DOCUMENT RESUME

ED 275 911 CE 045 534

AUTHOR Shelhamer, Van C.; Latham, Lynne Richie
TITLE Impact of Vocational Agriculture Training on the Continued Learning Patterns of Former Montana Vocational Agriculture Students.
INSTITUTION Montana State Univ., Bozeman. Dept. of Agricultural and Industrial Education.
SPONS AGENCY Montana State Office of Public Instruction, Helena. Dept. of Vocational Education Services.
PUB DATE Aug 86
NOTE 67p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Agricultural Education; *Educational Attitudes; Graduate Surveys; High School Graduates; *Outcomes of Education; Postsecondary Education; *Program Attitudes; Program Effectiveness; Secondary Education; *Student Attitudes; *Vocational Education; Vocational Followup
IDENTIFIERS *Montana

ABSTRACT

This study determined the impact of vocational agriculture training on the continued learning patterns of former Montana vocational agriculture students who graduated from high school between 1980 and 1985. Data for the study were gathered through the use of mailed questionnaires sent to a sample of 500 former students, with a return of 281 usable questionnaires. Information from the returned questionnaires was coded, entered on a data disk using "WordStar" and statistically analyzed with the use of "MSU STAT" (Montana State University Statistical Package). Based on the results of this study, it was concluded that vocational agriculture training did have an impact on the continued learning patterns of former Montana students. Students felt that vocational agriculture experiences influenced their decision about postsecondary education greatly or to some extent. Most students did attend a postsecondary educational institution after high school graduation, and felt that vocational agriculture influenced their selection of a major. They also indicated that vocational agriculture greatly or to some extent prepared them for college. Students who attended a postsecondary educational institution after high school graduation more frequently participated in other knowledge-gaining activities than did students who did not attend a postsecondary educational institution. (Author/KC)

# IMPACT OF VOCATIONAL AGRICULTURE TRAINING ON THE CONTINUED LEARNING PATTERNS OF FORMER MONTANA VOCATIONAL AGRICULTURE STUDENTS

by

Van C. Shelhamer
and
Lynne Richie Latham

A Staff Study

Funded by
Department of Vocational Education Services
Office of Public Instruction
Helena, Montana 59601



Department of Agricultural & Industrial Education
MONTANA STATE UNIVERSITY
Bozeman, Montana

August 1986

# TABLE OF CONTENTS


| | Page |
|---|---|
| TABLE OF CONTENTS | ii |
| LIST OF TABLES | iv |
| ABSTRACT | vi |
| CHAPTER I: THE PROBLEM AND ITS SETTING | 1 |
| Statement of the Problem | 3 |
| Objectives | 3 |
| Need for the Study | 4 |
| Definitions | 6 |
| Limitations | 6 |
| Assumptions | 6 |
| CHAPTER II: REVIEW OF RELATED LITERATURE | 8 |
| Follow-up Studies of the Past | 9 |
| Change in Philosophy | 9 |
| Need for Further Education | 10 |
| Educational Trends | 10 |
| Preparation for Further Education | 11 |
| Follow-up of Advanced Training and Education | 11 |
| CHAPTER III: METHODOLOGY | 12 |
| Population and Sample | 12 |
| Instrument Design | 13 |
| Analysis | 15 |
| CHAPTER IV: RESULTS AND ANALYSIS | 16 |
| Demographic Data | 16 |
| Post-Secondary Educational Activities | 20 |
| Continued Learning Activities | 28 |
| CHAPTER V: CONCLUSIONS AND RECOMMENDATIONS | 34 |
| Conclusions | 34 |
| Recommendations | 36 |
| Summary | 36 |

TABLE OF CONTENTS--continued


| | Page |
|---|---|
| REFERENCES CITED | 38 |
| APPENDICES | 41 |
| Appendix A: Questionnaire | 42 |
| Appendix B: Cover Letter to Former Vo-Ag Students | 46 |
| Appendix C: Follow-up Postcard to Former Vo-Ag Students | 48 |
| Appendix D: Follow-up Letter to Former Vo-Ag Students | 50 |
| Appendix E: Written Responses to Questionnaire Questions | 52 |

## LIST OF TABLES


| Tables | | Page |
|---|---|---|
| 1. | Response to Questionnaire | 17 |
| 2. | Years of Vocational Agriculture Completed by Respondents | 17 |
| 3. | Year Respondents Graduated from High School | 18 |
| 4. | Reported Occupational Status of 1980-1985 Graduates | 19 |
| 5. | Attendance at a Post-Secondary Educational Institution by 1980-1985 Graduates | 19 |
| 6. | Extent Vocational Agriculture Experience Influenced Decision About Post-Secondary Education | 20 |
| 7. | Length of Attendance at Post-Secondary Institution | 21 |
| 8. | Completion of Curriculum for Major Course of Study by 1980-1985 Graduates | 22 |
| 9. | Advanced Degrees Pursued by 1980-1985 Graduates | 23 |
| 10. | Change of Majors While Attending Post-Secondary School | 23 |
| 11. | Frequency of Major Changes | 24 |
| 12. | Prior Major Area of Study by Those Who Changed Majors | 24 |
| 13. | Graduates Majoring in Agriculture | 24 |
| 14. | Extent Vocational Agriculture Experience Influenced Selection of Most Recent Major Area of Study | 25 |
| 15. | Extent Vocational Agriculture Training Prepared Students for College | 26 |
| 16. | Self-Reported Post-Secondary Grades | 27 |

LIST OF TABLES--continued


| Tables | | Page |
|---|---|---|
| 17. | Self-Reported Cumulative Grade Point Average..... | 27 |
| 18. | Attendance at Educational Activities Not Part of a College Curriculum..... | 28 |
| 19. | Frequency of Attendance at Educational Activities Not Part of a College Curriculum..... | 29 |
| 20. | Type of Non-College Curriculum Educational Activity Attended..... | 30 |
| 21. | Extent Vocational Agriculture Experience Influenced Decision to Attend Educational Activities Not Part of a College Curriculum..... | 30 |
| 22. | Membership in Organizations..... | 31 |
| 23. | Organization Members Which Hold Offices..... | 31 |
| 24. | Extent Vocational Agriculture Experience Influenced Decision to Participate in Organization..... | 32 |
| 25. | Subscription to Knowledge-Gaining Publications..... | 33 |
| 26. | Participation in Other Knowledge-Gaining Activities..... | 33 |

## ABSTRACT

This study determined the impact of vocational agriculture training on the continued learning patterns of former Montana vocational agriculture students who graduated from high school in 1980 through 1985. Data for the study were gathered through the use of mailed questionnaires sent to a sample of 500 former students. Information from the returned questionnaires was coded, entered on a data disk using "WORD STAR" and statistically analyzed with the use of "MSU STAT."

Based on the results of this study, it was concluded that vocational agriculture training did impact the continued learning patterns of former Montana students. Students felt that vocational agriculture experiences influenced their decision about post-secondary education greatly or to some extent. Most students did attend a post-secondary educational institution after high school graduation, and felt that vocational agriculture influenced their selection of a major. They also indicated that vocational agriculture greatly or to some extent prepared them for college. Students who attended a post-secondary educational institution after high school graduation more frequently participated in other knowledge-gaining activities than did students who did not attend a post-secondary educational institution.

# CHAPTER I

## THE PROBLEM AND ITS SETTING

Vocational agriculture programs are designed to meet the educational and/or occupational needs of the students they serve and supply the agricultural job market with qualified personnel. Vocational Agriculture educators need an effective means of evaluating their programs to determine if they are meeting the needs of the students and job market. Students need information to determine what secondary programs will best prepare them for their educational and/or occupational aspirations. Traditionally, vocational agriculture educators have used an employment follow-up to evaluate the effectiveness of their program. However, with the recent emphasis on continued learning, and the demand for professional agriculturists, the employment follow-up does not adequately evaluate the impact of vocational agriculture programs on continued learning. Therefore, an educational impact study was needed to determine if vocational agriculture programs were meeting the needs of the students in preparation for continued learning.

Continued learning has been identified as a key to success in life (Commission on Excellence, 1983). Most often continued learning refers to the attendance at a post-secondary educational institution. Therefore, students are often advised to prepare for a college education. This college preparation generally consists of academic courses, not vocational education. However, in the 1984 Gallop Poll on Public's

Attitude toward the Public School, 37 percent of the respondents felt vocational education should be required for students planning to attend college (Commission on Secondary Vocational Education, 1984). One school went so far as to offer two types of diplomas, general and college-prep (Caughey, 1985). This raised the public concern that students acquiring a general diploma may be discriminated against in the future. The researchers believe continued learning is not limited to the attendance of a post-secondary educational institution. Therefore, this type of segregation is misleading.

Academic graduation requirements have been increased in many school districts in response to a recommendation made by the National Commission on Excellence in Education in A Nation at Risk (Commission on Secondary Vocational Education, 1984). Most districts ignored the recommendation to increase the school day or year, thus leaving less time for students to enroll in elective vocational courses (Commission on Secondary Vocational Education, 1984). The researchers feel students should have the opportunity to enroll in courses which will best prepare them for their educational and/or occupational aspirations.

Accountability and program improvement are constant concerns of vocational agriculture educators. With the recent emphasis on continued learning, academic achievement, and demand for professional agriculturists, vocational agriculture educators are faced with a new challenge. The goal of vocational agriculture has changed from preparing students for jobs requiring less than a baccalaureate degree, to also include preparing students for further education. Therefore, vocational agriculture educators need information concerning the impact of vocational

agriculture programs on the preparation of students for continued learning.

This information could prove valuable to teachers and counselors in helping students select high school courses which will best prepare them for their educational and/or occupational aspirations. This information would also be valuable for program improvement.

## Statement of the Problem

The major purpose of this study was to determine the impact of secondary vocational agriculture training on the future educational activities of those students who completed the program in Montana from May 1, 1980 through June 1, 1985.

## Objectives

The objectives of this study were:

1) To determine the educational patterns of program completers who attended post-secondary programs following high school graduation. Educational patterns shall be determined by:

a) type of institution attended
b) curriculum pursued
c) frequency of curriculum change
d) percent completion
e) advanced degrees
f) type of non post-secondary educational activity attended
g) frequency of attendance
h) membership in organizations
i) subscription to publications

2) To determine the educational patterns of program completers who did not attend post-secondary programs following high school graduation. Educational patterns shall be determined by:

a) type of educational activity attended
b) frequency of attendance
d) membership in organizations
d) subscriptions to publications

3) To determine the educational achievements of program completers who attend post-secondary programs in terms of:

a) Grade Point Average (GPA)

(1) in English courses
(2) in mathematics courses
(3) in science courses
(4) in social science courses
(5) in agriculture courses
(6) in other courses
(7) cumulative

b) honors

4) To determine the impact of vocational agriculture training on the continued learning patterns of former students.

## Need for the Study

Evaluations and measures of accountability have been used by all levels of public education to determine the effectiveness of vocational programs. Evaluation has been defined as the "systematic process of judging the worth, desirability, effectiveness, or adequacy of something according to definite criteria and purposes" (Ammons, 1973). "Accountability as applied to education is the ability to demonstrate cost effectiveness in meeting predetermined educational philosophy and goals" (Johnson, 1973).

Evaluation of vocational education programs has been the topic of federal legislation several times since 1963. In 1963, the Vocational Education Act required that each state establish a state advisory

council for vocational education which would be responsible for evaluation within each state. The Elementary and Secondary Education Act of 1965 required that projects conducted under Titles I and III possess an evaluation plan for process and product. In 1968, the Vocational Education Amendments to the 1963 act were passed which reemphasized the requirement for evaluation. Public Law 94-482, passed in 1976, also reemphasizes and expands evaluation mandates for vocational education (Wentling, 1980). The most recent federal legislation concerning evaluation of vocational education is the Carl Perkins Act. The Perkins Act mandates that states must produce annual reports based on progress towards stated objectives and use the report as a diagnostic tool for planning and improving programs (Hayes, 1985).

Recently, there has been a change in the philosophy of vocational agriculture. The new philosophy states,

> Vocational education in agriculture is organized instruction which prepares individuals for employment in agriculture and may also prepare them for advanced training, leading to an agriculture career requiring education at a post-secondary level (Advisory Committee, 1982).

Since the adoption of this new philosophy, there has not been an evaluation to determine the effectiveness of vocational agriculture programs in meeting this new educational philosophy. An impact study evaluating the effectiveness of vocational agriculture programs in meeting the goals of the new philosophy is needed.

At the present time, there is a trend to increase academic graduation requirements, in response to a recommendation made by the Commission on Excellence in Education (Commission on Secondary Vocational Education, 1984). This recommendation may have had an effect

on vocational agriculture enrollment. Enrollment in Montana vocational agriculture programs has decreased to 2,512 in 1985 from 4,062 in 1980, a decrease of 1,550. National vocational agriculture enrollment has decreased by 48,351 during the same time frame (National FFA Organization, 1980, 1985).

The researchers believe an impact study on the continued education and/or learning patterns of former vocational agriculture students is needed. The information gained from this study will be an evaluation of progress towards the goals stated in the new philosophy of vocational agriculture.

## Definitions

1) Continued Learning: Participation in information-receiving activities after high school graduation.

2) Impact: Degree of influence on outcome.

3) Honors: Recognition given for outstanding accomplishments in educational activities.

## Limitations

This study was limited to Montana vocational agriculture students graduating between May 1, 1980 and June 1, 1985. Only students who completed a minimum of three years of vocational agriculture were included in this study.

## Assumptions

The underlying assumptions of this study were:

1) Vocational agriculture training has an impact on the continued learning activities of former students.

2) A number of students attend post-secondary educational institutions after high school graduation.

# CHAPTER II

## REVIEW OF RELATED LITERATURE

Research on the topic of advanced education of former vocational agriculture graduates is brief, to say the least. A limited amount of research has addressed continued education patterns of former vocational agriculture students. Success of former vocational agriculture students in college has been researched in a narrow perspective. Skills needed by students enrolling in post-secondary agriculture programs have received the most research.

A great deal of research has been conducted concerning follow-up of vocational agriculture graduates. These follow-up studies have primarily focused on the employment of former students.

Traditional philosophies of vocational agriculture education have been to provide students with job entry skills for agriculture occupations requiring less than a baccalaureate degree. Therefore, follow-up studies of employment have been quite adequate in evaluating the success of vocational agriculture programs. Recently, the basic philosophy of vocational education has been modified. These modifications are:

(a) Vocational education should involve occupational awareness, exploration and preparation.

(b) Vocational education emphasizes leadership development, hands-on experience, entrepreneurship, as well as attitudes, knowledge, and skills related to jobs and job tasks.

(c) Vocational education also prepares students for advanced training and education at the post-secondary level (Wyoming AVA, 1985).

Vocational agriculture has also adopted these modifications in philosophy.

## Follow-up Studies of the Past

Follow-up studies have been used by vocational agriculture educators in the past to assess the outcome of the program (Drake, 1977). The outcome is most often measured by: the job placement of former students, employer satisfaction with those students, and student satisfaction of training provided by the program (Oregon State Department, 1982). Follow-up studies have been used by vocational agriculture educators to answer the question of accountability and program improvement (Drake, 1977).

## Change in Philosophy

There has been a recent trend to reform our educational systems. "Educational reform should focus on the goal of creating a Learning Society," according to A Nation at Risk (National Commission on Excellence in Education, 1983). Academic leaders have convinced the general public that all young people should aspire to own a college diploma (Stewart, 1985), in order to create this "Learning Society." Therefore, the basic philosophy of vocational agriculture has been questioned. Campbell (1982) prompts the researchers to pose the questions: Should secondary vocational training programs equip graduates with the necessary skills for immediate employment after high school, or should

vocational education simply provide students with the necessary prerequisites for further training after high school?

Rather than choosing between the two different roles, vocational agriculture has modified the basic philosophy to accommodate both.

> Vocational education in agriculture is organized instruction which prepares individuals for employment in agriculture and may also prepare them for advanced training, leading to an agriculture career requiring education at a post-secondary level (Advisory Committee, 1982).

## Need for Further Education

One of the purposes of vocational agriculture is to ensure an adequate supply of trained and skilled people for employment in the agriculture industry (Advisory Committee, 1982). Research has shown that there is a demand for people with a college education in the agriculture sciences (Goeker, 1980). Montana agribusinesses prefer to employ people with at least two years of post-secondary agriculture education (Shelhamer, 1984).

## Educational Trends

Secondary vocational education is not an educational dead end as earlier believed. In 1982, 95 percent of United States graduates had taken some vocational courses while in high school (Commission on Secondary Vocational Education, 1984). The majority of high school graduates attend some type of post-secondary education classes. Research has shown that there is no significant association with reduced attendance of post-secondary education and secondary vocational education courses (Campbell, 1982).

Student enrollment in post-secondary education in agriculture has increased 109 percent since 1970 (Welton, 1982). It is estimated that approximately 60 percent of Montana vocational graduates attend post-secondary education classes.

## Preparation for Further Education

Most colleges prefer students with a strong academic background (Sjogren, 1982). Students who plan to enroll in post-secondary agriculture programs are recommended to have a sound background in math, science and English, as well as vocational agriculture (Gee, 1982).

## Follow-up of Advanced Training and Education

Research has shown that former vocational agriculture students do as well or better than students without vocational agriculture in agriculture colleges in terms of grade point average (Lawrence, 1984). Ability is more strongly related to post-secondary success than secondary vocational training (Campbell, 1982).

The role of vocational agriculture training in preparation for further education is still unclear. With the new philosophy of vocational agriculture and the demand for employees with post-secondary educational, vocational agriculture educators must be able to assess the value of their programs in preparing students for further education.

# CHAPTER III

## METHODOLOGY

This study is descriptive in nature. The researchers determined the impact of vocational agriculture training on the continued learning patterns of former students. The independent variable of this study was vocational agriculture training. The dependent variable was the future educational activities of the former students.

### Population and Sample

The total population for the study was identified from the official 1979-80 through 1984-85 FFA membership rosters on file at the Montana State Department of Public Instruction. The researchers contacted Mr. Leonard Lombardi to obtain these rosters. The researchers identified 2,201 former vocational agriculture students who had completed three years of vocational agriculture and had graduated from high school between 1980 and 1985. The researchers were able to obtain student names and addresses from accurately completed membership rosters. Three of the 73 vocational agriculture departments in Montana had inaccurately completed the membership rosters.

The sample size was determined by using a formula for proportion sampling. The researchers estimated that 50% of the population had attended a post-secondary educational institution after high school graduation. A .05 margin of error was used in calculating the needed

sample size. This meant that 384 sampling units were required. An additional 116 sample units of the population were included in the sample in an attempt to compensate for incorrect addresses.

Using the program "SAMPLE," taken from the Montana State University Statistical Package (Lund, 1983), 500 numbers were randomly selected. These numbers were then matched to the 2,201 numbers assigned to the sample units to determine which students would be surveyed.

## Instrument Design

The questionnaire was designed to gather general information concerning the respondent's vocational agriculture experience, information concerning the educational activities of former vocational agriculture students after high school graduation, and the degree of impact vocational agriculture training had on the decision to participate in educational activities (Appendix A).

The questions on the instrument were designed by the researchers after reviewing the objectives of the Western Region AATEA Impact Study. The major objective for the educational advancement section of this regional study was:

> To determine the impact of Vo-Ag programs on the educational advancement of former students as measured by: (a) attendance, and success at a post-secondary school, and (b) consistency of academic choice at both the secondary and post-secondary levels.

More specific measures of impact on educational advancement recommended by the AATEA committee are as follows:

1) Advancement in school

2) Attendance at the community-level educational workshops

3) College success, grades and leadership

4) Completion of secondary school

5) Leadership roles

6) Pursuing education in agriculture at college or post-secondary

7) Consistency in agriculture

These measures were developed by seven Western AATEA agriculture teacher educators who had met in July 1985, in Salt Lake City, Utah, to develop criteria and guidelines for a regional impact study.

Closed-form questions were used to gather information in the areas of general information, attendance of post-secondary institution, success at post-secondary, attendance of educational activities not part of a college curriculum, and degree of impact of vocational agriculture trainin- on decisions to participate in educational activities. Open-form questions were used to identify honors achieved, leadership activities, subscription to knowledge-gaining publications, and identification of other knowledge-gaining activities.

Validity of the instrument was tested by pre-testing the instrument on a representative group of former Montana vocational agriculture students. Three non-college attendees and four college attendees reviewed the instrument for readability and content. None of the former students in the pre-test were included in the survey. The Agriculture Education department staff and class members of AgEd 500, Research Seminar, also reviewed the questionnaire. Revisions to the questionnaire were made in accordance with information from the pre-test and advice of the individuals listed above.

A cover letter including a brief explanation of the study and instructions, along with the questionnaire, was mailed to the sample units during March of 1986. Non-respondents were sent a follow-up postcard in April of 1986, describing the study and stressing the importance of their response. An additional follow-up letter and questionnaire were sent in May. "Address correction" was stamped on each envelope sent at that time. Thirty-five envelopes were returned with new addresses. Those sample units were then sent a copy of the original cover letter and questionnaire. No other attempt was made to locate non-respondents.

## Analysis

The computer program "WORD STAR" was used to create a data file containing all of the information from the returned questionnaires. The statistical analysis of data was done using the programs "HISTOGRAM" and "BICOUNT" from the Montana State University Statistical Package (Lund, 1983).

# CHAPTER IV

## RESULTS AND ANALYSIS

The results of this study are presented in three sections, as follows: (1) demographic data, (2) post-secondary educational activities, and (3) continued learning activities.

### Demographic Data

For this study, 500 names were randomly selected from the identified population of former Montana vocational agriculture students who graduated from high school between 1980 and 1985, and who had completed a minimum of three years of vocational agriculture. As shown in Table 1, a total of 130 (26%) of the questionnaires were returned and met the criteria for this study.

The data in Table 1 show that 23 questionnaires were returned but were not within the limitations of the study. Of those 23, 13 respondents graduated prior to 1980; the remaining 10 respondents had not completed at least three years of vocational agriculture. Fifty-nine questionnaires (12%) were returned undeliverable. Fifty-seven percent (288) of the sampling units did not respond to the questionnaire.

The data in Table 2 indicate that 88% of the respondents had completed four years of vocational agriculture, while 12% completed three years.

Table 1. Response to Questionnaire.

| Response | Frequency | Percent |
|---|---|---|
| Returned | 130 | 26 |
| Returned, not applicable | 23 | 5 |
| Undeliverable | 59 | 12 |
| Non-response | 288 | 57 |
| Total | 500 | 100 |

Table 2. Years of Vocational Agriculture Completed by Respondents (N=130).

| Years Completed | Frequency | Percent |
|---|---|---|
| Three | 15 | 12 |
| Four | 115 | 88 |

As shown in Table 3, the most frequently identified year of graduation was 1981, with the least frequently identified year being 1983. Thirty-three (25%) of the respondents graduated in 1981, whereas 14 (11%) of the respondents graduated in 1983. Twenty (15%) of the respondents graduated in 1980; 24 (19%) graduated in 1982; 19 (15%) in 1984; and 20 (15%) in 1985.

The data in Table 4 indicate that the most frequently identified occupation of the respondents was full-time student. Military and part-time student were the least frequently identified occupations. Forty-six respondents indicated that they were full-time students, while six responded that they were in the military or part-time students.

Table 3. Year Respondents Graduated from High School (N=130).

| Year Graduated | Frequency | Percent |
|---|---|---|
| 1980 | 20 | 15 |
| 1981 | 33 | 25 |
| 1982 | 24 | 19 |
| 1983 | 14 | 11 |
| 1984 | 19 | 15 |
| 1985 | 20 | 15 |

The most frequently identified occupation of 1980 and 1981 graduates was employed full-time in agriculture. The most frequently identified occupation of 1984 and 1985 graduates was full-time student. The most frequently identified occupation of 1982 graduates was split between employed full-time in agriculture and full-time student. The 1983 graduates were split between employed part-time in agriculture and employed full-time in agriculture.

A review of the information in Table 4 indicates that there were more respondents working, both full-time and part-time, in agriculture than are working full-time and part-time outside of agriculture. Sixty-seven (26 part-time + 41 full-time) respondents were working in agriculture, whereas 31 (11 part-time + 20 full-time) were working outside of agriculture.

The information in Table 5 indicates that 64% or more of the graduates each year attended a post-secondary educational institution after high school graduation. Of the total respondents, 91 (70%) attended a post-secondary educational institution after high school graduation.

Table 4. Reported Occupational Status of 1980-1985 Graduates.

| Occupation | N | Frequency by Year of Graduation 1980 n | 1981 n | 1982 n | 1983 n | 1984 n | 1985 n |
|---|---|---|---|---|---|---|---|
| Part-time student | 6 | 0 | 2 | 0 | 2 | 0 | 2 |
| Full-time student | 46 | 2 | 8 | 9 | 3 | 12 | 12 |
| Employed part-time in ag | 26 | 4 | 5 | 5 | 5 | 2 | 5 |
| Employed part-time outside of ag | 11 | 1 | 5 | 2 | 2 | 0 | 1 |
| Employed full-time in ag | 41 | 9 | 12 | 9 | 5 | 2 | 4 |
| Employed full-time outside of ag | 20 | 4 | 6 | 3 | 3 | 3 | 1 |
| Military | 6 | 1 | 0 | 3 | 0 | 1 | 1 |
| Unemployed | 10 | 2 | 3 | 0 | 1 | 2 | 2 |
| Total | 166* | 23 | 41 | 31 | 21 | 22 | 28 |

*The respondents could select more than one occupation; therefore the total N is greater than the N of respondents.

Table 5. Attendance at a Post-Secondary Educational Institution by 1980-1985 Graduates (N=130).

| Attended Post-Secondary | N | % | Year Graduated 1980 n | % | 1981 n | % | 1982 n | % | 1983 n | % | 1984 n | % | 1985 n | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yes | 91 | 70 | 13 | 65 | 22 | 67 | 19 | 79 | 9 | 64 | 15 | 79 | 13 | 65 |
| No | 39 | 30 | 7 | 35 | 11 | 33 | 5 | 21 | 5 | 36 | 4 | 21 | 7 | 35 |

The data in Table 6 indicate that 30 (23%) of the respondents felt their vocational agriculture experience greatly influenced their decision about post-secondary education, while 54 (42%) reported an influence of some extent. Of those who attended a post-secondary educational institution, 44 (48%) indicated that vocational agriculture experiences influenced their decision to some extent, whereas 25 (28%) reported a great influence. Thirteen (33%) of those who did not attend a post-secondary institution indicated that their vocational agriculture experience did not influence their decision.

Table 6. Extent Vocational Agriculture Experience Influenced Decision About Post-Secondary Education.

| Extent of Influence | N | % | Attended Post-Secondary Education | | | |
|---|---|---|---|---|---|---|
| | | | Yes | | No | |
| | | | n | % | n | % |
| Great | 30 | 23 | 25 | 28 | 5 | 13 |
| Some | 54 | 42 | 44 | 48 | 10 | 26 |
| Very little | 25 | 19 | 16 | 18 | 9 | 23 |
| Not at all | 18 | 14 | 5 | 5 | 13 | 33 |
| No response | 3 | 2 | 1 | 1 | 2 | 5 |

## Post-Secondary Educational Activities

Four-year universities were the most frequently attended post-secondary educational institution. Sixty-one respondents indicated that they attended a four-year university; 18 reported attending a post-

secondary vocational or technical institution; 13 attended a community college; and six attended another type of post-secondary institution.

The length of attendance at a post-secondary educational institution is shown in Table 7. The most frequently identified length of attendance was two years (20, or 22%). Nineteen (21%) attended for an unlisted length of time, with 11 reporting they attended five years of post-secondary education. Fourteen (15%) respondents reported attending four years of post-secondary education.

Table 7. Length of Attendance at Post-Secondary Institution (N=91).

| Length of Attendance | Frequency | Percent |
|---|---|---|
| No response | 0 | 0 |
| One quarter | 4 | 4 |
| Two quarters | 11 | 12 |
| One semester | 3 | 3 |
| Three quarters | 5 | 6 |
| One year | 8 | 9 |
| Two years | 20 | 22 |
| Three years | 7 | 8 |
| Four years | 14 | 15 |
| Other | 19 | 21 |

The data in Table 8 show that 27 (30%) of the respondents have completed the curriculum for their major course of study. Of the 1980 graduates, 54% completed the curriculum, whereas 55% of the 1981 graduates completed the curriculum. Forty-two (46%) of the respondents plan

to complete the curriculum for their major course of study. Eighty-six percent of the 1984 graduates plan to complete the curriculum; 77% of the 1985 graduates plan to complete the curriculum.

Table 8. Completion of Curriculum for Major Course of Study by 1980-1985 Graduates (N=91).

| Completed Curriculum | N | % | Year Graduated 1980 n | % | 1981 n | % | 1982 n | % | 1983 n | % | 1984 n | % | 1985 n | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yes | 27 | 30 | 7 | 54 | 12 | 55 | 5 | 26 | 2 | 22 | 1 | 7 | 0 | 0 |
| Plan to | 42 | 46 | 2 | 15 | 6 | 27 | 7 | 37 | 4 | 45 | 3 | 86 | 10 | 77 |
| No | 22 | 24 | 4 | 31 | 4 | 18 | 7 | 37 | 3 | 33 | 1 | 7 | 3 | 23 |

Of those 27 respondents who completed the curriculum for their major course of study, 19 reported receiving a bachelor's degree, and nine received other types of degrees, such as certificates of completion. Seven respondents earned an associate degree, and one earned a master's degree.

The data in Table 9 indicate that 7 (8%) of the respondents have pursued an advanced degree. Three (23%) of the 1980 graduates have pursued an advanced degree; 22 (24%) of the respondents plan to pursue an advanced degree; 6 (32%) of the 1982 graduates plan to pursue an advanced degree. Twenty-seven percent of the respondents did not answer this question.

Table 9. Advanced Degrees Pursued by 1980-1985 Graduates (N=91).

| Pursued Advanced Degree | N | % | Year Graduated 1980 n | % | 1981 n | % | 1982 n | % | 1983 n | % | 1984 n | % | 1985 n | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yes | 7 | 8 | 3 | 23 | 1 | 5 | 2 | 10 | 0 | 0 | 0 | 0 | 1 | 7 |
| Plan to | 22 | 24 | 3 | 23 | 4 | 18 | 6 | 32 | 1 | 11 | 4 | 27 | 4 | 31 |
| No | 37 | 41 | 3 | 23 | 13 | 59 | 7 | 37 | 3 | 33 | 7 | 46 | 4 | 31 |
| No response | 25 | 27 | 4 | 31 | 4 | 18 | 4 | 21 | 5 | 56 | 4 | 27 | 4 | 31 |

The information in Table 10 shows that 61 (67%) of the respondents did not change majors while attending post-secondary school. Twenty-five (28%) of the respondents did change majors. Of those 25 who did change majors, 16 (64%) changed once, and 5 (20%) changed three times, as revealed by the data in Table 11. Sixty percent of the respondents who changed majors indicated that their prior major area of study was non-agriculture (Table 12).

Table 10. Change of Majors While Attending Post-Secondary School (N=91).

| Changed Majors | Frequency | Percent |
|---|---|---|
| Yes | 25 | 28 |
| No | 61 | 67 |
| No Response | 5 | 5 |

As shown by the data in Table 13, 56% of the respondents were majoring in agriculture. Fifty-four percent of the 1980 graduates and

64% of 1981 graduates did major in agriculture; 58% of 1982 and 78% of 1983 graduates did major in agriculture; 53% of 1984 and 54% of 1985 graduates did not major in agriculture.

Table 11. Frequency of Major Changes (N=25).

| Frequency of Change | Frequency | Percent |
|---|---|---|
| Once | 16 | 64 |
| Twice | 3 | 12 |
| Three times | 5 | 20 |
| Four or more | 0 | 0 |
| No response | 1 | 4 |

Table 12. Prior Major Area of Study by Those Who Changed Majors (N=25).

| Major | Frequency | Percent |
|---|---|---|
| Agriculture | 10 | 40 |
| Non-agriculture | 15 | 60 |

Table 13. Graduates Majoring in Agriculture (N=91).

| | | | Year Graduated | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1980 | | 1981 | | 1982 | | 1983 | | 1984 | | 1985 | |
| Ag Major | N | % | n | % | n | % | n | % | n | % | n | % | n | % |
| Yes | 51 | 56 | 7 | 54 | 14 | 64 | 11 | 58 | 7 | 78 | 6 | 40 | 6 | 46 |
| No | 35 | 38 | 3 | 23 | 7 | 32 | 8 | 42 | 2 | 22 | 8 | 53 | 7 | 54 |
| No response | 5 | 6 | 3 | 23 | 1 | 4 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 |

The information in Table 14 reveals that 20 (23%) of the respondents felt that their vocational agriculture experience greatly influenced selection of their most recent area of study, whereas 38 (44%) of the respondents reported some influence. Of those majoring in agriculture, 17 (33%) of the respondents indicated that vocational agriculture influenced their selection greatly; 24 (47%) reported some influence. Of those not majoring in agriculture, 14 (40%) reported some influence.

Table 14. Extent Vocational Agriculture Experience Influenced Selection of Most Recent Major Area of Study.

| Extent of Influence | N | % | Major: Agricultural n | Major: Agricultural % | Major: Non-Agricultural n | Major: Non-Agricultural % |
|---|---|---|---|---|---|---|
| Great | 20 | 23 | 17 | 33 | 3 | 8 |
| Some | 38 | 44 | 24 | 47 | 14 | 40 |
| Very little | 18 | 21 | 8 | 16 | 10 | 29 |
| Not at all | 7 | 8 | 1 | 2 | 6 | 17 |
| No response | 3 | 4 | 1 | 2 | 2 | 6 |
| Total | 86* | 100 | 51 | 100 | 35 | 100 |

*Five respondents did not indicate a recent area of study.

The data in Table 15 reveal that 3 (11%) of the respondents who completed the curriculum for their major course of study indicated that vocational agriculture prepared them for college greatly; 19 (70%) of the respondents reported that vocational agriculture prepared them for college to some extent. Overall, 19 (21%) of the respondents felt

vocational agriculture greatly prepared them for college; 47 (52%) felt they were prepared to some extent.

Table 15. Extent Vocational Agriculture Training Prepared Students for College (N=91).

| Extent of Influence | N | % | Completed | | Did Not Complete | | Plan to Complete | |
|---|---|---|---|---|---|---|---|---|
| | | | n | % | n | % | n | % |
| Great | 19 | 21 | 3 | 11 | 3 | 14 | 13 | 32 |
| Some | 47 | 52 | 19 | 70 | 11 | 50 | 17 | 40 |
| Very little | 15 | 16 | 3 | 11 | 4 | 18 | 8 | 19 |
| Not at all | 4 | 4 | 0 | 0 | 1 | 4 | 3 | 7 |
| No response | 6 | 7 | 2 | 8 | 3 | 14 | 1 | 2 |

The data in Table 16 show grades received by the respondents in various courses. The most frequent grade received in English courses was a "B"; 37 respondents reported receiving "B's", with a mean of 2.9. Thirty-nine respondents reported receiving "B's" in math courses, with a mean of 3.1. The mean for grades received in science courses was 3.1; 30 respondents reported receiving "B's". The mean for social studies grades was 2.9, with 30 respondents indicating that they received "B's". Twenty-seven respondents received "A's" in agriculture courses, with a mean of 3.4. Thirty-six respondents received "B's" in other courses.

The respondents were asked to select a cumulative grade point average closest to what they had earned. The information in Table 17 indicates that 26 (28%) of the respondents had a 3.0 grade point average, 18 (20%) had 2.5, and 17 (19%) earned a 3.5 cumulative grade point

average. The overall mean for reported cumulative grade point averages was 2.93.

Table 16. Self-Reported Post-Secondary Grades.

| Course | $\bar{x}$ | A | B | C | D | F | NA* | NR** |
|---|---|---|---|---|---|---|---|---|
| English | 2.9 | 13 | 37 | 21 | 0 | 0 | 9 | 11 |
| Math | 3.1 | 19 | 39 | 12 | 1 | 0 | 11 | 9 |
| Science | 3.1 | 12 | 30 | 24 | 0 | 0 | 14 | 11 |
| Social Science | 2.9 | 13 | 30 | 17 | 1 | 0 | 19 | 11 |
| Agriculture | 3.4 | 27 | 23 | 6 | 0 | 0 | 24 | 11 |
| Other | 3.0 | 22 | 36 | 21 | 0 | 0 | 3 | 9 |

*Not applicable **No response

Table 17. Self-Reported Cumulative Grade Point Average.

| Grade Point Average | Frequency | Percent |
|---|---|---|
| 4.0 | 4 | 4 |
| 3.5 | 17 | 19 |
| 3.0 | 26 | 28 |
| 2.5 | 18 | 20 |
| 2.0 | 7 | 8 |
| 1.5 | 1 | 1 |
| 1.0 | 0 | 0 |
| Not applicable | 1 | 1 |
| No Response | 17 | 19 |

Nineteen (21%) of the respondents reported receiving honors relating to their college experience (Appendix E).

## Continued Learning Activities

The data in Table 18 indicate that 71 (55%) of the respondents did not attend educational activities which were not part of a college curriculum. Of those respondents who attended a post-secondary educational institution after high school graduation, 46 (51%) did not attend other educational activities, whereas 24 (64%) of those who did not attend post-secondary education did not attend educational activities.

Table 18. Attendance at Educational Activities Not Part of a College Curriculum (N=130).

| Attends Educational Activities | N | % | Attended Post-Secondary Education | | | |
|---|---|---|---|---|---|---|
| | | | Yes | | No | |
| | | | n | % | n | % |
| Yes | 52 | 40 | 40 | 44 | 12 | 31 |
| No | 71 | 55 | 46 | 51 | 25 | 64 |
| No response | 7 | 5 | 5 | 5 | 2 | 5 |

Of the respondents who attend educational activities which were not part of a college curriculum, 21 (40%) reported attending twice to five times a year as shown in Table 19. Seventeen (43%) of college attendees reported attending educational activities once a year, whereas 6 (50%) of non-college attendees reported attending two to five activities a year.

Table 19. Frequency of Attendance at Educational Activities Not Part of a College Curriculum (N=52).

| Frequency of Attendance | N | % | Attended Post-Secondary Education | | | |
|---|---|---|---|---|---|---|
| | | | Yes | | No | |
| | | | n | % | n | % |
| Every other year | 6 | 12 | 3 | 7 | 3 | 25 |
| Once a year | 19 | 36 | 17 | 43 | 2 | 17 |
| Twice to five times a year | 21 | 40 | 15 | 38 | 6 | 50 |
| More than five times a year | 4 | 8 | 4 | 10 | 0 | 0 |
| No response | 2 | 4 | 1 | 2 | 1 | 8 |

The data in Table 20 indicate that extension-sponsored educational activities were the most frequently attended. College attendees and non-college attendees most frequently attended extension-sponsored educational activities. Industry-sponsored educational activities were the second most frequently attended by college attendees, whereas organization-sponsored activities were the second most frequently attended by non-college attendees.

Of those respondents who attended educational activities, 19 (37%) indicated that their vocational agriculture experience influenced their decision to attend greatly, whereas 22 (42%) felt vocational agriculture influenced them to some extent, as shown in Table 21. Of the respondents who did not attend educational activities, 3 (5%) indicated that vocational agriculture experiences influenced their decision greatly; 28 (39%) were influenced to some extent.

Table 20. Type of Non-College Curriculum Educational Activity Attended.

| Type of Activity Attended | N | Attended Post-Secondary Education | |
|---|---|---|---|
| | | Yes n | No n |
| University-sponsored | 16 | 16 | 0 |
| Extension-sponsored | 32 | 23 | 9 |
| Community college-sponsored | 8 | 6 | 2 |
| Organization-sponsored | 19 | 13 | 6 |
| Industry-sponsored | 25 | 21 | 4 |
| Other | 8 | 7 | 1 |
| Total | 108* | 86 | 22 |

*Respondents could select more than one response.

Table 21. Extent Vocational Agriculture Experience Influenced Decision to Attend Educational Activities Not Part of a College Curriculum.

| Extent of Influence | N | % | Attends Educational Activities | | | |
|---|---|---|---|---|---|---|
| | | | Yes | | No | |
| | | | n | % | n | % |
| Great | 22 | 18 | 19 | 37 | 3 | 5 |
| Some | 50 | 41 | 22 | 42 | 28 | 39 |
| Very little | 25 | 20 | 8 | 15 | 17 | 24 |
| Not at all | 15 | 12 | 2 | 4 | 13 | 18 |
| No response | 11 | 9 | 1 | 2 | 10 | 14 |

The information in Table 22 reveals that 69 (53%) of the respondents were members of organizations. Fifty-eight (64%) of college attendees were members of organizations, whereas 26 (67%) of the non-college attendees were not members of organizations.

Table 22. Membership in Organizations (N=130).

| Member of an Organization | N | % | Attended Post-Secondary Education | | | |
|---|---|---|---|---|---|---|
| | | | Yes | | No | |
| | | | n | % | n | % |
| Yes | 69 | 53 | 58 | 64 | 11 | 28 |
| No | 58 | 45 | 32 | 35 | 26 | 67 |
| No response | 3 | 2 | 1 | 1 | 2 | 5 |

The data in Table 23 indicate that of the 69 respondents who were members of organizations, 23 (33%) were officers. Twenty-one (36%) of the 58 college attendees who were members of organizations were officers; 2 (18%) of all non-college attendees were officers in organizations.

Table 23. Organization Members Which Hold Offices (N=69).

| Officer in an Organization | N | % | Attended Post-Secondary Education | | | |
|---|---|---|---|---|---|---|
| | | | Yes | | No | |
| | | | n | % | n | % |
| Yes | 23 | 33 | 21 | 36 | 2 | 18 |
| No | 46 | 67 | 37 | 64 | 9 | 82 |

The data in Table 24 indicate that 22 (32%) of the 69 respondents who were members of organizations were greatly influenced to participate by vocational agriculture experiences. Thirty-three percent of the 61 respondents who were not members of organizations were influenced to some extent by vocational agriculture to participate in organizations.

Table 24. Extent Vocational Agriculture Experience Influenced Decision to Participate in Organization (N=130).

| Extent of Influence | N | % | Member of an Organization | | | |
|---|---|---|---|---|---|---|
| | | | Yes | | No | |
| | | | n | % | n | % |
| Great | 28 | 21 | 22 | 32 | 6 | 10 |
| Some | 49 | 38 | 29 | 42 | 20 | 33 |
| Very little | 21 | 16 | 11 | 16 | 10 | 16 |
| Not at all | 19 | 15 | 5 | 7 | 14 | 23 |
| No response | 13 | 10 | 2 | 3 | 11 | 18 |

Sixty-five (50%) of the respondents indicated that they subscribed to knowledge-gaining publications (Table 25). Forty-five (50%) of college attendees subscribed to publications; 20 (51%) of non-college attendees subscribed to publications.

The information in Table 26 indicates that 72 (55%) of the respondents did not participate in other knowledge-gaining activities. Forty-six (51%) of the 91 college attendees did not attend other knowledge-gaining activities; 26 (67%) of non-college attendees did not attend such activities.

Table 25. Subscription to Knowledge-Gaining Publications.

| Subscription to Publications | N | % | Attended Post-Secondary Education | | | |
|---|---|---|---|---|---|---|
| | | | Yes | | No | |
| | | | n | % | n | % |
| Yes | 65 | 50 | 45 | 50 | 20 | 51 |
| No | 62 | 48 | 44 | 48 | 18 | 46 |
| No response | 3 | 2 | 2 | 2 | 1 | 3 |

Table 26. Participation in Other Knowledge-Gaining Activities (N=130).

| Participation in Other Activities | N | % | Attended Post-Secondary Education | | | |
|---|---|---|---|---|---|---|
| | | | Yes | | No | |
| | | | n | % | n | % |
| Yes | 45 | 35 | 34 | 37 | 11 | 28 |
| No | 72 | 55 | 46 | 51 | 26 | 67 |
| No response | 13 | 10 | 11 | 12 | 2 | 5 |

# CHAPTER V

## CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations presented in this chapter are organized and presented as they pertain to the objectives of this study.

### Conclusions

Based on the analysis of the data, it was concluded that:

1) Montana program completers who attended a post-secondary educational institution most frequently attended a four-year university, spending two to four years in attendance. Most students completed or plan to complete the curriculum for their major course of study, with a small percent pursuing advanced degrees. Most students did not change majors while attending a post-secondary educational institution, but those who did changed only once. The 1980 through 1983 graduates selected agricultural majors, whereas the 1984 and 1985 graduates did not major in agriculture. Most program completers who attended a post-secondary educational institution did not attend other educational activities, but those who did attended such activities once a year. Extension-sponsored educational activities were the most frequently attended. The majority of program completers who attended a post-secondary educational institution were members of organizations; some held offices in the organizations. Most program completers who attended

a post-secondary educational institution subscribed to knowledge-gaining publications.

2) Most Montana program completers who did not attend a post-secondary educational institution did not attend educational activities, such as extension-sponsored workshops, but those who did attended two to five times a year. Extension-sponsored educational activities were the most frequently attended. Program completers who did not attend a post-secondary education institution were less likely to be a member of an organization than those who did attend a post-secondary institution. Most program completers who did not attend a post-secondary educational institution did subscribe to knowledge-gaining publications.

3) Montana program completers who did attend a post-secondary educational institution reported receiving good grades, ranging from a mean of 2.9 in English and social science courses to a 3.4 in agriculture courses. The mean cumulative grade point average was 2.93. Most students did not receive honors relating to their college experience.

4) Vocational agriculture experiences did impact the continued learning patterns of Montana program completers. The majority felt that vocational agriculture experiences influenced their decision about post-secondary education greatly or to some extent. The majority of program completers who did attend a post-secondary educational institution felt vocational agriculture experiences influenced their selection of a major greatly or to some extent. The same group felt that vocational agriculture greatly or to some extent prepared them for college. Program completers indicated that vocational agriculture experiences influenced their decision about attending educational activities not part of a

college curriculum to some extent or very little. Most program completers also indicated that vocational agriculture experiences influenced their decision to participate in organizations greatly or to some extent.

## Recommendations

As a result of this study, the following recommendations are offered:

1) Montana vocational agriculture teachers should stress the importance of continued learning through activities such as participation in knowledge-gaining activities and organizations.

2) Information from this study should be made available to counselors, administrators and vocational agriculture teachers. The information should reveal that students taking vocational agriculture in high school do perform well in all post-secondary courses.

3) An educational follow-up should be included with the traditional employment follow-up when evaluating a vocational agriculture program to measure progress towards fulfilling the new philosophy of vocational agriculture.

4) Further research should be done to determine why program completers who did not attend a post-secondary educational institution did not participate in knowledge-gaining activities.

## Summary

The data in this study show the impact of vocational agriculture on the continued learning patterns of former Montana vocational agriculture

students who graduated in 1980 through 1985. The information can be examined by agriculture instructors at the secondary and post-secondary levels, high school counselors and school administrators to gain insight into the continued learning patterns of former vocational agriculture students. The information should help to regain or maintain enrollment of students who aspire to further their education after high school graduation.

# REFERENCES CITED

## REFERENCES CITED

Advisory Committee. 1982. Report of the Agricultural Vocational Education Advisory Committee. Cheyenne, WY: State Department of Education.

Ammons, Margaret. 1973. Evaluation: What Is It? When Should It Be Done? Newark, DE: International Reading Association.

Campbell, Paul B. 1982. High School Vocational Graduates: Which Doors Are Open?. Columbus, OH: National Center for Research.

Caughey, Peter. 1985. "School Board Hears Requests for 7-Period Day," The Bozeman Daily Chronicle (Bozeman, MT), Vol. 74, No. 271, p. 3.

Drake, James Bob. 1977. "A Follow-up System," Agriculture Education 49(11):206-261.

Gee, Jerry M. 1982. "Skills Needed by Students Enrolling in Post-Secondary Agriculture Programs," The Agriculture Education Magazine 55(4):8-10.

Goecker, Allen D. 1980. Supply and Demand: College Graduates in the Food and Agricultural Sciences. Purdue, IN: Purdue University Press.

Hayes, Carnie, McQuat, Dave, and Wilder, Dee. May 1985. "Designing a Long-Range Evaluation and Accountability Plan," Vocational Education Journal, p. 10.

Johnson, Milo P., and Grafsky, Albert J. Jr. 1973. Accountability: Evaluation for Occupational Programs. Chicago: American Technical Society.

Lawrence, Layle D. 1984. "Success of Former Vocational Agriculture Students in College of Agriculture," Proceedings of the Research Conference in Agriculture Education, pp. 137-140.

Lund, Richard. 1985. "MSU STAT," Version 2.11. Montana State University, Bozeman, MT.

McFarlane, Carolyn, and Claudy, Carolyn B. 1981. Conducting Follow-up Studies and Communicating Evaluation Results. Palo Alto, CA: American Institutes for Research in the Behavioral Sciences.

National Commission on Excellence in Education. 1983. A Nation at Risk. Washington, D.C.: U.S. Government Printing Office.

National Commission on Secondary Vocational Education. 1984. The Unfinished Agenda. Columbus, OH: National Center for Research in Vocational Education.

National FFA Organization. 1980, 1985. Participation in Selected FFA Activities. Alexandria, VA: National FFA Supply Service.

Oregon State Department of Education. 1982. "Follow-up Study of 1980 Students of Oregon High School Vocational Programs and Their Employers." Oregon State Department of Education, Salem, OR.

Rosenfeld, Stuart. 1983. "Something Old, Something New: The Wedding of Rural Education and Rural Development," Phi Delta Kappan 65(4): 270-273.

Shelhamer, Van C., and Bishop, Douglas. 1984. "Personal Characteristics Which Make People More Employable in Agriculture." Department of Agricultural and Industrial Education, Montana State University, Bozeman, MT.

Sjogren, Cliff. 1982. College Admission and the Transition to Post-Secondary Education: Standards and Practices. Washington, D.C.: U.S. Department of Education, pp. 27-28.

Smith, Roddy J., and Durkee, James. 1976. "A Follow-up of Agriculture Students from Wyoming Community College," Agriculture Education 48(9):203, 210.

Stewart, L.W. 1985. "The Optimum Marketing Strategy," Vocational Education Journal 57(5):17.

University of Wyoming. 1983. Vocational Agriculture: Preparing People for Work. Department of Agriculture Education, Laramie, WY.

Welton, Richard F. 1982. "Articulation Aids Transition into Post-Secondary Programs," Agriculture Education Magazine 55(4):4.

Wentling, Tim L. 1980. Evaluating Occupational Education and Training Programs. Boston: Allyn and Bacon, Inc.

Wyoming Vocational Association. 1985. Vocational Education in Wyoming: A Position Statement of the Wyoming Vocational Association. University of Wyoming, Laramie, WY.

# APPENDICES

# APPENDIX A

# QUESTIONNAIRE

QUESTIONNAIRE

Please place an X in the box which best answers the question. Mark only one box unless otherwise instructed.

1. How many years of high school vocational agriculture did you complete?
   [ ] a. one year [ ] c. three years
   [ ] b. two years [ ] d. four years

2. If you graduated from high school, please indicate the year.
   [ ] a. did not graduate [ ] d. 1982
   [ ] b. 1980 [ ] e. 1983
   [ ] c. 1981 [ ] f. 1984
   [ ] g. 1985

3. What is your current occupational status? You may select more than one.
   [ ] a. part-time student
   [ ] b. full time student
   [ ] c. employed part time
      [ ] 1. in agriculture
      [ ] 2. not in agriculture
   [ ] d. employed full time in agriculture
      (1) state occupation_____
   [ ] e. employed full time out side of agriculture
      (1) state occupation_____
   [ ] f. military
   [ ] g. unemployed

4. To what extent did your vocational agriculture experience influence your decision about postsecondary education.
   [ ] a. a great extent [ ] c. very little extent
   [ ] b. to some extent [ ] d. not at all

5. Have you attended a postsecondary educational institution since high school graduation?
   [ ] a. yes [ ] b. no

If you answered YES to question 5, please continue. If you answered NO to question 5 please advance to question 23.

6. What type of institutuion did you attend after high school graduation? You may select more than one.
   [ ] a. two year community college
   [ ] b. four year univerisity
   [ ] c. postsecondary vocational or technical institution
   [ ] d. other, specify_____

7. How long did you attend a postsecondary institutuion?
   [ ] a. one quarter [ ] e. one years
   [ ] b. two quarters [ ] f. two years
   [ ] c. one semester [ ] g. three years
   [ ] d. three quarters [ ] h. four years
   [ ] i. other, specify_____

8. Did you complete the curriculum for your major course of study?
   [ ] a. yes
   [ ] b. no
   [ ] c. I am in progress of completing the curriculum.

   If yes, what type of degree did you obtain?
   [ ] a. associate [ ] c. masters
   [ ] b. bachelors [ ] d. other, specify_____

9. After obtaining one degree, did you pursue an advanced degree?
   [ ] a. yes [ ] b. no
   [ ] c. no, but I am planning to in the future

10. Did you change majors while attending postsecondary school?
    [ ] a. yes [ ] b. no
    If yes, how many times?
    [ ] a. once [ ] c. three times
    [ ] b. twice [ ] d. four or more

11. What was/is your most recent major area of study?
    [ ] a. agricultural
        specify _____
    [ ] b. non-agricultural
        specify _____

12. If you changed majors, what was your prior major area/s of study?
    [ ] a. agriculture
        specify _____
    [ ] b. non-agriculture
        specify _____

13. To what extent did your vocational agriculture training influence your selection of a major?
    [ ] a. a great extent
    [ ] b. to some extent
    [ ] c. very little extent
    [ ] d. not at all

14. To what extent did your vocational agriculture training prepared you for college?
    [ ] a. a great extent
    [ ] b. to some extent
    [ ] c. very little extent
    [ ] d. not at all

Please circle the letter on right which is closest to your postsecondary grade average in the following areas.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 15. | English courses | A | B | C | D | F | NA |
| 16. | math courses | A | B | C | D | F | NA |
| 17. | science courses | A | B | C | D | F | NA |
| 18. | social science courses | A | B | C | D | F | NA |
| 19. | agriculture courses | A | B | C | D | F | NA |
| 20. | other courses | A | B | C | D | F | NA |
| 21. | cumulative | 4.0 | 3.5 | 3.0 | 2.5 | 2.0 | 1.5 | 1.0 | NA |

22. Please list all honors you have received relating to your college experience, and identify the sponsoring agency.
    (Such as Outstanding Senior - Range Club)

    1. _____
    2. _____
    3. _____
    4. _____
    5. _____

If you checked NO on question 5, please START here. If you checked YES on question 5, please continue to answer the following questions.

23. Do you attend educational activities which are not part of a college curriculum? Such as Extension sponsored workshops.
    [ ] a. yes
    [ ] b. no, please advance to question 26

24. How often do you attend such activities?
    [ ] a. every other year
    [ ] b. once a year
    [ ] c. twice to five times a year
    [ ] d. more than five times a year

25. What type of educational activities do you attend? You may select more than one.
[ ] a. University sponsored
[ ] b. extension programs
[ ] c. community college sponsored
[ ] d. organization sponsored (such as Young Farmer programs)
[ ] e. industry sponsored (such as John Deere)
[ ] f. other, please specify _____

26. To what extent did your vocational agriculture experiences influence your decision to attend educational activities?
[ ] a. a great extent
[ ] b. to some extent
[ ] c. very little extant
[ ] d. not at all

27. Are you a member of any organizations?
[ ] a. no
[ ] b. yes, please list _____
_____
_____
_____
_____

28. Are you an officer in any of the organizations?
[ ] a. no
[ ] b. yes, please specify _____
_____
_____
_____
_____

29. To what extent do you feel your vocational agriculture experience influenced your decision to participate in organizations?
[ ] a. a great extent
[ ] b. to some extent
[ ] c. very little extant
[ ] d. not at all

30. Do you subscribe to publications in order to gain information to further your knowledge?
[ ] a. no
[ ] b. yes, please list 1. _____
2. _____
3. _____
4. _____
5. _____

31. Do you participate in other activities which you feel are knowledge gaining activities?
[ ] a. no
[ ] b. yes, please specify _____
_____
_____

NOTE: Please staple or t - the questionnaire closed, and return it as soon as possible.

# APPENDIX B

## COVER LETTER TO

## FORMER VO-AG STUDENTS

Montana State University
Bozeman, Montana 59717

Department of Agricultural and Industrial Education
College of Agriculture

March 17, 1986

Dear Former Vocational Agriculture Student,

We are all aware of the need to improve instruction in Montana school districts in order to better prepare students for continued learning. This study, funded by the Department of Vocational Education Services, Montana Office of Public Instruction, supports a Western Regional research project to assess the educational impact of secondary vocational agriculture on the local community.

Continued learning is not limited to those who attend a postsecondary educational institution. Continued learning may be achieved through attendance at activities such as local extension sponsored workshops or Young Farmer programs. Through this study, we hope to identify other ways in which former vocational agriculture students seek new knowledge as well as determine how well former students were prepared for college. This information will be shared with Montana vocational agriculture teachers and others, so they may improve their programs to prepare students for continued learning after high school graduation.

Enclosed is a questionnaire which is designed to help gather data to determine the impact vocational agriculture training has had on students. As a former vocational agriculture student, only you can provide this important information. Would you please take a few minutes to complete and return the questionnaire by April 1, 1986.

Your prompt response will be greatly appreciated. Responses will be kept confidential, the number on the questionnaire will only be used for follow-up purposes.

Sincerely,

Lynne Latham

Lynne Latham
Research Assistant

Van Shelhamer

Van C. Shelhamer
Assistant Professor

Telephone (406) 994-3201
Amberson, Palotie, Bruvelheide, Rotter, Wheatley
(406) 994-3691
Bishop, Shelhamer

# APPENDIX C

## FOLLOW-UP POSTCARD TO FORMER VO-AG STUDENTS

April 11, 1986

Dear Former Vocational Agriculture Student,

Recently, I sent you a questionnaire to help determine the impact of vocational agriculture training on the continued learning patterns of former students. I have not received your response.

The information you provide is extremely important. Please take a few minutes from your busy schedule to complete and return the questionnaire. Your cooperation is greatly appreciated.

If you have returned the questionnaire, please disreguard this notice.

Sincerely,

Lynne Latham

Lynne Latham

# APPENDIX D

## FOLLOW-UP LETTER TO

## FORMER VO-AG STUDENTS

Montana State University
Bozeman, Montana 59717

Department of Agricultural and Industrial Education
College of Agriculture

May 2, 1986

Dear Former Vocational Agriculture Student,

As you may know, you have been selected to be part of a study to determine the impact of vocational agriculture training on continued learning. This study is funded by the Office of Public Instruction, Department of Vocational Education. You should have received a letter and questionnaire the latter part of March. I have enclosed another copy of the questionnaire in case you misplaced it or did not receive it.

The information obtained from this study will be used to help justify and improve vocational agriculture programs throughout the state. As a former vocational agriculture, only you can provide the information needed.

Please take a few minutes from your busy schedule to complete and return the questionnaire. It will be greatly appreciated if you would return the questionnaire before May 16, 1986. Please help us to maintain and develop quality vocational agriculture programs.

Sincerely,

Lynne Latham
Research Assistant

Van Shelhamer
Assistant Professor

Telephone (406) 994-3201
Amberson, Polatis, Bruwelheide, Rotter, Wheatley
(406) 994-3691
Bishop, Shelhamer

# APPENDIX E

## WRITTEN RESPONSES TO QUESTIONNAIRE QUESTIONS

## CURRENT OCCUPATIONAL STATUS

| In Agriculture | Outside of Agriculture |
|---|---|
| mill worker | electrician |
| farm store clerk | mother |
| ranch partner | cook/bartender |
| rancher (9) | loader operator |
| ranch hand (13) | miner (2) |
| farmer (5) | secretary |
| feedlot laborer | draftsman |
| vo-ag teacher | producer manager, Buttrey's |
| ag loan officer | U.S. Navy |
| ranch wife | correctional officer |
| ag mechanic (2) | pipeline |
| truck driver | auto upholstery |
| | grocery worker |
| | mechanic (2) |
| | auto mechanic |
| | telephone installer |
| | radio broadcaster (2) |
| | truck driver |

## MOST RECENT MAJOR AREA OF STUDY

Agricultural

agribusiness (11)
animal science (9)
agronomy
mechanized ag (3)
ag education (6)
farm/ranch management (4)
diesel mechanics (3)
engineering tech
pre-vet (2)
crop & animal production
farm mechanics (6)
general ag
fish & wildlife
machinery

Non-agricultural

electronics engineering
chemical engineering
nursing
auto technology (2)
secondary education--math
computer science
Bible study (2)
industrial electronics
business administration (4)
business management (4)
German & Russian language
auto upholstery
accounting (2)
business accounting (2)
welding (2)
industrial arts (2)
economics/political science
machine tech
communications (2)
nutrition/marketing
auto mechanics
electronics
public administration

PRIOR MAJOR AREA OF STUDY

| Agricultural | Non-agricultural |
|---|---|
| general agriculture (2) | Bible & religious education |
| agribusiness (2) | business administration |
| engineering | C.S. mech tech |
| farm mechanics | general studies |
| farm/ranch management | economics (2) |
| mechanized ag | pre-law |
| ag econ | business management |
| range science | computer science (2) |
| | mechanical engineering tech |
| | data processing |
| | business/finance |
| | general studies (2) |
| | business |
| | diesel |

## HONORS RECEIVED

Outstanding Freshman -- Ag S.O.B. Club
First Place State VICA Competition
Greek Man of the Year -- Intra-Fraternity Council
Junior Achievement Award -- Day of Student Recognition
Top Male Student -- Day of Student Recognition
Honorable Mention, Outstanding Student -- College of Ag Student Council
National Undergraduate Achievement Award -- Alpha Gamma Rho
Who's Who Among American University Students (2)
Scholarships (3)
MSU SPURS
Moorman Feed Scholarship
Outstanding Senior, College of Ag
Union Pacific Scholarship
O. O. Thomas Scholarship
Alpha Zeta (3)
Agriculture -- High GPA for the Year
Dean's List
Outstanding MSU Senior Man
Septemveri Scholarship -- University
Mortarboard
High Individual -- Beef Grading, Huston Livestock Show
Super Farmer -- Ag Club
President's List
Presidential Honor Society
Outstanding Freshman -- Ag Club
Student Government
Pledge of the Year -- Chi Omega
Homecoming Candidate -- Hapner Hall
Presidential Scholarship
Graduate Teaching Assistantship
Outstanding Freshman -- College of Agriculture
Harvest Ball Queen
Range Judging Team
Alpha Lambda Delta

## ORGANIZATIONS

NRA (2)
Lion's
GVSA
Cattleman's Association
Alpha Gamma Rho Fraternity (8)
MPEA
Bridge Club
Drill Team
Chi Omega
FFA Alumni (14)
Ag Mechanics Club
Horseman's Club
Church Group (3)
Farm Bureau
Student Union
Montana Beef Performance
American Angus Association
Gallatin Valley Beef Producers
BAC
Rural Fire Board
Ducks Unlimited
Alpha Zeta (3)
Animal Science Club (4)
Montana & National Wool Growers Assn. (2)
Columbia Sheep Breeders
American Rambouillet Sheep Breeders Assn.
National Ski Patrol
National Pork Producers
Roping Club
Rodeo Club (2)
Jaycees (5)
Knights of Columbus
MSU Alumni
Ag Student Council (2)
SPURS
Ag Club (2)
FANGS
Farmers' Union (2)
Student Senate
AAL
FFA (3)
Montana Education Association
Montana Vocational Agriculture Teachers Assn.
Education Association
Volunteer Fire Dept. (2)
Masonic Lodge
Delta Alpha Theta
De Molay
Am. Institute of Chem. Eng.
Collegiate FFA (5)
MSU Senate
FarmHouse Fraternity (2)
University Honors Program
Pre-Law Club
Accounting Club (2)
Montana Quarter Horse Assn.
Moose Lodge
De Molay Advisor
Vo-Ag Advisory Board
Young Farmers
Montana Officials Assn. (2)
Montana Broadcasters' Assn.
FarmHouse Alumni
Am.Soc. of Public Administ.
American Hereford Assn.
Elks
Beet Growers
Dean's Council

## OFFICES HELD IN ORGANIZATIONS

Treasurer -- Agriculture Club
Church Deacon
Director -- Jaycees
Vice-President -- Education Association
President -- Alpha Zeta
President -- Ag Student Council
Vice President -- Pre-Vet Club
Deputy Grand Knight -- Knights of Columbus
Treasurer -- Alpha Gamma Rho
Treasurer -- Jaycees
Secretary -- Alpha Zeta
Co-Chairman -- Animal Science Club, Sheep Project
Treasurer -- Student Union
Student Body Representative
Panhellenic -- Chi Omega
Vice-President -- Sunshine Missionary Circle
Secretary-Treasurer -- FFA Alumni (2)
President -- FFA Alumni (2)
President -- BAC
Representative -- Dorm Council
Reporter -- FarmHouse Fraternity
President -- Animal Science Club
Treasurer -- Ag Student Council

## PUBLICATIONS READ

Montana Farmer Stockman (21)
Beef Producer
Irrigation Age (3)
Sheep Breeder
Farm & Ranch
Western Livestock Reporter (3)
Angus Journal
Sickle and Sheaf
Pro Rodeo Sports News
Consumer Guide
Consumer Reports
Newspapers (5)
Montana Farmers Union
Farm Journal (14)
Kiplinger Agriculture Letter
Doanes Report (2)
National Hog Farmer
Prairie Star
Time (3)
Psychology Today
Guidepost
Our Daily Bread
Newsweek (4)
Journal of Range Science
NWGA & MWGA Magazine
Fortune
Pork 86
Farmers Digest (2)
Farm Show (3)
Beef (4)
The Economist
The Wall Street Journal (4)
Radio/Records
U.S. World Report (2)
Science Digest
Agri-News (7)
Livestock Digest
Future Farmer (5)
Successful Farming (6)
Popular Mechanics
Extension Publications
Beef Management
Feedlot Management
Hay Forage
Gourmet
Cook & Chef
Hot Rod (4)
Super Chevy (2)
Farm Futures (3)
Farm Industry News
Industrial Electronic Magazine
Popular Science (2)
Popular Mechanics
Automotive Engineering
Feed Stuffs
Beef Bulletin
Cattlefax
American Hereford Journal
Western Horseman (4)
Solution
Horseman (2)
Equus
Western Livestock Journal (2)
Farm & Ranch Guide (2)
Advanced Machine Technology
Motor Trend

## OTHER KNOWLEDGE-GAINING ACTIVITIES

graduate seminars
seminars (2)
workshops
meetings
farm shows
livestock expedition
CENEX conference
church (3)
4-H
campus clubs and activities
athletics (4)
working for MSU College of Agriculture
Navy
work study
judging (2)
being a resident advisor
Marine Corps
community activities
fairs (2)
machinery demonstrations
feeder tours
Ag Advisory Committee -- Northern Montana Pork Producers
Big Brothers & Sisters
March of Dimes
FFA activities (5)
horse shows
MSU Advisory Committee
ag shows/farm demonstrations (2)
beet seed update
marketing seminars
ranch work
sprayer calibration schools
personal research