

COMPARISON OF THE EXTENT OF EMPHASIS OR
IMPORTANCE PLACED UPON SELECTED ASPECTS
OF AGRICULTURE MECHANICS INSTRUCTION
IN VOCATIONAL AGRICULTURE

By

MARCUS LEE JUBY

Bachelor of Science
Oklahoma State University
Stillwater, Oklahoma
1962

Master of Science
Oklahoma State University
Stillwater, Oklahoma
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Thesis Approved:

Robert Terry

Thesis Adviser

Robert R. Price

Charles O. Hopkins

Richard N. Payne

James P. Key

N. Hurkum

Dean of the Graduate College

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CHAPTER I

PURPOSE AND DESIGN OF THE STUDY

Introduction

Instruction in agricultural mechanics is an integral part of the educational program in vocational agriculture. It provides for the acquisition of knowledge and the development of many skills as well as favorable attitudes, appreciations, and interests that seem essential for success in a modern society. The many changes that have taken place in agriculture during recent years make it increasingly necessary for teachers of vocational agriculture to be aware of the need for greater emphasis in this field. (4)

Agricultural mechanics has been a part of the vocational agriculture program to some extent all down through its history. In the past, the term "Farm Mechanics" has commonly been used in referring to the mechanics instruction in vocational agriculture. The terms "farm mechanics" and "agricultural mechanics" are often used interchangeably in connection with the program in vocational agriculture. However, agricultural mechanics instruction covers a much broader area and has been used more recently since it includes skills needed for on-farm as well as off-farm agricultural occupations.

Many significant modifications have been brought about in vocational agriculture as a result of the 1963 Vocational Education Act. Specifically, the act encouraged the teachers of vocational agriculture

to include instructional areas related to farming as well as non-farming occupations.

Adjusting old, and designing new, curricula in vocational agriculture is inevitable if the program is to be effective and efficient in meeting the needs of students.

Beginning with the school year of 1965-66, the Oklahoma State Department of Vocational Agriculture approved a course entitled "Vocational Agriculture Mechanics" to be offered for high school credit through the vocational agriculture departments of Oklahoma. It is now in its seventh year of operation, and there are 171 participating departments with a total enrollment of 2,240 students.

Developments within our society create an impact upon our agricultural education programs throughout the state. Much emphasis has been placed upon vocational education and its place within a society. There has been no more appropriate or urgent time for the evaluation of what is being done, re-evaluation of what has been done, and very careful analysis and preparation of plans for the future.

Statement of the Problem

As has been pointed out earlier, instruction in agricultural mechanics is an integral part of the educational program in vocational agriculture. Adjusting old, and designing new, curricula in vocational agriculture is inevitable if the program is to be effective and efficient in meeting the needs of students.

It is apparent that more information is needed in order to determine why a separate course of agricultural mechanics is taught in addition to the four credits of vocational agriculture, and how it

differs from the mechanics instruction offered in the regular vocational agriculture program since it is listed as a different credit.

Purpose of the Study

The primary purpose of this study was to identify and compare selected factors which encouraged the initiation of and operational procedures for a separate course in agricultural mechanics. A concurrent purpose was to compare the instructional content of agricultural mechanics as a part of regular vocational agriculture to that of a separate course in agricultural mechanics.

Objectives of the Study

In order to accomplish the purposes of this study, the following specific objectives were formulated:

1. To determine the importance of selected factors for initiating a separate course in agricultural mechanics as perceived by teachers of vocational agriculture.
2. To determine the importance of selected factors for continuing a separate course in agricultural mechanics.
3. To determine the importance of selected factors for discontinuing a separate course in agricultural mechanics.
4. To compare the extent of emphasis placed upon selected characteristics in regard to student selection and certain operational procedures for programs as perceived by teachers of vocational agriculture.
5. To determine and compare the extent of emphasis placed on selected agricultural mechanics teaching areas and units in regular vocational agriculture and a separate course in agriculture mechanics.

6. To compare the agriculture mechanics instruction program of vocational agriculture departments which have continued a separate agriculture mechanics course to those which have discontinued a separate agriculture mechanics course.

Rationale for the Study

In the past few years there have been some rather significant moves to revamp and modernize vocational education and to bring programs such as vocational agriculture into closer alignment with individual and societal needs. With this in mind, several departments of vocational agriculture throughout Oklahoma instituted a separate course in agricultural mechanics. However, since its inception into vocational agriculture as a separate course, many departments have found it necessary to discontinue the offering of such a program.

This study should give some indications as to why some departments initiate new programs and continue to operate successfully while other departments are forced to discontinue new programs. This information should prove beneficial to the State Department of Vocational Agriculture as it would give them insight as to how they might encourage new programs to be developed in relation to prescribed criteria.

With emphasis being placed in the area of curriculum development, results of this study should provide information as to the feasibility of developing a basic core of curriculum in the area of agricultural mechanics.

Assumptions and Limitations of the Study

Assumptions

For the purposes of this study, the following assumptions were made:

1. The statements developed and included in the study were adequate in their assessment of what is taught in agricultural mechanics.
2. The responses by teachers of vocational agriculture were true and sincere in relation to the intent of the interview schedule.
3. The 30 departments selected for the study were representative of all departments offering a separate course in agricultural mechanics and would constitute an adequate sample.
4. The task of recalling past events would not affect the response of the teachers of vocational agriculture even if that event had not taken place within the past school year.

Limitations

The following limitations of the study were recognized by the investigator:

1. In order for a school to be selected as a possible participant, it was required to meet at least one of the two criteria below:
 - a. The separate course in agricultural mechanics must have been initiated under the present instructor and in continuous operation for the past three years.
 - b. The separate course in agricultural mechanics must have been initiated under the present instructor and in operation for one of the past three years but not presently being offered.

2. The lack of sufficient time of observing a separate course of agricultural mechanics in operation.

Definition of Terms

Agricultural mechanics--Refers to the instructional areas which develop the mechanical abilities and skills of students in performing agricultural shop activities needed in both on-farm and off-farm agricultural occupations.

Regular vocational agricultural mechanics--Refers to the instructional area of agricultural mechanics which is taught to students enrolled in production agriculture or Vocational Agriculture I, II, III, and IV.

Separate course in agricultural mechanics--Refers to a course which is taught by the vocational agriculture teacher and may or may not be offered to presently enrolled vocational agriculture students.

Continuing schools--Refers to those schools or departments that have offered a separate course in agricultural mechanics in continuous sequence for the past three years.

Discontinued schools--Refers to those schools or departments that offered a separate course in agricultural mechanics within the past three years but have discontinued the course for various reasons.

Procedure

In order to obtain data for this study, all departments offering a separate course in agricultural mechanics in the last three years were characterized into one of two groups. The criteria established for these two groups were as follows:

- (a) The separate course in agricultural mechanics must have been in continuous operation for the past three years and initiated under the present instructor.
- (b) The separate course in agricultural mechanics must have been initiated under the present instructor and in operation for one of the past three years but not presently being offered.

From the list of departments in each group, 15 schools were selected by stratified random sample, making a total of 30 schools in the study. The information needed for this study was secured by personal interview with the aid of an interview schedule.

CHAPTER II

REVIEW OF RELATED RESEARCH

Implications for Agricultural Mechanics Programs

The passage of the Vocational Education Act of 1963 brought about many significant modifications in vocational agriculture. The purpose of vocational agriculture was broadened to include meeting the needs of all students enrolled. The new objectives which illustrate a growing awareness for the occupations related to the field of agriculture are:

1. To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture.
2. To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture.
3. To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations.
4. To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education.
5. To develop those abilities in human relations which are essential in agriculture occupations.

6. To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities. (2)

It was stated by Price (3) that the purposes of the Vocational Education Act of 1963 permitted flexibility of curriculum development. Within this viewpoint many states are redesigning the curriculum in vocational agricultural education.

Shelburne and Slemp (4) stated that we as teachers of agriculture cannot rest on our laurels. We must justify our employment and the program we conduct. They also stated that the instructional program in vocational agriculture should include activities which will aid each student in developing his leadership abilities as well as vocational skills.

Annis and Perrigo (1) stated that instruction in agricultural mechanics is an integral part of the educational program in vocational agriculture. It provides for the acquisition of knowledge and the development of many skills, as well as favorable attitudes, appreciations, and interests that seem essential for success in a modern society.

From a review of the Committee Report No. IV, "Agricultural Engineering Phases of Teacher Education," of the American Society of Agricultural Engineers (5), it was stated that because of the rapid advance of farm mechanization and parallel developments in other fields, there is a growing need for better education of those entering agriculture.

Jacobs (6) stated that more than ever before teacher education must develop insights and projections for instruction in agricultural mechanization if we are to serve the "broadened base" of education for

occupations in agriculture. Guidelines or objectives for agricultural mechanization must include not only emphasis upon "skills of the shop," but also on the technology of the dynamic industry it is to serve.

Methods of Upgrading Instruction

Jacobs (6) stated that the upgrading of instruction in agricultural mechanization at the secondary and post-secondary levels will be accomplished primarily through the pre-service teacher education program. He stated that in-service education is valuable and necessarily must be provided to bring about change, but it is necessary to "cast the die" within the system at the pre-service level.

Fog and Bear (7) stated that teachers of agricultural mechanics should be encouraged to keep pace with the agricultural mechanics needs of their communities. Encouragement can be provided by requiring more courses in agricultural mechanics in pre-service teacher education programs plus increased emphasis in graduate courses and in-service workshops.

Johnson and Wacholz (8) stated that mechanization of American farms has increased at a tremendous rate in recent years. With mechanization has come new responsibilities for vocational agriculture teachers in selecting understandings and abilities which should be taught in agricultural mechanics. Accompanying these new responsibilities is a higher degree of competence in agricultural mechanics needed by teachers.

Committee Report No. IV; "Agricultural Engineering Phases of Teacher Education," of the American Society of Agricultural Engineers (5), recommended that teacher-trainees need to be prepared to teach agricultural mechanics as part of any of the agricultural education

specialities in the secondary school and should devote a portion of their undergraduate training program in agricultural engineering technology. In addition, the committee stated that the teachers in the field need a strong in-service education program to receive additional training.

Areas of Instructional Emphasis

Hutson (9) reports in an Arkansas study that continued emphasis should be given to improving and expanding the instructional program of agriculture mechanics. Special consideration should be given to competencies needed by students who enter the various non-farming occupations.

Wolff (10) stated that the time has come when teachers must re-evaluate the broad objectives in agricultural mechanics. Building trinkets and welding generate enthusiasm among students and parents, but how can a teacher justify spending most of his time doing this? He stated, "We must raise our sights higher toward the more important and more technical areas which will help prepare students for jobs in this highly technical world." Wolff went on to say that the basic problem in teaching agricultural mechanics today is not how to teach but what to teach.

Harrison (11) stated that major attention should be immediately given to providing experiences of a high quality in the high school programs in agricultural mechanics. He also stated that a more varied and broadened curriculum and course content be applied in the high school vocational agriculture mechanics course to provide more of the skills needed by students entering certain technical occupations.

Nichols (12) recommended that extensive efforts should be expended to expand and revise curriculums and courses in agriculture mechanics. Such revision and evaluation should be based upon meeting the needs of youth for maximum employability in agricultural industries. He feels that teachers should receive assistance in developing and implementing a comprehensive program of basic instruction in agriculture mechanics.

CHAPTER III

DESIGN AND CONDUCT OF THE STUDY

The purpose of this chapter is to describe the methods and procedures used in conducting this study. These were dictated by the purpose and objectives of the study.

In order to collect and analyze data pertaining to the purpose and objectives developed for guidance of the study effort, it was necessary to accomplish the following tasks:

1. Determine the population for the study.
2. Develop the instrument for data collection.
3. Develop a procedure for data collection.
4. Select methods of data analysis.

The Study Population

The population for this study consisted of the vocational agriculture departments in Oklahoma offering a separate course in agricultural mechanics. In order to obtain data for this study, all departments offering a separate course in agricultural mechanics in the last three years were characterized into one of two groups. The criteria established for these two groups were as follows:

1. Schools selected must have offered the present program of a separate course in agricultural mechanics in continuous sequence for the past three years. In addition, the program

must have been initiated under the present instructor.

2. Schools selected must have offered a separate course in agricultural mechanics for one of the past three years but not for the school year of 1971-72. In addition, the present instructor must have initiated and discontinued the separate course in agricultural mechanics.

From the list of departments in each group, 15 schools were selected by stratified random sample, making a total of 30 schools in the study. As an extra precaution, the supervisors of the five supervisory districts were consulted in order to provide additional validity into the selection of the 30 schools.

Development of the Instrument

The information needed for this study was secured through the use of an interview schedule. In formulating the statements used on the instrument, the investigator considered personal concerns as well as suggestions from teacher educators in agricultural education. In addition to the above, members of the State Department of Vocational Agriculture were consulted for suggestions. The Oklahoma Basic Core Curriculum was used as a basic guideline for formulating the teaching areas found in agricultural mechanics. A likert-type scale was considered most appropriate for the study as a means of securing the extent to which teachers of vocational agriculture agreed with statements contained on the instrument.

After the initial instrument was developed, it was then submitted to the investigator's doctoral advisory committee for their critical review and suggestions. Suggestions were made and incorporated into the final instrument.

The same instrument was administered to all schools involved in the study with one exception. This exception was as follows:

1. Schools that continue to offer a separate course in agricultural mechanics were asked to respond in regard to the possible reason(s) for its existence.
2. Schools that discontinued a separate course in agricultural mechanics were asked to respond in regard to possible reason(s) for such action.

In addition, teachers of vocational agriculture were given an opportunity to list other areas not covered in the instrument.

Collection of the Data

The investigator chose to administer the instrument on a more personable basis than that exemplified by mailed questionnaires. Therefore, data were collected by the interview method with the aid of an interviewing instrument. Each teacher of vocational agriculture involved in the study was contacted by telephone to set an appointment time. The amount of time the instructor had available, as well as the distance of travel to the next school, determined the extent of time spent at each department.

Upon arriving at the schools, time was spent looking over the agricultural mechanics facilities and visiting in relation to the overall program of vocational agriculture. After this brief period, explanation and administration of the instrument was accomplished. Since the effectiveness of a personal interview is largely dependent upon the consistent and careful approach in which it is administered, a concerted effort was made to conduct each interview with all teachers in the same manner.

Analysis of the Data

The following description of the analysis procedure is included to provide an overview of the statistical treatment of the data collected. The instrument used in collecting the data contained two likert-type scales. The first scale involved the importance of various statements and factors relating to a separate course in agricultural mechanics as perceived by the teacher of vocational agriculture. To permit statistical treatment of the data, numerical values were assigned to the response categories according to the following pattern:

<u>Response Categories</u>	<u>Importance Scale</u>
Extreme Importance	4
Considerable Importance	3
Some Importance	2
Limited Importance	1
No Importance	0

The second scale involved obtaining teachers' judgments as to the amount of emphasis placed upon various factors concerning the administration and operation of vocational agriculture and agricultural mechanics. To permit statistical treatment of these data, numerical values were assigned to the response categories according to the following pattern:

<u>Response Categories</u>	<u>Emphasis Scale</u>
Extreme Emphasis	4
Considerable Emphasis	3
Some Emphasis	2
Limited Emphasis	1
No Emphasis	0

To facilitate comparison between responses, an average group rating was computed for each item. This was accomplished by (1) assigning a numerical rating to each response category, (2) multiplying the number of respondents per category by the numerical value, (3) summing these products, and (4) dividing by the total number of respondents in each group. With the average group rating computed, comparisons and rank ordering of factors was accomplished.

In order to determine the average group response to statements and because computation of these mean responses resulted in decimal fractions, a range of numerical values was established for each degree of response category as follows:

<u>Response Categories</u>	<u>Range of Numerical Values</u>
Extreme	3.5 - 4.00
Considerable	2.5 - 3.49
Some	1.5 - 2.49
Limited	0.5 - 1.49
No	0.0 - 0.50

Thus, if the mean response of a group was determined to be 3.26, then according to the foregoing formula the group rating of the statement in question would be considerable in terms of importance or emphasis.

CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

Introduction

This chapter deals with the presentation and analysis of information secured from teachers of vocational agriculture. The information obtained reflects the overall operational procedures taking place in a separate course of agricultural mechanics and agricultural mechanics instructional areas of regular vocational agriculture classes. In addition, the amount of importance placed upon selected factors involving a separate course in agricultural mechanics are included.

As indicated in Chapter I, the primary purpose of this study was to identify and compare selected factors which encouraged the initiation of and operational procedures for a separate course in agricultural mechanics. A concurrent purpose was to compare the instructional content of agricultural mechanics as a part of regular vocational agriculture to that of a separate course in agricultural mechanics.

As discussed in the previous chapter, an average group rating was computed for each item in order to facilitate comparison between responses. This was accomplished by (1) assigning a numerical rating to each response category, (2) multiplying the number of respondents per category by the numerical value, (3) summing these products, and (4) dividing by the total number of respondents in each group.

Numerical values were assigned to the response categories as follows:

<u>Response Categories</u>	<u>Importance Scale</u>	<u>Emphasis Scale</u>
Extreme	4	4
Considerable	3	3
Some	2	2
Limited	1	1
No	0	0

In order to determine the average group response to statements and because computation of these mean responses resulted in decimal fractions, a range of numerical values was established for each degree of response category as follows:

<u>Response Categories</u>	<u>Range of Numerical Values</u>
Extreme	3.5 - 4.00
Considerable	2.5 - 3.49
Some	1.5 - 2.49
Limited	0.5 - 1.49
No	0.0 - 0.50

Thus, if the mean response of a group was determined to be 3.26, then according to the foregoing formula the group rating of the statement in question would be considerable in terms of importance or emphasis.

In order that a further comparison might be established, schools were divided into two categories as follows:

1. Those schools designated as "continuing" refer to schools which had offered a separate course in agricultural mechanics in continuous sequence for the past three years; and
2. Those schools designated as "discontinued" refer to schools

which had offered a separate course in agricultural mechanics within the past three years but which for various reasons had discontinued the separate course in agricultural mechanics.

Findings of the Study

Initiating a Separate Course in Agricultural Mechanics

One of the main considerations of the study was to determine the importance of selected factors upon the initiation of a separate course in agricultural mechanics. Findings relative to the objective are reported in this section.

The data in Table I represent the responses by teachers of vocational agriculture in regard to the importance of selected people and organizations upon a separate course in agricultural mechanics being offered. Overall, teachers of continuing programs reported a higher degree of importance for all statements, with the exception of one. However, the extent of difference was only slight in many cases.

The teachers who continued a separate course in agricultural mechanics considered the teacher of vocational agriculture to be of extreme importance in terms of encouraging the offering of a separate course in agricultural mechanics.

Statements which received an average rating of considerable importance lie within the limits of 2.5 to 3.49. Therefore, teachers who continued a separate course in agricultural mechanics considered the student's need and desires of the administration as being of considerable importance in regard to schools offering a separate course.

Five statements receiving an average rating of some importance fell within the limits of 1.5 to 2.49. Teachers of continuing programs

TABLE I
 RESPONSES REGARDING THE EXTENT OF IMPORTANCE THAT PEOPLE
 AND ORGANIZATIONS HAD UPON ENCOURAGING THE OFFERING
 OF AG. MECHANICS AS A SEPARATE COURSE

Statement and Response Group	Importance Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Board of Education													
1. Continuing	3	20	5	33	2	13	4	27	1	7	35	2.33	Some
2. Discontinued	3	20	2	13	3	20	4	27	3	20	28	1.87	Some
Parents													
1. Continuing	3	20	3	20	4	27	2	13	3	20	31	2.07	Some
2. Discontinued	1	7	4	27	4	27	4	27	2	13	28	1.87	Some
State Department of Vocational Agriculture													
1. Continuing	2	13	2	13	3	20	6	40	2	13	26	1.73	Some
2. Discontinued	3	20	2	13	4	27	2	13	4	27	28	1.87	Some
Students													
1. Continuing	5	33	8	53	1	7	1	7	0	---	47	3.13	Considerable
2. Discontinued	7	47	5	33	2	13	0	---	1	7	47	3.13	Considerable
Superintendent or Principal													
1. Continuing	6	40	5	33	0	---	3	20	1	7	42	2.80	Considerable
2. Discontinued	5	33	4	27	5	33	0	---	1	7	42	2.80	Considerable
Local Business and Industry													
1. Continuing	2	13	3	20	2	13	3	20	5	33	24	1.60	Some
2. Discontinued	0	---	2	13	1	7	8	53	4	27	16	1.07	Limited
Teacher of Vocational Agriculture													
1. Continuing	10	67	4	27	1	7	0	---	0	---	54	3.60	Extreme
2. Discontinued	7	47	6	40	1	7	0	---	1	7	48	3.20	Considerable
Farmers in Community													
1. Continuing	3	20	5	33	4	27	2	13	1	7	37	2.47	Some
2. Discontinued	2	13	5	33	5	33	1	7	2	13	34	2.27	Some

considered the input of "farmers in the community," "board of education," "parents of students enrolled," "local businesses and industry," and the "State Department of Vocational Agriculture" as being of some importance in terms of their school initiating a separate course in agricultural mechanics.

In comparison, those teachers discontinuing a separate course in agricultural mechanics gave an average rating of considerable importance to three statements.. The range of limits for considerable importance is 2.5 to 3.49. Those statements determined as being of considerable importance in terms of schools initiating a separate course in agricultural mechanics were teachers of vocational agriculture, students' needs, and administration desires.

In addition, four statements received an average rating of some importance, which comes within the range of 1.5 to 2.49. Teachers of discontinued programs considered the desires of "farmers in the community," "parents of students enrolled," "boards of education," and the "State Department of Vocational Agriculture" as falling within this category in terms of encouraging their schools to offer a separate course.

Teachers who discontinued a separate course in agriculture mechanics considered the "local businesses and industry" as being of only limited importance in regard to their school offering a separate course. The average rating for limited importance lies within the limits of 0.5 to 1.49.

Responses regarding the extent of importance that selected factors had upon a separate course in agricultural mechanics being offered are reported in Table II.

TABLE II
 RESPONSES REGARDING THE EXTENT OF IMPORTANCE THAT
 SELECTED FACTORS HAD UPON A SEPARATE COURSE
 IN AG. MECHANICS BEING OFFERED

Statement and Response Group	Importance Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Increase in school curriculum offerings was needed													
1. Continuing	6	40	2	13	5	33	1	7	1	7	41	2.73	Considerable
2. Discontinued	4	27	4	27	4	27	1	7	2	13	37	2.47	Some
To supply a vocational need which was not present in other school classes													
1. Continuing	12	80	1	7	2	13	0	---	0	---	55	3.67	Extreme
2. Discontinued	9	60	5	33	1	7	0	---	0	---	53	3.53	Extreme
To provide training for farm boys in agriculture mechanics													
1. Continuing	4	27	10	67	0	---	1	7	0	---	47	3.13	Considerable
2. Discontinued	8	53	6	40	0	---	0	---	1	7	50	3.33	Considerable
To provide training in off-farm mechanics													
1. Continuing	7	47	5	33	2	13	1	7	0	---	48	3.20	Considerable
2. Discontinued	5	33	7	47	3	20	0	---	0	---	47	3.13	Considerable
To increase the vocational agriculture enrollment													
1. Continuing	2	13	3	20	2	13	3	20	5	33	24	1.60	Some
2. Discontinued	2	13	1	7	1	7	7	47	4	27	20	1.33	Limited
To allow extra time for project work in shop													
1. Continuing	2	13	4	27	4	27	1	7	4	27	29	1.93	Some
2. Discontinued	4	27	1	7	5	33	2	13	3	20	31	2.07	Some
To provide a class for boys who were not enrolled in vocational agriculture													
1. Continuing	3	20	1	7	6	40	4	27	1	7	31	2.07	Some
2. Discontinued	2	13	5	33	2	13	4	27	2	13	31	2.07	Some
To provide a class for students who were considered problems in other classes													
1. Continuing	1	7	1	7	3	20	3	20	7	47	16	1.07	Limited
2. Discontinued	1	7	3	20	1	7	2	13	8	53	17	1.13	Limited
To help students become employable													
1. Continuing	8	53	6	40	1	7	0	---	0	---	51	3.40	Considerable
2. Discontinued	6	40	8	53	0	---	1	7	0	---	49	3.27	Considerable
To more fully meet the needs of students													
1. Continuing	8	53	7	47	0	---	0	---	0	---	53	3.53	Extreme
2. Discontinued	9	60	6	40	0	---	0	---	0	---	54	3.60	Extreme

Factors receiving an average rating of extreme importance fell within the limits of 3.5 to 4.0. Teachers continuing a separate course in agricultural mechanics considered "the supplying of a vocational need not present in other school classes" and "the opportunity to more fully meet the needs of students" as being of extreme importance in regard to their schools offering a separate course.

Considerable importance, with a range of 2.5 to 3.49, was indicated for statements which included "helping students become more employable" and "providing off-farm training in mechanics." In addition, "providing a training for farm boys in agricultural mechanics" and "increasing the school curriculum offerings" were reported to be of considerable importance.

Responses to the statements "to provide a class for students not enrolled in vocational agriculture" and "to allow extra time for project construction" received an average rating of some importance. In addition, "the need to increase the vocational agriculture enrollment" was indicated as a possible reason for offering a separate course in agricultural mechanics. The above three statements which were determined as being of some importance by teachers of continuing programs fell within the bounds of 1.5 to 2.49.

Reported as being of limited importance was the statement related to providing a class for students considered as problems in other classes.

In close comparison, teachers discontinuing a separate course in agricultural mechanics reported the degree of importance on the following statements as indicative of their school offering a separate course in agricultural mechanics.

"To more fully meet the needs of students" and "to supply a vocational need not present in other school classes" received an average rating between the limits of 3.5 to 4.0, indicating extreme importance in regard to their school beginning a separate course.

Statements which received an average rating of considerable importance were within the range of 2.5 to 3.49. Therefore, teachers of discontinued programs considered the "providing of training for farm boys in agricultural mechanics," "the helping of students to become more employable," and the "providing of training in off-farm mechanics" as being of considerable importance.

"To increase the school curriculum offerings" was reported to be of some importance with a rating of 2.47. In addition, "allowing extra time for project work in shop" and "providing a class for students not enrolled in vocational agriculture" were determined to be of some importance.

Also, discontinued programs reported limited importance with a range of 0.5 to 1.49 for the statements "to increase the vocational agriculture enrollment" and "the providing of a class for students considered problems in other classes."

Continuing a Separate Course in Agricultural Mechanics

This section deals with the importance of selected statements as related to schools continuing a separate course in agricultural mechanics.

Reflected in Table III are the extent of importance that selected factors had upon a separate course in agricultural mechanics being continued.

TABLE III
 RESPONSES REGARDING THE EXTENT OF IMPORTANCE THAT
 SELECTED FACTORS HAD UPON A SEPARATE COURSE
 IN AC. MECHANICS BEING CONTINUED

Statement	Importance Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Gives the students an opportunity to develop a skill which is not present in other classes	12	80	1	7	2	13	0	---	0	---	53	3.53	Extreme
The extra enrollment keeps our regular program of vocational agriculture in existence	1	7	0	---	2	13	5	33	7	47	13	.87	Limited
Allows the students more options in our school curriculum offerings	7	47	5	33	3	20	0	---	0	---	49	3.27	Considerable
Utilizes our agricultural mechanics shop more efficiently	9	60	5	33	1	7	0	---	0	---	53	3.53	Extreme
Helps keep the teacher of vocational agriculture out of a study hall	0	---	0	---	0	---	1	7	14	93	1	.07	No
Helps the students to construct projects for home farms	5	33	5	33	4	27	1	7	0	---	44	2.93	Considerable
Gives the students extra time for project construction	5	33	6	40	2	13	0	---	2	13	42	2.80	Considerable

Teachers who continually offered a separate course in agricultural mechanics gave an average rating of 3.53, which indicated extreme importance, in reference to "giving students an opportunity to develop skills not present in other classes" and "utilizing the agricultural mechanics shop more efficiently."

To allow more options in the school curriculum and at the same time help students to construct projects for home farms by giving extra time for project construction was determined to be of considerable importance with an average rating within the limits of 2.5 to 3.49.

Teachers indicated that limited importance was attributed to the extra enrollment keeping the regular program of vocational agriculture in existence.

The lowest average rating reported was for the statement related to keeping the teacher of vocational agriculture out of the study hall. It received an average rating of 0.07, which fell within the range of no importance.

Discontinuing a Separate Course in Agricultural Mechanics

An attempt is made in this section to summarize some of the basic reasons for teachers of vocational agriculture to discontinue a separate course in agricultural mechanics.

Data in Table IV illustrate the extent of importance that selected factors had upon a teacher of vocational agriculture to discontinue a separate course in agricultural mechanics.

Reflecting considerable importance with a range of 2.5 to 3.49 was the statement regarding the interference of a separate course with the operation of the regular vocational agriculture class. Eleven teachers (74 percent) gave an average rating of considerable importance or more to this statement.

Reported to be of some importance with a rating of 1.47 was "the teacher being unable to visit students in the afternoon because of extra class time."

Seven statements received an average rating of limited importance, which fell within the bounds of 0.5 to 1.49. "Lack of tools and equipment," "lack of funds to operate the shop," "lack of sufficient facilities" and "time for securing materials and supplies" were reported as

TABLE IV
 RESPONSES REGARDING THE EXTENT OF IMPORTANCE THAT
 SELECTED FACTORS HAD UPON A SEPARATE COURSE
 IN AG. MECHANICS BEING DISCONTINUED

Statement	Importance Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Lack of proper facilities	2	13	2	13	1	7	1	7	9	60	17	1.13	Limited
Lack of equipment and tools	3	20	2	13	0	---	1	7	9	60	19	1.27	Limited
Lack of funds to operate the shop	3	20	1	7	0	---	2	20	9	60	17	1.13	Limited
Lack of interest on the part of the students	0	---	0	---	0	---	4	27	11	73	4	.27	No
Interfered with the operation of regular vocational agriculture classes	7	47	4	27	0	---	0	---	4	27	40	2.67	Considerable
Lack of support from the administration	1	7	1	7	1	7	1	7	11	73	10	.67	Limited
Developed into a dumping ground for students having problems with other classes	1	7	0	---	2	13	3	20	9	60	11	.73	Limited
Lack of building material or scrap metal which students could use	0	---	0	---	0	---	4	27	11	73	4	.27	No
Teacher unable to visit students in afternoon because of extra class	2	13	2	13	7	47	1	7	3	20	29	.93	Some
Lack of sufficient time for securing materials and supplies	0	---	1	7	3	20	3	20	8	53	12	.80	Limited
Offered on alternate years	2	13	0	---	0	---	0	---	13	87	8	.53	Limited

being within this range. In addition, the statements of "developed into dumping grounds for students having problems in other classes," "lack of support from the administration," and the "offering of the separate course on alternate years" were found to be of limited importance.

"Lack of building material or scrap metal" and "lack of interest on the part of students" received an average rating of no importance in regard to discontinuing a separate course in agricultural mechanics.

Comparison of Student Characteristics and Operational Procedures

This section contains comparative information which reflects the extent of emphasis placed upon student selection and various operational procedures within regular vocational agriculture and the separate course of agricultural mechanics.

The extent of emphasis placed upon selected factors in regard to student selection is presented in Table V.

It was interesting to note that teachers of continuing programs placed much more emphasis upon selecting students for regular vocational agriculture than for the separate course in agricultural mechanics. The degree of difference ranged from a high of 1.33 points to a low of 0.07. It was found that past enrollment in vocational agriculture received considerably more emphasis in regular vocational agriculture. However, an almost equal amount of emphasis was placed upon selecting students who showed a willingness to work.

In general, it was found from the table that teachers who discontinued a separate program in agricultural mechanics placed greater emphasis upon student selection in regular vocational agriculture; but the "willingness of the student to work" received a higher emphasis in the separate course of agricultural mechanics. In addition, teachers who discontinued separate programs in agricultural mechanics reported an average emphasis rating of 2.13 for students who had "past enrollment in vocational agriculture" when enrolling in regular vocational agriculture. However, for the same characteristic, an average rating of 0.53 was reported for the separate course in agricultural mechanics.

TABLE V
 RESPONSES REGARDING THE EXTENT OF EMPHASIS PLACED UPON
 SELECTED FACTORS IN REGARD TO STUDENT SELECTION

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Interested in agriculture													
1. Continuing													
a. Regular Vo-Ag	5	33	4	27	4	27	1	7	1	7	41	2.73	Considerable
b. Ag. Mechanics	2	13	3	20	1	7	5	33	4	27	24	1.60	Some
2. Discontinued													
a. Regular Vo-Ag	4	27	3	20	3	20	2	13	3	20	33	2.20	Some
b. Ag. Mechanics	2	13	1	7	3	20	3	20	6	40	20	1.33	Limited
Occupational objective in agriculture													
1. Continuing													
a. Regular Vo-Ag	5	33	6	40	2	13	2	13	0	---	44	2.93	Considerable
b. Ag. Mechanics	4	27	3	20	4	27	2	13	2	13	35	2.33	Some
2. Discontinued													
a. Regular Vo-Ag	2	13	5	33	4	27	0	---	4	27	31	2.07	Some
b. Ag. Mechanics	1	7	2	13	4	27	1	7	7	47	19	1.27	Limited
Willingness to work													
1. Continuing													
a. Regular Vo-Ag	6	40	6	40	3	20	0	---	0	---	48	3.20	Considerable
b. Ag. Mechanics	7	47	4	27	3	20	1	7	0	---	47	3.13	Considerable
2. Discontinued													
a. Regular Vo-Ag	9	60	3	20	2	13	0	---	1	7	49	3.27	Considerable
b. Ag. Mechanics	8	53	5	33	2	13	0	---	0	---	51	3.40	Considerable
Live on a farm													
1. Continuing													
a. Regular Vo-Ag	0	---	3	20	3	20	4	27	5	33	19	1.27	Limited
b. Ag. Mechanics	0	---	2	13	2	13	3	20	8	53	13	.87	Limited
2. Discontinued													
a. Regular Vo-Ag	0	---	2	13	2	13	1	7	10	67	11	.73	Limited
b. Ag. Mechanics	0	---	1	7	0	---	2	13	12	80	5	.33	No
Except for freshmen, past enrollment in Vo-Ag													
1. Continuing													
a. Regular Vo-Ag	6	40	3	20	3	20	2	13	1	7	41	2.73	Considerable
b. Ag. Mechanics	3	20	2	13	1	7	1	7	8	53	21	1.40	Limited
2. Discontinued													
a. Regular Vo-Ag	4	27	4	27	1	7	2	13	4	27	32	2.13	Some
b. Ag. Mechanics	1	7	1	7	0	---	1	7	12	80	8	.53	Limited

Reflected in Table VI are responses in regard to the extent of emphasis that selected factors had upon operational procedures.

It was noted that when areas received more emphasis in regular vocational agriculture that a greater amount of difference existed between regular vocational agriculture and the separate course in agricultural mechanics. However, a lesser amount of variation existed between the two when more emphasis was reported for the separate course in agricultural mechanics. For example, teachers of continuing programs of agricultural mechanics indicated "students with previous experience in vocational agriculture" had considerable emphasis upon the operational procedures in regular vocational agriculture but had only limited emphasis in the separate course of agriculture mechanics. Concurrently, teachers who had discontinued a separate agricultural mechanics program reported that "supervisory visits to students" had considerably more emphasis in regular vocational agriculture as indicated by an average rating of 3.60, while an average emphasis rating of 2.40 was received in the separate course of agricultural mechanics.

In contrast, "emphasis from the administration" upon the operational procedures of a separate course in agricultural mechanics received an average rating of 3.60 by teachers who were continuing a separate program in agricultural mechanics, while in regular vocational agriculture the average emphasis rating was 3.47. With similarity to the above, teachers who discontinued a separate program in agricultural mechanics reported that the use of demonstrations in class or shop had an average emphasis rating of 3.47 upon operational procedures, as compared to an average rating of 3.27 for the regular vocational agriculture program.

TABLE VI
 RESPONSES REGARDING THE EXTENT OF EMPHASIS THAT SELECTED
 FACTORS HAD UPON OPERATIONAL PROCEDURES

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Students selected by the teacher													
1. Continuing													
a. Regular Vo-Ag	3	20	5	33	1	7	2	13	4	27	31	2.07	Some
b. Ag. Mechanics	5	33	2	13	2	13	2	13	4	27	32	2.13	Some
2. Discontinued													
a. Regular Vo-Ag	1	7	2	13	2	13	1	7	9	60	15	1.00	Limited
b. Ag. Mechanics	1	7	1	7	2	13	0	---	11	73	11	.73	Limited
Students have out-of class assignments such as a supervised project or work experience job													
1. Continuing													
a. Regular Vo-Ag	7	47	6	40	1	7	1	7	0	---	49	3.27	Considerable
b. Ag. Mechanics	3	20	5	33	4	27	1	7	2	13	36	2.40	Some
2. Discontinued													
a. Regular Vo-Ag	10	67	3	20	2	13	0	---	0	---	53	3.53	Extreme
b. Ag. Mechanics	8	53	1	7	1	7	1	7	4	27	38	2.53	Considerable
Students encouraged to join FFA													
1. Continuing													
a. Regular Vo-Ag	13	87	2	13	0	---	0	---	0	---	58	3.87	Extreme
b. Ag. Mechanics	8	53	3	20	1	7	0	---	3	20	43	2.87	Considerable
2. Discontinued													
a. Regular Vo-Ag	14	93	1	7	0	---	0	---	0	---	59	3.93	Extreme
b. Ag. Mechanics	9	60	2	13	0	---	2	13	2	13	44	2.93	Considerable
Students construct projects													
1. Continuing													
a. Regular Vo-Ag	7	47	4	27	3	20	1	7	0	---	47	3.13	Considerable
b. Ag. Mechanics	10	67	4	27	0	---	1	7	0	---	53	3.53	Extreme
2. Discontinued													
a. Regular Vo-Ag	9	60	4	27	1	7	1	7	0	---	51	3.40	Considerable
b. Ag. Mechanics	12	80	3	20	0	---	0	---	0	---	57	3.80	Extreme

TABLE VI--(CONTINUED)

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Supervisory visits to students													
1. Continuing													
a. Regular Vo-Ag	11	73	3	20	1	7	0	---	0	---	55	3.67	Extreme
b. Ag. Mechanics	7	47	4	27	1	7	3	20	0	---	45	3.00	Considerable
2. Discontinued													
a. Regular Vo-Ag	12	80	2	13	1	7	0	---	0	---	54	3.60	Extreme
b. Ag. Mechanics	4	27	3	20	5	33	1	7	2	13	36	2.40	Some
Previous experience in Vo-Ag except for freshmen													
1. Continuing													
a. Regular Vo-Ag	7	47	2	13	3	20	1	7	2	13	41	2.73	Considerable
b. Ag. Mechanics	3	20	0	---	1	7	3	20	8	53	17	1.13	Limited
2. Discontinued													
a. Regular Vo-Ag	5	33	1	7	2	13	4	27	3	20	31	2.07	Some
b. Ag. Mechanics	2	13	0	---	3	20	4	27	6	40	18	1.20	Limited
Enrollment open to students who have an interest in agriculture													
1. Continuing													
a. Regular Vo-Ag	6	40	3	20	4	27	0	---	2	13	41	2.73	Considerable
b. Ag. Mechanics	4	27	1	7	5	33	2	13	3	20	31	2.07	Some
2. Discontinued													
a. Regular Vo-Ag	7	47	2	13	2	13	1	7	3	20	39	2.60	Considerable
b. Ag. Mechanics	5	33	2	13	2	13	2	13	4	27	32	2.13	Some
Classroom lecture or discussion													
1. Continuing													
a. Regular Vo-Ag	2	13	7	47	5	33	1	7	0	---	40	2.67	Considerable
b. Ag. Mechanics	0	---	4	27	5	33	6	40	0	---	28	1.87	Some
2. Discontinued													
a. Regular Vo-Ag	4	27	4	27	7	47	0	---	0	---	42	2.80	Considerable
b. Ag. Mechanics	4	27	2	13	4	27	3	20	2	13	33	2.20	Some
Demonstrations in class or shop													
1. Continuing													
a. Regular Vo-Ag	4	27	8	53	3	20	0	---	0	---	46	3.07	Considerable
b. Ag. Mechanics	8	53	6	40	0	---	1	7	0	---	51	3.40	Considerable
2. Discontinued													
a. Regular Vo-Ag	7	47	5	33	3	20	0	---	0	---	49	3.27	Considerable
b. Ag. Mechanics	7	47	8	53	0	---	0	---	0	---	52	3.47	Considerable

TABLE VI--(CONTINUED)

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	X	N	X	N	X	N	X	N	X			
Individualized instruction													
1. Continuing													
a. Regular Vo-Ag	6	40	8	53	1	7	0	---	0	---	50	3.33	Considerable
b. Ag. Mechanics	11	73	4	27	0	---	0	---	0	---	56	3.73	Extreme
2. Discontinued													
a. Regular Vo-Ag	9	60	5	33	0	---	1	7	0	---	52	3.47	Considerable
b. Ag. Mechanics	12	80	3	20	0	---	0	---	0	---	57	3.80	Extreme
Emphasis from the administration													
1. Continuing													
a. Regular Vo-Ag	8	53	6	40	1	7	0	---	0	---	52	3.47	Considerable
b. Ag. Mechanics	10	67	4	27	1	7	0	---	0	---	54	3.60	Extreme
2. Discontinued													
a. Regular Vo-Ag	8	53	4	27	2	13	1	7	0	---	49	3.27	Considerable
b. Ag. Mechanics	10	67	3	20	1	7	1	7	0	---	52	3.47	Considerable
Preparation time for class by instructor													
1. Continuing													
a. Regular Vo-Ag	3	20	5	33	6	40	0	---	1	7	39	2.60	Considerable
b. Ag. Mechanics	5	33	6	40	3	20	1	7	0	---	45	3.00	Considerable
2. Discontinued													
a. Regular Vo-Ag	4	27	5	33	5	33	1	7	0	---	42	2.80	Considerable
b. Ag. Mechanics	6	40	2	13	6	40	1	7	0	---	43	2.87	Considerable
Difficulty in getting money to secure supplies and materials													
1. Continuing													
a. Regular Vo-Ag	1	7	0	---	3	20	4	27	7	47	14	.93	Limited
b. Ag. Mechanics	1	7	0	---	2	13	5	33	7	47	13	.87	Limited
2. Discontinued													
a. Regular Vo-Ag	1	7	4	27	2	13	3	20	5	33	23	1.53	Some
b. Ag. Mechanics	0	---	7	47	3	20	2	13	3	20	29	1.93	Some

Instructional Areas of Agricultural Mechanics

Tables VII through XVII are designed to report responses relative to the amount of emphasis placed upon various instructional areas of agricultural mechanics when taught in regular vocational agriculture and the separate course in agriculture mechanics.

The data in Table VII illustrate the extent of emphasis placed upon teaching units within the area of orientation, organization, and safety. Overall, it was found from the table that all teaching units received greater emphasis in the separate course of agricultural mechanics as compared to agricultural mechanics instruction in regular vocational agriculture. However, this difference was only slight when comparing average ratings.

When taught in continuing programs, all units within this area, with the exception of one, received a rating of considerable emphasis because all the average ratings fell in a range of 2.5 to 3.49. This indicated very little difference in what was taught in regular vocational agriculture and the separate course of agricultural mechanics. The greatest difference existed in the area of "introducing a system of keeping a clean, orderly shop with tools in good working condition." An average emphasis rating of 2.87 was reported for regular vocational agriculture, while in the separate course of agricultural mechanics the same unit received a 3.33 average rating.

The greatest degree of difference reported by teachers who had discontinued a separate program in agricultural mechanics was the unit on the "use of the standard school shop safety inspection list." An average response of 2.60 was reported for a separate course in agricultural mechanics as compared to an average emphasis of 2.33 to

TABLE VII
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED UPON
 THE AREAS OF ORIENTATION, ORGANIZATION, AND
 SAFETY WHEN TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Aims and purposes of training													
1. Continuing													
a. Regular Vo-Ag	6	40	5	33	3	20	0	---	1	7	45	3.00	Considerable
b. Ag. Mechanics	6	40	6	40	3	20	0	---	0	---	48	3.20	Considerable
2. Discontinued													
a. Regular Vo-Ag	8	53	3	20	3	20	1	7	0	---	48	3.20	Considerable
b. Ag. Mechanics	8	53	3	20	3	20	1	7	0	---	48	3.20	Considerable
Arrangement and placement of tools and equipment													
1. Continuing													
a. Regular Vo-Ag	4	27	7	47	3	20	0	---	1	7	43	2.87	Considerable
b. Ag. Mechanics	5	33	7	47	3	20	0	---	0	---	47	3.13	Considerable
2. Discontinued													
a. Regular Vo-Ag	4	27	6	40	3	20	1	7	1	7	41	2.73	Considerable
b. Ag. Mechanics	4	27	7	47	3	20	0	---	1	7	43	2.87	Considerable
Introduce a system to keep a clean, orderly shop with tools in good working condition													
1. Continuing													
a. Regular Vo-Ag	4	27	9	60	0	---	0	---	2	13	43	2.87	Considerable
b. Ag. Mechanics	6	40	8	53	1	7	0	---	0	---	50	3.33	Considerable
2. Discontinued													
a. Regular Vo-Ag	6	40	6	40	2	13	0	---	1	7	46	3.07	Considerable
b. Ag. Mechanics	7	47	5	33	2	13	0	---	1	7	47	3.13	Considerable
Fire extinguisher and first aid instruction													
1. Continuing													
a. Regular Vo-Ag	5	33	6	40	3	20	0	---	1	7	44	2.93	Considerable
b. Ag. Mechanics	7	47	5	33	2	13	1	7	0	---	48	3.20	Considerable
2. Discontinued													
a. Regular Vo-Ag	8	53	4	27	3	20	0	---	0	---	50	3.33	Considerable
b. Ag. Mechanics	8	53	5	33	2	13	0	---	0	---	51	3.40	Considerable
Safe working habits (understanding color code, State Law 824, and other safety practices)													
1. Continuing													
a. Regular Vo-Ag	6	40	5	33	3	20	0	---	1	7	45	3.00	Considerable
b. Ag. Mechanics	6	40	6	40	3	20	0	---	0	---	48	3.20	Considerable
2. Discontinued													
a. Regular Vo-Ag	6	40	5	33	3	20	0	---	1	7	45	3.00	Considerable
b. Ag. Mechanics	7	47	5	33	2	13	0	---	1	7	47	3.13	Considerable

TABLE VII--(CONTINUED)

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Use of standard school shop safety inspection list													
1. Continuing													
a. Regular Vo-Ag	4	27	3	20	3	20	2	13	3	20	33	2.20	Some
b. Ag. Mechanics	3	20	3	20	4	27	4	27	1	7	33	2.20	Some
2. Discontinued													
a. Regular Vo-Ag	4	27	3	20	5	33	0	---	3	20	35	2.33	Some
b. Ag. Mechanics	5	33	5	33	2	13	0	---	3	20	39	2.60	Considerable

agricultural mechanics instruction in regular vocational agriculture.

The extent of emphasis placed upon teaching units within the area of repairing and sharpening tools is represented in Table VIII. According to the data, on an average all teaching units within the area of repairing and sharpening tools received more emphasis in the separate course of agricultural mechanics as compared to instructional emphasis in regular vocational agriculture. However, when comparing individual units, it was interesting to observe that continuing programs reported an average emphasis rating which represented a greater difference between regular vocational agriculture and the separate course in agricultural mechanics.

Teachers who are continuing a separate agriculture mechanics program indicated that the unit on "proper use of grinders" received the greatest extent of differences. When taught in regular vocational agriculture, the unit on proper use of grinders received considerable emphasis.

TABLE VIII
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED UPON
 THE AREAS OF REPAIRING AND SHARPENING TOOLS
 WHEN TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Tool-fitting equipment and supplies													
1. Continuing													
a. Regular Vo-Ag	1	7	5	33	5	33	2	13	2	13	31	2.07	Some
b. Ag. Mechanics	1	7	7	47	4	27	3	20	0	---	36	2.40	Some
2. Discontinued													
a. Regular Vo-Ag	1	7	6	40	3	20	3	20	2	13	31	2.07	Some
b. Ag. Mechanics	2	13	6	40	3	20	2	13	2	13	34	2.27	Some
Proper use of grinders													
1. Continuing													
a. Regular Vo-Ag	7	47	4	27	1	7	0	---	3	20	42	2.80	Considerable
b. Ag. Mechanics	9	60	6	40	0	---	0	---	0	---	54	3.60	Extreme
2. Discontinued													
a. Regular Vo-Ag	8	53	2	13	5	33	0	---	0	---	48	3.20	Considerable
b. Ag. Mechanics	8	53	5	33	2	13	0	---	0	---	51	3.40	Considerable
Sharpening and repairing various tools													
1. Continuing													
a. Regular Vo-Ag	1	7	5	33	5	33	2	13	2	13	31	2.07	Some
b. Ag. Mechanics	2	13	7	47	4	27	2	13	0	---	39	2.60	Considerable
2. Discontinued													
a. Regular Vo-Ag	1	7	6	40	4	27	2	13	2	13	32	2.13	Some
b. Ag. Mechanics	2	13	6	40	3	20	2	13	2	13	34	2.27	Some
Cleaning and Storing tools													
1. Continuing													
a. Regular Vo-Ag	2	13	5	33	6	40	0	---	2	13	35	2.33	Some
b. Ag. Mechanics	3	20	7	47	5	33	0	---	0	---	43	2.87	Considerable
2. Discontinued													
a. Regular Vo-Ag	3	20	4	27	7	47	1	7	0	---	39	2.60	Considerable
b. Ag. Mechanics	4	27	5	33	5	33	1	7	0	---	42	2.80	Considerable
Tool identification													
1. Continuing													
a. Regular Vo-Ag	3	20	7	47	3	20	0	---	2	13	39	2.60	Considerable
b. Ag. Mechanics	4	27	8	53	2	13	0	---	1	7	44	2.93	Considerable
2. Discontinued													
a. Regular Vo-Ag	6	40	8	53	0	---	1	7	0	---	49	3.27	Considerable
b. Ag. Mechanics	7	47	7	47	0	---	1	7	0	---	50	3.33	Considerable

However, the same unit was reported as receiving extreme emphasis in the separate course of agricultural mechanics.

The highest rate of difference reported by teachers who discontinued a separate program in agricultural mechanics was a total of 0.20, as illustrated by the three units on "proper use of grinders," "cleaning and storing of tools," and "tool-fitting equipment and supplies."

Table IX reflects the extent of emphasis placed upon teaching units within the area of metal work. All teaching units, with the exception of one, received more emphasis when taught in the separate course of agricultural mechanics.

The greatest degree of difference between regular vocational agriculture and the separate course in agricultural mechanics as reported by teachers who are continuing a separate program in agricultural mechanics were units on "marking, cutting, and bending of metal" and "using the drill press." A mean difference of 0.87 and 0.67 were reported, in that order.

Table IX further reflects that teachers who discontinued a separate program in agricultural mechanics indicated a difference of 0.40 for the unit on "threading bolts and nuts" as compared to a difference of 0.20 for the units on "threading and cutting pipe" and "using the drill press."

According to the data presented in Table X, all units within the area of arc welding received more emphasis in the separate course of agricultural mechanics, with the exception of the unit on cast iron. The degree of difference between regular vocational agriculture and the separate course in agricultural mechanics for continuing programs ranged from 0.14 to 0.73, while a range of 0.06 to 0.53 was reported for discontinued programs.

TABLE IX
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED UPON
 THE AREA OF METAL WORK WHEN TEACHING
 AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Mark, cut, and bend metal													
1. Continuing													
a. Regular Vo-Ag	6	40	4	27	1	7	1	7	3	20	39	2.60	Considerable
b. Ag. Mechanics	9	60	4	27	2	13	0	---	0	---	52	3.47	Considerable
2. Discontinued													
a. Regular Vo-Ag	7	47	4	27	3	20	1	7	0	---	47	3.13	Considerable
b. Ag. Mechanics	7	47	6	40	1	7	1	7	0	---	49	3.27	Considerable
Using the drill press													
1. Continuing													
a. Regular Vo-Ag	4	27	6	40	2	13	0	---	3	20	38	2.53	Considerable
b. Ag. Mechanics	5	33	8	53	2	13	0	---	0	---	48	3.20	Considerable
2. Discontinued													
a. Regular Vo-Ag	6	40	3	20	5	33	0	---	1	7	43	2.87	Considerable
b. Ag. Mechanics	7	47	4	27	3	20	0	---	1	7	46	3.07	Considerable
Threading bolts and nuts													
1. Continuing													
a. Regular Vo-Ag	3	20	4	27	3	20	2	13	3	20	32	2.13	Some
b. Ag. Mechanics	4	27	4	27	2	13	2	13	3	20	34	2.27	Some
2. Discontinued													
a. Regular Vo-Ag	5	33	2	13	4	27	1	7	3	20	35	2.33	Some
b. Ag. Mechanics	7	47	1	7	5	33	0	---	2	13	41	2.73	Considerable
Threading and cutting pipe													
1. Continuing													
a. Regular Vo-Ag	2	13	7	47	2	13	2	13	2	13	35	2.33	Some
b. Ag. Mechanics	3	20	8	53	2	13	1	7	1	7	41	2.73	Considerable
2. Discontinued													
a. Regular Vo-Ag	6	40	4	27	3	20	2	13	0	---	44	2.93	Considerable
b. Ag. Mechanics	7	47	4	27	3	20	1	7	0	---	47	3.13	Considerable
Cutting flat plate with cold chisel													
1. Continuing													
a. Regular Vo-Ag	1	7	3	20	2	13	2	13	7	47	19	1.27	Limited
b. Ag. Mechanics	0	---	3	27	2	13	3	20	6	40	19	1.27	Limited
2. Discontinued													
a. Regular Vo-Ag	2	13	1	7	0	---	7	47	5	33	18	1.20	Limited
b. Ag. Mechanics	2	13	0	---	1	7	6	40	6	40	16	1.07	Limited

TABLE X
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED
 UPON THE AREA OF ARC WELDING WHEN
 TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Introduction and orientation													
1. Continuing													
a. Regular Vo-Ag	8	53	5	33	0	---	0	---	2	13	47	3.13	Considerable
b. Ag. Mechanics	9	60	5	33	0	---	1	7	0	---	49	3.27	Considerable
2. Discontinued													
a. Regular Vo-Ag	11	73	3	20	1	7	0	---	0	---	55	3.67	Extreme
b. Ag. Mechanics	11	73	4	27	0	---	0	---	0	---	56	3.73	Extreme
Selection and caring for arc welding equipment													
1. Continuing													
a. Regular Vo-Ag	5	33	7	47	1	7	0	---	2	13	43	2.87	Considerable
b. Ag. Mechanics	6	40	8	53	0	---	1	7	0	---	49	3.27	Considerable
2. Discontinued													
a. Regular Vo-Ag	6	40	6	40	3	20	0	---	0	---	48	3.20	Considerable
b. Ag. Mechanics	8	53	5	33	2	13	0	---	0	---	51	3.40	Considerable
Recognizing and using safety precautions													
1. Continuing													
a. Regular Vo-Ag	11	73	2	13	0	---	0	---	2	13	50	3.33	Considerable
b. Ag. Mechanics	13	87	2	13	0	---	0	---	0	---	58	3.87	Extreme
2. Discontinued													
a. Regular Vo-Ag	9	60	5	33	1	7	0	---	0	---	53	3.53	Extreme
b. Ag. Mechanics	11	73	4	27	0	---	0	---	0	---	56	3.73	Extreme
Striking an arc and running a bead													
1. Continuing													
a. Regular Vo-Ag	9	60	4	27	0	---	0	---	2	13	48	3.20	Considerable
b. Ag. Mechanics	12	80	3	20	0	---	0	---	0	---	57	3.80	Extreme
2. Discontinued													
a. Regular Vo-Ag	11	73	3	20	1	7	0	---	0	---	55	3.67	Extreme
b. Ag. Mechanics	12	80	3	20	0	---	0	---	0	---	57	3.80	Extreme
Making a flat butt weld													
1. Continuing													
a. Regular Vo-Ag	8	53	4	27	1	7	0	---	2	13	46	3.07	Considerable
b. Ag. Mechanics	10	67	4	27	1	7	0	---	0	---	54	3.60	Extreme
2. Discontinued													
a. Regular Vo-Ag	10	67	4	27	1	7	0	---	0	---	54	3.60	Extreme
b. Ag. Mechanics	11	73	4	27	0	---	0	---	0	---	56	3.73	Extreme
Position welding													
1. Continuing													
a. Regular Vo-Ag	6	40	4	27	3	20	0	---	2	13	42	2.80	Considerable
b. Ag. Mechanics	6	40	7	47	2	13	0	---	0	---	49	3.27	Considerable

TABLE X--(CONTINUED)

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
2. Discontinued													
a. Regular Vo-Ag	8	53	4	27	3	20	0	---	0	---	50	3.33	Considerable
b. Ag. Mechanics	10	67	3	20	2	13	0	---	0	---	53	3.53	Extreme
Running a continuous bead													
1. Continuing													
a. Regular Vo-Ag	9	60	1	7	2	13	0	---	3	20	43	2.87	Considerable
b. Ag. Mechanics	10	67	4	27	1	7	0	---	0	---	54	3.60	Extreme
2. Discontinued													
a. Regular Vo-Ag	8	53	5	33	2	13	0	---	0	---	51	3.40	Considerable
b. Ag. Mechanics	8	53	6	40	1	7	0	---	0	---	52	3.47	Considerable
Selection of electrodes													
1. Continuing													
a. Regular Vo-Ag	4	27	8	53	1	7	0	---	2	13	42	2.80	Considerable
b. Ag. Mechanics	4	27	10	67	1	7	0	---	0	---	48	3.20	Considerable
2. Discontinued													
a. Regular Vo-Ag	7	47	4	27	3	20	1	7	0	---	47	3.13	Considerable
b. Ag. Mechanics	7	47	5	33	3	20	0	---	0	---	49	3.27	Considerable
Preparation of metal for welding													
1. Continuing													
a. Regular Vo-Ag	5	33	6	40	2	13	1	7	1	7	43	2.87	Considerable
b. Ag. Mechanics	5	33	10	67	0	---	0	---	0	---	50	3.33	Considerable
2. Discontinued													
a. Regular Vo-Ag	10	67	4	27	1	7	0	---	0	---	54	3.60	Extreme
b. Ag. Mechanics	11	73	4	27	0	---	0	---	0	---	56	3.73	Extreme
Welding cast iron													
1. Continuing													
a. Regular Vo-Ag	1	7	4	27	8	53	1	7	1	7	33	2.20	Some
b. Ag. Mechanics	0	---	4	27	8	53	3	20	0	---	31	2.07	Some
2. Discontinued													
a. Regular Vo-Ag	1	7	3	20	6	40	1	7	4	27	26	1.73	Some
b. Ag. Mechanics	1	7	3	20	6	40	3	20	2	13	28	1.87	Some
Skill training													
1. Continuing													
a. Regular Vo-Ag	5	33	5	33	3	20	0	---	2	13	41	2.73	Considerable
b. Ag. Mechanics	6	40	6	40	2	13	1	7	0	---	47	3.13	Considerable
2. Discontinued													
a. Regular Vo-Ag	2	13	5	33	5	33	0	---	3	20	33	2.20	Some
b. Ag. Mechanics	4	27	5	33	5	33	0	---	1	7	41	2.73	Considerable
Construction of projects													
1. Continuing													
a. Regular Vo-Ag	8	53	6	40	0	---	0	---	1	7	50	3.33	Considerable
b. Ag. Mechanics	8	53	6	40	1	7	0	---	0	---	52	3.47	Considerable
2. Discontinued													
a. Regular Vo-Ag	4	27	7	47	4	27	0	---	0	---	45	3.00	Considerable
b. Ag. Mechanics	6	40	6	40	3	20	0	---	0	---	48	3.20	Considerable

The instructional unit on "running a continuous bead" received the highest degree of difference for continuing programs of a separate course in agricultural mechanics. However, it was interesting to note that teachers who had discontinued a separate program in agricultural mechanics indicated only a very small amount of difference for the same unit.

It was found that teachers reported a greater amount of difference in the separate course of agricultural mechanics for "skill training" than that of "constructing projects."

Teachers who were continuing separate agricultural mechanics programs reported considerable emphasis was placed in regular vocational agriculture upon the instructional unit of "striking an arc and running a bead." However, the same unit received extreme emphasis in the separate course of agricultural mechanics. In comparison, teachers who had discontinued a separate program in agricultural mechanics placed extreme emphasis upon the same unit when taught in regular vocational agriculture and the separate course of agricultural mechanics. The difference reported for continuing programs was 0.60, while discontinuing programs indicated only 0.13 difference.

The extent of emphasis placed upon instructional units within the area of oxy-acetylene welding and cutting are reported in Table XI. According to the data, on the average teachers placed more emphasis in the separate course of agricultural mechanics upon instructional units within the area of oxy-acetylene welding and cutting. In addition, teachers who were continuing a separate program in agricultural mechanics were emphasizing a greater difference between the instructional units in their regular vocational agriculture classes and their separate course in agricultural mechanics than that reported by teachers who had discontinued a separate program in agricultural mechanics.

TABLE XI
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED
 UPON THE AREAS OF OXY-ACETYLENE WELDING AND
 CUTTING WHEN TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Becoming acquainted with safe operation of oxy-acetylene cutting equipment													
1. Continuing													
a. Regular Vo-Ag	10	67	3	20	0	---	0	---	2	13	49	3.27	Considerable
b. Ag. Mechanics	14	93	1	7	0	---	0	---	0	---	59	3.93	Extreme
2. Discontinued													
a. Regular Vo-Ag	12	80	3	20	0	---	0	---	0	---	57	3.80	Extreme
b. Ag. Mechanics	12	80	3	20	0	---	0	---	0	---	57	3.80	Extreme
Adjusting valves, gauges, and flames													
1. Continuing													
a. Regular Vo-Ag	10	67	3	20	0	---	0	---	2	13	49	3.27	Considerable
b. Ag. Mechanics	14	93	1	7	0	---	0	---	0	---	59	3.93	Extreme
2. Discontinued													
a. Regular Vo-Ag	11	73	4	27	0	---	0	---	0	---	56	3.73	Extreme
b. Ag. Mechanics	13	87	2	13	0	---	0	---	0	---	58	3.87	Extreme
Proper use of the cutting torch and cutting flat plate													
1. Continuing													
a. Regular Vo-Ag	10	67	3	20	0	---	0	---	2	13	49	3.27	Considerable
b. Ag. Mechanics	13	87	2	13	0	---	0	---	0	---	58	3.87	Extreme
2. Discontinued													
a. Regular Vo-Ag	10	67	3	20	2	13	0	---	0	---	53	3.53	Extreme
b. Ag. Mechanics	11	73	2	13	2	13	0	---	0	---	54	3.60	Extreme
Selecting proper tip size, gas pressure, rod size, flux, and materials													
1. Continuing													
a. Regular Vo-Ag	4	27	6	40	2	13	0	---	3	20	38	2.53	Considerable
b. Ag. Mechanics	4	27	8	53	1	7	1	7	1	7	43	2.87	Considerable
2. Discontinued													
a. Regular Vo-Ag	8	53	4	27	3	20	0	---	0	---	50	3.33	Considerable
b. Ag. Mechanics	9	60	5	33	1	7	0	---	0	---	53	3.53	Extreme

TABLE XI--(CONTINUED)

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Making various welds with mild steel													
1. Continuing													
a. Regular Vo-Ag	6	40	3	20	3	20	0	---	3	20	39	2.60	Considerable
b. Ag. Mechanics	6	40	4	27	3	20	1	7	1	7	43	2.87	Considerable
2. Discontinued													
a. Regular Vo-Ag	4	27	5	33	4	27	1	7	1	7	40	2.67	Considerable
b. Ag. Mechanics	5	33	7	47	2	13	0	---	1	7	45	3.00	Considerable
Bronze welding													
1. Continuing													
a. Regular Vo-Ag	2	13	3	20	6	40	2	13	2	13	31	2.07	Some
b. Ag. Mechanics	2	13	8	53	3	20	1	7	1	7	39	2.60	Considerable
2. Discontinued													
a. Regular Vo-Ag	3	20	6	40	5	33	0	---	1	7	40	2.67	Considerable
b. Ag. Mechanics	4	27	7	47	3	20	0	---	1	7	43	2.87	Considerable
Use of the powder torch													
1. Continuing													
a. Regular Vo-Ag	0	---	1	7	2	13	3	20	9	60	10	.67	Limited
b. Ag. Mechanics	0	---	1	7	3	20	3	20	8	53	12	.80	Limited
2. Discontinued													
a. Regular Vo-Ag	0	---	2	13	0	---	2	13	11	73	8	.53	Limited
b. Ag. Mechanics	0	---	2	13	0	---	2	13	11	73	8	.53	Limited

Teachers who were continuing a separate program in agricultural mechanics reported the instructional units on "becoming acquainted with safe operations of oxy-acetylene cutting equipment" and "adjusting valves, gauges, and flames" were receiving considerable emphasis in regular vocational agriculture. However, the same units were found to receive extreme emphasis in the separate course of agricultural mechanics, which indicated a difference of 0.66 was being stressed in the separate course of agriculture mechanics.

It was further found that the greatest amount of difference reported by teachers who discontinued a separate program in agricultural mechanics resulted in the unit on "making various welds with mild steel." An average emphasis rating of 2.67 was reported for regular vocational agriculture, while in the separate course of agricultural mechanics an average rating of 3.00 was found, which indicated a difference in emphasis of 0.33.

Table XII reported the amount of emphasis placed upon instructional units within the area of farm structure and carpentry. It was surprising to note the overall lack of emphasis placed upon all instructional units within the area of farm structures and carpentry. As an example, only two units received enough emphasis from teachers who are continuing separate programs in agricultural mechanics to rate above limited emphasis. Therefore, it was found in the table that teachers who had discontinued a separate program in agricultural mechanics tended to place more emphasis upon instructional units within the area of farm structures and carpentry than teachers in continuing programs.

Overall, it was found that very little difference existed between regular vocational agriculture and the separate course in agricultural mechanics. However, teachers who discontinued separate programs in agricultural mechanics reported a considerable difference between regular vocational agriculture and the separate course of agricultural mechanics for instructional units involving the "mixing and placing of concrete" and the "basic fundamentals of concrete."

According to the data in Table XIII, all instructional units within the area of sketching and drawing received an average of more emphasis in the separate course of agricultural mechanics. Overall, greater

TABLE XII
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED
 UPON THE AREAS OF FARM STRUCTURES AND CARPENTRY
 WHEN TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Selecting and using wood fasteners													
1. Continuing													
a. Regular Vo-Ag	0	---	1	7	6	40	3	20	5	33	18	1.20	Limited
b. Ag. Mechanics	0	---	1	7	6	40	3	20	5	33	18	1.20	Limited
2. Discontinued													
a. Regular Vo-Ag	1	7	4	27	3	20	4	27	3	20	26	1.73	Some
b. Ag. Mechanics	1	7	4	27	2	13	5	33	3	20	25	1.67	Some
Identifying nails, bolts, and screws													
1. Continuing													
a. Regular Vo-Ag	0	---	3	20	5	33	4	27	3	20	23	1.53	Some
b. Ag. Mechanics	0	---	4	27	3	20	6	40	2	13	24	1.60	Some
2. Discontinued													
a. Regular Vo-Ag	4	27	3	20	3	20	2	13	3	20	33	2.20	Some
b. Ag. Mechanics	3	20	4	27	2	13	4	27	2	13	32	2.13	Some
Framing and bracing													
1. Continuing													
a. Regular Vo-Ag	0	---	1	7	3	20	6	40	5	33	15	1.00	Limited
b. Ag. Mechanics	0	---	2	13	3	20	6	40	4	27	18	1.20	Limited
2. Discontinued													
a. Regular Vo-Ag	1	7	2	13	3	20	3	20	6	40	19	1.27	Limited
b. Ag. Mechanics	1	7	2	13	3	20	4	27	5	33	20	1.33	Limited
Basic fundamentals of concrete													
1. Continuing													
a. Regular Vo-Ag	0	---	1	7	6	40	3	20	5	33	18	1.20	Limited
b. Ag. Mechanics	0	---	2	13	5	33	5	33	3	20	21	1.40	Limited
2. Discontinued													
a. Regular Vo-Ag	3	20	3	20	5	33	2	13	2	13	33	2.20	Some
b. Ag. Mechanics	3	20	2	13	4	27	3	20	3	20	29	1.93	Some
Mixing and placing of concrete													
1. Continuing													
a. Regular Vo-Ag	1	7	1	7	4	27	3	20	6	40	18	1.20	Limited
b. Ag. Mechanics	0	---	2	13	4	27	5	33	4	27	19	1.27	Limited
2. Discontinued													
a. Regular Vo-Ag	5	33	2	13	3	20	2	13	3	20	34	2.27	Some
b. Ag. Mechanics	3	20	3	20	3	20	2	13	4	27	29	1.93	Some

TABLE XII--(CONTINUED)

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Fence construction and repair													
1. Continuing													
a. Regular Vo-Ag	2	13	3	20	2	13	3	20	5	33	24	1.60	Some
b. Ag. Mechanics	1	7	3	20	4	27	3	20	4	27	24	1.60	Some
2. Discontinued													
a. Regular Vo-Ag	3	20	0	---	8	53	1	7	3	20	29	1.93	Some
b. Ag. Mechanics	3	20	1	7	5	33	2	13	4	27	27	1.80	Some
Painting													
1. Continuing													
a. Regular Vo-Ag	1	7	3	20	2	13	1	7	8	53	18	1.20	Limited
b. Ag. Mechanics	2	13	3	20	2	13	0	---	8	53	21	1.40	Limited
2. Discontinued													
a. Regular Vo-Ag	2	13	1	7	1	7	0	---	11	73	13	.87	Limited
b. Ag. Mechanics	3	20	0	---	1	7	0	---	11	73	14	.93	Limited

differences in emphasis occurred in continuing programs as compared to discontinued programs.

Teachers who were continuing a separate program in agricultural mechanics reported a difference of 0.47 for the instructional unit on "making simple sketches and reading blueprints." In addition, a difference of 0.33 was reported for units which involved "figuring bills of materials" and "designing of projects."

In comparison, teachers who had discontinued a separate program in agricultural mechanics indicated a difference of 0.20 for the instructional unit on "figuring bills of materials," while a difference of 0.13 was found for the unit on "making simple sketches and reading blueprints."

TABLE XIII
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED
 UPON THE AREAS OF SKETCHING AND DRAWING
 WHEN TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Making simple sketches and reading blueprints													
1. Continuing													
a. Regular Vo-Ag	0	---	6	40	6	40	1	7	2	13	31	2.07	Some
b. Ag. Mechanics	1	7	7	47	5	33	2	13	0	---	37	2.47	Some
2. Discontinued													
a. Regular Vo-Ag	3	20	2	13	6	40	0	---	4	27	30	2.00	Some
b. Ag. Mechanics	3	20	3	20	5	33	1	7	3	20	32	2.13	Some
Designing of projects													
1. Continuing													
a. Regular Vo-Ag	1	7	8	53	3	20	1	7	2	13	35	2.33	Some
b. Ag. Mechanics	3	20	9	60	3	20	0	---	0	---	45	3.00	Considerable
2. Discontinued													
a. Regular Vo-Ag	1	7	6	40	4	27	1	7	3	20	31	2.07	Some
b. Ag. Mechanics	1	7	6	40	4	27	2	13	2	13	32	2.13	Some
Figuring bill of materials													
1. Continuing													
a. Regular Vo-Ag	3	20	8	53	3	20	0	---	1	7	42	2.80	Considerable
b. Ag. Mechanics	3	20	11	73	1	7	0	---	0	---	47	3.13	Considerable
2. Discontinued													
a. Regular Vo-Ag	6	40	4	27	3	20	0	---	2	13	42	2.80	Considerable
b. Ag. Mechanics	8	53	2	13	3	20	1	7	1	7	45	3.00	Considerable

The information in Table XIV reports the extent of emphasis placed upon instructional units within the area of plumbing and farm electrification. It was surprising to find teachers who are continuing a separate program in agricultural mechanics reporting more emphasis upon instructional units in the separate course of agricultural mechanics while at the same time teachers who discontinued a separate program in agricultural mechanics reported more emphasis upon the same instructional units in regular vocational agriculture.

TABLE XIV
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED UPON
 THE AREAS OF PLUMBING AND FARM ELECTRIFICATION
 WHEN TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Identification of plumbing fittings													
1. Continuing													
a. Regular Vo-Ag	2	13	5	33	5	33	1	7	2	13	34	2.27	Some
b. Ag. Mechanics	2	13	6	40	6	40	0	---	1	7	38	2.53	Considerable
2. Discontinued													
a. Regular Vo-Ag	5	33	3	20	3	20	3	20	1	7	38	2.53	Considerable
b. Ag. Mechanics	5	33	2	13	3	20	2	13	3	20	34	2.27	Some
Cutting and flanging of copper													
1. Continuing													
a. Regular Vo-Ag	0	---	1	7	4	27	5	33	5	33	16	1.07	Limited
b. Ag. Mechanics	0	---	2	13	6	40	4	27	3	20	22	1.47	Limited
2. Discontinued													
a. Regular Vo-Ag	1	7	0	---	1	7	7	47	6	40	13	.87	Limited
b. Ag. Mechanics	1	7	0	---	0	---	8	53	6	40	12	.80	Limited
Sweating of copper fittings													
1. Continuing													
a. Regular Vo-Ag	0	---	0	---	3	20	5	33	7	47	11	.73	Limited
b. Ag. Mechanics	0	---	1	7	3	20	6	40	5	33	15	1.00	Limited
2. Discontinued													
a. Regular Vo-Ag	0	---	1	7	2	13	6	40	6	40	13	.87	Limited
b. Ag. Mechanics	0	---	1	7	0	---	7	47	7	47	10	.67	Limited
Soldering													
1. Continuing													
a. Regular Vo-Ag	0	---	5	33	6	40	1	7	3	20	28	1.87	Some
b. Ag. Mechanics	0	---	5	33	7	47	1	7	2	13	30	2.00	Some
2. Discontinued													
a. Regular Vo-Ag	3	20	3	20	5	33	2	13	2	13	33	2.20	Some
b. Ag. Mechanics	2	13	3	20	6	40	3	20	1	7	32	2.13	Some
Fundamentals of electricity													
1. Continuing													
a. Regular Vo-Ag	1	7	4	27	5	33	2	13	3	20	28	1.87	Some
b. Ag. Mechanics	2	13	4	27	6	40	1	7	2	13	33	2.20	Some
2. Discontinued													
a. Regular Vo-Ag	5	33	4	27	3	20	2	13	1	7	40	2.67	Considerable
b. Ag. Mechanics	6	40	2	13	2	13	3	20	2	13	37	2.47	Some

TABLE XIV--(CONTINUED)

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Electrical safety													
1. Continuing													
a. Regular Vo-Ag	6	40	4	27	1	7	1	7	3	20	39	2.60	Considerable
b. Ag. Mechanics	7	47	4	27	2	13	1	7	1	7	45	3.00	Considerable
2. Discontinued													
a. Regular Vo-Ag	6	40	6	33	1	7	3	20	0	---	44	2.93	Considerable
b. Ag. Mechanics	7	47	4	27	1	7	2	13	1	7	44	2.93	Considerable
Planning the wiring layout													
1. Continuing													
a. Regular Vo-Ag	1	7	2	13	5	33	2	13	5	33	22	1.47	Limited
b. Ag. Mechanics	1	7	4	27	5	33	2	13	3	20	28	1.87	Some
2. Discontinued													
a. Regular Vo-Ag	3	20	3	20	4	27	2	13	3	20	31	2.07	Some
b. Ag. Mechanics	3	20	2	13	4	27	3	20	3	20	29	1.93	Some
Basic electrical wiring													
1. Continuing													
a. Regular Vo-Ag	1	7	4	27	4	27	3	20	3	20	27	1.80	Some
b. Ag. Mechanics	3	20	5	33	4	27	2	13	1	7	37	2.47	Some
2. Discontinued													
a. Regular Vo-Ag	5	33	5	33	2	13	3	20	0	---	42	2.80	Considerable
b. Ag. Mechanics	5	33	5	33	1	7	3	20	1	7	40	2.67	Considerable
Electric motors													
1. Continuing													
a. Regular Vo-Ag	0	---	1	7	4	27	4	27	6	40	15	1.00	Limited
b. Ag. Mechanics	0	---	1	7	7	47	2	13	5	33	19	1.27	Limited
2. Discontinued													
a. Regular Vo-Ag	2	13	1	7	4	27	4	27	4	27	23	1.53	Some
b. Ag. Mechanics	2	13	1	7	4	27	5	33	3	20	24	1.60	Some

Table XIV further reports that the greatest amount of emphasis reported by teachers who were continuing a separate program in agricultural mechanics was upon the instructional unit of "electrical safety." Here it was found that teachers indicated an average rating of 2.60 for regular vocational agriculture but placed an average emphasis rating of 3.00 upon the separate course in agricultural mechanics. This indicated a difference in emphasis of 0.40. The least amount of emphasis reported by teachers who were continuing a separate program in agricultural mechanics was for the unit on "sweating of copper fittings." Reported here was an average rating of 0.73 for regular vocational agriculture, which fell within the range of limited emphasis; while an average rating of 1.00 was indicated for the separate course in agricultural mechanics.

On the average, teachers who had discontinued a separate program in agricultural mechanics reported very little difference between regular vocational agriculture and the separate course of agricultural mechanics involving instructional units in the "area of plumbing" and "farm electrification." The greatest amount of difference reported was for the unit on "identification of plumbing fittings," which received 0.26 more emphasis in regular vocational agriculture.

The extent of emphasis placed upon instructional units within the area of small engines and tractor maintenance are included in Table XV. According to the data, an average of more emphasis was placed upon instructional units in the separate course of agricultural mechanics than in regular vocational agriculture. Upon close observation, it was apparent that a greater difference existed between regular vocational agriculture and the separate course in agricultural mechanics as

reported by teachers who were continuing a separate course in agricultural mechanics than those reported by teachers who had discontinued a separate course in agricultural mechanics.

The limited amount of emphasis placed upon instructional units within the area of small engines and tractor maintenance was surprising, as all units received an average rating of some emphasis or less.

Illustrated in Table XVI are responses regarding the extent of emphasis placed upon the instructional units within the area of farm machinery and equipment. Overall, the data revealed more emphasis placed upon instructional units in regular vocational agriculture. However, the amount of difference was small between regular vocational agriculture and the separate course of agricultural mechanics.

Another interesting factor brought out by the data was the apparent lack of overall emphasis upon instructional units within the area of farm machinery and equipment. This gained support when individual units were observed with having low average ratings.

Table XVII represents the extent of emphasis placed upon instructional units within the area of the farm level. All units within the area of the farm level received more emphasis in regular vocational agriculture than the separate course of agricultural mechanics.

Teachers who are continuing a separate program in agricultural mechanics tend to make less differences between units taught in regular vocational agriculture and the separate course of agricultural mechanics. The amount of difference reported between courses averaged from 0.27 to 0.47.

TABLE XV
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED
 UPON THE AREAS OF SMALL ENGINES AND TRACTOR
 MAINTENANCE WHEN TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis
	Extreme		Consid- erable		Some		Limited		No			
	N	%	N	%	N	%	N	%	N	%		
Principles of small engines operation												
1. Continuing												
a. Regular Vo-Ag	2	13	2	13	3	20	1	7	7	47	21	1.40 Limited
b. Ag. Mechanics	4	27	1	7	4	27	1	7	5	33	28	1.87 Some
2. Discontinued												
a. Regular Vo-Ag	5	33	1	7	3	20	0	---	6	40	29	1.93 Some
b. Ag. Mechanics	7	47	0	---	2	13	0	---	6	40	32	2.13 Some
Disassembly and assembly of the small engines												
1. Continuing												
a. Regular Vo-Ag	2	13	2	13	3	20	1	7	7	47	21	1.40 Limited
b. Ag. Mechanics	4	27	1	7	4	27	0	---	6	40	27	1.80 Some
2. Discontinued												
a. Regular Vo-Ag	4	27	3	20	2	13	0	---	6	40	29	1.93 Some
b. Ag. Mechanics	7	47	1	7	1	7	0	---	6	40	33	2.20 Some
Servicing small engines												
1. Continuing												
a. Regular Vo-Ag	1	7	3	20	3	20	1	7	7	47	20	1.33 Limited
b. Ag. Mechanics	3	20	3	20	3	20	0	---	6	40	27	1.80 Some
2. Discontinued												
a. Regular Vo-Ag	3	20	3	20	3	20	0	---	6	40	27	1.80 Some
b. Ag. Mechanics	5	33	2	13	2	13	0	---	6	40	30	1.93 Some
Servicing the tractor												
1. Continuing												
a. Regular Vo-Ag	0	---	5	33	5	33	2	13	3	20	27	1.80 Some
b. Ag. Mechanics	0	---	5	33	5	33	4	27	1	7	29	1.93 Some
2. Discontinued												
a. Regular Vo-Ag	3	20	4	27	3	20	3	20	2	13	33	2.20 Some
b. Ag. Mechanics	3	20	4	27	3	20	3	20	2	13	33	2.20 Some
Minor tractor repair												
1. Continuing												
a. Regular Vo-Ag	0	---	3	20	4	27	5	33	3	20	22	1.47 Limited
b. Ag. Mechanics	0	---	3	20	6	40	3	20	3	20	24	2.00 Some
2. Discontinued												
a. Regular Vo-Ag	1	7	2	13	7	47	3	20	2	13	27	1.80 Some
b. Ag. Mechanics	2	13	3	20	5	33	3	20	2	13	30	2.00 Some
Selecting and storing tractor fuels and lubricants												
1. Continuing												
a. Regular Vo-Ag	2	13	3	20	1	7	6	40	3	20	25	1.67 Some
b. Ag. Mechanics	1	7	5	33	1	7	6	40	2	13	27	1.80 Some
2. Discontinued												
a. Regular Vo-Ag	3	20	2	13	3	20	3	20	4	27	27	1.80 Some
b. Ag. Mechanics	4	27	2	13	2	13	2	13	5	33	28	1.87 Some

TABLE XVI
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED
 UPON THE AREAS OF FARM MACHINERY AND
 EQUIPMENT WHEN TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Considerable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Selection of farm machinery and equipment													
1. Continuing													
a. Regular Vo-Ag	1	7	3	20	5	33	5	33	1	7	28	1.87	Some
b. Ag. Mechanics	0	---	3	20	5	33	5	33	2	13	24	1.60	Some
2. Discontinued													
a. Regular Vo-Ag	1	7	4	27	2	13	3	20	5	33	23	1.53	Some
b. Ag. Mechanics	1	7	4	27	0	---	3	20	7	47	19	1.27	Limited
Operation of farm machinery and equipment													
1. Continuing													
a. Regular Vo-Ag	1	7	5	33	4	27	4	27	1	7	31	2.07	Some
b. Ag. Mechanics	0	---	5	33	4	27	5	33	1	7	28	1.87	Some
2. Discontinued													
a. Regular Vo-Ag	2	13	4	27	2	13	1	7	6	40	25	1.67	Some
b. Ag. Mechanics	1	7	4	27	2	13	1	7	7	47	21	1.40	Limited
Safety precautions													
1. Continuing													
a. Regular Vo-Ag	3	20	6	40	4	27	1	7	1	7	39	2.60	Considerable
b. Ag. Mechanics	3	20	4	27	6	40	1	7	1	7	37	2.47	Some
2. Discontinued													
a. Regular Vo-Ag	3	20	5	33	2	13	0	---	5	33	31	2.07	Some
b. Ag. Mechanics	3	20	3	20	3	20	0	---	6	40	27	1.80	Some
Maintenance, adjustments, and repair of farm machinery and equipment													
1. Continuing													
a. Regular Vo-Ag	1	7	3	20	8	53	2	13	1	7	31	2.07	Some
b. Ag. Mechanics	0	---	5	33	7	47	2	13	1	7	31	2.07	Some
2. Discontinued													
a. Regular Vo-Ag	1	7	4	27	3	20	2	13	5	33	24	1.60	Some
b. Ag. Mechanics	2	13	2	13	3	20	2	13	6	40	22	1.47	Limited

TABLE XVII
 RESPONSES REGARDING THE AMOUNT OF EMPHASIS PLACED
 UPON THE AREA OF THE USE OF THE FARM LEVEL
 WHEN TEACHING AG. MECHANICS

Statement and Response Group	Emphasis Scale										Cumulative Rating	Average Emphasis	
	Extreme		Consid- erable		Some		Limited		No				
	N	%	N	%	N	%	N	%	N	%			
Setting up and adjusting the level													
1. Continuing													
a. Regular Vo-Ag	4	27	6	40	0	---	2	13	3	20	36	2.40	Some
b. Ag. Mechanics	5	33	2	13	1	7	3	20	4	27	31	2.07	Some
2. Discontinued													
a. Regular Vo-Ag	8	53	3	20	2	13	0	---	2	13	45	3.00	Considerable
b. Ag. Mechanics	7	47	1	7	1	7	1	7	5	33	34	2.27	Some
Reading the rod													
1. Continuing													
a. Regular Vo-Ag	5	33	5	33	0	---	2	13	3	20	37	2.47	Some
b. Ag. Mechanics	5	33	2	13	0	---	4	27	4	27	30	2.00	Some
2. Discontinued													
a. Regular Vo-Ag	8	53	2	13	3	20	0	---	2	13	44	2.93	Considerable
b. Ag. Mechanics	7	47	0	---	2	13	1	7	5	33	31	2.07	Some
Keeping the field notes													
1. Continuing													
a. Regular Vo-Ag	4	27	4	27	2	13	2	13	3	20	34	2.27	Some
b. Ag. Mechanics	5	33	1	7	2	13	3	20	4	27	30	2.00	Some
2. Discontinued													
a. Regular Vo-Ag	7	47	3	20	2	13	1	7	2	13	42	2.80	Considerable
b. Ag. Mechanics	6	40	1	7	1	7	2	13	5	33	31	2.07	Some

In order to facilitate a comparison between regular vocational agriculture and the separate course of agricultural mechanics as well as continuing and discontinuing programs, a summary of the extent of emphasis placed upon various instructional areas within agricultural mechanics was developed and is presented in Table XVIII. The data shown on the table was secured by computing a grand mean response for each of the instructional units of agricultural mechanics shown in Tables VII through XVII.

TABLE XVIII

GRAND \bar{X} RESPONSES AND RANK ORDER ACCORDING TO EXTENT
OF EMPHASIS OF SELECTED AGRICULTURAL MECHANICS
INSTRUCTIONAL AREAS BY TYPE OF VO-AG PROGRAM

Instructional Area	Grand \bar{X} and Rank Order by Type Program							
	Continuing				Discontinued			
	Reg. Vo-Ag	Rank	Ag Mech	Rank	Reg. Vo-Ag	Rank	Ag Mech	Rank
Orientation, Organi- zation, and Safety	2.81	2	3.04	2	2.94	2	3.06	2
Repairing and Sharp- ening Tools	2.37	6	2.88	5	2.65	5	2.81	4
Metal Work	2.17	7	2.58	6	2.49	6	2.65	5
Arc Welding	2.93	1	3.32	1	3.17	1	3.35	1
Oxy-Acetylene Welding and Cutting	2.53	3	2.98	3	2.89	4	3.03	3
Farm Structures and Carpentry	1.28	11	1.38	11	1.78	10	1.67	10
Sketching and Drawing	2.40	4	2.87	4	2.29	7	2.42	6
Plumbing and Farm Electrification	1.63	9	1.98	9	2.05	8	1.94	9
Small Engines and Tractor Maintenance	1.51	10	1.87	10	1.91	9	2.07	8
Farm Machinery and Equipment	2.15	8	2.00	8	1.72	11	1.49	11
Use of Farm Level	2.38	5	2.02	7	2.91	3	2.14	7

It was interesting to note that on the basis of grand mean responses teachers who were continuing a separate program in agricultural mechanics considered all but two of the instructional areas to merit more emphasis for a separate course of agricultural mechanics than for regular vocational agriculture classes; however, the difference reported was very little in many instances.

In comparison, teachers who had discontinued a separate program in agricultural mechanics indicated four areas of instruction (Use of Farm Level, Plumbing and Farm Electrification, Farm Structures and Carpentry, and Farm Machinery and Equipment) should receive more emphasis in the separate course of agricultural mechanics. It was surprising to find that teachers who had discontinued a separate agricultural mechanics course placed essentially the same extent of emphasis on all instructional areas of agricultural mechanics in both regular vocational agriculture and a separate agricultural mechanics course as determined by comparison of grand mean responses.

Another case in point was the similarity of the rank order of the instructional areas by type of programs. This was particularly true of teachers who continued to offer the separate agricultural mechanics programs. In comparison, data from teachers who had discontinued a separate program in agricultural mechanics exhibited greater variability in the manner in which the instructional areas were rank ordered according to emphasis.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter is to present a summary review of the study problem and its setting, the design and conduct of the study, and the major findings. Also presented are conclusions and recommendations which were based upon analysis and summarization of data collected.

Summary of the Study

Purpose of the Study

The primary purpose of this study was to identify and compare selected factors which encouraged the initiation of and operational procedures for a separate course in agricultural mechanics. A concurrent purpose was to compare the instructional content of agricultural mechanics as a part of regular vocational agriculture to that of a separate course in agricultural mechanics.

Specific Objectives of the Study

The following specific objectives were formulated to accomplish the major purpose of the study:

- (1) To determine the importance of selected factors for initiating a separate course in agricultural mechanics as perceived by the teacher of vocational agriculture.

- (2) To determine the importance of selected factors for continuing a separate course in agricultural mechanics.
- (3) To determine the importance of selected factors for discontinuing a separate course in agricultural mechanics.
- (4) To compare the extent of emphasis placed upon selected characteristics in regard to student selection and certain operational procedures for programs as perceived by teachers of vocational agriculture.
- (5) To determine and compare the extent of emphasis placed on selected agricultural mechanics teaching areas and units in regular vocational agriculture and a separate course in agricultural mechanics.
- (6) To compare the agricultural mechanics instruction program of vocational agriculture departments which have continued a separate agricultural mechanics course to those which have discontinued a separate agricultural mechanics course.

Rationale for the Study

Oklahoma teachers of vocational agriculture have always rallied to the cause of improving education within vocational agriculture. This was exemplified when several departments throughout Oklahoma instituted a separate course in agricultural mechanics in order to more fully meet the needs of students. However, as noted previously, many departments have found it necessary to discontinue the offering of such a program. With this in mind, it seems reasonable to assume that better planning of vocational agriculture programs could be accomplished in Oklahoma if criteria related to continuing and discontinuing programs were known.

In addition to the above rationale, it seems apparent that more information is needed in order to determine how a separate course in agricultural mechanics differs from the mechanics instruction offered in the regular vocational agriculture program, since it is listed as a different course and often times offered to the same students.

Design and Conduct of the Study

Following a review of the literature related to the problem, the major tasks involved in the design and conduct of the study were (1) selecting the study population, (2) developing an instrument for data collection, (3) collecting data, and (4) analyzing the findings.

The population for this study consisted of the vocational agriculture departments who had offered, during the past three years, a separate course in agricultural mechanics. To obtain data for this study, all departments meeting the above criterion were characterized into departments continuing and departments discontinuing a separate course in agricultural mechanics. From the list of departments in each group, 15 schools were selected by stratified random sample, making a total of 30 schools in the study.

The information obtained for this study was secured through the use of an interview schedule. In formulating the statements used on the instrument, considerations were given to the extent of importance placed upon areas of initiating a separate program in agricultural mechanics, continuing a separate course in agricultural mechanics, and discontinuing a separate program in agricultural mechanics. In addition, information pertaining to the extent of emphasis placed upon selected factors related to student selection and operational procedures was considered.

Considerable emphasis was placed upon the comparisons of instructional areas according to type of program.

Findings of the Study

This study was concerned with determining and comparing program emphasis regarding agricultural mechanics as a separate course and as an integral part of regular vocational agriculture programs. Six specific research objectives were developed to guide the conduct of the study. The research findings for each area of the study are reported as follows.

Initiating a Separate Course in Agricultural Mechanics. One specific research objective of the study was concerned with determining the importance of selected factors for initiating a separate course in agricultural mechanics. Based on rank order, teachers who either continued or discontinued a separate program in agricultural mechanics indicated the importance of people and organizations as follows:

(1) teacher of vocational agriculture, (2) students, (3) superintendent or principal, (4) farmers in the community, (5) board of education, (6) parents, (7) State Department of Vocational Agriculture, (8) local businesses and industry.

In addition, the following statements were indicated as being of considerable importance in regard to offering a separate course in agricultural mechanics. Based upon rank order, teachers who were continuing a separate program in agricultural mechanics reported the following to be of importance: (1) To supply a vocational need not present in other school classes; (2) To more fully meet the needs of students; (3) To help students become employable; (4) To provide training in off-farm mechanics; (5) To provide training for farm boys in agricultural

mechanics. In comparison, teachers who discontinued separate program in agricultural mechanics ranked the same statements according to their importance in the following order: (1) To more fully meet the needs of students; (2) To supply a vocational need which was not present in other school classes; (3) To provide training for farm boys in agricultural mechanics; (4) To help students become employable; (5) To provide training in off-farm mechanics.

Continuing a Separate Course in Agricultural Mechanics. The primary concern of research objective number two was to determine the importance of selected factors for continuing a separate course in agricultural mechanics. The following factors are listed in the rank order of importance as indicated by teachers who were continuing a separate program in agricultural mechanics: (1) Gives the students an opportunity to develop a skill not present in other classes; (2) Utilizes the agricultural mechanics shop more efficiently; (3) Allows the students more options in school curriculum offerings; (4) Helps the students to construct projects for home farms; and (5) Gives the students extra time for project construction.

Discontinuing a Separate Course in Agricultural Mechanics. Determining the importance of selected factors for discontinuing a separate course in agricultural mechanics was the purpose of research objective number three. The most important five factors reported by teachers who had discontinued a separate program in agricultural mechanics are ranked according to their importance as follows: (1) Interfered with the operation of regular vocational agriculture classes; (2) Teacher unable to visit students in afternoon because of extra class; (3) Lack of

equipment and tools; (4) Lack of funds to operate the shop; and
(5) Lack of proper facilities.

Student Characteristics and Operational Procedures. Research objective number four was designed to compare the extent of emphasis placed upon student selection and various operational procedures within the various types of programs. The extent of emphasis placed upon student selection were ranked in identical order by teachers who were continuing a separate program in agricultural mechanics for both regular vocational agriculture and the separate course in agricultural mechanics. However, when comparing mean averages the amount of emphasis placed in regular vocational agriculture was greater for all characteristics. The following represent the rank order of emphasis placed upon these characteristics: (1) willingness to work; (2) occupational objective in agriculture; (3) interested in agriculture; (4) past enrollment in agriculture, except for freshmen; and (5) live on a farm. Based on rank order, teachers who had discontinued a separate program in agricultural mechanics made a slight variation between regular vocational agriculture and the separate course in agricultural mechanics. Following is a listing for rank order of emphasis for regular vocational agriculture: (1) willingness to work; (2) interested in agriculture; (3) past enrollment in vocational agriculture, except for freshmen; (4) occupational objective in agriculture; and (5) live on a farm. In comparison, the following rank order of emphasis was provided for the separate course in agricultural mechanics: (1) willingness to work; (2) interested in agriculture; (3) occupational objective in agriculture; (4) past enrollment in vocational agriculture, except for freshmen; and (5) live on a farm.

Based on rank order, teachers who were continuing a separate course in agricultural mechanics reported that the extent of emphasis placed upon various operational procedures within regular vocational agriculture would be (1) students encouraged to join FFA, (2) supervisory visits to students, (3) emphasis received from the administration, (4) individualized instruction, and (5) students have out-of-class supervisory projects or work experience jobs. In addition, the following represents the extent of emphasis found in separate courses of agricultural mechanics: (1) individualized instruction, (2) emphasis received from the administration, (3) students construct projects, (4) demonstrations in class or shop, and a tie for (5) supervisory visits to students and preparation time for class by instructor.

Teachers who had discontinued a separate program in agricultural mechanics indicated the following operational procedures as having a rank order in regular vocational agriculture: (1) Students encouraged to join FFA; (2) supervisory visits to students; (3) students have out-of-class supervised projects or work experience jobs; (4) individualized instruction; and (5) students construct projects. In addition, a separate course in agricultural mechanics received the following emphasis according to rank order: (1) Students construct projects; (2) individualized instruction; (3) emphasis received from the administration; (4) demonstrations in class or shop; and (5) students encouraged to join the FFA.

Instructional Areas of Agricultural Mechanics. Determining and comparing the extent of emphasis placed on selected agricultural mechanics teaching areas in regular vocational agriculture and a separate course in agricultural mechanics as taught in continuing and discontinued

programs of separate courses of agricultural mechanics was the purpose of research objectives number five and six. According to rank order, teachers who were continuing a separate course in agricultural mechanics listed the following agricultural mechanics instructional areas as receiving instructional emphasis within their programs of regular vocational agriculture: (1) arc welding; (2) orientation, organization, and safety; (3) oxy-acetylene welding and cutting; (4) sketching and drawing; (5) use of farm level; (6) repairing and sharpening tools; (7) metal work; (8) farm machinery and equipment; (9) plumbing and farm electrification; (10) small engines and tractor maintenance; and (11) farm structures and carpentry. In comparison, the same teachers provided the following rank order for the separate course in agricultural mechanics which included the identical agricultural mechanics instructional areas as follows: (1) arc welding; (2) orientation, organization, and safety; (3) oxy-acetylene welding and cutting; (4) sketching and drawing; (5) repairing and sharpening tools; (6) metal work; (7) use of the farm level; (8) farm machinery and equipment; (9) plumbing and farm electrification; (10) small engines and tractor maintenance; and (11) farm structures and carpentry.

Teacher who had discontinued a separate course in agricultural mechanics indicated that regular vocational agriculture placed a rank order of emphasis upon the agricultural mechanics instructional areas as follows: (1) arc welding; (2) orientation, organization, and safety; (3) use of the farm level; (4) oxy-acetylene welding and cutting; (5) repairing and sharpening tools; (6) metal work; (7) sketching and drawing; (8) plumbing and farm electrification; (9) small engines and tractor maintenance; (10) farm structures and carpentry, and (11) farm

machinery and equipment. The same agricultural mechanics instructional areas were ranked in the following order for a separate course in agricultural mechanics: (1) arc welding; (2) orientation, organization, and safety; (3) oxy-acetylene welding and cutting; (4) repairing and sharpening tools; (5) metal work; (6) sketching and drawing; (7) use of the farm level; (8) small engines and tractor maintenance; (9) plumbing and farm electrification; (10) farm structures and carpentry; and (11) farm machinery and equipment.

It was also found that in most cases, teachers who had discontinued a separate program in agricultural mechanics reported a greater amount of emphasis being placed upon agricultural mechanics instructional areas as compared to those programs that had continued the offering of a separate course in agricultural mechanics. However, even though more emphasis was being reported, basically very little difference existed between programs that had continued or discontinued a separate course in agricultural mechanics.

Conclusions

Based upon analysis of the study findings relative to the stated purposes and objectives of the study, the investigator arrived at the conclusions stated as follows:

1. The most important factors associated with the initiation of a separate course in agricultural mechanics were (a) teachers of vocational agriculture and (b) the supplying of a vocational need not present in other school classes.

2. The primary reasons for continuing a separate program in agricultural mechanics were two-fold: (a) Gave the students an opportunity

to develop a skill not present in other classes and (b) utilized the agricultural mechanics facilities more efficiently.

3. The principal cause of discontinuing a separate course in agricultural mechanics was that it interfered with the normal operation of the regular vocational agriculture program.

4. The lack of equipment, tools, facilities, and funds to operate the shop were only of minor importance for discontinuing a separate program in agricultural mechanics.

5. Teachers who were continuing a separate course in agricultural mechanics reported more emphasis was placed upon selecting students enrolling in regular vocational agriculture programs than in the separate course of agricultural mechanics.

6. The willingness of the student to work was the most important factor for selecting students for enrollment.

7. The operational procedures receiving the most emphasis in regular vocational agriculture were (a) supervisory activities and (b) encouraging students to join the FFA.

8. The operational procedures receiving the most emphasis in a separate course of agricultural mechanics were (a) individualized instruction, (b) construction of projects, and (c) emphasis from the administration.

9. Very little difference existed between agricultural mechanics instruction in regular vocational agriculture and that of a separate course in agricultural mechanics. However, the extent of emphasis placed upon instructional areas in the separate course of agricultural mechanics was slightly greater in both continuing and discontinued programs.

Implications and Recommendations

Based upon the data collected, study findings, and the observations made by the investigator while conducting the study, certain general recommendations were formulated as follows:

1. It is recommended that a similar study be conducted in order to determine more accurately the extent of time placed upon instructional areas of agricultural mechanics.

2. It is recommended that extensive efforts be incorporated toward the development of a Basic Core Curriculum in teaching a separate course of agricultural mechanics which allocates equal exposure to all instructional areas of agricultural mechanics.

3. It is further recommended that the separate course in agricultural mechanics provide special considerations to those competencies needed by students who enter various related agricultural occupations other than those of production agriculture.

4. Teacher of vocational agriculture should make a concerted effort to more adequately assess the values of a separate course in agricultural mechanics as related to their communities and its effect upon the present program of regular vocational agriculture.

5. It is recommended that an Ad Hoc committee involving teachers of vocational agriculture and specialists within the field of agricultural mechanics be formulated to study and project instructional areas which should be included in the Basic Core Curriculum for agricultural mechanics.

6. It is recommended that a study be conducted to identify basic competencies needed by teachers of vocational agriculture for the sole

purpose of preparing teachers to become more competent in the areas of agricultural mechanics which might be suggested by the above Ad Hoc committee.

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APPENDIX

PLEASE ANSWER THE FOLLOWING STATEMENTS THAT
APPLY TO YOUR LOCAL SITUATION BY PLACING A
CIRCLE AROUND THE MOST APPROPRIATE NUMBER.

IMPORTANCE SCALE

Of Extreme Importance	Of Considerable Importance	Of Some Importance	Of Limited Importance	Of No Importance
4	3	2	1	0

1. Indicate the importance that the following people or organizations had upon a separate course in agricultural mechanics being offered in your school.

a. Board of Education	4	3	2	1	0
b. Parents	4	3	2	1	0
c. State Department of Vocational Agriculture	4	3	2	1	0
d. Students	4	3	2	1	0
e. Superintendent or Principal	4	3	2	1	0
f. Local businessmen and industry	4	3	2	1	0
g. Teacher of vocational agriculture	4	3	2	1	0
h. Farmers in community	4	3	2	1	0
i. Others (please list) _____	4	3	2	1	0
j. _____	4	3	2	1	0
k. _____	4	3	2	1	0

2. Indicate the importance that the following factors had in regard to your school offering a separate course in agricultural mechanics.

a. An increase in school curriculum offerings was needed.	4	3	2	1	0
b. To supply a vocational need which was not present in other school classes.	4	3	2	1	0
c. To provide training for farm boys in agricultural mechanics.	4	3	2	1	0
d. To provide training in off-farm mechanics.	4	3	2	1	0
e. To increase the vocational agriculture enrollment.	4	3	2	1	0
f. To allow extra time for project work in shop.	4	3	2	1	0
g. To provide a class for boys who were not enrolled in vocational agriculture.	4	3	2	1	0
h. To provide a class for students who were considered problems in other classes.	4	3	2	1	0
i. To help students become employable.	4	3	2	1	0
j. To more fully meet the needs of students.	4	3	2	1	0
k. Others (please list) _____	4	3	2	1	0
l. _____	4	3	2	1	0
m. _____	4	3	2	1	0

3. Indicate the importance of the following statements in regard to your department continuing a separate course in agricultural mechanics?
- | | | | | | |
|---|---|---|---|---|---|
| a. Gives the students an opportunity to develop a skill which is not present in other school classes. | 4 | 3 | 2 | 1 | 0 |
| b. The extra enrollment keeps our regular program of vocational agriculture in existence. | 4 | 3 | 2 | 1 | 0 |
| c. Allows the students more options in our school curriculum offerings. | 4 | 3 | 2 | 1 | 0 |
| d. Utilizes our agricultural mechanics shop more efficiently. | 4 | 3 | 2 | 1 | 0 |
| e. Helps keep the teacher of vocational agriculture out of a study hall. | 4 | 3 | 2 | 1 | 0 |
| f. Helps the students to construct projects for home farms. | 4 | 3 | 2 | 1 | 0 |
| g. Gives the students extra time for project construction. | 4 | 3 | 2 | 1 | 0 |
| h. Others (please list) _____ | 4 | 3 | 2 | 1 | 0 |
| i. _____ | 4 | 3 | 2 | 1 | 0 |
| j. _____ | 4 | 3 | 2 | 1 | 0 |

The remaining sections are to determine the amount of emphasis you place on selected factors concerning the administration and operation of your Vo-Ag and agriculture mechanics programs. Therefore, you should respond to each item by using the following scale:

4	3	2	1	0
Extreme Emphasis	Considerable Emphasis	Some Emphasis	Limited Emphasis	No Emphasis

INDICATE THE EMPHASIS OF THE FOLLOWING UPON OPERATIONAL
PROCEDURES IN YOUR SEPARATE COURSE OF AGRICULTURE MECHANICS
AND REGULAR 4-YEAR PROGRAMS

OPERATIONAL PROCEDURES	REGULAR 4-YEAR PROGRAM					SEPARATE COURSE IN MECHANICS				
Students are selected by teacher	4	3	2	1	0	4	3	2	1	0
Students have out-of-class assignments such as a supervised project or work experience job	4	3	2	1	0	4	3	2	1	0
Students encouraged to join FFA	4	3	2	1	0	4	3	2	1	0
Students construct projects	4	3	2	1	0	4	3	2	1	0
Supervisory visits to students	4	3	2	1	0	4	3	2	1	0
Previous experience in Vo-Ag except for freshmen	4	3	2	1	0	4	3	2	1	0
Classroom lecture or discussion	4	3	2	1	0	4	3	2	1	0
Demonstrations in class or shop	4	3	2	1	0	4	3	2	1	0
Individualized instruction	4	3	2	1	0	4	3	2	1	0
Emphasis from administration	4	3	2	1	0	4	3	2	1	0
Preparation by instructor for class	4	3	2	1	0	4	3	2	1	0
Difficulty in getting money to secure supplies and materials	4	3	2	1	0	4	3	2	1	0
Others (please list)	4	3	2	1	0	4	3	2	1	0
	4	3	2	1	0	4	3	2	1	0
	4	3	2	1	0	4	3	2	1	0

INDICATE THE EXTENT OF EMPHASIS PLACED ON THE FOLLOWING WHEN
 SELECTING STUDENTS FOR ENROLLMENT IN YOUR SEPARATE COURSE OF
 AGRICULTURAL MECHANICS OR REGULAR 4-YEAR PROGRAM

CHARACTERISTICS OF THE STUDENTS	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
Except for freshmen, past enrollment in Vo-Ag	4 3 2 1 0	4 3 2 1 0
Interested in agriculture	4 3 2 1 0	4 3 2 1 0
Occupational objective in agriculture	4 3 2 1 0	4 3 2 1 0
Willingness to work	4 3 2 1 0	4 3 2 1 0
Live on a farm	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0

INDICATE THE AMOUNT OF EMPHASIS YOU PLACED UPON THE FOLLOWING
AREAS WHICH WERE TAUGHT IN YOUR REGULAR 4-YEAR
CLASSES AND IN THE SEPARATE COURSE OF AGRICULTURAL MECHANICS

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
ORIENTATION, ORGANIZATION, AND SAFETY		
Aims and purposes of training	4 3 2 1 0	4 3 2 1 0
Arrangement and placement of tools and equipment	4 3 2 1 0	4 3 2 1 0
Introduce a system to keep a clean, orderly shop with tools in good working condition	4 3 2 1 0	4 3 2 1 0
Fire extinguisher and first aid instruction	4 3 2 1 0	4 3 2 1 0
Safe working habits (Understanding color code, State Law 824, and other safety practices)	4 3 2 1 0	4 3 2 1 0
Use of standard school shop safety inspection list	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
REPAIRING AND SHARPENING TOOLS		
Tool-fitting equipment and supplies	4 3 2 1 0	4 3 2 1 0
Sharpening and repairing various tools	4 3 2 1 0	4 3 2 1 0
Cleaning and storing tools	4 3 2 1 0	4 3 2 1 0
Tool identification	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
METAL WORK		
Mark, cut, and bend metal	4 3 2 1 0	4 3 2 1 0
Using the drill press	4 3 2 1 0	4 3 2 1 0
Proper use of grinders	4 3 2 1 0	4 3 2 1 0

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
METAL WORK (continued)		
Threading bolts and nuts	4 3 2 1 0	4 3 2 1 0
Cutting flat plate with cold chisel	4 3 2 1 0	4 3 2 1 0
Threading and cutting pipe	4 3 2 1 0	4 3 2 1 0
Others (please list	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
ARC WELDING		
Introduction and orientation	4 3 2 1 0	4 3 2 1 0
Selecting and caring for arc welding equipment	4 3 2 1 0	4 3 2 1 0
Recognizing and using safety precautions	4 3 2 1 0	4 3 2 1 0
Striking an arc and running a bead	4 3 2 1 0	4 3 2 1 0
Making a flat butt weld	4 3 2 1 0	4 3 2 1 0
Position welding	4 3 2 1 0	4 3 2 1 0
Running a continuous bead	4 3 2 1 0	4 3 2 1 0
Preparation of metal for welding	4 3 2 1 0	4 3 2 1 0
Selection of electrodes	4 3 2 1 0	4 3 2 1 0
Welding cast iron	4 3 2 1 0	4 3 2 1 0
Skill training	4 3 2 1 0	4 3 2 1 0
Construction of projects	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
OXYACETYLENE		
Becoming acquainted with safe operation of oxyacetylene cutting equipment	4 3 2 1 0	4 3 2 1 0
Adjusting valves, gauges, and flames	4 3 2 1 0	4 3 2 1 0
Proper use of the cutting torch and cutting flat plate	4 3 2 1 0	4 3 2 1 0
Selecting proper tip size, gas pressure, rod size, flux, and materials	4 3 2 1 0	4 3 2 1 0
Making various welds with mild steel	4 3 2 1 0	4 3 2 1 0
Bronze welding	4 3 2 1 0	4 3 2 1 0
Use of the powder torch	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
FARM STRUCTURES AND CARPENTRY		
Selecting and using wood fasteners	4 3 2 1 0	4 3 2 1 0
Identifying nails, bolts, and screws	4 3 2 1 0	4 3 2 1 0
Framing and bracing	4 3 2 1 0	4 3 2 1 0
Fence construction and repair	4 3 2 1 0	4 3 2 1 0
Figuring Bill of Materials	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
PLUMBING AND FARM ELECTRIFICATION		
Identification of plumbing fittings	4 3 2 1 0	4 3 2 1 0
Cutting and flanging of copper	4 3 2 1 0	4 3 2 1 0
Sweating of copper fittings	4 3 2 1 0	4 3 2 1 0
Soldering	4 3 2 1 0	4 3 2 1 0

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
PLUMBING AND FARM ELECTRIFICATION (continued)		
Fundamentals of electricity	4 3 2 1 0	4 3 2 1 0
Electrical safety	4 3 2 1 0	4 3 2 1 0
Planning the wiring layout	4 3 2 1 0	4 3 2 1 0
Basic electrical wiring	4 3 2 1 0	4 3 2 1 0
Electric motors	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
SKETCHING AND DRAWING		
Making simple sketches and reading blueprints	4 3 2 1 0	4 3 2 1 0
Designing of projects	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
SMALL ENGINES		
Principles of operation	4 3 2 1 0	4 3 2 1 0
Disassemble and assemble	4 3 2 1 0	4 3 2 1 0
Servicing small engines	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
CONCRETE		
Basic fundamentals	4 3 2 1 0	4 3 2 1 0
Mixing and placing of concrete	4 3 2 1 0	4 3 2 1 0

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
CONCRETE (continued)		
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
TRACTOR MAINTENANCE		
Servicing the tractor	4 3 2 1 0	4 3 2 1 0
Minor tractor repair	4 3 2 1 0	4 3 2 1 0
Selecting and storing tractor fuels and lubricants	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
FARM MACHINERY AND EQUIPMENT		
Selection	4 3 2 1 0	4 3 2 1 0
Operation	4 3 2 1 0	4 3 2 1 0
Safety precautions	4 3 2 1 0	4 3 2 1 0
Maintenance, adjustment, and repair	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
USE OF THE FARM LEVEL		
Setting up and adjusting the level	4 3 2 1 0	4 3 2 1 0
Reading the rod	4 3 2 1 0	4 3 2 1 0
Keeping the field notes	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0

APPENDIX B

PLEASE ANSWER THE FOLLOWING STATEMENTS THAT
APPLY TO YOUR LOCAL SITUATION BY PLACING A
CIRCLE AROUND THE MOST APPROPRIATE NUMBER.

IMPORTANCE SCALE

Of Extreme Importance	Of Considerable Importance	Of Some Importance	Of Limited Importance	Of No Importance
4	3	2	1	0

1. Indicate the importance that the following people or organizations had upon a separate course in agricultural mechanics being offered in your school.

a. Board of Education	4	3	2	1	0
b. Parents	4	3	2	1	0
c. State Department of Vocational Agriculture	4	3	2	1	0
d. Students	4	3	2	1	0
e. Superintendent or Principal	4	3	2	1	0
f. Local businessmen and industry	4	3	2	1	0
g. Teacher of vocational agriculture	4	3	2	1	0
h. Farmers in community	4	3	2	1	0
i. Others (please list) _____	4	3	2	1	0
j. _____	4	3	2	1	0
k. _____	4	3	2	1	0

2. Indicate the importance that the following factors had in regard to your school offering a separate course in agricultural mechanics.

a. An increase in school curriculum offerings was needed.	4	3	2	1	0
b. To supply a vocational need which was not present in other school classes.	4	3	2	1	0
c. To provide training for farm boys in agricultural mechanics.	4	3	2	1	0
d. To provide training in off-farm mechanics.	4	3	2	1	0
e. To increase the vocational agriculture enrollment.	4	3	2	1	0
f. To allow extra time for project work in shop.	4	3	2	1	0
g. To provide a class for boys who were not enrolled in vocational agriculture.	4	3	2	1	0
h. To provide a class for students who were considered problems in other classes.	4	3	2	1	0
i. To help students become employable.	4	3	2	1	0
j. To more fully meet the needs of students.	4	3	2	1	0
k. Others (please list) _____	4	3	2	1	0
l. _____	4	3	2	1	0
m. _____	4	3	2	1	0

3. Indicate the importance of the following statements in regard to your department discontinuing a separate class in agriculture mechanics.

a. Lack of proper facilities,	4	3	2	1	0
b. Lack of equipment and tools.	4	3	2	1	0
c. Lack of funds to operate the shop.	4	3	2	1	0
d. Lack of interest on the part of the students.	4	3	2	1	0
e. Interfered with the operation of regular vocational agriculture classes.	4	3	2	1	0
f. Lack of support from the administration.	4	3	2	1	0
g. Developed into a dumping ground for students having problems with other classes.	4	3	2	1	0
h. Lack of building material or scrap metal which students could use.	4	3	2	1	0
i. Teacher unable to visit students in afternoon because of extra classtime.	4	3	2	1	0
j. Lack of sufficient time for securing materials and supplies	4	3	2	1	0
k. Offered on alternate years only	4	3	2	1	0
l. Others (please list) _____	4	3	2	1	0
m. _____	4	3	2	1	0
n. _____	4	3	2	1	0

The remaining sections are to determine the amount of emphasis you place on selected factors concerning the administration and operation of your Vo-Ag and agriculture mechanics programs. Therefore, you should respond to each item by using the following scale:

4	3	2	1	0
Extreme Emphasis	Considerable Emphasis	Some Emphasis	Limited Emphasis	No Emphasis

INDICATE THE EMPHASIS OF THE FOLLOWING UPON OPERATIONAL
PROCEDURES IN YOUR SEPARATE COURSE OF AGRICULTURE MECHANICS
AND REGULAR 4-YEAR PROGRAMS

OPERATIONAL PROCEDURES	REGULAR 4-YEAR PROGRAM					SEPARATE COURSE IN MECHANICS				
Students are selected by teacher	4	3	2	1	0	4	3	2	1	0
Students have out-of-class assignments such as a supervised project or work experience job	4	3	2	1	0	4	3	2	1	0
Students encouraged to join FFA	4	3	2	1	0	4	3	2	1	0
Students construct projects	4	3	2	1	0	4	3	2	1	0
Supervisory visits to students	4	3	2	1	0	4	3	2	1	0
Previous experience in Vo-Ag except for freshmen	4	3	2	1	0	4	3	2	1	0
Classroom lecture or discussion	4	3	2	1	0	4	3	2	1	0
Demonstrations in class or shop	4	3	2	1	0	4	3	2	1	0
Individualized instruction	4	3	2	1	0	4	3	2	1	0
Emphasis from administration	4	3	2	1	0	4	3	2	1	0
Preparation by instructor for class	4	3	2	1	0	4	3	2	1	0
Difficulty in getting money to secure supplies and materials	4	3	2	1	0	4	3	2	1	0
Others (please list)	4	3	2	1	0	4	3	2	1	0
	4	3	2	1	0	4	3	2	1	0
	4	3	2	1	0	4	3	2	1	0

INDICATE THE EXTENT OF EMPHASIS PLACED ON THE FOLLOWING WHEN
 SELECTING STUDENTS FOR ENROLLMENT IN YOUR SEPARATE COURSE OF
 AGRICULTURAL MECHANICS OR REGULAR 4-YEAR PROGRAM

CHARACTERISTICS OF THE STUDENTS	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
Except for freshmen, past enrollment in Vo-Ag	4 3 2 1 0	4 3 2 1 0
Interested in agriculture	4 3 2 1 0	4 3 2 1 0
Occupational objective in agriculture	4 3 2 1 0	4 3 2 1 0
Willingness to work	4 3 2 1 0	4 3 2 1 0
Live on a farm	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0

INDICATE THE AMOUNT OF EMPHASIS YOU PLACED UPON THE FOLLOWING
AREAS WHICH WERE TAUGHT IN YOUR REGULAR 4-YEAR
CLASSES AND IN THE SEPARATE COURSE OF AGRICULTURAL MECHANICS

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
ORIENTATION, ORGANIZATION, AND SAFETY		
Aims and purposes of training	4 3 2 1 0	4 3 2 1 0
Arrangement and placement of tools and equipment	4 3 2 1 0	4 3 2 1 0
Introduce a system to keep a clean, orderly shop with tools in good working condition	4 3 2 1 0	4 3 2 1 0
Fire extinguisher and first aid instruction	4 3 2 1 0	4 3 2 1 0
Safe working habits (Understanding color code, State Law 824, and other safety practices)	4 3 2 1 0	4 3 2 1 0
Use of standard school shop safety inspection list	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
REPAIRING AND SHARPENING TOOLS		
Tool-fitting equipment and supplies	4 3 2 1 0	4 3 2 1 0
Sharpening and repairing various tools	4 3 2 1 0	4 3 2 1 0
Cleaning and storing tools	4 3 2 1 0	4 3 2 1 0
Tool identification	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
METAL WORK		
Mark, cut, and bend metal	4 3 2 1 0	4 3 2 1 0
Using the drill press	4 3 2 1 0	4 3 2 1 0
Proper use of grinders	4 3 2 1 0	4 3 2 1 0

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
METAL WORK (continued)		
Threading bolts and nuts	4 3 2 1 0	4 3 2 1 0
Cutting flat plate with cold chisel	4 3 2 1 0	4 3 2 1 0
Threading and cutting pipe	4 3 2 1 0	4 3 2 1 0
Others (please list	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
ARC WELDING		
Introduction and orientation	4 3 2 1 0	4 3 2 1 0
Selecting and caring for arc welding equipment	4 3 2 1 0	4 3 2 1 0
Recognizing and using safety precautions	4 3 2 1 0	4 3 2 1 0
Striking an arc and running a bead	4 3 2 1 0	4 3 2 1 0
Making a flat butt weld	4 3 2 1 0	4 3 2 1 0
Position welding	4 3 2 1 0	4 3 2 1 0
Running a continuous bead	4 3 2 1 0	4 3 2 1 0
Preparation of metal for welding	4 3 2 1 0	4 3 2 1 0
Selection of electrodes	4 3 2 1 0	4 3 2 1 0
Welding cast iron	4 3 2 1 0	4 3 2 1 0
Skill training	4 3 2 1 0	4 3 2 1 0
Construction of projects	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
OXYACETYLENE		
Becoming acquainted with safe operation of oxyacetylene cutting equipment	4 3 2 1 0	4 3 2 1 0
Adjusting valves, gauges, and flames	4 3 2 1 0	4 3 2 1 0
Proper use of the cutting torch and cutting flat plate	4 3 2 1 0	4 3 2 1 0
Selecting proper tip size, gas pressure, rod size, flux, and materials	4 3 2 1 0	4 3 2 1 0
Making various welds with mild steel	4 3 2 1 0	4 3 2 1 0
Bronze welding	4 3 2 1 0	4 3 2 1 0
Use of the powder torch	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
FARM STRUCTURES AND CARPENTRY		
Selecting and using wood fasteners	4 3 2 1 0	4 3 2 1 0
Identifying nails, bolts, and screws	4 3 2 1 0	4 3 2 1 0
Framing and bracing	4 3 2 1 0	4 3 2 1 0
Fence construction and repair	4 3 2 1 0	4 3 2 1 0
Figuring Bill of Materials	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
PLUMBING AND FARM ELECTRIFICATION		
Identification of plumbing fittings	4 3 2 1 0	4 3 2 1 0
Cutting and flanging of copper	4 3 2 1 0	4 3 2 1 0
Sweating of copper fittings	4 3 2 1 0	4 3 2 1 0
Soldering	4 3 2 1 0	4 3 2 1 0

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
PLUMBING AND FARM ELECTRIFICATION (continued)		
Fundamentals of electricity	4 3 2 1 0	4 3 2 1 0
Electrical safety	4 3 2 1 0	4 3 2 1 0
Planning the wiring layout	4 3 2 1 0	4 3 2 1 0
Basic electrical wiring	4 3 2 1 0	4 3 2 1 0
Electric motors	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
SKETCHING AND DRAWING		
Making simple sketches and reading blueprints	4 3 2 1 0	4 3 2 1 0
Designing of projects	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
SMALL ENGINES		
Principles of operation	4 3 2 1 0	4 3 2 1 0
Disassemble and assemble	4 3 2 1 0	4 3 2 1 0
Servicing small engines	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
CONCRETE		
Basic fundamentals	4 3 2 1 0	4 3 2 1 0
Mixing and placing of concrete	4 3 2 1 0	4 3 2 1 0

TEACHING AREA	REGULAR 4-YEAR PROGRAM	SEPARATE COURSE IN MECHANICS
CONCRETE (continued)		
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
TRACTOR MAINTENANCE		
Servicing the tractor	4 3 2 1 0	4 3 2 1 0
Minor tractor repair	4 3 2 1 0	4 3 2 1 0
Selecting and storing tractor fuels and lubricants	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
FARM MACHINERY AND EQUIPMENT		
Selection	4 3 2 1 0	4 3 2 1 0
Operation	4 3 2 1 0	4 3 2 1 0
Safety precautions	4 3 2 1 0	4 3 2 1 0
Maintenance, adjustment, and repair	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
USE OF THE FARM LEVEL		
Setting up and adjusting the level	4 3 2 1 0	4 3 2 1 0
Reading the rod	4 3 2 1 0	4 3 2 1 0
Keeping the field notes	4 3 2 1 0	4 3 2 1 0
Others (please list)	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0
	4 3 2 1 0	4 3 2 1 0

VITA[✓]

Marcus Lee Juby

Candidate for the Degree of

Doctor of Education

Thesis: COMPARISON OF THE EXTENT OF EMPHASIS OR IMPORTANCE PLACED UPON
SELECTED ASPECTS OF AGRICULTURE MECHANICS INSTRUCTION IN
VOCATIONAL AGRICULTURE

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Sperry, Oklahoma, April 22, 1938, son of
Leo and Edith Juby, now deceased.

Education: Graduated from Sperry High School, Sperry, Oklahoma, in
May, 1957; received the Bachelor of Science degree from
Oklahoma State University in 1962 with a major in Agricultural
Education; received the Master of Science degree from Oklahoma
State University in 1970 with a major in Agricultural Educa-
tion; attended Colorado State University during the summer of
1971 and included in this program of studies courses in
Teaching Methods, Educational Philosophy, and Educational
Administration; completed requirements for the degree of
Doctor of Education in July, 1972, at Oklahoma State University.

Professional Experience: Vocational agriculture instructor, Kansas
Public Schools, 1962-64; Research Assistant for University of
Arkansas in area of horticulture, 1964-66; vocational agri-
culture instructor, Oilton Public Schools, 1966-68; vocational
agriculture instructor, Collinsville Public Schools, 1968-70;
curriculum specialist for State Department of Vocational and
Technical Education, summer of 1970.

Professional Organizations: Member of Phi Delta Kappa Educational
Fraternity, National Vocational Agriculture Teachers Associa-
tion, and American Vocational Association.