A QUALITATIVE COMPARISON OF SELECTED FACTORS IN AGRICULTURE MECHANICS BETWEEN STUDENT-TEACHING CENTERS AND OTHER OKLAHOMA DEPARTMENTS OF VOCATIONAL AGRICULTURE

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CHAPTER I

PURPOSE AND DESIGN OF THE STUDY

Introduction

To keep informed about the new innovations and discoveries which are constantly being made in agriculture, one must always be alert to any new things which might increase his competence as a teacher of vocational agriculture. Due to these changes, the number of these competencies needed by teachers of vocational agriculture has increased in recent years. This is due primarily to the increasing complexity of today's society, to the advancements in technology, and to the mechanization in the production of farm commodities. One needs only to observe the operation of a modern farm to find ample evidence that today's agriculture is a highly mechanized industry.

The following statements have been made in regard to America's changing agriculture (12)[a]:

> The output per man has doubled between 1940 and 1956 because of adopted power units, specialized harvesting machines, and all kinds of chore equipment. Since 1945, the number of new work-saving machines has increased 1200 percent. Most of these machines were not in existence in 1938. Tractors have tripled in number from 1938 to 1958. Today, we have an average of one and one-half tractors per farm in the United States. The use of all machinery has increased about 300 percent in the last twenty years.

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[a]Refers to reference number in bibliography.

It was also indicated by Longhurst (12) from a study made in 1958 by the United States Department of Agriculture that American farmers would spend eight billion dollars on tools and equipment to operate their farms, with most of the money being spent for the purchase of new or used equipment.

As one can see from the preceding paragraphs, the American farm represents a substantial investment and is highly mechanized. By working with such an enormous investment and complicated machines, the operators must know how to use and maintain these mechanical facilities which they have at their disposal.

The teachers who are engaged in the teaching of vocational agriculture have the responsibility to provide training which will enable those who will be engaged in farming to reap the most abundant rewards from mechanization.

In the training of teachers, perhaps no other portion of the preservice training program has the importance of the student-teaching period. Leaders of vocational agriculture have for many years regarded this as a time in which much learning takes place.

As a statement by Fred G. Lechner states (11):

> It has generally been recognized among vocational agriculture training personnel and student teachers that the student-teaching period and/or apprenticeship period of the teacher program is probably the most effective and valuable phase of their training.

If one assumes this fact to be true and will acknowledge the importance of mechanization in farming, it then becomes of vital concern that the student teachers of vocational agriculture be provided with the most desirable participating experiences in the area of agriculture mechanics.

Since student teaching is one of the most important phases of training for the prospective teacher, he has every right to expect this experience to be the best from the standpoint of sound, practical, and diversified experiences during this limited length of time. During the first year, the new teacher will draw heavily from the experiences which were received during the student-teaching program. The department where he does this teaching will serve as a pattern for the new teacher to follow as he develops a program for the school and community which he is serving.

With the present emphasis being placed on agriculture mechanics and for the foregoing reasons, the writer feels a study of this type deserves attention at this critical time in America's educational development.

Need for the Study

As has been pointed to earlier, people are living and working in a field which is filled with rapidly increasing knowledge and innovations pertaining to agriculture. The individuals which are enrolled in the universities today will be the teachers of tomorrow. As they near the completion of their course-work requirement on their respective campuses, only one more hurdle stands between them and the qualification certificate which enables them to enter the teaching profession.

To produce the kind of high quality teachers the secondary schools are demanding, the teacher training institutions must continue to search out new and better ways and places to give these "future teachers" the training they need. The training which these young men obtain at the respective student teaching centers cannot be overemphasized. It is essential that these young men be placed in schools where they can

obtain the most valuable teaching and learning experiences in the allotted time.

Purpose of the Study

The purpose of this study is to determine if the agriculture mechanics program, the educational preparation of the instructor, and the facilities of the shops of the student-teaching centers are superior to a random sampling of all other departments in the state for providing a high level of participating experiences for prospective teachers of vocational agriculture.

Limitations of the Study

While the population for this investigation may be considered limited to the 1965-66 student-teaching centers and an equal number of randomly selected vocational agriculture departments in Oklahoma, it is hoped that the randomly selected departments are representative of other departments located throughout the state.

The method of contacting instructors was limited to a mail questionnaire. No personal contacts were made.

Definitions of Terms Used

Supervising teacher: Teacher of vocational agriculture in the secondary school who is primarily responsible for giving supervision and instruction to the student teacher during his experiences in the local high school.

Student-teaching centers: The cooperating school systems in which agricultural education students do their student teaching.

Agriculture mechanics: That segment of the vocational agriculture program which develops the mechanical abilities of students in performing agriculture shop activities; in operating, maintaining, repairing, and adjusting farm machinery; in constructing and maintaining farm buildings; in installing and maintaining farm electrical systems; and in performing the mechanical activities in soil and water management programs (16).

CHAPTER II

REVIEW OF LITERATURE

By searching the literature, one sees that neither agriculture mechanics nor student teaching is a new thing. If one looks back in the history of America's educational system, he sees that student-teaching training is certainly not a new idea. It was realized by educators as early as 1917 that the teacher education program was a vital factor in the educational program. Olney's (15) comment reinforces this statement very well:

> At the time of the passage of the Smith-Hughes Act in 1917 it was recognized that teacher education was a vital factor for the growth and development of vocational education in agriculture in the secondary school.

The Smith-Hughes Act contained little emphasis on research. It was soon realized that a research program was absolutely essential to the future of vocational agriculture. An integral part of teacher education is the phase of apprentice teaching. Tolbert (20) clearly points out the critical need for research in this area and some of the problems which faced Georgia in their attempt to initiate an apprentice teaching program.

> Records show that the 1918 Georgia State Plan for Vocational Education provided for apprenticeship training of teachers of vocational agriculture. However, during the next ten years, it was difficult to get an appreciable number of trainees away from the college campus for more than a week. In other words, for the ten years after plans had been made, apprenticeship did not become effective.

With the advent of the two World Wars, the programs were slowed considerably because of the lack of personnel. Since World War II, much valuable information on student teaching has been obtained from the conducted research. Since agriculture mechanics is an indispensable facet of agricultural education, one must be very concerned with the mechanics aspect of the school which is selected to serve as the student-teaching center.

At the present time, the field of agriculture is making very large strides toward mechanization. Because of this mechanization, many dollars become invested in machinery and other labor-saving devices. The inventory of farm machinery in this country is greater than the assets of the American steel industry and five times that of the automobile industry (1). Moreover, many farmers have more money invested in buildings and equipment than in the land used to grow the crops (13).

As has been pointed out above, mechanization can represent a large investment and all too often farmers do not receive the rewards from such mechanization because they do not know how to use and maintain this equipment properly (18). If this be the case, one must take a look at the present program and critically evaluate it to see if it is geared for the production agriculture of tomorrow.

By considering the importance of agriculture mechanics on farms and the many teachers of vocational agriculture who spend from forty to sixty percent of their high school teaching time in the teaching of agriculture mechanics alone (8), one cannot help but realize the importance of a comprehensive and well balanced program. It is important that these young men who are preparing themselves for entry into

the teaching profession have a student-teaching center that has an adequate program in agriculture mechanics.

Dry (3), in a study conducted in twelve southern states in 1949, found that the student-teaching period for vocational agriculture was not long enough to afford the student teacher an opportunity to gain experience in an appreciable number of teaching activities. Agriculture mechanics was one of the areas in which the student teachers did not gain satisfactory experiences.

Miller (14), comments that in some student-teaching centers, it seems as though activities such as community service and skill participation has been overemphasized and organized group instruction was sacrificed. Miller states that seemingly more emphasis should be placed on teaching. Miller also found there was a tendency to overwork the trainee and not give him enough time to observe.

Hobbs (5), in a recent Oklahoma study which included all vocational agriculture departments which were grouped into an above-average group and a below-average group, found that significant differences between the two groups existed with regard to (1) having shop facilities presently available; (2) shop space available at time of present teacher's initial employment; (3) four-year time allotment for farm mechanics instruction; and (4) use of the station method in teaching of farm mechanics.

In a Louisiana study which was conducted by Curtis (2) in 1958, it was concluded that the vocational agriculture teachers included in his study lacked sufficient training for the teaching of farm power and machinery and farm electrification. It was also pointed out that a majority of the teachers used from one-fourth to one-third of the total

class time for instruction in farm mechanics. Curtis also concluded that the tenure in the present location had no affect on the quality of the program of instruction in farm mechanics.

In a study made by Kennedy (9) concerning the activities of practice teachers of vocational agriculture, it was found that: (1) twenty-six of the twenty-eight practice teachers gained experiences in teaching thirteen topics in farm shop for a total of 229 hours; (2) the twenty-six students spent a total of 73 days teaching farm shop in vocational agriculture I, 49 days in agriculture II, and 88 days teaching vocational agriculture III; (3) approximately 60 percent less time was spent working on shop projects than was spent with unclassified shop work.

Dye (4) concluded that significant differences did not exist between the farm mechanics experiences received in the following personal background characteristics of the supervising teacher: (1) age, (2) experiences, (3) tenure, (4) vocational agriculture education background, (5) hours of college credit in farm mechanics, (6) farm mechanics experiences in high school, and (7) other mechanical training.

A final conclusion can be drawn from the study which Dye (4) made: With the elimination of a number of possible associated factors as a result of the study, the evidence is strengthened that the interest, initiative, and personality of the supervising teacher and the student teacher are probably the critical factors determining the extent and quality level of the student-teaching program in agriculture mechanics.

As one might hypothesize, many different programs of student teaching as well as an equal number of different lengths of time spent in the cooperating school system would be expected. In a study made

by Hutchinson (7) in 1961, it was shown that for the forty-three teacher education institutions included in the study, the length of the student teaching period varied from three to forty-eight weeks. Of this group, 881 student teachers were in training for an average of 10.5 weeks, with two students assigned to a teaching center.

It was concluded by Stone (19) in a study made in 1960 that the facilities which were of the nature and quality found in the student-teaching centers would not likely be maintained in a group selected by a method of random sampling. This fact seems to be especially true for the area of agriculture mechanics.

To speak about maintained and needed facilities, one must first have a definite objective which he wishes to accomplish. In a study consisting of individuals from twelve southern states, only 15.4 percent believed that the controlling purposes of vocational education in agriculture should be to train for useful employment and proficiency in farming (17). Almost one-half or 46.3 percent of this group reported that it was more important to train for useful employment in farming and proficiency in any agricultural occupation than for any other purpose.

Another phase of agricultural instruction is the planning and evaluation portion of the program. It is also emphasized in the southern states' study (17) that 78 percent of the interviewees agreed that the teacher, students, and those who participated in the planning should jointly evaluate the total effectiveness of the program. They did not believe that those outside the program or those not participating in the planning should help in evaluating the total program on the community level.

When recommendations for facilities are made, perhaps the first item to be considered should be the availability of a shop itself. According to the study quoted above (17), 87 percent of the 1,244 participants stated that the farm shop is necessary for adequate training in vocational agriculture. At this point one can hypothesize that a farm shop would be a prerequisite for a school to be selected as a student-teaching center.

After one concludes a shop is a necessity for training in vocational agriculture, perhaps the next decision would be the size of the facility. Many variations are possible here because of the inconsistency of community needs. It has been recommended by the United States Office of Education (6) that the shop be a minimum of 40 feet in width, with a width-to-length ratio not greater than 1 to 2, with tool and supply rooms located at the side of the shop when possible, and with equipment installed in such a manner as to localize types of work into definite areas.

In addition to be above, provisions should be made for 150 square feet of floor space per student in the largest class. An additional 1,200 square feet is needed for workbenches, power tools, and other equipment.

In conjunction with the inside space, a minimum of 2,400 square feet of patio space serves well for storing or working on farm machinery, flammable materials, and large construction projects (6).

For the greatest amount of learning to be acquired, other characteristics must be present in addition to those previously mentioned. The building should be equipped with a heating system to maintain a temperature of 64 degrees Fahrenheit in the coldest weather (6).

In addition to natural light, an ample number of electrical fixtures should be distributed in accordance with the shop layout. Some method of ventilation should be furnished to remove fumes and other hazardous odors.

For the storage of shop supplies, a minimum of 200 square feet of floor space should be conveniently available and, in addition, there should be a storage locker of three to eight cubic feet capacity for each student for the storing of personal belongings (6).

Toilet facilities should be present within the shop and be located so the teacher can supervise them while instructing in the shop (6).

The shop is equipped with a first aid kit complete with bandages, tape, disinfectant, burn ointment, etc., and all classes should receive first aid training. A fire extinguisher should be placed at each of the hot metal stations, and under all circumstances an extinguisher should be located within forty feet of any place in the shop (6).

Perhaps no other property of the agriculture shop is as important as the electrical wiring system. For determining the actual power and wiring requirement for the shop, a competent electrician or engineer should be consulted. A minimum of three circuits of 3-phase, 60-ampere, 230-volt current should be present in the shop. These 3-phase circuits are available to each power tool using one-half horsepower or larger motors. For every two a.c. welders, there should be a 60-ampere circuit of single phase, 230-volt current. There should be a sufficient number of 115-volt circuits as determined by the load in watts so that each may be protected by a 20-ampere fuse. The electrical wiring requirement will vary in relation to the size and amount of equipment.

Whatever the facilities, cooperating school system, nature of the supervising teacher, tenure of time spent, or any of the numerous factors, the student-teaching experience is looked upon with high regard by all persons concerned. Many writers have claimed the student-teaching experience to be one of the most valuable, if not the most valuable, experience in the total teacher education program.

Teacher Education in Oklahoma

Since the formation of the Agricultural Education Department at Oklahoma State University, then Oklahoma A. & M. College, student teaching has been considered a very important integral part of the complete program. Many problems have confronted the Department in its attempt to give the students a broad educational experience.

Various programs have been initiated in an effort to accomplish this goal, but commencing with the fall semester of 1956, the student-teaching period was increased to a minimum of eight full weeks. This is the program which is presently being followed. Both the administrators and cooperating teachers in each system plan for a maximum program of participating experiences to be provided. This includes work with students, young farmers, and adults in the locality.

Since the present program has been in effect, it has been the policy for the district supervisors to recommend a group of schools from their respective districts to serve as student-teaching centers. These recommended schools are visited by staff members in Agricultural Education and Agricultural Engineering in an evaluation effort to obtain the ones which would be of superior quality. In addition to evidence of professional improvement by the teacher, a complete and

well-rounded program must be present. To qualify for selection, the school must have an acceptable shop program in addition to the other facets of the program. The shop must be adequately equipped, be located in a room other than the one used for the classroom, and have other characteristics which would facilitate instruction in agriculture mechanics. It is hoped that those selected will offer the student a broad educational experience which will be beneficial in his teaching career.

Hypotheses

1. The student-teaching centers should have better qualified instructors, more adequately equipped facilities, and greater utilization of facilities than the non-student-teaching centers.

Corollary A.

The more credit hours taken by the instructor in the five areas of agricultural engineering, the more teaching time will be spent in those areas.

Corollary B.

The number of projects constructed will reflect the percent of agriculture mechanics teaching time spent in each of the five areas of agricultural engineering.

CHAPTER III

METHODS AND PROCEDURE

For the study of the various selected schools, a questionnaire including four areas of farm mechanics which may affect the program of instruction was constructed.[a]

The questionnaire was first prepared and presented for consultation to the Oklahoma State University Department of Agricultural Education and the State Department of Vocational Education. The questionnaire and research proposal was presented to the departments by means of a personal interview in which the instruments were used as a basis for evaluation. The consultants of the departments were asked to evaluate the questionnaire in terms of briefness, completeness, and clarity of the various items. They were asked to delete any items which they felt may not be significant and also were asked to make any additions which they felt would have merit to the study.

Following a brief section concerning the personal aspects of the instructor, the questionnaire was divided into four sections. These were as follows: (1) Facilities of the shop, (2) Qualifications of the instructor, (3) Project construction, and (4) Instructional program. Every effort was made to make the questionnaire as compact and precise as possible to facilitate replying.

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[a]See questionnaire in Appendix A.

Both the student-teaching centers and non-student-teaching centers received the same questionnaire which was mailed the same day.

Population of the Study

The entire population of the twenty-two student-teaching centers during the 1965-66 school year were included as one group in the study. All other schools in Oklahoma having departments of vocational agriculture were stratified according to the five State Vocational Agricultural Districts. A second group of twenty-two schools were randomly selected from the districts in the same proportion as the number of student-teaching centers in each district.

As a result of the restriction of the study of student-teaching and an equal number of randomly selected centers, forty-four schools were used in this investigation.

Area Covered by the Study

Questionnaires were sent to teachers located in forty-four communities which represented thirty-two different counties out of the seventy-seven counties in the state. The map on page 17 shows the distribution of the counties which participated.[b]

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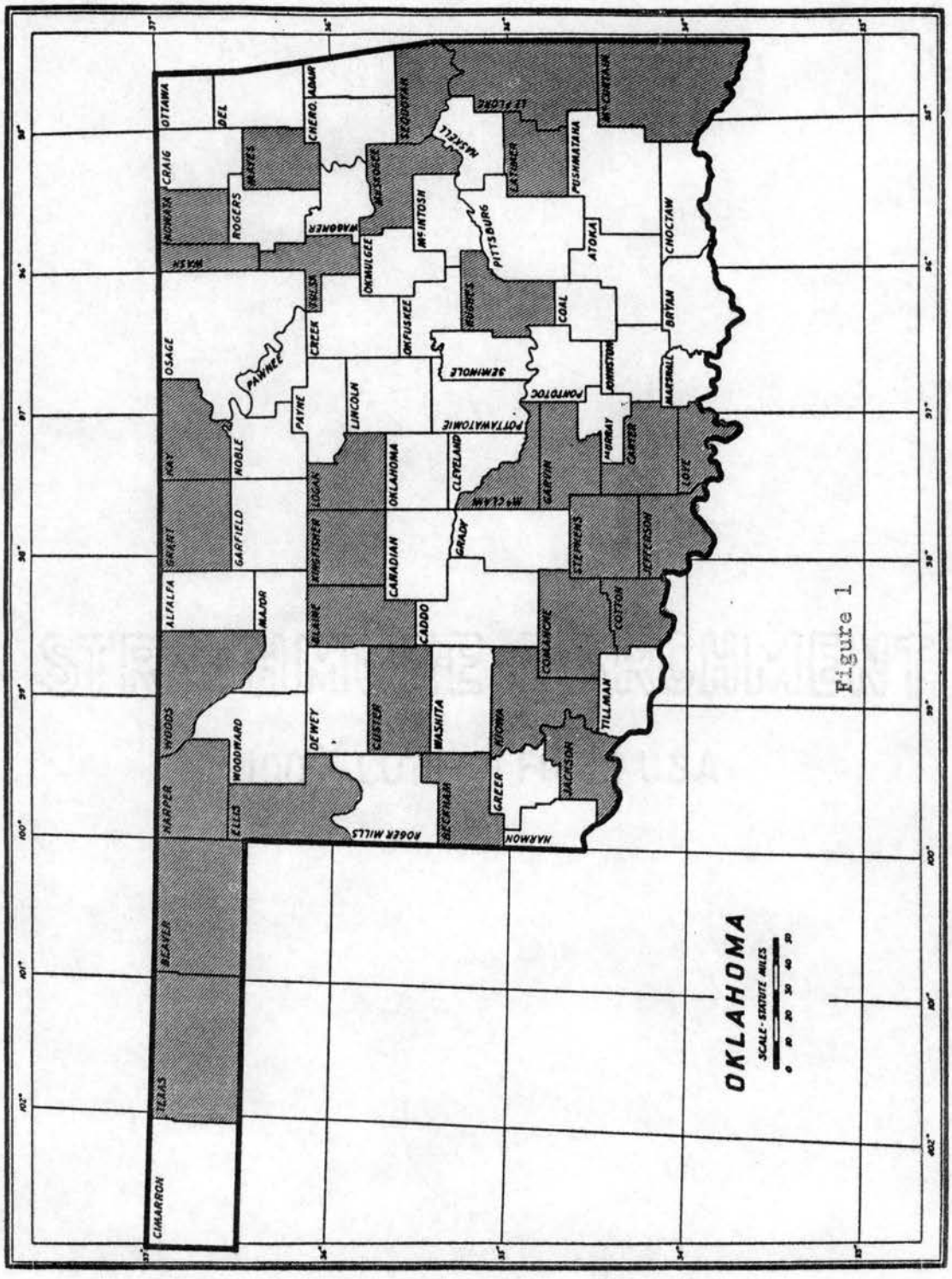
[b]Also see the list of the counties which participated in Appendix B.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WOODS
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NOBLE
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PAYNE
LINCOLN
CREEK
OKMULGEE
MUSKOGEE
MCINTOSH
SEQUOYAH
LE FLORE
WOODWARD
DEWEY
ELLIS
ROGER MILLS
BECKHAM
CUSTER
WASHITA
KINGFISHER
LOGAN
OKLAHOMA
CANADIAN
CADDO
GREER
KIOWA
HARMON
JACKSON
TILLMAN
COMANCHE
COTTON
GRADY
CLEVELAND
POTTAWATOMIE
SEMINOLE
OKFUSKEE
OKMULGEE
MUSKOGEE
MCCURTAIN
PUSHMATAHA
ATOKA
PITTSBURG
LATIMER
LEFLORE
CHOCTAW
BRYAN
MARSHALL
JOHNSTON
MURRAY
GARVIN
MCCLAIN
STEPHENS
JEFFERSON
CARTER
LOVE
CHEROKEE
ADAIR
DELAWARE
MAYES
ROGERS
MAGONER
CRAIG
NOWATA
OTTAWA

Figure 1

Methods of Collecting the Data

After the selection of the population, the questionnaires were mailed to each of the schools which had been chosen. To facilitate replying and for the added convenience of the respondents, a stamped, self-addressed envelope was enclosed with each questionnaire. A cover letter which had been endorsed by leaders from the Agricultural Education Department and the State Vocational Education Department was enclosed with each questionnaire.[c]

Within three days after the mailing, responses began to arrive; by the end of the third week after mailing, 59 percent of the questionnaires had been returned. With a reduction in replies, a second letter was constructed for mailing.[d] This letter was also enclosed with another questionnaire and a stamped, self-addressed envelope. Immediately responses began to arrive and within a short time after the second mailing, all of the questionnaires had been received for a 100 percent return.

Processing the Data

After the questionnaire had been received, code numbers were assigned the individual items. The numbers were recorded on I.B.M. sheets and punched on cards for processing. In addition to the processing, various statistical tests were performed to determine significance.

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[c]See cover letter in Appendix C.

[d]See second cover letter in Appendix D.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The following tables, analyses, and comments constitute a presentation of data secured in the course of this investigation. A total of forty-four vocational agriculture departments were included. These forty-four departments were composed of twenty-two student-teaching departments and an equal number of randomly selected departments which were chosen by a previously described method.

After information was secured through previously described procedures and techniques, the data were tabulated and analyzed by appropriate non-statistical and statistical techniques.

No attempt was made to determine any personal qualities or attitudes of the teacher. It was assumed for the purpose of this study that all the teachers possessed favorable attitudes and had the integrity necessary for their participation in this study.

Qualifications of the Instructor

By observing the primary hypotheses, one sees that it is expected that student-teaching centers have better qualified instructors. Table I verifies this assumption very vividly. As indicated in Table I, all teachers surveyed held at least a Bachelor of Science Degree and sixteen of these instructors held a Master of Science Degree. By

further analysis of this table, one can see that from the total of sixteen individuals holding the Master of Science Degree, ten of these were held by teachers in the student-teaching centers.

It would appear, therefore, that the attainment of additional education is definitely associated with teachers participating in the student-teaching program.

TABLE I

NUMBER OF VOCATIONAL AGRICULTURE TEACHERS BY TYPE OF CENTER AND KIND OF DEGREE

Type of Degree	Student-Teaching Center	Non-Student-Teaching Center
Bachelor of Science	12	16
Master of Science	10	6

Table II indicates the mean years of experience teaching vocational agriculture both by total years and years in the present system. It is interesting to note that teachers in the student-teaching centers have been teaching in the present system 10.8 years as compared to 9.5 years for teachers in the non-student-teaching centers. Teachers from the non-student-teaching centers held a slight advantage in total years teaching over teachers from student-teaching centers.

TABLE II

MEAN YEARS EXPERIENCE OF AGRICULTURE TEACHERS BY TOTAL YEARS AND YEARS IN PRESENT SYSTEM BY THE TYPE OF CENTERS

Type of Centers	In Present System	Total Years Teaching
Student-Teaching Centers	10.8	13.2
Non-Student-Teaching Centers	9.5	13.6

Facilities of the Shop

As can be concluded from the review of related literature, certain physical characteristics are necessary if maximum attainment is desired. It was hypothesized that student-teaching centers should have more adequately equipped facilities than non-student-teaching centers. The data in Table III supports this proposition. Each respondent evaluated the physical characteristics of his own facilities. Consequently, much variation probably existed in the standard of measure. Non-student-teaching centers had an equal chance of being rated as high as student-teaching centers.

One can observe that for each of the selected factors, student-teaching centers were more adequately equipped in every instance. It seems as though the greatest difference occurred between the presence of lockers and lighting of the facility. Twelve student-teaching centers reported an adequate number of lockers present as compared to only four non-student-teaching centers who reported adequate locker space. In respect to lighting, eighteen student-teaching centers reported adequate lighting while in contrast, only ten non-student-teaching centers considered their lighting adequate.

TABLE III

NUMBER OF VOCATIONAL AGRICULTURE DEPARTMENTS WITH ADEQUATE PHYSICAL CHARACTERISTICS BY TYPE OF CENTER

Characteristics	Student-Teaching Centers N = 22	Non-Student-Teaching Centers N = 22
Heating	19	14
Ventilated	13	6
Lighting	18	10
Storage Facilities	11	10
Toilet and Wash Room	16	9
Lockers Present	12	4
Wiring	22	16
First Aid Equipment	16	10
Fire Extinguishers	18	15

Very closely related to the physical characteristics listed in Table III is the size of the shop itself. As stated in the review of related literature (6), the size of any shop should be a minimum of 2400 square feet plus an additional 2400 square feet of adjoining patio space. An analysis of the data in Table IV shows approximately 20 percent of the schools with larger shops to have outside working space.

A further breakdown of Table IV reveals that in the small category, the size of the student-teaching center outside working space exceeds the non-student-teaching center size by a mere ten square feet. Both student-teaching centers and non-student-teaching centers show three schools which have no outside working space.

In analyzing the medium category, one sees that the outside facilities of the non-student-teaching centers exceed the outside facilities of the student-teaching centers by 36 square feet, 1350 and 1314 square feet respectively. In a breakdown of the large category, one notes that the student-teaching centers have a mean number of 2280 square feet of outside space as compared to 750 square feet for the non-student-teaching centers.

Slightly more student-teaching centers have outside space compared with non-student-teaching centers.

TABLE IV

NUMBER OF VOCATIONAL AGRICULTURE DEPARTMENTS BY TYPE OF CENTER WITH AND WITHOUT OUTSIDE SPACE AND SIZE OF INSIDE SHOP AREA

Inside Space[a]	Centers With Outside Space					
	Student-Teaching Centers N = 22			Non-Student-Teaching Centers N = 22		
	N	Number of Departments	Mean Square Feet	N	Number of Departments	Mean Square Feet
Small	7	4	1060	10	7	1050
Medium	8	7	1314	7	4	1350
Large	7	5	2280	5	4	750

[a]Small equals 800-1300 square feet.
Medium equals 1301-1900 square feet.
Large equals 1901-3200 square feet.

As stated in the hypothesis, the student-teaching centers should have a greater utilization of facilities than the non-student-teaching centers. Table V clearly shows that in all but four instances, the student-teaching centers indicated a higher amount of equipment use per week than the non-student-teaching centers. These were the electric table saw, drill press, pipe cutting equipment, and surveying equipment. Soldering equipment, the carbon-arc torch, and the power hack saw are the most commonly used items of equipment in the student-teaching centers. Based on this observation, one would expect a larger percentage of the time to be devoted to the teaching of skills.

A larger number of non-student-teaching centers indicated a very small or no amount of use per week on several items. This may indicate that non-student-teaching centers are not as adequately equipped as the student-teaching centers. This further strengthens the basic hypothesis of student-teaching centers having more adequately equipped facilities and a greater utilization of these facilities than non-student-teaching centers.

TABLE V

NUMBER OF VOCATIONAL AGRICULTURE DEPARTMENTS
INDICATING AMOUNT OF USE PER WEEK
BY TYPE OF CENTER

Items of Equipment	Student-Teaching Centers				Non-Student-Teaching Centers			
	Amount of Use Per Week Hours				Amount of Use Per Week Hours			
	5-10	3-5	1-3	0	5-10	3-5	1-3	0
Electric Arc Welder	2	6	14	0	2	7	10	2
Power Driven D-C Welder	2	2	0	18	0	2	0	20
Oxy-Acetylene Unit	9	6	6	1	3	9	6	4
Heliarc Equipment	3	0	0	19*	2	0	2	18*
Power Hacksaw	13	5	4	0	5	6	6	5
Forge	5	1	0	16*	3	0	1	18*
Lathe	1	0	0	21*	0	0	2	20*
Carbon-Arc Torch	10	3	0	9	8	1	1	12
Soldering Equipment	8	1	0	13*	6	1	1	14*
Stat. Elec. Grinders	9	6	4	3	4	7	5	6
Portable Grinder	5	2	6	9	3	1	10	8
Battery Charger	5	3	2	12*	4	7	4	7
Air Compressor	11	5	3	3	4	3	3	12
Electric Table Saw	2	3	0	17*	4	1	1	16*
Power Hand Saw	10	3	1	8	8	3	1	10
Electric Drills (½")	11	9	1	1	9	3	2	8
Electric Drills (¼")	8	4	2	8	6	4	1	11
Drill Press	2	7	2	11	8	9	0	5
Pipe Cut. & Thread.	2	5	1	14	7	2	1	12*
Screw Plate	10	0	0	12	1	5	1	15*
Anvils	2	2	4	14	1	9	1	11
Painting Equipment	5	2	1	14*	2	6	1	12*
Surveying Equipment	7	0	1	14*	8	2	0	12*

*Indicates the presence of items which were not used.

Instructional Program

From data presented in Table VI, there seems to be evidence that teachers from both student-teaching centers and non-student-teaching centers devote approximately the same amount of time to various selected teaching activities. One can see only a very small amount of variation existing between the two groups on any chosen activity. One can observe that 24.7 percent of the time is devoted to farm mechanics by student-teaching centers as compared to 24.6 percent of time devoted by non-student-teaching centers.

TABLE VI

MEAN PERCENT OF ANNUAL TIME SPENT IN TEACHING ACTIVITIES BY TYPE OF CENTER

Teaching Activities	Student-Teaching Centers Percent	Non-Student-Teaching Centers Percent
Vacation	3.2	3.4
Conferences	2.5	2.8
Supervision of Student's Program	17.9	18.4
Community Events	5.8	5.1
Fairs, Shows, and Contests	5.8	5.9
Other School Activities	3.6	4.0
Units on Animal Teaching	22.1	21.0
Units on Plant Teaching	14.4	14.8
Farm Mechanics	24.7	24.6

Table VII shows the mean number of credit hours received by teachers in the five areas of Agricultural Engineering. The teachers from student-teaching centers have a higher mean number of credit hours in all but one of the areas than do the teachers from the non-student-teaching centers. According to the table, it seems as though both groups have received more credit hours in farm shop skills than any other area. One can see the teachers from student-teaching centers have received a mean number of 4.3 credit hours of shop skills as compared to 5.8 credit hours for the non-student-teaching center teachers.

A vast difference exists in the hours taken in Farm Power and Machinery. Teachers from student-teaching centers have a mean number of 5.1 credit hours while teachers from non-student-teaching centers have only 1.5 credit hours. These numbers are significant at the .05 level.

In comparing the total mean number of credit hours in all five areas of Agricultural Engineering, one can see the teachers from student-teaching centers have received a total of 17.1 hours as compared to 13.3 credit hours by the comparable group. This gives added strength to the hypothesis that the teachers from the student-teaching centers should be better qualified to teach agriculture mechanics than teachers from non-student-teaching centers.

TABLE VII

MEAN NUMBER OF CREDIT HOURS RECEIVED BY VOCATIONAL AGRICULTURE TEACHERS IN VARIOUS AREAS OF AGRICULTURAL ENGINEERING BY TYPE OF CENTER

Areas	Student-Teaching Centers N = 22	Non-Student-Teaching Centers N = 22	Difference
Farm Shop Skills	4.3	5.8	-1.5
Farm Power and Machinery	5.1	1.5	3.6*
Farm Buildings and Construction	1.7	1.1	0.6
Farm Electrification	2.0	1.4	0.6
Soil and Water Management	4.0	3.5	0.5
Total	17.1	13.3	

*Significant at the .05 level by the t-test.

As stated in Corollary A, the more credit hours taken by the instructor in the five areas of Agricultural Engineering, the more teaching time will be devoted to those areas. Table VIII shows that the highest percentage of teaching time is devoted to the teaching of shop skills in both groups. Student-teaching centers report 61.4 percent as compared to 53.2 percent by non-student-teaching centers in the teaching of shop skills. By referring to Table VIII, one sees the area of highest concentration of teaching was shop skills. The teacher received more semester credit hours in this area than any of the other four areas of Agricultural Engineering.

TABLE VIII

MEAN PERCENT OF TOTAL TEACHING TIME DEVOTED TO THE VARIOUS AREAS OF AGRICULTURE MECHANICS BY THE TYPE OF CENTER

Areas	Student-Teaching Centers	Non-Student-Teaching Centers
Farm Shop Skills	61.4	53.2
Farm Machinery Repair	10.2	15.8
Farm Buildings and Construction	7.6	14.1
Farm Electrification	9.9	9.0
Soil and Water Management	10.9	7.9

Project Construction

Data in Table IX reveal no significant differences exist between the student-teaching centers and non-student-teaching centers in farm skills or construction projects. Both groups constructed approximately the same number of projects with the costs being very comparable.

No manure loaders or hay loaders were constructed. More hog feeders, gates, and cattle feeders were constructed than any other single project. The costs of these three projects have a range of $1.46 to a high of $16.14. The student-teaching centers have a higher cost on each of these projects than the non-student-teaching centers. This variation may be due to materials, quality, or a host of other factors.

By referring to Corollary B, one sees that the number of projects constructed will reflect the percent of agriculture mechanics teaching time spent in each of the five areas of Agricultural Engineering. From Table VIII, we concluded that both student-teaching centers and non-student-teaching centers devoted more time to the teaching of skills than any other area; therefore, more projects should be constructed in the farm shop area. A look at Tables X, XI, XII, and XIII will indicate this to be the case.

TABLE IX

MEAN NUMBER AND COST OF FARM SKILL PROJECTS
BY TYPE OF CENTER

Farm Skills or Construction Projects	Student-Teaching Centers N = 22		Non-Student-Teaching Centers N = 22	
	Mean Number of Projects	Avg. Cost Per Project	Mean Number of Projects	Avg. Cost Per Project
Loading Chutes	1.7	$13.26	1.0	$10.45
Gates	12.8	6.31	9.2	5.21
Hog Feeders	14.8	5.34	12.0	1.46
Cattle Feeders	8.3	16.14	8.6	13.18
Headgates	1.8	14.32	1.6	9.90
Outdoor Bar-B-Q	3.0	2.63	1.8	1.81
Cattle Guard	0.9	1.34	1.0	3.19
Trailer	1.1	12.60	1.0	39.95
Post Hole Digger	0.8	2.27	0.9	6.00
Manure Loader	0.0	0.00	0.0	0.00
Hay Loader	0.0	0.00	0.0	0.00
Fuel Oil Rack	0.5	.50	0.0	0.00
Weed Sprayer	0.7	.70	0.7	.95
Barn Floor Scraper	0.8	.82	0.7	.71
Clothesline Posts	4.1	1.83	3.9	1.39
Stockracks	2.3	20.33	2.6	18.78
Machinery Trailer	0.8	1.77	0.7	1.02
Squeeze Chute	1.0	28.00	1.2	10.00
Utility Carrier	0.8	2.64	0.0	0.00

Data in Table X reveal a small number of projects have been undertaken in the Farm Machinery and Repair area. The most commonly undertaken in the student-teaching centers are the adjustment of small gas engines, adjustment of machines, and repair of tractors. The three major projects undertaken in non-student-teaching centers are the adjustment of small gas engines, repair of tractors, and repair of trucks.

The student-teaching centers adjusted significantly more small gas engines and machines at the .05 level than non-student-teaching centers.

The limited number of undertakings confirms the responses of the teachers in Table VIII that considerably less time is devoted to the teaching of Farm Machinery and Repair.

TABLE X

MEAN NUMBER AND COST OF FARM MACHINERY AND REPAIR PROJECTS BY TYPE OF CENTER

Farm Machinery Repair	Student-Teaching Centers N = 22		Non-Student-Teaching Centers N = 22	
	Mean Number of Projects	Avg. Cost Per Project	Mean Number of Projects	Avg. Cost Per Project
Repair of Truck	0.9	$1.28	1.0	$1.21
Repair of Harvesting Equipment	0.3	.26	0.1	.18
Repair of Tractor	2.4	2.83	1.5	1.64
Adjustment of Small Gas Engines	8.8	5.31	3.7	3.63
Adjustment of Machines	4.0	1.45	0.4	.91

Table XI indicates there is little difference between the student-teaching centers and the non-student-teaching centers in the area of Farm Buildings and Construction. Both the number and cost of the projects are very comparable for both groups. Significant differences did exist at the .05 level for the area of structure repair.

Data in Table XI reflect the small amount of time being devoted to the teaching of Farm Buildings and Construction.

TABLE XI

MEAN NUMBER AND COST OF FARM BUILDING AND CONSTRUCTION PROJECTS BY TYPE OF CENTER

Farm Buildings and Construction	Student-Teaching Centers N = 22		Non-Student-Teaching Centers N = 22	
	Mean Number of Projects	Avg. Cost Per Project	Mean Number of Projects	Avg. Cost Per Project
Cutting Common Rafters	1.0	$ .80	1.2	$1.26
Structure Repair	1.1	.90	0.7	1.12
Construction of Farm Buildings	1.2	1.32	0.9	1.60
Installing Plumbing Fixtures	1.2	1.30	0.9	1.01
Upkeep and Repair of Pumps	0.9	.92	0.8	1.00

Data in Table XII reveal a very small number of projects have been undertaken in the area of Farm Electrification. Table XII indicates the three most common undertakings in the student-teaching centers are splicing wires, safety precautions, and the replacement of fuses. Non-student-teaching centers indicate the three most common projects are soldering, splicing wires, and the cleaning, lubricating, and maintaining of electric motors.

By a closer examination of this table, one sees a difference between the student-teaching centers and the non-student-teaching centers in each of the number of projects listed. Each of these differences was significant at the .05 level.

An analysis of the differences of cost between the student-teaching centers and non-student-teaching centers failed to indicate any significant difference.

TABLE XII

MEAN NUMBER AND COST OF FARM ELECTRIFICATION PROJECTS BY TYPE OF CENTER

Farm Electrification	Student-Teaching Centers N = 22		Non-Student-Teaching Centers N = 22	
	Mean Number of Projects	Avg. Cost Per Project	Mean Number of Projects	Avg. Cost Per Project
Basic Principles	1.5	$ .98	0.8	$.78
Soldering	2.3	.75	1.0	.81
Replacing Fuses	2.5	.76	0.9	.78
Repair of Electrical Cords	2.3	.75	0.8	.74
Splicing Wires	2.8	.71	1.0	.75
Reading Meters	2.4	.71	0.7	.71
Safety Precautions	2.5	.73	0.7	.70
Simple Electrical Wiring	2.2	1.16	0.7	.71
Basic Principles of Electric Motors	1.5	.73	0.9	.73
Cleaning, Lubricating, and Maintaining Electric Motors	2.1	.71	1.0	.83

Table XIII indicates there is little difference between the student-teaching centers and non-student-teaching centers in the area of Soil and Water Management. Both the number and cost of the projects are very comparable for both groups. Significant differences did exist at the .05 level for the area of the construction of terrace lines.

Table XIII confirms the responses of the teachers in Table VIII that considerably less time is devoted to the teaching of Soil and Water Management.

TABLE XIII

MEAN NUMBER AND COST OF SOIL AND WATER MANAGEMENT PROJECTS BY TYPE OF CENTER

Soil and Water Management	Student-Teaching Centers N = 22		Non-Student-Teaching Centers N = 22	
	Mean Number of Projects	Avg. Cost Per Project	Mean Number of Projects	Avg. Cost Per Project
Terrace Lines	2.0	$ .73	0.9	$1.12
Drainage Ditches	1.1	1.05	0.9	1.02
Irrigation	0.8	.85	0.9	.73
Profile Lines	1.2	.71	0.8	.71
Pond Layouts	1.0	.71	0.7	.71

CHAPTER V

SUMMARY AND CONCLUSIONS

Purpose of the Study

The stated purpose of this study is to determine if the agriculture mechanics program, the educational preparation of the instructor, and the facilities of the shops of the student-teaching centers are superior to a random sample of all other departments in the state for providing a high level of participating experiences for prospective teachers of vocational agriculture.

Methods and Procedures

For the study of the above selected characteristics, a questionnaire including four areas of farm mechanics which may affect the program was constructed.

After the questionnaire was approved by both the Oklahoma State University Department of Agricultural Education and the State Department of Vocational Education, it was sent to the previously selected sample for their responses.

Following a brief section concerning the personal aspects of the instructor, the questionnaire was divided into four sections. These were as follows: (1) Facilities of the shop, (2) Qualifications of the instructor, (3) Project construction, and (4) Instructional program.

The entire population of the twenty-two student-teaching centers during the 1965-66 school year were included as one group in the study. All other schools in Oklahoma having departments of vocational agriculture were stratified according to the five State Vocational Agriculture Districts. A second group of twenty-two schools were randomly selected from the districts in the same proportion as the number of student-teaching centers in each district.

Hypotheses Tested

1. The student-teaching centers should have better qualified instructors, more adequately equipped facilities, and greater utilization of facilities than the non-student-teaching centers.

Corollary A.

The more credit hours taken by the instructor in the five areas of Agricultural Engineering, the more teaching time will be spent in those areas.

Corollary B.

The number of projects constructed will reflect the percent of Agriculture Mechanics teaching time spent in each of the five areas of Agricultural Engineering.

Conclusions

Based upon an analysis of data presented in this study, certain conclusions can be suggested as to the differences which could be expected in the characteristics of student-teaching centers and a group of randomly selected non-student-teaching centers. The following is presented as a summary of certain of these conclusions.

1. As indicated in the comparison, more teachers from the student-teaching centers held higher degrees than teachers from the non-student-teaching centers. Teachers from student-teaching centers held ten Master of Science degrees whereas only six were held by teachers from non-student-teaching centers.
2. It can be concluded that teachers from student-teaching centers have been teaching in the present system a longer period of time; however, teachers from non-student-teaching centers held a slight advantage on teachers from student-teaching centers in the total years of teaching.
3. There is an indication that one could expect more student-teaching centers to have adequate facilities than non-student-teaching centers. In a group of selected characteristics, more student-teaching centers reported adequate facilities than non-student-teaching centers in all instances.
4. It can be concluded that as a whole, student-teaching centers have larger shops than non-student-teaching centers. Also more student-teaching centers have outside working space available than do non-student-teaching centers.
5. It can be concluded that the student-teaching centers have more adequately equipped shops and in the majority of cases, utilize the available equipment more than do the non-student-teaching centers.
6. Practically no differences were found when comparing the two groups by percent of time spent in various teaching activities. One can conclude that the two groups devote approximately the same amount of time to various selected teaching activities.

7. As indicated in the comparison of the number of credit hours received in various areas of Agricultural Engineering by the two types of centers, one concludes a difference does exist in the total number of credit hours. It was shown that teachers from non-student-teaching centers had received 5.8 credit hours in the area of farm skills as compared to 4.3 credit hours for the teachers from student-teaching centers; but teachers from student-teaching centers had received 17.1 total credit hours as compared to 13.3 total credit hours for teachers from non-student-teaching centers. It can also be concluded that more credit hours have been in the area of farm skills than in any of the other four areas. This finding gives support to the hypothesis that teachers from student-teaching centers should be better qualified in the teaching of Agriculture Mechanics.
8. It can be concluded that teachers from both groups devote more time to the teaching of farm skills than all of the other areas combines. This supports the Corollary A hypothesis which states that more credit hours taken by the instructor in each of the five areas, the more teaching time will be spent in those areas.
9. As indicated in the comparison, practically no differences were found when comparing the two groups by the number and cost of Farm Skill and Construction Projects. Both groups constructed approximately the same number of projects with the costs being very comparable. As has previously been concluded, both groups of teachers have received more hours of credit in the area of farm skills than in the other areas;

therefore, one would expect to find that more projects are constructed in this area than in the other four areas. This did occur supporting Corollary B.

10. It can be concluded that a small amount of time is devoted to the teaching of Farm Machinery Repair which confirms the conclusions drawn previously.

11. Very little difference exists between the student-teaching centers and non-student-teaching centers in the area of Farm Buildings and Construction. This conclusion reflects the small amount of time being spent in the teaching of Farm Buildings and Construction by both student-teaching centers and non-student-teaching centers.

12. As indicated in the comparison, more projects were undertaken in the area of Farm Electrification by student-teaching centers than by non-student-teaching centers. The small number of projects undertaken by both groups is a direct correlation of the small amount of teaching time devoted to this area.

13. Practically no difference was found when comparing the two groups in the area of Soil and Water Management. Here again, the number of undertakings are small, and when compared to the teaching time in this area, direct support is again given to Corollary B.

Recommendations

The author felt that sufficient information had been derived from this study to make useful recommendations. In summary are the following recommendations.

1. Many departments had characteristics which were not adequate. These faulty characteristics should be closely observed and steps taken to alleviate them.
2. The majority of the building facilities are far below that size recommended as cited in the literature. It is recommended that the facilities be improved, if feasible, and certainly future buildings be constructed according to recommendations.
3. Many centers reported a very low use of existing equipment. It is recommended that steps be taken to increase the use of presently available equipment and continue to increase the amount of equipment in the future.
4. In an effort to balance the present program of agriculture mechanics, it is recommended that more equal time be devoted to all areas.

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APPENDIX A

QUESTIONNAIRE REGARDING SELECTED AREAS OF AGRICULTURE MECHANICS INSTRUCTION IN VARIOUS OKLAHOMA DEPARTMENTS OF VOCATIONAL AGRICULTURE

Date_____School_____

Instructor_____

Return to:
Rex E. Starr
311 Parker Hall
Stillwater, Okla.

Years experience teaching vocational agriculture_____

Years teaching vocational agriculture at present school_____

Total high school enrollment in grades 10 through 12_____

Total enrollment in vocational agriculture_____

Do you combine any of your classes when teaching agriculture mechanics, either in the classroom or shop? Yes No Which ones?_____

Circle number of years and type of course offered:

Agriculture Mechanics: I II

Agriculture Occupations: I II

Traditional Agriculture: I II III IV

I. Facilities of the Shop

Number of square feet in the shop_____Length_____Width_____

Do you have outside working spaces? Yes No Square Feet_____

Is your building adequately heated for all weather? Yes No

Is the ventilation adequate in your shop? Yes No

Does your building have adequate lighting? Yes No

Are storage facilities available and adequate? Yes No

Does your shop contain a wash room and toilet facilities? Yes No

Are lockers adequately present for student use? Yes No

Is the electrical wiring adequate for the work load? Yes No

Is first aid equipment available and readily accessible? Yes No

Are fire extinguishers available and easily reached? Yes No

Please check the equipment with which your shop is presently equipped and give the number available for use. Also check the appropriate column which denotes the approximate amount of use per week.

	Yes	No	Total Number	No. of Items Purchased by Matching Voc. Funds	Amount of Use (hrs.) 5-10	3-5	1-3	0
Electric Arc Welder								
Power Driven D-C Welder								
Oxy-Acetylene Unit								
Gas Weld. Apparatus								
Cutting Attachments								
Heliarc Weld. Equip.								
Power Hack Saw								
Forge								
Lathe								
Carbon-Arc Torch								
Soldering Equipment								
Stat. Elec. Grinders								
Port. Elec. Grinders								
Battery Charger								
Air Compressor								
Elec. Table Saw								
Power Hand Saw								
Electric Drills ($\frac{1}{2}$")								
Electric Drills ($\frac{1}{4}$")								
Drill Press								
Pipe Cut. & Thread Equip.								
Screw Plate								
Anvils								
Painting Equip.								
Surveying Equip.								
Other (s)								

II. Qualifications of the Instructor

Date of obtaining B.S._____

Date of obtaining M.S. (If applicable)_____

Other graduate work (If applicable)_____

Field of study_____

Number of hours credit beyond M.S._____

Number of undergraduate hours credit in farm mechanics_____

Number of graduate hours credit in farm mechanics_____

Number of semester hours in:

Farm Shop Skills . . . . . _____

Farm Power & Machinery . . . . . _____

Farm Buildings & Conveniences. . . . . _____

Farm Electrification , ... _____

Soil & Water Management. . . . . _____

III. Project Construction

Please answer table in terms of number of projects and approximate average cost of each project.

A. Farm Skills or Construction

	Approximate Average Cost of Project	Number of Projects
Loading Chutes		
Gates		
Hog Feeders		
Cattle Feeders		
Headgates		
Outdoor Bar-B-Q		
Cattle Guard		
Trailer		
Post Hole Digger		
Manure Loader		
Hay Loader		
Fuel Oil Rack		
Weed Sprayer		
Barn Floor Scraper		
Clothesline Posts		
Stockracks		
Machinery Trailer		
Squeeze Chute		
Utility Carrier		
Other (s)		

B. Farm Machinery Repair

	Approximate Average Cost of Project	Number of Projects
Repair of Truck		
Repair of Harvest. Equip.		
Repair of Tractor		
Adj. Small Gas Engines		
Adjustment of Mach.		
Other		

C. Farm Buildings & Constrution

Cutting Common Rafters		
Structure Repair		
Construct. Farm Buildings		
Install Plumb. Fixtures		
Upkeep & Repair of Pumps		
Other		

D. Farm Electrification

Basic Principles		
Soldering		
Replacing Fuses		
Repair Elec. Cords		
Splicing Wires		
Reading Meters		
Safety Precautions		
Simple Elec. Wiring		
Basic Prin. of Elec. Motors		
Clean, Lub., & Maintaining Elec. Motors		
Other		

E. Soil & Water Management

Terrace Lines		
Drainage Ditches		
Irrigation		
Profile Lines		
Pond Layouts		
Other		

Please list the 3 most commonly constructed projects which are built in your shop.

1)_____ 2)_____ 3)_____

IV. Program

Please indicate the percent of annual teacher time spent in the following activities.

Vacation. . . . . _____%

Conferences . . . . . _____%

Supervision of Student's Program. . . _____%

Community Events. . . . . _____%

Fairs, Shows, & Contests. . . . . _____%

Other School Activities . . . . . _____%

Units on Animal Teaching. . . . . _____%

Units on Plant Teaching . . . . . _____%

Farm Mechanics. . . . . _____%

Other . . . . . _____%

Total 100%

Of the _____% devoted to the teaching of farm mechanics, please indicate what percent of the above is devoted to each of the five divisions.

A. Farm Skills (Shop). . . . . _____%

B. Farm Machinery Repair . . . . . _____%

C. Farm Building & Construction. . . _____%

D. Farm Electrification. . . . . _____%

E. Soil & Water Management . . . . . _____%

Total Farm Mechanics Percentage

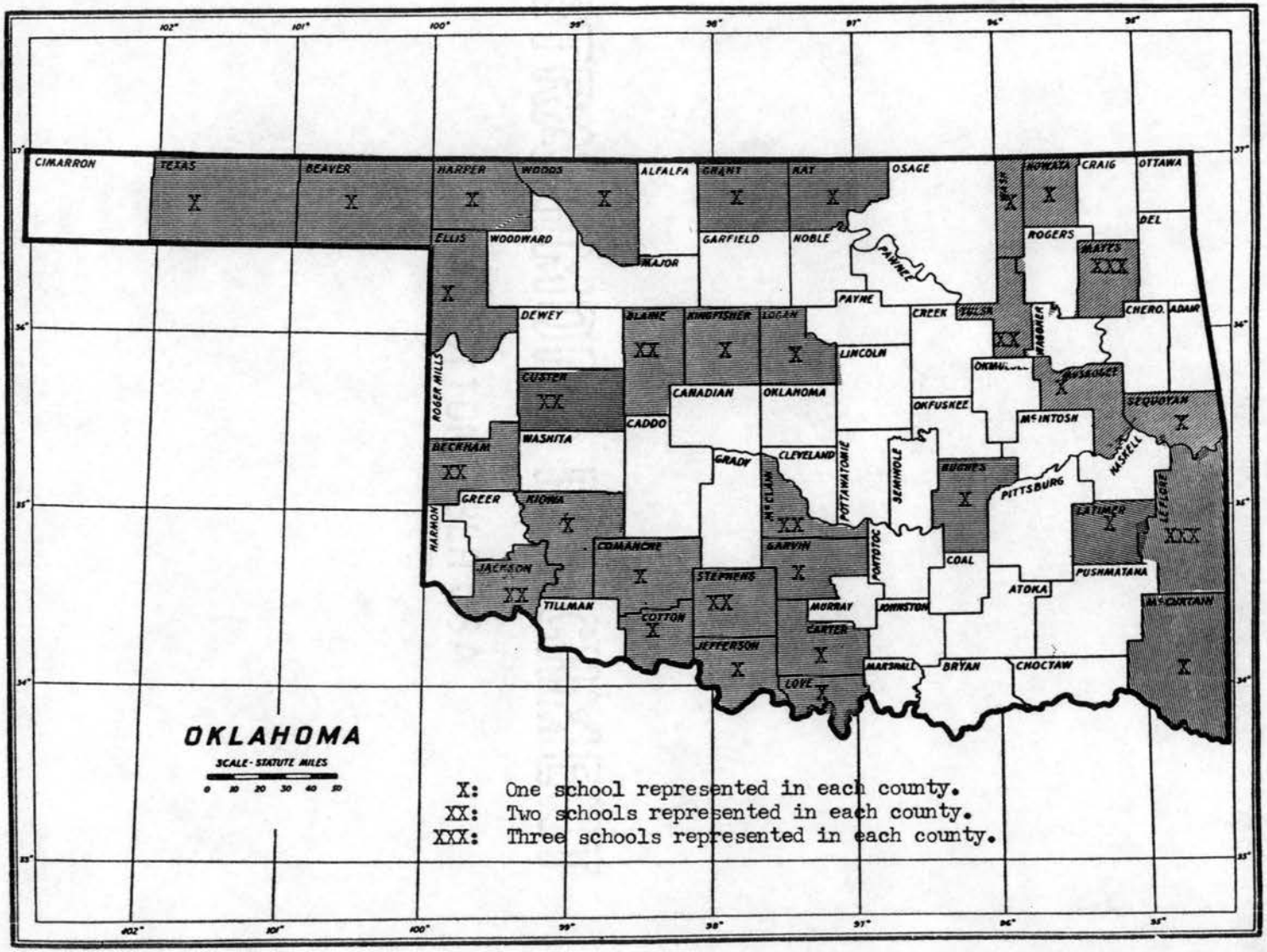
APPENDIX B

TEACHERS WHO COOPERATED IN THE STUDY ACCORDING TO COUNTY, CENTER, AND ORDER OF RESPONSE

	School	County	Supervising Teacher
*1.	Ramona	Washington	W. A. Cavin
*2.	Altus	Jackson	Kent Metcalf
*3.	Marlow	Stephens	Ernest H. Muncrief
*4.	Erick	Beckham	Dean Reeder
5.	Eldorado	Jackson	C. G. McMindes
6.	Vian	Sequoyah	Rommie LeFlore
*7.	Adair	Mayes	James Boston
8.	Locust Grove	Mayes	W. A. Hesser
*9.	Shattuck	Ellis	W. E. Bradley
*10.	Muskogee	Muskogee	Wendell Fenton
11.	Lenapah	Nowata	Billy R. Kimbrell
12.	Buffalo	Harper	Jess Waits
13.	Waynoka	Woods	Jack Robinson
*15.	Ponca City	Kay	Gene DeWitt
16.	Elgin	Comanche	John D. Jones
17.	Okeene	Blaine	W. D. Sumner
*18.	Lindsay	Garvin	Royce Foley
19.	Hennessey	Kingfisher	Clifton Brake
*20.	Pond Creek	Grant	Keith Hoar
*21.	Owasso	Tulsa	Charles R. Boyd
*22.	Sayre	Beckham	Henry Heise
23.	Temple	Cotton	Douglas Morris
*24.	Custer City	Custer	Verlin Hart

25.	Haworth	McCurtain	Haskell Pate
26.	Bokoshe	LeFlore	Clay Collins
27.	Coyle	Logan	Bennie Barnes
28.	Ringling	Jefferson	R. E. Smith
*29.	Watonga	Blaine	Joe J. Legako
*30.	Stuart	Hughes	Harvey Clagg
*31.	Broken Arrow	Tulsa	Bob R. McKay
32.	Pryor	Mayes	W. H. Brandley
*33.	Duncan	Stephens	Delbert Morrison
*34.	Washington	McClain	Clyde L. Ward
35.	Marietta	Love	Max Beasley
*36.	Roosevelt	Kiowa	Dale Bynum
*37.	Spiro	LeFlore	Joe Ross and Lillard Brown
38.	Talihina (Buffalo Valley)	Latimer	LeRoy Curtis
39.	Wilson	Carter	Jim Guess
40.	Arapaho	Custer	Garland Howell
*41.	Beaver	Beaver	James Simpson
42.	Wayne	McClain	Floyd R. Jacobs
*43.	Howe	LeFlore	Ross B. Stivers
44.	Hooker	Texas	Jimmie R. Gatz

*Student-teaching centers.


CIMARRON
TEXAS
BEAVER
HARPER
WOODS
ALFALFA
GRANT
KAY
OSAGE
NOWATA
CRAIG
OTTAWA
ELLIS
WOODWARD
MAJOR
GARFIELD
NOBLE
PAWNEE
ROGERS
MAYES
DEL
PAYNE
CREEK
TULSA
WAGONER
CHERO.
ADAIR
DEWEY
BLAINE
KINGFISHER
LOGAN
LINCOLN
ROGER MILLS
CUSTER
CANADIAN
OKLAHOMA
OKFUSKEE
MUSKOGEE
SEQUOYAH
CADDO
McINTOSH
BECKHAM
WASHITA
GRADY
CLEVELAND
POTTAWATOMIE
SEMINOLE
HUGHES
PITTSBURG
HASKELL
LATIMER
LEFLORE
GREER
KIOWA
MCCLAIN
GARVIN
PONTOTOC
COAL
PUSHMATAHA
HARMON
JACKSON
COMANCHE
STEPHENS
TILLMAN
COTTON
MURRAY
JOHNSTON
ATOKA
MCCURTAIN
CARTER
JEFFERSON
MARSHALL
BRYAN
CHOCTAW
LOVE
OKLAHOMA
SCALE - STATUTE MILES
0 10 20 30 40 50
X: One school represented in each county.
XX: Two schools represented in each county.
XXX: Three schools represented in each county.

APPENDIX C

OKLAHOMA STATE UNIVERSITY • STILLWATER

Department of Agricultural Education 74074
FRontier 2-6211, Ext. 444

February 11, 1966

Dear Vocational Agriculture Teacher:

Enclosed you will find a questionnaire concerning various selected areas of agricultural mechanics instruction.

From this questionnaire I hope to be able to compile data and draw some conclusions regarding the method of selecting student-teaching centers.

While planning this master of science study, I have worked with the Department of Agricultural Education at the University as well as the State Department of Vocational Education. Both departments have passed full approval on my study and feel valuable information can be obtained from it.

Would you please complete the form and return it to me at the earliest possible date? Feel free in responding, all information will be kept strictly confidential.

In view of your crowded schedule, every effort has been made to make this as compact and precise as possible. Please find enclosed a stamped, self-addressed envelope to facilitate your replying.

Thank you for your time and cooperation in assisting with this undertaking.

Sincerely,

Rex E. Starr

Rex Earl Starr
311 Parker Hall
Stillwater, Oklahoma

ENDORSEMENT:

Robert R Price

Robert R. Price
Professor and Head
Agricultural Education Dept.

Olen Joyner

Olen Joyner
Farm Mechanics Specialist
State Department of Vocational Educ.

APPENDIX D

311 Parker Hall
Oklahoma State University
Stillwater, Oklahoma
February 23, 1966

Dear Mr.

Recently you were mailed a questionnaire which dealt with the Farm Mechanics aspect of your teaching program. No doubt that your full schedule has kept you from returning the questionnaire.

It is my utmost desire to include your response in my final analysis. To facilitate your reply, I am enclosing another questionnaire and also another self-addressed, stamped envelope.

Please keep in mind that your responses will be kept in strict confidence and that they are essential for the completion of this study.

If you have returned the questionnaire prior to receiving this letter, please disregard this note.

Sincerely,

Rex Earl Starr

Rex Earl Starr

Enclosures

VITA

Rex Earl Starr

Candidate for the Degree of

Master of Science

Thesis: A QUALITATIVE COMPARISON OF SELECTED FACTORS IN AGRICULTURE MECHANICS BETWEEN STUDENT-TEACHING CENTERS AND OTHER OKLAHOMA DEPARTMENTS OF VOCATIONAL AGRICULTURE

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Muskogee, Oklahoma, January 30, 1944, the son of George Rex and Eunice Starr.

Education: Attended Zion Grade School of rural Stilwell and Stilwell High School, Stilwell, Oklahoma; graduated from Stilwell High School in May, 1961; received the Bachelor of Science Degree from the Oklahoma State University, Stillwater, Oklahoma, in May, 1965, with a major in Agricultural Education; engaged in post graduate study toward the Degree of Master of Science at the Oklahoma State University, Stillwater, Oklahoma, from September, 1965, to August, 1966.

Professional Experience: Employed as student counselor in residence hall during the school year of 1963-64; employed in the Beef Department of Wilson and Company, Inc., Oklahoma City, Oklahoma, during the summers of 1963, 1964, and 1965; employed as Graduate Assistant in the Department of Agricultural Engineering, Oklahoma State University, Stillwater, Oklahoma, from September, 1965, to May, 1966; served with the United States Naval Reserve from November, 1962, until June, 1966; received appointment for a Direct Commission in the Medical Service Corp of the United States Army; accepted the commission in June, 1966, with concurrent active duty.

Organizations: Member of the Collegiate F.F.A., Alpha Tau Alpha, International Relations Council, and Ninth Avenue Christian Church, Stillwater, Oklahoma.