

OBSERVED DIFFERENCES IN SELECTED CHARACTERISTICS BETWEEN  
DEPARTMENTS SERVING AS APPRENTICE TEACHING CENTERS AND  
OTHER DEPARTMENTS OF VOCATIONAL AGRICULTURE

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## CHAPTER I

### PURPOSE AND DESIGN OF THE STUDY

#### Introduction

A program for the successful development of prospective teachers of vocational agriculture embraces more than an introduction to educational theories and methods, and principles and practices of technical agriculture as may be presented through experiences on the college or university campus. Since the very beginnings of vocational agriculture, teacher trainers, educators and supervisors have been aware of this truth. It has generally been realized that the additional training needed can best come about through a program of apprentice teaching. In this manner the student is provided opportunity for practical, first hand participating experiences in teaching by spending a period of time in a department of vocational agriculture under the supervision of a successful local teacher.

Apprentice teaching is one of the most important phases of training for the prospective teacher. He has the right to expect the very best in sound, practical and diversified experiences during this period of time. Especially as a first-year teacher, he will draw most heavily upon these experiences. The department where he gains such participating experiences will serve as a pattern for him to follow as he develops a program for the school and community in which he is

serving. It is essential, therefore, that great care be taken in selecting the departments to be used as apprentice teaching centers.

#### Statement of the Problem

For the 1959-60 school year, thirty-two vocational agriculture departments in Oklahoma were approved as apprentice teaching centers by the Agricultural Education Department of Oklahoma State University. The selections were determined as a result of conferences with the district supervisors of vocational agriculture and by observational visits with a careful review of local programs by staff members. Only those schools where the teacher was serving in at least his third year in the department and in at least his fourth year as a teacher of vocational agriculture were considered.

The central problem in this study was to determine what differences may exist in the extent, quality, and diversity of programs of vocational agriculture between the selected, approved training centers and a stratified random sample of other vocational agriculture departments of the state.

#### Definition of Terms

Group One and Group Two. In order to compare the two groups of training centers involved in this study, data were presented under the headings of Group One and Group Two. Group One represents the departments which were approved as apprentice teaching centers. Group Two represents the departments which were selected by random sampling.

### Purpose of the Study

The primary purpose of this study was to determine if the vocational agriculture departments approved as apprentice teaching centers in Oklahoma for the 1959-60 school year have characteristics that make them superior to a random sampling of other departments in the state for training prospective teachers of vocational agriculture.

### Limitations of the Study

The study was limited to the thirty-two departments of vocational agriculture approved as apprentice teaching centers during the 1959-60 school year, and to a second group consisting of an equal number of randomly selected departments which were not approved.

The selection of the second group was made by a simple random sampling by districts. The same number of departments was selected in the sampling as there were approved departments from that district. Samplings in both groups were limited to schools where the vocational agriculture teacher was in at least his third year in that department, and in at least his fourth year of teaching vocational agriculture.

The study was concerned only with that information about the instructors, physical facilities, and programs which was considered important in determining the extent, quality, and diversity of training an apprentice teacher could be expected to receive in these departments.

All the data presented relative to the programs of vocational agriculture were limited to the 1958-59 school year unless otherwise indicated.

## Methods of Procedure

In making this study, the first step was to secure a list of the thirty-two departments approved as apprentice teaching centers from each of the five vocational agriculture districts in Oklahoma. It was found that four of these were from the Central district and seven from each of the other four districts.

From the remaining departments in each district a list was compiled of all the schools in which the vocational agriculture teacher was in at least his third year in that department, and in at least his fourth year of teaching vocational agriculture. From each list, a random sample was drawn equal to the number of approved departments from that district.

A review of literature available pertaining to apprentice teaching was made and from the information obtained a questionnaire was formulated and mailed to each of the departments being studied. In addition to data secured by this method, certain other information was secured from files in the Agricultural Education Department, the office of the Dean of Agriculture at Oklahoma State University, and the State Department of Vocational Agriculture.

The data secured were divided into three categories as follows: (1) that pertaining to the instructors; (2) that pertaining to the physical plants; and (3) that pertaining to the programs of vocational agriculture.

In order to make a comparison of the two groups of departments, they were designated as Group One and Group Two. Tables were constructed accordingly and the data were tabulated, analyzed, and

conclusions drawn.

### Developing Scoring Instruments

Scoring instruments were developed by the author in an effort to more clearly present certain detailed information relative to the farm mechanics facilities and equipment, the classrooms, and the extent of personal engagement in farming by the instructors. The first two were based solely on the opinions of the writer. The one used to determine the extent of personal engagement in farming is an adaptation of a scorecard suggested by the Agricultural Education Department.<sup>1</sup>

Differences of opinion may justifiably exist as to the number of points which should be allowed for each characteristic considered in these instruments. However, it is felt that they are accurate enough to prove helpful in presenting a comparison between the two groups.

Copies of these three instruments follow:

#### INSTRUMENT FOR EVALUATING CHARACTERISTICS OF FARM MECHANICS FACILITIES AND EQUIPMENT

		Maximum Score Allowed
1. Size of Shop		
Each 100 Square Feet	2	40
2. Pieces of Major Equipment		
Each One Reported	5	<u>60</u>
	Total	100

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<sup>1</sup>Productive Man Work Units for the United States, Agricultural Education Department, mimeographed material (Oklahoma State University, 1951), pp. 1, 2.

INSTRUMENT FOR EVALUATING CHARACTERISTICS OF THE  
VOCATIONAL AGRICULTURE CLASSROOMS

		Maximum Score Allowed
1. Size of Classroom Each 100 Square Feet	5	30
2. Separate Office		5
3. Running Water in Classroom		3
4. Blackboard Space Each 5 Running Feet	1	3
5. Miscellaneous Teaching Aids Each 1 Reported	2	8
6. Up-to-date Agriculture Books Each Set (10 or More)	1	10
7. Up-to-date Reference Books Each 5 books	1	10
8. Up-to-date Bulletins Each 10 Sets (10 or More)	1	10
9. Different Agricultural Magazines Coming To The Classroom Each 5 Magazines	2	6
10. Teacher Uses 16 mm. Sound Film Projector		5
11. Up-to-date Slide and Film Strip Sets For Each 5 Sets	1	<u>10</u>
Total		100

## INSTRUMENT FOR SCORING PERSONAL FARMING OPERATIONS

	Points
1. Corn, per acre	3.0
2. Grain Sorghums, per acre	1.5
3. Alfalfa, per acre	1.5
4. Barley, Oats, and Rye, per acre	1.0
5. Wheat, per acre	.8
6. Wild or Native Hay, per acre	.5
7. Tame Hay, per acre	1.5
8. Soybeans, per acre	1.2
9. Cotton, per acre	5.0
10. Beef Cattle, per head	1.5
11. Dairy Cows, per head	15.0
12. Other Dairy Cattle, per head	1.5
13. Sheep, per head	.5
14. Swine, per head	.5
15. Laying Hens, per 100 head	20.0
16. Broilers, per 100 head	2.5
17. Turkeys, per 100 head	37.5

## CHAPTER II

### REVIEW OF LITERATURE

The writer found that a considerable amount of information was available concerning programs for the training of vocational agriculture teachers in the United States. Included were studies somewhat similar in nature to the one attempted, as well as a number of pertinent magazine articles. However, most of these pertained to states other than Oklahoma. For information related strictly to Oklahoma, Professor Don Orr and other members of the Agricultural Education Department of Oklahoma State University were able to give personal accounts which proved very helpful.

Based upon the above mentioned information available, it is the purpose of this review to trace the development of teacher training programs for agriculture, with special emphasis on apprentice teaching, in the United States and in Oklahoma since 1917.

#### Teacher Training in the United States

Olney<sup>2</sup> states that:

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

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<sup>2</sup>Roy A. Olney, "The Role of Pre-Service Teacher Education in Vocational Agriculture," Agricultural Education Magazine, Vol. XX (December, 1947), pp. 112-113.



agriculture in the secondary school.

However, only a limited amount of research was done during this early period in the area of teacher education. A reason for this is given in the following statement by Stewart:<sup>3</sup>

In the early days of our program of vocational education under the National Vocational Education Act, there was little time for promoting research. The necessity for setting up the programs of vocational education in the several states was immediate. Our leaders responsible for these undertakings were compelled to rely upon the knowledge at hand and, in a way, to follow the lead suggested in the researches of other fields.

The early studies were made by a few men in leadership positions in agricultural education but largely by students in graduate schools. Few, perhaps, of the early studies could be dignified as research; however, they kept the spirit of research alive and laid the foundation for a more scientific approach to problems and a more logical presentation for their development.

Out of these early attempts at program improvement came a realization that a research program was essential to the future welfare, if not to the existence, of vocational agriculture as a special division of education. One of the most critical needs for research was in the area of apprentice teaching. The following account by Tolbert<sup>4</sup> of problems encountered in Georgia with apprentice teaching typifies the slow progress made in most states during the ten years following the inauguration of the vocational agriculture program:

Records show that the 1918 Georgia State Plan for Vocational Education provided for apprenticeship training of teachers of agriculture. However, during the next ten

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<sup>3</sup>R. M. Stewart, "Introductory Statement," Summaries of Studies in Agricultural Education, U. S. Government Printing Office (Washington, 1935), pp. 3-4.

<sup>4</sup>R. H. Tolbert, "The Program of Apprentice Teaching," Agricultural Education Magazine, Vol. XX (September, 1947), p. 46.

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 ten years after plans had been made, apprenticeship did not become effective.

By 1929, however, the University of Georgia had adopted the quarter system which allowed for one full quarter to be devoted to the apprentice work by the trainee during his senior year. By 1935, definite progress had been made in many institutions relative to their apprentice teaching programs, and a limited amount of research had taken place. However, the full value of the studies that had been made was not being realized, because of poor coordination of information between institutions. In 1935, R. M. Stuart compiled the first Summaries of Studies in Agricultural Education. This was a great step forward in getting valuable information off the shelves and into the hands of those who could use it.

With the advent of World War II, research in vocational education slowed down considerably. The number of schools being used as apprentice teaching centers dropped due to the lack of prospective vocational agriculture teachers in colleges and universities. With the close of the war and the great influx of students enrolling in institutions across the country, the stage was set for rapid advancement in the area of teacher training. Following 1947, many studies were made of the teacher training programs and suggestions given for improvement by graduate students as well as teacher trainers. The situation that existed at that time is expressed in the following statements by Olney<sup>5</sup> in an article written in 1947:

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<sup>5</sup>Olney, pp. 112-113.

The demand for vocational agriculture as a part of the curriculum in rural high schools has been so great that the supply of teachers has never fully met the requirements in the United States. We are now at a turning point with increasing enrollments of prospective teachers in our institutions. It is appropriate, therefore, that we evaluate our programs of pre-service teacher education in agriculture at this time, and build for the future.

The following statements from articles written by teacher trainers during this period indicate that one of the most evident needs brought to light by evaluation of the teacher training programs was a greater emphasis on careful selection of apprentice teaching centers, and upon giving the prospective teachers the preparation necessary for entering the vocational agriculture profession. Olney<sup>6</sup> wrote:

The pre-service role of teacher education must be to continue to place more and more emphasis upon participating experiences for the prospective teacher. There is no alternative.

Kirkland<sup>7</sup> stated:

If trainees are to be given an opportunity to develop the professional competencies required for projecting satisfactory programs of vocational agriculture, it seems imperative that the institutions select training centers in which well qualified teachers are employed; in which complete programs of vocational agriculture are in operation; and in which adequate physical facilities are available.

Out of the research and experimentation of the period from 1947 to the present time have arisen many different versions of what constitutes desirable and practical apprentice teaching programs. Such problems as when the training should take place, the length of time that should be allotted for it, and the selection of apprentice teach-

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<sup>6</sup>Ibid

<sup>7</sup>J. Bryant Kirkland, "Selecting Student Teaching Centers," Agri-cultural Education Magazine, Vol. XX (December, 1947), p. 115.

ing centers have proven very complex.

Studies reviewed indicate that a six to nine week apprentice teaching period during the senior year is the practice in most institutions. However, Kitts<sup>8</sup> described a slightly different arrangement at the University of Minnesota. There students enter the apprentice teaching center three weeks before the fall term starts in the particular school. They stay in the center for three weeks after school starts. This gives them six weeks of training, and still allows them to be back to the campus by the time classes begin.

Review of a study by Phipps<sup>9</sup> gives us a glimpse of changes which could take place in the future. He concluded that in Illinois a six week apprenticeship period the senior year was inadequate. He states that:

Teachers of vocational agriculture at the University of Illinois are completing their undergraduate training without self confidence, ability, or understanding in certain areas of technical agriculture.

He recommends a period of two years internship for prospective teachers on a graduate level, patterned after the plan used in many European countries, as a solution to this problem. His study showed that in 1950, California was the only state using this system. However, he found that four institutions in the United States training vocational agriculture teachers were planning to initiate internship

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<sup>8</sup>Harry W. Kitts, "Giving Cadet Teachers Participating Experiences," Agricultural Education Magazine, Vol. XXI (May, 1949), p. 250.

<sup>9</sup>Lloyd J. Phipps, "Internship for Prospective Teachers of Vocational Agriculture in Illinois" (unpub. Doctor's dissertation, University of Illinois, 1949), as reported in Summaries of Studies in Agricultural Education, Vocational Education Bul. 246, Supplement No. 3 (Washington, 1951), p. 36.

programs, and twenty-six others were studying the possibility of internship or lengthened apprentice teaching programs. Several other doctoral dissertations have advocated internship for teachers and have developed some of the technique and principles of operation.

Regardless of the modifications which the future may hold for apprentice teaching programs in the various institutions, certain basic factors will undoubtedly always need to be considered in selecting teaching centers. The most complete study discovered by the writer on this subject was by Atherton,<sup>10</sup> who made a very extensive survey of fifty-one institutions in the United States which train teachers of vocational agriculture. He recommends a set of forty-nine criteria to follow in selecting teaching centers. These relate to the breadth and quality of the vocational agriculture program, qualifications of the teacher, physical facilities, relationships in the local school system, location of centers, and others. His conclusion was:

There is a relatively small number of criteria which should be considered minimum essentials for student-teaching centers in vocational agriculture and a somewhat larger number of criteria which are desirable.

Among the criteria which he listed as essential were the following: (1) a majority of the educational activities in the vocational agriculture program be related to the actual farm experiences of the pupils; (2) the vocational agriculture teacher, administration, and board of education approve the use of the local school as a teaching

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<sup>10</sup>James C. Atherton, "A Suggested Set of Criteria for the Selection of Student Teaching Centers in Vocational Agriculture" (unpub. Doctor's dissertation, University of Illinois, 1950), pp. 138-140, 184, 191.

center; (3) a harmonious working relationship between the vocational agriculture teacher, administration, and other teachers in the school; (4) adequate housing facilities in the community for apprentice teachers; (5) an active chapter of Future Farmers of America; (6) adequate physical facilities for the development of a vocational agriculture program consistent with the needs of the community; and (7) the teacher devote full time in his teaching schedule to vocational agriculture.

Of the teacher trainers surveyed, a majority felt that the enrollment in all-day classes of vocational agriculture should be considered in selecting teaching centers, although there was little agreement on what is ideal. Responses ranged from ten to 160. Most of those reporting preferred between ten and fifteen as a minimum and between twenty and fifty as a maximum number of students.

Relative to the ideal years tenure in the school, a majority favored from ten to twenty-five as the maximum and one, two, or three as the minimum. Between three and twelve years total experience was considered ideal by a majority of those reporting.

The ability of the teacher should be considered, in the opinion of ninety-six percent of the teacher trainers surveyed. A total of ninety percent felt that the education of the teacher should be considered, and fifty of fifty-one included in the study favored consideration of the physical facilities. The program of vocational agriculture was considered by 100 percent of the teacher trainers in selecting teaching centers. A majority also felt that the adult and young farmer work should be a factor for consideration.

Although much research has been done, and much progress has been

made relative to apprentice teaching in the United States since 1917, the program, in a sense, is still in its infancy. There are many problems yet to be solved and improvements to be made by those students and teacher trainers who are dedicated to continually strengthening the vocational agriculture programs in this country.

#### Teacher Training in Oklahoma

Apprentice teaching has been considered an important phase of the training of teachers of vocational agriculture since the initiation of the work at Oklahoma State University. The first announcement concerning requirements for teachers of vocational agriculture was listed in the college bulletin for the school year of 1920-21. This first description of courses required for a certificate to teach vocational agriculture listed two courses in observation and apprentice teaching. Since the University was organized on the quarter system at that time, each of these courses lasted one quarter. The second course required four hours of laboratory work in observation and apprentice teaching. No mention was made of provisions for apprentice teaching. It is definitely known, however, that students qualifying to teach vocational agriculture at that time received this part of their training in the Division of Secondary Vocational Agriculture which was a division of the College of Agriculture. This practice was followed for about two years.

The catalog announcement of course offerings for the school year of 1922-23 indicated that fifteen half days of observation and apprentice teaching in nearby high schools were required of men preparing to qualify for teaching vocational agriculture. Most of this

work was done in the high school at Morrison, Oklahoma, with some also being done in other high schools near the University. Walter B. Goe was teacher of vocational agriculture and superintendent of the Morrison school at that time. He was also listed in the college catalog as an assistant professor in the Department of Agricultural Education in charge of observation and apprentice teaching. The work at Morrison lasted two years.

During the school year 1926-27 Professor O. M. Clark, Head of the Department of Agricultural Education, made arrangements to do observation and apprentice teaching on a part-time basis at Perkins, Oklahoma. He took students to Perkins for this purpose about three days per week. There was no regular teacher of vocational agriculture at Perkins that year.

In the fall of 1927, arrangements were made to have a full-time teacher of vocational agriculture at Perkins who also would be in charge of the apprentice teaching program. Seniors in the Department of Agricultural Education who were qualifying to teach took apprentice teaching two semesters and made trips to Perkins one-half day per week throughout the school year. Adult classes for farmers were held at night in Perkins and in neighboring schools near Perkins. Student teachers helped organize and teach these adult classes. This arrangement at Perkins continued from the fall of 1927 to the spring of 1941.

In the fall of 1941, arrangements were made to do apprentice teaching in the Stillwater high school. The policy was for senior students to do observation and apprentice teaching one-half day per week throughout the college year. This arrangement with the Stillwater



public schools continued from the fall of 1941 through the spring of 1944. Parker A. Norton was the teacher of vocational agriculture in Stillwater at this time.

During the war years, the lack of senior students caused the discontinuance of the regular apprentice teaching program. When students began to return to the college after the war, a system was developed for requiring junior and senior students to do observation and apprentice teaching in the schools over the state. Juniors were required to spend two weeks with a teacher of vocational agriculture. Senior students were required to spend two weeks each semester working with a teacher of vocational agriculture.

In the spring of 1948, the Department of Agricultural Education made provisions for senior students to spend six weeks of a semester working full time with a teacher of vocational agriculture in an approved department. A number of courses in various fields of technical agriculture and agricultural engineering were planned which were taught during the one-half of the semester in which student teachers were in residences on the campus. Three additional weeks of the semester were devoted exclusively to a course in teaching methods and management also taught on the campus. This arrangement, providing for a total sustained period of participating experiences of from five to six weeks, depending upon the length of the semester, was followed until 1956.

Beginning with the fall semester of 1956, the period of assignment to teaching centers was increased to a minimum of eight full weeks, which is the practice being followed at the time of this writing. Administrators and cooperating teachers in each center plan for a

maximum program of participating experiences to be provided, including educational activities with adults and young farmers in addition to all phases of the organized teaching program for high school students.

## CHAPTER III

### 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 sixty-four vocational agriculture departments were included. The number of teachers, however, was sixty-seven because three of the schools had two-teacher departments. Thirty-four teachers were included in Group One and thirty-three in Group Two.

No attempt was made to determine teacher attitudes. It was assumed for the purpose of this study that all the teachers had attitudes which would qualify them as supervising teachers.

#### Selected Characteristics of the Teachers of Vocational Agriculture

The total number of years experience teaching vocational agriculture. Table I indicates a mean years experience teaching vocational agriculture of 11.30 for Group One as compared to 12.39 for Group Two, giving a difference between groups of 1.09 years in favor of Group Two. The mean years for the two groups was 11.84. It is interesting to note that seventy-six percent in Group One and seventy-three percent in Group Two showed from five to twelve years experience, and that no teacher reported under five years experience. We must conclude that all the teachers had adequate experience and that the slight difference

between the two groups would not be significant in selecting apprentice teaching centers.

TABLE I  
DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS,  
MEANS AND DIFFERENCES IN TERMS OF TOTAL YEARS  
EXPERIENCE TEACHING VOCATIONAL AGRICULTURE

Class Interval, Years	Number of Vocational Agriculture Teachers	
	Group One	Group Two
21 or more	1	4
19 - 20	2	1
17 - 18	3	2
15 - 16	1	
13 - 14	1	2
11 - 12	9	7
9 - 10	9	8
7 - 8	5	5
5 - 6	3	4
Totals	34	33
Mean years by groups	11.30	12.39
Difference between groups	1.09	
Mean years, total	11.84	

The total number of years experience teaching vocational agriculture in the present school. As we would expect after reviewing Table I, the two groups were also very similar in the number of years

that they had taught vocational agriculture in their present school. The slight difference of one-third of a year as shown in Table II was considered insignificant.

TABLE II

DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS,  
MEANS AND DIFFERENCES IN TERMS OF TOTAL YEARS  
EXPERIENCE TEACHING VOCATIONAL AGRICULTURE  
IN THE PRESENT SCHOOL

Class Interval, Years	Number of Vocational Agriculture Teachers	
	Group One	Group Two
21 or more	1	3
19 - 20		1
17 - 18	1	1
15 - 16	1	
13 - 14	3	1
11 - 12	6	5
9 - 10	8	4
7 - 8	4	3
5 - 6	7	10
3 - 4	3	5
Totals	34	33
Mean years by groups	9.06	9.38
Difference between groups	.32	
Mean years, total	9.22	

The mean years tenure per school for the vocational agriculture teachers. With Group Two reporting 1.09 mean years more experience

teaching vocational agriculture, they hold a slight advantage in the beginning over Group One in their opportunity for long mean tenures per school. However, Table III shows a mean tenure of 7.37 years for

TABLE III

DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS,  
MEANS AND DIFFERENCES IN TERMS OF MEAN YEARS  
TENURE PER SCHOOL IN WHICH THEY HAD  
TAUGHT VOCATIONAL AGRICULTURE

Class Interval, Years	Number of Vocational Agriculture Teachers	
	Group One	Group Two
21 or more	1	1
15 - 20		
13 - 14	1	3
11 - 12	4	4
9 - 10	7	3
7 - 8	5	1
5 - 6	6	7
3 - 4	7	11
1 - 2	3	3
	<hr/>	
Totals	34	33
	<hr/>	
Mean years by groups	7.37	6.96
Difference between groups		.41
Mean years, total		7.16

Group One as compared to 6.96 for Group Two, or a difference of less than one-half year in favor of Group One. This might suggest slightly

more stability on the part of the teachers in Group One.

A mean of 7.16 years for the total number of teachers surveyed bears out the fact that most of the vocational agriculture teachers in Oklahoma do enjoy rather long tenures in their schools, especially when we consider the fact that a number of young teachers was included in this study.

Teaching experience other than vocational agriculture. Upon examining data presented in Table IV we find that a total of twelve, or

TABLE IV  
DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS  
IN TERMS OF TEACHING EXPERIENCE OTHER  
THAN VOCATIONAL AGRICULTURE

Class Interval, Type of Teaching	Number of Vocational Agriculture Teachers			
	Group One		Group Two	
	Number	Percent	Number	Percent
Veterans Agriculture Training Program	8	23.53	12	36.40
College agriculture	3	8.82		
Other high school subjects	1	2.91	3	9.09

35.2 percent of the teachers in Group One and fifteen, or 45.5 percent of those in Group Two reported teaching experience other than vocational agriculture. It is not surprising to see that teaching with the Veterans Agriculture Training Program was reported most frequently, since many of the teachers surveyed graduated from Oklahoma State University during the time that this program was at its height and when

the supply of agriculture teachers generally exceeded the demand in this state.

It is interesting to note that three of the teachers in Group One reported college teaching experience. We would assume that these might be especially well qualified to work with apprentice teachers.

The highest college degree earned by the vocational agriculture teachers. All teachers surveyed held at least a bachelor's degree. As indicated in Table V, nineteen, or 55.88 percent in Group One and thirteen, or 39.39 percent in Group Two held master's degrees. This

TABLE V  
DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS  
IN TERMS OF THE HIGHEST COLLEGE DEGREE EARNED

Degree held	Number of Vocational Agriculture Teachers			
	Group One		Group Two	
	Number	Percent	Number	Percent
M. S.	19	55.88	13	39.39
B. S.	15	44.12	20	60.61
Totals	34	100.00	33	100.00

is a difference of 16.49 percent in favor of Group One for the number of teachers holding the higher degree. It would appear, therefore, that the attainment of a significant amount of additional educational work is definitely associated with teachers functioning as cooperating or supervising teachers.



Over-all undergraduate grade point averages. Data presented in Table VI regarding the over-all grade point average achieved by

TABLE VI  
DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS,  
MEANS AND DIFFERENCES IN TERMS OF OVER-ALL  
UNDERGRADUATE GRADE POINT AVERAGE

Class Interval, Grade Point Average	Number of Vocational Agriculture Teachers	
	Group One	Group Two
3.50 - 3.74	1	2
3.25 - 3.49	3	3
3.00 - 3.24	4	1
2.75 - 2.99	13	10
2.50 - 2.74	6	9
2.25 - 2.49	7	5
2.00 - 2.24		3
Totals	34	33
Mean grade point average by groups	2.84	2.76
Difference between groups	.08	
Mean grade point average, total	2.80	

teachers as undergraduates reveal a mean difference between the two groups included in this study of only .08 of a grade point. Therefore we can assume that the present method of selection is not gaining teachers superior to those which could be expected from random sampling

as regards this particular scholastic characteristic. This study does indicate, however, that the chances for getting teachers with a grade point average below 2.26 would be slightly greater in the random sampling method of selection.

The mean grade point average for both groups of 2.80 is well above the accepted average for college students of 2.00. However, it is somewhat below the 2.87 average reported for the 165 students who graduated from Oklahoma State University from the fall of 1951 to the fall of 1956, and who received initial employment as vocational agriculture teachers. This was determined in an investigation made by Porter.<sup>11</sup>

Undergraduate grade point averages in agricultural education courses. The mean grade point average attained in agricultural education, according to data presented in Table VII, was higher for both groups surveyed than the mean average attained by the groups in all undergraduate work. When comparing the groups we find a mean average achievement of 3.16 for Group One and 3.10 for Group Two, a difference of only .06 of a grade point. We must conclude that there is no particular advantage held by Group One over Group Two in terms of scholastic achievement in agricultural education courses.

Activities with civic groups of the community. As evidenced by Table VIII, the difference between the groups for the number of teachers who were members of civic groups in the community was only

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<sup>11</sup>Louis Abner Porter, "Characteristics of Agricultural Education Graduates of Oklahoma State University Whose Initial Employment Was Teaching In Oklahoma Compared To Those Whose Initial Employment Was Teaching In Other States" (unpub. Master's thesis, Oklahoma State University, 1958), p. 27.

TABLE VII

DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS,  
MEANS AND DIFFERENCES IN TERMS OF GRADE POINT  
AVERAGE IN AGRICULTURAL EDUCATION COURSES

Class Interval, Grade Point Average	Number of Vocational Agriculture Teachers	
	Group One	Group Two
3.75 and over	1	3
3.50 - 3.74	6	4
3.25 - 3.49	5	6
3.00 - 3.24	8	2
2.75 - 2.99	11	11
2.50 - 2.74		4
2.25 - 2.49	2	2
2.00 - 2.24	1	1
Totals	34	33
Mean grade point average by groups	3.16	3.10
Difference between groups	.06	
Mean grade point average, total	3.13	

one in favor of Group One. This difference is offset by Group Two in that twenty-three teachers in this group assumed major responsibilities in these organizations as compared with nineteen in Group One. Therefore we must conclude that there is no significant difference between the two groups with regard to the extent of this characteristic.

TABLE VIII  
 DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS  
 IN TERMS OF ACTIVITIES WITH CIVIC GROUPS  
 OF THE COMMUNITY

Class Interval, Extent of Involvement	Number of Vocational Agriculture Teachers			
	Group One		Group Two	
	Number	Percent	Number	Percent
Member of one or more	24	75.0	25	78.1
Number of major responsibilities assumed				
5			1	
4	1			
3	5		4	
2	5		5	
1	8		13	

Individual church activities in the community. Of the sixty-seven teachers surveyed, only one in Group One and one in Group Two were not members of a church in their community. Table IX reveals that the greatest difference between the groups with regard to church activity was frequency of attendance. Four, or 12.5 percent of the teachers in Group One indicated attendance as seldom, against none in Group Two. Group One appears to be superior in church leadership with 21.9 percent assuming three or more major responsibilities, as compared with 9.3 percent in Group Two.

It is concluded from this data that little significant advantage exists for either group for this characteristic of individual church activity.

TABLE IX  
DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS  
IN TERMS OF INDIVIDUAL CHURCH ACTIVITIES

Class Interval, Extent of Activity	Number of Vocational Agriculture Teachers			
	Group One		Group Two	
	Number	Percent	Number	Percent
Church members	33	96.9	32	96.9
Frequency of church attendance				
Weekly	27	81.3	29	87.5
Monthly	2	6.2	4	12.5
Seldom	4	12.5		
Number of major church responsibilities assumed				
4	2	6.3	2	6.2
3	5	15.6	1	3.1
2	10	31.4	10	31.4
1	5	15.6	10	31.4

Extent of personal engagement in farming. The greatest difference that was discovered in the characteristics of the two groups of teachers surveyed was for the extent of personal engagement in farming. Table X shows that the number engaged was seventeen for Group One and twenty for Group Two. However, fifteen in the first group had operations which scored under 100, while the remaining two were under 200. Most of these operations consisted of involvements with only a few head of livestock or very small crop acreages.

In Group Two six teachers reported operations scoring over 200

points. The top score in this group was 1185. The mean score for all teachers surveyed in Group One was 31.5, and for Group Two 148, for a difference of 116.5.

TABLE X

DISTRIBUTION OF VOCATIONAL AGRICULTURE TEACHERS,  
MEANS AND DIFFERENCES IN TERMS OF SCORES  
GIVEN FOR PERSONAL FARMING OPERATIONS

Class Interval, Scores	Number of Vocational Agriculture Teachers	
	Group One	Group Two
1001 and over		1
901 - 1000		
801 - 900		2
601 - 800		
501 - 600		1
401 - 500		
301 - 400		1
201 - 300		1
101 - 200	2	4
1 - 100	15	10
0	17	13
Totals	34	33
Mean score by groups	31.50	148.00
Difference between groups	116.50	
Mean score, total	89.75	

Based upon this information, we may conclude that selecting departments for student teaching solely by random sampling would result in the inclusion of some where the teacher would be so involved with personal farming operations that he might not have the extra time necessary to do justice to an apprentice teaching program. The present method of selection seems to exclude these departments in favor of those where the teachers have little or no personal engagement in farming.

#### Selected Characteristics of the Vocational Agriculture Department Physical Plants

Size of the vocational agriculture building. From an examination of the data presented in Table XI it is evident that departments comprising Group One are superior to those in Group Two as regards the size of the vocational agriculture building. Group One reported a mean square feet accomodation of 2161 as compared to 1851 for Group Two, or a difference of 310 square feet in favor of Group One. Stated another way, as a whole the buildings in Group One were about 16.5 percent larger than those of Group Two.

The average for 356 white schools surveyed<sup>12</sup> in Oklahoma was 1898 square feet. The buildings in Group One were 263 square feet larger and those in Group Two forty-seven square feet smaller than the state average.

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<sup>12</sup>Building And Equipment Survey, 364 White Schools, Oklahoma State Department of Vocational Agriculture (Stillwater, 1959), pp. 1-6.

TABLE XI

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF TOTAL SQUARE  
FEET OF FLOOR SPACE IN THE VOCATIONAL  
AGRICULTURE BUILDING

Class Interval, Square Feet	Number of Vocational Agriculture Departments	
	Group One	Group Two
4001 or more		1
3501 - 4000	5	
3001 - 3500	3	3
2501 - 3000	1	4
2001 - 2500	7	3
1501 - 2000	5	5
1001 - 1500	5	11
501 - 1000	4	4
1 - 500	2	1
Totals	32	32
Mean square feet by groups	2161	1851
Difference between groups		310
Mean square feet, total	2006	

Age of the vocational agriculture buildings. The data presented in Table XII indicates a difference of .63 years between the two groups with regard to the matter of age of the vocational agriculture building, with the factor of newer buildings being evidenced as favoring



Group One. The mean age for Group One was 11.56 years and for Group Two 12.19. The mean for the total of both groups was 11.875.

TABLE XII

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF AGE IN YEARS  
OF THE VOCATIONAL AGRICULTURE BUILDING

Class Interval, Years	Number of Vocational Agriculture Departments	
	Group One	Group Two
46 or over	1	
21 - 45		
36 - 40	1	2
31 - 35		
26 - 30	1	1
21 - 25	1	1
16 - 20	4	4
11 - 15	5	3
6 - 10	7	13
1 - 5	12	8
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Totals	32	32
	<hr/>	
Mean years by groups	11.56	12.19
Difference between groups		.63
Mean years, total	11.875	

It is interesting to note that if the one school in Group One with a forty-seven year old building was excluded, the mean age for the

group would drop to 10.40 years, or a difference between groups of 1.79. While it might be questionable whether this difference would influence the value of the department as an apprentice teaching center, we must conclude that Group One is superior in this characteristic. We find also upon examination of the survey<sup>13</sup> of 364 white schools in Oklahoma that both Group One and Two are superior to the state average of 13.25 years as to the age of vocational agriculture buildings.

Total value of the vocational agriculture buildings. Since we have established that the two groups have buildings about the same age, but Group One definitely has larger ones, we would expect the mean value for those in Group One to be higher than for Group Two. An examination of Table XIII shows this to be true. Group One reported a mean value of \$17,716, Group Two \$14,047. The difference between groups was \$3,669 in favor of Group One. This data indicates that both groups are well above the state mean value of \$11,547.99<sup>14</sup> for this characteristic.

Total value of all tools and teaching aids. Again, in Table XIV, we find that both Group One and Group Two rank well above the state average of \$2,218.69 in mean value for all tools and teaching aids in the departments.<sup>15</sup> The departments in Group One again were superior to Group Two with regard to this characteristic, with values of \$2,871 and \$2,600, respectively, reported, which is an advantage of \$271 in

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<sup>13</sup>Ibid.

<sup>14</sup>Ibid.

<sup>15</sup>Ibid.

TABLE XIII

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF TOTAL VALUE IN  
DOLLARS OF THE VOCATIONAL AGRICULTURE BUILDING

Class Interval, Dollars	Number of Vocational Agriculture Departments	
	Group One	Group Two
70,001 or over	1	
60,001 - 70,000		
50,001 - 60,000	2	
40,001 - 50,000		1
30,001 - 40,000	3	1
20,001 - 30,000	4	4
10,001 - 20,000	6	11
5,001 - 10,000	8	6
1 - 5,000	8	9
	<hr/>	
Totals	32	32
	<hr/>	
Mean dollars by groups	17,716	14,047
Difference between groups	3,669	
Mean dollars, total	15,881	

favor of Group One.

As we continue to analyze the departments in relation to their physical facilities, it becomes more evident that for this characteristic at least, our random sampling seems to have resulted in a selection of slightly above average departments for Group Two, and that those in Group One are definitely above average for the state.

TABLE XIV

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF TOTAL VALUE IN  
DOLLARS OF ALL TOOLS AND TEACHING AIDS

Class Interval, Dollars	Number of Vocational Agriculture Departments	
	Group One	Group Two
9,001 or over	1	1
7,001 - 9,000		
6,001 - 7,000		1
5,001 - 6,000	1	
4,001 - 5,000	6	3
3,001 - 4,000	3	3
2,001 - 3,000	6	7
1,501 - 2,000	4	4
1,001 - 1,500	2	7
501 - 1,000	6	5
1 - 500	3	1
	<hr/>	
Totals	32	32
	<hr/>	
Mean dollars by groups	2,871	2,600
Difference between groups	271	
Mean dollars, total	2,735.50	

Scores for the vocational agriculture classrooms. Information was secured by questionnaires concerning certain selected characteristics of the vocational agriculture classrooms in the departments surveyed. These characteristics included classroom size, office, blackboard

space, visual aids, bulletins, agriculture books, magazines, laboratory facilities, and miscellaneous teaching aids. These were organized by departments and a scoring instrument applied. Table XV represents the scores obtained.

TABLE XV

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF SCORES GIVEN  
FOR THE VOCATIONAL AGRICULTURE CLASSROOM

Class Interval, Scores	Number of Vocational Agriculture Departments	
	Group One	Group Two
91 - 100	2	1
81 - 90	8	
71 - 80	9	8
61 - 70	8	13
51 - 60	5	4
41 - 50		5
31 - 40		1
	Totals	
	32	32
Mean scores by groups	74.35	63.84
Difference between groups		10.51
Mean score, total		69.095

Group One scored 16.46 percent higher than Group Two, with scores for the two groups of 74.35 and 63.84 respectively. The difference between groups was 10.51, and the mean score total for both groups was

69.095. No school in Group One scored under fifty-one, but six in Group Two fell below this level. Ten schools in Group One scored over eighty as compared with only one in Group Two.

From the information considered in this study for the classroom, we must rate Group One superior to Group Two for this characteristic.

Scores for the farm mechanics facilities and equipment. From the questionnaires mailed to each teacher, information relative to the size of the farm shop and the number of pieces of major farm mechanics equipment was also secured. This information was tabulated and scored. Data presented in Table XVI represent the results of this scoring.

The mean score was 14.91 points higher for Group One than for Group Two. Group One had a mean score of 59.88 and Group Two 44.97. In other words Group One scored thirty-three percent higher than Group Two. Only one department in Group One scored below thirty-one points, while in Group Two six departments scored below thirty-one. One department scored no points in Group One, with four scoring no points in Group Two.

A close investigation of these data indicated that Group One was definitely superior to Group Two for the shop characteristics. We must assume that the kind of farm mechanics program in the departments is given very definite consideration in selecting apprentice teaching centers. This is in keeping with the fact that the program of training in this area for prospective teachers of vocational agriculture has undergone considerable improvement on the Oklahoma State University campus in recent years. More and better courses in farm mechanics are being offered students. With agriculture becoming more

highly mechanized each year, the teacher trainers evidently feel that it is essential that these young men gain adequate participating experiences in this phase of their preparation for teaching.

TABLE XVI

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF SCORES GIVEN  
FOR THE FARM MECHANICS FACILITIES  
AND EQUIPMENT

Class Interval, Scores	Number of Vocational Agriculture Departments	
	Group One	Group Two
91 - 100	3	1
81 - 90	2	1
71 - 80	5	4
61 - 70	5	3
51 - 60	5	3
41 - 50	8	7
31 - 40	3	7
21 - 30		
11 - 20		2
1 - 10		
0	1	4
	<hr/>	
Totals	32	32
	<hr/>	
Mean score by groups	59.88	44.97
Difference between groups	14.91	
Mean score, total	52.425	

Selected Characteristics of the Programs  
of Vocational Agriculture

The number of adult and/or young farmer class meetings held.

Table XVII indicates that the mean number of adult and/or young farmer

TABLE XVII

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF THE NUMBER  
OF ADULT AND/OR YOUNG FARMER CLASS  
MEETINGS HELD DURING THE YEAR

Class Interval, Meetings	Number of Vocational Agriculture Departments	
	Group One	Group Two
41 or more	2	1
31 - 40	1	2
21 - 30	14	13
11 - 20	10	10
1 - 10	5	6
Totals	32	32
Mean meetings by groups	23.03	20.37
Difference between groups	2.66	
Mean meetings, total	21.70	

class meetings reported as held by departments in Group One was 23.03 as compared with 20.37 for Group Two. With a difference of 2.66 in favor of Group One for this characteristic, we must conclude that this group is only slightly superior to Group Two.



It should be pointed out, however, that this investigation covered only the number of meetings reported and gives no indication as to the nature of the meetings held or the kind or quality of instruction offered. Solely from the standpoint of the number of meetings held one must conclude that Group Two, made up of randomly selected schools, would perhaps be as well qualified to provide student teachers meritorious participating experiences with adult or young farmer groups as is being now provided by the presently operating supervised teaching centers.

Number of people in attendance at adult and/or young farmer meetings. Upon examining the data in Table XVIII we find that Group

TABLE XVIII

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF THE AVERAGE  
NUMBER OF PEOPLE IN ATTENDANCE AT ADULT  
AND/OR YOUNG FARMER CLASS MEETINGS

Class Interval, People	Number of Vocational Agriculture Departments	
	Group One	Group Two
21 or more	1	1
16 - 20	3	5
11 - 15	12	10
6 - 10	15	15
1 - 5	1	1
Totals	32	32
Mean number people by groups	11.25	11.84
Difference between groups	.59	
Mean number people, total	11.545	

Two, with a mean number of 11.84 people in attendance at adult and/or young farmer meetings, holds only an insignificant advantage over Group One of less than one person. Consequently this difference can hardly be assumed a differentiating factor in the quality of training the student teacher would receive in the various departments considered.

Number of students enrolled in vocational agriculture classes.

From data presented in Table XIX there seems to be evidence that the

TABLE XIX

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF THE NUMBER  
OF STUDENTS ENROLLED IN ALL-DAY CLASSES  
OF VOCATIONAL AGRICULTURE

Class Interval, Students	Number of Vocational Agriculture Departments	
	Group One	Group Two
101 or more	1	
91 - 100		1
71 - 90	1	1
61 - 70	2	
51 - 60	3	2
41 - 50	9	10
31 - 40	8	11
21 - 30	5	7
11 - 20	3	
Totals	32	32
Mean number students by groups	41.38	40.31
Difference between groups		1.07
Mean number students, total		40.84

number of students enrolled in all-day classes of vocational agriculture has not been given selective consideration as a factor in designating apprentice teaching centers in Oklahoma. One department in Group One reported over 100 boys while three reported twenty or under. Means of 41.38 for Group One and 40.31 for Group Two give a difference between groups of only 1.07. The mean total for both groups was 40.84. The slight difference presented for this characteristic would hardly appear to be of importance in determining the relative value between the two groups as apprentice teaching centers. However, it can be said that the chances for getting departments with enrollments of twenty or fewer students would be less likely with random sampling than with the present method of selection.

The percentage of the all-day enrollment who were farm boys. We can assume that in a department where a large percentage of the enrollment consists of farm boys, the student teacher would be likely to observe a stronger supervised farming program in operation. An examination of data presented in Table XX will show a mean percentage differentiation of less than one percent between Group One and Group Two with regard to this characteristic. With 65.21 percent farm boys for Group One and 64.69 percent for Group Two, we can conclude that the mean for either group is satisfactory according to presently operating standards. However, upon investigating the data presented more closely, it should be pointed out that there would evidently be a greater chance for drawing departments very low in percentage farm boys by random sampling than by the present method of selection. Two departments in Group Two reported under twenty percent farm boys. No

schools in Group One fell in this category.

TABLE XX

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF THE PERCENTAGE  
OF THE ALL-DAY ENROLLMENT IN CLASSES OF  
VOCATIONAL AGRICULTURE  
WHO WERE FARM BOYS

Class Interval, Percentages	Number of Vocational Agriculture Departments	
	Group One	Group Two
91 - 100	2	6
81 - 90	5	4
71 - 80	6	4
61 - 70	5	6
51 - 60	8	3
41 - 50	4	4
31 - 40	1	3
21 - 30	1	
11 - 20		1
1 - 10		1
	<hr/>	
Totals	32	32
	<hr/>	
Mean percentages by groups	65.21	64.69
Difference between groups		.52
Mean percentage, total		64.95

The mean dollars net profit per student from farming. Data presented in Table XXI shows an advantage of \$50.00 per student in favor

of Group Two for the mean net profit from farming during 1958. Group One reported \$228.00 as compared with \$278.00 for Group Two. This difference is somewhat surprising in view of the fact that Group One reported a larger number of State and American Farmers than Group Two.

TABLE XXI

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF THE AVERAGE  
NET PROFIT PER STUDENT FOR 1958

Class Interval, Dollars	Number of Vocational Agriculture Departments	
	Group One	Group Two
701 - 900		2
501 - 700	2	4
301 - 500	10	6
201 - 300	6	9
101 - 200	12	6
0 - 100	2	5
Totals	32	32
Mean dollars by groups	\$228.00	\$278.00
Difference between groups	\$ 50.00	
Mean dollars, total	\$253.00	

There were certain other interesting observations by the writer as this information was being gathered. First, it was rather evident that the departments from areas of large size farms, such as the wheat sections, generally reported the larger net profits. This is probably

due to the fact that there is more opportunity for boys to carry crop projects in these areas, which would tend to increase net profit.

There also appeared to be a close association between the mean net profit per student and the number of State and American Farmers reported, not for a group, but by individual departments.

One other point indicated for this characteristic which has tended to be evidenced throughout this study is that there are more extremes in Group Two than in Group One for many of the factors that have been considered. For instance, there were five schools in Group Two with \$100.00 or less net profit per student, and only two in Group One. Also indicated in the extreme, Group Two reported six schools with mean net profits per student of over \$500.00 as contrasted with only two reported for Group One. The highest amount reported by any school in Group Two was \$864.00 as compared to \$651.00 for Group One.

Therefore our conclusion must be that our chances for drawing departments very high for this characteristic might be greater with random sampling, but the chance for drawing those very weak would offset any advantage which might otherwise be considered for this method of selecting teaching centers.

The mean dollars per student invested in farming. There was only \$12.00 difference between Group One and Two for the mean dollars per student invested in farming on January 1, 1959 as indicated by data presented in Table XXII. Group Two showed the advantage with a mean of \$461.00 reported as compared with \$449.00 for Group One. With a mean total of \$455.00 average investment per student, either group of schools would appear well qualified for providing experiences for

student teachers with regard to farming involvement of high school students. However, a weakness of Group Two is that eight departments reported below \$200.00 investment per student, and in Group One only four were this low.

TABLE XXII

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF THE AVERAGE  
DOLLARS PER STUDENT INVESTED IN FARMING  
JANUARY 1, 1959

Class Interval, Dollars	Number of Vocational Agriculture Departments	
	Group One	Group Two
1401 or more	2	1
1201 - 1400		1
1001 - 1200	1	2
801 - 1000	3	3
601 - 800	4	3
401 - 600	8	4
201 - 400	10	10
1 - 200	4	8
Totals	32	32
Mean dollar individual student investment by groups	\$449.00	\$461.00
Difference between groups	\$ 12.00	
Mean dollar individual student investment, total	\$455.00	

Our conclusion for this characteristic must be that as a group, those selected by random sampling would probably rank as high as those selected by the present method, but there would be a hazard involved of the possible inclusion of schools with very low investments per student in farming.

Number of chapter members holding F. F. A. offices above local level. As we compare the two groups, it is interesting to determine if either group is superior to the other in the number of leaders being provided for the F. F. A. organization. As evidenced by Table XXIII,

TABLE XXIII

TOTAL BY GROUPS IN TERMS OF THE LEVEL AND NUMBER  
OF F.F.A. OFFICES ABOVE LOCAL CHAPTER LEVEL  
HELD BY MEMBERS DURING THE LAST TWO YEARS

Class Interval, Office Levels	Number of F.F.A. Offices	
	Group One	Group Two
National	1	
State	4	2
District	4	4
Totals	9	6

Group One was more outstanding for this characteristic. Nine boys in that group held offices above the local level during the last two years. Four of these were District officers, four held State offices, and one was a National officer. Group Two produced four District officers and two State officers for the same period.



The number of State Farmers in the last three years. If we accept one aim of vocational agriculture as the training of present and prospective farmers for proficiency in farming, then we must place considerable emphasis upon the number of boys who receive the State Farmer degree when comparing departments. In a sense, this in itself is a very good indication of the extent to which a department is delivering the end product of young men established in farming.

Data presented in Table XXIV show one of the greatest indicated

TABLE XXIV

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF THE NUMBER OF  
STATE FARMER DEGREES AWARDED TO LOCAL F.F.A.  
MEMBERS DURING THE LAST THREE YEARS

Class Interval, Degrees	Number of Vocational Agriculture Departments	
	Group One	Group Two
11 or more	1	1
9 - 10	2	1
7 - 8	5	
5 - 6	9	4
3 - 4	9	11
1 - 2	5	6
0	1	9
Totals	32	32
Mean number degrees awarded, by groups	5.07	2.81
Difference between groups		2.26
Mean number degrees, total		3.94

differences between the two groups discovered in this study. Group One was determined as having a mean number of State Farmers for the last three years of 5.07. This is almost twice the mean of 2.81 determined for Group Two. The mean difference between groups was 2.26 and the mean for both groups was 3.94.

Converted to years we find that Group One had a mean number per year of 1.69, while Group Two had a mean of only .94 per year. The mean for all the chapters in the state is about .80. Both Group One and Group Two were therefore above the state average for this characteristic. The exceptionally high mean for Group One indicates that this factor is given considerable emphasis under the present method of selecting apprentice teaching centers.

The number of American Farmer degrees. With Group One superior to Group Two for the number of State Farmers for the last three years, we would logically expect the difference to extend on through to American Farmer degrees. That this was true is confirmed by data presented in Table XXV. The mean number for Group One was .34 for the three year period and for Group Two only .06. This represented seven American Farmers for Group One as compared to two for Group Two.

Number and competition level of fair and livestock show participation. Based upon the data presented in Table XXVI, Group One was superior to Group Two with regard to participation in fairs and livestock shows. Group One exhibited in 169 such events for a mean of 5.45 per department. Group Two exhibited in 122, or 3.81 per department. The difference between departments was 1.64.

Group One was especially more outstanding in participation above

TABLE XXV

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF THE NUMBER OF  
AMERICAN FARMER DEGREES AWARDED TO LOCAL F.F.A.  
MEMBERS DURING THE LAST THREE YEARS

Class Interval, Degrees	Number of Vocational Agriculture Departments	
	Group One	Group Two
3	1	
2	2	
1	4	2
0	25	30
	Totals	
	32	32
Mean number degrees awarded, by groups	.34	.06
Difference between groups		.28
Mean number degrees awarded, total		.20

the county level. They exhibited in twice as many events on a district level, a total of fifty-three events as compared with thirty-nine for Group Two on a state level, and amassed a total of ten above state level events contrasted with only four for the randomly selected group.

There seems to be a great deal of association, based upon data secured in this study, between the number of fairs and shows participated in and the number of State Farmer degrees awarded in the various departments. Schools which reported the stronger show programs generally were also notably higher in number of students attaining the

degree of State Farmer.

TABLE XXVI

TOTAL BY GROUPS, MEANS AND DIFFERENCES IN TERMS  
OF THE COMPETITION LEVEL AND NUMBER OF FAIRS  
AND LIVESTOCK SHOWS ENTERED BY LOCAL  
F.F.A. MEMBERS DURING THE YEAR

Competition Levels	Number of Fairs and Livestock Shows Entered	
	Group One	Group Two
Above one state	10	4
State	53	39
District	26	13
County	52	50
Local	28	22
	<hr/>	
Totals	169	122
	<hr/>	
Mean number events by groups	5.45	3.81
Difference between groups		1.64
Mean number events, total		4.63

Number of entries in fairs and livestock shows. In considering the number of individual entries in fairs and shows, it should be explained that this is not necessarily the number of different animals or other exhibits. If, for instance, the same animal or exhibit was entered in five different shows, then this was considered as five entries in fairs and shows.

Data presented in Table XXVII indicates a mean of 124.37 entries

TABLE XXVII

TOTAL BY GROUPS, MEANS AND DIFFERENCES IN TERMS OF  
THE COMPETITION LEVEL AND NUMBER OF ENTRIES  
IN FAIRS AND LIVESTOCK SHOWS BY LOCAL  
F.F.A. MEMBERS DURING THE YEAR

Competition Levels	Number of Fair and Livestock Show Entries	
	Group One	Group Two
Above one state	211	35
State	732	509
District	458	282
County	1924	1371
Local	1406	928
Totals	4731	3045
Mean number entries by groups	124.37	98.23
Difference between groups		26.14
Mean number entries, total		111.30

for Group One as compared to 98.23 for Group Two. The difference between groups was 26.14 and the mean number of entries for all schools surveyed was 111.30. It was not surprising to learn that Group One was superior with regard to this characteristic in light of their superiority for the total number of fairs and shows in which they competed.

A closer examination of data in Table One reveals that the difference between groups is more pronounced for this characteristic than

was evident for the number of fairs and shows entered, even in the lower levels of competition. In other words when students in departments comprising Group One do participate in a fair or show, it appears that they enter a sizeable number of exhibits. It can also be assumed that the number of different boys who participate in these events is greater for Group One than for Group Two.

The different kinds of competitive activities entered for the year other than fairs and livestock shows. Data in Table XXVIII reveal only a very slight difference between the two groups regarding the number of different kinds of competitive activities entered other than fairs and livestock shows. It appears that either group might be well qualified to offer the student teacher satisfactory experiences in training students for a wide range of such activities.

Group One reported a mean of 8.77 kinds of activities and Group Two was very close with 8.26. The difference between groups was only .51. It is felt that the mean total for both groups of 8.515 is well above the state average for this characteristic, although no data was immediately available to substantiate this belief.

The number of competitive events entered during the year other than fairs and livestock shows. The information in Table XXIX brings to light a definite difference between groups for this characteristic. This is rather surprising in view of the fact that they were very close for the total different kinds of activities entered.

Group One entered a mean number of 24.37 such events, compared with 17.84 for Group Two. This is a mean difference of 6.53 events. In other words schools comprising Group One entered approximately

TABLE XXVIII

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
 MEANS AND DIFFERENCES IN TERMS OF THE NUMBER OF  
 DIFFERENT KINDS OF COMPETITIVE EVENTS ENTERED  
 BY LOCAL F.F.A. MEMBERS DURING THE YEAR OTHER  
 THAN FAIRS AND LIVESTOCK SHOWS

Class Interval, Kinds of Events	Number of Vocational Agriculture Departments	
	Group One	Group Two
19 - 20		1
17 - 18		
15 - 16	2	1
13 - 14	2	
11 - 12	3	4
9 - 10	11	8
7 - 8	6	10
5 - 6	5	4
3 - 4	3	3
1 - 2		1
	<hr/>	
Totals	32	32
	<hr/>	
Mean kinds of events by groups	8.77	8.26
Difference between groups	.51	
Mean kinds of events, total	8.515	

thirty-seven percent more events than did schools of Group Two. While the diversity of training which could be offered an apprentice teacher in this area would be about the same for both groups, we can assume

from this data that the extent of training might be significantly greater for Group One.

TABLE XXIX

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS,  
MEANS AND DIFFERENCES IN TERMS OF THE NUMBER OF  
COMPETITIVE EVENTS ENTERED BY LOCAL F.F.A.  
MEMBERS DURING THE YEAR OTHER THAN FAIRS  
AND LIVESTOCK SHOWS

Class Interval, Events	Number of Vocational Agriculture Departments	
	Group One	Group Two
51 or more	1	
46 - 50	1	
41 - 45	2	2
36 - 40	3	
31 - 35	4	5
26 - 30	3	5
21 - 25	5	7
16 - 20	5	1
11 - 15	3	8
6 - 10	3	2
1 - 5	2	2
	<hr/>	
Totals	32	32
	<hr/>	
Mean number events by groups	24.37	17.84
Difference between groups		6.53
Mean number events, total		21.105



Highest F.F.A. National Chapter Award received during the last two years. It was felt that a comparison of groups in regard to the highest National Chapter Award received in the last two years would prove somewhat useful in evaluating the vocational agriculture programs. A purpose in granting this award is an attempt to recognize worthwhile accomplishments and activities of departments. Although somewhat different factors are considered than those used in this study, some association was to be expected to exist and the results obtained were felt to be contributive to the investigation.

Data presented in Table XXX indicate that the expected association

TABLE XXX

DISTRIBUTION OF VOCATIONAL AGRICULTURE DEPARTMENTS  
IN TERMS OF THE HIGHEST F.F.A. NATIONAL CHAPTER  
AWARD RECEIVED DURING THE LAST TWO YEARS

Class Interval, Awards	Vocational Agriculture Departments			
	Group One		Group Two	
	Number	Percent	Number	Percent
Gold Emblem Chapter	4	12.50		
Superior Chapter	18	56.25	15	46.88
Standard Chapter	9	28.13	11	34.37
None	1	3.12	6	18.75
Totals	32	100.00	32	100.00

does exist. A total of 12.50 percent of the departments in Group One received the Gold Emblem Chapter award as compared with none for Group Two. This is a national award and is not awarded to more than two

departments in the state in any one year. It was interesting also to find that 68.75 percent of the departments in Group One were rated Superior or above during the last two years as compared with 46.88 percent in Group Two. While only one department in Group One failed to gain at least a Standard Chapter award, there were six in Group Two which fell below this level. We must conclude that Group One is superior to Group Two with regard to the level of operation of the local chapter.

The schools in which Future Farmers of America chapter activities are carried out at a superior level are also schools which are more likely to be selected as centers for carrying on programs of student teaching. If departments for use as student teaching centers were chosen only on a random basis there would be little probability that student teachers would be provided participating experiences with the Future Farmers of America programs of the nature, extent, and quality of that now being provided in the selected centers presently being used.

## CHAPTER IV

### SUMMARY AND CONCLUSIONS

#### Summarization of Characteristics Investigated

The stated purpose of this study was to determine if the vocational agriculture departments approved as apprentice or student teaching centers in Oklahoma for the 1959-60 school year have characteristics that make them 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.

Selected characteristics for consideration were grouped as follows: (1) those pertaining to the vocational agriculture teachers; (2) those pertaining to the physical plants; and (3) those pertaining to the programs of vocational agriculture.

A condensation of the results obtained in the investigation is presented in three summarizing tables as Tables XXXI, XXXII and XXXIII.

TABLE XXXI

A COMPARISON OF NUMBERS, MEANS AND DIFFERENCES RELATIVE TO  
 CERTAIN CHARACTERISTICS OF TEACHERS OF VOCATIONAL  
 AGRICULTURE IN STUDENT TEACHING CENTERS AND  
 THOSE IN OTHER DEPARTMENTS

Teacher Characteristics	Vocational Group One Number Or Mean	Agriculture Group Two Number Or Mean	Teachers Number Or Mean Difference
Mean years experience teaching vocational agriculture	11.30	12.39	1.09
Mean years experience teaching vocational agriculture in present school	9.06	9.38	.32
Mean years tenure per school	7.37	6.96	.41
Number reporting teaching experience other than vocational agriculture	12	15	3
Number holding master's degrees	19	13	6
Mean over-all undergraduate grade point average	2.84	2.76	.08
Mean grade point average for agricultural education courses	3.16	3.10	.06
Number of civic group members	24	25	1
Number assuming responsibilities of leadership in civic groups	19	23	4
Number of church members	33	32	1
Number who attend church weekly	27	29	2
Number assuming responsibilities of leadership in a church	22	23	1
Mean score for personal farming operations	31.50	148.00	116.50

TABLE XXXII

A COMPARISON OF MEANS AND DIFFERENCES RELATIVE TO CERTAIN  
 CHARACTERISTICS OF PHYSICAL PLANTS OF VOCATIONAL  
 AGRICULTURE DEPARTMENTS IN STUDENT TEACHING  
 CENTERS AND THOSE OF OTHER DEPARTMENTS

Physical Plant Characteristics	Vocational Agriculture Departments		
	Group One Mean	Group Two Mean	Mean Difference
Mean square feet floor space	2161	1851	310
Mean age of building in years	11.56	12.19	.63
Mean value of building in dollars	\$17,716.00	\$14,047.00	\$3,669.00
Mean value in dollars of all tools and teaching aids	\$ 2,871.00	\$ 2,600.00	\$ 271.00
Mean score for classroom	74.35	63.84	10.51
Mean score for farm mechanics facilities and equipment	59.88	44.97	14.91

TABLE XXXIII

A COMPARISON OF NUMBERS, MEANS AND DIFFERENCES RELATIVE TO  
CERTAIN CHARACTERISTICS OF PROGRAMS OF VOCATIONAL  
AGRICULTURE AS THEY OCCUR IN COOPERATING STUDENT  
TEACHING CENTERS AND AS THEY OCCUR  
IN OTHER DEPARTMENTS

Program Characteristics	Vocational Agriculture Departments		
	Group One Number Or Mean	Group Two Number Or Mean	Number Or Mean Difference
Mean number adult and/or young farmer class meetings during year	23.03	20.37	2.66
Mean attendance at adult and/or young farmer class meetings	11.25	11.84	.59
Mean enrollment in all-day classes	41.38	40.31	1.07
Mean percent enrollment farm boys	65.21	64.69	.52
Mean net profit per student 1958	\$228.00	\$278.00	\$50.00
Mean investment per student 1-1-59	\$449.00	\$461.00	\$12.00
Number F.F.A. offices above local level held by chapter members during last two years	9	6	3
Mean number State Farmers during last three years	5.07	2.81	2.26
Mean number American Farmers during last three years	.34	.06	.28
Mean fairs and shows entered	5.45	3.81	1.64
Mean entries in fairs and shows	124.37	98.23	26.14
Mean kinds other competitive events entered during year	8.77	8.26	.51
Mean other competitive events entered	24.37	17.84	6.53
Received above Standard National Chap- ter award during last two years	22	15	7
Number named Gold Medal chapter during last two years	4	0	4

## 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 apprentice or student teaching centers which might be selected by random sampling as compared with those selected under the present plan at Oklahoma State University. The following is presented as a summary of certain of these conclusions.

1. Practically no difference could be expected in the total years of experience teaching vocational agriculture possessed between the teachers in Group One, the present teaching centers, and Group Two, representative of those departments which would probably be drawn by any random sampling. The majority of the teachers in either group would be likely to have had from five thru twelve years of experience.
2. The number of years experience in the present school would also quite probably be about the same for both groups, whichever method of selection was used. The mean years tenure per school taught in would, however, likely be slightly lower for the random sampling. By either method, the average tenure per school would probably be a little above or below seven years.
3. There is a strong indication that one could expect fewer former college teachers in a random sampling than in any group chosen by the present method. About a third of the teachers chosen by either method, however, would likely have had some other kind of teaching experience.

4. A safe assumption would seem to be that the present method of selection results in more cooperating teachers with higher degrees since about sixteen percent more teachers in Group One were found to have obtained master's degrees than was true of the random sampling.
5. Almost of a certainty there would be no particular difference in over-all grade point averages in groups chosen by either method. The grades would likely show a mean of from 2.75 to 2.85 in either case. Grades in agricultural education courses might be expected to run slightly higher for groups chosen by the method currently practiced, but not enough higher to necessarily be a factor in selection. Mean grade point averages in agricultural education of from 3.10 to 3.16 could be expected as resulting from either method.
6. Almost 100 percent of the teachers included in groups selected by either method would probably be members of churches and civic groups in the community. A high percentage would likely be active participants whether chosen by one method or the other.
7. More of the teachers from departments selected by random could be expected to have large personal farming operations which might be expected to limit the time they could devote to supervision of student teachers.
8. Physical facilities of the nature and quality now found in the group of departments presently serving as student teaching centers would not likely be maintained in a group chosen by random sampling. This is especially true for farm mechanics.



With one exception, all the departments in Group One had adequate farm mechanics facilities and equipment, while we could expect about a third of those selected at random to exhibit lower standards in this area. We can safely assume that this characteristic is given very definite consideration under the present method of selection.

9. While a more complete and differential study might be desirable, adult and young farmer education programs for both groups appear to be satisfactory. Evidently we might expect to find as adequate experiences provided for student teachers with regard to out-of-school programs by a random selection as those currently found in schools now used.
10. We could expect no significant differences between groups chosen by either method with regard to the mean number of students in all-day classes. The mean for either group would probably be about forty, with about sixty-five percent of the total farm boys.
11. Groups selected by either method could also be expected to be very similar in the investment per student in farming. However, there is a positive indication that a random sampling would draw departments in which a higher net profit per student would occur.
12. We must definitely conclude that more active F.F.A. chapters are found in the presently operating teaching centers than would be the case in any group to be drawn by random sampling. The investigation established the fact that the group now functioning produce more state F.F.A. officers, more State and

American Farmers, and receive more Superior and Gold Medal chapter ratings in the F.F.A. National Chapter Award contest than would possibly be true of any randomly selected group.

13. The present teaching centers also have much more extensive fair and livestock show programs, both in the number of events entered, and the number of exhibits per event than would be likely to occur in random sampling. This is especially true when consideration is given events above county level.
14. The investigation also unmistakably established the fact that the group of schools now operating is definitely stronger in other competitive events than would be true of departments drawn at random.

Based upon the findings of this study, it seems evident that an effort is made to select departments for serving as apprentice or student teaching centers in Oklahoma which have well balanced programs, rather than those very strong in one or two areas at the possible expense of being very weak in some others. Considering almost all departments included in the random sample group in this study, we can report that while each may have exhibited at least one or two characteristics that would make them a definite asset to the student teaching program, they were also almost always individually weak in some other important area. Quite often these weaknesses were of an extreme nature.

As a definite part of the conclusions, it should again be pointed out that there are several factors operating in the present method of selecting student teaching centers which were not included in the frame of reference for this investigation. For example, teacher trainers and

supervisors emphasize very strongly the competency of the local supervising teacher and his ability to use a variety of teaching methods effectively. Also of prime importance is the interest of the local cooperating teacher in filling the role of a true teacher to the apprentice or student teachers which he has during an eight week period. He must be intensely interested in developing these young men into effective teachers and must be willing to expend the time and effort necessary to achieve these ends. Additional investigations should be attempted which would point out how these master teachers may be identified.

It is also the author's suggestion and recommendation that further study be conducted in an effort to identify departments in the state that are especially strong in certain specific areas, such as competitive judging, livestock showing, farm mechanics, F.F.A. organization, classroom instruction, adult education and others. This information should be made available to seniors in agricultural education, and they should be encouraged to visit some of these schools during the year. Their purpose in these visits would not necessarily be to observe the total program, but to learn firsthand something of why the department may be so successful in this particular area. It is felt that this program would be a valuable supplement to the present student teaching program.

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## APPENDIX

Questionnaire No. \_\_\_\_\_

## THE INSTRUCTOR

- A. Vocational Agriculture Teaching Experience
1. How many years have you taught vocational agriculture? \_\_\_\_\_
  2. How many years have you taught vocational agriculture in the present school? \_\_\_\_\_
  3. In how many different schools have you taught vocational agriculture? \_\_\_\_\_
- B. Other Experiences
1. How many years have you taught in each of the following fields? Veteran agriculture \_\_\_\_\_ College agriculture \_\_\_\_\_  
Other high school subjects \_\_\_\_\_
  2. To what extent are you presently engaged in farming?  
Crops Produced      Acres      Kind of Livestock      Number
- C. Community Involvements
1. Are you a member of a church in your community? Yes \_\_\_\_ No \_\_\_\_
  2. How often do you attend the services of this church?  
Weekly \_\_\_\_\_ About once each month \_\_\_\_\_ Seldom \_\_\_\_\_
  3. List the offices or other responsibilities assumed in this church during 1958-59.
  4. Are you a member of a service club or the chamber of commerce in your community? Yes \_\_\_\_ No \_\_\_\_
  5. List the offices and other responsibilities which you assumed in these organizations during 1958-59.

## THE PHYSICAL PLANT

- A. The Vocational Agriculture Shop
1. How many square feet of floor space are in the shop? \_\_\_\_\_
  2. How many of each of the following pieces of equipment do you have in your shop?
 

Electric welders	_____	Power grinders	_____
Acetylene welders	_____	Metal breaks	_____
Drill presses	_____	Power wood saws	_____
Portable electric drills	_____	Electrical wiring boards	_____
Power metal cutting saws	_____		
- B. The Classroom
1. How many square feet of floor space are in the classroom? \_\_\_\_\_
  2. How many square feet of floor space are in the office? \_\_\_\_\_
  3. Do you have a sink and running water in the classroom? \_\_\_\_\_
  4. How many of each of the following items do you have?
 

Soil testing kits	_____	Centrifugal milk testing units	_____
Egg candler	_____	Farm levels	_____

Sets (ten or more) up-to-date agricultural bulletins	_____	Number different agricultural magazines coming to classroom	_____
Sets (ten or more) up-to-date agricultural text books	_____	Additional up-to-date reference books	_____
		Sets of up-to-date slides and film strips	_____

5. Do you make use of a 16 mm. sound projector as a teaching aid? Yes \_\_\_\_\_ No \_\_\_\_\_
6. How many running feet of blackboard space are in the classroom? \_\_\_\_\_

### THE PROGRAM

#### A. Fairs and Livestock Shows

1. Give the following information concerning participation of your chapter during 1958-59 in fairs and livestock shows.

<u>Competition Level</u>	<u>Total Entries</u> For Year	<u>Number of Events</u> Entered
Local level	_____	_____
County level	_____	_____
District level	_____	_____
State level	_____	_____
Regional or national	_____	_____

#### B. Other Competitive Activities

1. Give the following information concerning other competitive activities in which your chapter participated during 1958-59.

<u>Activity</u>	<u>Number Events</u> Entered	<u>Activity</u>	<u>Number Events</u> Entered
Livestock judging	_____	Dairy cattle judging	_____
Dairy products judging	_____	Poultry judging	_____
Meats judging	_____	Entomology judging	_____
Horticulture judging	_____	Farm shop contest	_____
Farm structures contest	_____	Farm survey contest	_____
Soil conservation contest	_____	Public speaking contest	_____
F.F.A. Foundation Award	_____	Crops judging contest	_____
Cotton improvement contest	_____	Wheat contest	_____
Chapter meeting contest	_____	Land judging contest	_____
Other contests (list)	_____	Grass judging contest	_____
		Pasture judging contest	_____

#### C. F. F. A. Officers

1. How many F.F.A. offices of each of the following levels were held by members of your chapter during the last two years?

District \_\_\_\_\_ State \_\_\_\_\_ National \_\_\_\_\_

#### D. Adult and Young Farmer Instruction

1. Give the following information concerning adult and/or young farmer class meetings held by you during the 1958-59 year.

Number of meetings held \_\_\_\_\_ Average attendance \_\_\_\_\_



E. National F. F. A. Chapter Awards

1. Indicate the highest National Chapter Award received by your chapter during the last two years.

Standard \_\_\_\_\_

Superior \_\_\_\_\_

Gold Medal \_\_\_\_\_

VITA

Jack Edward Stone

Candidate for the Degree of  
Master of Science

Thesis: OBSERVED DIFFERENCES IN SELECTED CHARACTERISTICS BETWEEN  
DEPARTMENTS SERVING AS APPRENTICE TEACHING CENTERS AND  
OTHER DEPARTMENTS OF VOCATIONAL AGRICULTURE

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