



The relationships of agricultural literacy of superintendents, principals, and counselors in four western states to adherence to state guidelines and student enrollment
by Robert R McBlair

A master's thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Agricultural Education
Montana State University
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Abstract:

The purpose of this study was to establish the agricultural literacy levels of administrators and to examine the relationships between those levels and funding, adherence to state guidelines, and enrollment in high school agricultural education programs. Superintendents, principals, and counselors from the four western states of Montana, South Dakota, North Dakota, and Wyoming were surveyed.

Data for this study were gathered through a mail survey of the population of administrators employed in a school district that had an agricultural education program. In each school district, one of the three administrators received a survey. Of the 269 surveys sent, 169 were returned for a return rate of 63%. Data were gathered in four areas: (1) agricultural literacy levels and demographics, (2) perceptions of present offerings of agricultural education, (3) knowledge of community and state agricultural education, and (4) enrollment, funding, and service to agricultural education students. The test score means were subjected to a Kuder-Richardson20 test of reliability. The reliability tested to be .966.

Analysis of the data revealed that the agricultural literacy level of all administrators was minimal with the mean test score being 69.4%. Administrators 'agreed' or 'strongly agreed' with statements about present guidelines that align the local agricultural education program and FFA with accepted state minimum standards. However, a minority of administrators 'disagreed' or 'strongly disagreed' with specific statements of minimum standards. Administrators had a strong knowledge of community and state agricultural education; however, some incorrectly answered specific questions that were very basic to agricultural education. Administrators agreed that programs in their high schools were meeting the needs of the students and were meeting state standards, but needed more funding from state and national sources. The data further indicated a moderate to strong correlation between administrators literacy test score and enrollment in agricultural education.

The data gathered also indicated a need for a structured method to educate administrators more extensively in the attributes of agricultural education and FFA.

Because the previous experience in agriculture is not present in today's administrators, college level classes in agricultural program awareness, while certification is sought, should be mandatory for the healthy existence of agricultural education.

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APPROVAL

of a master's thesis submitted by

Robert R. McBlair

This master's thesis has been read by each member of the graduate committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

Aug. 9 1995
Date

C. Van Hellman
Chairperson

Approved for the Major Department

10 Aug 1995
Date

Clayton S. Marlow
Head, Major Department

Approved for the College of Graduate Studies

8/29/95
Date

R. Brown
Graduate Dean

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TABLE OF CONTENTS

	Page
APPROVAL	ii
STATEMENT OF PERMISSION TO USE	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF TABLES	vii
ABSTRACT	ix
CHAPTER:	
1. THE PROBLEM AND ITS SETTING	1
Introduction	1
Purpose of this Study	2
Need for the Study	3
Objectives	5
Hypotheses	6
Assumptions	8
Limitations	8
Definitions	9
2. REVIEW OF LITERATURE	12
National and Global Concerns	12
Impact of Agricultural Literacy on Schools	14
Assessment of Agricultural Literacy Today	15
Contributions to this Agricultural Illiteracy.....	17
Factors Affecting Enrollment in Agricultural Education	19
Meeting the Needs of the Student	22
Change in Process	23
A Desire for Change	25
Need for Change	26
Statistical Study	28

TABLE OF CONTENTS--Continued

	Page
3. METHODOLOGY	30
Population	30
Instrument Design	32
Collection of Data	33
Statistical Treatment	34
4. RESULTS OF THE STUDY	36
Introduction	36
Agricultural Literacy Levels and Demographic Data	37
Perceptions of Present Agricultural Education	48
Knowledge of Community and State Agriculture	51
Enrollment, Funding, and Service to Students	53
Correlational Study	59
Relationships to Adherence to State Guidelines	59
5. CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS, AND SUMMARY	69
Conclusions	69
Implications	72
Recommendations	72
Recommendations for Future Studies	73
Summary	74
BIBLIOGRAPHY	75
APPENDICES:.....	79
Appendix A--First Cover Letter	80
Appendix B--Follow-up Postcard	84
Appendix C--Second Cover Letter	86
Appendix D--Superintendent Survey	90
Appendix E--Principal Survey	101
Appendix F--Counselor Survey	112
Appendix G--Responses to Open-Ended Survey Questions	123

LIST OF TABLES

Table		Page
1	Summary of number of usable and non-usable responses from each state	38
2	Response rate for state and administrative positions	39
3	Previous agricultural experience of all administrators	40
4	Administrators' 4-H experience	41
5	Respondents' high school agricultural education class experience	41
6	Administrators' FFA experience	42
7	Respondents' years of service and number of agricultural teachers worked with	43
8	Response from each school size category and administrative position	44
9	Respondents' level of literacy	46
10	Number of respondents and means by states	46
11	Respondents and test score means according to school size	47
12	Responses to perception questions about agricultural education and FFA	50
13	Number and percentage of correct and incorrect responses to perception questions about community and state agricultural education questions	52
14	Number of students in agricultural education classes and in FFA	54

LIST OF TABLES--Continued

Table		Page
15	Counselors' and superintendents' responses to meeting the needs of students enrolled in agricultural education	55
16	Principals' perception of minimum state standards	55
17	Counselors and principals and careers in production agriculture	56
18	Superintendents discerning adequate funding for agricultural education program	57
19	Superintendents' response to need for more funding	58
20	Counselors' and principals' perception of program preparing students for professional agriculture	58
21	Superintendents' association of agricultural literacy test score mean and adherence to state guidelines	61
22	Principals' association of agricultural literacy test score mean and adherence to state guidelines	64
23	Counselors' association of agricultural literacy test score mean and adherence to state guidelines	66
24	All respondents' relationship of agricultural literacy test score mean to enrollment	67

ABSTRACT

The purpose of this study was to establish the agricultural literacy levels of administrators and to examine the relationships between those levels and funding, adherence to state guidelines, and enrollment in high school agricultural education programs. Superintendents, principals, and counselors from the four western states of Montana, South Dakota, North Dakota, and Wyoming were surveyed.

Data for this study were gathered through a mail survey of the population of administrators employed in a school district that had an agricultural education program. In each school district, one of the three administrators received a survey. Of the 269 surveys sent, 169 were returned for a return rate of 63%. Data were gathered in four areas: (1) agricultural literacy levels and demographics, (2) perceptions of present offerings of agricultural education, (3) knowledge of community and state agricultural education, and (4) enrollment, funding, and service to agricultural education students. The test score means were subjected to a Kuder-Richardson₂₀ test of reliability. The reliability tested to be .966.

Analysis of the data revealed that the agricultural literacy level of all administrators was minimal with the mean test score being 69.4%. Administrators 'agreed' or 'strongly agreed' with statements about present guidelines that align the local agricultural education program and FFA with accepted state minimum standards. However, a minority of administrators 'disagreed' or 'strongly disagreed' with specific statements of minimum standards. Administrators had a strong knowledge of community and state agricultural education; however, some incorrectly answered specific questions that were very basic to agricultural education. Administrators agreed that programs in their high schools were meeting the needs of the students and were meeting state standards, but needed more funding from state and national sources. The data further indicated a moderate to strong correlation between administrators literacy test score and enrollment in agricultural education.

The data gathered also indicated a need for a structured method to educate administrators more extensively in the attributes of agricultural education and FFA. Because the previous experience in agriculture is not present in today's administrators, college level classes in agricultural program awareness, while certification is sought, should be mandatory for the healthy existence of agricultural education.

CHAPTER 1

THE PROBLEM AND ITS SETTING

Introduction

How can we say that agriculture is no longer useful or relevant to today's society when it exists as one of America's largest and most complex industries? It is true that the 'grass roots' level of Agriculture--Production Agriculture--employs only two percent of the nation's work force. However, 18.5% of the total U.S. labor force is involved in the food and fiber system (American Council for Agriculture, 1994). Yet, how many Americans know the above facts? How many know that agriculture is also those "individuals that are involved in communications, education, science, government, production, processing and distributing, marketing and sales, as well as other occupations which serve the farmer or the total agricultural industry" (Law & Pepple, 1990, p.10)? From this lack of knowledge comes the need for what the National Research Council has called "'agricultural literacy' the goal of education about agriculture"(p.1).

Many agricultural educators have discussed agricultural literacy. Mayer and Mayer (1974) suggested the need for

colleges to offer basic courses in agriculture so the more highly educated Americans can have knowledge basic to their existence economically. Similarly, Little (1987) alluded to the need for mandatory classes in agriculture at the high school and college level as stand alone classes for their scientific merit. "The transformation of American society from primarily rural to primarily urban has resulted in the average citizen knowing very little or nothing about agriculture even though agriculture continues to play a vital role in the nation's economy" (Law & Pepple, 1990, p. 10).

In the 1900's none of the children asked where milk came from. Today is different. A small city boy on a tour of a dairy for an elementary school field trip watched as a dairyman milked his cows, then exclaimed: "That may be the way they get their milk, but we still get ours from the carton." A researcher asks: "How did we as a nation, arrive at this stage of agricultural literacy" (Traxler, 1990, p.9)? This example is extreme but how many of our urban youth does it represent?

The Purpose of the Study

This study proposed and measured the level of agricultural literacy of superintendents, principals, and counselors in high schools in four western states and to

determine the relationship between their agricultural literacy, adherence to state guidelines, and agricultural education enrollment.

Need for the Study

Why should we be so concerned about the need for an agriculturally literate society? "Agriculture--broadly defined--is too important a topic to be taught only to the relatively small percentage of students considering careers in agriculture and pursuing vocational agriculture studies" (National Research Council, 1988, p.8). Law and Pepple state "An illiterate citizenry gives rise to two major concerns for agriculture educators" (Law and Pepple, 1990, p.10). First, it is important for citizens to have a basic knowledge of agriculture to make wise policy decisions concerning our food and fiber supply. Second, there will be an increasing need for high school and college graduates to assume careers in all aspects of agriculture (Law & Pepple, 1990).

This lack of literacy should be a concern for everyone, not just for the agricultural educators in the nation. What happens to the price of bread if some catastrophic event causes destruction of one-third to one-half of the nation's hard red winter wheat crop? What happens if trade agreements with another country suddenly eliminate surpluses

of cereal grains? What would be the impact of sudden developments in the price of oil or the development of engines which would burn straight ethyl alcohol for half the cost of gasoline? Would the price of bread and alcohol go up? How is the removal of all cattle from public lands going to impact the cost of beef at the meat counter?

The American people rely on agriculture for basic survival needs, for economic needs, and for land protection. The interrelationships of these areas is why agricultural literacy is a basic need in America today (Pope, 1990, p.8). Agricultural literacy has effects on public policy, on development of personnel for the broad industry of agriculture, and in the education of our people from kindergarten to adult (Russell, et. al., 1990).

Therefore, in order to get the American people 'agriculturally literate', we must maintain a viable education system which yields effective and permanent results.

For an agricultural education program to function adequately, support from the school administrators, the school district, and the community is critical. This support ensures the funding and resources necessary to meet the needs of the program and the students (Magill & Leising, 1990, p.241).

Yet, many communities have lost their high school agricultural education programs because of budget constraints on the school districts. Granted, there are temporary time periods in which a shortage of qualified

teachers exist, but more commonly the loss of a department is due to lack of funding or to low enrollment.

Therefore, this study investigated administrators' and counselors' agricultural literacy and problems of non-support. The hope is that school boards may use this information to make decisions about their school districts and that administrators, counselors, and teachers may see the importance of agricultural literacy. More importantly, it revealed the importance of setting specific goals concerning how the school board influences their students in the accurate perception of agriculture.

A review of literature revealed no previous studies in the western states that relate to agricultural literacy of administrators and counselors. It appeared that the only measurement of agricultural literacy that has been done is with teachers and students.

Objectives

To meet the purposes of this study, the following objectives were identified:

1. To determine the previous agricultural experience of superintendents, principals, and counselors.
2. To determine the level of agricultural literacy of superintendents, principals, and counselors.

3. To determine the relationship between superintendents', principals', and counselors' agricultural literacy test scores and the school's adherence to the state guidelines for agricultural education.
4. To determine the relationship between superintendents', principals', and counselors' agricultural literacy test scores and enrollment in agricultural education programs.

Hypotheses

The study was guided by the following research hypotheses:

- H_0 There is no relationship between superintendents' agricultural literacy test scores and level of adherence to state guidelines for the agricultural education program in their schools.
- H_1 There is a relationship between superintendents' agricultural literacy test scores and level of adherence to state guidelines for the agricultural education program in their schools.
- H_0 There is no relationship between principals' agricultural literacy test scores and level of adherence to state guidelines for the agricultural education program in their schools.

- H_1 There is a relationship between principals' agricultural literacy test scores and level of adherence to state guidelines for the agricultural education program in their schools.
- H_0 There is no relationship between counselors' agricultural literacy test scores and level of adherence to state guidelines for the agricultural education program in their schools.
- H_1 There is a relationship between counselors' agricultural literacy test scores and level of adherence to state guidelines for the agricultural education program in their schools.
- H_0 There is no relationship between superintendents' agricultural literacy test scores and enrollment in the agriculture education program in their schools.
- H_1 There is a relationship between superintendents' agricultural literacy test scores and enrollment in the agricultural education program in their schools.
- H_0 There is no relationship between principals' agricultural literacy test scores and enrollment in the agricultural education program in their schools.
- H_1 There is a relationship between principals' agricultural literacy test scores and enrollment in the agricultural education department of their schools.
- H_0 There is no relationship between counselors' agricultural literacy test scores and enrollment in the

agricultural education department of their schools.

- H₁ There is a relationship between counselors' agricultural literacy test scores and enrollment in the agricultural education department of their schools.

Assumptions

The following assumptions were made concerning this study:

1. Superintendents and principals are responsible for determining and recommending a budget for the local agricultural education department.
2. The counselors' responsibility is to make students aware of the career opportunities which should include agriculture and how the agricultural education program can provide the training to prepare for those careers.
3. The principal is responsible for helping vocational departments of a high school maintain standards of achievement by adhering to the state's vocational education guidelines.

Limitations

The study took place during the academic school year 1994-95. The limitations of this study were to minimize problems of external validity when generalizing the

conclusions to all the high schools in the western states.

The limitations are as follows:

1. Surveys were limited to high schools in the states of Montana, Wyoming, and North and South Dakota that have had agricultural education departments for at least two (2) years.
2. If the high school did not have a counselor that handles class schedules, the person in charge of scheduling was asked to complete the counselor's survey form.
3. Administrators or counselors in their first year of employment at their current schools were included in the study because no statistically significant differences were noted.

Definitions

1. Agricultural education instructor: An instructor employed by a high school district to teach and train students in and about agriculture, both in the classroom and in the laboratory.
2. Superintendent: The primary administrative employee of the school district, hired by the school board to oversee the budget of the district and to conduct the affairs of the district in relation to personnel hired.

3. Principal: The administrator in charge of building management, staff evaluations, and curriculum.
4. Agricultural Literacy: "The development of the individual in the principles and concepts underlying modern agricultural technology. As defined here it applies to producing, processing, distributing, marketing, and consuming the products of the food and fiber system. It also includes an awareness of the impact agriculture has on the environment, on society, and on everyday living of the individual" (Law & Pepple, 1990, p.10).
5. Agricultural Literacy Test: An instrument used to measure an individual's basic awareness about agriculture.
6. Agricultural Literacy Test Score: The number of correct answers as a percentage of the total answers on the agricultural literacy test.
7. Levels of Agricultural Literacy: The agricultural literacy test scores were grouped as:

Low literacy--	below 50%
Minimal literacy--	50%---70%
Moderate literacy--	71%---85%
High literacy--	86%---100%

Levels of Literacy (Bertelsen & Miller, 1990).

8. Level of Funding: The total money budgeted for the agricultural education department plus the money earned in one year by the FFA chapter.
8. Adherence to State Guidelines: A rating of the perception of the school's agricultural education department on a scale of one to four by the particular administrator being surveyed.
9. Enrollment: The number of different students taking classes in agricultural education at the secondary level (FFA and non-FFA).

CHAPTER 2

REVIEW OF LITERATURE

National and Global Concerns

Agricultural literacy is a problem of the same significance as nuclear war, the Middle East Conflict, or our national debt but is not languid enough to be picked up by the media (Frick, 1990). Agricultural literacy does not have the glamour required to hit the headlines each day. Tisdale, (1991) suggested the type of information to reach the press is highly sensational issues that alarm people. The media's reaction to this is a reaction without reason because of a lack of basic agricultural concepts. The resulting situation is almost irreparable damage to the agriculture industry. This is why it is important that American people have a basic knowledge of agriculture to make important nationally significant decisions about our food and fiber system (Law & Pepple, 1990).

A recent agricultural awareness study completed by Flood and Elliot (1994, p.103), stated that "over 80 percent of the respondents agreed that they need facts about agriculture in order to make informed decisions." This fact is realized by students (age 20-39) surveyed at Arizona Community College, who in the researcher's words were "the

majority of the student population in attendance in parity with the peak of the 'baby boom' generation in the general population" and represent "the largest segment of the voting population in this country."

The other concern voiced by Law and Pepple, (1990) was the ever increasing need for high school and college graduates to assume careers in all aspects of agriculture. Another development occurring in agriculture education which causes concern: is agricultural illiteracy going to perpetuate more agricultural illiteracy? According to Iverson and Robinson, (1990), the majority of the students in the College of Agriculture at the University of Georgia now come from Atlanta" (p.20). Iverson and Robinson, (1990) said that the majority of prospective Agricultural Education teachers are urban, have never had high school vocational agriculture/FFA experience, and are graduates in other majors, only adding Agricultural Education Certification while pursuing graduate degrees.

As stated by Kahler, (1976), "it is also necessary for those within the industry and other members of society to understand and appreciate the importance of agricultural interrelationships in their world (p.7)". Technology and efficiency in agricultural practices has made food available to the American public so it can be purchased with 11.4 percent of their disposable income (American Council for Agriculture, 1994). This is the lowest in the world. The

impact that American agriculture has on the world is without dispute. With this abundant food supply and huge agricultural industry complex, Frick, (1990) suggested that most people still do not understand America's food system or its impact on society and the world.

Today, the American agricultural worker supplies himself and 128 other people worldwide with food. As stated by the Kiplinger Letter:

"America must retain world leadership in agribusiness, our largest and most technically advanced industry. It is one of the few industries based on renewable resources and will be the lynch pin of U.S. competitiveness in the global 1990's" (National FFA Project Growth Brochure, 1991).

This certainly increases the importance of making agricultural policy decisions from a sound knowledge base rather than from speculation of what seems to be true. These decisions need to be made by agriculturally literate policy makers.

Impact of Agricultural Literacy on Schools

How do these concepts of decision making relate to our problems at the junior high and high school levels? The decisions made there are important because our youth of today will be the policy makers of the future. Also, the decisions being made by school administrators concerning education of our youth must be made from a knowledge base,

not from speculation of what seems to be true.

Administrators of our schools certainly are not much different from the rest of society--in being the second and third generation of Americans living off the farm and having no agricultural experience.

As society moves toward more urbanization, young people get farther and farther away from production agriculture. Because their lives are not touched day to day by the grass roots of the food and fiber system, every generation teaches their children less about food and fiber. "The transformation of American society from primarily rural to primarily urban has resulted in the average citizen knowing very little or nothing about agriculture even though agriculture continues to play a vital role in the nation's economy" (Law & Pepple, 1990, p.10).

Assessment of Agricultural Literacy Today

Just how bad is the situation today that we are alluding to when we speak of agricultural illiteracy? According to one source, "Knowledge about agriculture is dreadfully poor" (Terry, Herring, & Larke, 1990, p. 3). Horn and Vinning, (1986) also conducted a study of agricultural literacy on secondary students in Kansas and found that only 30 percent of a sample of 2000 Kansas students gave correct answers on the literacy test.

Another literacy study involving fourth grade teachers in Texas resulted in average scores of less than 50 percent on an agricultural literacy test. It was later discovered that these fourth grade teachers had an inaccurate perception of agriculture, with over 90 percent of them reporting that the industry of agriculture today is farming and ranching only (Terry, 1990).

In a similar study in Oklahoma, Williams, (1990) reported that 123 students in Luther, Oklahoma, scored 32.62 percent on an agricultural literacy test. This test measured their knowledge on agriculture as a production industry, a global industry, an industry shaped by research, an environmentally aware industry, and a historically significant industry. Williams (1990) found that rural students had a good idea of basic agricultural concepts, but viewed agriculture as an industry which provides food, clothing, and shelter. Another conclusion was that 4-H/FFA students also lacked a basic understanding of agriculture.

A recent assessment of the agricultural literacy of 4-H members was completed by Frick, Birkenholz, and Machtmes, (1994, p.121). An attempt was made to establish a benchmark by which to measure present agricultural literacy. The findings of the study were alarming in certain perceptions. A conclusion of the study said: "The overall mean level of knowledge of agriculture concept areas held by 4-H members is high but varies widely." Another conclusion was "the

highest (least positive) score was in the policy area." The real alarm to the situation comes in the finding that "73 percent of the respondents 'strongly agreed' or 'agreed' that 'Agricultural practices are harmful to the environment.'" In the Knowledge section, 71.3 percent of the 4-H members answered "true" to the statement "Homogenization kills bacteria in milk with heat." Does this not leave room for concern when the 4-H members today will be the consumers and policymakers of the future?

In a similar study by Frick, Birkenholz, Gardner, and Machtmes, (1994, p.130) surveyed the agricultural literacy of rural and urban high school students, one finding was that "overall, 35 percent of the items in the Knowledge section were answered 'incorrect' or 'don't know' by the rural high school student respondents." Also, "overall, 52.1 percent of the items in the Knowledge section were answered 'incorrect' or 'don't know' by urban inner-city high school student respondents." Not only does this study show a problem in the urban-inner city student population, but also a lack in the literacy of the rural high school students.

Contributions to Agricultural Illiteracy

Bertelsen and Miller, (1990) established levels of agricultural literacy which included 'Low literacy' at a

level of less than 50 percent. The researchers found similar results to Kansas indicating a need for a new delivery system for agricultural education. Nearly all students surveyed were found to have 'Low literacy'. Many agricultural educators today are very concerned about the nation's welfare as related to agricultural literacy.

Do attitudes exist in the secondary school setting that block students' agricultural education? Do counselors, principals, and superintendents who know little about agriculture and who do not have the background or experience, properly counsel students about agricultural education? Is there a failure in many school districts to expose students of the proper age to careers in agriculture as well as to other professional careers? Is there a need for a change in the delivery system of agricultural education? If agricultural literacy is a problem among superintendents, counselors, and principals, how do we change their educational status?

The dilemma we face is the result of an evolutionary process in which people living in the urban and suburban have lost the personal experience with the development of agriculture into what it is today. Perhaps agriculture was changing so rapidly that education about that change could not keep pace with agricultural developments. These situations have permeated the public school system, and have perpetuated the narrow definition of agriculture.

Administrators and counselors, who are products of this historical situation now set policies and attitudes that may not allow for a reversal of this dilemma. Thus, the challenge before the agricultural educator is one of changing the perception of administrators, counselors, school boards, and communities about agriculture in its broad definition, as well as changing the image of agriculture among their students.

Factors Affecting Enrollment in Agricultural Education

The argument then comes, why are students not enrolling in agricultural education? Is it because of the influence coming from the literacy level of principals and counselors, or are there other factors also? The most limiting factors of student enrollment in secondary agricultural education were researched in Idaho, (Riesenburg and Lierman, 1990). Results indicated that the four most limiting factors inhibiting enrollment in secondary agricultural education were 1) scheduling conflicts, 2) change in students' interests and attitudes toward agriculture, 3) competition with other electives, and 4) academically oriented students being guided away from secondary agriculture.

Where are the priorities for education in and about such a nationally significant industry? How should it be taught? Where should we teach it? Should it be within

general education? Is it important enough to be a required class for every student? The National Research Council Report (1988), stated: "Agriculture--broadly defined-- is too important a topic to be taught only to the relatively small percentage of students considering careers in agriculture and pursuing vocational agriculture studies" (p.8). The National Research Council Report dictated that "Beginning in kindergarten and continuing through twelfth grade, all students should receive some systematic instruction about agriculture" (p.2). We should be "teaching agriculture as a basic and applied science, and establishing instruction about agriculture as a legitimate, indispensable part of the public school" (Kahler, 1988, p.11). These prescriptions would address two of the four major limiting factors considering enrollment in one class of agricultural education as a requirement for high school graduation.

The truth of the matter is the system set in place for what was then Vocational Agriculture, the Smith-Hughes Act of 1917, is now only serving a population of 4.5 percent of all secondary students nation-wide (National Research Council Report, 1988). The question then arises, why are such a small percentage of students involved in Agriculture Education? Riesenbergs and Lierman, (1990) studied the factors influencing secondary agriculture enrollment as perceived by administrators and agricultural education

instructors. In the Riesenburger & Lierman study, some intermediate limiting factors were also identified. These were 1) inadequate or inaccurate student image or knowledge of secondary agricultural education, 2) lack of student exposure to a variety of jobs that require skills taught in agricultural education, 3) competition with sports, and 4) demand on student's time by secondary agricultural education. Again, where is the proper priority and the proper attitude here? Has there been a lack on the part of parents and on school personnel to put agriculture in its proper perspective with class offerings and support due to their improper or biased perception of what agriculture is?

A national study was completed by Smith, (1990) which surveyed 40 out of 50 state supervisors about what they perceived to be the most important problems related to administration and supervision of agricultural education programs in the nation, and found that

the image of agriculture and vocational education were considered major problems, in that four statements in the top thirteen were concerned with the image and understanding of agriculture and the vocational agriculture program by the public and by school administrators (p.46).

The four problems as perceived by the state supervisors were college entrance requirements, public misunderstanding of agriculture, a negative image of agriculture as a career, and administrators not recognizing unique characteristics of agricultural education.

The second ranked problem of the Smith, (1990) study was one of increased high school graduation and college entrance requirements which suggested a lack of proper priority of agricultural education. The fourth ranked problem was public misunderstanding regarding the scope or breadth of agriculture. Fifth was society's negative image of agriculture as a career. Eleventh was school administrative officials not recognizing the unique characteristics, such as Supervised Agricultural Experience Programs and FFA, as important components of the instructional program.

Are image and understanding really problems with agriculture today? A study for the University of California at Davis of high school junior's and senior's college preparatory curricula found that students identified agriculture solely with farming Mallory & Sommer, (1986). Synonymous with farming were the words outdoor, hard work, male, boring, and insecure. They rated a career in agriculture high for the opportunity to contribute to society and to be one's own boss, but very low to provide for a secure future and in terms of earning potential.

Meeting the Needs of Students

On the other side of the question, could it be that agricultural education programs are not meeting the needs of

students? Have agricultural educators been too narrow in their own perspectives of agricultural education in the past? It is not that agricultural education has ignored the need for change, because they haven't.

Looking back on the history of agricultural education in the secondary school, we find a study which suggests attempts made to change agricultural education in the mid 1960's. Two of the ten most influential events in the history of agricultural education were the Expanded Definition and Public Law 88-210 which expanded the role of vocational agriculture to include other diverse occupations Camp and Crunkilton, (1985). Supervised Occupational Experience Program (S.O.E.P.) was an event which expanded FFA projects to include off-farm occupational experiences for recognition of FFA achievement.

A very influential person in agricultural education was H.N. Hunsicker who "helped guide the profession from strictly farm-based educational programs to an agribusiness focus" Camp and Crunkilton, (1985, p.60).

Change in Process

The modern attempt to change and broaden agricultural education comes in the National Research Council's findings and recommendations to agricultural educators. The need for more change is still apparent. The focus of agricultural

education must be broadened to encompass a much larger audience than traditionally served by vocational agriculture National Research Council, (1988).

"Just as the agricultural industry is changing from an era of production only and specialization only, to an era of systems integration, so agricultural education too needs to enter an era of integration and interdependence in the educational enterprise" Leising, (1990, p.4).

The National Research Council, (1988) suggests broader curriculum to reach a wider potential audience.

No matter what agricultural subject is taught, these three themes must be incorporated to ensure the development of agricultural literacy. 1) An understanding of the applied processes or methods of agriculture, 2) the basic vocabulary of agricultural terms, and 3) the impact of agriculture on society Frick and Spotanski, (1990, p.6).

The National Research Council, (1988) has recommended that 1) the subject matter of instruction in and about agriculture be broadened and that 2) beginning in kindergarten and continuing through twelfth grade, all students receive some systematic instruction about agriculture. Thus comes the challenge of modernizing programs and curriculums to agricultural educators today.

The most modern attempt at change was the National Summit on Agricultural Education, a national level summit to determine a strategic plan for Agricultural Education. This committee more closely defined what agricultural education was and what it was supposed to accomplish for the benefit

of all students. All these attempts were to both improve and broaden agricultural education as well as to change the public's perception of agriculture, so that we overcome this state of agricultural illiteracy.

As stated in the Strategic Plan for Agricultural Education, "the mission of agricultural education is to provide a total dynamic educational system" (1988, p.2). "Changes can only be made to occur as education in and about agriculture becomes a function of the total school system" Warmbrod, (1987 p.6). This type of effective instruction can only be gained by a concerted, cooperative effort on the part of communities, school boards, and administrative school personnel working with the agricultural education instructor toward specific goals to that end. To do these things, all the people involved must have a knowledge of agriculture in its broad definition. To function adequately, an agricultural education program requires support from school administrators, school district, and the community. This critical support ensures funding and the resources necessary to meet the needs of the program and the students Magill & Leising, (1990).

A Desire For Change

In some communities in Kansas lacking vocational agriculture programs, the rural residents and agribusiness

representatives wanted such programs, but school administrators did not. The administrators cited a lack of student interest, facilities, money, and need for vocational agriculture Parmley, (1982). If one support area is lacking, especially in the administrative area, there will be no program. Does this have anything to do with the agricultural literacy of the superintendents? Do they perceive 'no need' from their own experience or from the feedback from the students? Do they know for sure that the community would not support the program financially, or are they just assuming that? Where do the school boards stand on this issue? What is their influence intended to be over the administrators in a district? This study will attempt to identify what previous background in agriculture the administrators have and how that relates to their present agricultural literacy.

Need for Change

Moore, (1987) sees and calls for a need to change:

My own feeling is that the emphasis must shift from vocational education into agriculture, now offered for a tiny percentage of students, to **agricultural education** for all students, broadly conceived and permeating the entire elementary and secondary school years (p.5).

There is a need for change in the delivery system of secondary agricultural education. Montana reports that 80%

of time spent on instruction was in five areas--agriculture mechanics, animal production, crop and food production, agribusiness, and the FFA. Carpenter and Bishop suggested spending more time on non-production agriculture especially in the areas of high technology, global agriculture, and agribusiness Carpenter & Bishop, (1990).

The Strategic Plan for Agricultural Education (1988) states:

We aspire to excellence as we recruit, prepare, and support individuals in agricultural careers. **We serve** the people and inform them about agriculture, its needs, opportunities, and challenges. **We value** providing instruction in and about agriculture; serving all populations; developing the whole person; responding to the needs of the marketplace; advocating free enterprise and entrepreneurship education; functioning as a part of the total educational system; and utilizing a proven educational process which includes formal instruction, experiential learning, leadership and personal development (p.2).

The focus of this effort is to change everyone's perception of what agriculture is today and to describe what it takes to make an effective agriculture literacy process in the future. One of the problems we have faced in the past is what is the definition of agriculture in 1960, in 1970, in 1980, and now in 1990. The definition of literacy too, has changed, and will continue to change. Frick and Spotanski (1990) stated, "the evolution of these definitions help characterize the basic concepts. The level of skill (knowledge) needed to be literate changes over time, it is a relative measure without an absolute standard" (p.6). We

realize that the problem of agricultural literacy ahead of us is important to the future of our nation. Although we need not foresee the future, we must prepare ourselves and others for it Frick & Spotanski, (1990).

Statistical Study

In preparing for statistically analyzing the data received, a research into the essential tools was made. If the literacy test was to be a useful tool, it needed to be measured for its reliability. The following definition of reliability was taken from Borg (1987, p.121):

"Reliability, as applied to educational measurement, may be defined as the degree to which test scores are free from measurement errors. Reliability is usually concerned with the level of internal consistency of the measure, or its stability over time." It was found that Kuder-Richardson₂₀ was the most adequate for the study's data analysis. Borg said about Kuder-Richardson formulas:

"They require only a single administration of the test. These are generally referred to as the Kuder-Richardson formulas, after the authors of an article in which these formulas were first discussed (1939). Formula 20 is considered by many specialists in educational and psychological measurement to be the most satisfactory method of determining test reliability."

A need for correlational analysis tools became apparent. Pearson's r was selected to compare means of the variables chosen for association. Roscoe, (1975) describes

a correlation coefficient as "an index of relationship between two variables." Roscoe goes on to say correlation coefficients can be obtained by using "the most commonly used measure of correlation, the Pearson product moment correlation coefficient, which was named for its originator, pioneer behavioral scientist Karl Pearson" (p.19).

CHAPTER 3

METHODOLOGY

This section describes the procedures used in completing this study. Included is a description of how the population for this study was determined and surveyed. Descriptions of the statistics that were used in collecting and analyzing the data are given. Results are reported in Chapter 4 of this study.

Population

This was descriptive research that attempted to gather information for the purpose of making the second part of the study correlational. The State Board of Education or Office of Public Instruction in each state was contacted for a list of schools, their administrators' and counselors' names, enrollments, and school addresses. This identified the population of schools in Montana, South Dakota, North Dakota, and Wyoming that had a full-time agricultural education program in place for two (2) years. To reduce frame error, this list was drawn based on the employment of administrators and counselors as of October 1, 1994.

It was determined that the total population was appropriately sized and the whole population was surveyed.

The number of schools were as follows: Montana- 67 schools; Wyoming- 47; North Dakota- 82; South Dakota- 73; for a total population of 269 schools. A goal for a 65 percent response rate was established. To meet this goal, 175 returns would be needed. The actual return rate was 62.8 percent or a total of 169 surveys.

The names and addresses were placed on a computer database with the schools in order, beginning with Montana, South Dakota, North Dakota, and finally Wyoming. The process of random selection was done using the fish bowl technique. Order of schools was drawn from the bowl first, then three pieces of paper containing the administrative positions were placed in the bowl. Beginning with the first school in Montana, its superintendent was randomly selected to receive a survey. The second school's principal was surveyed, and the third school's counselor was surveyed. The rotation then stayed the same until the last school was assigned. Moving on to South Dakota, the first school's principal was randomly selected, with the second school's counselor, and the third school's superintendent was surveyed. North Dakota's first school's superintendent was randomly selected with the second and third school's principal and counselor respectively. Wyoming's first school's counselor was randomly selected, with the second and third school's superintendent and principal selected, respectively. Size of the schools was considered to be a

concern when funding was considered; therefore, the schools were stratified according to enrollment so that data could be interpreted differently. They were stratified as follows: 0-100; 101-200; 201-300; 301-400; and 400 and above.

Instrument Design

A survey instrument was designed to collect demographic data which was the basis for the descriptive and correlational studies. The survey questionnaire was in booklet form with the demographic data in the back of the booklet. The literacy test was in the first part of the booklet. The booklet (Appendix D, E, & F) also contained an agricultural literacy test that the respondents completed. The surveys were color-coded, with superintendents receiving green surveys, principals receiving blue surveys, and the counselors filling out yellow booklets. Attractive colors were chosen for the covers to help set the booklet apart from other normal documents on a respondent's desk. A cover letter (Appendix A) was designed to encourage the respondent to complete the questionnaire and guaranteed the confidentiality of the survey. Survey instruments were encoded with a number that matched the assigned database number of that school in each state. Encoding was for the purpose of identity and follow-up mailing.

Test questions from other literacy measurement studies were evaluated for use in this agricultural literacy test Terry, Herring, and Larke, (1990); Williams, (1990); Vinning-Koch, (1986). The test questions and the survey instrument were reviewed for face validity by the teacher trainers in the Agricultural Education Department at Montana State University, selected agriculture education instructors in Montana, the Montana State University Extension Director, and personnel working with the Agriculture in Montana Schools. Pilot testing of the instrument used the teachers in the Chinook, Montana school district. Revisions were made in the instrument and the agricultural literacy test as per the recommendations of these staff people.

Collection of Data

All the appropriate techniques were used to guarantee an excellent return rate. The use of official stationery, a signature of the advising professor, a written signature, survey in booklet form for easy stapling, complete with prepaid postage.

The questionnaire instrument (Appendices D, E, & F) and cover letter (Appendix A) were mailed to all respondents on April 20, 1995, with a reminder postcard (Appendix B) being mailed sixteen days later on May 6. Those respondents not returning their survey by May 20 were mailed a second copy

of the survey along with a second cover letter (Appendix C) on May 22, 1995, making a different appeal to be a participant. Early and late responders were separated and analyzed separately. Surveys from the first mailing were considered early responders. Late responders were considered to be those returning surveys from the second mailing.

Statistical Treatment

Reliability or internal consistency of the agricultural literacy test was checked by subjecting the test questions to a Kuder Richardson₂₀ test. The outcome of the test yielded a reliability of .966. The early and late test score means were checked for significant differences using a t-test comparison in the MSU-STAT Software Program with no significant differences between early and late responses qualified by a P-value of .408.

The statistical analysis of variables included calculation of means, frequencies, and Pearson's r's, and were conducted using the MSU-STAT program. Support analysis was done using Quattro Pro and Microsoft Works.

The data describing the associations between administrators and adherence to state guidelines and enrollment is presented in Chapter 4 of this study using Davis's, (1971) coefficient conventions. These are as

follows: .01 -.09 negligible, .10 -.29 low, .30 -.49 moderate, .50 -.69 substantial, and .70 and higher very strong association.

Because of its need for interval data, Pearson's r could not be used on the correlation of superintendent's literacy test scores and funding levels. The data collected on funding levels was simply nominal data which can only be used in descriptive research. The questions on perception of necessity of offering agricultural education (Appendices D, E, & F-Part 2) were designed to be interval data. Interval data according to Roscoe, (1975, p.94) is explained as, "Interval scales are sometimes called rank order scales."

CHAPTER 4

RESULTS OF THE STUDY

Introduction

The purposes of this study were to determine the level of agricultural literacy among administrators in our high schools and to determine if a relationship exists between those levels and funding, enrollment, and adherence to state guidelines for agricultural education programs. The results of the survey will be reported in two parts. The first part is a reporting of data in the descriptive portion of the study. The second portion will be report hypothesized relationships in the correlational part of the study. The descriptive study results of this study are presented in five areas: (1) agricultural literacy levels and demographic data, (2) perceptions of present offerings of agricultural education, (3) knowledge of community and state agricultural education, (4) enrollment, funding, and service of agricultural education to students. The correlational part of the study will be reported in two areas: (1) relationship to adherence to state guidelines and (2) relationship to enrollment.

Agricultural Literacy Levels and Demographic Data

A total of 269 administrators in Montana, South Dakota, North Dakota, and Wyoming received survey instruments containing a carefully designed, pilot-tested agricultural literacy test and questions to collect demographic data. The questions used focused on some production agriculture but also agribusiness, national and international agricultural relationships, consumer concerns and natural resources. Of the 269 sent, 169 were returned for 62.8% return rate. A decision was made to accept the 62.8 percent return rate (Table 1) of the population, as most schools had been dismissed for the 1994-95 school year. Four instruments were sent to schools who had no agricultural education programs, two were returned unanswered, and one was sent to a post-secondary school. The number of usable returns was 162 for a 60.2% usable return rate. Twelve other surveys lacked some enrollment information that allowed only partial data analysis. The number or "N" figure, may vary per table due to some surveys lacking data concerning enrollment in agricultural education and FFA. The n-value is determined by response to each particular question. Percentages may not equal 100 due to some rounding.

The data in Table 1 summarized the number of usable and non-usable responses from each individual state. Total

return percentage and usable percent are depicted for each state.

Table 1. Summary of number of usable and non-usable responses from each state.

State	Total	Returned	% Return	Usable	% Usable
Montana	67	44	65.6	42	62.6
S. Dakota	73	45	61.6	44	60.2
N. Dakota	82	53	64.6	52	63.4
Wyoming	47	27	57.4	24	51.0
Total	269	169	62.8	162	60.2

The data in Table 1 reveal that 169 schools returned surveys out of a possible 269. The return rate (62.8%) yielded the usable return rate (60.2%) when seven unusable surveys were deducted. Wyoming had the lowest usable return rate (51.06%) as compared to North Dakota recording the highest (63.4%).

Responses were tabulated according to their administrative position and state. The researcher believed that the results presented in this manner would be more useful to the states and administrators evaluating this study. Reporting of the whole did not necessarily reflect the same results as when the data were categorized. The results of that tabulation appear in Table 2.

Table 2. Response rate for state and administrative positions.

	Coun.			Prin.		Supt.	
	N	n	%	n	%	n	%
Montana	42	15	35.7	16	38.0	11	26.1
S.Dakota	44	10	22.7	16	36.4	18	40.9
N.Dakota	52	14	26.9	17	32.7	21	40.3
Wyoming	24	9	37.5	8	33.3	7	29.1
Total	162	48	29.6	57	35.2	57	35.2

The data in Table 2 portray that Wyoming led the counselors from all states with a return percentage of 37.5 percent with South Dakota's counselors having the lowest response rate (22.7%). Montana principals exceeded the other states with a 38 percent return. South Dakota superintendents portrayed the highest return rate (40.9%) with Montana's superintendents the lowest response rate (26.1%).

Demographic data were collected to understand the previous exposure of the respondents to agricultural experience and agricultural education. A question investigated their previous level of production agriculture and agribusiness experience. Table 3 depicts the data collected concerning their previous agriculture experience.

Table 3. Previous agricultural experience of all administrators.

Respondent	Yes		No	
	n	%	n	%
Principal	25	43.9	32	56.1
Counselor	24	50.0	24	50.0
Superintendent	37	66.0	19	34.0
Total	86	53.4	75	46.6

Table 3 information shows that the group having the greatest amount of previous experience with agriculture was the superintendents (66%). It is interesting to note that only 50 percent (24) of the counselors had any previous agricultural experience and only 43.9 percent (25) of the principals had previous agricultural experience. It needs to be noted that less than half (56.1%) of the principals had any previous agricultural experience at all. This may be a result of the decline in the number of farm families involved in production agriculture. Forty seven percent (46.6%) of the administrators had neither been engaged in production agriculture or spent any time in an agribusiness entity.

The researcher believes a relationship exists between their literacy test scores and their previous experience in agricultural organizations such as 4-H and FFA. Table 4 indicates their previous 4-H experience.

Table 4. Administrators' 4-H experience.

Respondent	Yes		No	
	n	%	n	%
Principal	12	21.1	45	78.9
Counselor	20	41.7	28	58.3
Superintendent	14	25.5	41	74.5
Total	46	28.8	114	71.2

Statistics in Table 4 depict that counselors (20) were the largest number involved in 4-H as a youth. It is noted that principals again portrayed the smallest number (12) and percentage of experience (21.1%). Less than one third (28.8%) of the administrators had been involved in the 4-H youth organization. One fourth (25.5%) of the superintendents were in 4-H as youths in their respective communities.

Table 5. Respondents' high school agricultural education class experience.

Respondent	Yes		No	
	n	%	n	%
Principal	12	21.1	45	78.9
Counselor	10	20.8	38	79.2
Superintendent	8	14.3	48	85.7
Total	30	18.6	131	81.4

Superintendents had the smallest percentage (14.3%) of administrators previously enrolled in agricultural education classes in high school as portrayed by data in Table 5. Likewise, 20.8 percent of the counselors and 21.1 percent of the principals were previously enrolled. Only a total of thirty (18.6%) administrators ever had been enrolled in secondary agricultural education.

Table 6. Administrators' FFA experience.

Respondent	Yes		No	
	n	%	n	%
Principal	9	16.1	47	83.9
Counselor	6	12.5	42	87.5
Superintendent	8	14.5	47	85.5
Total	23	14.5	136	85.5

Table 6 provides a view of the FFA experience of all administrators. In the realm of FFA, there were very few administrators. Twenty three (14.5%) had experience with FFA. The smallest number was in the counselor group, with only 6 former FFA participants.

Respondents were asked for their years of service and for their experience working with agricultural education teachers. Table 7 provides the data for years and number of teachers worked with.

Table 7 displays the mean number of years that administrators were involved in that particular job. The number of years was very consistent among the groups, with counselors serving 10 years, principals 9 years, and superintendents 11 years.

Table 7. Respondents' years of service and number of agricultural teachers worked with.

Question	Coun.		Prin.		Supt.	
	Mean*	S.D.	Mean*	S.D.	Mean	S.D.
Total years of service as particular administrator	10	9.43	9	9.45	11	8.75
Number of agricultural education teachers	3	2.74	2	3.21	3	3.40
Years of service in present high school	8	9.49	6	8.26	6	6.59

* means of years and teachers rounded to whole integers

The number of agricultural education teachers the administrators were involved with was very uniform across groups as shown by data in Table 7. On the average counselors had served with 3 teachers, the principals 2, and the superintendents with 3 agricultural teachers.

Information displayed in Table 7 shows that years of service in present high school settings was highest in the counselor group, with the average number of years being 8. Principals and superintendents both served an average of 6 years.

Administrators were grouped into five categories based on school enrollment, with the results displayed in Table 8. All school size categories were uniformly represented with number of respondents, except for the 301-400 student category. Only six (3.7%) respondents completed the survey from this category. Such a small sample may skew the data for mean test scores for those respondents. The 0-100 category had the most respondents (59), representing 36.4 percent of the total respondents. The 201-300 and over 400 categories were nearly equal, 17.9 and 15.4 percent respectively. Using raw data, the enrollment in the over 400 student category ranged from 401 to 2100.

Table 8. Response from each school size category and administrative position.

Size	Total		Coun.		Prin.		Supt.	
	N	%	n	%	n	%	n	%
0-100	59	36.4	14	23.7	26	44.1	18	30.6
101-200	47	29.0	17	35.1	13	26.7	19	40.4
201-300	24	17.9	5	20.8	9	37.5	10	41.6
301-400	6	3.7	0	0.0	1	16.7	5	83.3
Over 400	25	15.4	12	48.0	8	32.0	5	20.0
Total	162	100.0	48	29.6	57	35.2	57	35.2

Data concerning test scores and literacy levels are reported in Table 9. The levels of literacy established by Bertelsen & Miller, (1990) were used in reporting the results. A score of less than 50 percent was considered to

be a low literacy level. The mean score for all respondents was 69.4 percent, which falls into the minimal literacy range. Minimal literacy ranged from 50 to 70 percent, moderate literacy ranged from 71 to 85 percent, and high literacy was a test score range from 86 to 100 percent. The lowest score obtained on the test was 46 percent with the highest being 96 percent.

The data revealing levels of literacy were analyzed by administrator group. Associations to adherence of state guidelines and enrollment will be made to these individual group test score means later in this chapter.

The data in Table 9 reveal that 1.75 percent (2) of the administrators scored in the low literacy category. It is worth noting that 44.3 percent (68) of the administrators scored in the minimal range. The largest number of respondents with minimal literacy were the counselors with 54 percent (26) and the lowest were the principals with 36.9 percent (21). The data indicate 46.9 percent (13) of all administrators ranked in the moderate level. Fifty-one percent (50.9) of the superintendents were moderately literate, as were 43.9 percent (25) of the principals and 46 percent (22) of the counselors. Likewise it is reported that 11.4 percent (13) of the administrators scored in the high literacy range. Ten (17.5%) principals and three (5.3%) superintendents scored 86 percent or higher (high literacy).

Table 9. Respondents' level of literacy.

Resp	N	Mean	Low		Minimal		Moderate		High	
			n	%	n	%	n	%	n	%
Prin.	57	71.2	1	1.7	21	36.9	25	43.9	10	17.5
Coun.	48	67.5	0	0.0	26	54.0	22	46.0	0	0.00
Supt.	57	69.2	1	1.8	24	42.0	29	50.9	3	5.3
Total	162	69.4	2	1.75	68	44.3	76	46.9	13	11.4

The administrators' responses were grouped by state. This provides better analysis of data for individual states. Data in Table 10 provides information regarding the administrators' mean scores by state.

Table 10. Number of respondents and means by states.

Resp.	N	Mean	Means			
			Mont.	S.Dak.	N.Dak.	Wyo.
Prin.	57	71.2	67.5	68.1	73.9	70.5
Coun.	48	67.5	71.8	66.3	68.3	67.7
Supt.	57	69.2	70.6	71.4	67.1	67.6

Data in Table 10 reveal that counselors had the lowest mean test score (67.5). Principals had the highest mean test score (71.2). Montana counselors displayed the highest mean test score (71.8) and Montana principals had the lowest score (67.5). Superintendents in South Dakota exceeded the mean test score of all superintendents with a score of 71.4, and counselors had the lowest mean test score of 66.3 of all

counselors. North Dakota principals had the top mean test scores of all administrator groups with (73.9). No notable differences exist between states according to test score means.

The test scores were also analyzed according to school size. The school size and mean test score with number of respondents from each school size are reported in Table 11. No significant differences in means appear to exist between school size categories.

Table 11. Respondents and test score means according to school size.

Size	N	Mean	S.D.
0-100	59	69.95	1.03
101-200	47	68.53	1.01
201-300	24	69.92	1.04
301-400	6	71.17	1.59
Over 400	25	68.96	.94

The data in Table 11 indicate that the mean score did not vary significantly based on school size, as the range of scores were 68.96 to 71.17. The 301-400 school does exhibit a high standard deviation, indicating the mean score has been affected by the small sample size. The 0-100 school size category exhibited the highest number of respondents (59). The smallest number of respondents (6) came from the 301-400 school size category.

Perceptions of Present Agricultural Education

Agricultural education and FFA are unique and inter-related programs which are guided and evaluated by state and national offices. In some states included in this survey, individual program funding from the state or district level depends on the extent to which these programs meet district or state standards. The researcher believed it is critical that these standards are understood explicitly by the administrators in their high schools. It is necessary to meet all standards to have the highest quality program. Elimination or impairment of any of these standards will result in loss of effectiveness of an individual program.

Eight questions (Appendices D, E, & F- Part 2) were posed to respondents to obtain their perceptions of the agricultural education program and FFA in their high schools. Administrators were asked to respond on a four point Likert-type scale with 4 being "strongly agree," 3 being "agree," 2 being "disagree," and 1 being "strongly disagree."

The questions are a part of the correlational study comparing administrators' literacy test score means to their response to each question to determine an association. Individual questions are presented in addition to the means for each Likert-type scale answer. The tabulation of the number of responses to each question is viewed in Table 12.

Data in Table 12 support the idea that most administrators have a good perception of their agricultural education program and FFA in their respective schools, as denoted by the number of administrators (80-122) who strongly agreed with the statements. The question concerning FFA being an integral part of the agricultural education program was supported by 133 administrators (82%) who responded that they strongly agreed with the statement. The mean of 3.79 and standard deviation of .46 further substantiates the strength of that agreement.

A core of administrators do not agree with the interpretation of intra-curricular and apparently don't have a good understanding of Supervised Agriculture Experience Programs (S.A.E.P.'s). The question investigating their perception of FFA as an intra-curricular activity reported that the largest number of administrators disagreed (20), with six (6) strongly disagreeing. The mean rating (2.96) for this question was the lowest and displayed the highest standard deviation (2.07). Although the FFA chapter has to be considered intra-curricular to meet the state program standards, the data supports the fact that administrators do not agree with that perception. This is probably due to a complex variety of ideas about exact definitions of extra-, intra-, and co-curricular classifications. All other questions are reported to have agreeable perceptions.

Table 12. Responses to perception questions about agricultural education and FFA.

Question	N	Mean	S.D.	Strongly Disagree		Disagree		Agree		Strongly Agree	
				n	%	n	%	n	%	n	%
Program meets the minimum standards set up by the state office.	162	3.73	.48	0	0.0	3	1.8	37	22.8	122	75.3
FFA chapter is an integral part of the program.	162	3.79	.46	0	0.0	4	2.4	25	15.4	133	82.0
Supervised Agriculture Experience Programs are an integral and necessary part of program.	162	3.36	1.20	3	1.9	11	6.8	59	36.4	88	54.3
Program follows a curriculum approved by the state office.	162	3.53	1.18	3	1.9	6	3.7	41	25.3	111	68.5
FFA Chapter must be in good standing with the state and national organizations.	162	3.64	1.11	0	0.0	3	1.9	39	24.1	119	73.5
FFA Chapter has to be an intra-curricular to maintain minimum state standards.	162	2.96	2.07	6	3.7	20	12.3	57	35.2	75	46.2
Teacher must supervise students engaged in S.A.E.P.'s.	162	3.42	1.79	0	0.0	6	3.7	43	26.5	110	67.9
Program is directed by a community advisory council.	162	3.01	2.08	7	4.3	16	9.8	55	34.0	80	49.4

Knowledge of Community and State Agriculture

The administrators' knowledge of community and state agriculture education concepts was also probed. Respondents were asked to answer twelve questions based on factual information (Appendices D, E, & F- Part 3) with a true or false response.

Table 13 depicts the number of correct and incorrect responses to the community and state agricultural education questions. The questions were answered uniformly and favorably with the exception of one question. The question delving into the number of years a student can belong to FFA after high school graduation was answered more times incorrectly (91) than correctly (71). The question was missed by 56.2 percent of the administrators, indicating a low level knowledge about the FFA program beyond high school. The high number of incorrect responses might be explained by the fact that a change in that policy was adopted recently. All respondents (100%) answered the question correctly about the College of Agriculture exclusively educating agriculture students in production agricultural techniques. The two questions investigating the County Extension Office being an extension of the State Land Grant University and its directing the 4-H programs in the community displayed high literacy, with the number of correct answers being 154 and 158 respectively.

Table 13. Number and percentage of correct and incorrect responses to perception questions about community and state agricultural education questions.

Question	Correct		Incorrect	
	N	%	N	%
Associate degrees given at colleges and universities with two-year programs.	138	85.2	24	14.8
Agricultural college originally the land grant college of the Smith-Hughes Act of 1917.	144	88.9	18	11.1
To teach agriculture education the person needs a fifth year degree.	150	92.6	12	7.4
Students can be a part of the FFA Program until they attend their fourth national convention after high school graduation.	71	43.8	91	56.2
FFA Chapters are at the collegiate level.	133	82.1	29	17.9
Over 4000 job opportunities nation-wide per year to students with a four year degree from a college of agriculture.	144	88.9	18	11.1
The letters (SAE) stand for Supervised Agriculture Experience.	140	86.4	22	13.6
College of Agriculture educates students only in production agriculture techniques.	162	100.0	0	0.0
The 4-H programs directed by the County Extension Office.	158	97.5	4	2.5
County Extension Office an education extension of the State Land Grant University.	154	95.1	8	4.9
Research stations of the State Land Grant University provide advice from the Extension Office.	147	90.7	15	9.3
County Agricultural Extension Agents trained in the College of Agriculture in the State Land Grant University.	142	87.7	20	12.3

The question of associate degrees being given at two year colleges and universities was answered incorrectly by 24 respondents (14.8%) and signals a literacy concern even though that number of administrators didn't comprise the majority. The associate degree may be considered to be academic not vocational, which may explain the literacy deficiency in this area.

There is a concern over the lack of understanding about the question dealing with the establishment of the land grant colleges under the Smith-Hughes Act of 1917. Eighteen respondents (11.1%) answered this question incorrectly.

A deficiency in FFA literacy is portrayed with two questions in Table 13. The first is existence of FFA chapters at the collegiate level, answered incorrectly by 17.9 percent of the respondents (29). The researcher surmised that the concept of S.A.E. is not understood considering 22 (13.6%) administrators responding to that question incorrectly.

Enrollment, Funding, and Service to Students

Enrollment was sought in actual numbers of students (1) attending high school, (2) enrolled in agricultural education classes, and (3) actual members of FFA--both in and out of high school. These demographics are portrayed in Table 14.

Table 14. Number of students in agricultural education classes and in FFA.

Size	Number of schools	Mean N	
		Ag Ed*	FFA*
0-100	59	33	28
101-200	47	53	39
201-300	24	69	52
301-400	6	78	49
Over 400	25	87	47
Total	161	55	39

* Student numbers were rounded to whole integers.

The agricultural education enrollment and FFA membership increased proportionately to the school sizes. Average enrollment in agricultural education for all schools surveyed was 55 students. The average FFA membership was 39 members. The data about FFA membership are skewed because some schools indicated on their surveys that they reported all FFA members (in-high school and out-of-high school), and some schools reported only their in-school members. Agricultural education students are not required to join FFA, making FFA enrollment less than agricultural education enrollment.

Information in Table 15 indicates the responses to the question asked counselors and superintendents about their perception of whether or not the agricultural education program in their school was meeting the needs of enrolled students.

Table 15. Counselors' and superintendents' responses to meeting the needs of students enrolled in agricultural education.

Question	Counselor				Superintendent			
	Yes		No		Yes		No	
	n	%	n	%	n	%	n	%
Program meets the needs of students enrolled.	44	91.6	4	8.3	50	89.3	6	10.7

Agricultural education programs were perceived to be meeting the needs of students enrolled by 91.6 percent (44) of the counselors in Table 15. Fifty (89.3%) of the superintendents supported this statement. Most of the comments (Appendix G, Counselors' and Superintendents' surveys Part 4, Question 4) made by administrators were negative, indicating few comments about programs that were meeting the students' needs. The principals were asked a different question.

Table 16. Principals' perception of minimum state standards.

Question	Principal			
	Yes		No	
	n	%	n	%
Meets the standards set by state public school officials for agriculture education.	55	96.5	2	3.5

Data in Table 16 reveal that principals (96.5%) perceived that the agricultural education program in their

high schools was meeting the standards of the state public school officials. Only two respondents (3.5%) thought their program was not meeting the state agricultural education guidelines. Comments (Appendix G, Principals' surveys Part 4, Question 4) made by principals were varied with some related to a lack of funding which influenced their ability to maintain those standards.

Table 17. Counselors and principals and careers in production agriculture.

Question	Counselor				Principal			
	Yes		No		Yes		No	
	n	%	n	%	n	%	n	%
Program prepares students for career in production agriculture.	33	68.8	13	27.1	50	87.7	7	12.3

Information in Table 17 exhibits a great difference in the perceptions of counselors and principals concerning whether or not the program prepares students for careers in production agriculture. Only 68.8 percent (33) of the counselors supported the belief that the program was preparing students for a career in production agriculture while 87.7 percent (50) of the principals discerned this to be true. A wide distribution of comments (Appendix G, Principals' and Counselors' surveys Part 4, Question 5) indicated varied reasons in the area of preparing students

adequately for production agriculture careers. Some comments related to lack of funding interacting with career preparation.

Table 18. Superintendents discerning adequate funding for agricultural education program.

Question	Superintendent			
	Yes		No	
	n	%	n	%
Program has adequate funding from the present sources.	24	42.1	32	56.1

The statistics in Table 18 indicate that administrators who direct the budgetary process in schools resound the lack of adequate funding for agriculture education with 56.1 percent (32) responding there was not adequate funding. Vocational education in nature has been a high per capita cost to schools. The lack of support statewide is evidenced by this finding. The comments (Appendix G, Superintendents' surveys Part 4, Question 5) reveal that twelve specific comments refer to the lack of state and federal dollars. Six other comments refer to lack of equipment and technology, which equate to lack of proper funding. One comment made reference to the lack of funding inhibiting the program's ability to meet the state standard of providing the teacher with a summer contract.

Table 19. Superintendents' response to need for more funding.

Question	Superintendent			
	Yes		No	
	n	%	n	%
Program has need for more funding to properly serve the student	46	83.6	9	16.4

The data in Table 19 indicate that 83.6 percent (46) of the superintendents believe that more funding is needed to provide better services to students of agricultural education. Comments (Appendix G, Superintendent's surveys Part 4 Question 6) provided by superintendents on their survey instrument indicate that programs would soon be lost without more available funding.

Table 20. Counselors' and principals' perception of program preparing students for professional agriculture.

Question	Counselor				Principal			
	Yes		No		Yes		No	
	n	%	n	%	n	%	n	%
Program prepares students for college classes in professional agriculture.	47	97.9	1	2.1	53	93.0	3	5.3

Data in Table 20 depicts that counselors (97.9%) and principals (93%) perceived their agricultural education programs as preparing students for college classes in

professional agriculture-related professions. The comments (Appendix G, Principals' and Counselors' surveys Part 3, Question 6) regarding programs preparing students for college classes and professional agriculture careers indicated the intent of the question was largely misunderstood. Yet, the respondents answered the question regardless of their actual understanding. The comments indicated that the respondents didn't understand the concept of professional agriculture being professional agricultural-related occupations and the training for those occupations.

Correlational Study

Relationships to Adherence to State Guidelines

The researcher believed it necessary to determine if any positive or negative correlations existed between the mean test scores and the means of the eight perception questions. If those correlations exist, then recommendations need to be made to try to correct or prevent problems associated with both those positive and negative correlations.

An objective of this study was to determine the level of literacy of superintendents, principals, and counselors. This was determined by scores derived from an agricultural literacy test which yielded the following means data: superintendents 69.2 (minimal literacy), principals 71.2

(moderate literacy), and counselors 67.5 (minimal literacy). The overall mean test score was 69.4 (minimal literacy).

Once these literacy test score means were established, those test score means and the means of the eight questions (Appendices D, E, & F- Part 2) were tested with Pearson's r to determine if any relationships were present. The Likert-type scale answers provided the interval data format for comparison of means using Pearson's r correlation coefficient. It was possible then to either accept the research hypothesis or the null hypothesis as true.

The null hypothesis tested was: $H_0 : r = 0$

The research hypothesis tested was: $H_0 : r = >0 \text{ or } <0$

If the research hypotheses were accepted, Davis's (1971) coefficient conventions were used to interpret the meaning of the correlations. The conventions are as follows: .01 - .09 negligible, .10 - .29 low, .30 - .49 moderate, .50 - .69 substantial, and .70 and higher very strong association.

The same procedure was used to test the hypotheses concerning the relationships that might exist between the literacy test score means of the administrators and the enrollment in their high schools. Table 21 portrays the means of the eight questions of adherence to state guidelines, the administrators' test score means, and their associations as calculated using Pearson's r .

Table 21. Superintendents' association of agricultural literacy test score mean and adherence to state guidelines.

Question	Mean	Literacy score	Pearson's r
Program meets standards set up by the state office	3.72	69.2	.1541
Local chapter an integral part of agriculture program	3.74	69.2	.1724
S.A.E.P. an integral and necessary part of program	3.37	69.2	.1012
Program follows a curriculum approved by state office	3.33	69.2	-.4415
FFA in good standing at state and national level	3.58	69.2	-.6395
FFA chapter considered to be intra-curricular	2.84	69.2	-.9614
Teacher provides supervision to student's S.A.E.P.	3.40	69.2	-.5359
Program is directed by local advisory council	3.23	69.2	-.1128

The data in Table 21 portrays four questions which exhibit low correlations between test score and means of adherence to state guidelines. These questions are (1) Program meets the standards set up by state office (.1541), (2) local FFA chapter an integral part of agriculture program (.1724), (3) S.A.E.P. an integral and necessary part of program (.1012), and (4) program is directed by local advisory council (-.1128). In evaluating the moderately negative correlation (-.4415) between literacy test score and the question that the program follow a curriculum approved by the state office, the researcher offers the following interpretation. The higher the literacy test score of the administrator, the more critically the curriculum is evaluated.

The substantially negative correlation (-.5359) concerns the agriculture teacher providing supervision to the student's S.A.E.P. as related to superintendents' literacy test scores. The researcher offers the evaluation that the higher the literacy test score, the more the administrator believes there is no need for S.A.E.P. or becomes more critical of its structure.

Regarding the question of the FFA's standing at the state and national level being associated with superintendents' test scores, a substantial negative correlation (-.6395) exists. The data collected indicate the higher the literacy score of the administrator, the more

they perceive a lack of meeting those standards. A very high negative correlation ($-.9614$) exists between the question of the FFA chapter's being considered intra-curricular and literacy scores. The researcher offers this interpretation of the data provided. The higher the literacy score, the more the superintendent considers FFA not to be an intra-curricular organization.

Many definitions exist about extra-, intra-, and co-curricular activities. The researcher believes these definitions and the FFA's consideration is dependent on the perception of the administrator and agriculture teacher and their previous experience with each term. The intent of the term intra-curricular, as provided by this researcher, is that the attributes of FFA cannot be separated from agricultural education and should always be linked for the benefit of the student.

The researcher offers the following explanation of interpretations. The extremely knowledgeable administrator will not take the time to investigate and learn about the particular attributes that make agricultural education and FFA unique and effective in today's schools.

Each administrator group was evaluated separately to determine differences in these associations. The principal's mean test score and its relationship to each of the eight present agricultural education questions are presented in Table 22.

Table 22. Principals' association of agricultural literacy test score mean and adherence to state guidelines.

Question	Mean	Literacy score	Pearson's r
Program meets standards set up by the state office	3.75	71.2	.2922
Local chapter an integral part of agriculture program	3.79	71.2	.3624
S.A.E.P. an integral and necessary part of program	3.49	71.2	.3218
Program follows a curriculum approved by state office	3.60	71.2	-.4705
FFA in good standing at state and national level	3.58	71.2	.1892
FFA chapter considered to be intra-curricular	3.19	71.2	-.5717
Teacher provides supervision to student's S.A.E.P.	3.56	71.2	.3548
Program is directed by local advisory council	3.28	71.2	.1160

Revealed by the data in Table 22 are three questions that have a low correlation to principals' mean test score. They are (1) Program meets standards set up by state office (.2922), (2) FFA in good standing at the state and national level (.1892), and (3) program is directed by local advisory council (.1160).

Displaying a moderate relationship to literacy test scores are four questions. They are (1) local FFA chapter an integral part of the agriculture program (.3624), (2) S.A.E.P. an integral and necessary part of program (.3218), program follows a curriculum approved by the state office (-.4705), and (4) teacher provides supervision to student's S.A.E.P. (.3548).

The question of concern to the researcher is the same one that had the highest negative correlation in the superintendents group. The question of FFA being considered an intra-curricular activity has a substantial negative correlation to principals' test scores (-.5717).

The counselors group had the fewest significant positive and negative associations between literacy test score means and the eight questions of adherence to state guidelines. The data concerning association of counselors' test score mean in its relation to adherence to state guidelines is presented in Table 23.

Table 23. Counselors' association of agricultural literacy test score mean and adherence to state guidelines.

Question	Mean	Literacy score	Pearson's r
Program meets standards set up by the state office	3.73	67.5	.1602
Local chapter an integral part of agriculture program	3.88	67.5	.3623
S.A.E.P. an integral and necessary part of program	3.21	67.5	.2361
Program follows a curriculum approved by state office	3.71	67.5	.1850
FFA in good standing at state and national level	3.76	67.5	.1757
FFA chapter considered to be intra-curricular	2.85	67.5	.2109
Teacher provides supervision to student's S.A.E.P.	3.27	67.5	-.1346
Program is directed by local advisory council	2.44	67.5	-.5728

The data in Table 23 depict that six questions have a low correlation to counselors' mean test scores. Questions displaying low correlation are (1) program meets standards set up by state office (.1602), (2) program follows a curriculum approved by the state office (.1850), (3) S.A.E.P. is an integral and necessary part of program (.2361), (4) FFA chapter in good standing at state and national level (.1757), (5) FFA chapter to be considered intra-curricular activity (.2109), and (6) teacher provides supervision to student's S.A.E.P. (-.1346). Significant differences exist concerning the three administrator groups.

The question of the local chapter's being an integral part of an agriculture program had a moderate correlation (.3623) to counselors' mean test scores. The item on program being directed by a local advisory council in relation to counselors' test score had a substantial negative association (-.5728).

Table 24. All respondents' relationship of agricultural literacy test score mean to enrollment.

	Superintendent		Principal		Counselor	
	Test score	Pearson's r	Test score	Pearson's r	Test score	Pearson's r
Enroll.						
Ag. Ed.	69.2	.6726	71.2	-.1800	67.5	.7068
FFA	69.2	-.3839	71.2	-.1380	67.5	.1708

The data in Table 24 depict a moderate negative association ($-.3839$) between superintendents' mean test scores and FFA, along with a substantial relationship ($.6726$) between agriculture education enrollment and superintendents' scores. There is a negligible relationship between the principals' mean test scores and either agriculture education enrollment ($-.1800$) or FFA membership ($-.1380$). A very high association ($.7068$) exists between counselors' test score mean and agricultural education enrollment.

CHAPTER 5

CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS, AND SUMMARY

Conclusions

The purpose of this study was to establish the agricultural literacy levels of administrators and to examine the relationships between those levels and adherence to state guidelines and enrollment in agricultural education programs in their high schools. Superintendents, principals, and counselors from the four western states of Montana, South Dakota, North Dakota, and Wyoming were surveyed.

The conclusions offered in this chapter are organized and presented as they pertain to each of the objectives of this study, which were:

1. To determine the previous agricultural experience of superintendents, principals, and counselors.
2. To determine the level of agricultural literacy of superintendents, principals, and counselors.
3. To determine the relationship between superintendents', principals', and counselors' agricultural literacy test scores and the schools' adherence to the state guidelines for vocational agricultural education.

4. To determine the relationship between superintendents', principals', and counselors' agricultural literacy test scores and enrollment in the agricultural education program.

The conclusions can only be applied to the population surveyed, and not to the general population. Based upon the data analysis, the following conclusions have been drawn:

1. Less than fifty percent of the administrators in this survey had any previous experience in agriculture. Only twenty six percent had been in 4-H as youths. Less than one fifth had ever been enrolled in an agricultural education class in high school, and only fifteen percent belonged to FFA. Because of the decline in the number of farm families, these administrators did not attain the necessary background to make informed decisions about agricultural education and FFA. Because math, science, social studies, and English were required and agricultural education was not, they did not experience agricultural education and now do not have the proper perception to make choices about whether students today should experience the program.
2. It was determined that all administrators together had a mean literacy test score of 69.4 percent, which indicates they have minimal agricultural literacy. There were no significant differences between

administrator groups in their literacy test score means.

3. The hypotheses, H_0 , There is no relationship between superintendents', principals', and counselors' agricultural literacy test scores and level of adherence to state guidelines for the agricultural education program in their school, must be rejected. The hypotheses, H_1 , There is a relationship between superintendents', principals', and counselors' agricultural literacy test scores and level of adherence to state guidelines for the agriculture education program in their school, is accepted. There are some moderately to very high positive and negative correlations between administrators' literacy test score means and adherence to state guidelines. The question most frequently and most highly, negatively correlated to administrators' literacy test score means was the question of FFA being an intra-curricular activity.
4. The hypotheses, H_0 , There is no relationship between superintendents', principals', and counselors' agricultural literacy test scores and enrollment in the agricultural education program in their schools, must be rejected. The hypotheses, H_1 , There is a relationship between superintendents', principals', and counselors' agricultural literacy test scores and

enrollment in the agricultural education program in their school, is accepted. There is a substantial to very high correlation between administrators' literacy test score means and enrollment in agricultural education.

Implications

The following implication is offered as a result of this study:

The comments from administrators imply a need for more state and federal funding to make secondary agricultural education programs more effective.

Recommendations

As a result of this study, the following recommendations are offered for the vigor of the future secondary agricultural education programs:

1. There needs to be in place a more effective framework for teaching the awareness of agricultural education issues to secondary school administrators. The architects of this framework need to examine the correlations that have been reported in this study to determine the nature of the inherent attributes of the negative correlations.

2. As a result of this study and its review of literature, and the constant decline of families involved in agriculture, the researcher sees a need to develop and implement a framework for use in schools to teach agricultural awareness at all grade levels K-12. Because all future administrators will come from present school populations, the more agricultural awareness they attain, the more they will make informed decisions as administrators. A framework for general education about agriculture has been developed in California. In a study by Leising, (1994), evaluating the potential of the California Agriculture Literacy Framework, a conclusion stated: "it seems reasonable to state that the framework presents a fairly balanced treatment of agriculture as an area for study" (p.119). It also states: "Comments on the framework indicated strong interest in general education about agriculture" (p.119).

Recommendations for Future Studies

1. A recommendation for future study would be to conduct a similar analysis measuring the agricultural literacy of teachers in general education. This analysis could be delineated in terms of their workplace support or cooperation with agricultural education teachers.

2. Another recommendation would be to conduct an additional study in which funding data would be collected using interval data. That data could be statistically analyzed to determine its relationship to agricultural literacy score means. The researcher believes a correlation exists between these two variables detrimental to agricultural education in secondary schools.
3. A recommended study would also be to conduct a similar study of administrators in the same four states who were in schools without agricultural education programs.

Summary

The information from this study should be utilized in the planning of the framework model of agricultural education for future administrators as a part of their certification. The study's correlational discoveries should be examined to understand the negative relationships that exist in relation to secondary agricultural education programs. The data provide information for communities and school boards to make informed decisions about administrators in their school districts.

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APPENDICES

APPENDIX A:

FIRST COVER LETTER


Department of Education

Agricultural and Technology Education
 Cheever Hall
 MSU • Bozeman
 Bozeman, MT 59717-0374
 Telephone (406) 994-3201
 Fax (406) 994-6696

April 17, 1995

Dear School Superintendent:

The industry of agriculture needs young people with an understanding of agriculture, a role filled by secondary Agricultural Education programs. As a graduate student, working on my Masters of Science degree, I am concerned about the forces that influence the success of agricultural education in public schools.

Your responses on the enclosed survey instrument can help to determine the influence that selected factors have on Agricultural Education. Will you please take about 15 minutes and complete the survey. Your responses will be kept confidential and combined with other responses. The identification number on the survey is only for follow-up purposes.

When you have completed the survey, tape it shut and drop it in the mail. It is pre-addressed and stamped for your convenience. Your assistance and cooperation in this matter is greatly appreciated. Please try to have the survey returned by May 1, 1995.

Sincerely yours,

Robert R. McBlair.

Robert R. McBlair
 Graduate Student

Van Shelhamer

Dr. C Van Shelhamer
 Associate Professor.

**Department of Education**

Agricultural and Technology Education
Cheever Hall
MSU • Bozeman
Bozeman, MT 59717-0374
Telephone (406) 994-3201
Fax (406) 994-6696

April 17, 1995

Dear School Principal:

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When you have completed the survey, tape it shut and drop it in the mail. It is pre-addressed and stamped for your convenience. Your assistance and cooperation in this matter is greatly appreciated. Please try to have the survey returned by May 1, 1995.

Sincerely yours,

Robert R. McBlair

Robert R. McBlair
Graduate Student

Van Shelhamer

Dr. C Van Shelhamer
Associate Professor.

**Department of Education**

Agricultural and Technology Education
Cheever Hall
MSU • Bozeman
Bozeman, MT 59717-0374
Telephone (406) 994-3201
Fax (406) 994-6696

April 17, 1995

Dear School Counselor:

The industry of agriculture needs young people with an understanding of agriculture, a role filled by secondary Agricultural Education programs. As a graduate student, working on my Masters of Science degree, I am concerned about the forces that influence the success of agricultural education in public schools.

Your responses on the enclosed survey instrument can help to determine the influence that selected factors have on Agricultural Education. Will you please take about 15 minutes and complete the survey. Your responses will be kept confidential and combined with other responses. The identification number on the survey is only for follow-up purposes.

When you have completed the survey, tape it shut and drop it in the mail. It is pre-addressed and stamped for your convenience. Your assistance and cooperation in this matter is greatly appreciated. Please try to have the survey returned by May 1, 1995.

Sincerely yours,

Robert R. McBlair

Robert R. McBlair
Graduate Student

Dr. C. Van Shelhamer

Dr. C Van Shelhamer
Associate Professor.

APPENDIX B:

FOLLOW-UP POSTCARD

May 6, 1995

Dear Administrator,

A couple weeks ago I mailed you a survey to be filled out for my Master's Degree research. It is extremely important that I hear from you concerning your responses. Please take the few minutes it requires to complete the survey and mail it today! No postage is required, just your help. Thank you very much!

Sincerely,

Robert R. McBlair.

Robert R. McBlair.

APPENDIX C:

SECOND COVER LETTER

WALT ACRA, GR. 7-12 PRINCIPAL
357-2236

DANIEL N. HAUGEN, SUPERINTENDENT
MICHAEL HARDING, BUSINESS MANAGER

RITAE. SURBER, ELEMENTARY PRINCIPAL
357-2033



SCHOOL DISTRICT NO. 10
CHINOOK PUBLIC SCHOOLS

"A Class Act"
P.O. Box 1059 - FAX 357-2238
CHINOOK, MONTANA 59523

May 22, 1995

Dear High School Superintendent:

I know that school is nearly out and you have an extremely busy schedule, but I do need your input for my research. There are forces at work that are influencing the success of our agriculture education programs and I would like to try to identify them. The survey requires fifteen minutes or less to complete. Please take the few minutes it requires to fill out the enclosed survey. It is extremely important that I receive a response from you!

Your responses will be kept confidential and combined with other responses. The identification number on the survey is for follow-up purposes only. When you have completed the survey, tape it shut and drop it in the mail. It is pre-addressed and stamped for your convenience. Your assistance and cooperation is greatly appreciated. Please try to have the survey returned by June 10, 1995.

Sincerely yours,

Robert R. McBlair

Robert R. McBlair
Graduate Student.

WALT ACRA, GR. 7-12 PRINCIPAL
357-2236

DANIEL N. HAUGEN, SUPERINTENDENT
MICHAEL HARDING, BUSINESS MANAGER

RITAE SURBER, ELEMENTARY PRINCIPAL
357-2033



SCHOOL DISTRICT NO. 10
CHINOOK PUBLIC SCHOOLS

"A Class Act"

P.O. Box 1059 - FAX 357-2238
CHINOOK, MONTANA 59523

May 22, 1995

Dear High School Principal:

I know that school is nearly out and you have an extremely busy schedule, but I do need your input for my research. There are forces at work that are influencing the success of our agriculture education programs and I would like to try to identify them. The survey requires fifteen minutes or less to complete. Please take the few minutes it requires to fill out the enclosed survey. It is extremely important that I receive a response from you!

Your responses will be kept confidential and combined with other responses. The identification number on the survey is for follow-up purposes only. When you have completed the survey, tape it shut and drop it in the mail. It is pre-addressed and stamped for your convenience. Your assistance and cooperation is greatly appreciated. Please try to have the survey returned by June 10, 1995.

Sincerely yours,

Robert R. McBlair.

Robert R. McBlair
Graduate Student.

WALT ACRA, GR. 7-12 PRINCIPAL
357-2236

DANIEL N. HAUGEN, SUPERINTENDENT
MICHAEL HARDING, BUSINESS MANAGER

RITA E. SURBER, ELEMENTARY PRINCIPAL
357-2033



SCHOOL DISTRICT NO. 10
CHINOOK PUBLIC SCHOOLS

"A Class Act"

P.O. Box 1059 - FAX 357-2238
CHINOOK, MONTANA 59523

May 22, 1995

Dear High School Counselor:

I know that school is nearly out and you have an extremely busy schedule, but I do need your input for my research. There are forces at work that are influencing the success of our agriculture education programs and I would like to try to identify them. The survey requires fifteen minutes or less to complete. Please take the few minutes it requires to fill out the enclosed survey. It is extremely important that I receive a response from you!

Your responses will be kept confidential and combined with other responses. The identification number on the survey is for follow-up purposes only. When you have completed the survey, tape it shut and drop it in the mail. It is pre-addressed and stamped for your convenience. Your assistance and cooperation is greatly appreciated. Please try to have the survey returned by June 10, 1995.

Sincerely yours,

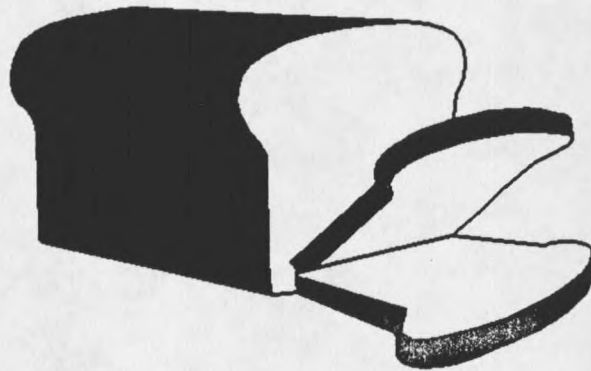
Robert R. McBlair.

Robert R. McBlair
Graduate Student.

APPENDIX D:

SUPERINTENDENT SURVEY

MONTANA STATE UNIVERSITY
AGRICULTURE EDUCATION



THE RELATIONSHIPS OF AGRICULTURAL LITERACY OF
SUPERINTENDENTS, PRINCIPALS, AND COUNSELORS IN FOUR WESTERN
STATES TO ADHERENCE TO STATE GUIDELINES AND STUDENT
ENROLLMENT.

Instructions:

Part 1 is to determine your level of understanding of agriculture as a whole. Various questions are posed that deal with agriculture in a broad sense. It does not deal only with production agriculture, but with agriculture and its related agribusinesses and how they affect the consumer and global situations. Please read the questions carefully and mark what you think to be the proper answer. Each question has an exact and meaningful answer.

Part 2 is to help determine your perception of agriculture education and FFA in your high school. The questions relate to the expected standards the state public school officials have of each agriculture education department around the state. You need to mark on the scale of agree/disagree what your perception is of each question.

Part 3 is to evaluate your knowledge concerning community and state agriculture education activities. Please circle the T for true or the F for false according to your understanding.

Part 4 relates to your particular school and is needed to categorize and analyze data according to school size.

Part 5 is demographic data which will also be used for grouping and analysis of data.

Part 1- AGRICULTURAL LITERACY TEST QUESTIONS

The purpose of this section is to determine your level of understanding concerning state, national, and international agriculture.

Directions-- Circle the letter of the response you believe best answers the question.

1. What percentage of after-tax income did the average American spend for food in 1993?
A. 5.6 percent
B. 11.6 percent
C. 26.1 percent
D. 40.3 percent
2. What's the farmer's share of the average grocery store food dollar?
A. 7 percent
B. 19 percent
C. 30 percent
D. 51 percent
3. Bread would most likely be made from which of the following?
A. corn
B. soybeans
C. wheat
D. flax
4. Veal is the meat of young
A. sheep
B. beef calves
C. dairy calves
D. goats
5. The processing of wheat into flour is called:
A. milling
B. grinding
C. blending
D. baking
6. Over the past 50 years the number of acres in production in the United States has:
A. increased
B. stayed about the same
C. no government statistics are kept on this
D. decreased
7. What adds nutrients to the soil to increase crop yields?
A. herbicides
B. fertilizers
C. terraces
D. pesticides

Circle the letter of the response you believe best answers the question.

8. Compared to farms 100 years ago, a farm today would likely:
- A. grow a wider variety of crops
 - B. have an owner who does not live on it
 - C. be smaller in size
 - D. depend more on family labor
9. Which U.S. president was known for using advanced farming practices?
- A. Ronald Reagan
 - B. James Madison
 - C. George Washington
 - D. Abraham Lincoln
10. A career as a machinery dealer is an example of a career in:
- A. production
 - B. farming
 - C. agribusiness
 - D. government
11. Substances used for destroying or repelling insects, rodents, weeds, and brush are known as:
- A. pesticides
 - B. fertilizers
 - C. nematodes
 - D. plant regulators
12. A major factor that determines which crops are suitable for planting in specific areas of the United States is:
- A. irrigation
 - B. type of farm equipment available
 - C. government farm programs
 - D. number of frost-free days
13. The American farmer raises enough food for himself and _____ other people.
- A. 27
 - B. 52
 - C. 75
 - D. 128
14. The agriculture production in this nation accounts for _____ percent of the Gross National Product?
- A. sixteen
 - B. two
 - C. twenty-four
 - D. ten
15. The whole realm of agriculture and its service industries keep _____ percent of the U.S. workforce in jobs?
- A. five
 - B. ten
 - C. seventeen
 - D. twenty-two

Circle the letter of the response you believe best answers the question.

16. Production agriculture accounts for jobs for _____ percent of the U.S. workforce?

A. two	B. five
C. fifteen	D. twenty
17. Medicine given to animals to prevent or destroy bacterial infections are:

A. hormones	B. antibiotics
C. additive	D. estrogen
18. Commercial dairy cows are typically milked _____ days out of every year.

A. 205	B. 305
C. 335	D. 365
19. Using insects to control or eradicate weeds is a method of _____ weed control.

A. mechanical	B. chemical
C. biological	D. cultural
20. Farming uses about _____ percent of the fossil fuel resources in the United States.

A. seventeen	B. twenty-one
C. fifty-two	D. three
21. The number one cereal grain grown in Montana, Wyoming, North Dakota, and South Dakota according to number of acres is:

A. malt barley	B. wheat
C. rice	D. canola
22. A career in aquaculture involves a person in raising:

A. plants without soil.	B. any type of fish
C. specialized reptiles	D. microorganisms in water
23. The major meat product imported into the U.S. from Australia is:

A. mutton	B. pork
C. beef	D. kangaroo
24. Natural resources are:

A. All limited in supply	C. Resources created by humans
B. All non-renewable	D. Resources naturally occurring

Part 2- **NECESSITY OF OFFERING AGRICULTURE EDUCATION**

The purpose of this section is to determine your perception, as high school superintendent, of the necessity of offering agriculture education and FFA in your high school.

Directions-- Circle the appropriate response according to your perception of the question. 4=STRONGLY AGREE; 3=AGREE; 2=DISAGREE; 1=STRONGLY DISAGREE.

- | | | | | | |
|----|---|---|---|---|---|
| A. | The agriculture education program at this high school meets the minimum standards set up by the state office. | 1 | 2 | 3 | 4 |
| B. | The local FFA Chapter program is an integral part of the high school's agriculture education program. | 1 | 2 | 3 | 4 |
| C. | Supervised Agriculture Experience Programs are also an integral and necessary part of this high school's agriculture education program. | 1 | 2 | 3 | 4 |
| D. | The agriculture education program follows a curriculum approved by the state office. | 1 | 2 | 3 | 4 |
| E. | The FFA Chapter must be maintained in good standing with the state and national organizations. | 1 | 2 | 3 | 4 |
| F. | The local FFA Chapter has to be considered an intra-curricular activity to maintain minimum state standards. | 1 | 2 | 3 | 4 |
| G. | The agriculture education teacher must provide supervision to students engaged in S.A.E.P.'s. | 1 | 2 | 3 | 4 |
| H. | The agriculture education program is directed by a community advisory council. | 1 | 2 | 3 | 4 |

Provide any comments on this section below:

Part 3- KNOWLEDGE OF COMMUNITY AND STATE AGRICULTURE EDUCATION

The purpose of this section is to determine your level of knowledge concerning community and state agriculture education.

Directions-- Circle the letter of the response to indicate if you believe the statement--true or false.

- T F 1. Associate degrees in agriculture are given at colleges and universities that support two-year programs.
- T F 2. The agricultural college in your state was originally the land grant college established by the Smith-Hughes Act of 1917.
- T F 3. To teach agriculture education in the high school setting the person needs a fifth year degree.
- T F 4. Students can be a part of the FFA Program until they attend their fourth national convention after high school graduation.
- T F 5. FFA Chapters are continued at the collegiate level.
- T F 6. There are over 4,000 job opportunities nation-wide per year available to students with a four-year degree from a college of agriculture.
- T F 7. The letters (SAE) stand for Supervised Agricultural Experience.
- T F 8. The College of Agriculture educates students only in production agricultural techniques.
- T F 9. The 4-H program is directed by the County Extension Office in each county.
- T F 10. The County Extension Office is an education extension of the State Land Grant University.
- T F 11. Research stations of the State Land Grant University provide the basis of advice coming from the Extension Office.
- T F 12. The County Agricultural Extension Agents are trained in the College of Agriculture in the State Land Grant University.

Provide any comments on this section below:

Part 4- DATA PERTINENT TO YOUR SCHOOL.

The purpose of this section is to better understand enrollment, funding, and nature of the agriculture education program in your high school.

Directions-- Fill in or check the appropriate blank.

1. What is the current enrollment of students in grades 9-12?
_____.

2. How many students are enrolled in agriculture education?
male_____; female_____.

3. How many students are members of the FFA Chapter?
male_____; female_____.

4. Do you believe the agriculture education program in your high school adequately meets the needs of the students enrolled?
 _____ Yes
 _____ No
 If no, explain why you think it doesn't.

5. Do you believe the agriculture education program in your high school has adequate funding from the sources it draws its money from?
 _____ Yes
 _____ No
 If no, explain why you think it doesn't.

6. Do you believe the agriculture education program in your high school would better serve the student population if more funding was available?

_____ Yes

_____ No

If no, explain why you think it wouldn't.

Part 5- DEMOGRAPHIC DATA

The purpose of this section is to investigate your background in relation to agriculture.

Directions-- Fill in or check the appropriate blank.

1. Were you raised on a farm, ranch, or involved in an agriculture related business? (Agricultural sales, service, or processing).

_____ Yes

_____ No

If yes, how many years? _____

2. Were you a member of a local 4-H Club?

_____ Yes

_____ No

If yes, how many years? _____

3. Were you ever enrolled in an agriculture education class/classes in high school?

_____ Yes

_____ No

If yes, how many years? _____

4. Were you ever a member of the Future Farmers of America in agriculture education?

_____ Yes

_____ No

If yes, how many years? _____

5. List any other agricultural organizations you belong to or have belonged to in the past. (FFA Alumni, Young Farmers Organization, Farm Bureau, or farmer cooperatives).

6. How many years have you served as a high school superintendent?

_____ years.

7. How many agriculture education teachers have you worked with in your service as a high school superintendent?

8. How many years have you completed as a high school superintendent in this high school?

_____ years.

Provide any comments on this section below:

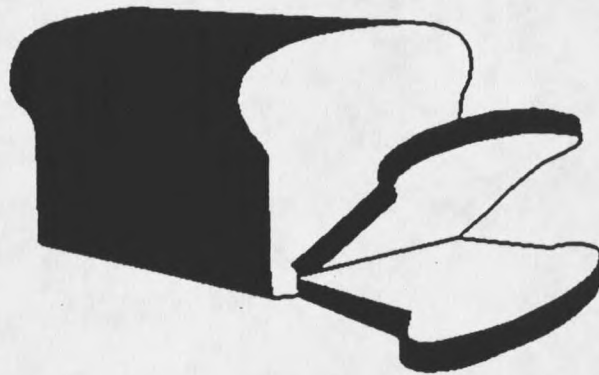
I very much appreciate your assistance in completing this survey. If you would like to have a copy of the results of this survey, please check the blank below and we will provide you with a copy after the data is compiled. Your responses are kept confidential and will only be a part of the total research. Thank you!

Robert R. McBlair.

APPENDIX E:

PRINCIPAL SURVEY

MONTANA STATE UNIVERSITY
AGRICULTURE EDUCATION



THE RELATIONSHIPS OF AGRICULTURAL LITERACY OF
SUPERINTENDENTS, PRINCIPALS, AND COUNSELORS IN FOUR WESTERN
STATES TO ADHERENCE TO STATE GUIDELINES AND STUDENT
ENROLLMENT.

Instructions:

Part 1 is to determine your level of understanding of agriculture as a whole. Various questions are posed that deal with agriculture in a broad sense. It does not deal only with production agriculture, but with agriculture and its related agribusinesses and how they affect the consumer and global situations. Please read the questions carefully and mark what you think to be the proper answer. Each question has an exact and meaningful answer.

Part 2 is to help determine your perception of agriculture education and FFA in your high school. The questions relate to the expected standards the state public school officials have of each agriculture education department around the state. You need to mark on the scale of agree/disagree what your perception is of each question.

Part 3 is to evaluate your knowledge concerning community and state agriculture education activities. Please circle the T for true or the F for false according to your understanding.

Part 4 relates to your particular school and is needed to categorize and analyze data according to school size.

Part 5 is demographic data which will also be used for grouping and analysis of data.

Part 1- AGRICULTURAL LITERACY TEST QUESTIONS

The purpose of this section is to determine your level of understanding concerning state, national, and international agriculture.

Directions-- Circle the letter of the response you believe best answers the question.

1. What percentage of after-tax income did the average American spend for food in 1993?
A. 5.6 percent
B. 11.6 percent
C. 26.1 percent
D. 40.3 percent
2. What's the farmer's share of the average grocery store food dollar?
A. 7 percent
B. 19 percent
C. 30 percent
D. 51 percent
3. Bread would most likely be made from which of the following?
A. corn
B. soybeans
C. wheat
D. flax
4. Veal is the meat of young
A. sheep
B. beef calves
C. dairy calves
D. goats
5. The processing of wheat into flour is called:
A. milling
B. grinding
C. blending
D. baking
6. Over the past 50 years the number of acres in production in the United States has:
A. increased
B. stayed about the same
C. no government statistics are kept on this
D. decreased
7. What adds nutrients to the soil to increase crop yields?
A. herbicides
B. fertilizers
C. terraces
D. pesticides

Circle the letter of the response you believe best answers the question.

8. Compared to farms 100 years ago, a farm today would likely:
- A. grow a wider variety of crops
 - B. have an owner who does not live on it
 - C. be smaller in size
 - D. depend more on family labor
9. Which U.S. president was known for using advanced farming practices?
- A. Ronald Reagan
 - B. James Madison
 - C. George Washington
 - D. Abraham Lincoln
10. A career as a machinery dealer is an example of a career in:
- A. production
 - B. farming
 - C. agribusiness
 - D. government
11. Substances used for destroying or repelling insects, rodents, weeds, and brush are known as:
- A. pesticides
 - B. fertilizers
 - C. nematodes
 - D. plant regulators
12. A major factor that determines which crops are suitable for planting in specific areas of the United States is:
- A. irrigation
 - B. type of farm equipment available
 - C. government farm programs
 - D. number of frost-free days
13. The American farmer raises enough food for himself and _____ other people.
- A. 27
 - B. 52
 - C. 75
 - D. 128
14. The agriculture production in this nation accounts for _____ percent of the Gross National Product?
- A. sixteen
 - B. two
 - C. twenty-four
 - D. ten
15. The whole realm of agriculture and its service industries keep _____ percent of the U.S. workforce in jobs?
- A. five
 - B. ten
 - C. seventeen
 - D. twenty-two

Circle the letter of the response you believe best answers the question.

16. Production agriculture accounts for jobs for _____ percent of the U.S. workforce?
 - A. two
 - B. five
 - C. fifteen
 - D. twenty
17. Medicine given to animals to prevent or destroy bacterial infections are:
 - A. hormones
 - B. antibiotics
 - C. additive
 - D. estrogen
18. Commercial dairy cows are typically milked _____ days out of every year.
 - A. 205
 - B. 305
 - C. 335
 - D. 365
19. Using insects to control or eradicate weeds is a method of _____ weed control.
 - A. mechanical
 - B. chemical
 - C. biological
 - D. cultural
20. Farming uses about _____ percent of the fossil fuel resources in the United States.
 - A. seventeen
 - B. twenty-one
 - C. fifty-two
 - D. three
21. The number one cereal grain grown in Montana, Wyoming, North Dakota, and South Dakota according to number of acres is:
 - A. malt barley
 - B. wheat
 - C. rice
 - D. canola
22. A career in aquaculture involves a person in raising:
 - A. plants without soil.
 - B. any type of fish
 - C. specialized reptiles
 - D. microorganisms in water
23. The major meat product imported into the U.S. from Australia is:
 - A. mutton
 - B. pork
 - C. beef
 - D. kangaroo
24. Natural resources are:
 - A. All limited in supply
 - C. Resources created by humans
 - B. All non-renewable
 - D. Resources naturally occurring

Part 2- **NECESSITY OF OFFERING AGRICULTURE EDUCATION**

The purpose of this section is to determine your perception, as high school principal, of the necessity of offering agriculture education and FFA in your high school.

Directions-- Circle the appropriate response according to your perception of the question. 4=STRONGLY AGREE; 3=AGREE; 2=DISAGREE; 1=STRONGLY DISAGREE.

- | | | | | | |
|----|---|---|---|---|---|
| A. | The agriculture education program at this high school meets the minimum standards set up by the state office. | 1 | 2 | 3 | 4 |
| B. | The local FFA Chapter program is an integral part of the high school's agriculture education program. | 1 | 2 | 3 | 4 |
| C. | Supervised Agriculture Experience Programs are also an integral and necessary part of this high school's agriculture education program. | 1 | 2 | 3 | 4 |
| D. | The agriculture education program follows a curriculum approved by the state office. | 1 | 2 | 3 | 4 |
| E. | The FFA Chapter must be maintained in good standing with the state and national organizations. | 1 | 2 | 3 | 4 |
| F. | The local FFA Chapter has to be considered an intra-curricular activity to maintain minimum state standards. | 1 | 2 | 3 | 4 |
| G. | The agriculture education teacher must provide supervision to students engaged in S.A.E.P.'s. | 1 | 2 | 3 | 4 |
| H. | The agriculture education program is directed by a community advisory council. | 1 | 2 | 3 | 4 |

Provide any comments on this section below:

Part 3- KNOWLEDGE OF COMMUNITY AND STATE AGRICULTURE EDUCATION

The purpose of this section is to determine your level of knowledge concerning community and state agriculture education.

Directions-- Circle the letter of the response to indicate if you believe the statement--true or false.

- T F 1. Associate degrees in agriculture are given at colleges and universities that support two-year programs.
- T F 2. The agricultural college in your state was originally the land grant college established by the Smith-Hughes Act of 1917.
- T F 3. To teach agriculture education in the high school setting the person needs a fifth year degree.
- T F 4. Students can be a part of the FFA Program until they attend their fourth national convention after high school graduation.
- T F 5. FFA Chapters are continued at the collegiate level.
- T F 6. There are over 4,000 job opportunities nation-wide per year available to students with a four-year degree from a college of agriculture.
- T F 7. The letters (SAE) stand for Supervised Agricultural Experience.
- T F 8. The College of Agriculture educates students only in production agricultural techniques.
- T F 9. The 4-H program is directed by the County Extension Office in each county.
- T F 10. The County Extension Office is an education extension of the State Land Grant University.
- T F 11. Research stations of the State Land Grant University provide the basis of advice coming from the Extension Office.
- T F 12. The County Agricultural Extension Agents are trained in the College of Agriculture in the State Land Grant University.

Provide any comments on this section below:

Part 4- DATA PERTINENT TO YOUR SCHOOL.

The purpose of this section is to better understand enrollment, funding, and nature of the agriculture education program in your high school.

Directions-- Fill in or check the appropriate blank.

1. What is the current enrollment of students in grades 9-12?

_____.

2. How many students are enrolled in agriculture education?

male_____; female_____.

3. How many students are members of the FFA Chapter?

male_____; female_____.

4. Do you believe the agriculture education program in your high school adequately meets the standards set by the state public school officials for agriculture education programs?

_____ Yes

_____ No

If no, explain why you think it doesn't.

5. Do you believe the agriculture education program and the FFA in your high school adequately serve the student in career preparation in production agriculture?

_____ Yes

_____ No

If no, explain why you think it doesn't.

6. Do you believe the agriculture education program and the FFA in your high school adequately prepares agriculture students in a related classes which will prepare them for college classes which, in turn, will prepare them for professional agriculture-related occupations?

_____ Yes

_____ No

If no, explain why you think it doesn't.

Part 5- DEMOGRAPHIC DATA

The purpose of this section is to investigate your background in relation to agriculture.

Directions-- Fill in or check the appropriate blank.

1. Were you raised on a farm, ranch, or involved in an agriculture related business? (Agricultural sales, service, or processing).

_____ Yes

_____ No

If yes, how many years? _____

2. Were you a member of a local 4-H Club?

_____ Yes

_____ No

If yes, how many years? _____

3. Were you ever enrolled in an agriculture education class/classes in high school?

_____ Yes

_____ No

If yes, how many years? _____

4. Were you ever a member of the Future Farmers of America in agriculture education?

_____ Yes

_____ No

If yes, how many years? _____

5. List any other agricultural organizations you belong to or have belonged to in the past. (FFA Alumni, Young Farmers Organization, Farm Bureau, or farmer cooperatives).

6. How many years have you served as a high school principal?

_____ years.

7. How many agriculture education teachers have you worked with in your service as a high school principal?

_____.

8. How many years have you completed as a high school principal in this high school?

_____ years.

Provide any comments on this section below:

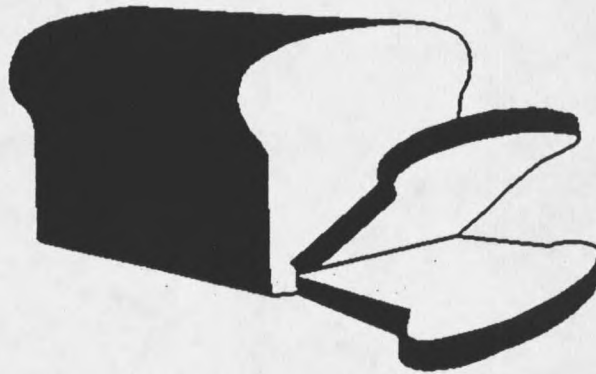
I very much appreciate your assistance in completing this survey. If you would like to have a copy of the results of this survey, please check the blank below and we will provide you with a copy after the data is compiled. Your responses are kept confidential and will only be a part of the total research. Thank you!

Robert R. McBlair.

APPENDIX F:

COUNSELOR SURVEY

MONTANA STATE UNIVERSITY
AGRICULTURE EDUCATION



THE RELATIONSHIPS OF AGRICULTURAL LITERACY OF
SUPERINTENDENTS, PRINCIPALS, AND COUNSELORS IN FOUR WESTERN
STATES TO ADHERENCE TO STATE GUIDELINES AND STUDENT
ENROLLMENT.

Instructions:

Part 1 is to determine your level of understanding of agriculture as a whole. Various questions are posed that deal with agriculture in a broad sense. It does not deal only with production agriculture, but with agriculture and its related agribusinesses and how they affect the consumer and global situations. Please read the questions carefully and mark what you think to be the proper answer. Each question has an exact and meaningful answer.

Part 2 is to help determine your perception of agriculture education and FFA in your high school. The questions relate to the expected standards the state public school officials have of each agriculture education department around the state. You need to mark on the scale of agree/disagree what your perception is of each question.

Part 3 is to evaluate your knowledge concerning community and state agriculture education activities. Please circle the T for true or the F for false according to your understanding.

Part 4 relates to your particular school and is needed to categorize and analyze data according to school size.

Part 5 is demographic data which will also be used for grouping and analysis of data.

Part 1- AGRICULTURAL LITERACY TEST QUESTIONS

The purpose of this section is to determine your level of understanding concerning state, national, and international agriculture.

Directions-- Circle the letter of the response you believe best answers the question.

1. What percentage of after-tax income did the average American spend for food in 1993?
A. 5.6 percent B. 11.6 percent
C. 26.1 percent D. 40.3 percent
2. What's the farmer's share of the average grocery store food dollar?
A. 7 percent B. 19 percent
C. 30 percent D. 51 percent
3. Bread would most likely be made from which of the following?
A. corn B. soybeans
C. wheat D. flax
4. Veal is the meat of young
A. sheep B. beef calves
C. dairy calves D. goats
5. The processing of wheat into flour is called:
A. milling B. grinding
C. blending D. baking
6. Over the past 50 years the number of acres in production in the United States has:
A. increased
B. stayed about the same
C. no government statistics are kept on this
D. decreased
7. What adds nutrients to the soil to increase crop yields?
A. herbicides B. fertilizers
C. terraces D. pesticides

Circle the letter of the response you believe best answers the question.

8. Compared to farms 100 years ago, a farm today would likely:
 - A. grow a wider variety of crops
 - B. have an owner who does not live on it
 - C. be smaller in size
 - D. depend more on family labor
9. Which U.S. president was known for using advanced farming practices?
 - A. Ronald Reagan
 - B. James Madison
 - C. George Washington
 - D. Abraham Lincoln
10. A career as a machinery dealer is an example of a career in:
 - A. production
 - B. farming
 - C. agribusiness
 - D. government
11. Substances used for destroying or repelling insects, rodents, weeds, and brush are known as:
 - A. pesticides
 - B. fertilizers
 - C. nematodes
 - D. plant regulators
12. A major factor that determines which crops are suitable for planting in specific areas of the United States is:
 - A. irrigation
 - B. type of farm equipment available
 - C. government farm programs
 - D. number of frost-free days
13. The American farmer raises enough food for himself and _____ other people.
 - A. 27
 - B. 52
 - C. 75
 - D. 128
14. The agricultural production in this nation accounts for _____ percent of the Gross National Product?
 - A. sixteen
 - B. two
 - C. twenty-four
 - D. ten
15. The whole realm of agriculture and its service industries keep _____ percent of the U.S. workforce in jobs?
 - A. five
 - B. ten
 - C. seventeen
 - D. twenty-two

16. Production agriculture accounts for jobs for _____ percent of the U.S. workforce?

17. Medicine given to animals to prevent or destroy a bacterial infection are:

18. Commercial dairy cows are typically milked _____ days out of every year.

19. Using insects to control or eradicate weeds is a method of _____ weed control.

20. Farming uses about _____ percent of the fossil fuel resources in the United States.

21. The number one cereal grain grown in Montana, Wyoming, North Dakota, and South Dakota according to number of acres is:

22. A career in aquaculture involves a person in raising:

23. The major meat product imported into the U.S. from Australia is:

24. Natural resources are:

- A. all limited in supply C. resources created by humans
B. all non-renewable D. resources naturally occurring

Part 2- **NECESSITY OF OFFERING AGRICULTURE EDUCATION**

The purpose of this section is to determine your perception, as high school counselor, of the necessity of offering agriculture education and FFA in your high school.

Directions-- Circle the appropriate response according to your perception of the question. 4=STRONGLY AGREE; 3=AGREE; 2=DISAGREE; 1=STRONGLY DISAGREE.

- | | | | | | |
|----|---|---|---|---|---|
| A. | The agriculture education program at this high school meets the minimum standards set up by the state office. | 1 | 2 | 3 | 4 |
| B. | The local FFA Chapter program is an integral part of the high school's agriculture education program. | 1 | 2 | 3 | 4 |
| C. | Supervised Agriculture Experience Programs are also an integral and necessary part of this high school's agriculture education program. | 1 | 2 | 3 | 4 |
| D. | The agriculture education program follows a curriculum approved by the state office. | 1 | 2 | 3 | 4 |
| E. | The FFA Chapter must be maintained in good standing with the state and national organizations. | 1 | 2 | 3 | 4 |
| F. | The local FFA Chapter has to be considered an intra-curricular activity to maintain minimum state standards. | 1 | 2 | 3 | 4 |
| G. | The agriculture education teacher must provide supervision to students engaged in S.A.E.P.'s. | 1 | 2 | 3 | 4 |
| H. | The agriculture education program is directed by a community advisory council. | 1 | 2 | 3 | 4 |

Provide any comments on this section below:

Part 3- KNOWLEDGE OF COMMUNITY AND STATE AGRICULTURE EDUCATION

The purpose of this section is to determine your level of knowledge concerning community and state agriculture education.

Directions-- Circle the letter of the response to indicate if you believe the statement--true or false.

- T F 1. Associate degrees in agriculture are given at colleges and universities that support two-year programs.
- T F 2. The agricultural college in your state was originally the land grant college established by the Smith-Hughes Act of 1917.
- T F 3. To teach agriculture education in the high school setting the person needs a fifth year degree.
- T F 4. Students can be a part of the FFA Program until they attend their fourth national convention after high school graduation.
- T F 5. FFA Chapters are continued at the collegiate level.
- T F 6. There are over 4,000 job opportunities nation-wide per year available to students with a four-year degree from a college of agriculture.
- T F 7. The letters (SAE) stand for Supervised Agricultural Experience.
- T F 8. The College of Agriculture educates students only in production agricultural techniques.
- T F 9. The 4-H program is directed by the County Extension Office in each county.
- T F 10. The County Extension Office is an education extension of the State Land Grant University.
- T F 11. Research stations of the State Land Grant University provide the basis of advice coming from the Extension Office.
- T F 12. The County Agricultural Extension Agents are trained in the College of Agriculture in the State Land Grant University.

Provide any comments on this section below:

Part 4- DATA PERTINENT TO YOUR SCHOOL.

The purpose of this section is to better understand enrollment, funding, and nature of the agriculture education program in your high school.

Directions-- Fill in or check the appropriate blank.

1. What is the current enrollment of students in grades 9-12?
_____.
2. How many students are enrolled in agriculture education?
male_____; female_____.
3. How many students are members of the FFA Chapter?
male_____; female_____.
4. Do you believe the agriculture education program in your high school adequately meets the needs of the students enrolled?
_____ Yes
_____ No
If no, explain why you think it doesn't.

5. Do you believe the agriculture education program in your high school adequately prepares production agriculture students for a career in farming or ranching?
_____ Yes
_____ No
If no, explain why you think it doesn't.

6. Do you believe the agriculture education program in your high school adequately prepares agriculture students in a preparatory manner for related classes which will prepare them for college classes which, in turn, will prepare them for professional agriculture-related occupations?

_____ Yes

_____ No

If no, explain why you think it doesn't.

Part 5- DEMOGRAPHIC DATA

The purpose of this section is to investigate your background in relation to agriculture.

Directions-- Fill in or check the appropriate blank.

1. Were you raised on a farm, ranch, or involved in an agriculture related business? (Agricultural sales, service, or processing).

_____ Yes

_____ No

If yes, how many years? _____

2. Were you a member of a local 4-H Club?

_____ Yes

_____ No

If yes, how many years? _____

3. Were you ever enrolled in an agriculture education class/classes in high school?

_____ Yes

_____ No

If yes, how many years? _____

4. Were you ever a member of the Future Farmers of America in agriculture education?

_____ Yes

_____ No

If yes, how many years? _____

5. List any other agricultural organizations you belong to or have belonged to in the past. (FFA Alumni, Young Farmers Organization, Farm Bureau, or farmer cooperatives).

6. How many years have you served as a high school counselor?

_____ years.

7. How many agriculture education teachers have you worked with in your service as a high school counselor?

_____.

8. How many years have you completed as a high school counselor in this high school?

_____ years.

Provide any comments on this section below:

_____.

I very much appreciate your assistance in completing this survey. If you would like to have a copy of the results of this survey, please check the blank below and we will provide you with a copy after the data are compiled. Your responses are kept confidential and will only be a part of the total research. Thank you!

Robert R. McBlair.

APPENDIX G:

RESPONSES TO OPEN-ENDED SURVEY QUESTIONS

Superintendent SurveyPart 2-Comments on this section:

Ag and FFA are necessary in this school. The ed.
 provides a wide range of skills building that are
 appreciable to many other fields as well
 An advisory council advises--it does not direct
 The loss of school time is a big problem here. The
 Board and community are concerned about all the
 activities scheduled opposite class time. As an
 elective curriculum, it will be one of the first
 cut in the next couple of years due to a
 significant loss of revenue

Part 3-Comments on this section:

Can participate through advisory council and alumni
 later on

Part 4-

Question #4: Do you believe the agriculture education
 program in your high school adequately meets the needs of
 the students enrolled?

Takes time and students being busy with other
 activities
 Program needs to be further developed
 The curriculum is no longer applicable to the student's
 future needs
 But, our instructor only teaches half time. Hopefully
 in the future it will be full time.
 Need to develop program which introduces students to
 all phases of Ag.
 More time and dollars to be spent on program

Question #5: Do you believe the agriculture education
 program in your high school has adequate funding from the
 sources it draws its money from?

But it is probably not worse than other programs (S)
 We get by, but could educate better with more
 It costs many \$ to keep up and buy new equipment,
 supplies, books, computers, etc., that are needed
 for our Vo-Ag program
 Cost of program is too high

More funds could be used to develop technology and keep
up with equipment needs

To the extent that our educational program is
"adequately" funded

Loss of Perkins money hurt purchase of capital outlay
items

State and Federal funds need to be subsidized by more
than 60% from local funds

Lack of financial support on the state and local level

State is cutting back in vocational funding

Lack of support on the part of the State!

The amount of funding has declined over the years--at
least at our school.

State is under a total freeze for the next 18 months

All education programs are short funding

More money is needed to upgrade equipment &
instructional aids

Federal share/ state share is decreasing

We always can use more money. The local is too small
and state and federal share is definitely too
small.

Equipment needs are ever changing--need to keep current
There is a need for more technology and no funds to buy
it.

Support is down!

Need additional equipment & class offerings

Only 30% state funding and scheduled to decrease in 95-
96

Need more state dollars

State dollars too low

Our course offerings are limited in Ag Ed due to monies
available.

Dollars are limited in all areas of the curriculum.

No program is funded adequately in most high schools in
state.

Price of equipment and supplies

No funds available

Question #6: Do you believe the agriculture education
program in your high school would better serve the student
population if more funding was available?

District subsidizes the program extensively

Program is already adequately funded- probably the most
costly single program in the school

The program is operating at maximum capacity for our
size school

The entire school would benefit

It is fine now!

Newer equipment & other resources

Money is not the answer to all problems.

State is short of money for secondary education programs.

Expansion of program to meet expanding Ag Business
I believe the instructor is the key more than money
put into the program and we have a great
instructor.

Although money is important, fund raising brings this
together.

Part 5-

Other organizations:

FFA Alumni
Farmer's Union
Honorary FFA member
Farmer's Union Youth
Farm Bureau
Cenex
Ag Advisory Council
Honorary Chapter FFA member
Honorary State FFA member
Ag Ed teacher for eight years
Braunveih Association

Comments on this section:

Vo-Ag in rural agriculture Montana schools is very
important. We need all the support possible
Hope we can save Ag Ed--funding may be a problem
15 years as a principal
Most Vo-Ag teachers are not well trained as "classroom
teachers". They tend to think of Vo-Ag as being
apart from "regular education"!
I believe that the Ag Ed program in our school will be
eliminated or reduced in the near future due to
budget cuts--I personally will be disappointed to
see that happen.
Good Luck!

Principal SurveyPart 2-Comments on this section:

We are hoping to expand the Supervised Experiences of all our students
 Supervision of S.A.E. programs should come mainly from the parents
 There is no Ag program at our high school this year for the first time in probably 50 years. It is being reinstated next year. Answers based on previous years.
 But the advisory council only recommends
 I'm also the Ag Ed instructor--feel rather humbled by some of the prior questions
 We have a strong program! Excellent instructor
 Our FFA & advisor are very active in local, state, & federal activities.
 My experience as an administrator with Ag Ed and FFA have been positive. They are good, strong programs--but how can we encourage to keep good teachers in Ag Ed? There is a shortage--salary increase?
 Ag Ed gives the students "life skills" and "leadership". Both skills that will help them throughout their futures either in college or in the work place.
 The Ag Ed Program is advised by Advisory Board. The teacher and district direct.

Part 3-Comments on this section:

Many guesses- an I don't know column would have given a more accurate picture
 Don't know for sure on these!

Part 4-

Question #4: Do you believe the agriculture education program in your high school adequately meets the standards set by the state public school officials for agriculture education programs?

No summer program
 After several years of declining productivity the previous teacher retired. The replacement person is starting up a new program.
 Did and will
 (exceeds)

Yes, but it should be more encompassing
no follow-up

Our problem currently is a lack of budget for salaries
(summer) and supplies.

Question #5: Do you believe the agriculture education
program and the FFA in your high school adequately serve the
student in career preparation in production agriculture?

We need more job experience opportunities
Need job placement on local production facilities
Community stresses more shop type classes
This is not exactly true at this time, but I expect
dramatic improvement in the next 2 years.
Did and will
The classes are more exploratory than preparatory!
Very few students wish to pursue degrees in production
agriculture anymore
Instructor situation

Question #6: Do you believe the agriculture education
program and the FFA in your high school adequately prepares
students in related classes which will prepare them for
college classes, which in turn, will prepare them for
professional agriculture-related occupations?

Don't understand the question
If I understand the question, Ag Classes prepare the
students in Ag subjects but not what students need
in Math and Science
Most students in Ag do not follow a college prep track.
Poor instructor

Part 5-

Other organizations:

N.D. Stockman's
Farm Bureau
Farmer's Union
Vo-Ag teacher 12 years
Honorary FFA member
Grange
FFA Alumni
Young Farmers
NVATA

Comments on this section:

If we are going to have quality programs we must also
have funds

Grew up near Boston, Mass. so don't have much of a background in agriculture

I probably know less than I originally thought! As I filled out the questionnaire it became evident that was the case!

I was the high school Ag Education instructor for 11 years at this high school and have been the principal for 2. I hope my answers reflect this. You forget some things over time!

I serve both as the superintendent and principal in this small school.

I never had the opportunity as a youth to have Ag Ed and FFA experiences. I missed out on a lot. This program does more than train farmers--it prepares leaders.

I was an Agriculture Education Instructor for 11 years before becoming an administrator.

The program is becoming more diversified in Horticulture and computer technology.

Counselor Survey

Part 2-

Comments on this section:

At our school too much emphasis is placed on leadership development and judging and not enough on projects Ag Education in our school is a very important part of our curriculum.

We have a strong vocational education department--both Vo Ag and Home Ec.

We don't have an S.A.E.P.

Part 3-

Comments on this section:

Our Vo-Ag Program should utilize our Research Station more than they do.

Part 4-

Question #4: Do you believe the agriculture education program in your high school adequately meets the needs of the students enrolled?

Can always be improved

The students learn little about small or large engine repair as well as little about woodworking.

Very lax, not challenging, learning doesn't always remain a priority

Students would like more classes to be offered to them through voc-ed.

Actually it would be nice to have more funding to expand technology areas:

I don't think enough of our students are exposed to the diversity of agriculture.

Question #5: Do you believe the agriculture education program in your high school adequately prepares production agriculture students for a career in farming or ranching?

Further education needed past high school

It is urban agriculture

?-I guess I don't really know how much ag.ed. they need from us--do they learn from their relatives who live on the farms or ranches?

Most of our students learn what they need at home

If it is a starting place--they need some college too

Their family background & work experience is more a factor

I believe a college Ag Education is essential to complement their H.S. Education.
 With only a half time Vo Ag teacher I feel the students get shorted out of a whole range of additional information.
 More time for class offerings would be beneficial
 Not enough time or resources to do it adequately in today's farming systems.
 The need further education
 Continuing education is necessary to keep up with technology, etc.
 Need additional equipment and class offerings
 Not extensive enough for that. It gives supplementary education.
 In today's world the student who thinks they can return to the family operation with just a high school education or be successful is putting the family operation or themselves in a position that is very shaky or could prove to be detrimental to them or the operation.

Question #6: Do you believe the agriculture education program and the FFA in your high school adequately prepares students in related classes which will prepare them for college classes, which in turn, will prepare them for professional agriculture-related occupations?

I don't know what the agriculture related classes in college require as an appropriate background

Part 5-

Other organizations:

Collegiate FFA
 Collegiate 4-H
 FFA Alumni
 Farmer's Union
 Farmhouse Fraternity
 Ag Ed Advisory Council
 Co-op
 Block and Bridle

Comments on this section:

Ag teacher for 7 yrs.
 teacher 18 yrs.
 Five years at a correctional school
 I am an Honorary FFA member of this Chapter. A very proud one.
 I don't remember the number of ag instructors but somewhere between 10 & 20.

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