assessment can be most effective when undertaken in an environment that is receptive, supportive, and enabling.

Although the terms assessment and evaluation sometimes are used

interchangeably, evaluation generally uses a broader context, which might encompass institutional effectiveness beyond students' learning and development (Erwin, 1991).

Purpose of Follow-up Studies

Surveys, a method for collecting assessment information, are more commonly used for alumni follow-up and ask questions concerning education, employment history and general perceptions about the program and activities of the institution (Erwin, 1991).

Many consider the purpose of follow-up studies to provide a measure of educational outcome – otherwise known as outcome evaluation (Franchak, 1978). However, as indicated by Fanchak (1978) ideas concerning follow-up studies are continuously changing; and there are many different opinions as to what they are, why they are done and what they should do.

A study by Macdonald (1985) categorized the purpose of follow-up studies into categories including career guidance, educational guidance, and program planning and development. In terms of career guidance, by evaluating employment data of former students, insightful information can be provided for advising current students (Newton, 1981). Furthermore, information about the kinds of jobs alumni have taken can help in defining the availability and quality of job opportunities in a particular field of study (Macdonald, 1985).

Educational guidance can also be considered a purpose in conducting follow-up studies. According to Macdonald (1985), employment and academic data provided by alumni can be used by advisors for guiding students in course selection and

extracurricular participation. In addition, academic data are valuable resources in building retention programs, revealing patterns of dissatisfaction and difficulty among different types of students (Macdonald, 1985).

A third purpose of follow-up studies is program planning and development. As suggested by Macdonald (1985), uses of such information are for the areas of curriculum, instructional and resource-allocation purposes. This data can measure graduates' satisfaction with a program and the results can affect modifications, improvements and developments (Macdonald, 1985).

According to Jones (1985), the purposes of using follow-up studies are as follows:

1. Determining the occupational difficulties and successes of former students.
2. Identifying the number and kinds of employment which former students have entered on a part-time or full-time basis.
3. Obtaining the information from former students concerning how well they believe the career program achieved its objectives.
4. Discovering the degree of occupational mobility among former students.
5. Obtaining a realistic picture of the future for present students.
6. Gathering ideas for improving programs.
7. Identifying ways the institution could be of further assistance to both former students and employers.
8. Evaluating the degree of employer satisfaction with performances of

former students.

According to Baird (1996), the advantages of surveys include their flexibility, breadth, and speed, as well as the access they provide to people who would otherwise be difficult to reach, such as alumni and employees. Some disadvantages include low response rates, possible bias of respondents, and possible unwillingness of respondents to report their candid responses (Baird, 1996).

More specifically, alumni have a unique perspective in evaluating faculty, courses and curriculum. Furthermore, they have the advantage of judging the relation of their courses to their present job demands and expectations. According to Brandenburg (1984), the evaluations should focus on not only the sequence and depth of course material, but also the support and advice students received from faculty during their college career. A department can use this type of information in examining its curriculum and the role of faculty instruction (Brandenburg et al., 1984).

Follow-up evaluation, a valuable tool for gathering information on the strengths and weaknesses of an educational activity, provide feedback not only on how well the education has prepared the graduates for actual jobs, but it also tells the institution's administrators in what ways the educational activity might benefit from improvement (Flores, 1995). Former students and alumni are excellent resources for this type of evaluation.

Similar Follow-up Studies

A follow-up survey was conducted by Robson, Suvedi, Shivakoti, Pokharel and

Maughan (1987) to assess the Bachelor of Science in Agriculture program in the Institute of Agriculture and Animal Science (IAAS) of the Tribhuvan University in Nepal. The specific purposes of the study were to determine the strengths of the curriculum, to form a base to make adjustments to improve curriculum, and to draw implications on improving the training thus making graduates more effective in giving knowledge to farmers.

Questionnaires were sent to both graduates and their employers.

Four future-oriented educational issues were identified. These issues include the need for new or expanded coursework, generalist versus specialist degrees, the question of advanced or Master's degree training and the expansion of lifelong or continuing education. In addition, the study posed two possible directions for the IAAS to pursue. The first was the strengthening of present programs and the second was identifying a new frontier to advance the agricultural sector in Nepal.

The conclusions in this study were identified in two categories. These categories are the overall question of present programs and educational quality, and secondly the overall question of future programs and educational direction (Robson, 1986). The study provided information that was currently important to the university and useful in planning for the future.

A similar follow-up survey, conducted by Flores (1995), focused on gathering information from alumni of the Centro Universitario de Oriente (CUNORI) and their employers in regard to the adequacy and appropriateness of the students' educational experiences.

The results of the survey showed the majority of graduates were employed full time and the majority was continuing their education for a B.S. degree. Almost all graduates indicated they found their education useful in employment. Furthermore, the employers were pleased with the graduates in regard to the technical knowledge and quality of professionals. Seven conclusions were drawn based on the findings of the study by Flores (1995):

1. The education had prepared the students satisfactorily.
2. The majority of employers require full time employees.
3. Employers consider the graduates having good technical knowledge but lack training in leadership/management, general skills for project administration, and practical training.
4. CUNORI should provide opportunities and encouragement for graduates to return for more education required for a Bachelor of Science degree.
5. Opportunities exist for CUNORI to teach more practical courses with a theoretical foundation and to provide students with necessary skills and abilities needed for successful job performance.
6. Brief on-campus in-service training and practical research projects should be provided to satisfy needs of students and the communities.
7. CUNORI is an important local institution for higher education.

The implications of the study by Flores (1995) include the following seven recommendations.

1. That CUNORI and employers should establish a collaborative relationship for the purpose of evaluating programs in relation to the needs of students, employers, and society.
2. Employers and CUNORI should work together to provide graduates the opportunity to continue their education.
3. CUNORI should provide additional training in leadership/management, project administration, and practical training. Also, practical internships would be useful for students.
4. CUNORI should provide both the opportunity and encouragement for graduates to return for their Bachelor of Science degree.
5. Specific recommendations were made within the agricultural, animal science, and business administration areas.
6. Public service and extension should be a part of the CUNORI mission.
7. The local institution of CUNORI is considered important in higher learning.

Another follow-up study was conducted focusing specifically on Agriculture and Natural Resources Communication alumni from within the CANR at MSU. This study investigated the efficiency of the undergraduate program in relation to job preparation. Overall, the alumni recommended an increase of journalism courses, keeping the internship requirement and found the undergraduate program beneficial in career preparation and development (O'Malley, 1992).

The following conclusions were proposed in the study by O'Malley (1992) for

MSU Agriculture and Natural Resources Communications alumni.

- 1. Alumni perceived their undergraduate preparation as good.**
- 2. Alumni perceived internships as being useful in career preparation.**
- 3. Alumni perceived student organizations useful toward their career.**
- 4. Alumni perceived their academic/career counseling as useful in career preparation.**

The recommendations formulated from the O'Malley (1992) study include continuing the basic requirements for the major, active participation in at least one internship, advisors keeping close contact with students, active participation in student organizations and follow-up studies every five years to evaluate curricular effectiveness.

Employers and Educational Preparation

The conceptual framework of this study was based on the challenge set forth by the W.K. Kellogg Foundation in its report "Visions of Change in Higher Education", which describes the efforts of 13 project teams across the United States to rethink the relationship between higher education and society. The report points out the need to find out whether undergraduate teaching programs of land-grant universities are still relevant to employers.

Currently, universities are being challenged to improve undergraduate education, to achieve more balance between research and teaching, to globalize student learning, to create a more diverse student population, to re-examine fundamental values and to affirm that education is their primary mission (W.K. Kellogg Foundation, n.d.). These

challenges should serve as input for educational reform efforts. The workforce is continually reorganizing, and graduates should possess the knowledge and skills required by the industry of today.

CHAPTER III

METHODOLOGY

Design of Study

The design of this study followed the format of a descriptive survey. More specifically, it was a follow-up study of graduates and their employers. Surveys, a method for collecting assessment information from both entering and exiting students, are commonly used for alumni follow-up (Erwin, 1991). The data-gathering technique consisted of a mailed questionnaire.

Population and Sample

The target population of the study included CANR bachelors candidate graduates from the summer semester 1993 through spring semester 1998. A list of 3,400 graduates from all departments within the college was obtained from the University Development Programs Office. A proportional stratified sample was used since characteristics of the entire population are a main concern (Ary & Razavieh, 1996). The sample was randomly selected by the researcher, consisted of 1,269 graduates and the stratum was proportional to the size of the 12 academic departments within the CANR.

The employers were not chosen by the researcher. The alumni were given instructions to give an additional survey that was mailed in the alumni packet, to their current supervisor. Therefore, since there was no record of how many alumni actually

gave the survey to their employer response rates cannot be obtained for the employer population.

Instrumentation

The instrumentation for the study was composed of a mail survey questionnaire. Two separate questionnaires were designed -- one for the alumni and one for employers and a sample of each instrument can be found in the appendix. The instruments included both open-ended and closed-ended questions.

There were six sections in the alumni questionnaire including the areas of educational programs, quality of instruction, academic and career advising, extra-curricular activities, employment information and demographics. The first section included questions concerning the educational preparation from core courses, the overall quality of elective courses, the education within the college, the preparation by the college and the overall satisfaction with their preparation by the college. These questions were asked on five-point scales from either strongly disagree to strongly agree or from poor to excellent. An open-ended question asked for information concerning what areas need the most improvement within the major they pursued in the college.

The second section of the alumni questionnaire focused on the quality of instruction within the college. They were asked to rate specific items on a five-point scale from poor to excellent.

The third section included items in the area of academic and career advising. The respondents were asked a series of questions regarding their academic advisor in terms of

both academic and career guidance on a five-point scale from strongly disagree to strongly agree. In addition, the alumni were asked three questions in terms of the MSU Career Services and Placement office. The first question related to the use of the services of the placement center. Furthermore, if the respondents had used the placement office they were asked to identify what specific services were used and to rate their overall assistance in a one-item question consisting of a five-point scale from poor to excellent. An open-ended question was asked to find any additional comments relating to academic or career advising.

The third section focused on extra-curricular activities including the areas of internships, on-campus organizations, clubs or teams, and overseas study programs. Alumni were asked whether they participated in an internship. If the alumni had participated, they were asked to identify who assisted them in finding the position, a series of questions relating to how internships helped them with their career on a five-point likert type scale and an open-ended question concerning recommendations for internship programs. Alumni were also asked whether they participated in an on-campus student organization/club/team. If the alumni had participated, they were further asked to list the organization/club/team, indicate whether they held a leadership position, indicate whether their participation had a positive impact on their career preparation -- on a one-item five-point likert type scale -- and to make any recommendations to other students about involvement in such activities through an open-ended question. Alumni were also asked to indicate whether they participated in an overseas study program. If the alumni

had participated, they were further asked to identify the program and if they would recommend similar experiences to other students.

The fifth section of the alumni questionnaire focused on employment information. Alumni were asked to indicate how long after graduation they began a position related to their career, the nature of their present employment, the number of full-time job offers at graduation, starting salary, current salary and whether their present position relates to their degree. The respondents were also asked a series of questions on a five-point scale from poor to excellent in terms of their satisfaction with their current position. A one-item, five-point question from poor to excellent was also asked to find their overall satisfaction with their current position and to find their assessment of job opportunities for graduates within their major for the next five years. Two open-ended questions were asked regarding courses they did not take but could have been useful in their career and courses they did take and have been the most valuable to their career. In addition, they were asked to describe their present position and the nature of the organization they work for through open-ended questions.

Demographic information was requested including the areas of gender, age, year of graduation and their major. The respondent either selected the answer from given categories or wrote in the answer.

Two open-ended questions were included at the end of the questionnaire. The first question asked the respondents to indicate anything they could have learned or known that would have helped them after graduation. The final question in the alumni survey

asked them for any additional thoughts for improving the college.

The employer questionnaire asked two scaler type questions and several open-ended questions. The scale type questions were asked on five-point scales from poor to excellent and focused on the areas of the preparation by the college and career performance. The open-ended questions dealt with the areas of the type of organization they worked for, courses that should have been emphasized, assessment of job opportunities, suggestion for the college over the next five years and any other thought to help improve the CANR programs.

Validity and Reliability

Validity and reliability are two important factors to acknowledge when designing a questionnaire. The evidence of both validity and reliability are especially important in educational research because most of the measurements attempted in this area are obtained indirectly (Ary & Razavieh, 1996). The validity was measured through a panel of experts including faculty within the Department of Agriculture and Extension Education, a representative of the college and a representative of the MSU alumni office. The researchers developed the instruments after a careful review of previous follow-up studies; most scalar questions included in the instrument were adapted from these studies.

The instrument was tested post hoc for scale reliability using Cronbach's Alpha procedures. For the alumni questionnaire, an alpha coefficient of .72 was determined for the scale pertaining to perceptions of educational preparation by required general courses outside the college; .76 for their education within the college; .79 for the preparation for

work by the college; .89 for the quality of instruction; .89 for academic and career advising; .84 for extracurricular activities; and .75 for the graduates' satisfaction with their current positions. The employer questionnaire had an alpha of .87 for the scale relating to preparation for work by the college and .94 for the scale relating to career performance. These Cronbach Alpha values were considered adequate to establish reliability for the scales included in this study.

Collection of Data

The data collection procedure used in this survey followed the recommendations of Dillman (1994). The first mailing was sent to all members of the sample and included a personalized cover letter, the questionnaires and return envelopes. A follow-up postcard thanking the respondents and asking those who had not responded to send in the questionnaire was sent out a week after the first mailing. The third and final mailing was sent out with a new cover letter to those who had not responded three weeks after the initial mailing. The researchers noted a significant frame error in this study, as 156 of the packets (12 percent) were returned as undeliverable.

Altogether 376 usable questionnaires were received from the alumni population, resulting in a response rate of 34 percent. The researchers recognize the need to have a higher response rate to be able to generalize findings to the population. However, early and late respondents were compared to determine if they differed significantly on selected variables under study, and no differences were observed. Therefore, as suggested by Miller and Smith (1983), the findings can be generalized to the study population.

All alumni included in the sample also received a second survey packet designed for their employers. They were requested to give the employer survey packet -- including a cover letter, questionnaire and pre-addressed stamped envelope -- to their respective supervisor. There were 85 responses from the employers. The researcher did not control for non-respondents since an employer population did not exist.

Analysis of Data

The data were analyzed using the Statistical Package for the Social Science (SPSS). Statistical methods such as means, frequencies, percentages, cross tabs, standard deviations and t-tests were used to analyze the closed-ended questions. The non-response error was dealt with through a t-test comparing responses from early and late respondents.

Table 1 indicates the research objective, type of test used and the specific questions from the survey that were used to analyze the data for each objective.

Table 1. Research Objectives, Type of Tests and Specific Questions

Research Objective	Type of Tests	Specific Questions
1. Perceptions of Alumni toward the Educational Programs of the CANR	Means, Standard Deviations, Frequencies, Open-Ended Questions	<i>Alumni Questionnaire</i> Section I Questions #1-6
2. Opinions of Alumni about the Quality of Instruction	Means, Standard Deviations, Frequencies	<i>Alumni Questionnaire</i> Section II Question #1
3. Opinions of Alumni about their Academic and Career Advising	Means, Standard Deviations, Frequencies, Open-ended Questions	<i>Alumni Questionnaire</i> Section III Question #1-3
4. Perceptions about Extra-curricular Activities	Means, Standard Deviations, Frequencies, Open-ended Questions	<i>Alumni Questionnaire</i> Section IV Question #1-3
5. Employment Information of Graduates	Means, Standard Deviations, Frequencies, Open-ended Questions	<i>Alumni Questionnaire</i> Section V Question #1-13
6. Opinion of Employers about the Graduates' Preparation by the College	Means, Standard Deviations, Frequencies, Open-ended Questions	<i>Employer Questionnaire</i> Questions #1-6
7. Comparison of Alumni's Perception toward their Overall Educational Preparation by Background	T-tests, ANOVAs, Means, Standard Deviations	<i>Alumni Questionnaire</i> Section I Questions #1, 4 & 5 Section II Question #1 Section III Question #1 Section IV Questions #1 & 2 Section V Question 6 Section VI Questions #1 & 3
8. Comparison of Alumni and Employers concerning the Alumni's Preparation for work	T-test	<i>Alumni Questionnaire</i> Section I Question # 5 <i>Employer Questionnaire</i> Question # 2
9. Difference of participation in internships and the length of time graduates' took to their first position and their satisfaction with current positions	T-test	<i>Alumni Questionnaire</i> Section IV Question # 1 Section V Question # 1 & 6

CHAPTER IV

FINDINGS

Data were collected to find the opinions of alumni toward the undergraduate education within the CANR. In all, 32 questions were asked in the categories of demographic information, assessment of educational programs, quality of instruction, academic and career advising, extra-curricular activities and employment information.

Demographic Information

Of the 376 alumni who responded in this study, the majority (52.3%) were female. Their ages ranged from 23 to 53 years, with the majority (93.2 percent) being younger than 30. In addition, the majority of respondents graduated in 1997 as indicated in figure 1 below.

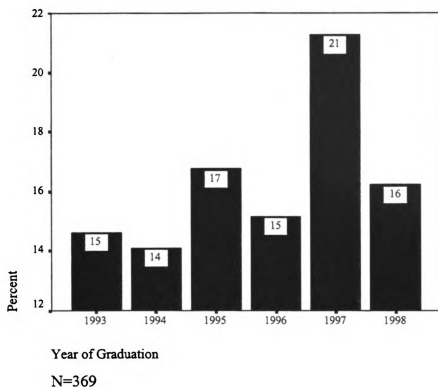


Figure 1. Year of graduation

Response Rates by Major

The response rates within the majors ranged from a 17 percent return rate from Agricultural Engineering alumni to a 45 percent return rate from Agricultural and Extension Education alumni. Table 2 shows the number of questionnaires sent out and the specific response rates for each major. Overall, there were 376 usable questionnaires returned from a sample of 1,269 graduates and therefore, the overall response rate was found to be at 34 percent.

Table 2. Response rates by major

Major	Number of Questionnaires Mailed	Frequency of Returns	Response Rate %
Agricultural & Extension Education	94	42	45
Agricultural Economics	123	34	28
Agricultural Engineering	122	21	17
Animal Science	114	43	38
Crops & Soil Science	98	31	32
Fisheries & Wildlife	120	33	28
Food Science & Human Nutrition	62	15	24
Forestry	75	24	32
Horticulture	101	39	39
Packaging	137	32	23
Parks & Recreation	104	31	30
Resource Development	119	31	30

Perceptions of Alumni toward Educational Programs

Graduates were asked to rate their educational preparation in terms of required courses, elective courses, college courses and preparation by the college for their career. They were also asked what areas they thought needed the most improvement in their academic major within the college.

Educational Preparation by Required Courses

Findings showed that preparation in the required general education courses of

basic sciences, mathematics, computer related courses, economics, basic social sciences, and arts and humanities were rated as “good”. A scale mean of 3.1 (St.Dev.=.62) was found on a scale of 1 (poor) to 5 (excellent) as shown in table 3. The highest rated items were in the areas of basic sciences and basic social sciences. The areas of computer related courses, math, economics, and arts and humanities were rated the lowest by alumni.

Table 3. Educational preparation by required courses

		Percent					
	(N)	Poor	Fair	Good	Very Good	Excellent	Mean (SD)
Basic Sciences	356	1.1	10.7	36.5	37.6	14.0	3.5 (.90)
Mathematics	351	7.7	26.5	35.6	21.7	8.5	3.0 (1.1)
Computer related courses	341	15.8	27.3	38.7	14.1	4.1	2.6 (1.0)
Economics	330	6.1	21.2	42.4	23.9	6.4	3.0 (.97)
Basic Social Sciences	339	2.1	13.3	49.0	28.3	7.4	3.3 (.85)
Arts and Humanities	317	4.1	17.7	47.9	21.8	8.5	3.1 (.94)

Scale mean = 3.1 (St.Dev.=.62)

Overall Rating of Elective Courses

Alumni were asked to rate the overall quality of elective courses they chose in relation to their career in a one-item question on scale from 1 (poor) to 5 (excellent). The majority (43.4 percent) indicated their elective courses were “very good” in relation to

their career (see Figure 2).

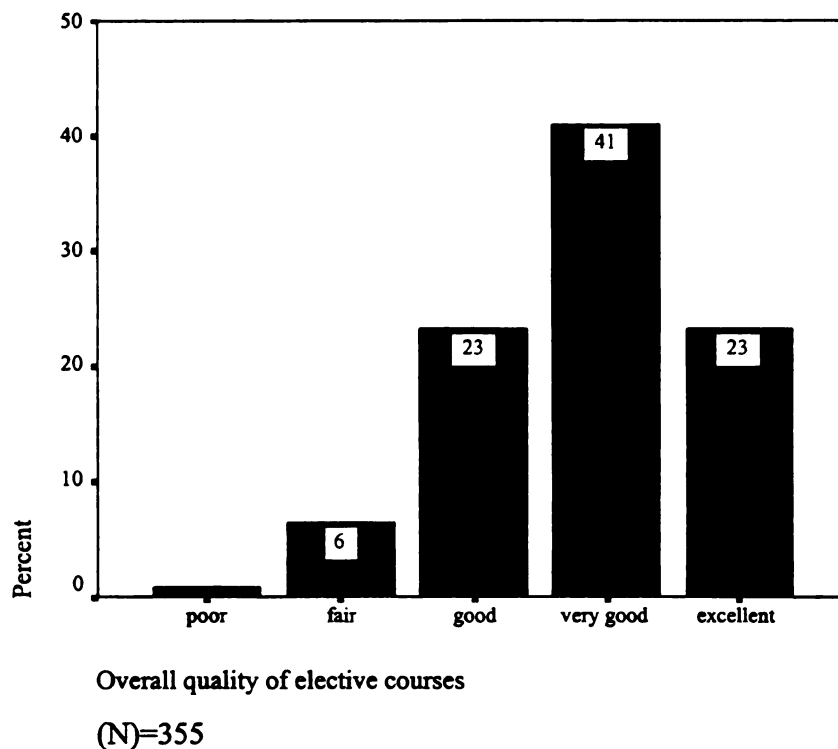


Figure 2. Overall quality of elective courses

Education within the College

Graduates were also asked to indicate their agreement or disagreement with a series of items about their education within the college at MSU. Respondents viewed their educational preparation within the college very positive in terms of their present positions. The specific questions asked are shown in table 4. A scale mean of 4.0 (St.Dev.= .64) indicated that the majority of graduates “agreed” with statements pertaining to their educational experience with the college. The highest rated items were

that the college prepared them to be problem solvers, to work easily with others, and that their education was current in relation to issues within their specific fields.

Table 4. Opinions of alumni toward their education within the college

		Percent					
	(N)	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean (SD)
Relates to my present job	353	7.6	9.3	6.8	26.6	49.6	4.0 (1.3)
Was current in relation to issues within my field	358	2.2	6.4	7.0	46.9	37.4	4.1 (.94)
Prepared me to be a problem solver when faced with new situations	368	.50	5.7	10.9	51.1	31.8	4.1 (.84)
Prepared me to work easily with others	366	.80	3.3	11.5	44.8	39.6	4.2 (.83)
Prepared me to be a leader	366	1.6	8.5	21.9	38.3	29.8	3.9 (1.0)
Taught me skills for my present job	356	3.4	8.7	14.3	43.8	29.8	3.9 (1.0)
Taught me the importance of being motivated	365	2.2	7.9	21.9	38.9	29.0	3.9 (1.0)

Scale mean = 4.0 (St.Dev.=.64)

Preparation for Work by the College

Graduates were asked to rate the college on how well it prepared students in certain aspects of their careers. These items, consisting of various aspects of work, are shown in table 5. Of these items, computer skills, math skills and knowledge of career

opportunities were rated the lowest. The majority of alumni rated the remaining six categories as “good” or “very good”. Over one-third of the graduates (35.9 percent) indicated they were very well prepared to work in a team setting.

Table 5. Preparation for work by the college

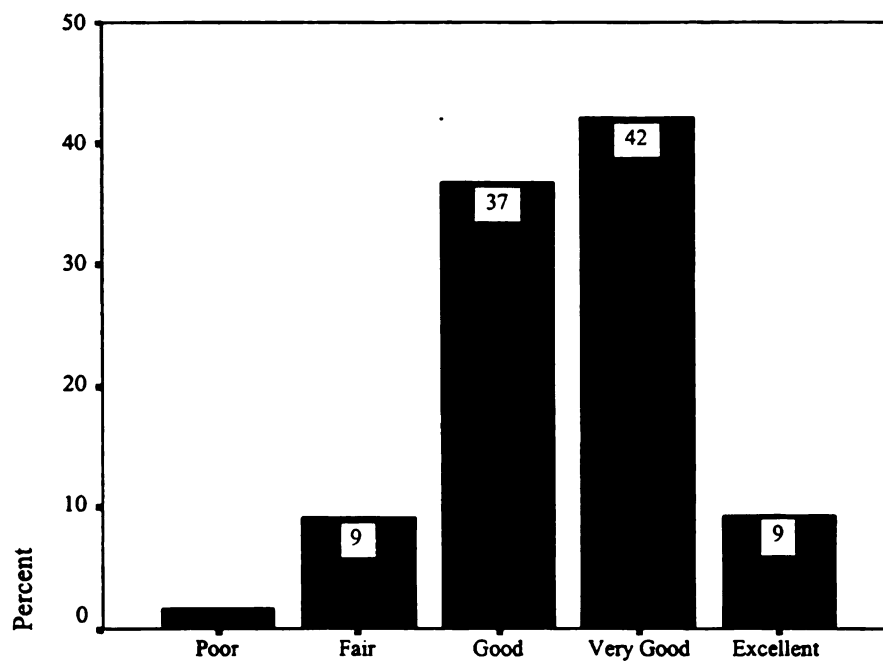
	Percent						
	(N)	Poor	Fair	Good	Very Good	Excellent	Mean (SD)
Writing skills	371	3.0	21.6	42.9	25.1	7.5	3.1(.93)
Oral communication skills	371	3.0	17.0	39.6	31.0	9.4	3.3(.95)
Mathematic skills	364	9.1	29.1	42.0	16.2	3.6	2.8(.95)
Computer skills	369	17.1	36.6	30.1	14.4	1.9	2.5(1.0)
Technical knowledge	367	7.4	20.7	37.1	27.5	7.4	3.1(1.0)
Getting along with people	366	2.5	10.9	38.8	33.3	14.5	3.5(.95)
Working in teams	370	2.2	7.0	34.6	35.9	20.3	3.7(.95)
Knowledge of career opportunities	369	16.0	21.1	28.7	22.5	11.7	2.9(1.2)
Ethical standards	367	5.2	15.8	39.2	28.3	11.4	3.3(1.0)

Scale mean = 3.1 (St.Dev.=.61)

Overall Satisfaction of Educational Preparation by the College

The majority of respondents (79.8 percent) rated their overall educational preparation from the college as either “good” or “very good” as shown in figure 3 below.

This was a one-item question with a scale from 1 (poor) to 5 (excellent).



Satisfaction with educational preparation by the college

(N) = 371

Figure 3. Overall satisfaction with educational preparation by the college

What Needs the Most Academic Improvement within the College

Respondents were asked what needs the most improvement within their academic major through an open-ended question. The most frequently mentioned areas that the alumni indicated needed improvement were courses, computer knowledge, real world scenarios/practical hands-on experiences, career information/preparation and instruction as shown in table 6.

Table 6. Areas needing improvement within the college

Areas needing the most improvement	Frequency of Mention
Courses	46
Computer knowledge and skills	43
Real world scenarios/practical hands-on	37
Career information/preparation	24
Instruction	12
Advising	11
Internships	10
Mathematic skills	5
More specific to field of study	5
Oral communication skills	3
Other	19

N=315

The following quotes are specific examples of comments by alumni relating to the most frequently selected areas of courses, computer knowledge and real world scenarios/practical hands-on experiences.

“More classes preparing students for the industry. Fewer general unrelated classes. “

“Update courses to the modern standards of today’s society demands. – some courses were outdated.”

“Update information taught; more relevant to industry.”

“More challenging classes, more reality from professors about what to expect upon graduation.”

“More management instruction and language classes.”

“ Using computers is so vital in today’s work world. If computers are not used as often as possible in college MSU students will be passed by in the work

environment.”

“Work with computers more in class.”

“More computer involvement.”

“More real life application; theory is OK but a student needs to know how to apply what is learned.”

“I would like to see more application of “real world” scenarios incorporated into classes.”

Opinions of Alumni about the Quality of Instruction

The alumni were asked to rate the quality of instruction they received in the college, on a scale of 1 (poor) to 5 (excellent), in terms of the teachers’ knowledge, teaching skills, classroom discipline, helping the students outside of the classroom, evaluation of students’ work and classroom assignments. Almost half (49.2 percent) rated their teachers’ knowledge “very good” and one-fourth (25.0 percent) rated it “excellent”. Most respondents rated the remaining categories as “good”. Findings in table 7 show a scale mean of 3.5 (St.Dev.=.70), which was computed for the alumni's overall opinions of their quality of instruction received in the college.

Table 7. Alumni's perceptions toward the quality of instruction within the college

		Percent					
	(N)	Poor	Fair	Good	Very Good	Excellent	Mean (SD)
Teachers' knowledge of subject areas	372	0.5	4.8	20.4	49.2	25.0	3.9 (.83)
Teaching skills	371	1.9	11.9	39.1	38.0	9.2	3.4 (.88)
Classroom discipline	368	0.5	8.4	42.4	39.4	9.2	3.5 (.80)
Helping students outside the classroom	370	3.5	11.9	32.2	29.5	23.0	3.6 (1.1)
Evaluation and grading of students' work	372	0.8	10.2	41.1	39.2	8.6	3.4 (.82)
Classroom assignments	372	1.3	8.9	44.4	37.6	7.8	3.4 (.81)

Scale mean = 3.5 (St.Dev.=.70)

Opinions of alumni about their academic and career advising

College Advising

Questions about academic advising were asked using a Likert-type scale and included items such as helping the students find their first positions, choosing courses, preparing their resumes, assisting with interviewing skills and being easily accessible. A scale mean of 2.8 (St.Dev.=1.1) was computed for the participants' overall rating of their academic advising.

The majority of respondents "strongly agreed" that their academic advisors helped them in deciding which courses to take and that they were easily accessible to students. However, over 60 percent of the respondents "disagreed" or "strongly disagreed" that

their advisor helped them in finding their first positions, preparing their resumes and assisting them with interview skills.

Table 8. The opinions of alumni toward academic and career advising

		Percent					
	(N)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean (SD)
Helped me decide the courses to pursue	308	9.6	14.8	33.8	5.8	36.0	3.4 (1.4)
Was easily accessible	364	6.3	10.4	38.7	5.7	39.0	3.6 (1.3)
Helped me find my first position	325	36.4	28.6	6.5	15.3	13.3	2.4 (1.4)
Helped me prepare my resume	325	31.4	29.5	15.7	9.5	13.8	2.4 (1.4)
Helped me with interviewing skills	367	32.0	30.2	13.5	12.9	11.4	2.4 (1.4)

Scale mean = 2.8 (St.Dev.=1.1)

Use of the MSU Career Services and Placement Office

Alumni were asked questions pertaining to their use and opinions concerning the MSU Career Services and Placement Office. A little less than half (47.9 percent) of the respondents reported using the services of the placement office. Respondents were asked if they had used any of the four core services offered by the placement office including career advising, on-campus interviews, job listings and resume critique. Of these services, the most commonly used services were the job listings and on-campus interviews.

Alumni indicated that they also used services such as the internship program, workshops/career fairs, mock interviews, databases, help sheets and the research area.

The overall rating of the placement center was found to be either “fair” or “good” by 67

percent of the alumni. This was question consisted of one-item and the scale was from 1 (poor) to 5 (excellent).

Additional Comments Relating to Academic and Career Advising

An open-ended question was asked regarding the opinions of alumni toward their academic and career advising. Of the respondents, 31 indicated that their advising was helpful or positive; however, the second most frequent answer was that the advising did need improvement. The next four most common answers consisted of needing more help with placement/interviews/resumes, career placement was not helpful, the advisors need to work more closely with students and they need more contact or information on career opportunities as shown in table 9 below.

Table 9. Additional comments on academic and career advising

Academic/Career Advising Additional Comments	Frequency of Mention
Advising was helpful/positive	31
Advising needs improvement	24
More help with placement/interviews/resumes	21
Career placement not very helpful	20
Need to work more closely with students	18
Need more contact/info on career opportunities	18
Neutral – no need for advising	9
Advisors too busy	6
More help with courses	3
More contact with industry	2
Other	27

N=179

The following quotes are from alumni and pertain to the top four areas of

responses as shown in table 9 for the areas of advising being helpful/positive, advising needing improvement, having more help with placement/interviews/resumes and career placement was not very helpful.

“ I was very lucky to have a great advisor to lead me in the right direction.”

”All professors were willing to sit and chat with me about academic and/or career concerns.”

“My advisor did a very poor job of helping me and several of my fellow students with class and career issues.”

“My advisor offered no career advising and his academic advising led me to take courses out of College Pre-(requisite) requirements.”

“It was a good idea to have an entire resume class offered like I had.”

“I would have liked to see increased assistance in resume writing and job placement.”

“ Career services and placement was a waste of time when looking for an agricultural career.”

“I always seemed like they thought they were wasting their time on ag-students - no help at all (career services).”

Alumni Participation in Extracurricular Activities

Several questions were asked about respondents’ opinions of internships, involvement in student organizations, clubs or teams, and overseas study programs. All of these areas were considered extra-curricular because they are not always a requirement for graduation in all of the majors within the college.

Participation in Internships

Of the respondents, 68.8 percent had participated in an internship. A partially closed question was asked regarding who assisted them in finding their internship. The majority (56.9 percent) found their internships themselves, 31.6 percent reported receiving assistance from their academic advisors and 27.0 percent received assistance from faculty members. Other sources of help for finding internships were identified as contacts within the field, on-campus interviewing/coordinator, bulletins/postings, on-campus clubs and career fairs. Furthermore, alumni were asked a series of questions on a Likert-type scale about whether their internships were useful in finding their first employment, helped them decide on their first employment and helped them become more attractive to employers. Findings are shown in table 10. A scale mean of 4.4 (St.Dev.= .77) was found, indicating that internship experiences were useful in finding employment opportunities.

Table 10. Usefulness of internship experiences

		Percent					
	(N)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean (SD)
Was useful in preparing you for your first position	243	2.6	6.6	4.9	21.8	63.8	4.4 (1.0)
Helped you with deciding on your first position	240	2.5	6.7	11.7	23.8	55.4	4.2 (1.1)
Helped you become more attractive to employers	251	2.0	3.6	8.4	22.7	63.3	4.4 (.93)
Was a waste of your time	255	75.7	16.5	4.3	2.4	1.2	1.3 (.77)

Scale mean = 4.4 (St.Dev.=.77)

An open-ended question was asked regarding recommendations that the alumni would make in terms of internships. The comment regarding making internships a requirement or recommending that every student participate in one, was by far the most consistent answer as shown in table 11. The next most highly rated comments were that internships helped with their career and students should participate in more than one internship.

Table 11. Recommendation/comments concerning internships

Recommendations/Comments	Frequency of Mention
Make them a requirement/recommend everyone do one	85
Helps with career	30
Do more than one	25
More opportunities/information on opportunities	12
No changes needed	8
Gain real world experiences	8
Quality of internship should be high	8
Credits (paying for credits)	5
Intern as Junior or Senior	2
More internship placement	1
Other	31

N=215

The following quotes are specific comments from alumni in relation to table 11.

They relate to the top three selected areas of making them a requirement/recommend everyone do one, internships help with careers and students should do more than one.

“They should be required. They are the best way to get a true education about the “real corporate America”. No class can teach on the job experience.”

“Every student should be required to complete an internship within their major areas early in their college years. Very insightful for a career direction.”

“It should be required not suggested for all students. Students should have to write a paper on the experience or an oral presentation before credits are given.”

“It was very useful in helping me get my first job and preparing for a career.”

“The more the better. They make for excellent experience and contacts, as well as narrowing down career options.”

“Get one! Maybe consider making an internship a requirement for graduation – makes students more marketable and is a great opportunity to get valuable experience.”

“Mandatory!! Best experience in my entire academic career.”

“Students should pursue them, as they give the student real world experience as well as meeting other professional in their field.”

“Internships play an important part in the role of job placement. It demonstrates a strong work ethic.”

Involvement in On-Campus Student Organizations, Clubs or Teams

Findings indicated that a majority of the respondents (72.5 percent) were involved in on-campus student organizations, clubs or teams. Of those who were involved, 60.4 percent reported holding leadership positions. They were further asked in a one-item question, on a scale from "strongly disagree" to "strongly agree", whether they felt their participation had a positive impact on their career preparation. A mean of 4.3 (St.Dev.=.96) indicated that most people “agreed” or “strongly agreed” that their participation had a positive impact on their career preparation.

Respondents were asked to list the organizations, clubs or teams they were a part of as an undergraduate student. Some of the most frequent responses are shown in table 12 below. The respondents’ most frequently identified answer was involvement in a

fraternity or sorority. The next most frequent response was either a sports teams or intramural sports. A complete list of the organizations can be found in appendix C.

Table 12. Organizations, clubs or teams

On-Campus Organizations	Frequency of Mention
Fraternity/sorority	81
Sports Team/IM Sports	60
Horticulture Club	22
Block & Bridle	19
Student Senate	18
Institute of Packaging Professionals	17
Spartan Ag Leaders	16
National Agri-marketing Association/Agricultural Communicators of Tomorrow	15
Judging Team	15

N=458

Recommendations about Involvement in Student Organizations

An open-ended question was asked to find overall recommendations from the alumni toward current students in terms of involvement in student organizations. By far the most frequently mentioned suggestion was for future students to get involved or that involvement was a positive experience. The next four most frequently mentioned reasons for involvement in student organizations were that the involvement increased networking, was a positive social experience, was good for career preparation and helped increase leadership and team building skills as shown in table 13. However, fewer respondents mentioned that academics should be the first priority of the students and that their participation was a poor experience.

Table 13. Recommendations for current students concerning involvement in student organizations

Areas of Recommendations	Frequency of Mention
Get involved/positive experience	145
Increase networking	34
Positive social aspect/build relationships	33
Good for career preparation	30
Leadership/team building skills	28
Academics should be the first priority	6
Poor experience	1
Other	6

N=283

The following are specific comments made by alumni. The comments have been taken from the areas of getting involved/positive experience, increase networking and positive social aspect.

“Get involved. I still work with many of the people I first met through CANR student organizations and the networks have helped me.”

“Club and organization participation can lead to lifetime friendships and valuable networking opportunities for future careers.”

“It’s essential! It not only allows you to develop networking and communication skills but you also meet new people and are helping others.”

“It helps the student feel more comfortable, it is a source of contacts, getting to know professors and friends.”

“Get involved with clubs – it helps make you more confident, find friendships and learn about your career.”

“Get as much exposure to industry and issues relevant to your future career path as possible. The contacts and experiences that can be gained are extremely valuable.”

Participation in Overseas Study Programs

Additionally, the respondents were asked whether they had participated in an overseas study program. About one out of six (16.2 percent) had participated in one of the study abroad programs at MSU. Those who had participated in an overseas study program were asked in an open-ended question to indicate in which program they participated. The majority (16 respondents) of those who had been participants traveled on the Australia/New Zealand program as shown in table 14. The complete list of the programs that students had been a part of are listed in appendix C.

Table 14. Overseas study programs

Country	Frequency of Mention
Australia/New Zealand	16
England/Ireland/Scotland	6
Brazil	5
Bahamas	4
Nepal	2
Costa Rica	2
Hawaii	2
International Food Laws – Europe	2
Netherlands	2
Semester - England/London	2

N=58

Almost all of the participants (94.9 percent) indicated they would recommend similar experiences to other students.

Identify employment information of graduates within the college

Questions were asked to alumni in regard to their perceptions toward their employment at their time of graduation, their current employment, salary information,

courses in relation to their career, their present position and the type of organization with which they are currently employed.

Employment Information at Time of Graduation

Two questions were asked concerning the alumni's employment at their time of graduation. The first question asked how long after graduation they began a position related to their undergraduate degree. The majority (61.1 percent) of respondents took three months or less to find a position in their individual field as shown in table 15. On the other hand, there were almost twelve percent of the respondents who never found a position related to their career.

Table 15. Length of time to their first position related to their degree

How long it took to find their first position	Frequency of Response	%
Less than one month	158	42.5
1 to 3 months	68	18.6
3 to 6 months	33	8.9
6 to 12 months	34	9.1
12 to 24 months	17	4.6
More than 24 months	11	3.0
Never	44	11.8
Not currently employed	7	1.9

A t-test was run to find any significant difference between gender and the length of time it took the alumni to find their first position. Male respondents reported taking less time to find their first employment related to their undergraduate degree than female respondents, and this time difference was statistically significant ($t=3.8$, $p<.05$).

Graduates were also asked how many full-time job offers they had at their time of

graduation. As shown in table 16 below, the majority (43.6 percent) had no offers by graduation. However, almost one third of the respondents (33.7 percent) had two or more offers.

Table 16. Number of full-time job offer at the time of graduation

Number of full-time job offers at graduation	%
One	22.6
Two	13.6
Three	12.5
Four or more	7.6
None	43.6

N=367

Nature of Current Employment

The majority (80.5 percent) of respondents indicated that the nature of their present, primary employment was full-time status as shown in table 17 below. A question was also asked concerning whether or not their current employment related to their preparation at MSU. The majority (69.6 percent) of respondents indicated they were employed in an occupation they were prepared for by their education. These results are shown in figure 4.

Table 17. Nature of employment of graduates

Nature of employment	%
Full-time	80.5
Part-time	6.5
Self-employed	10.0
Unemployed	3.0

N=369

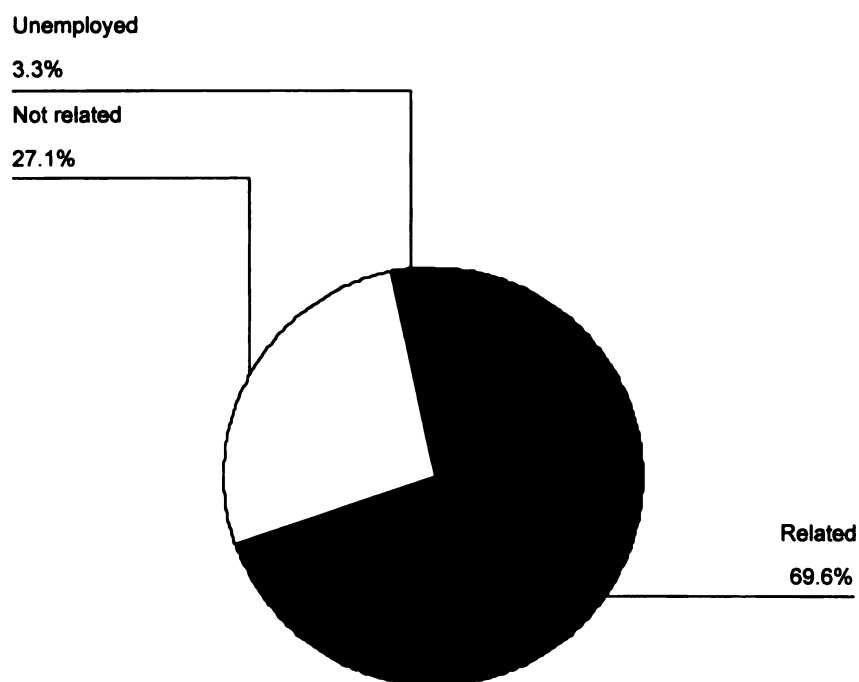


Figure 4. Description of current position in relation to academic preparation
N=362

Salary information

When asked about the starting annual salary, the majority (47 percent) indicated a range of \$10,000 to \$24,999. However, it should be noted that the beginning salary was not in constant dollars. The current salary of alumni appeared to be more normally distributed as the majority of respondents (28.6 percent) indicated their current annual salaries ranged between \$25,000 and \$34,999 as shown in figure 5 below.

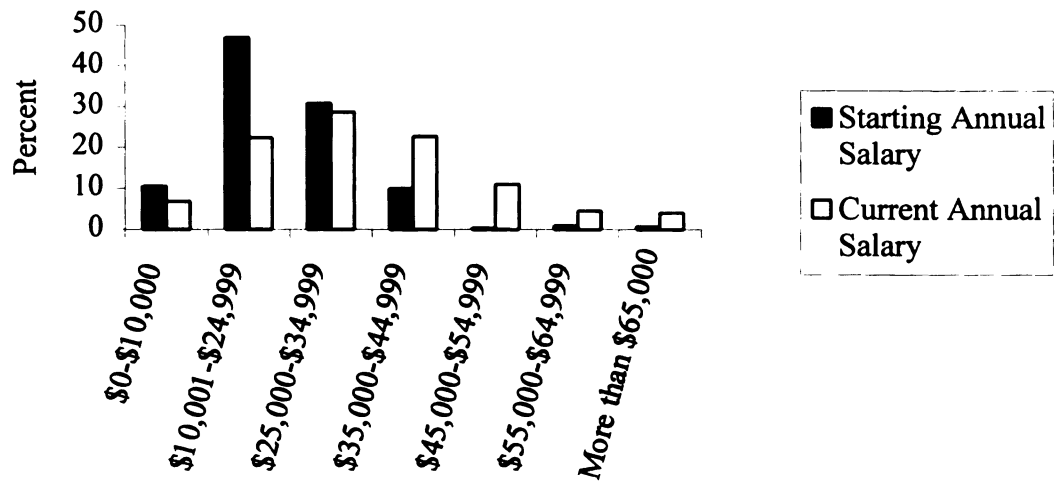


Figure 5. Starting and current salary information
 Starting annual salary N=351
 Current annual salary N=353

Satisfaction with Current Position

Alumni were asked to rate their satisfaction with their current position in relation to the items of challenging work, opportunities for advancement, overall working conditions, salary and their own job performance. Over 60 percent of the respondents viewed the challenge of their work, their overall working conditions and their own job performance as “very good” or “excellent” as shown in table 18 below. The lowest rated item was their salary, which was rated “good” by 34.2 percent of the alumni.

Table 18. Satisfaction with current position

		Percent					
	(N)	Poor	Fair	Good	Very Good	Excellent	Mean (SD)
Challenging work	354	3.1	12.1	18.9	25.1	40.7	3.9 (1.2)
Opportunities for advancement	350	10.9	15.4	17.7	24.6	31.4	3.5 (1.4)
Overall working conditions	355	2.3	8.7	27.3	29.6	32.1	3.8 (1.1)
Salary	354	11.3	20.9	34.2	20.1	13.6	3.0 (1.2)
Your own job performance	354	0.0	2.3	20.6	45.8	31.4	4.0 (.78)

Scale mean = 3.7 (St.Dev.=.80)

Respondents were also asked a one-item question concerning their overall satisfaction with their present position. Most of the respondents indicated that their overall satisfaction was “very good” as shown in Figure 6.0 below.

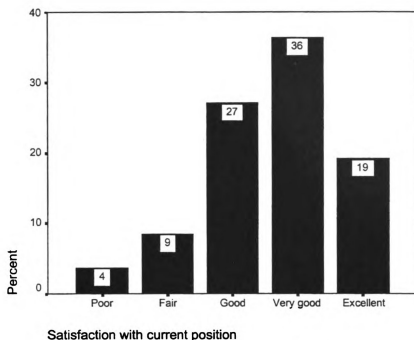


Figure 6. Overall satisfaction with current position
N=358

Courses in Relation to their Career

Two questions were asked concerning courses in relation to the alumni's career. The total list of responses for both questions can be found in appendix C. The first question asked alumni to identify which courses they did not take but could have been helpful to them in relation to their career. The top ten most frequently identified courses are listed in table 19 below. The most frequently identified course was in the area of computers. The next four most frequent responses were in the areas of general business, science, crop and soil science, and mathematics/statistics.

Table 19. Courses that could have been helpful with their career

Course	Frequency
Computer	57
General Business	43
Science	35
Crop and Soil Science	34
Mathematics/Statistics	25
Management	24
Marketing/Sales	23
Accounting/Finance	22
Animal Science	21
Horticulture	18

N=468

The second question in this area asked alumni to identify courses that had been the most helpful to their career. The most frequently identified course was in the area of Crop and Soil Sciences. This area was followed by Horticulture, General Science, Animal Science, and Fisheries and Wildlife as shown in table 20.

Table 20. Courses that had been the most helpful in relation to their career

Course	Frequency
Crops and Soil Science	83
Horticulture	69
Science	53
Animal Science	50
Fisheries and Wildlife	38
Forestry	38
Agriculture and Extension Education	28
Agricultural Economics	28
Communication/Journalism/Advertising	27
Agricultural Engineering	27
Mathematics/Statistics	26

N=727

Assessment of Career Opportunities

Alumni were asked to rate their opinions of career opportunities in the next five

years for new college graduates within their particular major. The majority (31 percent) rated the opportunity as “good” or “very good” on a scale from 1 (poor) to 5 (excellent) as shown in Figure 7.0 below.

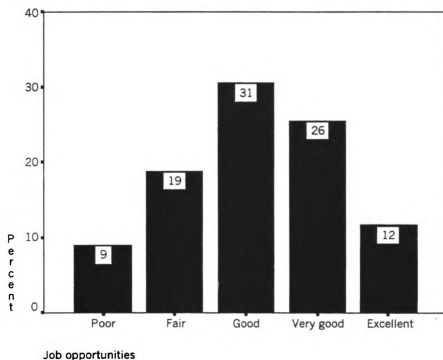


Figure 7. Assessment of job opportunities over the next five years
N=360

Present Type of Position

Alumni were asked to identify the type of position that they are currently employed through an open-ended question. The most frequent answer was in the area of project manager/office manager, followed by own business/self employed, sales, engineering and teaching. The top ten responses are listed in table 21 and the full list can be found in appendix C.

Table 21. Type of position as identified by alumni

Position	Frequency
Project manager/Office manager	47
Own business/Self employed	27
Sales	25
Engineer	19
Teacher	16
Golf course superintendent	15
Regional representative/Service representative	14
Graduate assistant	13
Farming	12
Research	11

N=359

Type of Organization

Alumni were also asked to identify what type of organization they currently worked for in an open-ended question. The most frequent type of organization identified by the graduates was government/political. Table 22 indicates some of the most frequently identified types of organizations with the five most frequent areas as government/political, home/builder/development/construction, automotive, landscape and farming. A full list of responses can be found in appendix C.

Table 22. Type of organization as identified by alumni

Type of organization	Frequency
Government/political organization	31
Home/builder/development/construction	17
Automotive	16
Landscape	16
Farming (livestock/grain producers)	13
University	13
High school	12
Computer services	10
Horticulture/garden/floral/greenhouse	10
Golf courses	9
Environmental agencies	9

N=325

Comments about Areas of Additional Knowledge

An open-ended question was asked seeking to find if there was anything they could have learned or known that would have helped them after graduation. The most frequent answer was in the area of more information on their career/salary. In addition, the areas of computer/technology courses, internships and a specific course within their major were also frequently identified by the alumni as shown in table 23 below. The full list of responses can be found in the appendix.

Table 23. Areas of additional knowledge

Areas of additional knowledge	Frequency
More information on career/salary	32
More computer type/technology courses	22
Internships	22
Specific course within major	21
Business skills/emphasis	14
More interviewing skills, resume writing, job placement	13
Different major	10
Grammar/communications/interpersonal	10
More real world experiences	9
Lack of job opportunities in area of study	9
Other	28

N=273

The following comments pertain to the top three areas in table 24. These areas are more information on career/salary, more computer type/technology courses, internships and comments relating to a specific course.

“That my first job was just a starting point – not something I would have to stay in forever.”

“I would have appreciated more emphasis on career exploration in my freshman and sophomore years. I wish I would have known more about resources available to student to help me make better decisions with class choices. Some of the requirements (i.e. specific courses) seem irrelevant to my major, but I understand the need for broad education.”

“Internships are the best way to experience the “real world”. I would encourage CANR to help students to find valuable internships – paid or not!”

“Internships! Need to hold a short class or information meeting with frsh/soph/jrs to explain importance behind internships.”

“I could have learned more on the auto industry and I should have taken more computer classes. Microsoft Word/Excel/Acess/Project.”

“Would liked to have seen more job related classes, computer classes and completed another internship.”

“I wish I would have taken a marketing class – in the grain business you need to be kept current with everything.”

Additional Thoughts for Improving CANR Programs

The last page of the alumni questionnaire gave the respondents a chance to give any additional thoughts for improving the CANR undergraduate programs. The most frequent answer was that MSU was a good school or gave them a good preparation. Other common answers indicated a need for more real world experiences/fieldwork, improvements in advising and access/knowledge of career opportunities. Table 24 shows all of the areas indicated by the alumni.

Table 24. Additional comments of alumni

Comments	Frequency
Good school/good preparation	30
Real world experiences/fieldwork	16
Improve advising	16
More access/knowledge of career opportunities	15
Improve instruction	10
More internship	10
More courses overall	9
Business knowledge/emphasis	8
Increase computer/technology emphasis	8
Improve overall courses in college	8

N=194

The following specific comments are taken from the top three areas listed above in table 24. The areas are that MSU is a good school/good preparation, real world experience/fieldwork and that advising needs improvement.

“The professors generally do not have enough time to become good advisors. Maybe the college of Ag and Nat Resources could hire a number of individuals who were solely advisors.”

“Academic advisors should be more of a mentor and not just help you fill out your schedule. They should work with you on reaching your academic goals, give advise on courses and career paths and not act like you are wasting their time.”

“I had a great time at MSU, the College of Natural Resources is the best place to be.”

“The MSU ANR college undergraduate classes were exceptional. Going to graduate school and comparing my educational background with my fellow students really made me appreciate what a good undergraduate training that I had.”

“The more that can be done to relate the field work with how today’s technology can assist the graduate the better. Using current real life problems and examples from the field can help students truly understand course concepts. Forming partnerships with companies and organizations to allow students to work on real problems in the classroom might be an idea.”

Opinions of employers about the graduates’ preparation

Data were collected to find the perceptions of employers toward the preparation of CANR graduates by the college. A total of six questions were asked in the areas of the type of organization they worked for, preparation of graduates, career performance of alumni, courses that should be emphasized, job opportunities and suggestions for the college. A total of 85 questionnaires were returned by the employers.

Type of Organization

The employers were asked to identify the type of organization they worked for through an open-ended question. The most common type of organization was identified as home/builder/development/construction. Golf courses, government/political and landscape organizations were also common answers for this question as shown in table 25

below.

Table 25. Type of organization as identified by employers

Type of organization	Frequency
Home/builder/development/construction	8
Golf courses	7
Government/Political	7
Landscape	6
High school	5
Insurance	5
University	5
Automotive	4
Environmental	4
Food manufacturer	4

N=91

Preparation of Graduates

Employers were asked questions regarding the career performance of CANR graduates as shown in table 26. The highest rated items were ethical attitude, getting along with people and working in teams. On the other hand, the lowest rated items were mathematic skills, writing skills and computer skills. A scale mean of 3.5 (St. Dev.=.65) was found on a scale of 1 (poor) to 5 (excellent) indicating that the employers rated the alumni between “good” and “very good” in terms of their preparation by the college.

Table 26. Preparation of graduates by the college

		Percent					
	(N)	Poor	Fair	Good	Very Good	Excellent	Mean (SD)
Writing skills	82	1.2	11.0	40.2	39.0	8.5	3.4 (.85)
Oral communication skills	84	0.0	15.5	31.0	34.5	19.0	3.6 (.97)
Mathematic skills	80	1.3	17.5	41.3	31.3	8.8	3.3 (.90)
Computer skills	83	7.2	13.3	28.9	37.3	13.3	3.4 (1.1)
Technical knowledge	84	2.4	8.3	33.3	40.5	15.5	3.6 (.93)
Getting along with people	84	0.0	6.0	28.6	34.5	31.0	3.9 (.91)
Working in teams	84	0.0	8.3	21.4	44.0	26.2	3.9 (.90)
Knowledge of career opportunities	76	1.3	13.2	27.6	38.2	19.7	3.6 (.99)
Ethical attitude	84	1.2	6.0	25.0	32.1	35.7	4.0 (.98)

Scale mean = 3.5 (St.Dev.=.65)

Career Performance

The questions concerning the graduates' job performance included items such as having adequate theoretical and practical knowledge, the ability to follow directions, work independently, ask relevant questions, supervise subordinates, report to supervisors and work with colleagues and a rating of their overall job performance as illustrated in table 27. A scale mean of 3.7 (St.Dev.=.72) was found on a scale from 1 (poor) to 5 (excellent), indicating that the employers rated the students highly in career performance.

Table 27. Career performance of alumni

		Percent					
	(N)	Poor	Fair	Good	Very Good	Excellent	Mean (SD)
Theoretical knowledge	82	0.0	7.3	37.8	47.6	7.3	3.5 (.74)
Practical knowledge	82	1.2	12.2	34.1	41.5	11.0	3.5 (.89)
Ability to follow instructions	84	0.0	1.2	28.6	44.0	26.2	4.0 (.77)
Ability to work independently	83	2.4	2.4	22.9	34.9	37.3	4.0 (.96)
Ability to ask relevant questions	83	1.2	6.0	24.1	41.0	27.7	3.9 (.93)
Ability to supervise subordinates	77	2.6	9.1	44.2	31.2	13.0	3.4 (.92)
Reporting to supervisors	82	1.2	3.7	36.6	35.4	23.2	3.8 (.90)
Ability to work with other colleagues	83	0.0	4.8	27.7	34.9	32.5	4.0 (.90)
Overall job performance	83	0.0	2.4	28.9	44.6	24.1	3.9 (.79)

Scale mean = 3.7 (St.Dev.=.72)

Specific Courses/Topics that should have been emphasized in the Education of Alumni

Employers were asked to identify specific courses/topics that should have been emphasized in the education of the alumni. Computers skills were the most frequently identified area followed by communication, real world/practical hands-on experiences, oral communications and writing as shown in table 28. The entire list of specific courses/topics can be found in appendix C.

Table 28. Courses/topics that should have been emphasized in program

Courses/Topics	Frequency
Computers skills	15
Communication/interpersonal	7
Real world/practical hands-on experience	7
Oral communication	6
Writing	6
Business	5
Management	4
Organization (lives)	3
Science/biology	3
Evaluation/research	2
Teamwork	2
Conflict resolution/negotiations	2
Statistics	2

N=87

Assessment of Job Opportunities over the Next Five Years

Employers were very positive toward the assessment of job opportunities over the next five years as the majority (34) indicated their assessment as excellent/very good/high through an open-ended question. Only 15 respondents indicated job opportunities would be minimal or fair as shown in table 29.

Table 29. Assessment of job opportunities by employers

Assessment	Frequency
Excellent/very good/high	34
Good	13
Other	11
Minimal/limited	8
Fair	7

N=73

Suggestions for the CANR

Employers were asked to indicate any suggestions they had for the college over the next five years in an open-ended question. The most frequently identified areas were computer emphasis/courses and internship or industry experiences as shown in table 31 below. The entire list of areas can be found in appendix C.

Table 30. Suggestions by employers for the college over the next five years

Suggestions	Frequency
More computer emphasis/courses	9
More internship experiences/industry experience	9
More management courses	4
Increase hands-on real world experience	4
More specific in area of study	4
More teamwork	3
Improve student/employer relations	2
More business emphasis	2
More interpersonal skills/communication	2
Improve writing skills	2

N=58

The following specific comments relate to the top two areas of more computer courses and more internship experiences as shown in table 30.

“Computer and technical courses must keep up with latest advances in the field.”

“More computer knowledge.”

“Increase intern requirements so that grads have more on site experiences.”

“Involve more professionals and mandate more internship experiences.”

Other Thoughts on Improving the CANR Undergraduate Programs

Employers were also asked to identify any other thoughts that may be helpful to the CANR undergraduate programs. As shown in table 31, some of the most frequently identified answers were more hands-on/field work, graduates don't have realistic salary expectations, MSU is a very good school, and improvements are needed within the majors. The entire list of areas identified by employers can be found in the appendix.

Table 31. Additional comments by employers

Suggestion	Frequency
More hands-on/field work	4
Graduates don't have realistic salary expectations	3
Very good school	3
Improve major	3
Improve advising	2
Improve courses	2
More people skills/communications	2
Internships are good experiences	2
Improve job placement	2

N=39

The following are specific comments related the areas in table 31.

"Classroom work is important but they need more courses in fieldwork so they can learn to apply what they have learned."

"Graduates want the "big" money without working for it."

"I have been happy with my MSU graduate. Keep being diverse and adaptable."

Comparison of Alumni's Perception toward their overall educational preparation by background

A t-test was run to find differences between the student's perceptions toward their educational preparation and gender. The test was performed between the variable for gender and the scale means for the following scales: required courses, education within the college, preparation for work by the college, quality of instruction, academic/career advising, internships and their satisfaction with their current position.

Table 32 indicates that there were no significant differences between gender and the alumni's perception toward their educational preparation.

Table 32. Differences in alumni's perception toward their educational preparation by gender

Scale	Group	Number	Mean	SD	t-value	p-value
Required Courses	Male	133	3.09	.59	.75	.45
	Female	147	3.03	.65		
Education within the College	Male	160	4.00	.63	-.26	.79
	Female	177	4.02	.64		
Preparation for work	Male	168	3.12	.58	.28	.78
	Female	185	3.10	.63		
Quality of instruction	Male	170	3.52	.69	-.57	.57
	Female	191	3.56	.71		
Academic advising	Male	140	2.80	1.05	-.11	.91
	Female	153	2.81	1.19		
Internships	Male	108	4.51	.63	1.6	.10
	Female	124	4.34	.88		
Satisfaction with current position	Male	171	3.73	.82	1.7	.09
	Female	174	3.58	.78		

A t-test was performed to find any differences between participation in internships and the alumni's perception toward their educational preparation, which includes the areas of required courses, education within the college, preparation for work, quality of instruction,

academic advising and satisfaction with current position. Significant differences were found for the areas of education within the college and academic advising. Those who participated in an internship were more favorable toward their academic advising ($t=3.5$, $p<.05$) and education within the college ($t=2.0$, $p<.05$) as shown in table 33.

Table 33. Differences in alumni's perception toward their educational preparation by internship participation

Scale	Group	Number	Mean	SD	t-value	p-value
Required Courses	Yes	199	3.05	.65	-.67	.50
	No	81	3.11	.56		
Education within the College	Yes	233	4.06	.62	2.0	.05
	No	105	3.91	.67		
Preparation for work	Yes	242	3.15	.62	1.4	.16
	No	111	3.05	.59		
Quality of instruction	Yes	250	3.52	.70	-1.1	.29
	No	112	3.60	.71		
Academic advising	Yes	209	2.95	1.1	3.5	.00
	No	83	2.47	1.0		
Satisfaction with current position	Yes	237	3.68	.81	1.1	.25
	No	105	3.57	.77		

A t-test was run to find any significant differences between those who had and had not participated in an on-campus organization, club or team and their perceptions toward their educational preparation. The test was performed between whether the alumni had participated in an on-campus organization, club or team and the scale means for the areas of required courses, education within the college, preparation for work by the college, quality of instruction, academic/career advising, internships and their satisfaction with their current position.

Those who were involved in campus student organizations, clubs or teams were

more favorable toward their courses in the college ($t=3.8, p<.05$), preparation for their careers ($t=2.7, p<.05$), academic advising ($t=3.7, p<.05$) and satisfaction with current positions ($t=2.3, p<.05$) than those who were not involved in such activities as shown in table 34.

Table 34. Differences between participation in on-campus organizations and educational preparation

Scale	Group	Number	Mean	SD	t-value	p-value
Required Courses	Yes	214	3.07	.62	.63	.53
	No	68	3.02	.63		
Education within the College	Yes	250	4.09	.60	3.8	.00
	No	89	3.79	.71		
Preparation for work	Yes	260	3.16	.58	2.7	.01
	No	95	2.96	.66		
Quality of instruction	Yes	267	3.59	.69	2.0	.05
	No	97	3.42	.72		
Academic advising	Yes	223	2.93	1.15	3.7	.00
	No	72	2.42	.98		
Internships	Yes	187	4.46	.73	1.3	.21
	No	49	4.30	.90		
Satisfaction with current position	Yes	256	3.71	.80	2.3	.02
	No	88	3.48	.78		

An ANOVA was computed to find any differences between the alumni's year of graduation and their perceptions toward the educational preparation, which included the areas of required courses, education within the college, preparation for work, quality of instruction, academic/career advising, internship and satisfaction with current position.

Table 35 indicates a significant difference for the area of the education within the college. Students who graduated in 1998 were more positive toward their educational preparation within the college than those graduating in the years 1993 and 1994. The

remaining areas indicated no significant differences in the years of graduation.

Table 35. Differences between year of graduation and educational preparation

Scale		Sum of Squares	df	Mean Square	F-value	Sig.
Required Courses	Between groups	3.0	5	.59	1.5	.18
	Within groups	105.4	273	.39		
	Total	108.4	278			
Education within the College	Between groups	5.5	5	1.1	2.7	.02
	Within groups	134.4	331	.41		
	Total	140.0	336			
Preparation for work	Between groups	4.0	5	.80	2.2	.06
	Within groups	127.4	347	.37		
	Total	131.4	352			
Quality of instruction	Between groups	2.3	5	.45	.91	.47
	Within groups	175.7	355	.50		
	Total	178.0	360			
Academic advising	Between groups	.67	5	.14	.10	.99
	Within groups	370.4	286	1.3		
	Total	371.0	291			
Internship	Between groups	1.8	5	.36	.59	.71
	Within groups	136.2	225	.61		
	Total	138.0	230			
Satisfaction with current position	Between groups	3.0	5	.60	.93	.46
	Within groups	217.6	339	.64		
	Total	220.6	344			

Comparison of alumni and employers concerning the alumni's preparation for work by the college

The same question concerning preparation by the college was asked to both alumni and employers. A paired t-test was computed to find any significant differences between the alumni and employers' views concerning the preparation of students by the college. Since the number of graduates and employers was unequal, a percentage of alumni were randomly selected to make an equal sample size. A significant t-value of 3.2,

$p < .05$, was found between alumni and employers for their perceptions about the graduate's preparation for work. The employers perceived the preparation by the college more favorably than the alumni, as shown in table 36 below.

Table 36. Differences between alumni and employers in their perceptions of the preparation by the college

Scale	Group	Number	Mean	SD	t-value	p-value
Preparation for work	Alumni	64	3.1	.58	3.2	.00
	Employer	64	3.5	.65		

Difference of participation in internships and the length of time graduates' took to their first position and their satisfaction with current positions

To find any significant differences between those who had and had not participated in an internship and their perceptions toward their current position a t-test was run. A t-value of 1.1 with a p-value of over .05 indicates no significant differences between those who had or had not participated in an internship and their perceptions toward their current position as shown in table 37.

Table 37. Differences between participation in internships and perceptions toward their current position

Scale	Group	Number	Mean	SD	t-value	p-value
Satisfaction with current position	Yes	237	3.7	.81	1.1	.25
	No	105	3.6	.77		

A t-test was also run to find any differences between participation in internships and the length of time to their first position. Table 38 indicates those who participated in internships took significantly less time to find their first position ($t=3.2$, $p < .05$).

Table 38. Difference between participation in internships and length of time to first position

Scale	Group	Number	Mean	SD	t-value	p-value
Length of time to first position	Yes	254	2.5	2.0	-3.2	.00
	No	115	3.4	2.5		

Chapter V

Summary/Conclusions/Recommendations

Summary

The purpose of this study was to assess the effectiveness of the CANR undergraduate programs as perceived by alumni and employers. Specifically, the objectives of this study were to:

1. Assess the perceptions of alumni toward the educational programs of the CANR, including courses taken and educational preparation.
2. Explore the opinions of the alumni about the quality of instruction received within the college.
3. Ascertain the opinions of alumni about their academic and career advising.
4. Determine whether the alumni found participation in extracurricular activities useful in relation to their current employment.
5. Identify employment information of graduates within the college.
6. Seek the opinions of employers about the graduates' preparation by the college and their career performance.
7. Find any difference between the alumni's perception toward their overall educational preparation and gender, internship participation, on-campus organization participation and year of graduation.
8. Identify any difference between the alumni and employers concerning the

alumni's preparation for work by the college.

9. Find any difference between participation in internships and the length of time graduates' took to their first position and their satisfaction with their current position.

The population of the study comprised of 3,400 CANR bachelor's degree graduates from summer semester 1993 through spring semester 1998 from all departments within the college. A stratified random sample of 1,269 graduates was used in the study and the strata were proportional to the size of the 12 academic departments within the college.

The instrumentation for the study was a mail questionnaire. Two questionnaires were designed -- one for the alumni and one for their employers. The instruments included both open-ended and closed questions. The researchers developed the instruments after a careful review of previous follow-up studies; most scalar questions included in the instrument were adapted from these studies. The validity of the instrument was established through a panel of experts and scale reliability was established through testing Chronbach's Alpha.

There were three mailings sent to the alumni. The first mailing was sent to all members of the sample and included a personalized cover letter, the questionnaires and return envelopes. A follow-up postcard thanking the respondents and asking those who had not responded to send in the questionnaire was sent out a week after the first mailing. The third and final mailing was sent out with a new cover letter to those who had not

responded three weeks after the initial mailing. There was frame error, as 156 of the packets were returned as undeliverable.

Altogether, 376 usable questionnaires were received from the alumni population, resulting in a response rate of 34 percent. The researchers recognize the need to have a higher response rate to be able to generalize findings to the population. However, early and late respondents were compared to determine if they differed significantly on selected variables under study, and no differences were observed.

All alumni included in the sample also received a second survey packet designed for their employers. They were requested to give the employer survey packet -- including a cover letter, questionnaire and pre-addressed stamped envelope -- to their respective supervisor. There were 85 employers who responded to the questionnaire.

The first objective of this study was to find the perceptions of the alumni toward their educational preparation. The respondents rated their required courses as "good" on a five-point scale from poor to excellent. The areas of basic sciences and basic social sciences were rated the highest, whereas the areas of computers, mathematics, economics, and arts and humanities were rated the lowest. The alumni rated the elective courses they took in relation to their career as "very good" on a five-point scale from poor to excellent. The majority of graduates "agreed" with statements relating to their education within the college. The highest rated items were that they were prepared to be problem solvers, to work easily with others and that their education was current in relation to issues within their specific fields. Respondents were also asked about their perception toward their

preparation for work by the college. The lowest rated areas were computer skills, mathematic skills and knowledge of career opportunities. The highest rated areas were working in teams and getting along with people. Overall, they rated their preparation by the college as “good” or “very good” on a five-point scale from poor to excellent. The alumni recommended improvement in the college for the areas of courses, computer knowledge, hands-on experiences, career information/preparation and instruction.

The second objective sought to find the perceptions of alumni toward the quality of instruction within the college. The highest rated area was the teachers’ knowledge of subject areas. The remaining categories of teaching skills, classroom discipline, helping students outside of the classroom, evaluation and grading of students’ work and classroom assignments were rated as “good” on a five-point scale from poor to excellent.

The third objective attempted to find the perceptions of alumni toward their academic and career advising. The majority of respondents “strongly agreed” on a five-point scale from strongly disagree to strongly agree, that their advisors were helpful in deciding on courses and that they were easily accessible to students. However, they indicated a need for improvement in the areas of helping them find their first position, preparing their resumes and assisting with interview skills. Less than half of the respondents indicated they used the services of the MSU Career Services and Placement Office. The respondents who had used the services of the placement office rated their overall assistance as “fair” or “good” on a five-point scale from poor to excellent. In an open-ended question, 31 respondents indicated their advising was helpful whereas 24

respondents indicated that advising needs improvement.

The fourth objective sought to find the perceptions of alumni toward extracurricular activities including internships, on-campus organizations/club/teams and overseas study programs. Almost 69 percent of the respondents had participated in an internship. The alumni indicated internships experiences were useful in terms of employment from a series of questions on a five-point Likert-type scale. In an open-ended question asking the alumni to give any recommendations toward internships, the majority indicated to make them a requirement. Over 70 percent of the respondents had participated in on campus organizations/club/teams and most “agreed” that their participation had a positive impact on their career preparation. Respondents were also asked to give overall recommendations concerning on-campus organizations, clubs or teams. By far, the most frequent answer was for current students to get involved or that involvement was a positive experience. About 16 percent of the alumni participated in an overseas study program. The most frequently identified program was in Australia/New Zealand.

The fifth objective sought to find employment information concerning graduates of the college. The majority of respondents took three months or less to find their first position. In addition, results of a t-test indicated that male respondents took significantly less time in finding their first position as compared to females. Most of the alumni currently are employed full-time and are in a position related to their educational preparation. The beginning salary for alumni was between \$10,000 and \$24, 999 while

they indicated their current salary as between \$25,000 and \$34, 999. The alumni were asked to rate their satisfaction with their current position and rated the challenge of their work, their overall working conditions and their overall job performance highly, yet indicated less satisfaction with their salary. Overall, they rated their satisfaction with their current position as “very good” on a five-point scale from poor to excellent.

The alumni were also asked questions concerning courses in relation to their career, assessment of career opportunities, their present position and what type of organization with which they are employed. Respondents indicated computer and general business as courses that could have been helpful with their career. Crops and soil science and horticulture courses were most frequently identified by alumni as courses that had been the most helpful with their career. The majority rated their assessment of career opportunities as “good” or “very good” on a five-point scale from poor to excellent. In addition, the alumni most frequently identified the area of project manager/office manager as their present position and government/political as the type of organization for which they work.

The sixth objective sought to find the employers perspectives toward the educational preparation of the alumni. In regard to the career performance of alumni, the employers rated them highly in terms of ethical attitude, getting along with people and working in teams. The lowest rated items were mathematic skills, computer skills and writing skills. Employers rated the alumni highly in terms of career performance including such areas as having adequate theoretical knowledge, practical knowledge, the

ability to follow directions, work independently, ask relevant questions, supervise subordinates, report to supervisors, work with other colleagues and overall job performance. They were also asked to indicate any courses that should have been emphasized in the curriculum of the college. Computer skills were the most frequently identified answer followed by communications and real world experiences. Similarly, when asked for suggestions for the college, in an open-ended question, employers indicated computers and internship/industry experiences the most frequently. The majority of employers indicated their assessment of job opportunities as excellent/very good/high.

The seventh objective sought to find any difference between gender, internship participation, on-campus organization/club/team participation, the year of graduation and their educational preparation. Results of a t-test indicated no significant differences between gender and their educational preparation. In addition, a t-test was run to find any difference between internship participation and their perceptions toward their educational preparation. Those who participated in internships were more favorable toward their advising and education within the college. Those who were involved in on-campus organizations, clubs or teams were more favorable toward their courses in the college, preparation for work, academic advising and their satisfaction with current positions as indicated by the results of a t-test. An ANOVA was computed to find any differences between the year of graduation and their educational preparation. Students who graduated in 1998 were more positive toward their educational preparation than those in the years of

1993 and 1994.

The eighth objective sought to find any difference between alumni and employers in terms of the alumni's preparation for work by the college. Results of a t-test indicated the employers are more positive toward their preparation by the college than the alumni are.

The ninth objective attempted to find any difference between participation in internships and the length of time graduates' took to find their first position and their perception toward their current position. A t-test indicated those who participated in an internship took significantly less time in finding their first position. No significant differences were found between participation in internships and their satisfaction with their current position.

Conclusions

Conclusions are limited to the CANR graduates from 1993 through 1998 and are based on findings from this study.

1. Assess the perceptions of alumni toward the educational programs of the CANR, including courses taken and educational preparation.

Questions were asked concerning the alumni's opinions toward required courses, elective courses and courses within the college. Findings indicated that the alumni viewed their required courses as average. They were more favorable toward basic sciences and social sciences however; they rated the areas of mathematics, mathematics and arts and humanities lower. The alumni were overall quite favorable toward their

elective courses.

The graduates viewed the courses within the college more positively than the required courses. They rated their education within the college very high in the areas of being problem solvers, working with others and that their education was current in relation to their field. However, they indicated the college needed improvements in courses, computers skills and the application of real world experiences or practical hands-on knowledge. Some specific skills that the graduates indicated needed improvement were computer skills, mathematic skills and knowledge of career opportunities.

2. Explore the opinions of the alumni about the quality of instruction received within the college.

Alumni were very satisfied with the overall quality of instruction in classes within the college. They rated the teachers' knowledge of subject areas the highest. However, they indicated a need to strengthen instructors' teaching skills, evaluation and grading skills, and classroom assignments.

3. Ascertain the opinions of alumni about their academic advising.

Academic advisors were rated highly in helping students decide on their courses and being easily accessible. However, the alumni saw the need for improvement in helping them find their first positions, in preparing their resumes and in helping with interviewing skills. Therefore, the alumni were favorable toward their academic advising yet indicated a need for improvement in career advising.

The MSU Career Services and Placement Office was only used by less than half of the respondents. Those who did go to the placement office for assistance in finding a

career used the services of job listings and on-campus interviews the most frequently. In addition, the alumni that indicated using the services of the placement office rated their assistance as “fair” or “good”.

4. Determine whether the alumni found participation in extracurricular activities useful in relation to their current employment.

Extracurricular activities were a very positive aspect of the graduates’ educational experience, and one they found useful in preparation for their employment. The majority of graduates had participated in an internship program and repeatedly suggested that other students to have similar experiences. In addition, they suggested that internship experiences were helpful in finding employment opportunities. Similarly, studies by O’Malley (1992) and Flores (1996) both indicated that alumni found internships as being extremely useful toward their career preparation.

The majority of alumni participated in on-campus organizations, clubs or teams and suggested involvement to current students. In addition, many students held leadership positions within the organization they were involved and most “agreed” that their participation had a positive impact on their career preparation. Likewise, a study by O’Malley (1992) indicated that Agriculture and Natural Resources Communications graduates within the college found on-campus organizations as being useful their career preparation.

The study abroad program is an emerging trend in the undergraduate program that has helped expose students to cross-cultural experiences. The majority of the students who participated in the study abroad program recommended the experience to other

students.

5. Identify employment information of graduates within the college.

Specific information was found concerning the graduates' employment at the time of graduation, the graduates' current employment, salary information and their opinions toward their current position. The alumni indicated they took less than three months to find their first position after graduation. Furthermore, the majority of respondents had no full-time job offers at the time of graduation.

In relation to their current employment, the majority of students were working full-time in occupations related to their education. The beginning salary range for the majority of the alumni was between \$10,000 and \$24,999 while their current salary range was between \$25,000 and \$34,999. The alumni rated their satisfaction with their current position between "good" and "very good". However, the lowest rated item was in the area of salary and these findings are similar to results of a study by Robson (1986) who assessed the Bachelor of Science alumni within the agricultural programs for a university in Nepal.

Alumni were also asked two questions concerning courses and their career. They indicated that more computer, general business and science type courses could have been helpful with their career. However, they also indicated crops and soil science, horticulture and general science courses as being the most helpful with their career.

The majority of alumni indicated they were in a position relating to management, sales or were self-employed. The majority identified the type of organization they worked

for as government, construction, automotive or landscape.

6. Seek the opinions of employers about the graduates' preparation by the college and their career performance.

The employers rated the alumni between “good” and “very good” in terms of the preparation by the college. The highest rated items were ethical attitude, getting along with people and working in teams. However, they found mathematics, computer and writing skills as areas needing improvement. These skills were also identified as areas needing improvement by graduates of the college. The employers also rated the alumni highly in terms of career performance. These findings are similar to a study by Robson (1986) who assessed the Bachelor of Science alumni within the agricultural programs for a university in Nepal employers rated the alumni high in terms of following instructions yet indicated a need for improvement in terms of practical knowledge and supervising subordinates.

Similar to the alumni, the employers found computer skills, internships, management and real-world experiences as areas that should have more emphasis in their curriculum. In addition, they were very positive toward the job opportunities for similar students in the next five years.

7. Find any difference between the alumni's perception toward their overall educational preparation and gender, internship participation, on-campus organization participation and the year of graduation.

Tests were run to find any significant differences between the alumni's perception toward the areas of required courses, education within the college, preparation for work by the college, quality of instruction, academic advising, internships and their satisfaction

their current position in terms of gender, internship participation, on-campus organization participation and year of graduation. No differences were found in the area of gender.

Those who were involved in internships were more favorable toward their advising. Also, those involved in on-campus organizations were more favorable toward the courses in the college, preparation for their careers, academic advising and their satisfaction with their current position. Students that graduated in 1998 were more favorable toward their educational preparation by the college than students in 1993 and 1994.

8. Identify any difference between the alumni and employers concerning the alumni's preparation for work by the college.

The same group of questions was asked to both alumni and employers in terms of the preparation by the college. The employers were more favorable toward the preparation by the college than the alumni. These findings are similar to a study conducted by Robson (1986) of alumni and employers from an agricultural college in Nepal where the employers rated the preparation by the college higher than the alumni.

9. Find any difference between participation in internships and the length of time graduate's took to their first position and their perception toward their current position.

Tests were run to find any significant differences in terms of participation in internship and the length of time to their first position and their perception toward their current position. There was a significant difference found in terms of whether or not they participated in an internship and the length of time to their first position. Those who participated in an internship took less time to find work. However, there was no difference in their opinions toward their current position.

Recommendations

In the area of educational preparation respondents indicated that they need more preparation in computer skills and knowledge of career opportunities. The area of computer skills was also viewed by employers as needing more emphasis within the preparation of students. Currently, the college does follow written standards for computer literacy in all majors within the college. However, the researcher suggests that computer skills could be increased by integrating a more technical computer emphasis in additional courses especially in relation to the students' specific field of study. In addition, knowledge of career opportunities could be increased through strengthening relationships between the faculty and industry by having faculty members attend workshops, conferences and career fairs.

Alumni indicated they were satisfied with their college courses yet felt there was a need for improvement within their general education courses. Recommendations are to maintain the quality of courses within the college and emphasize more real-world issues within the courses. Recommendations for general education classes include having more knowledgeable teaching assistants and smaller class sizes.

Overall, in terms of instruction the alumni were satisfied. However, the teachers could go through a series of training sessions to improve their overall teaching skills, they could be more current with issues in the industry and they could bring more real-world experiences to their classes.

In terms of academic and career advising the college could offer academic

advisors training on how to advise students, the advisors may be encouraged to visit prospective employers to get a better understanding of industry needs, the advisors could increase interviewing opportunities and job placement assistance, and follow-up with graduates of the college. In addition, a one-credit class could be offered to students focusing on career searching, resumes and interviewing skills. Finally, the college could improve their relationship with the MSU Career Placement and office.

Extracurricular activities were a very positive aspect of the graduates' educational experience, and one they found useful in preparation for their employment. Thus, the college should provide more support and guidance to student organizations. In terms of internships, they should be made a requirement for graduation. In addition, the study abroad program is an emerging trend in the undergraduate program that has helped expose students to cross-cultural experiences. The majority of the students who participated in the study abroad program recommended the experience to other students. Thus, colleges should encourage students to participate in study abroad programs and continue to create new programs.

In the area of employment, the college could give more assistance to students in terms of career preparation including salary information. In addition, the college could help increase students knowledge of career information.

The employers found mathematics, computer skills and writing skills as areas needing improvement. These skills were also identified as areas needing improvement by graduates of the college. The college has set standards in the areas of mathematics,

computer literacy and writing. However, curricular improvement efforts should take into account these expressed needs in increasing the emphasis of such areas in the curriculum of students. In addition, the employers indicated a need for an emphasis in the area of management throughout the courses and more support of internships or real world experiences. Therefore, the researcher recommends to emphasize management concepts in the curriculum and to support internship experiences.

Recommendations for Further Research

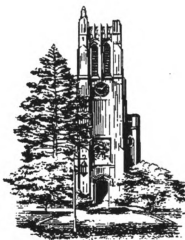
Some areas of further research may include:

1. A follow-up study of CANR graduates every five years.
2. A study of the same population in five to ten years to find any significant changes in their career and reassess the impact of their education.
3. A study of graduates who dropped out of the CANR focusing on their employment information and satisfaction with their career.

APPENDICES

Appendix A: Questionnaires

**Perceptions of
Michigan State University Alumni
Toward Their Undergraduate Education
in the
College of Agriculture and Natural Resources**



Please return your completed survey in the enclosed envelope to:

**THE DEPARTMENT OF AGRICULTURAL AND EXTENSION EDUCATION
MICHIGAN STATE UNIVERSITY
Agriculture Hall Room 409G
East Lansing, MI 48824
Att: Gwyn Heyboer**

QUESTIONNAIRE FOR MSU COLLEGE OF AGRICULTURE AND NATURAL RESOURCES ALUMNI

Directions: Please answer each question as accurately as possible. The questions can be completed by checking the appropriate answer, circling the item best describing your opinion, or by filling in a written answer. All answers will be kept strictly confidential. You will be asked questions in the areas of assessment of educational programs, quality of instruction, academic and career advising, extra-curricular activities, employment information, and demographics.

SECTION I: ASSESSMENT OF EDUCATIONAL PROGRAMS

1. In general, how would you rate your educational preparation received for your career from the following categories of classes:

	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>	<u>Does Not Apply</u>
A. Basic sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Math (including statistics)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Computer related classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Economics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Basic social sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Arts and Humanities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How would you rate the overall quality of elective courses you chose in relation to your career?

<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>	<u>Does Not Apply</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. What do you think needs the most improvement within the academic major you pursued in the College?
-
-

4. Please circle one response that reflects your opinion about each statement: (SD = Strongly Disagree, D = Disagree, N = Neither Agree or Disagree, A = Agree, SA = Strongly Agree, NA = Not Applicable)

My education within the College at MSU:

A. Relates to my present job	SD	D	N	A	SA	NA
B. Was current in relation to issues within my field	SD	D	N	A	SA	NA
C. Prepared me to be a problem solver when faced with new situations	SD	D	N	A	SA	NA
D. Prepared me to work easily with others	SD	D	N	A	SA	NA
E. Prepared me to be a leader	SD	D	N	A	SA	NA
F. Taught me skills for my present job	SD	D	N	A	SA	NA
G. Taught me the importance of being motivated	SD	D	N	A	SA	NA

5. How well did your College program prepare you in each of the following aspects of work:

	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>
A. Writing skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Oral communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Math skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Computer skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Technical knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Getting along with people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Working in teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Knowledge of career opportunities in your field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Ethical standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. What is your overall satisfaction with your educational preparation from the College?

<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION II: QUALITY OF INSTRUCTION

1. In general, how would you rate the following areas concerning the quality of instruction throughout the College:

	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>
A. Teacher's knowledge of subject areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Teaching skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Classroom discipline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Helping students outside the classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Evaluation and grading of student's work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Classroom assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION III: ACADEMIC AND CAREER ADVISING

Please circle one response that reflects your opinion about each statement: (SD = Strongly Disagree, D = Disagree, A = Agree, N = Neither Agree or Disagree, SA = Strongly Agree, NA = Not Applicable)

1. My academic advisor:

A. Helped me find my first position	SD	D	N	A	SA	NA
B. Helped me decide the courses to pursue	SD	D	N	A	SA	NA
C. Helped me prepare my resume	SD	D	N	A	SA	NA
D. Helped me with interviewing skills	SD	D	N	A	SA	NA
E. Was easily accessible	SD	D	N	A	SA	NA

2. Did you use the services offered by MSU Career Services and Placement when looking for a career?

☐ Yes ☐ No, go to question 3

A. What services did you use (please check all that apply):

☐ Career advising ☐ Job listings ☐ Resume critique
☐ On-campus interviews ☐ Other _____

B. How would you rate the overall assistance you received:

Poor Fair Good Very Good Excellent
☐ ☐ ☐ ☐ ☐

3. Do you have any other comments related to academic or career advising?

SECTION IV: EXTRA-CURRICULAR ACTIVITIES

1. Did you participate in an internship? ☐ Yes ☐ No, go to question 2

A. Who assisted you with finding an internship?

☐ Academic advisor ☐ Self
☐ Faculty ☐ Other, please specify _____

Please circle one response that reflects your opinion about each statement: (SD = Strongly Disagree, D = Disagree, A = Agree, N = Neither Agree or Disagree, SA = Strongly Agree, NA = Not Applicable)

B. Your internship:

A. Was useful in preparing you for your first position	SD	D	N	A	SA	NA
B. Helped you with deciding on your first position	SD	D	N	A	SA	NA
C. Helped you become more attractive to employers	SD	D	N	A	SA	NA
D. Was a waste of your time	SD	D	N	A	SA	NA

C. What recommendations would you make about internships?

2. Were you involved in any on campus student organizations, clubs or teams?

☐ Yes ☐ No, go to question 3

A. Please list organizations, clubs or teams _____

B. Did you hold any leadership position(s)?

☐ Yes ☐ No

Please circle one response that reflects your opinion about each statement: (SD = Strongly Disagree, D = Disagree, Neutral = Neither Agree or Disagree, A = Agree, SA = Strongly Agree, NA = Not Applicable)

C. Involvement in organizations, clubs and teams had a positive impact on your career preparation?

SD D N A SA NA

D. What overall recommendations would you make to current MSU students about involvement in student organizations?

3. Did you participate in an overseas study program? ☐ Yes ☐ No

A. If yes, which program to you participate in? _____

B. Would you recommend overseas study program experiences to other College students?

☐ Yes ☐ No

SECTION V: EMPLOYMENT INFORMATION

1. How long after graduation did you begin a position related to your undergraduate degree?

☐ less than 1 month ☐ 6 to 12 months ☐ Never
☐ 1 to 3 months ☐ 12 to 24 months ☐ Not employed
☐ 3 to 6 months ☐ More than 24 months

2. What is the nature of your present, primary employment? Please check all that apply.

☐ Full-time ☐ Self-Employed
☐ Part-time ☐ Unemployed

3. How many full time offers did you have at the time of your graduation?

☐ One ☐ Three ☐ None
☐ Two ☐ Four or more

4. What was the starting annual salary of the position you took upon graduation?

- ☐ \$0-10,000 ☐ \$25,000-34,999 ☐ \$45,000-54,999 ☐ More than \$65,000
☐ \$10,001-24,999 ☐ \$35,000-44,999 ☐ \$55,000-64,999

5. What is your current annual salary?

- ☐ \$0-10,000 ☐ \$25,000-34,999 ☐ \$45,000-54,999 ☐ More than \$65,000
☐ \$10,001-24,999 ☐ \$35,000-44,999 ☐ \$55,000-64,999

6. Please rate your satisfaction with your current position in terms of each of the following areas:

	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>	<u>Don't Know</u>
A. Challenging work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Opportunities for advancement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Overall working conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Salary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Your own job performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. What is your overall satisfaction with your present position?

- Poor Fair Good Very Good Excellent
☐ ☐ ☐ ☐ ☐

8. Please list the course(s) you DID NOT take but could have helped you with your career.

9. Please list the courses you took at MSU that have been the MOST VALUABLE in your career.

10. Which of the following statements best describes your present position:

- ☐ Employed in the occupation which I prepared for at MSU
☐ Employed in an occupation not related to my preparation at MSU
☐ Not employed

11. What is your assessment of career opportunities for new College graduates with your major(s) over the next five years?

- Poor Fair Good Very Good Excellent
☐ ☐ ☐ ☐ ☐

12. What is your present position?

13. In general, please explain what type of organization you work for?

SECTION VI: DEMOGRAPHICS

1. Sex ☐ Male ☐ Female

2. What year were you born? _____

3. What year did you graduate from MSU? ☐ 1993 ☐ 1994 ☐ 1995 ☐ 1996 ☐ 1997 ☐ 1998

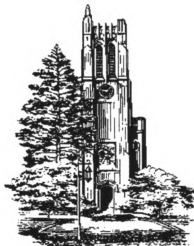
4. What was your major? Also, please list any dual majors, emphasis areas, or specializations.

Looking back on your overall experiences at MSU, is there anything you could have learned or known that would have helped you after graduation?

Please use the space below to share any other thoughts you may have to assist in the improvement of the College undergraduate programs.

Thank you for completing this questionnaire!

**Employers Perceptions of
Michigan State University Alumni
from the
College of Agriculture and Natural Resources**



Please return your completed survey in the enclosed envelope to:

**THE DEPARTMENT OF AGRICULTURAL AND EXTENSION EDUCATION
MICHIGAN STATE UNIVERSITY
Agriculture Hall Room 409G
East Lansing, MI 48824
Att: Gwyn Heyboer**

EMPLOYER/SUPERVISOR QUESTIONNAIRE

Directions: Please answer each question as accurately as possible. The questions can be completed by checking the appropriate answer, circling the item best describing your opinion, or by filling in a written answer. All answers will be kept strictly confidential.

- 1. In general, please explain what type of organization you work for?**

- 2. How well do the College of Agriculture and Natural Resources programs prepare graduates you hire in each of the following aspects of work?**

	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>
A. Writing skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Oral communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Math skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Computer skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Technical knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Getting along with people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Working in teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Knowledge of career opportunities in your field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Ethical attitude	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- 3. How would you rate College of Agricultural and Natural Resources graduates in terms of the following items relating to career performance?**

	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>
A. Theoretical knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Practical knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Ability to follow instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Ability to work independently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Ability to ask relevant questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Ability to supervise subordinates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Reporting to supervisors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Ability to work with other colleagues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Overall job performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Based on your experiences supervising the work of College of Agricultural and Natural Resources graduates, are there any specific courses/topics you think should have been emphasized in their curricula?

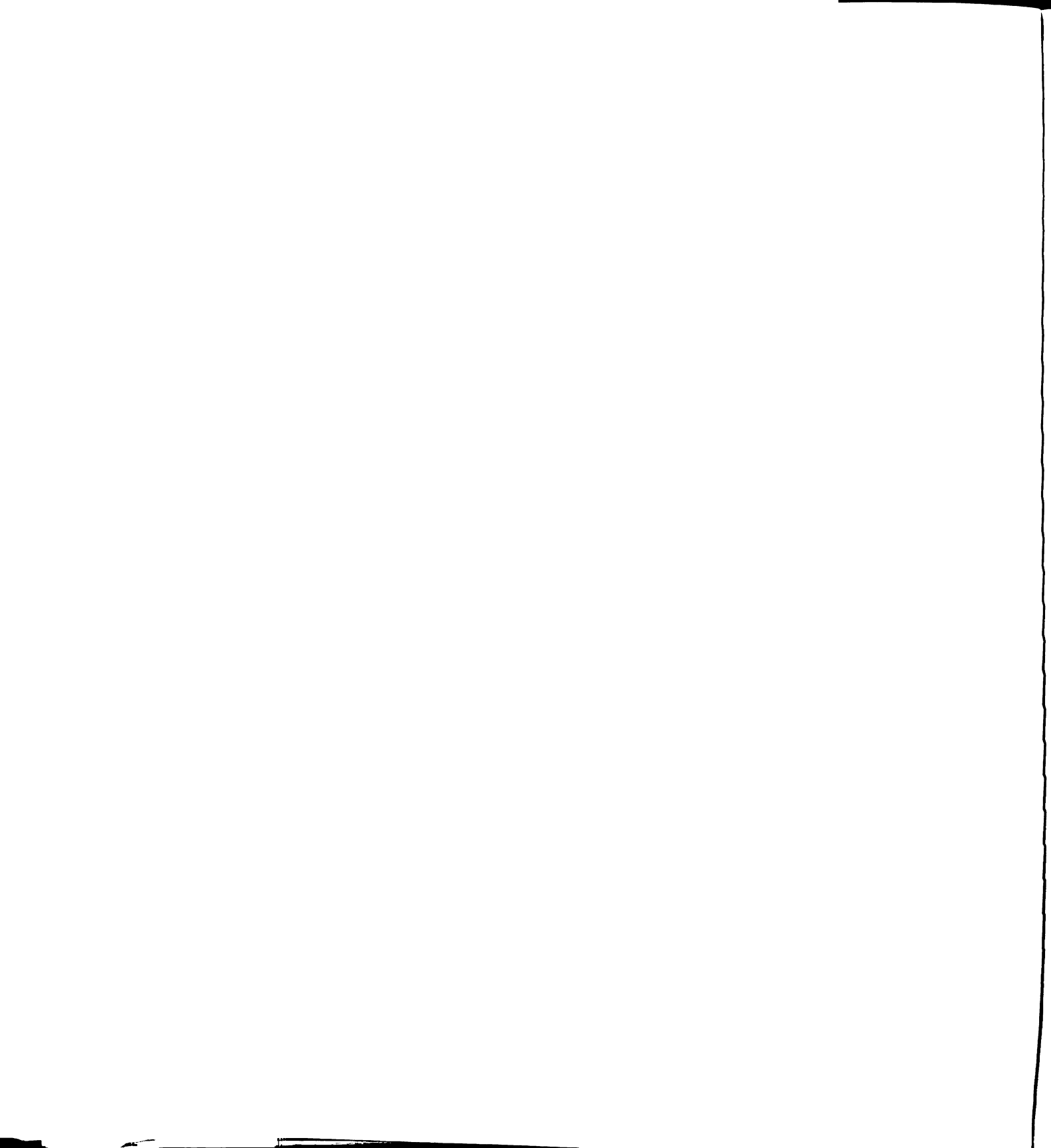
5. What is your assessment of the job opportunities for new graduates, with a degree in a similar discipline as the one you employ, over the next five years? _____

6. Do you have any suggestions for the College of Agricultural and Natural Resources that should be considered over the next five years? _____

Please use the space below to share any other thoughts you may have to assist in the improvement of the College of Agricultural and Natural Resources undergraduate programs.

Thank you for completing this questionnaire!

Appendix B: Cover Letters, Postcard and Incentive



March 31, 1999

(first name) (last name)
(street address)
(city), (state) (zip)

Dear (salutation):

The College of Agriculture and Natural Resources at Michigan State University is conducting a survey of recent graduates from within all majors of the College to find their perceptions of their undergraduate education. The input we receive from you will be extremely valuable to the College in evaluating the effectiveness of our undergraduate programs. With your feedback, the appropriate changes and recommendations may be made to improve our programs.

Enclosed you will find a survey, along with an addressed stamped envelope, for you to fill out and return. Please complete the questionnaire and return it by April 23, 1999. Additionally, you will find a second questionnaire, with another addressed stamped envelope, for you to give to your employer or supervisor. Your participation in this survey is completely voluntary and you may choose to answer all of the questions, to answer some of the questions, or not to participate.

Your responses will remain completely confidential. The return envelope has an identification number that will enable us to check your name off the mailing list when the questionnaire is returned. The envelope will then be discarded. Your name will never be placed on the answer sheet or the questionnaire. In order to maintain your confidentiality, please do not write your name or return address on the survey. If you have any questions about the confidentiality or voluntariness of the survey you may contact Dr. David Wright at Michigan State University's Office of Research and Graduate Studies at (517) 355-2180. If you are interested in receiving a summary of the results, please call (517) 355-6580 ext. 210 or email heyboerg@pilot.msu.edu.

Additionally, five Michigan State University sweatshirts and bumper stickers will be given away to randomly selected respondents who return their questionnaire by April 23, 1999. To be eligible, fill out the enclosed form and mail it back with your completed questionnaire. Your name on the form will not be associated with your questionnaire.

Your participation is crucial, as the results of this study are very important to future students within our College. We appreciate your involvement in this study, and urge you to fill out the questionnaire and return it by April 23, 1999.

Sincerely,

R. Brandenburg, Ph.D.
Associate Dean
College of Agriculture and Natural Resources
Education

Gwyn Heyboer
Research Assistant
Department of Agricultural & Extension

March 31, 1999

Dear Employer:

The College of Agriculture and Natural Resources at Michigan State University is conducting a survey of recent graduates from within all majors of the College to find their perceptions of their undergraduate education. The input we receive will be extremely valuable to the College in evaluating the effectiveness of our undergraduate programs. We have asked the graduate to give this questionnaire to you, so we may gain information from employers about our graduates. With your feedback, the appropriate changes and recommendations may be made to improve our programs.

Enclosed you will find a survey, along with an addressed stamped envelope, for you to fill out and return. Please complete the questionnaire and return by May 15, 1999. Your participation in this survey is completely voluntary and you may choose to answer all of the questions, to answer some of the questions, or not to participate. Your feedback will not be linked to that of your employee in any manner.

You may be assured that your response will remain completely confidential. Your name will never be placed on the answer sheet or the questionnaire. In order to maintain your confidentiality, please do not write your name or return address on the survey. If you have any questions about the confidentiality or voluntariness of the survey you may contact Dr. David Wright at Michigan State University's Office of Research and Graduate Studies at (517) 355-2180. If you are interested in receiving a summary of the results, please call (517) 355-6580 ext. 210 or email heyboerg@pilot.msu.edu.

Your participation is crucial as the results of this study are very important to future students within our College. We appreciate your involvement in this study, and urge you to fill out the questionnaire and return it by May 15, 1999.

Sincerely,

Gwyn Heyboer
Research Assistant
College of Agriculture and Natural Resources

April 27, 1999

Dear Alumni:

About three weeks ago, we wrote you seeking your opinions about the Michigan State University College of Agriculture and Natural Resources undergraduate programs. The input we receive from you will be extremely valuable to the College in evaluating the effectiveness of our undergraduate programs and thus, the appropriate changes and recommendations may be made for improvement.

As of today, we have not received your completed questionnaire. We realize you may not have had time to complete it, however we would genuinely appreciate hearing from you. In order for information from the study to be truly representative of graduates opinions, it is essential that each person in the sample return his/her questionnaire.

In the event that your questionnaire has been misplaced, a replacement is enclosed. Please complete the questionnaire and return by May 15, 1999. Additionally, you will find a second questionnaire, with another return envelope, for you to give to your employer. Your participation in this survey is completely voluntary and you may choose to answer all of the questions, to answer some of the questions, or not to participate.

Your response will remain completely confidential. The questionnaire has an identification number that will enable us to check your name off the mailing list upon return. Your name will never be placed on the questionnaire. In order to maintain your confidentiality, please do not write your name or return address on the questionnaire. If you have any questions about the confidentiality or voluntariness of the survey you may contact Dr. David Wright at Michigan State University's Office of Research and Graduate Studies at (517) 355-2180. If you are interested in receiving a summary of the results, please call (517) 355-6580 ext. 210 or email heyboerg@pilot.msu.edu.

Additionally, five Michigan State University Big Ten Champion sweatshirts and five Michigan State University alumni bumper stickers will be given away to randomly selected respondents who fill out the enclosed form and mail it back with the completed questionnaire. Your name on the form will not be associated with your questionnaire.

Your participation is crucial, as the results of this study are very important to future students within our College. We appreciate your involvement in this study, and urge you to fill out the questionnaire and return it immediately.

Sincerely,

Gwyn Heyboer
Research Assistant
College of Agriculture and Natural Resources

April 27, 1999

Dear Employer:

The College of Agriculture and Natural Resources at Michigan State University is conducting a survey of recent graduates from within all majors of the College to find their perceptions of their undergraduate education. The input we receive will be extremely valuable to the College in evaluating the effectiveness of our undergraduate programs. We have asked the graduate to give this questionnaire to you, so we may gain information from employers about our graduates. With your feedback, the appropriate changes and recommendations may be made to improve our programs.

Enclosed you will find a survey, along with an addressed stamped envelope, for you to fill out and return. Please complete the questionnaire and return by May 15, 1999. Your participation in this survey is completely voluntary and you may choose to answer all of the questions, to answer some of the questions, or not to participate. Your feedback will not be linked to that of your employee in any manner.

You may be assured that your response will remain completely confidential. Your name will never be placed on the answer sheet or the questionnaire. In order to maintain your confidentiality, please do not write your name or return address on the survey. If you have any questions about the confidentiality or voluntariness of the survey you may contact Dr. David Wright at Michigan State University's Office of Research and Graduate Studies at (517) 355-2180. If you are interested in receiving a summary of the results, please call (517) 355-6580 ext. 210 or email heyboerg@pilot.msu.edu.

Your participation is crucial as the results of this study are very important to future students within our College. We appreciate your involvement in this study, and urge you to fill out the questionnaire and return it by May 15, 1999.

Sincerely,

Gwyn Heyboer
Research Assistant
College of Agriculture and Natural Resources

Dear Survey Participant:

Last week, a questionnaire seeking your opinions about the Michigan State University College of Agricultural and Natural Resources undergraduate programs was mailed to you. Your name was drawn from a list of graduates from within the College between the semesters of the summer of 1993 through the spring of 1998.

If you have already returned the questionnaire to us, please accept our sincere thanks. If not, please do so today. We are especially grateful for your help because we believe your response will be very useful in the improvement of our undergraduate programs. If you did not receive a questionnaire, or if it was misplaced, you will receive another one in the next two weeks.

Sincerely,

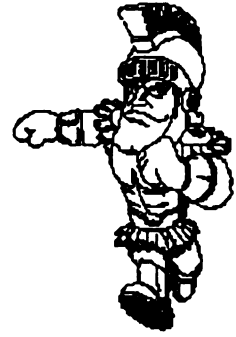
**Gwyn Heyboer
Research Assistant, College of Agriculture and Natural Resources**

Sweatshirt & Bumper Sticker Form

Name _____

Address _____

Size ☐ SM ☐ MD ☐ LG ☐ XL ☐ XXL



Sweatshirt & Bumper Sticker Form

Name _____

Address _____

Size ☐ SM ☐ MD ☐ LG ☐ XL ☐ XXL



Sweatshirt & Bumper Sticker Form

Name _____

Address _____

Size ☐ SM ☐ MD ☐ LG ☐ XL ☐ XXL



Sweatshirt & Bumper Sticker Form

Name _____

Address _____

Size ☐ SM ☐ MD ☐ LG ☐ XL ☐ XXL



Appendix C: Additional Tables

Appendix Table 1. On-Campus Organizations, Clubs or Teams

Organization/Club/Team	Frequency
Fraternity/sorority	81
Sports Team	37
IM Sports	23
Horticulture Club	22
Block & Bridle	19
Student Senate	18
Institute of Packaging Professionals	17
Spartan Ag Leaders	16
National Agri-marketing Association/Agricultural Communicators of Tomorrow	15
Judging Team	15
Fisheries and Wildlife Club	14
Agriculture Education Club	13
Dairy Club	13
Agronomy Club	11
Turfgrass Club	11
Forestry	11
Equestrian Team	8
Food Marketing Association	8
Student Builders Association	7
University church organization	7
Food Science Club	7
Park and Recreation Club	7
Resource Development Undergraduate Organization	7
Student Government	6
FFA	5
Rodeo Club	4
Pre-Vet Club	4
Other	3
MANRA	3
Minority organization	3
Society of American Foresters	3
Band	3
SAF	3

Minorities in Business	2
MSU Student Food Bank	2
Academic Quadrathlon	2
Society of Women Engineers	2
Student Environment Action Coalition	2
UCA Communications	1
Women Builders	1
IFC	1
National Association of Women in Construction	1
Minorities in Business	1
SCF	1
Young Republicans	1
MSU Adventure Club	1
International Association of Culinary Arts	1
SCA	1
Political Science Club	1
ASAE	1
FSC	1
ALCA Horticulture Club	1
Environmental Conservation Organization	1
Academic Competition Club	1
Women in Packaging	1
APASO	1
PASS	1
IFC	1
NAISO	1
SEEE	1
AFROTC	1
AWMA	1

Appendix Table 2. Overseas Study Programs

Country	Frequency
Australia/New Zealand	16
England/Ireland/Scotland	6
Brazil	5
Bahamas	4

Nepal	2
Costa Rica	2
Hawaii	2
International Food Laws – Europe	2
Netherlands	2
Semester - England/London	2
Virgin Islands	1
Mexico	1
Semester in Ireland	1
Semester in Mexico	1
Semester – Ireland	1
Sweden	1
Ireland	1
Packaging in Japan	1
ITESM Mexico	1
Political Science – Australia	1
Spanish instruction – Mexico	1
Food/Agriculture/Environmental Systems –Poland	1
Natural Science – Canadian Rockies	1
Environmental Management Planning – France, Belgium, Netherlands	1
Lancaster University – England	1

Appendix Table 3. Courses that could have been helpful with their career

Courses	Frequency
Computer	57
General Business	43
Science	35
Crop and Soil Science	34
Mathematics/Statistics	25
Management	24
Marketing/Sales	23
Accounting/Finance	22
Animal Science	21
Horticulture	18
Communication/Journalism/Advertising	16
Forestry	15
Chemistry	13
Packaging	11

Engineering	9
Language	9
Oral communication	9
Fisheries and Wildlife	8
Parks and Recreation	7
GIS	6
Food Science and Human Nutrition	5
Agricultural Economics	4
Writing	4
Psychology	4
Law	4
Agricultural Engineering	3
Economics	3
Small engines	3
Political Science	2
Surveying	2
CAD	2
ISS/IAH (social science)	2
Government classes	2
Teaching/education	2
Resource Development	1
Career skills	1
Internship	1
Culinary courses	1
Other	17

Appendix Table 4. Courses that had been the most helpful in relation to their career

Type of Course	Frequency
Crop and Soil Science	83
Horticulture	69
Science	53
Animal Science	50
Fisheries and Wildlife	38
Forestry	38
Agriculture and Extension Education	28
Agricultural Economics	28
Communication/Journalism/Advertising	27
Agricultural Engineering	27
Mathematics/Statistics	26

Packaging	22
Resource Development	22
Chemistry	22
Parks and Recreation	18
Economics	18
Food Science and Human Nutrition	14
Accounting/Finance	13
Computer	12
IAH/ISS	12
Marketing/Sales	12
Writing course	10
Management	9
Law	8
Internship	7
Oral communication	7
General Business	6
All classes	6
ANR 489	6
Teaching	5
Overseas	4
CANR courses	4
Leadership/teamwork	4
Agriculture classes general	4
Engineering	3
Language	3
Psychology	2
Career planning	2
Government/Public Policy	2
Other	2
GIS	1

Appendix Table 5. Present position of alumni

Position	Frequency
Sales	26
Project manager/Office manager	23
Graduate assistant	14
Own business	20
Engineer	19
Teacher	17

Golf course superintendent	15
Regional representative/Service representative	14
Management	13
Farming	12
Research	9
Self employed	8
Veterinarian Technician	8
Biologist/scientist	8
Lab technician	8
Real estate	7
Supervisor	7
Veterinarian/Veterinary student	7
Restaurant/Food service	6
General labor	5
Consultant	5
Analyst	5
Computer	5
Grain/Marketing	4
Office coordinator	4
Forester	4
Landscape designer	4
Extension	3
Advertising/PR	3
Technologist	3
Homemaker	3
Project coordinator	3
Editor	2
Insurance	2
Politics	2
Building inspector	2
Banking	2
Retail	2
Youth	2
Naturalist	2
Foreman	2
Horticulturist	2
Buyer/purchasing	2
Packaging specialist	2
Recreational director	2
Account Executive	2

Communication	1
Estimator	1
Nursing	1
Underwriter	1
Pesticide applicator	1
Educational administration	1
Administrative	1
Zookeeper	1
Builder	1
Conservationist	1
Agronomist	1
Construction	1
Photography	1
Park Ranger	1
Recruiter	1
Corrections officer	1
General education	1
Plant Health Care Specialist	1
University - arborist	1
Forest Fire Officer	1
Environmental specialist	1
Gardner	1
Professional golfer	1
Training specialist	1
Dentist	1
Parks and Recreation Director	1
Park Aid	1
Recreational therapist	1
Hospital	1
Archeologist	1
Travel agent	1
Park Ranger	1
National Advisor	1
Investigator	1
Program assistant	1
Environmental Planner	1
Policy assistant	1
Special Agent (government)	1
Other	1

Appendix Table 6. Type of organization as identified by alumni

Type of organization	Frequency
Government/Political	31
Home/builder/development/construction	17
Automotive	16
Landscape	16
Farming (livestock/grain producers)	13
University	13
High school	12
Computer services	10
Horticulture/garden/floral/greenhouse	10
Gold courses	9
Environmental	9
Hospital/medical/health care	8
Resort/country club	8
Insurance	7
Research company	7
Real estate	7
Veterinary services	7
Food manufacturer	6
Utility company/services	6
Restaurant	6
Pharmaceutical company	6
Chemical/fertilizer	5
Advertising/public relations	5
Non-profit	5
General retail	5
Farm/Agricultural service organization	4
Equipment manufacturer/machinery	4
Agricultural natural resources product (ie lumber)	4
Food distributor	4
Food processing	4
Packaging manufacturer	4
Consulting	4
Michigan State University Extension	3
Life science company	3
Bank	3
Product development/manufacturer	3
Forestry	3

Grain	2
Agricultural company	2
Supplier (materials)	2
Social service	2
Retail food	2
Agricultural retail	2
Animal health company	2
Consulting	2
Travel services	2
Newspaper/magazine	2
Youth/Adult programs	2
Retail	1
Crop consulting	1
Marine	1
Zoo	1
Moving company	1
Biotechnology/Plant breeding	1
Research lab	1
Placement agency	1
Education	1
Own business	1
Mail services	1
Retirement center	1
Park	1
Animal caretaker	1
Marketing	1
Distributor	1

Appendix Table 7. Type of organization as identified by employers

Type of organization	Frequency
Home/builder/development/construction	8
Golf courses	7
Government/Political	7
Landscape	6
High school	5
Insurance	5
University	5
Automotive	4
Environmental	4

Food manufacturer	4
Michigan State University Extension	3
Resort/country club	3
Chemical/fertilizer	2
Computer services	2
Consulting	2
Farm/Agricultural service organization	2
Farming (livestock/grain producers)	2
Veterinary services	2
Business	2
Advertising/public relations	1
Agricultural natural resources product (ie lumber)	1
Bank	1
Biotechnology/Plant breeding	1
Crop consulting	1
Marine	1
Moving company	1
Non-profit	1
Own business	1
Packaging manufacturer	1
Pharmaceutical company	1
Research company	1
Social service	1
Youth/Adult programs	1
Zoo	1
Music	1

Appendix Table 8. Courses/topics that should have been emphasized in
program (employers)

Courses/topics	Frequency
Computers	15
Communication/interpersonal	7
Real world/practical hands- on experience	7
Oral communication	6
Writing	6
Business	5
Management	4

Organization (lives)	3
Science/biology	3
Evaluation/research	2
Teamwork	2
Conflict resolution/negotiations	2
Statistics	2
Journalism	1
Reading	1
Public relations	1
Land use	1
Youth	1
Language	1
Stress management	1
Extension	1
Landscape	1
Building construction management	1
Mathematics	1
Chemistry	1
Agricultural science	1
Sales/marketing	1
Plants	1
Environmental	1
Economics	1
Minor field	1
Community	1
Interviews/resume	1
Work ethic	1
Grammar	1
Time management	1

Appendix Table 9. Suggestions for the college over the next five years

Suggestions	Frequency
More computer emphasis/courses	9
More internship experiences/industry experience	9
More management courses	4
Increase hands-on real world experience	4

More specific in area of study	4
More teamwork	3
Improve student/employer relations	2
More business emphasis	2
More interpersonal skills/communication	2
Improve writing skills	2
Other	2
More youth programming	1
More language courses	1
Other	1
Limit the number of students in major	1
More international experiences	1
Improve courses	1
More surveys	1
Improve oral communication skills	1
Graduates need to be able to work independently	1
Expectations of graduates are too high	1
More job placement	1
Keep education current within field	1
More leadership courses	1
More theory based emphasis	1
Doing good/excellent preparation	1

Appendix Table 10. Additional comments by employers

Suggestion	Frequency
More hands-on/field work	4
Graduates think they are going to make "big money" and don't	3
Very good school	3
Improve major	3
Improve advising	2
Improve courses	2
More people skills/communications	2
Internships are good experiences	2
Improve job placement	2
Graduates have the ability to pursue jobs in other non-agricultural fields	1
Graduates are not willing to work hard	1

Good work ethic of graduates	1
Increase networking opportunities for graduates	1
Graduates keep leaving company after a couple of years	1
More management skills	1
Other	10

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