

COMPARISON OF INSTRUCTIONAL CONTENT OF
FIRST YEAR AGRICULTURE COURSES
IN THE WESTERN REGION

By

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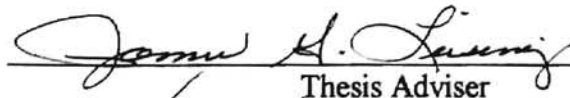
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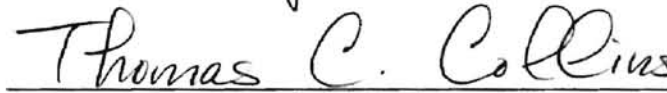
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Thesis Approved:


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CHAPTER I

INTRODUCTION

Agriculture is a dynamic industry. It is no longer simply cows and plows. Today's agriculture involves highly technological practices and innovative methods ranging from production, to processing, and from distribution and sales to research. Agriculture truly has a new face.

With continuing advances, changes take place at a fast and furious pace. The number of career opportunities in areas that support production agriculture are increasing while those in actual production agriculture are decreasing. According to Moore (1993) less than 2 percent of today's labor force are actually producers of agricultural products, but more than 20 percent of United States workers are employed in agriculturally related careers. In keeping up with the pace of change in the agriculture industry, agricultural education has also proven itself to be a dynamic profession. Agriculture is a science in itself, and science principles are included as part of the curriculum of agricultural education. "Numerous states are changing titles of programs and developing new courses to emphasize agricultural science as a major component of agricultural education" (Moss, 1990, p. 36).

As society has changed, so has agriculture and agricultural education. There was a time when the secondary agricultural education program and the agricultural student were

rather easy to identify. The Smith-Hughes Act of 1917 brought about formal agricultural education in public schools. At that time, the agriculture program consisted of educating young white males for a career in farming and ranching. Today's agriculture education program and student is not so easily defined. Today's agriculture program must deal with a wide range of topics and a wide range of differences in the student population.

The population of the United States is becoming increasingly urban. With increasing importance being placed on non-production agricultural careers, a new clientele of non-traditional agriculture students can be reached by agriculture education. During the mid 1970's through the mid 1980's, enrollment in agricultural education programs declined at a rate of one to three percent annually (National Research Council, 1988). Since 1992, agricultural education programs have seen an upswing in enrollment with most students coming from a non-agriculture background (Deterling, 1994, p. 141). Agriculture education is no longer only for those who plan to become involved in production agriculture. In order to reach this new clientele, agricultural education programs now offer courses that address the increasing trend toward agriculturally-related science and business careers; "Employers want graduates with the fundamental scientific knowledge of agriculture" (Moss, 1990, p. 36). It is essential that agricultural education programs include in the curriculum those principles that will continue to advance the knowledge of agriculture for its students. This in turn will promote the continued enrollment of students in agriculture courses.

Standard-based curricula have been used in several other disciplines over the years, in courses such as English, science, math, and history. In the current push for educational

reform across the country, curriculum standards are used as a guide by which the teachers can structure the information that is delivered to the student. While agricultural education on the secondary level does not have national standards, many states do provide curriculum guidelines that agricultural education programs follow. In agricultural education, most states have a "core" that is taught to first year, and in some cases second year agriculture students. The first year or beginning agriculture course is designed to lay the foundation upon which future agriculture instruction is based. It is not uncommon for concepts such as animal and plant science as they are typical agriculture concepts. Also, it is not uncommon to find that beginning level information on recordbook keeping, FFA topics and leadership is typically part of the first year agriculture course. In states such as California, Texas and Oklahoma, there are "specialized" areas that are utilized for advanced agriculture courses. A "core" is designed to set guidelines for information that is believed all students should be taught. Even with a "core", the opportunity for local enrichment is still available and definitely needs to be used. With each state recommended core curriculum, the possibility arises that the curricula are similar from state to state.

Statement of the Problem

While many states do use curricula that incorporate scientific and business principles that will prepare students for a variety of agricultural careers, the question arises as to what concepts are being taught in first year agriculture courses in different states. If the agricultural education programs are following a state recommended core, then what are the similarities and differences in the curricula being used in different programs in

different states? And if a state does not provide a curriculum guide, what are the programs in that state doing similarly to or differently from other states? These questions raise yet another question: are there common topics that are being taught from state to state?

Purpose of the Study

The purpose of this study was to determine the extent to which common topics that form an agriculture core are being utilized in states that are located in the Western Region of the American Association for Agricultural Education (AAAE).

Objectives

To accomplish this purpose, the following objectives were used:

- 1) Determine demographic characteristics of agricultural education programs in the Western Region of the American Association for Agricultural Education (AAAE).
- 2) Determine the sources and topics of courses for first year agriculture instruction.
- 3) Compare subject matter content of first year agriculture curricula among states located in the Western Region of AAAE.
- 4) Ascertain whether or not an agriculture core existed among the programs in the Western Region of AAAE.

- 5) Describe teacher perceptions of program curriculum currently taught in first year agriculture courses.

Definitions

High School - defined as grades 9 through 12.

First year student - student enrolled in the introductory agriculture course.

Core - for the purposes of this study, core is defined as the common knowledge, skills and attitude included in an introductory agriculture course.

Curriculum - the sum of the learning activities and experiences that a student has under the auspices or direction of the school. (Finch & Crunkilton, 1993 p. 9).

Western Region of American Association for Agricultural Education - includes the following states: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, Wyoming.

Assumptions

It was assumed that those teachers who received and completed the questionnaire were able to properly represent the agricultural education program, had the information necessary to complete the questionnaire and that the respondents provided the most accurate information to their knowledge.

Scope

This study used agricultural education programs which exist in the states included in the Western Region of the American Association for Agricultural Education. The Western Region was used because it provided a large number of states to be involved in the study and the author was from California. This study was designed to obtain information for the Western Region as a whole.

CHAPTER II

REVIEW OF LITERATURE

Introduction

In today's society, individuals are asked to make decisions regarding the environment and ultimately agriculture on a daily basis. This situation becomes even more prominent when these same individuals are asked to make voting decisions regarding these same topics. Most citizens do not come from an agricultural background. In the general population, those involved with farming are outnumbered by 5 to 1 (Moore, 1993, p. 10). Those removed from agriculture, for the most part, do not understand the importance of agriculture to their lives. A need exists for each citizen to be educated about how and where their food and fiber is produced.

In 1917, the federal government passed the Smith-Hughes Act which gave unprecedented importance to agricultural education. The primary purpose of agricultural education at that time was to prepare individuals for farming. Curricula covered a wide range of topics. The clientele that needed to be served were basically white farm boys. They needed an education in technical farming skills that assisted them in becoming farmers and ranchers. As the years have passed, many changes have taken place in the agriculture industry, and in turn, agricultural education and its curricula. As noted by Kahler (1996), "... changes have altered the knowns that we operated under for those 46

years. Our students are no longer just farm boys. They are boys and girls from a variety of ethnic groups. In many instances, the majority of our students come from urban environments" (p. 4).

Agricultural education has an important role in creating an agriculturally literate population. Because of this, the topic of agriculture literacy has become an even more important topic for agricultural educators. In preparing students for careers in the agriculture industry, one of the first steps is to ensure that those students are agriculturally literate.

With the majority of employment opportunities no longer in the production area of agriculture, the focus of our agricultural education programs must change. In 1988, the National Research Council reported in Understanding Agriculture: New Directions for Education that indeed agricultural education did need to change. Two major recommendations made by the committee were: 1) for agricultural education to become more than vocational agriculture, and 2) for major revisions to be made within vocational agriculture (National Research Council, p. 1). The Strategic Plan for Agricultural Education (1989) came about as a result of the National Research Council 1988 report: "Change is rampant in agriculture, and agricultural education must keep pace or become an obsolete remnant of the past" (p. 1). The focus of agricultural education needs to be directed towards the scientific and marketing aspects of the agriculture industry. According to Martin & Peterson (1991), traditional agricultural education programs no longer addressed the needs of the industry given the changes that have already and continue to take place in agriculture (p. 21).

Curriculum Development in Agricultural Education

As discussed earlier, agricultural education has developed from a program designed to prepare youngsters for farming and ranching into a program that prepares graduates for production, agribusiness and scientific and natural resource/environmental occupations related to agriculture. With the passage of the Smith-Hughes Act in 1917, the mission of agricultural education was to provide a curriculum relevant to the needs of the students (National Research Council, 1988, p. 56). In addition to preparing secondary high school students for careers in farming and ranching, agricultural education also impacted adults and their knowledge and practice of agriculture throughout farming regions in the United States.

"We still need agricultural education, but we must update it" (Hook, 1992, p. 44). Agricultural education has changed curriculum focus over the years in an attempt to keep up with the changes in the agricultural industry. Programs today must produce students who are multi-faceted in dealing with the ever-changing field of agriculture. No longer are the careers in agriculture primarily in the production sector. The industry has expanded to include several different areas from research to sales. As stated by Hook (1992), a successful, progressive agricultural education program should provide students with the understanding of the broadest sense of the agricultural industry. Instruction in the classroom needs to reflect the diverse opportunities that are now available in the agricultural industry. According to Baker, et al. (1969) curriculum, when organized and functional, has the capability to prepare students for their careers beyond school. One way that agricultural education programs have done that is by incorporating science into the curriculum.

Moss (1990) contended that teaching science as part of agricultural courses is not new, and in fact science has been taught in agricultural education programs since there has been formalized education in agriculture. By definition, agriculture is an applied science that combines principles of the physical, chemical, and biological sciences in the process and production of food and fiber. Science has long been an integral part of agricultural education. It is not at question whether science is being taught as part of agricultural programs.

It has been said that science is a body of knowledge and technology is a body of 'know-how.' Agricultural education has taught know-how since its inception and should do so in the future. Today's know-how includes the application of biochemistry, molecular biology, global economics, genetics, and international marketing (Cox, 1990, p. 35).

Today's agricultural education programs have the task of exposing students to curricula that is seen as less traditional in nature. Gone are the days when agriculture is referred to as only "sows and plows". Connors and Elliot (1992) contended that agricultural education programs are meeting the challenge to include more science in their programs by "placing more emphasis on teaching scientific principles using agricultural and natural resources concepts" (p. 15). Agriculture is a science that incorporates many different sciences. To equip students with the skills that will make them employable in the many careers that support agriculture production, students need a well-rounded

agriculture education that includes both science and business. Moss (1989) stated that "high school vocational agriculture programs that once prepared boys to become farmers are being broadened to prepare youth for occupations in industries that support agriculture." (p. 32)

To ensure that students are receiving the best possible education in agriculture, many states have developed core curricula that are to be utilized by the agricultural education programs in that state. States that use a core curriculum include Texas, Oklahoma, and California among others. Although each state has different philosophies on how that curricula should be utilized by the programs, in general, the purpose of a core curriculum is to insure that all students are learning the same essential knowledge and having a uniform set of experiences. However, a core also implies that only a portion of the curriculum will be the same from program to program and that local program needs will govern what will be taught beyond the core.

Teacher Perceptions of Agricultural Curriculum

"Agricultural education is confronted with many challenges and opportunities. Based on what the profession is saying about itself, change must occur 'yesterday,' especially on the secondary level" (Cox, 1990, p. 35). Change is often intimidating. Many times change is expected to take place without the consent or even input of those who are to be affected by the change. Agriculture educators are no different in that respect in reacting to change. Teachers of agricultural education may be skeptical about some change, but when involved in the change process, they are more apt to accept the changes

developed. A study of agriculture science teacher perceptions of changes in agricultural curricula in Texas was conducted by Norris and Briers (1989). They found that the best adoption indicator of the curriculum change was the teacher's perception of the change process. Teachers were less willing to adopt the new curriculum if they felt that there was little opportunity for their input on the changes being made in the curriculum. A similar study was conducted by Peasley and Henderson (1992) on the utilization of the agriscience curriculum and attitude of agriculture teachers in Ohio Agricultural Education. This study concluded that the high school agriculture teachers had a positive attitude toward an agriscience core curriculum. Further, they recommended that leaders of agricultural education in Ohio work more closely with high school agriculture teachers in further development of agriculture curriculum. In Michigan, Connors and Elliot concluded that agriscience and natural resources teachers perceived the Michigan agriscience and natural resources curriculum positively and "agreed that the curriculum was useful and should be recommended" for use (p. 18).

Agricultural Literacy

The concept of agricultural literacy came about with the National Research Council report, Understanding Agriculture: New Directions for Education (1988). According to Frick, et al, "agricultural literacy is defined as possessing knowledge and understanding of our food and fiber system" (p. 52). As a whole, students who are enrolled in agricultural education programs do not come from a farming background. This "new" type of student raises another interesting aspect of agricultural education. What do we assume that these students know about agriculture? Teaching about agriculture is termed agricultural literacy.

As the nation becomes more urban -- only 25 percent of the population now lives in rural areas -- public connections to agriculture are becoming increasingly remote. As a society, we are less and less aware of the importance of agriculture and its contributions to our well-being (Moss, 1989, p. 32).

With the increase in urbanization of the United States, it is imperative that agricultural education reach as many students as possible. As urbanization increases, there are fewer people who recognize the importance of agriculture. Because of this, it is important that agricultural education programs "must be broadened to encompass a larger audience than traditionally served by vocational agriculture" (Leising, 1990, p. 4). With more students coming from non-agriculture backgrounds, it is essential that introductory agriculture courses offer curriculum that will stress the importance of agriculture. The increasing interest in agricultural literacy emphasizes the need of agricultural programs to offer curricula that not only prepare students for those agriculture careers in agriscience and agribusiness but also teaches students about the importance of agriculture.

Standard-based Curriculum

With the development of Goals 2000: Educate America Act in 1994, the call for national standards was heard. The goals included national standards for English, mathematics, foreign languages, civics and government, economics, the arts, history,

geography, and science. Other discipline areas are currently operating with national standards (National Science Education Standards-Draft, 1994, p. I-11). The standards are designed to provide a framework for each particular area of study. The standards are to "provide unity, purpose, and vision that will focus the components on the improvement" of programs and teaching (National Science Education Standards-Draft, 1994, p. I-11). The manner in which the standards are presented are not to be used as curriculum itself but merely act as a guide. The standards indicate the common body of knowledge that all students across the nation should be exposed to regardless of where they reside.

While this study does not propose to develop standards for agriculture, it hopes to find a common core of knowledge that agricultural programs in different states are providing to their students. In addition to that common core of knowledge, those programs are also addressing the local needs of their states and communities through local enrichment.

Summary

Since the beginning of this country, agriculture has played an important economic role. Today, the agriculture industry employs approximately 20 percent (Moore, 1993, p. 10) of the U.S. population in the United States. However, less than 2 percent (Moore, 1993, p. 10) are actually involved in the production sector of the agriculture industry. Since 1917, secondary agricultural education has played a primary role in educating and preparing individuals for careers in the agriculture industry.

Throughout the years, many changes have taken place in agricultural education.

One of the areas of change has been in curriculum. Agricultural education has been driven by the motto "learning by doing." Experiential learning has been and still is a trademark of agricultural education. To advance agricultural education programs, many curriculum changes have taken place in terms of content. Many states today advocate a core curriculum that should be taught by the agricultural education programs. With several state secondary agriculture core curricula in use, the question arises as to how they are similar or different. Information about how agriculture core curricula is alike or different can provide direction to multi-state instructional material development, program and student evaluation and assessment efforts, and as a means to communicate to the public and decision makers about the program.

In conjunction with the changes that have taken place in curriculum, a more recent movement is taking place towards agriculture literacy. It is a common saying that "If you eat, you are involved in agriculture." Therefore, every citizen in the nation has an important role in agriculture. The agriculture literacy movement promotes the education of every individual on basic agricultural ideas. When citizens are asked to make important decisions about agriculture and the environment, it is imperative that citizens be knowledgeable about the food and fiber systems. Agricultural literacy suggests that all individuals need a common core of knowledge to use as a basis for making decisions about agriculture.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to determine the extent to which common topics that form an agriculture core are being utilized in states that are located in the Western Region of the American Association for Agricultural Education (AAAE). Therefore, the purpose of this chapter was to describe the procedure and methodology used in conducting the study to accomplish the following objectives:

- 1) Determine demographic characteristics of agricultural education programs in the Western Region of the American Association for Agricultural Education (AAAE).
- 2) Determine the sources and topics of courses for first year agriculture instruction.
- 3) Compare subject matter content of first year agriculture curricula among states located in the Western Region of AAAE.
- 4) Ascertain whether or not an agriculture core existed among the programs in the Western Region of AAAE.
- 5) Describe teacher perceptions of program curriculum currently taught in first year agriculture courses.

This chapter also identified and explained the research instrumentation, explained the procedures in obtaining data, and discussed statistical treatment used to analyze data. Information for this study was collected during the summer and early fall of 1996.

Institutional Review Board (IRB) Statement

Federal regulations and Oklahoma State University policy require review and approval of all research studies that involve human subjects before investigators can begin their research. The Oklahoma State University Office of University Research Services and the Institutional Review Board conduct this review to protect the rights and welfare of human subjects involved in biomedical and behavioral research. In compliance with the aforementioned policy, this study received the proper surveillance and was granted permission to continue as project IRB: AG-96-024. A copy of the approval form appears in appendix C of this document.

Population

The target population of this study was comprised of secondary agricultural education programs in the Western Region of the American Association for Agricultural Education. The population was determined using the 1995 Agriculture Teachers National Directory. The total target population was 1100 secondary agricultural education programs located in those states in the Western Region. From the target population, a random sample of 350 secondary agricultural education programs was selected. This

sample size was determined by taking into account the needed responses for a 95 percent level of confidence (Issac & Michael, 1982).

Instrumentation

This was a descriptive study which utilized a mail questionnaire to collect the necessary data. Demographic information, curriculum information, and perceptions were solicited from agriculture teachers through the questionnaire. The mail questionnaire was developed to collect information from a random sample of agricultural education programs. The questionnaire consisted of three sections: part one demographics, part two curriculum determination, and part three teacher perceptions of the program curriculum. The questionnaire was developed by the researcher. Content validity of the questionnaire were achieved by using a panel of experts consisting of faculty at Oklahoma State University and individuals who had high school agriculture teaching experience. In addition, recommendations were made by graduate students enrolled in a research design course at Oklahoma State University.

Demographic Information

Part One of the questionnaire included questions which were designed to ascertain demographic information about the agriculture programs and to develop an introduction to that program's curriculum. Forced questions asked were: number of teachers in the program (both full time and part time teachers), number of sections of first year agriculture courses taught in the program, use of a state recommended core curriculum

from either their state or a recommended core from another state, use of a locally developed curriculum, description of the location of the school, number of students in the program, and the receipt of science credit for agriculture courses.

Curriculum Information

Part Two of the questionnaire consisted of a list of topics that may be taught in an introductory agriculture course. The state supervisors of agricultural education in each state were contacted by phone and mail requesting a copy of the agriculture curriculum used in the courses for first year agriculture instruction. The list of topics was compiled using the core curriculum guides from those states included in the study and curricula from both Texas and Oklahoma. Core curriculum materials from both Texas and Oklahoma were included in the portion of the study that involved the compiling of the list of topics because it was apparent that those state curriculum materials were used by several states in the Western Region of AAAE.

Teachers were asked to indicate which topics they taught in their classes and the length of time that they spent on each particular topic. Some states had their own core curriculum, others simply utilized other states' core curriculum, some used other states' curriculum along with an addendum for their particular state, and still others did not use a core curriculum of any type.

Teacher Perception

Part Three of the questionnaire consisted of six questions which included two questions that had a four point "Likert type" scale (1 = "Poor", 2 = "Fair", 3 = "Good", 4

= "Excellent") and 4 open-ended questions. This section of the questionnaire was designed to reflect teacher perceptions of the program regarding their particular curriculum and the importance of the topics that make up the curriculum. It was assumed that the individual completing the questionnaire was able to accurately answer for the program regarding all information in the questionnaire.

Collection of Data

A cover letter, a copy of the questionnaire, and a prepaid return envelope, were mailed with instructions to the department head of each agricultural education program that was randomly selected for participation in the study. A return deadline was identified in the cover letter included in the initial mailing. Two weeks following the initial mailing, a post card reminder was sent to those who had not yet responded. Following the passing of the second deadline, a final reminder giving a final deadline and a questionnaire were sent to those department heads who had not returned a completed questionnaire.

A survey of non-respondents was taken to determine if there were any differences from respondents. Non-respondents were those who turned in questionnaires after the final deadline (Miller & Smith, 1983). Responses of the non-respondents were compared with those of the respondents to determine any significant differences.

Analysis of Data

To provide a general description of the secondary agricultural education program, frequencies, means and percentages were calculated to summarize the demographic

characteristics. The Statistical Analysis Software System (SAS) was used to analyze collected data. Descriptive statistics such as means, standard deviations, and frequencies were used to determine the degree of similarities and differences of subjects taught among the states included in the study. In specific topic areas, as outlined in the questionnaire, Duncan's Multiple Range Test was used to calculate variability. The significance level was set at 0.05.

To permit statistical treatment of the data collected for those questions dealing with teacher perception of first year curriculum, numerical values were assigned to the importance categories so that the mean could be calculated. The following pattern was developed to permit categorization and interpretation of the calculated means: 1.00 - 1.50 = Poor, 1.51 - 2.50 = Fair, 2.51 - 3.50 = Good, 3.51 - 4.00 = Excellent.

CHAPTER IV

FINDINGS

The purpose of this study was to determine the extent to which common topics that form an agriculture core for first year agriculture courses are being utilized in states that are located in the Western Region of the American Association for Agricultural Education (AAAE). This chapter was to describe and analyze the collected data as it relates to the objectives previously outlined in this study. The findings are organized around the research objectives.

Table I reports information concerning the response rate of the participants in this study. Responses were collected from each state located in the Western Region. At least one response was received from each state. Response rate by state indicated the response rate of programs sampled in each particular state. The response ranged from 30.00 percent to 100 percent. Column six reports the number of the programs sampled in relation to the number of programs in each state as determined using the 1995 Agriculture Teachers National Directory. The overall response rate was 44.86 percent. The data was analyzed on a weighted basis to take into account the differing number of responses from different states.

TABLE I
RESPONSE RATE INFORMATION

States	# of respondents	# of programs in sample	# of programs in state	Response rate by state	Respondent Representation (%)
Alaska	1	1	3	100.00	33.33
Arizona	4	13	51	30.77	7.84
California	50	108	323	46.30	15.48
Colorado	11	26	83	42.31	13.25
Hawaii	3	10	31	30.00	9.68
Idaho	9	16	80	56.25	11.25
Montana	13	19	63	68.42	20.63
New Mexico	8	20	22	40.00	36.36
Nevada	3	8	71	37.50	4.23
Oregon	13	35	102	37.14	12.75
Utah	6	16	35	37.50	17.14
Washington	31	66	190	46.97	16.31
Wyoming	5	12	46	41.67	10.87
Total	157	350	1100		
Overall response rate = 44.86%					

Demographics

Objective One was to determine demographic characteristics of agricultural education programs in the Western Region of AAAE. Responses were received from one hundred and fifty-seven secondary agriculture teachers representing the same number of programs located in the Western Region of AAAE. The demographic information from this group is summarized in Table II.

The agricultural education programs were characterized with a mean number of 1.42 full time teachers and 0.15 part time teachers. The mean number of first year agriculture sections taught was 2.38 sections. The mean number of students enrolled in

the agriculture programs was 130.80 students. Of the first year agriculture courses, 87 (55.49%) of the agriculture programs indicated that science credit was available. Seventy (44.51%) of the programs did not receive science credit for the introductory agriculture course.

TABLE II
DEMOGRAPHIC INFORMATION
OF THE RESPONDENTS

Characteristic	N	Mean
Full time teachers	223	1.42
Part time teachers	24	0.15
Number of first year agriculture sections	374	2.38
Enrollment		130.80
Receive Science Credit	87	

Sources of Curriculum Topics

Objective Two was to determine the sources and topics of courses for first year agriculture instruction. Table III contains a summary of the data obtained from programs that reported using a state recommended core curriculum in first year agriculture courses. Of the respondents, 75.97 percent of the agriculture programs indicated that a recommended curriculum from either their own state or from another state was being used in teaching first year agriculture courses. Recommended agriculture curriculum cores came from the following states: California, Oklahoma, Arizona, Texas, New Mexico, Kansas, Idaho, Utah and Oregon.

A majority of the programs, 66.88 percent, indicated that the recommended curriculum being used was their own state developed curriculum. Approximately 19 percent of the programs indicated the utilization of recommended curriculum from other states. Some programs utilized a curriculum recommended in their particular state in addition to a curriculum recommended for another state. Additionally, many programs, 62.99 percent, indicated the development and use of a locally developed curriculum.

TABLE III
SOURCES OF CURRICULUM TOPICS FOR
FIRST YEAR AGRICULTURE
COURSES

Characteristic	N	Frequency
Use of own state recommended curriculum	103	66.88
Use of another state recommended curriculum ^a	29	18.83
Use of locally developed curriculum	97	62.99
^a State curricula being utilized: California, Oklahoma, Arizona, Texas, New Mexico, Idaho, Utah, Oregon, Kansas		

Comparison of Core Curricula

Objective Three was to compare subject matter content of first year agriculture curricula among states located in the Western Region of AAAE. Table IV was developed to report the states located in the Western Region of AAAE and their use of 13 selected instructional unit areas. Agriculture core curriculum from Texas and Oklahoma were included because it was apparent to the researcher that instructional materials from those states were used by other states in the Western Region.

TABLE IV
UNITS INCLUDED IN CURRICULUM GUIDES
FOR FIRST YEAR AGRICULTURE
INSTRUCTION, BY STATE

Topic	States
Importance of Agriculture	California, New Mexico, Arizona, Texas, Oklahoma, Idaho, Montana
Animal Science	California, New Mexico, Arizona, Texas, Oklahoma, Idaho, Montana
Plant Science	California, New Mexico, Arizona, Texas, Oklahoma, Idaho
Agriculture Business Management	California, Arizona, Texas, Idaho
FFA and Leadership	California, New Mexico, Arizona, Texas, Oklahoma, Idaho, Montana
Supervised Agriculture Experience	California, New Mexico, Arizona, Texas, Oklahoma, Idaho, Montana
Employability	California, Arizona, Texas, Idaho, Montana
Careers	California, New Mexico, Texas, Idaho, Montana
Agriculture Mechanics	New Mexico, Oklahoma, Arizona, Texas, Idaho
Environment and Agriculture	California, Arizona, Texas, Idaho, Montana
Human Health	Arizona

Note. Data was not available for those states in the Western Region of AAAE that do not appear in the table. Those states were Hawaii, Alaska, Colorado, Oregon, Utah, Washington, Wyoming, and Nevada.

The Western Region Core Curriculum

Objective Four was to ascertain whether or not an agriculture core existed among the programs in the Western Region of AAAE, and if so, what that core of instruction encompassed. The data collected pertained to the unit and topic and the reported estimated amount of class time spent covering those units and topics. One class period was defined as approximately 50 minutes.

In addition to the unit areas listed, topics were listed and each unit area provided a section in which the programs could list "other" topics taught in that topic area. Also, an "other" category was provided to determine areas that were not listed on the questionnaire. Units and topics as presented in the part two of the questionnaire are summarized in Table V.

Table V revealed the mean amount of class time spent in each unit and the standard deviation. A grand mean was calculated for each instructional unit based on the those respondents that reported teaching that unit. The unit that received the highest mean amount of class time was animal science with a mean of 34.78 class periods, followed by agriculture mechanics with 31.38 class periods, and plant science with 23.59 class periods. The unit with the lowest mean class time was human health needs. It had a mean of 0.41 class periods.

For each topic area, mean class periods were calculated based on the time reported by the respondents that indicated that topic was included in instruction. Table V identifies the mean class periods in each topic area. In the unit of animal science, the three topics with the highest amount of class time spent were breeds and selection (6.52), major

body systems (6.31); and health (5.97). For agriculture mechanics, the "other" category mean was the highest topic (27.38) with arc welding second highest (13.46). In plant science, the three major topics were "other" (7.55), soils (6.13) and basic botany/plant systems (5.85). In FFA and leadership, the "other" category had the highest mean class time (10.64) with parliamentary procedure added to the "other" category by the respondents. In agriculture business management, the FFA recordbook topic area was found to have the highest mean class time (8.79). In environment and agriculture, the "other" topic had the highest mean class time (8.11). In supervised agriculture experience, the highest mean was found in the topic area of activities and opportunities (5.96). In the area of careers, "other" was reported to have the highest mean class time (10.00). In the area of employability, the topic area of "other" had the highest mean class time (7.00).

TABLE V
SUMMARY OF CLASS PERIODS SPENT
ON UNITS AND TOPICS

Unit and topic	Topic mean ^a	Grand mean of unit topic ^b	SD
Importance of Agriculture		4.31	4.62
Animal Science		34.78	27.12
History of Animal Production	2.47		
Livestock Industry	4.62		
Breeds and Selection	6.52		
Biology (ex: cellular biology)	4.43		
Behavior	2.24		
Major Body Systems (ex: reproduction, digestion)	6.31		
Genetics/Breeding	4.25		
Feeds and Feeding	5.04		
Health	4.51		
Livestock Evaluation	5.97		
Other	4.62		
Plant Science		23.59	22.80
Basic Botany/Plant Systems	5.85		
Soils	6.13		
Plant Nutrition	3.82		
Propagation	4.95		
Weeds	4.05		
Irrigation	3.19		
Pest Management	4.28		
Other	7.55		
Agriculture Business Management		14.63	11.93
FFA Recordbooks	8.79		
Record Keeping	5.46		
Computers	4.99		
Other	5.25		
FFA and Leadership		20.03	16.00
Introduction to FFA	6.46		
Communications/Public Speaking	6.16		
Critical Thinking	4.16		
Oral Presentations	5.55		
Other	10.64		

TABLE V (CONTINUED)

Supervised Agriculture Experience		5.49	9.23
Activities and Opportunities	5.96		
Other	4.4		
Employability		4.51	5.59
Employability Skills	4.10		
Personal and Social Skills	3.58		
Other	7.00		
Careers		5.06	4.31
Careers in Agriculture	4.18		
Career Planning	2.95		
Other	10.00		
Introduction to Agriculture Mechanics		31.38	45.67
Arc Welding	13.46		
Metal Work	11.79		
Oxy-gas Cutting	9.23		
Wood Work	12.42		
Farm Safety	7.67		
Other	27.38		
Environment and Agriculture		7.96	19.79
Conservation of Energy and Water	6.97		
Protection of the Environment	6.01		
Other	8.11		
Human Health Needs		0.41	1.43
Other		2.96	12.57

^aMean class periods spent by schools that responded to that topic.

^bGrand mean of total time spent teaching units by schools that responded to that unit.
These are weighted means.

Teacher Perceptions of Core Curricula

Objective Five was to determine the perceptions of agriculture teachers regarding the department or programs first year agriculture curriculum. Table VI illustrated the teachers' overall perceptions of their first year agriculture curriculum. Each teacher was

asked to indicate the effectiveness and completeness of their first year agriculture curriculum using a scale of 1 = "Poor", 2 = "Fair", 3 = "Good", 4 = "Excellent." The following pattern was developed to permit categorization and interpretation of the calculated means: 1.00 - 1.50 = Poor, 1.51 - 2.50 = Fair, 2.51 - 3.50 = Good, 3.51 - 4.00 = Excellent.

The frequency of responses (N = 157) was calculated for each category choice. Over 85 percent of the respondents answered with a response of good or excellent to both questions regarding the effectiveness and completeness of their curriculum. The overall mean was calculated for each question. For the question on the effectiveness of the first year curriculum, the mean was 3.02 (good). The second question, which addressed the completeness of the first year curriculum, a mean of 2.89 was calculated (good).

TABLE VI
TEACHER PERCEPTION OF THE EFFECTIVENESS
AND COMPLETENESS OF THEIR CURRICULUM

Comparison Factor	N	%	Overall Mean
Effectiveness of the curriculum (N=157)			3.02 (good)
Poor	2	1.27	
Fair	21	13.38	
Good	106	67.52	
Excellent	28	17.83	
Completeness of the curriculum (N= 157)			2.89 (good)
Poor	3	1.91	
Fair	31	19.75	
Good	103	65.61	
Excellent	20	12.74	

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter was to present a review and summary of this study. Findings, conclusions and recommendations were based on an analysis and interpretation of the data presented.

Purpose of the Study

The purpose of this study was to determine the extent to which common topics that form an agriculture core are being utilized in states that are located in the Western Region of the American Association for Agricultural Education (AAAE).

Objectives

- 1) Determine demographic characteristics of agricultural education programs in the Western Region of the American Association for Agricultural Education (AAAE).
- 2) Determine the sources and topics of courses for first year agriculture instruction.
- 3) Compare subject matter content of first year agriculture curricula among states located in the Western Region of AAAE.

- 4) Ascertain whether or not an agriculture core existed among the programs in the Western Region of AAAE.
- 5) Describe teacher perceptions of program curriculum currently taught in first year agriculture courses.

Population

The target population of this study was comprised of secondary agricultural education programs in the states located in the Western Region of AAAE. A random sample of 350 secondary agricultural education programs was drawn from the population.

Major Findings of the Study

1. The typical agriculture program located in the Western Region of AAAE was characterized as having less than two teachers, an average of two first year agriculture sections and an average of 131 students enrolled in the agricultural education program. Over half of the departments in the Western Region of AAAE offer first year agriculture courses that receive some type of science credit.
2. Agricultural education programs which exist in states located in the Western Region of AAAE use a variety of sources of instructional material for first year agriculture instruction including agriculture core curricula from their own state and/or other states, and locally developed curricula.
3. Of the agriculture core curricula provided by the states located in the Western Region, units being taught were similar from state to state (refer to Table IV).

4. The number of class periods spent on units indicated the importance of that unit to agricultural education programs in the different states. Figure 1 illustrates the mean number of class periods spent on each unit for all states combined.

As indicated by the mean number of class periods spent on each of the different topics, the area of animal science received the highest amount of class time. This indicated that most programs determined animal science to be an important topic to be included in the first year curriculum. The topics with the highest means were animal science (34.78), agriculture mechanics (31.38), plant science (23.59), FFA and leadership (20.03) and agriculture business management (14.63).

Because of the varied number of responses from individual states, the responses given by departments were weighted to more accurately report the collected data. Differences were found between states in some topic areas. The data was analyzed using the Duncan's Multiple Range Test which identifies differences among the data. Table VII indicates differences found between the states identified in this study. The significance level was 0.05.

5. Respondents rated the effectiveness and completeness of their curricula as good.

Figure 1. Mean Class Periods Spent on Unit Areas for All States.

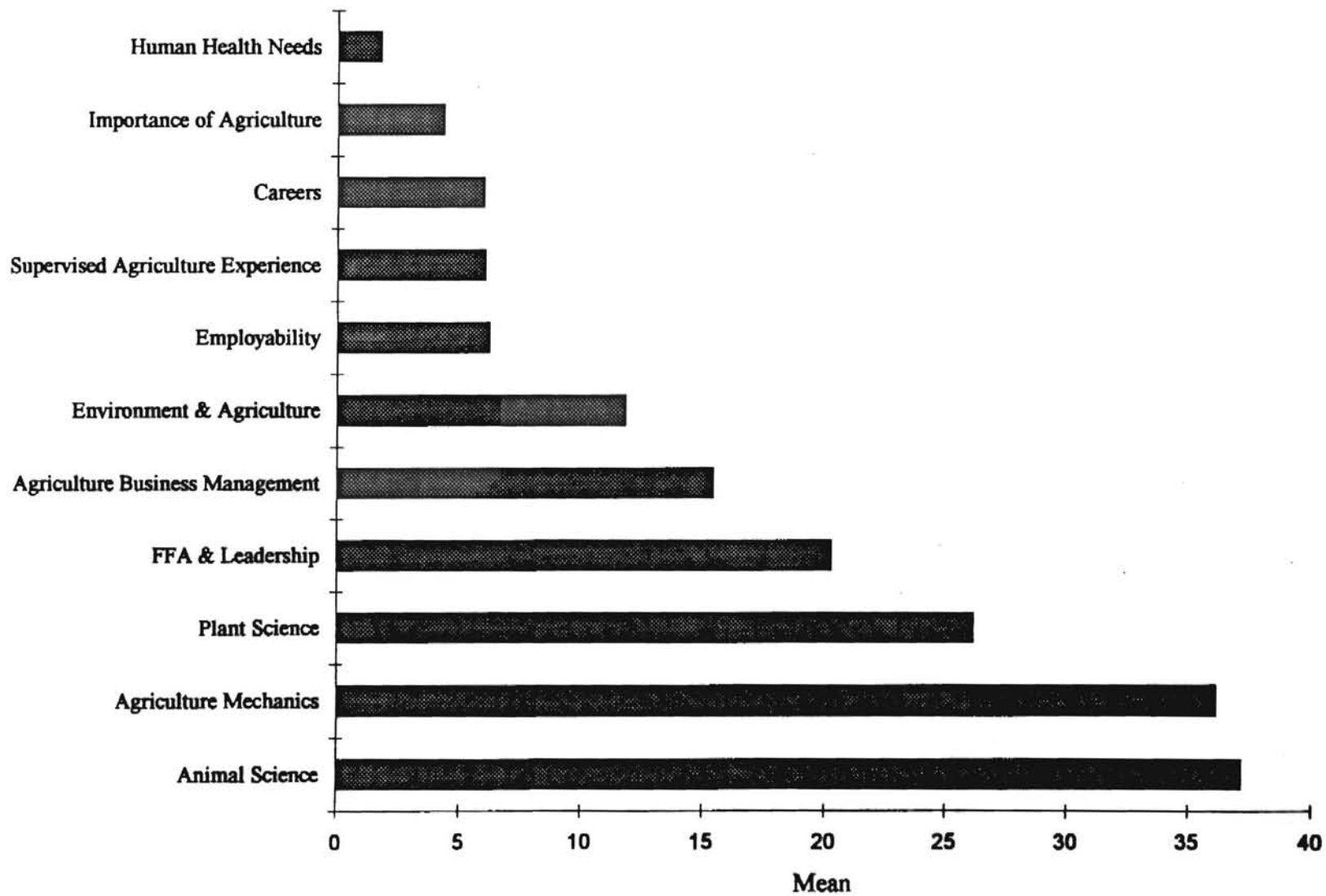


TABLE VII
REPORT OF SIGNIFICANT DIFFERENCES
IN UNIT AREAS FOR ALL STATES

S. Differences	Topic Areas ^a				
	Plt Sci	SAE	Employ	Ag Mech	Hmn Hlth
A ^b	Hawaii	Hawaii	Hawaii	Hawaii	Hawaii
B ^c	Arizona Oregon Utah Washington	Alaska Arizona California Colorado Idaho Montana Nevada New Mexico Oregon Utah Washington Wyoming	Alaska Arizona California Colorado Idaho Montana Nevada New Mexico Oregon Utah Washington Wyoming	California Colorado Montana New Mexico Oregon Utah Washington Wyoming	Alaska Arizona California Colorado Idaho Montana Nevada New Mexico Oregon Utah Washington Wyoming
C ^d	Alaska California Colorado Idaho Montana Nevada New Mexico Wyoming			Alaska Arizona Idaho Nevada	

Note.

^a= Plt Sci = Plant Science, SAE= Supervised Agriculture Experience, Employ= Employability, Ag Mech= Agriculture Mechanics, Hmn Hlth= Human Health. All other areas not listed showed no significant differences between the states.

Differing letters denote a significant difference between that state and other states.

^b= All identified by A are alike, A is significantly different than B and C.

^c= All identified by B are alike, B is significantly different than A and C.

^d= All identified by C are alike, C is significantly different than A and B.

Blank cells indicate no significant differences among all states.

*Significance level = 0.05

Conclusions

Based on the findings of this study the following conclusions were made:

1. Teachers perceived that state recommended curricula are being used by most programs in the region.
2. No one source of instructional materials is being utilized for instructional materials in first year agriculture courses.
3. A common core of agriculture units was found to exist in agricultural education programs located in the Western Region of AAAE with the predominant areas being animal science, agriculture mechanics, plant science, FFA and leadership, and agriculture business management.
4. Teachers are satisfied with the effectiveness and completeness of their curriculum.

Recommendations

The following recommendations were made based on the findings of this study and the conclusions that were reached:

1. It is recommended that this study be replicated in the other three AAAE regions to ascertain if the same core of agriculture topics exists across the United States.
2. An in-depth study should be conducted by states to determine the content and time devoted to teaching of each unit in secondary first year agriculture courses.
3. As it is not very cost effective for each state to develop their own core agriculture curriculum materials, an opportunity exists for collaboration in developing such materials among and between states through multi-state or regional consortia.
4. A study that ascertains the perceptions of other stakeholders of agricultural education programs should be taken to further evaluate the content of first year agriculture courses in the region.

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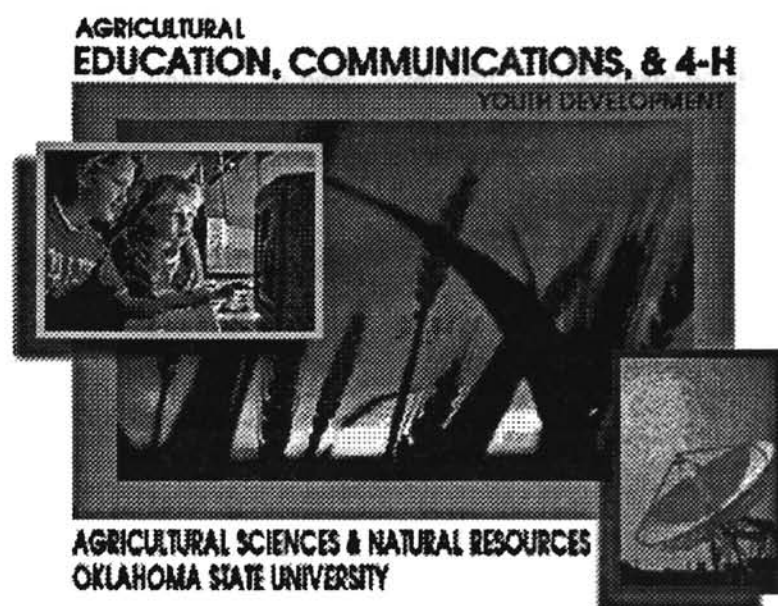
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APPENDICES

APPENDIX A
QUESTIONNAIRE



Introductory Agriculture Curriculum Study

Introductory Agriculture Curriculum Study

Instructions: This questionnaire has been developed to investigate what different agriculture departments are teaching in their introductory agriculture courses. The questionnaire will take approximately 15 minutes to complete. The information collected will be kept confidential and seen only by the researcher.

Part One: DEPARTMENT INFORMATION

Name of high school _____

FFA chapter: _____

Number of teachers in the department:

Full time _____ Part time _____

Number sections of first year agriculture courses offered? _____

List the names of those courses _____

Does your department use a state recommended core curriculum for first year (9th or 10th grade) agriculture courses?

circle one yes no

Does your department use a core curriculum from another state for first year agriculture?

circle one yes no

If yes, list the state. _____

Does your department use a curriculum developed by your department or local school district?

circle one yes no

Describe the location of your department.

circle one urban suburban rural

Estimate the number of students enrolled in your department. _____

Does your introductory agriculture course receive science credit towards high school graduation requirements? circle one yes no

If yes, what type of science credit and how much credit? (ex: life science, general science, or physical science) Does it qualify for 1 year, 1 semester, or other? _____

Part Two: CURRICULUM INFORMATION

From the following list of topics, check the topics that are taught in your department in the first-year agriculture course by indicating the estimated number of class periods spent on each topic. A class period is considered approximately 50 minutes.

<u>Topic</u>	<u>Number of class periods</u>
Importance of Agriculture	_____
other _____	_____
_____	_____
Animal Science	
History of Animal Production	_____
Livestock Industry	_____
Breeds & Selection	_____
Biology (ex: cellular biology)	_____
Behavior	_____
Major Body Systems(ex: reproduction, digestion)	_____
Genetics/Breeding	_____
Feeds & Feeding	_____
Health	_____
Livestock Evaluation	_____
other _____	_____
_____	_____
Plant Science	
Basic botany/Plant systems	_____
Soils	_____
Plant nutrition	_____
Plant propagation	_____
Weeds	_____
Irrigation	_____
Pest management	_____
other _____	_____
_____	_____
Ag Business Management	
FFA Recordbooks	_____
Record keeping	_____
Computers	_____
other _____	_____
_____	_____
Leadership/FFA	
Introduction to FFA	_____
Communications/public speaking _____	_____
Critical Thinking	_____

Part Three: TEACHER PERCEPTION

1. Rate the effectiveness of your agriculture department's curriculum.

1	2	3	4
Poor	Fair	Good	Excellent

Comments:

2. Rate the completeness of your agriculture department's curriculum.

1	2	3	4
Poor	Fair	Good	Excellent

Comments:

3. To what extent does the curriculum satisfy the educational needs of your first year agricultural students?

4. List the 3 major topics that your department considers the most important topics to teach each year.

5. If you were to run out of time in a school year, what topic areas would you leave out?

6. What changes, if any, would you make to your state's introductory agriculture curriculum?

Thank you for your input.



Thank you for you participation.

Anissa Wilhelm
Graduate Research Assistant

Department of Agricultural Education,
Communications, and 4-H Youth Development
Oklahoma State University

APPENDIX B
REMINDER CARD

We are attempting to conclude our study comparing first year agriculture curriculum among states in the Western Region, and we need your input to increase the validity of our study.

You should have received a questionnaire packet approximately 2 weeks ago. If it has not been misplaced, please take a few minutes to complete it and return it as soon as possible. If you did not receive a packet or it has been misplaced, please call (405)744-8141 or 744-5129 to request a new one.

Thank you for helping to complete our study.

Sincerely,

Anissa Wilhelm
Graduate Research Assistant
Oklahoma State University

APPENDIX C
INSTITUTIONAL REVIEW BOARD

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 05-01-96

IRB#: AG-96-024

Proposal Title: COMPARISON OF FIRST YEAR AGRICULTURAL
CURRICULUM AMONG STATES IN THE WESTERN REGION

Principal Investigator(s): James Leising, Anissa Wilhelm

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

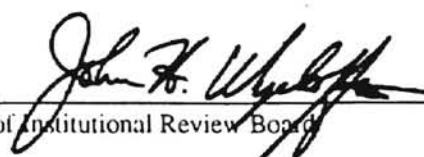
ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD
AT NEXT MEETING.

APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A
CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD
APPROVAL.

ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR
APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval
are as follows:

Signature:


Chair of Institutional Review Board

Date: May 8, 1996

VITA

Anissa Diane Wilhelm

Candidate for the Degree of

Master of Science

Thesis: COMPARISON OF INSTRUCTIONAL CONTENT OF FIRST YEAR
AGRICULTURE COURSES IN THE WESTERN REGION

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Westminster, California on April 24, 1967, the daughter of Earl and Belen Wilhelm.

Education: Graduated from Atascadero High School, Atascadero, California in June, 1985; received Bachelor of Science degree in Agricultural Education from University of California at Davis, Davis California in December 1990. Completed the requirements for the Master of Science degree with a major in Agricultural Education at Oklahoma State University in December, 1996.

Professional Experience: Teaching Assistant, Department of Agricultural Education, Oklahoma State University, May 1996 to present; Teaching Assistant, Department of Biosystems and Engineering, Oklahoma State University, August 1995 to May 1996; High School Agriculture Instructor, Atwater High School, Atwater, California, July 1992 to June, 1995; Temporary High School Agriculture Instructor, Armijo High School, Fairfield, California, April 1992 to June 1992; Student Teacher, Atwater High School, Atwater, California, August 1991 to December 1991.

Professional Memberships: American Vocational Association, California Agriculture Teachers Association, Oklahoma Vocational Agriculture Teachers Association, National Association of Colleges and Teachers of Agriculture, American Association for Agricultural Education, Gamma Sigma Delta, Agricultural Education Graduate Student Association.