

AN ANALYSIS OF FACTORS CONTRIBUTING TO EFFECTIVE
PROGRAMS OF VOCATIONAL AGRICULTURE

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PREFACE

Evaluation has been identified as one of the most crucial phases of public school education in vocational agriculture. Considerable research has been conducted regarding this process. Most investigations, however, have been concerned with surveys dealing with opinions and recommendations of authorities, with little effort to apply statistical analysis to the data. This thesis represents an attempt to make a contribution to better evaluation by applying statistical analysis to objective data pertaining to programs of vocational agriculture. It is hoped that the findings of this investigation may be a useful supplement to established evaluative criteria for measuring the effectiveness of programs of vocational agriculture.

Indebtedness is acknowledged to Dean Helmer E. Sorenson, my major adviser, and Professors Don M. Orr and Millard Scherich for their helpful advice and criticisms under whose direction this thesis was prepared.

I wish to express appreciation to Mr. J. B. Perky, State Director of Vocational Education in Oklahoma, and to his very cooperative staff of State Supervisors of Vocational Agriculture. Miss Eloise Dreesen and others on the secretarial staff of Vocational Education were very helpful in directing me to the proper sources for finding the data.

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CHAPTER I

AN ANALYSIS OF FACTORS CONTRIBUTING TO EFFECTIVE PROGRAMS OF VOCATIONAL AGRICULTURE

During the school term of 1951-1952, the writer was enrolled in two five-quarter hour graduate courses devoted to a study of evaluation. The education department of Baylor University offered this graduate work by extension at Hamilton, Texas, where the writer was the teacher of vocational agriculture for six years. The writer enrolled at the Oklahoma Agricultural and Mechanical College in the summer of 1952 in order to continue graduate study leading to a doctorate in education and fortunately had Professor H. W. Sanders as one of his instructors. The course taught by Professor Sanders involved evaluation of programs of vocational education in agriculture.¹

As a result of the interest in evaluation kindled by the experiences evolving out of these courses, the writer selected a research problem for his doctoral thesis concerning this vitally important process. This investigation is concerned primarily with evaluation of programs of vocational education in agriculture.

After the investigator reviewed research reports pertaining to evaluation of programs of vocational education in agriculture, it was observed that little research has been done in which there has been an attempt to evaluate objective data and to apply statistical analysis

¹Professor H. W. Sanders is Head of the Division of Vocational Education at Virginia Polytechnic Institute, the Land Grant College of Virginia.

to such data. Instead, the investigator observed that studies have dealt, for the greater part, with subjective data and opinion type surveys. Many of the studies have included abstract and intangible goals and objectives. The investigator, therefore, endeavored to plan and conduct a research project in which objective data were used as a basis for the study.

This thesis is concerned primarily with an analysis of factors related to programs of vocational agriculture. After reviewing the literature and consulting with authorities, 80 factors were selected to be surveyed in this study. The selected factors were those believed to contribute to the effectiveness of programs of vocational education in agriculture. Only those factors were selected which could be measured objectively. Factors were considered which might be classed as specific short-time goals, concrete plans of action, or definite steps to be taken toward the major objectives of vocational education in agriculture.

Alice Miel used the term "short-time goals" to indicate a plan of action:

Therefore, people need also concrete plans of action that suggest definite steps that may be taken in moving toward the distant goal. They need a series of specific short-time goals so that accomplishment can be experienced frequently. . . .²

Miller and Spalding reported, "If evaluation is to be more than a post-mortem examination, it must point to action."³

A guiding philosophy for vocational education in agriculture. The National Vocational Education Act presents a guiding philosophy for vocational education in agriculture which states the controlling purpose of

²Alice Miel, Changing the Curriculum, A Social Process (New York, 1946), p. 56.

³Van Miller and Willard B. Spaling, The Public Administration of American Schools (New York, 1952), p. 456.

vocational education in agriculture is to fit for useful employment. Vocational education in agriculture shall be designed to meet the needs of persons fourteen years of age or over who have entered upon or who are preparing to enter upon the work of the farm or the farm home. The school shall provide for directed or supervised farm practice in agriculture, either on a farm provided for by the school or other farm, for at least six months per year.⁴ The term "supervised farm practice" means teaching on the farm for the purpose of developing the individual's farming program. "Under the direction and guidance of capable teachers of vocational agriculture, this opportunity should mean at least a substantial start in farming for students by the time they have completed high school."⁵

Need for the study. Teachers of vocational agriculture, teacher trainers in agricultural education, supervisors, administrators, and interested laymen have been concerned with the problem of evaluating programs of vocational education in agriculture. These groups have been interested in finding objective measures that may be used to evaluate the effectiveness of programs of vocational agriculture. The need for further research regarding evaluation has been pointed out by authorities in agricultural education. For example,

The National Standards Committee for Vocational Education in Agriculture recognized the urgent need for the evaluation of three phases of agricultural education . . . viz.: (1) evaluation of the local programs of vocational education in agriculture, (2) evaluation of teacher training programs in agricultural education, and (3) evaluation of supervision and administration of programs in vocational agriculture. The committee was of the opinion that evaluation of procedures in these three fields in

⁴Smith-Hughes Act (Public Law No. 347, Sixty-fourth Congress, S. 703), Section 10.

⁵E. J. Johnson and W. N. Elam, Guiding High-School Students of Vocational Agriculture in Developing Farming Programs (United States Printing Office, 1952), p. 1.

agriculture should be a continuous process.⁶

Mr. J. B. Perky has also emphasized the need for further work in developing evaluating systems:

Since 1931 the writer [J. B. Perky] has been the State Supervisor of Vocational Agriculture in Oklahoma, and is in charge of administration of the program of vocational agriculture in the State. For some years, he has felt that there was a need for a plan to evaluate programs of vocational agriculture in the State. He and his staff, composed of four district supervisors, felt that some sort of evaluating system was needed. . . .⁷

In another part of the report, he stated:

. . . These letters [from State Supervisors of Vocational Agriculture] indicate a general recognition throughout the United States of a need for a satisfactory, workable system of evaluating programs of vocational agriculture. . . .⁸

Professor George F. Ekstrom, teacher trainer from Missouri, made this comment, "Evaluations of programs [in agricultural education] are needed to determine the effectiveness of the instruction and to serve as a basis for making improvement in the work."⁹

In summarizing research studies made concerning evaluation in agricultural education, Professor Kitts of Minnesota reported:

Today, just as Hamlin indicated in 1941, program planning and evaluation are crucial and basic issues in agricultural education. Much more work is needed to establish objectives that are clear and well understood and develop tools of measurement that determine extent to which these goals are approached. Again, research in the field of vocational education

⁶Henry S. Brunner, "Criteria for Evaluating Programs of Preparation for Vocational Agriculture Teachers," The Agricultural Education Magazine (September, 1944), p. 54.

⁷James B. Perky, A Special Report to Formulate a Score Card to Evaluate Programs of Vocational Agriculture in Oklahoma (Fort Collins, Colorado, Colorado State College of Agriculture and Mechanic Arts, Unpublished Master's Report, 1939), p. 44.

⁸Ibid., p. 14.

⁹George F. Ekstrom, "The Organization of Techniques for Evaluating Programs for Vocational Education in Agriculture," The Agricultural Education Magazine (March, 1939), p. 172.

in agriculture has apparently been slow to develop and we continue to find ourselves, as Kenesstrick said "in a relatively undeveloped state." In the absence of data based on scientific research, we tend to act too often on the basis of hunches and opinions. Further research is needed in even the simple techniques of collection of materials and data. . . .¹⁰

Ekstrom stated that some of the weaknesses in research in agricultural education could be attributed to:

- a. The lack of objectivity of investigations of a statistical nature so the studies do not yield factual evidence as found in other types of studies.
- b. The degree with which objectives should be defined.
- c. The lack of instruments available for evaluation.
- d. Variation in personnel of any appraisal committee.¹¹

Professor Kitts also made the following observation:

One criticism of research in the field of agricultural education is the failure to apply statistical analysis to the data to test the validity, reliability, objectivity and practicability of the material or procedure.
 . . .

Vocational education in agriculture has been under federal support for thirty-five years. There have been various research studies, all sincerely undertaken, to attempt to measure and evaluate the program. In the future, new studies will be needed, many in areas not previously explored, or old areas examined with new techniques, but research is an indication of progress and always will be continued.¹²

Statement of the problem. The problem selected for investigation was, "Do fifty above-average departments and fifty below-average departments of vocational agriculture in Oklahoma secondary schools differ to the extent that it would be statistically feasible to identify characteristics peculiar to above-average departments?"

¹⁰Harry W. Kitts, "Measurement and Evaluation," What Do Studies Show? Summaries and Interpretations of Research in Selected Areas of Agricultural Education (Danville, Illinois, 1952), p. 53.

¹¹Ibid., p. 54.

¹²Ibid., P. 54.

Purpose of the study. The purpose was to investigate whether certain objective measures could be employed profitably by teachers of vocational agriculture, supervisors, teacher trainers in agricultural education, administrators, and interested laymen in evaluating programs of vocational education in agriculture.

Hypotheses to be tested. Differences in data concerning the following factors between the two groups of departments of vocational agriculture were no greater than differences which would be expected to arise as a result of chance fluctuation in random sampling:

1. Average number of students enrolled in vocational agriculture per department
2. Average number of farm boys enrolled in vocational agriculture per department
3. Average number of non-farm boys enrolled in vocational agriculture per department
4. Percentage of the total number of students enrolled that were farm boys
5. Number enrolled per department in young farmer classes in 1951-1952
6. Number of hours of young farmer instruction per department
7. Number of young farmer home farm visits during 1951-1952 per department
8. Average number enrolled in adult classes per department in 1950-1951 and 1951-1952
9. Average number of hours of adult instruction per department for 1950-1951 and 1951-1952
10. Average number of farm visits per department supervising adult education
11. Average number of production projects completed annually by departments
12. Average number of productive enterprise projects completed per student
13. Average annual total number of supervised farm training visits per department

14. Average number of supervised farm training visits per student
15. Average annual total number of improvement projects completed per department
16. Average annual number of improvement projects per student
17. Average annual total number of supplementary jobs per department
18. Average annual number of supplementary jobs per student
19. Total number of active FFA members per department
20. Number of honorary members per chapter
21. Number of members per chapter attending State FFA convention
22. Number and per cent of departments participating in various FFA activities
23. Total number of graduates and drop-outs per department
24. Average number of graduates and drop-outs engaged in farming
25. Average number of graduates and drop-outs in work related to agriculture
26. Average number of graduates and drop-outs in professional agriculture
27. Average number of graduates and drop-outs in non-agricultural work
28. Average number of graduates and drop-outs in military service
29. Average number of graduates and drop-outs in college
30. Average number of graduates and drop-outs whose whereabouts are unknown
31. Number of contests placed in by teams in the interscholastic FFA judging contests during the spring of 1952
32. Number of contests placed in by teams in the interscholastic FFA judging contests during the spring of 1953
33. Number of points earned in the interscholastic FFA judging contests as computed for the Farmer-Stockman Award
34. Judging contest cash winnings at the major shows in Oklahoma
35. Total winnings from crop and livestock exhibits at the major shows in Oklahoma

36. Average annual total value per department of supervised farm training program
37. Average annual value per student of supervised farm training program
38. Average annual total net profit per department from supervised farm training program
39. Average annual total self labor per department from supervised farm training program
40. Average annual total student hours per department from supervised farm training program
41. Average annual total labor income per department from supervised farm training program
42. Average annual total labor income per student from supervised farm training program
43. Average annual investment in beef production projects per department
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45. Average annual investment in swine production projects per department
46. Average annual labor income from swine production projects per department
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48. Average annual labor income from sheep production projects per department
49. Average annual investment in dairy production projects per department
50. Average annual labor income from dairy production projects per department
51. Average annual investment in poultry production projects per department
52. Average annual labor income from poultry production projects per department
53. Average annual investment in crop production projects per department

54. Average annual labor income from crop production projects per department
55. Total number of Junior Master Farmer degrees awarded per department during the three-year period 1949 to 1952
56. Total number of American Farmer degrees awarded per department during the three-year period 1949 to 1952
57. Total number of American Farmer degrees awarded per department during the period 1928 to 1954
58. Number of curricular units of instruction per school offered in the school year 1951-1952
59. Schools accredited in the North Central Association, and schools that offered four units of vocational home economics
60. Percentage of boys enrolled in vocational agriculture in 1951-1952 that were enrolled in 1949-1950
61. Number of teacher changes since 1948
62. Years of continuous vocational agriculture
63. Total number of years of vocational agriculture.

Procedure. The investigator accomplished the following steps in the process of developing the thesis problem, collating and analyzing the data, and writing the thesis:

1. Available literature pertaining to evaluation of programs of vocational agriculture was reviewed.
2. Authorities were consulted concerning evaluation of departments of vocational agriculture.
3. Each of the five district supervisors of vocational agriculture in Oklahoma was requested to designate ten departments from his supervisory district which would be rated above average. Each supervisor was also requested to identify ten below-average departments from his district. The identity of departments named was kept confidential.
4. Factors which were believed to contribute to the effectiveness of programs of vocational agriculture were selected on the basis of the review of literature and consultations with authorities.
5. Objective data were gathered from the materials on file in the State Office of Vocational Education. Data gathered

pertained to the selected factors concerning the 50 above-average departments and the 50 below-average departments. Whenever the observer found it to be practicable, data were collected for a three-year period which covered the school years of 1949-1950, 1950-1951, and 1951-1952. In some instances, it was more practicable to collect data for a one or two-year period.

6. Data were classified, and an analysis of the data was made.
7. The null hypothesis was tested by the investigator's using the data pertaining to each of the selected factors to identify significant differences between the above-average group of departments and the below-average group.¹³
8. Factors from which data refuted the null hypothesis were then considered valid criteria for identifying characteristics peculiar to above-average departments; therefore, these factors were assumed to be valid criteria for evaluating programs of vocational education in agriculture.

Definition of terms. The "above-average" group was assumed to be the 50 departments of vocational agriculture so designated by the five district supervisors of vocational agriculture in Oklahoma. Each supervisor was requested to identify ten "above-average" departments from his supervisory district. These "above-average" departments were rated in the upper one-third classification of departments of vocational agriculture during the three-year period of 1949-1950, 1950-1951, and 1951-1952.

The "below-average" group was assumed to be the 50 departments of vocational agriculture so designated by the district supervisors. Each supervisor identified ten "below-average" departments from his supervisory

¹³Henry E. Garrett, Statistics in Psychology and Education (New York, 1953), p. 213. "Experimenters have found the null hypothesis a useful tool in testing the reliability of differences. In its simplest form, this asserts that there is no true difference between two population means, and that the difference found between sample means is, therefore, accidental and unimportant. The null hypothesis is akin to the legal principle that a man is innocent until he is proved guilty. It constitutes a challenge; and the function of an experiment is to give the facts a chance to refute (or fail to refute) this challenge. . . . If our null hypothesis is untenable it must be rejected. And in discarding (refuting) the null hypothesis, what we are saying is that differences . . . cannot be fully explained as temporary or occasional."

district. These "below-average" departments were rated in the lower one-third classification during the same three-year period.

"Factors" which were believed to contribute to the effectiveness of programs of vocational agriculture were the objective characteristics, components, and activities selected as a basis for this study by the investigator. Data concerning each "factor" were used to test the null hypothesis.

"Significant factors" were the factors considered in this study which refuted the null hypothesis. Those factors which manifested critical ratios exceeding 2.01 revealed "significant differences" between the above-average group of departments and the below-average group. Those factors that manifested critical ratios exceeding 2.68 revealed "highly significant differences" between the two groups. (With 49 degrees of freedom, critical ratios of 2.01 and 2.68 indicated significant and highly significant t-tests at the five per cent level of confidence and at the one per cent level respectively.)¹⁴

"Non-significant factors" were those factors included in this study which sustained the null hypothesis and, therefore, failed to reveal significant differences between the two groups of departments. These "non-significant factors" did not disclose statistical dissimilarities between the above-average group and the below-average group.

Basic assumptions. This thesis was based upon two assumptions accepted by the investigator. They were:

1. The five district supervisors of vocational agriculture in Oklahoma were considered authorities in identifying the 50 above-average departments and the 50 below-average departments.

¹⁴Ibid., pp. 225 and 427.

2. The significant factors, those that refuted the null hypothesis, were accepted as valid criteria for evaluating programs of vocational agriculture. Significant factors were accepted as criteria which identified dissimilarities between the above-average group and the below-average group, and would, therefore, be of most value when identifying objective characteristics of above-average departments of vocational agriculture.

Organization of the report. This thesis is composed of four chapters and an appendix. Chapter I is the introductory chapter stating the problem and the purpose, listing the hypotheses to be tested, defining terms, stating basic assumptions, and outlining procedures to be followed. Chapter II is entitled "Presentation and Analysis of the Data." In this chapter the investigator follows the general procedure of presenting data pertaining to each selected factor in a table and analyzing the findings concerning that factor. Sixty-three tables are used to present the findings related to the 80 factors surveyed in this study. Chapter III is the presentation of the "Interpretations of the Findings." In this chapter, those factors which manifested significant differences between the two groups of departments are organized into logical units, and recommendations are made concerning these major units. These units are then considered to be important segments of the total program of vocational education in agriculture. Suggested Supplementary Criteria for Evaluating Programs of Vocational Agriculture are formulated and are presented in the Appendix of this thesis. Chapter IV is the concluding summarizing chapter.

CHAPTER II

PRESENTATION AND ANALYSIS OF THE DATA

Each of the five district supervisors of vocational agriculture in Oklahoma was requested to identify ten "above-average departments" and ten "below-average departments" for his supervisory district. Definitions of "above-average departments" and "below-average departments" may be found on page 10 in the preceding chapter of this thesis. The writer was granted permission to examine the records concerning these departments of vocational agriculture by J. B. Perky, State Director of Vocational Education in Oklahoma. These records are maintained in the State Office of Vocational Education. Data related to factors affecting programs of vocational agriculture were collated for the three-year period covering the school years of 1949-1950, 1950-1951, and 1951-1952. The factors selected for this investigation are itemized on pages 6 through 9 of this thesis.

After a careful compilation of the data, the investigator developed tables and tested the null hypothesis concerning each factor. The null hypothesis is: the data pertaining to the factor reveal no significant difference between the above-average group of departments and the below-average group. Data concerning any factor that manifested a significant difference between the two groups were then assumed worthy of consideration in developing criteria for evaluating programs of vocational education in agriculture.

This chapter represents the investigator's endeavor to examine critically each factor selected for this study. The findings concerning

each factor are presented in an analysis and interpretation of the findings with an accompanying table.

Average number of students enrolled per department. One of the selected factors believed to affect programs of vocational education in agriculture when this study was made was the number of students enrolled per department. Data were collected concerning this factor, and the null hypothesis was tested to compare the above-average group of departments with the below-average group. When this comparison was made, a critical ratio of 2.01 was revealed. This manifested a significant difference between the two groups. Thus, the null hypothesis that there was no significant difference between the two groups was refuted. In Table I, the above-average group shows an average of 46.2 students enrolled contrasted with a mean of 41.0 students for the below-average group.

It may be speculated, then, that departments designated as above average by the supervisors have a larger enrollment for some reason or combination of reasons. It is the belief of the writer that part of this difference may be attributed to the fact that a rather sizable number of the below-average departments were in schools that would be classified as high schools with low enrollment. This belief can be substantiated by pointing out that nine of the 50 below-average group show the average enrollment to be 30 students or less compared with only three of the above-average group having 30 students or less. Forty per cent of the below-average group had an average enrollment of 35 or less; 22 per cent of the above-average group had an average enrollment of 35 or less. Another reason for the higher enrollment in the above-average group would likely be due to the greater interest in vocational agriculture among students attending schools having above-average departments.

TABLE I
 AVERAGE NUMBER OF STUDENTS ENROLLED IN
 VOCATIONAL AGRICULTURE PER DEPARTMENT

Number of Students	Above-average Group	Below-average Group
101 to 105	1	0
96 to 100	0	0
91 to 95	0	0
86 to 90	0	0
81 to 85	1	0
76 to 80	0	0
71 to 75	2	0
66 to 70	0	1
61 to 65	1	3
56 to 60	4	2
51 to 55	5	4
46 to 50	7	7
41 to 45	11	5
36 to 40	7	8
31 to 35	8	11
26 to 30	2	8
21 to 25	1	1
Number of Cases	50	50
Mean	46.20	41.00
Standard Deviation	14.35	11.00
Critical Ratio		2.01*

NOTE: A single asterisk (*) denotes significance at the five per cent level; a double asterisk (**) denotes significance at the one per cent level.

It is the belief of some leading educators that many high schools with low enrollment cannot function efficiently or economically. Student enrollment, therefore, should be an important factor to consider when contemplating establishing new departments of vocational agriculture. In evaluating programs of vocational education in agriculture, it should also be recognized that teachers and administrators will likely have more difficulty in developing strong programs of vocational agriculture in schools where the enrollment is limited.

It is interesting to note that only five of the 50 above-average group had an average enrollment of 61 or more, and four of the 50 below-average group indicated 61 or more enrolled. Two-teacher departments accounted for the two departments exhibiting the higher enrollments in the above-average group.

Average number of farm boys per department. The average number of farm boys per department was a factor believed to affect programs of vocational education in agriculture. In collating the number of farm boys per department, however, no significant difference is found between the above-average group and the below-average group. The mean for the above average group is 36.17 in comparison to 31.97 for the below-average group. Seventy-five per cent of all departments surveyed in this study had from 18 to 42 farm boys enrolled in vocational agriculture as evidenced in Table II. Only five per cent of all departments indicated 18 or fewer farm boys. Since vocational agriculture is a vocational course, it would appear that there should be enough farm boys enrolled to justify such a program. In gathering the data, the investigator was led to believe that teachers of vocational agriculture do not have a common interpretation of the terms "farm-boys" and "non-farm boys."

TABLE II
 AVERAGE NUMBER OF FARM BOYS ENROLLED
 IN VOCATIONAL AGRICULTURE PER DEPARTMENT

Number of Farm Boys	Above-average Group	Below-average Group
96.1 to 102.0	1	0
90.1 to 96.0	0	0
84.1 to 90.0	1	0
78.1 to 84.0	0	0
72.1 to 78.0	0	0
66.1 to 72.0	1	0
60.1 to 66.0	0	0
54.1 to 60.0	1	2
48.1 to 54.0	1	4
42.1 to 48.0	5	4
36.1 to 42.0	10	5
30.1 to 36.0	12	10
24.1 to 30.0	11	11
18.1 to 24.0	5	11
12.1 to 18.0	2	3
Number of Cases	50	50
Mean	36.17	31.97
Standard Deviation	15.36	11.04
Critical Ratio	1.57 (not significant)	

Average number of non-farm boys per department. In comparing the average number of non-farm boys per department no significant difference is evidenced between the above-average and below-average groups. It is interesting to note, however, that four of the below-average group reveal enrollments of more than 20 non-farm boys. Only one department from the above-average group disclosed enrollment of more than 20 non-farm boys. By inspecting Table III, the observer will realize that 37 of the 100 schools included in this investigation had an average non-farm boy enrollment of six or less. From the findings of this table, teachers of vocational agriculture generally have about nine or ten non-farm boys enrolled per department.

Non-farm boys as well as farm boys enrolling in vocational agriculture should have the "facilities to carry on the six months of supervised farm training" as specified in the Smith-Hughes Act, and "the controlling purpose of the course should be to fit for useful employment in farming."¹ This should cause those enrolling non-farm boys in courses in vocational agriculture to deliberate whether or not these students are suited for the curricular offerings in vocational agriculture.

Percentage of students that were farm boys. The percentage of the total number of students per department that were farm boys was believed to influence programs of vocational agriculture. Table IV, however, indicates no significant difference between the above-average group and the below-average group. Both groups reveal approximately three-fourths of the students to be farm boys. Two departments from each group

¹Smith-Hughes Act, (Public Law No. 347, Sixty-fourth Congress, S. 703) Section 10.

TABLE III
 AVERAGE NUMBER OF NON-FARM BOYS
 ENROLLED PER DEPARTMENT

Number of Non-Farm Boys	Above-average Group	Below-average Group
32.1 to 34.0	0	1
30.1 to 32.0	0	0
28.1 to 30.0	1	0
26.1 to 28.0	0	1
24.1 to 26.0	0	1
22.1 to 24.0	0	0
20.1 to 22.0	0	1
18.1 to 20.0	2	1
16.1 to 18.0	4	0
14.1 to 16.0	8	4
12.1 to 14.0	6	6
10.1 to 12.0	4	6
8.1 to 10.0	5	2
6.1 to 8.0	6	4
4.1 to 6.0	3	11
2.1 to 4.0	4	7
0 to 2.0	7	5
Number of Cases	50	50
Mean	10.01	9.17
Standard Deviation	6.12	6.97
Critical Ratio	.64 (not significant)	

TABLE IV
 PERCENTAGE OF THE TOTAL NUMBER OF STUDENTS ENROLLED
 PER DEPARTMENT THAT WERE FARM BOYS

Per Cent Farm Boys	Above-average Group	Below-average Group
96 to 100	3	4
91 to 95	7	5
86 to 90	3	10
81 to 85	5	10
76 to 80	8	3
71 to 75	10	4
66 to 70	6	1
61 to 65	3	2
56 to 60	3	5
51 to 55	0	4
46 to 50	1	1
41 to 45	1	0
36 to 40	0	1
Number of Cases	50	50
Mean	77.50	76.80
Standard Deviation	15.24	12.51
Critical Ratio	.03 (not significant)	

reported fewer than 50 per cent of the total to be farm boys. Thirty-two per cent of the departments reported more than 85 per cent of the total enrollment to be farm boys. From the data presented in this table, one must assume the percentage of farm boys enrolled does not have any noticeable bearing upon the effectiveness of these two groups of departments of vocational agriculture. At least there was no evidence that the percentage of farm boys significantly affected the rating of these 100 departments included in this study. It is quite possible both groups of departments would have functioned more efficiently had there been a lesser number of non-farm boys enrolled.

Number enrolled in young farmer classes per department. When collating the number of students enrolled in young farmer programs, a significant difference may be observed between the above-average group of departments and the below-average group. By viewing Table V, one may observe that 11 of the below average departments reported no young farmers enrolled in classes during 1951-1952. The average number enrolled from the above-average group was 14.30 per department in contrast to 10.88 per department from the below-average group. Three departments reported enrollments to be 28 or more; one of these reported an enrollment exceeding 40. More than half of the schools reported enrollments ranging from 10 to 18 young farmers per department. Seventy-eight per cent of the above average group reported enrollments ranging from 10 to 24 young farmers.

In a study made by William Townes, he reported that returned questionnaires from 94.50 per cent of the vocational agriculture teachers in 144 communities in Oklahoma indicated ten or more young farmers under 35 years of age were living in their respective communities, and that 65.30 per cent indicated 20 or more young farmers living in their

TABLE V
 NUMBER ENROLLED IN YOUNG FARMER
 CLASSES IN 1951-1952

Number Enrolled	Above-average Group	Below-average Group
40 to 42	0	1
37 to 39	0	0
34 to 36	0	0
31 to 33	0	1
28 to 30	1	0
25 to 27	0	0
22 to 24	6	2
19 to 21	6	3
16 to 18	12	2
13 to 15	9	13
10 to 12	6	9
7 to 9	4	7
4 to 6	1	1
1 to 3	0	0
0	5	11
Number of Cases	50	50
Mean	14.30	10.88
Standard Deviation	6.98	8.65
Critical Ratio		2.18*

respective communities.² Approximately half of the 100 schools included in this thesis were also included in the 144 schools surveyed by Townes.

Hours of young farmer instruction per department. Programs of vocational education in agriculture were believed to be influenced by the number of hours of organized young farmer instruction per department. The findings pertaining to this factor are presented in Table VI. A significant difference in the number of hours of young farmer instruction per department between the above-average group and the below-average group is revealed. The average number of hours of young farmer instruction for the above-average group is 39.70 hours of organized instruction in comparison to 30.50 hours for the below-average group. This discloses an average of 9.20 more hours of young farmer instruction per department by the above-average group. Eighty-four per cent of the above-average departments reported from 21 to 70 hours of young farmer instruction. One teacher from the above-average group reported over 121 hours of young farmer instruction. Of the eighty-four departments from both groups reporting young farmer instruction, all reported at least 21 hours of instruction. This would lead the investigator to surmise that those offering young farmer instruction generally held at least ten class sessions, each being of two-hour duration.

Number of young farmer visits per department. Farm visits by teachers of vocational agriculture appear to have a great influence upon the young farmer program. This belief is substantiated by the

²William Townes, A Study of Characteristics of Departments of Vocational Agriculture in Oklahoma (Stillwater, Oklahoma, Oklahoma A. and M. College, Master's Thesis, 1954), p. 26.

TABLE VI
 NUMBER OF HOURS OF YOUNG FARMER
 INSTRUCTION PER DEPARTMENT

Number Hours	Above-average Group	Below-average Group
121 to 130	1	0
111 to 120	0	0
101 to 110	0	0
91 to 100	0	0
81 to 90	0	0
71 to 80	2	0
61 to 70	4	1
51 to 60	4	6
41 to 50	14	13
31 to 40	10	10
21 to 30	10	9
11 to 20	0	0
1 to 10	0	0
0	5	11
Number of Cases	50	50
Mean	39.70	30.50
Standard Deviation	22.80	20.90
Critical Ratio		2.12*

findings in Table VII, which reveal a highly significant difference in the number of young farmer farm visits per department between the above-average group and the below-average group. The above-average group shows an average of 51.70 visits per department in contrast to 30.90 visits per department in the below-average group. Sixty-six per cent of the above-average group reported visits ranging from 20 to 80 per department. With an average of 14.30 young farmers enrolled as shown in Table V, and an average of 51.70 visits made by teachers in the above-average group, one may surmise that each young farmer was visited approximately three times during the year. Teachers from the below-average group made less than 60 per cent as many young farmer farm visits as teachers from the above-average group. Supervision of the supervised farming program of young farmers is expected of teachers of vocational agriculture and is stated as a responsibility of teachers in the Smith-Hughes Act. Teaching in the classroom in organized instruction cannot be nearly as effective and meaningful without assistance and supervision of the farming programs on the students' home farms. Classroom instruction should be integrated with the farming programs of the students if it is to be truly vocational agriculture. Young farmer instruction and farm visitation should be a vital part of the program of vocational agriculture.

Average number enrolled in adult farmer classes per department. In an analysis of the data concerning the number of adults enrolled in educational programs of vocational agriculture, the investigator found no statistical difference between the above-average group of departments and the below-average group. The means of the two groups are almost identical when collating the average number of adults enrolled in organized adult classes during the two-year period 1950-1951 and 1951-1952. One

TABLE VII
 NUMBER OF YOUNG FARMER FARM VISITS
 DURING 1951-1952 PER DEPARTMENT

Number of Visits	Above-average Group	Below-average Group
201 to 220	0	1
181 to 200	0	0
161 to 180	1	0
141 to 160	0	0
121 to 140	1	0
101 to 120	4	0
81 to 100	3	3
61 to 80	9	3
41 to 60	11	7
21 to 40	13	17
1 to 20	3	8
0	5	11
Number of Cases	50	50
Mean	51.70	30.90
Standard Deviation	37.84	37.80
Critical Ratio		2.69**

department from the above-average group reported an average enrollment exceeding 221; another from the same group reported an enrollment exceeding 161. One teacher from the above-average group indicated none enrolled. This department was the only one that reported no educational work with adults in the community. Only 20 per cent of all departments included in this study indicated an enrollment exceeding 40. The data reveal that the annual average number of adults attending organized classes as reported by 100 departments was just slightly greater than 30 per department.

Average number of hours of adult instruction per department. Programs of vocational agriculture were believed to be influenced by the number of hours of organized adult farmer instruction per department. This belief, however, is not supported by the findings of this study. It can be ascertained by examining Table IX that there is no significant difference in the number of hours of organized adult instruction per department between the above-average and the below-average groups. Fifty-five per cent of all departments reported 40 to 70 hours of adult instruction per year. Only four per cent of all schools reported fewer than 21 hours of adult instruction. It is interesting to notice the below-average group shows a mean of 56.70 hours in contrast to 53.10 hours for the above-average group, even though one of the above-average departments reported over 151 hours of adult instruction. One might conjecture that perhaps some of those 11 below-average departments exhibiting no time spent in instruction of young farmers, as indicated in Table VI, were reporting the required number of hours of adult instruction in order to meet the minimum requirements demanded of them by State Department Plans.

TABLE VIII
 AVERAGE NUMBER ENROLLED IN ADULT CLASSES
 PER DEPARTMENT IN 1950-1951 AND 1951-1952

Number Enrolled	Above-average Group	Below-average Group
221 to 240	1	0
201 to 220	0	0
181 to 200	0	0
161 to 180	1	0
141 to 160	0	0
121 to 140	0	0
101 to 120	0	0
81 to 100	0	3
61 to 80	3	3
41 to 60	6	6
21 to 40	22	29
1 to 20	16	12
0	1	0
Number of Cases	50	50
Mean	30.90	30.50
Standard Deviation	38.60	15.48
Critical Ratio	.07 (not significant)	

TABLE IX
 AVERAGE NUMBER OF HOURS OF ADULT INSTRUCTION
 PER DEPARTMENT FOR 1950-1951 AND 1951-1952

Number of Hours	Above-average Group	Below-average Group
151 to 160	1	0
141 to 150	0	0
131 to 140	0	0
121 to 130	0	0
111 to 120	0	0
101 to 110	0	0
91 to 100	0	1
81 to 90	2	2
71 to 80	5	9
61 to 70	6	9
51 to 60	17	15
41 to 50	7	4
31 to 40	4	4
21 to 30	5	5
11 to 20	2	1
1 to 10	0	0
0	1	0
Number of Cases	50	50
Mean	53.10	56.70
Standard Deviation	23.54	17.86
Critical Ratio	.86 (not significant)	

Average number of farm visits per department. Farm visits by teachers of vocational agriculture would appear to have a great influence upon the adult farmer educational program. The findings presented in Table X, however, do not reveal a significant difference between the above-average and the below-average groups. Even though the above-average group reported 23.33 per cent more farm visits per department in supervising their adult programs, this is not a significant difference between the two groups of departments. One reason this does not prove to be a statistical difference is that the wide range of the groups is evidenced by extreme deviation scores. It is rather revealing that 32 per cent of all departments reported less than 51 farm visits per department each year; 73 per cent reported 100 or less. Six departments reported from 226 to 400 visits per year for the purpose of the teachers' supervising programs of adult farmers. It may be questioned whether or not a teacher of vocational agriculture could make this many visits and also adequately carry on the other phases of the program of vocational agriculture. The investigator is aware of the fact that many unintentional errors are to be found in reports made by any group of teachers of vocational agriculture. He also recognizes the fact that some teachers do not report all educational activities in which they participate.

Average number of production projects per department. Considered in this study was the average number of production projects completed annually per department. It was not surprising when reviewing this factor to find a highly significant difference revealed between the two groups. The findings pertaining to this are presented in Table XI, exhibiting a critical ratio of 5.37.

A production project is "a productive enterprise project or ownership

TABLE X
 AVERAGE NUMBER OF FARM VISITS PER DEPARTMENT
 SUPERVISING ADULT EDUCATION

Number of Visits	Above-average Group	Below-average Group
376 to 400	1	0
351 to 375	0	0
326 to 350	0	0
301 to 325	0	0
276 to 300	1	0
251 to 275	1	1
226 to 250	2	0
201 to 225	0	0
176 to 200	0	0
151 to 175	1	0
126 to 150	2	5
101 to 125	9	4
76 to 100	5	16
51 to 75	14	6
26 to 50	11	13
1 to 25	2	5
0	1	0
Number of Cases	50	50
Mean	92.50	75.00
Standard Deviation	74.50	45.00
Critical Ratio	1.43 (not significant)	

project" which is "a business venture for experience and profit which as a minimum usually covers a period of time represented by a production cycle of a farm enterprise."³ Such a project is owned in part or entirely by the student and is controlled by him.

In examining the table showing the average number of production projects completed per department, it is apparent the mean of the above-average group is 105.50, and the mean of the below-average group is 66.00. The standard deviation of the above-average group is 46.75, indicating a rather wide dispersion for that group, with the middle 68.26 per cent ranging from 58.75 to 152.25 production projects per department. With a standard deviation of 22.75, the middle 68.26 per cent of the below-average group discloses the range from 43.25 to 88.75. Only one of the above-average group indicated less than 51 production projects completed annually. Fifteen of the 50 departments in the lower group, however, were listed in the intervals below 51, with one department falling in the 1 to 25 interval.

With a critical ratio of 5.37, one can conclude that the number of production projects completed annually by a department should be an important factor to consider when evaluating the effectiveness of that department's program of vocational agriculture.

Average number of production projects per student. Another factor regarded to be of importance in evaluating programs of vocational agriculture was the average number of productive enterprise projects completed per student. When the writer compared the average number of production

³George P. Deyoe, Supervised Farming in Vocational Agriculture (Danville, Illinois, 1943), p. 54.

TABLE XI
 AVERAGE NUMBER OF PRODUCTION PROJECTS
 COMPLETED ANNUALLY BY DEPARTMENTS

Number of Projects	Above-average Group	Below-average Group
326 to 350	1	0
301 to 325	0	0
276 to 300	0	0
251 to 275	0	0
226 to 250	0	0
201 to 225	1	0
176 to 200	0	0
151 to 175	2	0
126 to 150	7	1
101 to 125	13	4
76 to 100	14	11
51 to 75	11	19
26 to 50	1	14
1 to 25	0	1
0	0	0
Number of Cases	50	50
Mean	105.50	66.00
Standard Deviation	46.75	22.75
Critical Ratio	5.37**	

projects per department, Table XI manifested a highly significant difference between the two groups of departments. It would be logical to expect to find a significant difference also revealed when comparing the number of production projects per student. Table XIII presents the findings which support this expectation. Students from the above-average departments averaged 2.26 productive enterprise projects completed yearly; students from the below-average departments averaged 1.53 projects completed yearly. Seven, or 14 per cent, of the departments in the above-average group can be observed in the intervals below 1.68 projects per student in comparison with 33, or 66 per cent, of the departments in the below-average group found in the intervals below 1.68 projects per student. More than half of the above-average group averaged two or more productive enterprise projects per student; but only eight, or 16 per cent, of the below-average group averaged two or more projects per student.

In evaluating the effectiveness of a program of vocational agriculture, one should consider the average number of productive enterprise projects completed annually per student.

Average number of farm visits per department. The number of supervised farm training visits per department was one of the factors considered in this study. Data concerning this factor are presented in Table XIII. A highly significant difference between the above-average and below-average groups of departments of vocational agriculture is evidenced when collating the average annual number of supervised farm training visits per department. Supervised farm training visits may be defined as the visits made by the teacher of vocational agriculture to the homes of his students enrolled in the regular all-day classes in

TABLE XII
 AVERAGE NUMBER OF PRODUCTIVE ENTERPRISE
 PROJECTS COMPLETED PER STUDENT

Number of Projects	Above-average Group	Below-average Group
4.68 to 5.00	1	0
4.34 to 4.67	0	0
4.01 to 4.33	0	0
3.68 to 4.00	0	0
3.34 to 3.67	2	0
3.01 to 3.33	4	0
2.68 to 3.00	6	2
2.34 to 2.67	8	1
2.01 to 2.33	6	5
1.68 to 2.00	16	9
1.34 to 1.67	5	14
1.01 to 1.33	1	13
.68 to 1.00	1	6
.34 to .67	0	0
.01 to .33	0	0
0	0	0
<hr/>		
Number of Cases	50	50
Mean	2.26	1.53
Standard Deviation	.93	.45
Critical Ratio	5.21**	

the secondary school where the teacher is attempting to assist the students to become more proficient in their farming operations. Generally, supervised farm training visits are made to supervise the productive enterprise projects of students. Supervised farm training visits may also be made to supervise improvement projects and supplementary farm practices.

As one can observe in Table XIII, the average number of supervised farm training visits per department for the above-average group is 547.50 per year. The below-average group made less than two-thirds as many visits, with an average of 349.54 visits per department per year. Only one of the above-average group reported fewer than 200 visits as compared with ten of the below-average group reporting fewer than 200 visits. Five departments from the above-average group reported making more than 900 visits annually, with one of this group reporting more than 1,400 visits per year. It is fitting to be reminded there were two two-teacher departments represented in this above-average group.

If factors which prove to be significant are to be considered valuable criteria for evaluating the effectiveness of programs of vocational agriculture, then the average number of supervised farm training visits made by a department each year should be considered. In order to average 547.50, which is the mean of the above-average group, a teacher would need to average approximately two supervised farm training visits daily during the regular working days of the week throughout most of the year.

TABLE XIII
 AVERAGE ANNUAL TOTAL NUMBER OF SUPERVISED
 FARM TRAINING VISITS PER DEPARTMENT

Number of Visits	Above-average Group	Below-average Group
1,400 to 1,499	1	0
1,300 to 1,399	0	0
1,200 to 1,299	1	0
1,100 to 1,199	1	0
1,000 to 1,099	0	0
900 to 999	2	0
800 to 899	5	2
700 to 799	3	1
600 to 699	4	2
500 to 599	7	3
400 to 499	7	8
300 to 399	9	13
200 to 299	9	11
100 to 199	1	9
0 to 99	0	1
<hr/>		
Number of Cases	50	50
Mean	547.50	349.54
Standard Deviation	282.49	177.76
Critical Ratio	3.57**	

Average number of farm visits per student. This paragraph is concerned with a comparison of the two groups of departments regarding the average number of supervised farm training visits per student. With a significant difference evidenced between the two groups when comparing the total number of supervised farm training visits per department, it is reasonable to expect to find a significant difference when comparing the average number of supervised farm training visits per student. It is apparent that this expectation is confirmed by viewing Table XIV. The average number of visits per student of the above-average group is 12.68 visits per year, and the number of visits per student of the below-average group is 9.02. Thirty-four of the 50 departments of the below-average group averaged one to nine visits made to each student annually; 17 of the 50 departments of the above-average group were listed in these interval groupings. This would reveal twice as many of the below-average group were found in the lower intervals. It is interesting to note that one department reported making from 43 to 45 visits per student. This would indicate, in this instance, that individual student visits averaged almost four per month. It might be questioned whether such frequent visitation is needed.

This factor should be recognized as one of the criterion to be included in evaluative criteria for measuring the effectiveness of programs of vocational agriculture. With a mean of 12.68 visits per student, a teacher would need to average slightly more than one visit per month for supervisory farm training visits to the home of each of his students.

Average number of improvement projects per department. Another factor considered in this investigation was concerned with the average

TABLE XIV
 AVERAGE NUMBER OF SUPERVISED FARM
 TRAINING VISITS PER STUDENT

Number of Visits	Above-average Group	Below-average Group
43 to 45	1	0
40 to 42	0	0
37 to 39	0	0
34 to 36	0	0
31 to 33	0	0
28 to 30	1	0
25 to 27	1	0
22 to 24	3	2
19 to 21	5	1
16 to 18	5	1
13 to 15	8	7
10 to 12	9	5
7 to 9	7	18
4 to 6	8	13
1 to 3	2	3
Number of Cases	50	50
Mean	12.68	9.02
Standard Deviation	7.62	4.80
Critical Ratio	2.82**	

number of improvement projects completed per department. Table XV discloses a significant difference in the average annual total number of improvement projects completed per department between the above-average group and the below-average group. Deyoe defines an improvement project as "an undertaking which improves the real estate value of the farm, the efficiency of the farm business or of a farm enterprise, or the living conditions of the farm family."⁴ An improvement project should consist of a number of related activities which are planned and carried out by the student with the supervision of the teacher of vocational agriculture and with the cooperation of the student's parents. Usually the student does not have ownership of such a project, nor does he generally expect any direct cash income to be paid him.

The below-average group reported two-thirds as many improvement projects completed annually as was reported by the above-average group. The mean of the below-average group was 150.50 improvement projects completed annually as opposed to 227.00 for the above-average group. Twelve departments from the below-average group indicated fewer than 76 improvement projects completed yearly; only three from the above-average group listed fewer than 76 completed.

With a significant difference manifested regarding the annual total number of improvement projects completed per department, this should be another important factor to regard as criterion for evaluating the effectiveness of a program of vocational agriculture.

Average number of improvement projects per student. The factor considered in this paragraph is concerned with the average number of improvement

⁴Deyoe, p. 55.

TABLE XV
 AVERAGE ANNUAL TOTAL NUMBER OF IMPROVEMENT
 PROJECTS COMPLETED PER DEPARTMENT

Number of Improvement Projects	Above-average Group	Below-average Group
976 to 1,050	1	0
901 to 975	0	0
826 to 900	0	0
751 to 825	0	0
676 to 750	2	0
601 to 675	0	1
526 to 600	0	0
451 to 525	1	0
376 to 450	2	1
301 to 375	2	2
226 to 300	8	3
151 to 225	16	14
76 to 150	15	17
0 to 75	3	12
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Number of Cases	50	50
Mean	227.00	150.50
Standard Deviation	178.50	110.48
Critical Ratio	2.29*	

projects completed per student. Examination of the findings presented in Table XVI makes it apparent there is a significant difference between the two groups regarding the average annual number of improvement projects per student. The average number of improvement projects per student in the above-average group is 4.81 as opposed to 3.61 improvement projects per student in the below-average group. Twelve of the below-average departments reported less than two improvement projects per student, whereas only five of the above-average departments reported less than two improvement projects per student. In observing that three departments reported students averaging 12 to 16.9 improvement projects annually, the investigator is led to believe that some teachers of vocational agriculture do not have a clearly defined common meaning of the term "improvement project." In all probability those departments reporting a large number of improvement projects completed per student were not thinking of improvement projects having the broad scope of investment and time requirements that is ordinarily given to the definition of the term.

With a significant difference between the two groups, however, improvement projects per student should be regarded as one of the important factors to weigh when evaluating effectiveness of programs of vocational agriculture.

Average number of supplementary jobs per department. Another factor included in this investigation was the average number of supplementary jobs completed per department. Table XVII displays a highly significant difference between the above-average and the below-average group of departments when the observer compares the average total number of supplementary jobs completed annually per department. The above-average group reported an average of 692.5 supplementary jobs completed per

TABLE XVI
 AVERAGE ANNUAL NUMBER OF IMPROVEMENT
 PROJECTS PER STUDENT

Number of Improvement Projects	Above-average Group	Below-average Group
16.0 to 16.9	1	0
15.0 to 15.9	0	0
14.0 to 14.9	0	0
13.0 to 13.9	0	0
12.0 to 12.9	1	1
11.0 to 11.9	0	0
10.0 to 10.9	1	0
9.0 to 9.9	1	0
8.0 to 8.9	0	1
7.0 to 7.9	3	0
6.0 to 6.9	5	4
5.0 to 5.9	9	6
4.0 to 4.9	7	4
3.0 to 3.9	8	13
2.0 to 2.9	9	9
1.0 to 1.9	5	11
0.0 to .9	0	1
Number of Cases	50	50
Mean	4.81	3.61
Standard Deviation	2.85	2.15
Critical Ratio	2.40*	

department in contrast to a reported 460.5 supplementary jobs completed by the below-average group.

Supplementary farm jobs or supplementary farm practices, as they are often identified, are "jobs outside of those already included as normal parts of a student's productive and improvement projects, which are undertaken by him for additional experience or skill or for improving the efficiency of the farm home. . . . These jobs provide opportunities for experiences of value to the boy in addition to the other portions of his supervised farming program. Thus, they provide for needed experiences which would otherwise be lacking in his program."⁵ A supplementary job usually consists of a single job of limited scope, whereas an improvement project consists of several closely related jobs much broader in scope.

The below-average group reported only 64.5 per cent as many supplementary jobs completed as the above-average group of departments. Six of the below-average group listed fewer than 201 supplementary jobs per department. Nine of the above-average departments reported more than 1,200 supplementary jobs per department; one of the below-average group listed more than 1,200 jobs.

Average number of supplementary jobs per student. The average number of supplementary jobs per student was another factor considered in this investigation. A highly significant difference between the two groups of departments is revealed when one is considering this factor. The mean of the above-average group is 15.53 in comparison to a mean of 11.33 for the below-average group. The middle 68.26 per cent of the

⁵Deyoe, p. 56.

TABLE XVII
 AVERAGE ANNUAL TOTAL NUMBER OF SUPPLEMENTARY
 JOBS PER DEPARTMENT

Number of Supplementary Jobs	Above-average Group	Below-average Group
2401 to 2600	1	0
2201 to 2400	0	0
2001 to 2200	0	0
1801 to 2000	0	0
1601 to 1800	2	0
1401 to 1600	0	0
1201 to 1400	6	1
1001 to 1200	3	0
801 to 1000	1	3
601 to 800	6	9
401 to 600	16	14
201 to 400	15	17
0 to 200	0	6
Number of Cases	50	50
Mean	692.5	460.5
Standard Deviation	468.0	244.0
Critical Ratio	3.11**	

above-average group would indicate a range of 6.86 to 24.20 supplementary jobs completed. The range of the middle 68.26 per cent of the below-average group would be from 6.11 to 16.55. Twelve departments of the above-average group reported their students averaged more than 24 supplementary jobs.

Since supplementary jobs are an important phase of the supervised farm training program and because a highly significant difference between the two groups has been evidenced, it is recommended the number of supplementary jobs completed per student be recognized as an important factor when evaluating programs of vocational agriculture.

Number of FFA members per department. The number of active FFA members per department was another factor to be investigated in this study. Table XIX reveals a significant difference between the above-average group and the below-average group when contrasting the total number of active FFA members per department.

Active FFA members were considered to be those listed on the F.F.A. Membership List which was sent to the State Supervisor with the names of paid members. The Oklahoma FFA State Constitution identifies an active member as:

Any male student not over 25 years of age who is regularly enrolled in an all-day or day-unit class in vocational agriculture is entitled to become an active member of any chartered FFA chapter upon receiving a majority vote of the chapter membership at any local meeting. A member may retain his active membership continuously throughout his entire high school career and for three years after the first national convention following graduation from, or leaving high school; or until he may become twenty-one years of age, whichever is the greater length of time. No individual may retain his active membership beyond his twenty-fifth birthday.⁶

⁶Constitution of the Future Farmers of America, Oklahoma Association (April 24, 1953), p. 2.

TABLE XVIII
AVERAGE ANNUAL NUMBER OF SUPPLEMENTARY
JOBS PER STUDENT

Number of Supplementary Jobs	Above-average Group	Below-average Group
36.1 to 39.0	1	0
33.1 to 36.0	0	0
30.1 to 33.0	3	0
27.1 to 30.0	3	0
24.1 to 27.0	5	0
21.1 to 24.0	0	3
18.1 to 21.0	4	2
15.1 to 18.0	5	8
12.1 to 15.0	8	9
9.1 to 12.0	7	6
6.1 to 9.0	8	15
3.1 to 6.0	6	6
.1 to 3.0	0	1
<hr/>		
Number of Cases	50	50
Mean	15.53	11.33
Standard Deviation	8.67	5.22
Critical Ratio	2.92**	

The above-average departments reported a mean of 52.90 FFA members; the below-average departments reported a mean of 45.44 members. It may be observed that these means exceed the average number of students enrolled in vocational agriculture, as indicated in Table I. The above-average group had 6.70 more FFA members than students enrolled in vocational agriculture. The below-average group had 3.44 more FFA members than were enrolled in vocational agriculture. When compiling the data, however, the investigator found some departments from both groups had considerably less than 100 per cent of the students enrolled in vocational agriculture who were listed as active FFA members.

Table XIX denotes a significant difference in the total number of active FFA members per department; therefore, this factor should be included as one of the factors in evaluating programs of vocational agriculture.

Number of honorary FFA members per department. It was believed the number of honorary members per FFA chapter would be a valuable guide when one is evaluating programs of vocational agriculture. A highly significant difference is apparent between the above-average group of departments and the below-average group when one is itemizing the number of honorary FFA members per chapter.

Honorary members are those elected by the FFA members of any local chapter to be honored for outstanding services rendered. The Oklahoma State FFA Constitution identifies honorary FFA members as:

Instructors, school superintendents, principals, teachers, businessmen, farmers, and others, who are helping to advance vocational agriculture and FFA work in Oklahoma, and who have rendered outstanding service, may be elected to honorary membership by a majority vote of the members present at any chapter meeting. Honorary members shall be non-voting, and rank as Chapter Farmers.⁷

⁷Ibid., p. 3.

TABLE XIX
TOTAL NUMBER OF ACTIVE FFA
MEMBERS PER DEPARTMENT

Number of Members	Above-average Group	Below-average Group
101 to 110	1	0
91 to 100	1	0
81 to 90	2	0
71 to 80	5	5
61 to 70	4	2
51 to 60	7	7
41 to 50	20	12
31 to 40	8	18
21 to 30	2	4
11 to 20	0	1
1 to 10	0	0
<hr/>		
Number of Cases	50	49
Mean	52.90	45.44
Standard Deviation	17.29	14.49
Critical Ratio	2.33*	

It is apparent the above-average group averaged almost three times as many honorary members per department as the below-average group. The above-average group reveals a mean of 22.30 honorary members per department; the below-average group shows only 7.75. Six of the below-average group and one of the above-average group reported they had never had a single honorary member. Thirty-one departments, or 62 per cent of the below-average group, reported they had from one to ten honorary members. Forty departments, or 80 per cent of the above-average group, reported from 11 to 90 honorary members. The mode of the above-average group is 15.5; the mode of the below-average group is 5.5.

Table XX indicates those departments named by the district supervisors evidently have been cognizant of the fact that persons in other professions have been of value in assisting and encouraging FFA activities within the programs of vocational agriculture. The findings would lead one to surmise that the departments identified as above average by the supervisors were the departments that were possibly receiving more community support by businessmen, farmers, school administrators, and others. It would appear that some teachers of vocational agriculture do not fully realize the value of giving just recognition to those who make a real contribution to programs of vocational agriculture.

It is obvious that determining the number of honorary FFA members per department would be one important factor to consider when itemizing criteria for evaluating programs of vocational agriculture.

Number of members per chapter attending State FFA convention. A significant difference between the two groups of departments is revealed when comparing the number of FFA members attending the State FFA convention. The mean of the above-average group is 7.64 in contrast to 4.52 for the

TABLE XX
 NUMBER OF HONORARY FFA MEMBERS PER CHAPTER

Number of Honorary Members	Above-average Group	Below-average Group
81 to 90	1	0
71 to 80	0	0
61 to 70	0	0
51 to 60	4	0
41 to 50	4	1
31 to 40	4	0
21 to 30	2	2
11 to 20	25	9
1 to 10	9	31
0	1	6
Number of Cases	50	49
Mean	22.30	7.75
Standard Deviation	17.72	5.48
Critical Ratio	5.55**	

below-average group. Teachers of vocational agriculture are expected to have two official FFA voting delegates representing their local FFA chapter at the annual State FFA convention, which is generally held during the latter part of the month of April. The investigator, therefore, found all departments were represented by two delegates, with one single exception during a one-year period. Twenty-four of the below-average departments reported one to three members attending in contrast to 16 of the above-average departments reporting this number attending. Ten of the below-average departments reported more than six members attending with 18 being the highest number reported by that group. Twice as many of the above-average departments reported six or more members attending. Five of the above-average departments reported from 19 to 54 attending.

The findings presented in Table XXI would lead one to believe the above-average departments identified by the district supervisors tended to encourage a larger number of FFA members to attend the State FFA convention as spectators. The investigator believes, as will be borne out in later evidence in some of the following tables, that the above-average departments were represented at the State FFA convention by larger numbers of FFA members because several of these members were also contestants who would be competing in the State FFA interscholastic judging contests on the Saturday following the termination of the State FFA convention on Friday.

It is apparent, whatever the causes, that the number of FFA members attending the State FFA convention denotes a significant difference between the two groups; therefore, this should be a factor to be weighed when evaluating programs of vocational agriculture.

TABLE XXI
 NUMBER OF MEMBERS PER CHAPTER ATTENDING
 STATE FFA CONVENTION

Number Attending	Above-average Group	Below-average Group
52 to 54	1	0
49 to 51	0	0
46 to 48	0	0
43 to 45	0	0
40 to 42	0	0
37 to 39	0	0
34 to 36	0	0
31 to 33	0	0
28 to 30	0	0
25 to 27	1	0
22 to 24	0	0
19 to 21	3	0
16 to 18	0	1
13 to 15	1	1
10 to 12	6	2
7 to 9	8	5
4 to 6	14	16
1 to 3	16	24
Number of Cases	50	49
Mean	7.64	4.52
Standard Deviation	8.13	2.96
Critical Ratio	2.54*	

Number and percentage of departments participating in FFA activities.

In investigating and comparing the various FFA activities engaged in by the two groups of departments, many revealing findings are presented in Table XXII. The only FFA activities that do not show a significant difference between the two groups are: hold regular monthly meetings, have satisfactory program of work, participate in cooperative feeding, exhibit chapter welcome signs, and attend the State FFA convention. The above-average group, however, shows a higher percentage of departments participating in these named activities. One exception may be observed with 28 below-average departments exhibiting welcome signs in comparison with 27 above-average departments reporting they exhibited welcome signs.

Among the FFA activities manifesting highly significant differences between the two groups of departments are: hold advancement ceremonies, hold Parent-Son banquet or social, appear before civic clubs, hold joint FHA-FFA socials, provide a State FFA officer, and rate as "Outstanding Chapter." These activities named in this paragraph are those which point out the greatest dissimilarities between the above-average group of departments and the below-average group. In scrutinizing Table XXII, it is obvious there is a great divergence between the two groups when one is considering these factors. The greatest difference that may be observed is the factor regarding chapter ratings which show 36 of the above-average departments were rated "Outstanding FFA Chapter" at least once during the three-year period covered in this study. Only one of the 50 below-average departments was rated "Outstanding FFA Chapter" during the same period. The above-average departments supplied 13 State FFA officers during the three-year period. At the same time, the below-average departments provided three State officers. Three times

TABLE XXII
NUMBER AND PER CENT OF DEPARTMENTS
PARTICIPATING IN VARIOUS FFA ACTIVITIES

Activity	Above-average Group		Below-average Group	
	Number	Per Cent	Number	Per Cent
(NS) Hold regular monthly meetings	43	86	39	78
(**) Hold advancement ceremonies	33	66	18	36
(NS) Have satisfactory program of work	43	86	38	76
(*) Participate in leadership training	41	82	30	60
(*) Enter public speaking contests	10	20	2	4
(**) Hold Parent-Son banquet or social	43	86	29	58
(*) Participate in radio programs	30	60	20	40
(*) Participate in television programs	16	32	5	10
(*) Prepare news publicity regularly	49	98	43	86
(**) Appear before civic clubs	43	86	29	58
(NS) Participate in cooperative feeding	35	70	30	60
(NS) Exhibit chapter welcome signs	27	54	28	56
(NS) Attend State FFA convention	50	100	49	98
(*) Attend National FFA convention	14	28	5	10
(**) Hold joint FHA-FFA socials	24	48	8	16
(**) Provide a State FFA officer ^f	13	26	3	6
(**) Rate as "Outstanding FFA Chapter" ^f	36	72	1	2

* Denotes significant difference

** Denotes highly significant difference

NS Denotes no significant difference

^f Denotes data totaled for the three-year period 1949-1950, 1950-1951, and 1951-1952.

as many departments from the above-average group reported participation in joint Future Homemakers of America-Future Farmers of America socials as were reported by departments in the below-average group. Eighty-six per cent of the above-average group reported they held Parent-Son banquets, barbecues, or socials honoring parents. Fifty-eight per cent of the below-average group reported holding such affairs for the parents. Eighty-six per cent of the above-average group and 58 per cent of the below-average group reported participation in civic club appearances. Thirty-three of the above-average departments reported they held advancement ceremonies in order to recognize their members as they advanced in degree work. Only 18 of the 50 below-average departments reported they held advancement ceremonies.

Other activities, not mentioned yet in this analysis of Table XXII, which indicated a significant difference between the two groups of departments of vocational agriculture are: participate in leadership training conferences and schools, enter public speaking contests, participate in radio programs, participate in television programs, prepare news publicity regularly, and attend the National FFA conventions. Fourteen of the above-average departments reported members attending the National FFA convention in Kansas City at least once during the three-year period; only five of the below-average departments reported members in attendance at the National FFA convention during that period. A marked dissimilarity can be observed between the two groups in all activities listed that pertain to publicity. Participating in leadership training schools also reveals a wide divergence. Ten of the 50 above-average departments reported participation in public speaking contests in contrast to two of the below-average departments participating. While this is a low percentage of both groups, it does indicate a significant difference.

From the findings presented in this table, it is obvious that active participation in FFA activities is essential in order to have an effective department of vocational agriculture. The investigator does not believe, nor does he mean to imply, that all departments of vocational agriculture should attempt to participate in all these activities in order to gain recognition during the early stages of development of FFA Chapters. It is quite probable, however, that some of the well-established superior FFA chapters do participate in all FFA activities listed in this table. The investigator would recommend that all FFA activities listed in this table indicating significant differences be included as a part of evaluative criteria for measuring the effectiveness of programs of vocational agriculture.

Number of graduates and drop-outs per department. This analysis is concerned with the annual number of graduates and drop-outs per department. No significant difference is evident in comparing the two groups of departments when considering this factor. It is regrettable there was no manner in which the investigator could separate the graduates from the drop-outs; therefore, the findings presented in the following tables pertaining to the whereabouts of the graduates and drop-outs will of necessity be grouped together. Graduates and drop-outs will be considered as those students enrolled in all-day classes who were listed on the Enrollment Report, which is sent to the State Office October 15 of each year, and who were also listed as graduates or drop-outs for that particular year which is covered by the Final All-Day Report. In other words, a student should not be listed as a graduate or drop-out on more than one Final All-Day Report. The writer is led to believe that some teachers listed students several times on the Final All-Day Report forms

over a period of years, thus making an analysis of this part of the investigation subject to error and misinterpretation.

Table XXIII indicates a mean of 12.70 graduates and drop-outs for the above-average group and a mean of 12.58 for the below-average group. By the investigator's inspecting Table I and through a simple calculation, it may be reasoned that approximately 29 per cent of the average enrollment in vocational agriculture may be reported as graduates or drop-outs each year. With three departments reporting graduates and drop-outs being in excess of 26, and up to 44, the investigator questions whether these reports were valid reports. In compiling the data, it was observed that high numbers of graduates and drop-outs were reported all three years by some departments, leading one to surmise that some teachers may have listed the where-abouts of all recent graduates and drop-outs rather than listing only those for the current year.

Forty of the departments from the above-average group reported their graduates and drop-outs ranging from 6 to 17 each year. An identical number of the departments from the below-average group reported the same range; therefore, approximately 80 per cent of all departments reported the average number of graduates and drop-outs ranging from 6 to 17 annually.

Average number of graduates and drop-outs engaged in farming. Vocational agriculture departments should be responsible for assisting former students to become established in farming. In spite of this objective, no significant difference between the two groups can be observed when one is considering the average number of graduates and drop-outs engaged in farming each year. In fact, a rather surprising finding is revealed when one observes that the mean of the below-average group is 4.46 in

TABLE XXIII
TOTAL NUMBER OF GRADUATES AND
DROP-OUTS PER DEPARTMENT

Number of Graduates and Drop-Outs	Above-average Group	Below-average Group
42 to 44	0	1
39 to 41	0	0
36 to 38	0	0
33 to 35	0	0
30 to 32	1	0
27 to 29	0	1
24 to 26	1	0
21 to 23	2	1
18 to 20	2	6
15 to 17	14	6
12 to 14	4	7
9 to 11	15	14
6 to 8	7	13
3 to 5	3	1
0 to 2	0	0
<hr/>		
Number of Cases	49	50
Mean	12.70	12.58
Standard Deviation	5.47	6.55
Critical Ratio	.01 (not significant)	

contrast to a mean of 3.58 for the above-average group which presents a .88 advantage for the below-average group. It can be observed that one department from the below-average group reported over 19 engaged in farming. This one department would tend to skew the results considerably. The investigator, as mentioned previously, is led to believe that some teachers may have reported all of the recent graduates and drop-outs instead of reporting only those for the one year period. Thirty-seven departments of the above-average group reported two to five graduates and drop-outs engaged in farming; a like number from the below-average group indicated the same although there was a larger percentage of this group reporting but two to three instead of four to five. The findings presented in this table would indicate that a teacher of vocational agriculture should not expect more than two to five graduates and drop-outs to become engaged in farming annually over the years. Of course, communities vary in the opportunities they offer to young men for becoming established in farming. The findings presented in this table should cause those responsible for programs of vocational agriculture to realize that only a small number of the students enrolled in vocational agriculture will have the opportunities for becoming established in farming. One may observe that 59 per cent of the 100 departments included in this study indicated three or a lesser number of their graduates and drop-outs were engaged in farming each year. This is a rather small number when it is recalled that Table XXIII indicated an average of 12.64 graduates and drop-outs per year for the 100 schools. The findings would indicate approximately 32 per cent of the graduates and drop-outs reported by teachers were engaged in farming.

TABLE XXIV
 AVERAGE NUMBER OF GRADUATES AND DROP-OUTS
 ENGAGED IN FARMING

Number Engaged in Farming	Above-average Group	Below-average Group
20 to 21	0	1
18 to 19	0	0
16 to 17	0	0
14 to 15	0	0
12 to 13	0	0
10 to 11	1	0
8 to 9	1	3
6 to 7	5	4
4 to 5	15	10
2 to 3	22	27
0 to 1	5	5
<hr/>		
Number of Cases	49	50
Mean	3.58	4.46
Standard Deviation	2.00	3.80
Critical Ratio	1.44 (not significant)	

Number of graduates and drop-outs in work related to agriculture.

It has been assumed that vocational agriculture is responsible for placing some former students in work related to agriculture; however, no significant difference between the two groups can be observed when comparing the average number of graduates and drop-outs in work related to agriculture. Sixteen of the departments reported none of their graduates or drop-outs in work related to agriculture. Sixty of the 100 departments reported one to two graduates or drop-outs in work related to agriculture. The below-average group shows a mean of 1.78 and the above-average group shows a mean of 1.72 graduates and drop-outs in work related to agriculture per year. This would indicate approximately 14 per cent of the total number of graduates and drop-outs in work related to agriculture.

TABLE XXV

AVERAGE NUMBER OF GRADUATES AND DROP-OUTS IN
WORK RELATED TO AGRICULTURE

Number in Work Related to Agriculture	Above-average Group	Below-average Group
7	2	1
6	0	0
5	2	2
4	4	2
3	2	8
2	10	10
1	19	21
0	10	6
Number of Cases	49	50
Mean	1.72	1.78
Standard Deviation	1.69	1.36
Critical Ratio	.19 (not significant)	

Number of graduates and drop-outs in professional agriculture. It has been acknowledged that departments of vocational agriculture place a few former students in professional agriculture each year. In this investigation no significant difference in the average number of graduates and drop-outs in professional agriculture can be observed between the above-average group of departments and the below-average group. Since most persons would consider it necessary for high school graduates to have some additional education and training before becoming engaged in professional agriculture, it would be expected that most teachers would report few of their students engaged in professional agriculture. This expectation is confirmed by observing Table XXVI, and finding that 87 per cent of all departments covered in this survey reported none of their graduates or drop-outs engaged in professional agriculture. The remaining four of the above-average departments reported one graduate or drop-out in professional agriculture each year. Six of the below-average group also reported one per year; two more indicated three each. It is possible the 12 departments that reported some of their graduates and drop-outs in professional agriculture may have reported boys who were doing field work with the Soil Conservation Service, the Production Marketing Association, or as Dairy Herd Improvement Association testers; nevertheless, a very small percentage of graduates and drop-outs were reported in professional agriculture work.

Number of graduates and drop-outs in non-agricultural work. It has been recognized that a number of former students of vocational agriculture must go into non-agricultural work when they leave school. No significant difference is indicated in this investigation between the two groups when comparing the average number of graduates and drop-outs

TABLE XXVI
 AVERAGE NUMBER OF GRADUATES AND DROP-OUTS
 IN PROFESSIONAL AGRICULTURE

Number in Professional Agriculture	Above-average Group	Below-average Group
3	0	2
2	0	0
1	4	6
0	45	42
<hr/>		
Number of Cases	49	50
Mean	.08	.28
Standard Deviation	.28	.46
Critical Ratio	.61 (not significant)	

in non-agricultural work. The above-average group reveals a slightly lower mean than the below-average group which have means of 2.36 and 2.92 respectively. Seven of the departments included in this study reported none of their graduates and drop-outs engaged in non-agricultural work. Seventy departments reported from one to three graduates and drop-outs in non-agricultural work. Thirty-two departments from both groups reported from four to nine of their graduates and drop-outs in non-agricultural work. Table XXVII makes it apparent that some of the students enrolled in vocational agriculture will go into work not related to agriculture.

TABLE XXVII
 AVERAGE NUMBER OF GRADUATES AND DROP-OUTS
 IN NON-AGRICULTURAL WORK

Number in Non-agricultural Work	Above-average Group	Below-average Group
9	0	3
8	1	0
7	2	0
6	1	0
5	2	4
4	3	6
3	10	13
2	11	14
1	14	8
0	5	2
Number of Cases	49	50
Mean	2.36	2.92
Standard Deviation	1.84	1.97
Critical Ratio	1.47 (not significant)	

Number of graduates and drop-outs in military service. A certain number of former students of vocational agriculture go directly into military service as they leave high school. This was a factor considered in this investigation. Almost identical means are revealed for the two groups of departments when collating the average number of graduates and drop-outs in military service; therefore, no significant difference is indicated. There were only 12 departments that reported none of their graduates and drop-outs in military service. One department reported an average of 12 graduates and drop-outs per year in military service. The only other department reporting more than an average of five, reported six per year. Although no significant difference is revealed in Table XXVIII, it should be pointed out that teachers of vocational agriculture, as well as other teachers in the secondary schools, have a responsibility of counseling boys who are graduating or leaving school through the "drop-out procedure," concerning their forth-coming experiences, moral obligations, and responsibilities pertaining to military service.

Number of graduates and drop-outs in college. Some students of vocational agriculture enroll in college after being graduated from high school. This was one of the factors considered in this study pertaining to graduates and drop-outs. In collecting the data, the investigator found this to be the only factor concerning graduates and drop-outs which revealed a significant difference between the two groups. Table XXIX shows a mean of 3.16 graduates and drop-outs in college from the departments in the above-average group; a mean of 2.18 is evidenced from the departments in the below-average group. This denotes a highly significant difference between the two groups. It may be assumed that practically all of those reported in college were graduates.

TABLE XXVIII
 AVERAGE NUMBER OF GRADUATES AND DROP-OUTS
 IN MILITARY SERVICE

Number in Military Service	Above-average Group	Below-average Group
12	0	1
11	0	0
10	0	1
9	0	0
8	0	0
7	0	0
6	1	0
5	3	4
4	7	4
3	9	5
2	7	16
1	17	13
0	5	7
Number of Cases	49	50
Mean	2.18	2.16
Standard Deviation	1.52	1.98
Critical Ratio	.06 (not significant)	

Twenty-one of the below-average group reported not more than one in college; seven of the above-average group reported this small number in college. Eleven of the above-average group reported an average of five to ten enrolled in college per year; only three of the below-average group reported an average of five to ten graduates and drop-outs in college. Fifty-six of all departments reported two, three, or four graduates and drop-outs in college; an additional 14 reported more than four in college.

With a highly significant difference between the two groups of departments manifested, it must be recommended that the number of graduates and drop-outs in college be regarded as one of the criterion in measuring the effectiveness of programs of vocational agriculture. It may be conjectured that teachers from the above-average departments tend to encourage and inspire some of their students to go to college more so than do the teachers from the below-average departments.

Graduates and drop-outs whose whereabouts are unknown. Some teachers of vocational agriculture lose contact with a few of their former students each year. Table XXX presents the findings concerning the average number of graduates and drop-outs "whose whereabouts are unknown." No significant difference is indicated between the above-average group of departments and the below-average group; however, it is gratifying that 62 of the departments reported none to this query. An additional 29 reported one whose whereabouts was unknown. This shows that 91 of the departments had rather complete records of a follow-up nature regarding their students.

Only one teacher reported an excessive number of graduates and drop-outs whose whereabouts were unknown, and in that instance he reported that he did not know the whereabouts of seven students. It is believed

TABLE XXIX
 AVERAGE NUMBER OF GRADUATES AND
 DROP-OUTS IN COLLEGE

Number in College	Above-average Group	Below-average Group
10	1	0
9	0	0
8	1	1
7	1	1
6	2	0
5	6	1
4	4	4
3	12	10
2	15	12
1	6	19
0	1	2
<hr/>		
Number of Cases	49	50
Mean	3.16	2.18
Standard Deviation	1.94	1.56
Critical Ratio	2.67**	

this report came from a department that had experienced teacher changes during the school term, and the new teacher did not have the information that was needed at the time the Final All-Day Report was sent to the State Office of Vocational Education.

TABLE XXX
AVERAGE NUMBER OF GRADUATES AND DROP-OUTS
WHOSE WHEREABOUTS ARE UNKNOWN

Number Whose Whereabouts are Unknown	Above-average Group	Below-average Group
7	1	0
6	0	0
5	0	0
4	0	0
3	2	0
2	4	1
1	11	18
0	31	31
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Number of Cases	49	50
Mean	.64	.40
Standard Deviation	1.21	.53
Critical Ratio	.31 (not significant)	

Number of contests placed in by teams in the interscholastic contests. Judging contests were one of the factors believed to influence programs of vocational agriculture. Table XXXI presents the findings concerning the number of contests placed in by teams in the interscholastic FFA judging contests during the spring of 1952. A significant difference is indicated between the two groups of departments when one is considering this factor. It was impossible for the investigator to gather data concerning contests held in 1950 and 1951 because these records were not available. "Placing" means those teams that placed among the six high teams in each contest.

It is obvious that a greater number of the above-average departments had teams placing than the below-average departments. One of the below-average departments placed in two contests, with the only other below-average department placing in one contest. Quite another picture is presented by observing the results accomplished by the above-average departments. Two of the above-average departments placed in four contests; one placed in three contests; two placed in two contests; and four placed in one contest.

Since the number of contests placed in by teams in the interscholastic FFA judging contests proved to be a significant difference, it must be recommended that this be regarded as a factor worthy of consideration in developing evaluative criteria. It is apparent only nine of the 50 above-average departments were represented with teams placing in the contests. Only four per cent of the below-average departments had teams placing.

TABLE XXXI

NUMBER OF CONTESTS PLACED IN BY TEAMS IN THE INTERSCHOLASTIC
FFA JUDGING CONTESTS DURING THE SPRING OF 1952

Number of Contests	Above-average Group	Below-average Group
4	2	0
3	1	0
2	2	1
1	4	1
0	41	48
<hr/>		
Number of Cases	50	50
Mean	.38	.06
Standard Deviation	.90	.03
Critical Ratio	2.46*	

The investigator tested the null hypothesis with data collected during the interscholastic FFA judging contests during the spring of 1953 to test the reliability of the findings presented in Table XXXI. These findings substantiate the findings presented in Table XXXII by manifesting a highly significant difference between the two groups of departments. Since these data were gathered in 1953, a detailed discussion will be omitted because these findings are beyond the scope of this investigation.

TABLE XXXII

NUMBER OF CONTESTS PLACED IN BY TEAMS IN THE INTERSCHOLASTIC
FFA JUDGING CONTESTS DURING THE SPRING OF 1953

Number of Contests	Above-average Group	Below-average Group
4	1	0
3	2	0
2	2	1
1	8	0
0	37	49
<hr/>		
Number of Cases	50	50
Mean	.44	.04
Standard Deviation	.90	.30
Critical Ratio	2.86**	

Number of points earned toward the Farmer-Stockman Award by departments. Another factor regarding judging contests was the number of points earned in the interscholastic FFA judging contests toward the Farmer-Stockman Award. Table XXXIII indicates a highly significant difference between the two groups of departments by denoting a much higher mean for the above-average group when comparing the number of points earned in the interscholastic FFA judging contests as computed for the Farmer-Stockman Award. The Farmer-Stockman Award is a beautiful trophy which is awarded to the department of vocational agriculture winning the most points in all of the agricultural contests. Individual member placings are included in the computation of points earned as well as team placings. A detailed explanation of computing points is given in the contest rules.⁸

The same two departments from the below-average group observed in Table XXXI were among the three departments winning the least number of points toward the Farmer-Stockman Award.

The findings presented in this table will convincingly support the findings presented in Table XXXI. Points earned toward the Farmer-Stockman Award should be weighed when evaluating programs of vocational agriculture.

Judging contest cash winnings at the major shows by departments. Cash winnings from judging contests at the three major shows in Oklahoma were believed to be an indication of the effectiveness of programs of vocational agriculture. A highly significant difference is evidenced between the above-average group of departments and the below-average group

⁸H. Clay Potts, Agricultural Judging Schools and Contests for Oklahoma F. F. A. (Stillwater, Oklahoma), p. 1.

TABLE XXXIII

NUMBER OF POINTS EARNED IN THE INTERSCHOLASTIC FFA JUDGING
CONTESTS AS COMPUTED FOR THE FARMER-STOCKMAN AWARD

Number of Points Earned	Above-average Group	Below-average Group
31 to 35	1	0
26 to 30	0	0
21 to 25	0	0
16 to 20	1	0
11 to 15	2	0
6 to 10	4	0
1 to 5	1	2
0	41	48
Number of Cases	50	50
Mean	2.60	.20
Standard Deviation	1.31	1.00
Critical Ratio	5.81**	

when noting the great dissimilarity in judging contest cash winnings at the major shows in Oklahoma. Major shows included in this study are the Oklahoma State Fair in Oklahoma City, the Tulsa State Fair, and the Oklahoma City Spring Livestock Show. At these three major shows, FFA judging contests are sponsored for students of vocational agriculture. Rules for the contests may be found in the show catalogs for each of the respective shows. Cash awards are presented to the high teams and high individuals. Table XXXIV is a presentation of the findings arrived at by compiling data pertaining to these three major shows for a two-year period. "Dollars won" signifies the total amount won as revealed in records from each show office. These records also are available in the State Office of Vocational Education.

The average amount won by the fifty above-average departments was \$18.80 in contrast to an average of \$3 won by the below-average departments. Twenty-eight of the above-average departments were money winners in contrast to a mere seven from the below-average group. Eleven departments, nine of them from the above-average group, won more than \$20 resulting from judging contest winnings. With a highly significant difference manifested between the two groups, judging contest cash winnings at the major shows should be a useful measure for evaluation. Cash winnings would indicate not only active participation in judging contests but also disclose some of the effective training being given students of vocational agriculture.

Total winnings at the major shows in Oklahoma. The more effective programs of vocational agriculture were believed to be more active in exhibiting crops and livestock at the three major shows in Oklahoma. A highly significant difference between the two groups of departments

TABLE XXXIV
 JUDGING CONTEST CASH WINNINGS AT THE
 MAJOR SHOWS IN OKLAHOMA

Dollars Won	Above-average Group	Below-average Group
181 to 190	1	0
171 to 180	0	0
161 to 170	0	0
151 to 160	0	0
141 to 150	0	0
131 to 140	0	0
121 to 130	0	0
111 to 120	0	0
101 to 110	1	0
91 to 100	1	0
81 to 90	0	0
71 to 80	0	0
61 to 70	1	0
51 to 60	1	0
41 to 50	1	1
31 to 40	2	0
21 to 30	1	1
11 to 20	6	2
1 to 10	13	3
0	22	43
Number of Cases	50	50
Mean	18.80	3.00
Standard Deviation	34.16	9.00
Critical Ratio	3.23**	

can be seen by viewing Table XXXV when one is comparing the total winnings from crop and livestock exhibits at the three major shows in Oklahoma. As previously explained, the three major shows will be considered the Oklahoma State Fair at Oklahoma City, the Tulsa State Fair, and the Oklahoma City Spring Livestock Show. Total winnings represent the total cash winnings for a two-year period. It is obvious the state supervisors considered departments that participated actively in shows in naming the above-average group, as opposed to a lesser active group in show participation for the below-average group. Only ten of the above-average group show no winnings from shows during this period in contrast to thirty from the below-average group. Three of the below-average group reveal winnings exceeding \$100, and those three disclosed their winnings to be in the range of \$101 to \$200. Fifteen of the 50 above-average departments denote their show winnings to exceed \$200. The mean of the above-average group of departments signifies show winnings to average \$254 in contrast to a mean of \$46 for the below-average group of departments.

It is obvious that supervisors consider participation in major crop and livestock shows to be an important requisite to be rated an above-average department of vocational agriculture. With a highly significant difference manifested between the two groups, total cash winnings from crop and livestock exhibits at major shows should be recognized as a valid measure of the effectiveness of above-average departments of vocational agriculture.

Total investment per department in supervised farm training program.

The amount invested in the supervised farm training program was believed to affect programs of vocational agriculture. A highly significant difference is immediately recognized between the two groups of departments

TABLE XXXV

TOTAL WINNINGS FROM CROP AND LIVESTOCK EXHIBITS AT
THE MAJOR SHOWS IN OKLAHOMA

Total Winnings	Above-average Group	Below-average Group
\$ 1601 to 1700	1	0
1501 to 1600	0	0
1401 to 1500	1	0
1301 to 1400	0	0
1201 to 1300	0	0
1101 to 1200	0	0
1001 to 1100	0	0
901 to 1000	1	0
801 to 900	0	0
701 to 800	0	0
601 to 700	1	0
501 to 600	2	0
401 to 500	0	0
301 to 400	4	0
201 to 300	5	0
101 to 200	10	3
1 to 100	15	17
0	10	30
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Number of Cases	50	50
Mean	254.00	46.00
Standard Deviation	339.50	60.80
Critical Ratio	4.26**	

when collating the average annual investment per department. The average investment in the total supervised farm training program for the above-average departments is \$31,000 in contrast to an average investment of \$16,850 for the below-average departments. The amount invested per department from the below-average group represents only 54.35 per cent of the amount invested by the above-average group. Four below-average departments reported a total investment of \$5000 or less. Thirty-seven, or 74 per cent of the below-average departments, exhibited total investments in supervised farm training programs to be less than \$20,001. Quite a dissimilar picture is presented when one observes that only 11, or 22 per cent of the above average departments, indicated their investments in total supervised farm training programs to range from \$20,000 down to \$5,001. Twenty-one of the above-average departments exhibited average investments exceeding \$35,000, whereas only two of the below-average departments exhibited their investments to exceed \$35,000.

This table convincingly demonstrates that the total investment in the supervised farm training program per department is an excellent measure of the effectiveness of programs of vocational agriculture. Naturally the economic conditions which vary would affect the amount invested in the supervised farm training program from year to year, but it is apparent that those departments which were rated above average had a much higher investment in the supervised farm training programs consistently. With a highly significant difference denoted between the two groups regarding the total amount invested in the supervised farm training programs, it is mandatory that this be one of the criterion to include in evaluative criteria for measuring the effectiveness of programs of vocational agriculture.

TABLE XXXVI
 AVERAGE ANNUAL TOTAL VALUE PER DEPARTMENT
 OF SUPERVISED FARM TRAINING PROGRAM

Total Value	Above-average Group	Below-average Group
\$ 90,001 to 95,000	1	0
85,001 to 90,000	0	0
80,001 to 85,000	2	0
75,001 to 80,000	0	0
70,001 to 75,000	0	0
65,001 to 70,000	0	0
60,001 to 65,000	0	0
55,001 to 60,000	4	0
50,001 to 55,000	4	0
45,001 to 50,000	2	0
40,001 to 45,000	2	1
35,001 to 40,000	6	1
30,001 to 35,000	5	3
25,001 to 30,000	7	2
20,001 to 25,000	6	6
15,001 to 20,000	3	14
10,001 to 15,000	5	9
5,001 to 10,000	3	10
0 to 5,000	0	4
Number of Cases	50	50
Mean	31,000	16,850
Standard Deviation	9645	4525
Critical Ratio	9.19**	

Average investment per student in supervised farm training. The amount invested per student in the supervised farm training program was another factor considered in this study. A highly significant difference was revealed between the two groups when the investigator considered the average total investment per department in the supervised farm training program as exemplified in the preceding table. It was reasonable then to expect to find a significant difference between the two groups when one compared the average annual investment per student. This observation is substantiated in Table XXXVII by revealing a highly significant difference between the two groups. The above-average group shows a mean of \$740 invested per student; the below-average group shows a mean of \$396 invested per student in supervised farm training. More than three times as many of the below-average group of departments indicated average student investments to be less than \$301. None of the below-average group indicated average student investments to exceed \$900, whereas 20 of the 50 above-average departments reported average student investments to exceed \$900. Three of the above-average departments reported average annual investments in the supervised farm training programs to exceed \$1,800 per student.

As mentioned previously, the value of supervised farm training programs will vary from year to year with economic changes, but it is obvious that the above-average departments identified by the state supervisors of vocational agriculture were departments which would consistently show higher student investments in their project programs; therefore, the average investment per student in supervised farm training should be a valuable measure of the effectiveness of a program of vocational agriculture.

TABLE XXXVII
 AVERAGE ANNUAL VALUE PER STUDENT OF
 SUPERVISED FARM TRAINING PROGRAM

Annual Value	Above-average Group	Below-average Group
\$ 2001 to 2100	1	0
1901 to 2000	0	0
1801 to 1900	2	0
1701 to 1800	0	0
1601 to 1700	0	0
1501 to 1600	0	0
1401 to 1500	0	0
1301 to 1400	3	0
1201 to 1300	2	0
1101 to 1200	3	0
1001 to 1100	7	0
901 to 1000	2	0
801 to 900	0	3
701 to 800	4	3
601 to 700	5	1
501 to 600	4	4
401 to 500	8	10
301 to 400	4	13
201 to 300	3	8
101 to 200	2	7
0 to 100	0	1
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Number of Cases	50	50
Mean	740.00	396.00
Standard Deviation	443.80	196.20
Critical Ratio	4.99**	

Total net profit per department from supervised farm training program. The total net profit per department derived from supervised farm training programs was considered as a factor which would serve as a guide when attempting to evaluate programs of vocational agriculture. In weighing the difference between the two groups when one is comparing this factor, a highly significant difference is evidenced between the above-average group and the below-average group. The average total net profit per department for the above-average group is \$13,300, in comparison with \$6,450 for the below-average group. This would indicate the total net profit per department from the above-average group to be over twice that of the below-average group. Twenty of the below-average group reported total net profit per department to be \$5,000 or less; five of the above-average group were in this range. Twelve of the above-average group reported total net profits exceeding \$17,500 per department; one department from the below-average group reported its net profit to exceed \$17,500. The highest total net profit per department was reported to exceed \$40,000.

With a highly significant difference exhibited between the two groups of departments, the average total net profit per department from supervised farm training programs should be considered one of the factors to include in criteria for evaluating departments of vocational agriculture.

Total self labor per department from supervised farm training program. Total self labor per department from supervised farm training is believed to be one of the more important measures of the effectiveness of programs of vocational agriculture. Table XXXIX displays a highly significant difference between the above-average group of departments and the below-average group when one makes a comparison of the

TABLE XXXVII

AVERAGE ANNUAL TOTAL NET PROFIT PER DEPARTMENT
FROM SUPERVISED FARM TRAINING PROGRAM

Net Profit	Above-average Group	Below-average Group
\$ 40,001 to 42,500	1	0
37,501 to 40,000	0	0
35,001 to 37,500	1	0
32,501 to 35,000	1	0
30,001 to 32,500	0	0
27,501 to 30,000	0	0
25,001 to 27,500	2	0
22,501 to 25,000	1	0
20,001 to 22,500	4	0
17,501 to 20,000	2	1
15,001 to 17,500	4	3
12,501 to 15,000	3	2
10,001 to 12,500	9	6
7,501 to 10,000	9	3
5,001 to 7,500	8	15
2,501 to 5,000	5	10
0 to 2,500	0	10
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Number of Cases	50	50
Mean	13,300	6,450
Standard Deviation	8480	4560
Critical Ratio	5.05**	

average annual total self labor per department from supervised farm training. Self labor is the amount paid the individual for his own labor while caring for his supervised farm training program. "Total self labor" as used in this table is the total amount of self labor calculated by adding all of the individuals' self labor for their respective department.

The average annual total self labor per department reveals a mean of \$1,674 for the above-average group, and a mean of \$1,068 for the below-average group. Sixteen of the below-average departments reported total self labor per department to be less than \$601; three of the above-average departments reported self labor to be less than \$601. Eleven of the above-average departments reported self labor per department to exceed \$2,400, in contrast to only two from the below-average group reporting their self labor to exceed this amount.

The investigator observed that no systematic procedure of recording self labor was evidenced by departmental reports concerning self labor. Some departments from both groups show a much higher percentage of the labor income being reported as self labor than others. Because of this observation, the investigator believes this factor fails to characterize the effectiveness of programs of vocational agriculture as accurately as some of the other measures considered in this study. With a highly significant difference presented, however, it should be recommended that this factor be weighed when developing evaluative criteria for measuring the effectiveness of programs of vocational agriculture.

Student hours per department on supervised farm training. One indication of the effectiveness of programs of vocational agriculture would seem to be the number of student hours spent in conducting supervised farm training programs. A highly significant difference is

TABLE XXXIX
 AVERAGE ANNUAL TOTAL SELF LABOR PER DEPARTMENT
 FROM SUPERVISED FARM TRAINING PROGRAM

Self Labor	Above-average Group	Below-average Group
\$ 3601 to 3900	3	0
3301 to 3600	1	0
3001 to 3300	1	2
2701 to 3000	4	0
2401 to 2700	2	0
2101 to 2400	1	4
1801 to 2100	4	2
1501 to 1800	10	4
1201 to 1500	5	5
901 to 1200	9	8
601 to 900	7	9
301 to 600	3	11
0 to 300	0	5
Number of Cases	50	50
Mean	1674.00	1068.00
Standard Deviation	899.49	732.39
Critical Ratio	3.67**	

revealed in Table XL between the above-average group of departments and the below-average group when one is making this comparison. The above-average group reported a mean of 5720.5 student hours per department; the below-average group reported 3300.5 student hours per department. This would show the below-average group reported only 57.6 per cent as many student hours as the above-average group. As previously mentioned, some teachers did not seem to encourage students to record student hours in their record keeping, and some obviously encouraged students to record a relatively high number of student hours in keeping records of their supervised farm training programs.

With such a highly significant difference indicated pertaining to the average annual total student hours per department from supervised farm training programs, it is apparent this is a factor that should receive consideration when developing evaluative criteria for measuring the effectiveness of programs of vocational agriculture.

Total labor income per department from supervised farm training program. One of the most valid measures of supervised farm training programs is labor income. Labor income is the sum of the amount allowed for self labor plus net profit. "Total labor income" is the sum of all individuals' labor incomes within any department of vocational agriculture. When one considers total labor income, Table XLI indicates a highly significant difference between the above-average group of departments and the below-average group. The mean total labor income of the above-average group is \$15,120 and the mean of the below-average group is \$7,500, which is approximately one-half the amount shown by the above-average group. Ten departments from the below-average group show the average total labor income per department to be \$3,000 or less.

TABLE XL
 AVERAGE ANNUAL TOTAL STUDENT HOURS PER DEPARTMENT
 FROM SUPERVISED FARM TRAINING PROGRAM

Student Hours	Above-average Group	Below-average Group
16,001 to 17,000	1	0
15,001 to 16,000	0	0
14,001 to 15,000	0	0
13,001 to 14,000	0	0
12,001 to 13,000	1	0
11,001 to 12,000	2	0
10,001 to 11,000	1	1
9,001 to 10,000	4	0
8,001 to 9,000	2	1
7,001 to 8,000	1	0
6,001 to 7,000	4	2
5,001 to 6,000	12	4
4,001 to 5,000	5	9
3,001 to 4,000	8	7
2,001 to 3,000	5	10
1,001 to 2,000	4	13
0 to 1,000	0	3
Number of Cases	50	50
Mean	5720.50	3300.50
Standard Deviation	3162.30	2019.90
Critical Ratio	4.62**	

Thirty-six of the below-average departments show the total labor income per department to be \$9,000 or less; only 12 of the above-average departments were tabulated in this category. Thirty-eight of the above-average departments are shown to have annual total labor incomes in excess of \$9,000 each.

By one's viewing Table XLI, it is obvious that average total labor income is a valid measure of the effectiveness of programs of vocational agriculture pertaining to supervised farm training. The investigator is led to believe this factor is one of the most important measures to consider in evaluation of programs of vocational agriculture.

Labor income per student from supervised farm training program.

Labor income per student from supervised farm training was believed to be one of the most valid criterion for evaluating programs of vocational agriculture. Table XLII indicates a highly significant difference between the two groups of departments when one is comparing the average annual labor income per student derived from the supervised farm training program. The mean labor income per student from the above-average group is \$346.50, and the mean labor income per student of the below-average group is \$178.50. Thirteen departments from the below-average group show an average labor income per student to be less than \$101, and three of the above-average group are included in this interval grouping. Twenty-four of the above-average departments reported average labor income to be in the range of \$301 up to \$1,200 per student; seven of the below-average departments are listed in this category. The nine departments reporting the highest average labor income per student reported it to be in excess of \$500 per student. None of this high group was represented by departments from the below-average group.

TABLE XLI
 AVERAGE ANNUAL TOTAL LABOR INCOME PER DEPARTMENT
 FROM SUPERVISED FARM TRAINING PROGRAM

Labor Income	Above-average Group	Below-average Group
\$ 42,001 to 45,000	1	0
39,001 to 42,000	0	0
36,001 to 39,000	2	0
33,001 to 36,000	0	0
30,001 to 33,000	1	0
27,001 to 30,000	0	0
24,001 to 27,000	4	0
21,001 to 24,000	3	0
18,001 to 21,000	2	1
15,001 to 18,000	6	5
12,001 to 15,000	8	4
9,001 to 12,000	11	4
6,001 to 9,000	7	15
3,001 to 6,000	5	11
0 to 3,000	0	10
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Number of Cases	50	50
Mean	15,120	7,500
Standard Deviation	8884	3494
Critical Ratio	5.64**	

TABLE XLII
 AVERAGE ANNUAL LABOR INCOME PER STUDENT
 FROM SUPERVISED FARM TRAINING PROGRAM

Labor Income	Above-average Group	Below-average Group
\$ 1101 to 1200	1	0
1001 to 1100	1	0
901 to 1000	0	0
801 to 900	0	0
701 to 800	0	0
601 to 700	4	0
501 to 600	3	0
401 to 500	9	3
301 to 400	6	4
201 to 300	11	10
101 to 200	12	20
0 to 100	3	13
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Number of Cases	50	50
Mean	346.50	178.50
Standard Deviation	226.27	111.36
Critical Ratio	4.71**	

Labor income per student is proved to be a highly significant factor when one is comparing above-average departments and below-average departments of vocational agriculture. This would demonstrate the attitude of the state supervisors of vocational agriculture regarding the supervised farm training program. If vocational agriculture is to aid in attaining proficiency in farming for those preparing to become farmers, then any statistical measures pertaining to the supervised farm training programs that prove to be significantly different when one is comparing above-average and below-average departments should be valuable aids in evaluating programs of vocational agriculture. Average labor income per student would be one of the most valid measures to be used in such evaluation.

Investment in beef production projects per department. It was believed the average investment in beef projects per department would influence programs of vocational agriculture. Table XLIII signifies a significant difference between the two groups of departments when one is making this comparison. The average investment per department in beef projects for the above-average group is \$9,950, and the average investment for the below-average group is \$5,300. This would show that above-average departments had 1.88 times as much invested in beef projects as the below-average group. Thirteen of the below-average departments reported less than \$2,501 invested in beef projects in contrast to only three from the above-average group reporting this amount invested. Extremes were evidenced with two departments reporting their investments falling in the intervals of \$27,501 to \$30,000 and \$42,501 to \$45,000. There were 11 departments, ten of them from the above-average group, reporting beef production investments exceeding \$15,000.

The average annual investment in beef production projects per

TABLE XLIII
 AVERAGE ANNUAL INVESTMENT IN BEEF
 PRODUCTION PROJECTS PER DEPARTMENT

Amount Invested	Above-average Group	Below-average Group
\$ 42,501 to 45,000	1	0
40,001 to 42,500	0	0
37,501 to 40,000	0	0
35,001 to 37,500	0	0
32,501 to 35,000	0	0
30,001 to 32,500	0	0
27,501 to 30,000	1	0
25,001 to 27,000	0	0
22,501 to 25,000	0	0
20,001 to 22,500	2	0
17,501 to 20,000	2	0
15,001 to 17,500	4	1
12,501 to 15,000	3	2
10,001 to 12,500	5	2
7,501 to 10,000	10	9
5,001 to 7,500	8	6
2,501 to 5,000	11	16
0 to 2,500	3	13
<hr/>		
Number of Cases	50	49
Mean	9950	5300
Standard Deviation	7603	12,162
Critical Ratio	2.26*	

department denotes a significant difference between the two groups; therefore, this should be a factor considered in evaluation of departments of vocational agriculture.

Labor income per department from beef production projects. Annual labor income per department from beef projects was a factor thought to affect programs of vocational agriculture. A highly significant difference may be perceived when comparing the above-average group and the below-average group. The above-average group has an average annual labor income of \$4,060 from beef production projects in contrast to \$2,440 for the below-average group. Twenty-eight of the 50 below-average departments reported average labor income from beef to be less than \$2,001. The mode of the above-average group falls in the interval \$3,001 to \$4,000, whereas the mode of the below-average group is in the interval \$1,001 to \$2,000.

It is apparent, with a highly significant difference revealed in this table, average annual labor income from beef production projects per department should be a recognized criterion to include in measuring the effectiveness of programs of vocational agriculture.

Investment in swine production projects per department. Another factor believed to influence programs of vocational agriculture was the annual investment in swine projects per department. Table XLV manifests a highly significant difference between the above-average group and the below-average group of departments when one is regarding this factor. A mean of \$7,700 invested in swine projects is revealed for the above-average group; a mean of \$3,600 is revealed for the below-average group. This would make it apparent the above-average group had

TABLE XLIV

AVERAGE ANNUAL LABOR INCOME FROM
BEEF PRODUCTION PROJECTS PER DEPARTMENT

Labor Income	Above-average Group	Below-average Group
\$ 17,001 to 18,000	2	0
16,001 to 17,000	0	0
15,001 to 16,000	0	0
14,001 to 15,000	0	0
13,001 to 14,000	0	0
12,001 to 13,000	0	0
11,001 to 12,000	0	0
10,001 to 11,000	1	0
9,001 to 10,000	1	0
8,001 to 9,000	1	1
7,001 to 8,000	3	1
6,001 to 7,000	2	3
5,001 to 6,000	2	2
4,001 to 5,000	3	2
3,001 to 4,000	12	3
2,001 to 3,000	9	9
1,001 to 2,000	8	16
0 to 1,000	6	12
Number of Cases	50	49
Mean	4060	2440
Standard Deviation	3630	2015
Critical Ratio	2.75**	

more than twice as much invested in swine projects per department than the below-average group. Twenty departments, or 40 per cent of the below-average group, reported investments of \$3,000 or less per department. Four departments, or eight per cent of the above-average group, reported this small amount invested. Twenty-nine, or 58 per cent of the above-average group, were among the 36 departments having more than \$6,000 invested in swine projects, with three departments showing their average investments to exceed \$16,000. Only seven departments, or 14 per cent of the below-average departments, were listed among those reporting more than \$6,000 invested in swine projects. None of these listed more than \$12,000 invested.

With a highly significant difference reported in this table, one may regard the average annual investment in swine production projects as one of the more valuable factors to consider when one is evaluating programs of vocational agriculture.

Labor income per department from swine production projects. This paragraph is concerned with the annual labor income per department from swine projects. A highly significant difference is revealed between the above-average and the below-average group of departments when one is considering this factor. The mean labor income per department, as seen in Table XLVI, is \$2,560 for the above-average group and \$1,310 for the below-average group. This clearly illustrates a marked difference in the two groups. Twenty of the below-average departments show labor income per department to be \$1,000 or less; six of the above-average group show labor income per department to be \$1,000 or less. Eighty-four per cent of the below-average group show labor income to be under \$2,001; 44 per cent of the above-average group show labor income to be under

TABLE XLV
 AVERAGE ANNUAL INVESTMENT IN SWINE
 PRODUCTION PROJECTS PER DEPARTMENT

Amount Invested	Above-average Group	Below-average Group
\$ 18,001 to 19,000	1	0
17,001 to 18,000	0	0
16,001 to 17,000	2	0
15,001 to 16,000	0	0
14,001 to 15,000	1	0
13,001 to 14,000	3	0
12,001 to 13,000	0	0
11,001 to 12,000	2	1
10,001 to 11,000	4	0
9,001 to 10,000	3	0
8,001 to 9,000	2	1
7,001 to 8,000	5	1
6,001 to 7,000	6	3
5,001 to 6,000	5	4
4,001 to 5,000	4	12
3,001 to 4,000	8	8
2,001 to 3,000	3	7
1,001 to 2,000	1	5
0 to 1,000	0	8
Number of Cases	50	50
Mean	7700	3600
Standard Deviation	3915	2275
Critical Ratio	6.40**	

\$2,001. The 15 high departments, 14 of them from the above-average group, show labor income from swine projects to be in excess of \$3,500 per department. Four departments show labor income per department from swine to be from \$5,501 to \$6,500.

Because the amount invested in swine projects per department and the average labor income from swine projects per department are the only pair of tables that signify highly significant differences between the two groups, the investigator has concluded that factors concerning swine enterprises are among the most valuable measures pertaining to supervised farming programs. It may be assumed, therefore, that the average annual labor income from swine production projects per department is an important factor in developing evaluative criteria to identify characteristics of above-average departments.

Investment in sheep production projects per department. When comparing the average investment in sheep production projects per department, no significant difference between the two groups may be observed, even though the mean of the above-average group is \$1,250, and the mean of the below-average group is \$750. No significant difference may be observed because of the wide dispersion evidenced by standard deviations of \$1,369 and \$779 respectively.

TABLE XLVI
 AVERAGE ANNUAL LABOR INCOME FROM SWINE
 PRODUCTION PROJECTS PER DEPARTMENT

Labor Income	Above-average Group	Below-average Group
\$ 6001 to 6500	2	0
5501 to 6000	2	0
5001 to 5500	0	0
4501 to 5000	2	0
4001 to 4500	2	0
3501 to 4000	6	1
3001 to 3500	3	2
2501 to 3000	4	4
2001 to 2500	7	1
1501 to 2000	7	10
1001 to 1500	9	12
501 to 1000	4	9
0 to 500	2	11
Number of Cases	50	50
Mean	2560	1310
Standard Deviation	1533	894
Critical Ratio	4.98**	

TABLE XLVII
 AVERAGE ANNUAL INVESTMENT IN SHEEP
 PRODUCTION PROJECTS PER DEPARTMENT

Amount Invested	Above-average Group	Below-average Group
\$ 5501 to 6000	1	0
5001 to 5500	1	0
4501 to 5000	0	0
4001 to 4500	0	0
3501 to 4000	1	0
3001 to 3500	1	1
2501 to 3000	1	0
2001 to 2500	1	3
1501 to 2000	3	2
1001 to 1500	5	1
501 to 1000	8	7
0 to 500	13	19
Number of Cases	35	33
Mean	1250	750
Standard Deviation	1369	779
Critical Ratio	1.87 (not significant)	

Labor income per department from sheep production projects. When one is comparing the average annual labor income from sheep production projects per department no significant difference may be perceived between the above-average group and the below-average group. The above-average group shows a mean of \$431.42, however, in contrast to a mean of \$318.80 for the below-average group. Again, with wide-spread dispersion indicated by large standard deviation scores, no significant difference may be exhibited.

It is interesting to note two of the below-average departments reported an average annual labor income from sheep projects to be "in the red." Thirty-six of the 100 departments reported labor income from sheep to be less than \$201. Only six departments of the 100 included in this study indicated average labor income per department to be more than \$1,000. This would indicate that sheep were of minor importance in supervised farm training programs in Oklahoma during the period that was covered by this investigation.

The findings presented in Table XLVIII would suggest that no attempt should be made to regard sheep investments per department nor labor income per department from sheep production projects as valid measures to identify features of above-average departments.

Investment in dairy production projects per department. When one is comparing the average annual investment in dairy production projects per department, a highly significant difference between the two groups is evident. The average investment in dairy projects for the above-average group is \$5,100 per department in contrast to a mean of \$2,326 per department for the below-average group. This would show the above-average group had 2.19 times as much invested in dairy projects as the below-average

TABLE XLVIII
 AVERAGE ANNUAL LABOR INCOME FROM SHEEP
 PRODUCTION PROJECTS PER DEPARTMENT

Labor Income	Above-average Group	Below-average Group
\$ 2401 to 2600	1	0
2201 to 2400	0	0
2001 to 2200	0	1
1801 to 2000	0	0
1601 to 1800	1	0
1401 to 1600	1	0
1201 to 1400	1	0
1001 to 1200	1	0
801 to 1000	1	2
601 to 800	0	2
401 to 600	5	4
201 to 400	6	6
0 to 200	18	16
-1 to -200	0	2
Number of Cases	35	33
Mean	431.42	318.80
Standard Deviation	549	404
Critical Ratio	.96 (not significant)	

group.

As would be expected, several departments from both groups show rather low investments in dairy projects; however, of the high 22 departments showing more than \$5,000 invested in dairy projects, only four were from the below-average group. Of the ten departments showing investments in dairy projects exceeding \$9,000, only one was from the below-average group.

It is apparent then, particularly for departments of vocational agriculture where dairying is a major or minor enterprise in the community, that the average annual investment in dairy production projects per department should be regarded as a factor indicating a highly significant difference between above-average and below-average departments.

Labor income per department from dairy production projects. Even though the above-average group shows an average labor income of \$2,420 per department from dairy projects in contrast to an average labor income of \$1,652 per department from dairy projects of the below-average departments, no significant difference is revealed in Table L.

TABLE XLIX
 AVERAGE ANNUAL INVESTMENT IN DAIRY
 PRODUCTION PROJECTS PER DEPARTMENT

Amount Invested	Above-average Group	Below-average Group
\$ 16,001 to 17,000	3	0
15,001 to 16,000	0	1
14,001 to 15,000	1	0
13,001 to 14,000	0	0
12,001 to 13,000	0	0
11,001 to 12,000	0	0
10,001 to 11,000	4	0
9,001 to 10,000	1	0
8,001 to 9,000	0	0
7,001 to 8,000	4	1
6,001 to 7,000	3	1
5,001 to 6,000	2	1
4,001 to 5,000	7	4
3,001 to 4,000	7	6
2,001 to 3,000	3	4
1,001 to 2,000	8	9
0 to 1,000	7	19
Number of Cases	50	46
Mean	5100	2326
Standard Deviation	4325	2658
Critical Ratio	3.82**	

TABLE L
 AVERAGE ANNUAL LABOR INCOME FROM DAIRY
 PRODUCTION PROJECTS PER DEPARTMENT

Labor Income	Above-average Group	Below-average Group
\$ 10,001 to 11,000	1	0
9,001 to 10,000	0	0
8,001 to 9,000	0	1
7,001 to 8,000	3	0
6,001 to 7,000	1	0
5,001 to 6,000	1	0
4,001 to 5,000	3	1
3,001 to 4,000	3	1
2,001 to 3,000	8	7
1,001 to 2,000	17	10
0 to 1,000	13	26
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Number of Cases	50	46
Mean	2420	1652
Standard Deviation	2225	1428
Critical Ratio	1.92 (not significant)	

Investment in poultry production projects per department. No significant difference is revealed between the two groups of departments regarding the average annual investment in poultry production projects per department. A rather high number of the departments, 29 from the above-average group and 31 from the below-average group, shows very low investment in poultry projects, as evidenced in Table LI. In fact, 86 of the 100 departments included in this investigation show average investments in poultry projects to be less than \$3,001.

It is apparent that poultry production projects were of minor importance in the supervised farming programs of most of the departments included in this survey. One extremely high report came from a department denoting an average investment in poultry being in excess of \$39,001. Another department reported \$11,001 to \$12,000 invested in poultry; two others reported investments ranging from \$5,001 to \$7,000.

No attempt should be made to use this factor presented in this analysis to identify dissimilarities between above-average and below-average departments.

Labor income per department from poultry production projects. Annual labor income from poultry was another factor considered in this investigation which was believed to have some influence on programs of vocational agriculture; however, no significant difference is revealed between the two groups of departments when collating the average annual labor income derived from poultry production projects per department. A mean of \$504.24 for the above-average group in contrast to a mean of \$268.18 for the below-average group reveals no significant difference because of the extremely high standard deviation scores which may be observed in Table LIII. Seventy-nine of the 100 departments show the average labor

TABLE LI
 AVERAGE ANNUAL INVESTMENT IN POULTRY
 PRODUCTION PROJECTS PER DEPARTMENT

Amount Invested	Above-average Group	Below-average Group
\$ 39,001 to 40,000	1	0
:		
:		
:		
12,001 to 13,000	0	0
11,001 to 12,000	1	0
10,001 to 11,000	0	0
9,001 to 10,000	0	0
8,001 to 9,000	0	0
7,001 to 8,000	0	0
6,001 to 7,000	1	0
5,001 to 6,000	1	0
4,001 to 5,000	0	0
3,001 to 4,000	0	1
2,001 to 3,000	7	2
1,001 to 2,000	7	10
0 to 1,000	29	31
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Number of Cases	47	44
Mean	1779.80	1636.30
Standard Deviation	3133	917
Critical Ratio	.34 (not significant)	

income per department derived from poultry production projects to be less than \$401. This would indicate that the poultry enterprise was of minor importance to a high percentage of the departments surveyed. Three departments reported their average labor income from poultry projects to be "in the red." Only five departments, all of the above-average group, show average labor income per department from poultry projects to be in excess of \$1,000. The highest department reported an average labor income from poultry to be in excess of \$3,600.

In attempting to identify dissimilarities between above-average and below-average departments, average labor income per department derived from poultry projects should not be regarded as a valid criterion. Only in a very few instances would it be of any worth in evaluating supervised farm training programs of departments of vocational agriculture.

Investment in crop production projects per department. The annual investment in crops was considered to be an important factor affecting supervised farming programs of departments of vocational agriculture. Table LIIII manifests a highly significant difference between the above-average group of departments and the below-average group when one is examining the investment in crop production projects. The average annual investment in crop projects for the above-average group is \$9,120, and the average annual investment in crop projects for the below-average group is \$5,366. This would show that the below-average group averaged 58.84 per cent as much invested in crop projects as the above-average group. A greater number of the below-average departments shows low crop investments with 40 per cent of that group reporting investments below \$3,001 in contrast to 28 per cent of the above-average group in this category. Seventeen departments, 13 from the above-average group and

TABLE LII
 AVERAGE ANNUAL LABOR INCOME FROM POULTRY
 PRODUCTION PROJECTS PER DEPARTMENT

Labor Income	Above-average Group	Below-average Group
\$ 3601 to 3800	1	0
3401 to 3600	0	0
3201 to 3400	1	0
3001 to 3200	0	0
2801 to 3000	0	0
2601 to 2800	0	0
2401 to 2600	1	0
2201 to 2400	0	0
2001 to 2200	0	0
1801 to 2000	1	0
1601 to 1800	0	0
1401 to 1600	0	0
1201 to 1400	0	0
1001 to 1200	1	0
801 to 1000	3	4
601 to 800	2	2
401 to 600	3	3
201 to 400	12	11
0 to 200	21	22
-1 to -200	1	2
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Number of Cases	47	44
Mean	504.24	268.18
Standard Deviation	788	262
Critical Ratio	1.93 (not significant)	

TABLE LIII
 AVERAGE ANNUAL INVESTMENT IN CROP
 PRODUCTION PROJECTS PER DEPARTMENT

Amount Invested	Above-average Group	Below-average Group
⌘ 36,001 to 39,000	1	0
33,001 to 36,000	0	0
30,001 to 33,000	1	0
27,001 to 30,000	2	1
24,001 to 27,000	1	0
21,001 to 24,000	1	0
18,001 to 21,000	2	0
15,001 to 18,000	3	2
12,001 to 15,000	2	1
9,001 to 12,000	4	3
6,001 to 9,000	6	8
3,001 to 6,000	13	10
0 to 3,000	14	20
Number of Cases	50	45
Mean	9120	5366
Standard Deviation	8985	5316
Critical Ratio	2.50**	

four from the below-average group, show the average investments to exceed \$12,000, with two of this group going up into the \$30,001 to \$39,000 intervals.

Since the average annual investment in crop projects per department signifies a highly significant difference between the two groups, this factor should be of value in evaluating departments of vocational agriculture. It should be of value in identifying dissimilarities between above-average and below-average departments in vocational agriculture.

Labor income per department from crop production projects. Even though the average annual labor income from crop production projects per department shows the average labor income of the above-average group is \$1,142 more than the below-average group, no significant difference is observed when one is using the critical ratio to indicate significant difference. It is recommended that this factor receive little consideration in developing evaluative criteria for identifying above-average departments of vocational agriculture.

TABLE LIV
 AVERAGE ANNUAL LABOR INCOME FROM CROP
 PRODUCTION PROJECTS PER DEPARTMENT

Labor Income	Above-average Group	Below-average Group
\$ 16,001 to 18,000	2	0
14,001 to 16,000	0	0
12,001 to 14,000	0	0
10,001 to 12,000	2	1
8,001 to 10,000	2	0
6,001 to 8,000	4	4
4,001 to 6,000	10	7
2,001 to 4,000	7	9
0 to 2,000	23	24
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Number of Cases	50	45
Mean	3920	2778
Standard Deviation	3860	2360
Critical Ratio	1.75 (not significant)	

Number of Junior Master Farmer degrees awarded per department. The number of Junior Master Farmer degrees awarded departments of vocational agriculture is one of the factors that is apparently an important guide when one is attempting to evaluate programs of vocational agriculture. This is borne out by the findings presented in Table LV, with a highly significant difference revealed between the above-average group and the below-average group. The above-average group shows a mean of 4.78 Junior Master Farmer degrees awarded for the three-year period. The below-average group shows a mean of .46 for the same period. This would show the above-average group had more than ten times as many State Farmer degrees awarded as the below-average group. Forty of the 50 below-average departments had no Junior Master Farmer degrees awarded during the entire three-year period; eight of the 50 above-average group show no State Farmer degrees awarded during the same period. Only one of the below-average departments averaged one degree per year; 31 of the above-average departments averaged more than one degree per year. Seven of the above-average group show enough degrees awarded to average three or more per year, with one department reporting 12 degrees awarded in the three-year period.

In the light of the findings presented in this Table LV, it should be concluded that the number of Junior Master Farmer degrees awarded per department is an important criterion when one is evaluating programs of vocational agriculture.

Number of American Farmer degrees awarded per department. The number of American Farmer degrees awarded a department is considered to be an important guide to measure the effectiveness of that department's program of vocational agriculture. This conviction is supported by the

TABLE LV

TOTAL NUMBER OF JUNIOR MASTER FARMER DEGREES AWARDED
PER DEPARTMENT DURING THE THREE-YEAR PERIOD, 1949 to 1952

Number Awarded	Above-average Group	Below-average Group
12	1	0
11	2	0
10	2	0
9	2	1
8	2	0
7	6	0
6	7	0
5	8	0
4	1	1
3	4	0
2	4	2
1	3	6
0	8	40
Number of Cases	50	50
Mean	4.78	.46
Standard Deviation	3.25	1.42
Critical Ratio	8.62**	

presentation of the findings in Table LVI, with a critical ratio of 3.76 manifesting a highly significant difference between the above-average group and the below-average group. This table convincingly reveals the great dissimilarity between the two groups when one is considering this factor. During the three-year period included in this investigation, none of the below-average group of departments discloses an American Farmer degree awarded to any of its group. In contrast, 28 American Farmer degrees were awarded to the above-average departments. Seventeen above-average departments were responsible for these 28 degrees awarded. Approximately one-third of the above-average group furnished one or more American Farmer degrees during the three-year period. With a mean of .56 evidenced for the above-average group, one may surmise that the above-average group would average one American Farmer degree approximately every five years.

The number of American Farmer degrees awarded per department should be considered a significant factor when evaluating programs of vocational agriculture.

Number of American Farmer degrees awarded per department during 1928 to 1954. The writer wished to find out whether the total number of American Farmer degrees awarded per department for the entire period of time since FFA was started would show a significant difference between the above-average group and the below-average group. Even though this table presents data that are beyond the three-year scope of the proposed investigation, the writer found when making the comparison that a highly significant difference was revealed. During the 25 years since the Future Farmers of America was organized, only two of the below-average departments have had American Farmer degrees awarded to students.

TABLE LVI

TOTAL NUMBER OF AMERICAN FARMER DEGREES AWARDED
PER DEPARTMENT DURING THE THREE-YEAR PERIOD, 1949 to 1952

Number Awarded	Above-average Group	Below-Average Group
6	1	0
5	0	0
4	0	0
3	1	0
2	4	0
1	11	0
0	33	50
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Number of Cases	50	50
Mean	.56	0.00
Standard Deviation	1.06	0.00
Critical Ratio		3.76**

TABLE LVII
 TOTAL NUMBER OF AMERICAN FARMER DEGREES AWARDED
 PER DEPARTMENT DURING THE PERIOD 1928 TO 1954

Number Awarded	Above-average Group	Below-average Group
20	1	0
19	0	0
18	0	0
17	0	0
16	0	0
15	0	0
14	0	0
13	0	0
12	0	0
11	0	0
10	0	0
9	0	0
8	0	0
7	1	0
6	0	0
5	5	1
4	1	0
3	5	0
2	5	0
1	9	1
0	23	48
Number of Cases	50	50
Mean	1.8	.12
Standard Deviation	3.16	.71
Critical Ratio	3.65**	

Twenty-seven of the 50 above-average departments had 90 students of vocational agriculture receive the American Farmer degree. Table LVII supports the findings presented in the previous table.

Number of curricular units of instruction per school. The number of curricular units of instruction per school was believed to have some bearing upon the effectiveness of the programs of vocational agriculture. The belief that secondary schools offering a limited number of curricular units would influence programs of vocational agriculture is substantiated by the findings presented in Table LVIII. A highly significant difference between the two groups of departments indicates that this belief is verified. The average number of curricular units offered in the secondary schools having the above-average departments is 33.34 units in contrast to a mean of 27.26 units of instruction for the schools having the below-average departments. The five schools offering the lowest number of curricular units available as a "menu" for the boys and girls show that from 19 to 21 units made up the course of study. Over half of the below-average group were associated with schools offering less than 28 curricular units. None of the above-average departments were within schools offering less than 22 units; only eight were associated with schools offering less than 28 curricular units. Fifty per cent of the above-average departments were related to schools that offered at least 34 units of instruction.

This foregoing paragraph and the accompanying table indicate that programs of vocational agriculture are affected by the size of the schools' curricular offerings.

TABLE LVIII

NUMBER OF CURRICULAR UNITS OF INSTRUCTION PER
SCHOOL OFFERED IN THE SCHOOL YEAR, 1951-1952

Number of Units Offered	Above-average Group	Below-average Group
61 and over	2	2
58 to 60	0	0
55 to 57	1	0
52 to 54	2	0
49 to 51	0	1
46 to 48	3	1
44 to 45	3	1
40 to 42	2	2
37 to 39	6	2
34 to 36	6	1
31 to 33	10	5
28 to 30	7	8
25 to 27	5	11
22 to 24	3	11
19 to 21	0	5
Number of Cases	50	50
Mean	33.34	27.26
Standard Deviation	9.46	9.54
Critical Ratio	3.20**	

Schools accredited in the North Central Association and schools that offered four units of vocational home economics. This analysis is concerned with schools being accredited in the North Central Association and with schools offering four or more units of instruction in vocational home economics. It is not surprising to find a highly significant difference revealed between the schools having above-average departments and schools having below-average departments when one is considering those accredited. About half of the schools having above-average departments were accredited in the North Central Association; less than one-fourth of the schools having below-average departments were accredited. By the investigator's comparing the two groups of schools, no significant difference was revealed when one considered schools offering four units of instruction in vocational home economics. Fifty-eight per cent of the 100 schools offered four or more years of vocational home economics.

TABLE LIX

SCHOOLS ACCREDITED IN THE NORTH CENTRAL ASSOCIATION AND
SCHOOLS THAT OFFERED FOUR UNITS OF VOCATIONAL HOME ECONOMICS

	Above-average Group		Below-average Group	
	Number	Per Cent	Number	Per Cent
Schools accredited in the North Central Association (**)	24	48	11	22
Schools offering four years of vocational home economics (NS)	33	66	25	50

Percentage enrolled in vocational agriculture in 1949-1950 who were also enrolled in 1951-1952. The investigator desired to test an intuition that the above-average group would differ significantly from the below-average group when he was comparing the percentage of the students enrolled in vocational agriculture in 1949-1950 who were also enrolled two years later in 1951-1952. The investigator felt that perhaps the above-average group would reveal a significantly higher percentage of students continuing in vocational agriculture curricula. This idea is proved to be unsound, as may be observed in Table LX. No significant difference is observed between the two groups when one is making this comparison. In fact, the means of the two groups are almost identical. One observation that may be made from the findings presented in this table is that approximately one-fourth, about 28 per cent, of the students enrolled in vocational agriculture during any school year will probably be enrolled in vocational agriculture two years later. This estimate should be nothing more than a reasonable approximation.

Number of teacher changes in departments during six-year period.

It has been indicated the number of teacher changes within a department over the years influences the effectiveness of programs of vocational agriculture. This belief is supported in a report by Benton Thomason in which he states:

. . . This study shows further that the longer teacher tenure is associated with departments having the higher labor incomes. This factor, along with the fact that no teachers were requested to resign in the high income group of thirty schools, while eleven were requested to resign in the low income group of thirty schools, points out that the local boards of education tend to place the blame on the instructor for a weak department.⁹

⁹Benton F. Thomason, A Study of Supervised Farm Training Programs of Seventy Departments of Vocational Agriculture in Northwestern Oklahoma (Stillwater, Oklahoma, Oklahoma A. and M. College, Master's Report, 1954), P. 31.

TABLE LX

PERCENTAGE OF THE BOYS ENROLLED IN VOCATIONAL AGRICULTURE
IN 1949-1950 WHO WERE ALSO ENROLLED IN 1951-1952

Per Cent Boys Enrolled	Above-average Group	Below-average Group
52 to 54	0	1
49 to 51	1	1
46 to 48	1	1
43 to 45	0	3
40 to 42	2	2
37 to 39	2	1
34 to 36	4	9
31 to 33	7	3
28 to 30	9	6
25 to 27	4	2
22 to 24	5	2
19 to 21	5	4
16 to 18	6	4
13 to 15	1	3
10 to 12	0	1
7 to 9	0	2
4 to 6	0	1
1 to 3	0	0
0	0	0
Number of Cases	48	46
Mean	28.10	28.46
Standard Deviation	7.95	11.16
Critical Ratio	.19 (not significant)	

In making a comparison of the average number of teacher changes between the two groups of departments, the investigator found no significant difference between the means of the two groups. However, 28 teachers' changes occurred among the 50 above-average departments, while 47 teacher changes occurred among the 50 below-average departments. This reveals a significant difference between the two groups. It is interesting to note that no teacher changes occurred in 32 of the above-average departments. When one is contrasting the number of departments exhibiting no teacher changes, a significant difference also is indicated between the two groups. The findings presented in Table LXI indicate no significant difference between the two groups in the average number of teacher changes per department. A significant difference may be detected between the two groups when one is comparing the number of departments showing no teacher turnover and when comparing the total number of teacher changes. This would tend to indicate teacher tenure has some bearing upon the effectiveness of programs of vocational agriculture.

Years of continuous vocational agriculture in departments. One of the factors thought to affect programs of vocational agriculture was the length of continuous operation of departments of vocational agriculture. This factor exhibits a highly significant difference between the above-average group of departments and the below-average group. The above-average departments were in continuous operation for an average of 20.18 years. In contrast, the below-average departments averaged 12.42 years. The above-average departments averaged almost eight years longer continuous operation. It is apparent that the state supervisors named a high proportion of the below-average departments which had relatively shorter periods of continuous operation. Fifty-two per cent of the

TABLE LXI
NUMBER OF TEACHER CHANGES SINCE 1948

Number of Changes	Above-average Group	Below-average Group
4	2	1
3	1	3
2	2	6
1	13	18
0	32	20
Number of Cases	50	50
Mean	.60	.94
Standard Deviation	1.08	.96
Critical Ratio	1.66 (not significant)	

below-average group were departments that were in continuous operation for eight years or less. All of the 100 departments were in operation at least five years. Only eight of the above-average departments were listed in the interval 5 to 8, as can be observed in Table LXII. Thirty-six of the 50 above-average departments were departments that had been in operation for 17 or more years; only 15 of the 50 below-average departments were in operation that long.

It is evident that younger departments would tend to have a more difficult time to rate above average than older departments. It may be pointed out that many of those departments that are youngest in periods of service may be located in schools that have been offered little support and encouragement.

Years of continuous vocational agriculture is a factor that proved to show a highly significant difference between above-average and below-average groups of departments of vocational agriculture; however, length of continuous operation should not be regarded as a factor which would insure success.

Total number of years of vocational agriculture per department.

Another factor believed to affect programs of vocational agriculture was the amount of total years of vocational agriculture per department. Table LXIII reveals a highly significant difference between the two groups of departments when one is considering this factor. The above-average group exhibits a mean of 20.90 years in contrast to a mean of 15.38 for the below-average group. Three times as many of the below-average group of departments as the above-average group show their total years of vocational agriculture to be less than nine years. Fifty per cent of the above-average departments show they have had a total of 21 or

TABLE LXII
YEARS OF CONTINUOUS VOCATIONAL AGRICULTURE

Continuous Years of Vo-Ag	Above-average Group	Below-average Group
33 to 36	5	2
29 to 32	3	1
25 to 28	8	2
21 to 24	8	3
17 to 20	12	7
13 to 16	2	2
9 to 12	4	7
5 to 8	8	26
1 to 4	0	0
Number of Cases	50	50
Mean	20.02	12.42
Standard Deviation	8.54	8.01
Critical Ratio	4.67**	

more years of vocational agriculture. Twenty-eight per cent of the below-average departments show 21 or more years of vocational agriculture. It is interesting to note that 15 departments, ten from the above-average group and five from the below-average group, show they have had 29 to 36 years of operation. This group would include some of the oldest departments in the State. One might question why five of the very oldest departments in the State were rated below average.

In comparing Table XLII and Table XLIII, one finds the means of the above-average group to be relatively the same when comparing the number of years of continuous operation and the total number of years of vocational agriculture; however, when the two means of the below-average group are compared, one finds the average total number of years of vocational agriculture to be 15.38 and the average number of years of continuous operation to be 12.42. This would tend to indicate the below-average group had more interruptions with short intervals of inactivity and discontinuation. It would also indicate the above-average group was a much more stable group.

With a highly significant difference between the two groups when one is making a comparison of the total years of vocational agriculture, it must be recommended this factor be considered an important criterion in evaluating programs of vocational agriculture.

Summary. Eighty factors related to programs of vocational agriculture were tested to determine whether significant differences were exhibited when the investigator was comparing the above-average group of departments and the below-average group concerning these factors. Tables are used to present the findings pertaining to each of the factors. An analysis accompanies each table. Those factors which reveal highly significant

TABLE LXIII
 TOTAL NUMBER OF YEARS OF VOCATIONAL AGRICULTURE

Number of Years	Above-average Group	Below-average Group
33 to 36	5	3
29 to 32	5	2
25 to 28	7	1
21 to 24	8	8
17 to 20	11	7
13 to 16	6	6
9 to 12	3	8
5 to 8	5	15
1 to 4	0	0
Number of Cases	50	50
Mean	20.90	15.38
Standard Deviation	8.32	8.40
Critical Ratio		2.82**

differences are identified with a double asterisk (**); those that reveal significant differences with an asterisk (*); and those that show no significant differences with "not significant" or (NS).

A list of the factors manifesting highly significant differences are:

Number of young farmer farm visits during 1951-1952 per department

Average number of production projects completed annually by department

Average number of productive enterprise projects completed per student

Average annual total number of supervised farm training visits per department

Average number of supervised farm training visits per student

Average annual total number of supplementary jobs per department

Average annual number of supplementary jobs per student

Number of honorary FFA members per chapter

Average number of graduates and drop-outs in college

Number of contests placed in by teams in the interscholastic FFA judging contests during the spring of 1953

Number of points earned in the interscholastic FFA judging contests as computed for the Farmer-Stockman Award

Judging contest cash winnings at the major shows in Oklahoma

Total winnings from crop and livestock exhibits at the major shows in Oklahoma

Average annual total value per department of supervised farm training program

Average annual value per student of supervised farm training program

Average annual total net profit per department from supervised farm training program

Average annual total self labor per department from supervised farm training program

Average annual total student hours per department from supervised farm training program

Average annual total labor income per department from supervised farm training program

Average annual labor income per student from supervised farm training program

Average annual labor income from beef production projects per department

Average annual investment in swine production projects per department

Average annual labor income from swine production projects per department

Average annual investment in dairy production projects per department

Average annual investment in crop production projects per department

Total number of Junior Master Farmer degrees awarded per department during the three-year period 1949 to 1952

Total number of American Farmer degrees awarded per department during the three-year period 1949 to 1952

Total number of American Farmer degrees awarded per department during the period 1928 to 1954

Number of curricular units of instruction per school offered in the school year 1951-1952

Schools accredited in the North Central Association

Years of continuous vocational agriculture

Total number of years of vocational agriculture

FFA chapters holding advancement ceremonies

FFA chapters holding Parent-Son banquet or social

FFA chapters appearing before civic clubs

Number holding joint FHA-FFA socials

Number providing a state FFA officer

Number rated as "Outstanding FFA Chapter"

A list of the factors manifesting significant differences between the two groups are:

Average number of students enrolled in vocational agriculture per department

Number enrolled in young farmer classes in 1951-1952

Number of hours of young farmer instruction per department

Average annual total number of improvement projects completed per department

Average annual number of improvement projects per student

Total number of active FFA members per department

Number of members per chapter attending State FFA convention

Number of contests placed in by teams in the interscholastic FFA judging contests during the spring of 1952

Average annual investment in beef production projects per department

FFA chapters participating in leadership training

FFA chapters entering public speaking contests

FFA chapters participating in radio programs

FFA chapters participating in television programs

FFA chapters preparing news publicity regularly

Number attending National FFA convention

Number of departments showing no teacher changes

A list of the factors included in this study that failed to refute the null hypothesis are:

Average number of farm boys enrolled in vocational agriculture per department

Average number of non-farm boys per department

Percentage of the total number of students per department that are farm boys

Average number enrolled in adult classes per department in 1950-1951 and 1951-1952

Average number of hours of adult instruction per department for
1950-1951 and 1951-1952

Average number of farm visits per department supervising adult
education

Total number of graduates and drop-outs per department

Average number of graduates and drop-outs engaged in farming

Average number of graduates and drop-outs in work related to
agriculture

Average number of graduates and drop-outs in professional agri-
culture

Average number of graduates and drop-outs in non-agriculture work

Average number of graduates and drop-outs in military service

Average number of graduates and drop-outs whose whereabouts are
unknown

Average annual investment in sheep production projects per depart-
ment

Average annual labor income from sheep production projects per
department

Average annual labor income from dairy production projects per
department

Average annual investment in poultry production projects per
department

Average annual labor income from poultry production projects
per department

Average annual labor income from crop production projects per
department

Schools that offered four units of vocational home economics

Percentage of boys enrolled in vocational agriculture in 1949-1950
that were enrolled in 1951-1952

Average number of teacher changes since 1948

Number of departments holding regular monthly FFA meetings

FFA chapters having satisfactory program of work

FFA chapters participating in cooperative feeding

FFA chapters exhibiting chapter welcome signs

Number of chapters represented at the State FFA convention.

NOTE: One should not infer that those factors which failed to refute the null hypothesis do not affect programs of vocational agriculture. The investigator is only reporting that the data used in this study failed to refute the null hypothesis and therefore those factors will not be recommended for evaluative criteria for identifying valid dissimilarities between the two groups.

CHAPTER III

INTERPRETATIONS OF THE FINDINGS

Thirty-eight of the 80 selected factors considered in this study manifested highly significant differences between the above-average group of departments and the below-average group when the investigator tested the null hypothesis. Fifteen additional factors considered in this investigation revealed significant differences between the two groups. Data concerning the remaining 27 factors sustained the null hypothesis that there is no significant difference between the means of the two groups of departments.

This chapter is a presentation of some of the more pertinent findings and observations of the investigator concerning the selected factors considered in this thesis. The findings of this study have been concerned with an analysis of data pertaining to the 50 above-average and the 50 below-average departments of vocational agriculture in Oklahoma secondary schools. Recommendations are given in this chapter regarding evaluation of programs of vocational education in agriculture in the public schools in Oklahoma. The writer believes, however, that the recommendations made in this thesis may be of value in evaluating programs of vocational agriculture in other states. Suggestions are presented in this chapter concerning reports that teachers of vocational agriculture in Oklahoma are required to send to the State Office of Vocational Education.

The recommendations given pertaining to evaluation of programs of vocational education in agriculture and the suggestions made regarding reports will represent the observations of the writer based upon the

findings of this investigation, integrated with his experiences as a teacher of vocational agriculture and a teacher trainer in agricultural education.

When attempting to identify significant differences between the above-average group of departments and the below-average group, the investigator observed that there were four general areas revealed to be of major importance. These factors which revealed significant differences between the two groups were classified into the following major areas assumed to contribute to the effectiveness of programs of vocational education in agriculture: supervised farm training, Future Farmers of America activities, young farmer and adult farmer education, and school curriculum. Factors related to these four major areas affecting programs of vocational education in agriculture are discussed in this chapter.

Factors related to supervised farm training. A strong supervised farm training program is a vital part of any program of vocational agriculture. Phipps says, "A supervised farming program is an integral and very essential part of vocational agriculture, not an appendage."¹ Thomason regards the supervised farm training program as "the core of the program."² Many of the factors related to supervised farm training included in this investigation manifest significant differences between the above-average group of departments and the below-average group. These findings support the belief that strong supervised farm training programs are an essential element of an effective program of vocational agriculture. Many of the findings reported in this study support those

¹Phipps and Cook, p. 229.

²Thomason, p. 2.

reported by Thomason in his study of the supervised farm training programs of 70 departments of vocational agriculture in the Northwest District of Oklahoma.³ The investigator believes that the significant factors of this study which are related to supervised farm training should be regarded among the most important measures of effective programs of vocational agriculture. The following paragraphs discuss factors which were included in this study related to supervised farming which revealed significant differences between the above-average and the below-average departments.

The average number of production projects completed annually per department is one of the factors which revealed a highly significant difference between the above-average group and the below-average group. The above-average group reported a mean of 105.50 production projects per department; the below-average group reported 66.00 projects per department. When comparing the average number of production projects per student, a highly significant difference is also apparent, with the above-average group averaging 2.26 projects per student in contrast to a mean of 1.53 for the below-average group. Seven departments, six of the seven from the below-average group, reported less than an average of one production project per student.

Supervised farm training visits are absolutely necessary if a strong supervised farming program is to be developed. This is one of the conclusions reached by Thomason.⁴ The findings presented in this study confirm his conclusion by manifesting a highly significant difference between the above-average group and the below-average group when one is comparing farm visits. The above-average group averaged 547.50

³Ibid., pp. 30-33.

⁴Ibid., p. 30.

visits per department in contrast to 349.54 visits per department for the below-average group. Ten of the below-average group reported fewer than 200 visits per year, and one of the above-average group reported fewer than 200 visits per year. The above-average group made 12.68 visits per student in comparison to 9.02 visits per student in the below-average group. Sixty-eight per cent of the below-average group made less than ten visits per student during a year.

Improvement projects are considered to be an important part of programs of supervised farm training. Students should be encouraged to conduct improvement projects along with their productive enterprise projects. A significant difference is revealed between the two groups when one is comparing the number of improvement projects completed per department. A significant difference is also revealed when this investigator compares the number of improvement projects completed per student. The findings would indicate that students should be encouraged to average four or five improvement projects per year. In gathering the data the investigator is led to believe that teachers of vocational agriculture did not have a common meaning of the term "improvement projects completed." This is substantiated by observing that one teacher reported more than 16 improvement projects completed per student; and two others reported 12 or more completed.

Supplementary farm jobs, or supplementary farm practices, as they are often called, are essentials of a total supervised farming program. These skill jobs are necessary to supplement the educational experiences of students of vocational agriculture. It is obvious that a student cannot gain all of the desirable farming experiences from his productive enterprise projects and improvement projects. Teachers of vocational agriculture, therefore, are obligated to teach many skill jobs through

supplementary farm practices. When the investigator computed the average number of supplementary farm jobs per department, a highly significant difference between the two groups was indicated, with the above-average group having more than one and one-half times as many supervised jobs completed per department as the below-average group. The above-average group reported 15.53 supplementary jobs per student in contrast to 11.33 for the below-average group.

Two of the more objective measures of supervised farm training programs are the total cash investment per department in the supervised farm training program and the average investment per student in supervised farming. Four of the below-average group show the total investments in supervised farm training per department to be less than \$5,001; ten more of this group show total value of supervised farming to be less than \$10,001 per department. Seventy-four per cent of this below-average group show average investments per department in supervised farming to range from \$20,000 on down. Seventy-eight per cent of the above-average group show supervised farming investments to range from \$20,001 up to \$95,000 per department. The average investment per student also reveals a highly significant difference between the two groups of departments. The mean of the above-average group is \$740 per student; the mean of the below-average group is \$396. Twenty-one departments indicate the average investment per student to be less than \$301; 16 of the 21 were from the below-average group. Total cash investment per department in the supervised farm training program and average investment per student in supervised farming should receive considerable attention when one is evaluating the effectiveness of programs of vocational agriculture.

It is suggested that an instructional sheet or manual be developed

to aid beginning teachers in completing the Final Report.⁵ Clarification should be made of such terms as: "farm boys," "non-farm boys," "number beginning," "number completing," "new students," "total head or acres per year," "yield," "total credits," "total expenses," "total labor income," "value of self labor," and "net profit or loss." For the experienced teacher or supervisor these terms may be clearly understood, but for the beginner these terms may be less distinct. Students in agricultural education should be given a considerable amount of instruction in recording and making reports pertaining to supervised farming.

The investigator would like to point out that the term "labor income" is demonstrated to be the "total credits" minus the "total expenses" on the Final Report. ~~To the writer, this~~ seems to be misleading and does not appear to agree with definitions of the term "labor income" commonly given by authorities in agricultural economics.⁶ This immediately points out that the term "total expenses" may be confusing when one may become doubtful whether or not to include such an item as "self labor" as an expense or a credit. In observing the confusion exhibited in graduate classes of experienced teachers of vocational agriculture concerning such details, the writer would recommend that such terms be clarified. The writer would suggest that a group of experienced teachers cooperating with supervisors and teacher trainers in agricultural education departments consider revision and simplification of the supervised farm training record book used by students of vocational agriculture.

⁵The Final Report is a report pertaining to supervised farm training that teachers of vocational agriculture in Oklahoma are required to complete and return to the State Office of Vocational Education each year.

⁶J. Norman Efferson, Principles of Farm Management, (New York), 1953, p. 76.

Record books and terms that are confusing to teachers certainly will be too complicated for high school students to comprehend.

Other objective measures of the supervised farm training program which exhibited highly significant differences between the two groups are average annual total net profit per department, average annual total self labor per department, and average annual total student hours per department. The average annual total net profit for the above-average group is \$13,300 and \$6,450 for the below-average departments. This would reveal that the average net profit per department for the below-average group was just 48.50 per cent of the average net profit of the above-average group. Highly significant differences were also revealed between the two groups when the investigator compared the average annual total self labor and the average annual total number of students. Self labor and student hours are reasonable estimates of time spent conducting supervised farm training programs, but they are not so reliable estimates of a good supervised farm training program as measures of labor income and investment in projection projects. These factors, however, do point out in this study that the above-average group appeared to encourage greater student participation in supervised farming programs.

The average annual total labor income per department and the average annual labor income per student are believed to be two of the most valid and most important measures of effective programs of vocational agriculture. Labor income is the measure generally used in reporting the scope of farming programs of State Farmer and American Farmer applicants. Since value of self labor is added to net profit to get labor income, this measure is not affected by varied rates per hour when figuring self labor. This study reveals that the average labor income per department for the

above-average group is more than twice as great as the average labor income for the below-average group. The average labor income per department for the above-average group is \$15,120. Seventy-two per cent of the below-average group reported total labor income per department to be less than \$9,001; 22 per cent of the above-average group reported labor income to be less than \$9,001 per department. The average labor income per student is \$346.50 for the above-average group and \$178.50 for the below-average group. Thirty-three of the 50 below-average departments reported average labor income per student to be less than \$201, with 13 of this group reporting average labor income to be less than \$101. With these two factors manifesting highly significant differences between the two groups, it is recommended that these objective measures of labor income be considered of major importance when one is developing criteria for measuring the effectiveness of programs of vocational education in agriculture. Labor income per student apparently is one of the best single criterion for evaluating programs of supervised farming.

The investigator was interested in determining whether or not the annual investment in different enterprises per department and whether or not labor income per department from these enterprises would reveal statistical differences between the above-average and the below-average group of departments. The enterprises considered were beef, swine, dairy cattle, sheep, poultry, and crops. These were considered to be the six enterprises of major importance to supervised farm training programs in Oklahoma. The annual investment per department in each enterprise and the annual labor income per department derived from each enterprise were collated and presented in Chapter II. Concerning investments in all enterprises considered by the investigator in this study, significant to highly significant

differences were revealed between the two groups of departments except for the sheep and poultry enterprises. The above-average departments had 1.87 times as much invested in beef projects as the below-average group; they had over twice as much invested in swine enterprises; they had more than twice as much invested in dairy projects; and they had 1.70 times as much invested in crop projects. The average annual investment per department in the following enterprises for the two groups of departments is presented:

	<u>Above-average group</u>	<u>Below-average group</u>
Beef production projects	\$ 9950	\$ 5300
Swine production projects	7700	3600
Sheep production projects	1250	750
Dairy production projects	5100	2326
Poultry production projects	1780	1636
Crop production projects	9120	5366

The annual labor incomes per department derived from the different enterprises also reveal in all instances significant to highly significant differences between the two groups. Labor income from beef and swine both manifest highly significant differences. It was interesting for the writer to note the labor income per department for the above-average group averaged 37.83 per cent of the average annual total investment in the six enterprises; for the below-average group the labor income averaged 44.00 per cent of the average annual total investment in the six enterprises. The annual labor income per department from the six enterprises for the two groups is presented:

	<u>Above-average group</u>	<u>Below-average group</u>
Beef production projects	\$ 4060	\$ 2440
Swine production projects	2560	1310
Sheep production projects	431	319
Dairy production projects	2420	1652
Poultry production projects	504	268
Crop production projects	3920	2778

Supervised farm training "projects of various types conducted on the home farm offer the best-possible setting for both teaching and learning."⁷ Supervised farm training is considered one of the very essential parts of effective programs of vocational agriculture. This investigation would substantiate other research studies emphasizing the necessity of having strong supervised farm training programs in order to have effective programs of vocational agriculture. The investigator would recommend that factors revealing significance in this study be included as part of evaluative criteria when one is attempting to evaluate programs of vocational agriculture. It is also recommended that educational experiences pertaining to supervised farm training be emphasized as a vitally important area in the undergraduate curriculum in agricultural education. Undergraduates need to develop the ability to initiate and supervise farm training programs of students of vocational agriculture. They need thorough training in preparing reports related to the supervised farm training program. It may be possible that this is an area in which itinerant teacher trainers and district supervisors should assume greater responsibility in assisting teachers. It has been suggested that a survey be made to determine the need for revision and simplification of the record book used by students of vocational agriculture in Oklahoma

Factors related to FFA activities. Practically every factor related to Future Farmer activities included in this investigation revealed significant to highly significant differences between the above-average group of departments and the below-average group. A good Future Farmers

⁷E. W. Garris, Teaching Vocational Agriculture (New York, 1954), p. 218.

of America organization appears to be an essential of an effective program of vocational agriculture. An active FFA chapter has been called the "catalyst" of vocational agriculture. The investigator would make the recommendation that factors related to FFA activities be regarded among the most important measures of the effectiveness of programs of vocational agriculture. The findings presented in this study solidly support this point of view.

One of the factors concerning FFA considered in this study was the number of active FFA members per department. A significant difference between the two groups is evidenced when one is considering this factor, with many of the departments reporting over 100 per cent of the students enrolled in vocational agriculture being FFA members. Some departments, however, indicated less than 100 per cent of the students enrolled as FFA members. Some teachers of vocational agriculture demand that students become paid up FFA members if they expect to enroll in vocational agriculture. The writer feels this is too autocratic and not in harmony with the ideals and principles of the FFA organization. FFA should be "sold" in order that boys will want to become members of the organization. This is generally the case in departments that have outstanding FFA chapters.

Another factor concerning FFA activities is the number of honorary FFA members per department. A highly significant difference is revealed between the two groups when this factor is considered. The above-average departments averaged almost three times as many honorary members as the below-average departments. Recognizing honorary members is a function often overlooked by teachers of vocational agriculture, yet it is one of the easiest and most rewarding activities FFA chapters should undertake. Recognition should be given to those who support programs of vocational

agriculture. It is recommended that the supervisors and the teacher training staff encourage beginning teachers to include this activity in the local FFA program of work.

Some of the other FFA factors which revealed significant differences between the two groups were as follows: participate in leadership training conferences, enter public speaking contests, participate in radio and television programs, and prepare news publicity regularly. These may be classified as leadership activities that are recommended for consideration when one is developing the local FFA program of work. Programs of work should be developed by the FFA boys under the guidance of the teacher. Unless the boys are involved in developing the local FFA program of work, it is practically worthless. When a committee is evaluating a program of vocational agriculture, the FFA program of work should be reviewed with some of the FFA members in order for this group to get an indication of the amount of student participation.

Additional FFA activities which revealed highly significant differences between the two groups were as follows: hold advancement ceremonies for FFA members, hold FFA Parent-Son banquet or social, appear before civic clubs, and hold joint Future Homemakers of America and Future Farmers of America socials. The factors named in this paragraph were recommended for consideration when the investigator developed evaluative criteria for measuring the effectiveness of programs of vocational agriculture. The investigator would consider these factors as excellent guides for planning the activities of the year for any FFA group.

The other factors indicating highly significant differences were as follows: providing a State FFA officer and being rated as an "Outstanding FFA Chapter." These are worthy goals, but it is recognized that only a small percentage of the 400 departments of vocational agriculture in

Oklahoma could achieve these goals during any one-year period.

Attendance at the State FFA convention and attendance at the National FFA convention reveal significant differences between the two groups. It has been the experience of the writer that one of the best methods for developing interest in local FFA activities among the members is to afford them an opportunity to participate in FFA activities with members from other schools. Some of the most valuable experiences FFA boys should derive from their high school education should come from out-of-town trips if the teacher gives proper supervision and guidance. This would imply the teacher of vocational agriculture should be with the boys of his department in order to supervise and set an example for them at all times while they are representing the local FFA chapter or while they are representing the local department of vocational agriculture.

A strong supervised farm training program, coupled with enthusiastic participation in FFA activities, should result in a boy's being awarded the State Farmer degree. One of the best criterion in evaluating programs of vocational agriculture would be to consider the number of State Farmer degrees awarded a department each year. When one is considering this factor in this investigation a highly significant difference is revealed between the two groups of departments. The Junior Master Farmer degree is the State Farmer degree for FFA members in Oklahoma. The above-average group had an average of 4.78 Junior Master Farmer degrees awarded per department during the three-year period covered in this investigation in contrast to an average of .46 for the below-average group. This would signify that above-average departments would average approximately 1.6 Junior Master Farmers per year in contrast to approximately .16 per year for the below-average group. At this rate, a below-average department would produce one Junior Master Farmer approximately every six years.

It is very revealing to observe that no Junior Master Farmers were produced by 40 of the below-average departments during the three-year period.

A highly significant difference is manifested between the two groups when one is comparing the number of American Farmer degrees awarded per department. No American Farmer degrees were awarded among the entire 50 below-average departments during the three-year period. Twenty-eight American Farmer degrees were awarded to FFA members among 17 of the 50 above-average departments. This indicates an average of .56 degrees awarded per department from the above-average group during the three-year period.

One of the more controversial issues related to FFA activities and programs of vocational agriculture is participation in FFA judging contests. Since the five district supervisors' judgments are to be respected, then one must recognize the highly significant difference exhibited between the above-average group of departments and the below-average departments when one is considering participation in judging contests. The factors concerning judging contests included in this study reveal three measures that manifest statistical differences between the two groups. The factors are as follows: number of contests placed in (six high placings) at the interscholastic FFA judging contests in 1952 and 1953, the number of points earned in the interscholastic FFA judging contests in 1952 toward the Farmer-Stockman Award, and the judging contest cash winnings at the three major shows in Oklahoma. The three major shows included the Oklahoma State Fair, the Tulsa State Fair, and the Oklahoma City Junior Livestock Show. The above-average group averaged \$18.80 per department from contest winnings in contrast to an average of \$3 for the below-average departments. Even more revealing is the fact

that 43 of the 50 below-average departments show no cash winnings from judging contests at the three major shows in comparison to 22 of the above-average group showing no cash winnings. It is recommended that participation in judging contests be weighed when evaluating programs of vocational agriculture. It must be remembered, however, that the sole purpose of judging contests should be justified in light of the educational experiences made available to students of vocational agriculture. When this justification ceases to be foremost, then a critical examination of judging contests should be made. The writer has pointed out the beneficial educational experiences made possible by such activities.

Another FFA activity that may be a controversial issue among those responsible for administering and developing local programs of vocational agriculture is the show activities engaged in by students of vocational agriculture. Administrators and others interested in programs of vocational agriculture may question the practicability of participation in livestock and crop shows. Some teachers may neglect other important phases of the program of vocational agriculture in order to spend excessive time at shows. Since the writer's basic assumption in this investigation was to accept the factors which refute the null hypothesis, show winnings should be accepted as one of the criterion in measuring the effectiveness of programs of vocational agriculture. One may observe that the above-average group averaged \$254 per department from show winnings in contrast to an average of \$46 for the below-average group. Thirty of the 50 below-average departments reveal no cash winnings at the three major shows; ten of the above-average group show no cash winnings. It was evident when the investigator made this comparison that district supervisors rated departments above average which were most active in show programs.

The writer would recommend that those interested in local programs of vocational agriculture seriously consider the possibilities of a local community crop and livestock show. It is believed that local shows do much more for local programs of vocational education in agriculture than participation in major shows. The writer believes that participation in shows strengthens the supervised farm training programs of students. On the basis of the findings of this study, it is recommended that winnings at the major shows be regarded as one of the measures when one is evaluating programs of vocational agriculture.

Factors included in this investigation related to FFA activities which sustained the null hypothesis, thus revealing no significant difference between the two groups of departments, are as follows: number of FFA chapters represented at the State FFA convention, FFA chapters having a satisfactory program of work, chapters participating in cooperative feeding, and chapters exhibiting chapter welcome signs. It should not be assumed that these are trivial or unimportant activities. All that is implied is that no statistical difference was observed between the two groups of departments.

From the evidence presented in the pages discussing FFA activities, it is recommended that FFA activities be given considerable attention when one is evaluating programs of vocational agriculture. Teachers of vocational agriculture should attempt to develop a strong FFA chapter. Administrators and laymen should encourage and support an active FFA chapter. Supervisors and teacher trainers should assist beginning teachers in developing active FFA chapters. Emphasis should be placed upon the factors that manifested significant to highly significant differences between the above-average and below-average groups of departments of vocational agriculture in this study. Undergraduates in

agricultural education should receive considerable instruction in organizing and developing a strong FFA chapter.

Factors related to adult and young farmer education. Another important area in vocational agriculture is that of adult and young farmer education. "Instruction for out-of-school young men who are becoming established in farming and for older adult farmers is one of the most important phases of vocational education in agriculture."⁸ Another prominent leader in young farmer education states:

The young farmer program must always be based upon the needs of these young farmers of post-high school age. It is concerned primarily with helping them to become successfully established in farming. It is a program of definite, organized, systematic instruction and supervision.⁹

Ekstrom and McClelland report:

Young men leave high schools with incomplete training in vocational agriculture several years before they will enter farming in their own right. This age-group receives but little vocational assistance from other educational agencies and is in dire need of the guidance and continued training that can be had in young farmer classes. . . . No group is in better position to work as effectively with mature farmers as the teachers of vocational agriculture.¹⁰

In this investigation, those factors related to young farmer educational programs which revealed significant differences between the two groups were as follows: the number enrolled in young farmer classes per department, the number of hours of young farmer instruction per department, and the number of young farmer farm visits per department. The average number of young farmers enrolled for the above-average departments

⁸Phipps and Cook, p. 501.

⁹Mark Nichols, Young Farmers, Their Problems, Activities, and Educational Program (Danville, Illinois, 1952), p. 63.

¹⁰George F. Ekstrom and John B. McClelland, Adult Education in Vocational Agriculture (Danville, Illinois, 1952), pp. 16 and 17.

was 14.30 in contrast to a mean of 10.88 for the below-average departments. Eleven of the below-average departments reported no young farmers enrolled in classes; five of the above-average group reported none enrolled. Of the 84 departments reporting young farmer instruction, all reported at least 20 hours of instruction. The above-average group shows a mean of 39.70 hours of instruction in contrast to a mean of 30.50 for the below-average group. Only three of the 100 departments reported more than 70 hours of young farmer instruction per year. The average annual number of young farmer visits per year shows the above-average group to have reported 51.70 visits per department and the below-average group reported 30.90 visits. This manifests a highly significant difference. This would suggest that an effective young farmer program of instruction should include home visits as well as organized classroom instruction.

When collating data concerning adult education, the investigator failed to detect any significant differences revealed between the means of the two groups. In fact, the below-average departments reported an average of 56.70 hours of adult instruction in comparison to a reported 53.10 hours of adult instruction by the above-average group.

The investigator recommends that teachers of vocational agriculture make a conscientious effort to offer well-organized educational programs to the adult farmers and young farmers. Administrators should assume the responsibility of encouraging stronger adult programs. It is believed that some administrators may feel the adult program is not the responsibility of the schools, and, in some instances, it is believed they may discourage such a program. It is suggested that report forms pertaining to adult and young farmer education be signed by the superintendent or principal and the vocational agriculture teacher before being sent to the State Office of Vocational Education. This is a normal practice in some

states. It is suggested that supervisors spend part of their time in familiarizing beginning teachers and inexperienced superintendents of the obligations and responsibilities of the teacher of vocational agriculture to adult farmers and young farmers in farming communities. Teacher training departments should place considerable emphasis upon undergraduate and graduate instruction and guidance in developing adult programs and in teaching adult classes. Assistance and encouragement should be given beginning teachers of vocational agriculture by administrators, supervisors, and itinerant teacher trainers. A suggestion often voiced among beginning teachers is that a fewer number of hours of adult and young farmer instruction be required during the first year on a new job.

The area of adult and young farmer education appears to be one of the most obvious weaknesses in programs of vocational agriculture. Before this segment of the total program of vocational agriculture can be strengthened to any marked degree, a marked change in attitudes must occur among those responsible for administering and implementing programs of vocational education in agriculture.

Factors related to school curriculum. It is believed that programs of vocational agriculture are affected by the number of students enrolled in vocational agriculture and the number of curricular units of instruction offered in the high schools. The investigator observed that schools with low enrollments and narrow curriculums were generally the schools which tended to be sub-standard in their programs of vocational agriculture. This belief is substantiated by the findings in this investigation. Significant to highly significant differences were revealed between the two groups of departments when these factors were considered.

When the investigator compared the number of students enrolled in vocational agriculture, a significant difference was revealed with the above-average group averaging 5.2 more students than the below-average group. Nine of the below-average group had less than 31 students enrolled in vocational agriculture. Another factor believed to be affected by the size of school enrollment was the number of active FFA members per department. The above-average group differs significantly from the below-average group, for the above-average group had 7.5 more FFA members than the below-average group.

The investigator believes that the highly significant difference manifested between the two groups when he compared the number of graduates in college is influenced by the curriculums found in the secondary schools. This statement is supported by the findings which show a highly significant difference between the two groups when he compared the number of curricular units of instruction offered in the related schools. The below-average departments were associated with secondary schools that averaged only 27.26 units of instruction in contrast to an average of 33.34 for the above-average group. Sixteen of the below-average departments were in high schools that offered less than 25 units of instruction; only three of the above-average schools offered fewer than 25 units of instruction.

Another factor revealing a highly significant difference between the two groups is the number of schools that were accredited in the North Central Association. Twenty-four of the above-average departments were in schools that were accredited in contrast to 11 of the below-average departments in such schools. The total number of years of vocational agriculture per department indicates a highly significant difference between the two groups. Twenty-six of the below-average departments had been in operation for less than nine years. It is possible in some

instances below-average departments were associated with schools that had not been able to qualify for departments of vocational agriculture earlier because of low enrollment and limited facilities. The below-average departments show a greater difference between the total number of years of vocational agriculture and the number of years of continuous vocational agriculture. This would indicate the below-average departments had more interruptions in their programs of vocational agriculture.

In evaluating programs of vocational agriculture one must recognize that schools with low enrollment and with limited curricular offerings are likely to be operating under circumstances which would make it extremely difficult for them to meet the goals and objectives that would make it possible for them to be rated above average.

It is recommended that schools requesting that departments of vocational agriculture be added to the school curriculum be carefully surveyed before the request is approved. The survey should include data concerning the present high school enrollment and predicted enrollment for later years. The facilities available for teaching vocational agriculture and the number of curricular units of instruction offered should also be considered.

Other factors that revealed no significant differences. Factors not previously mentioned in this chapter that revealed no significant differences between the means of the two groups will be discussed in the following paragraphs. These factors must be considered of lesser importance in this study since a basic premise was to accept only those factors which revealed significant differences between the above-average group of departments and the below-average group for developing criteria for evaluating the effectiveness of programs of vocational agriculture.

The purpose was to accept significant factors which revealed statistical dissimilarities between the above-average group and the below-average group. Factors which have previously been discussed in other subdivisions of this chapter will not warrant further discussion.

Factors related to enrollment of farm boys and non-farm boys gave no indication of significant differences between the two groups of departments. The writer is led to believe that some teachers do not have a clear definition of the terms "farm boys" and "non-farm boys." It is suggested that such terms be defined in an instructional manual or sheet to accompany reports that originate in the State Office of Vocational Education before they are distributed to the teachers of vocational agriculture. When the investigator tested the null hypothesis concerning the factors pertaining to the number of farm boys and non-farm boys per department, no significant difference was evidenced between the means of the two groups. Other factors, however, related to supervised farming programs of the boys manifested significant to highly significant differences between the two groups. The writer would conclude that a goodly number of farm boys would necessarily be found in effective departments in order to display strong supervised farm training programs. It is quite possible that both groups of departments would have functioned more efficiently had there been a fewer number of non-farm boys enrolled who truly were not interested in vocational agriculture. A recommendation is offered that administrators cooperate with teachers of vocational agriculture, carefully screening non-farm boys before approving them for enrolling in vocational agriculture. There should be a cooperative effort to enroll only those who manifest definite need, interest, and facilities for participating in the curricular offerings in vocational agriculture. Enrolling others, non-farm

boys or farm boys, who divulge lack of interest, little evidence of need, or inadequate facilities for carrying on satisfactory supervised farm training programs will contribute to a weaker program of vocational agriculture. Students deserving consideration receive less time and attention when a department is burdened with an excessive number of "non-vocational" students. Vocational agriculture should not be a "dumping area" for the problem child just because the teacher of vocational agriculture is a good disciplinarian or because vocational agriculture is an interesting course.

Of the nine factors related to graduates and drop-outs per department, only the one pertaining to the number reported in college indicated a significant difference between the two groups. There was no significant difference indicated between the two groups when the investigator considered those factors related to placement in farming or agricultural occupations. The findings apparently emphasize the necessity of teachers of vocational agriculture working toward the general objectives of education pertaining to the over-all school program. One should realize that only a small percentage of the students enrolled in vocational agriculture will eventually become farmers. Teachers of vocational agriculture serving in the public schools of America must have a part in the development and guidance of a larger number of boys and girls, although they may never become established in the "vocation of farming." As Hamlin states:

The task of the public school, as a developer of American citizens, becomes correspondingly complex and important. Agricultural education has been brought into the schools to assist in making citizens more capable of providing for their own needs, in reducing the number of parasites upon other citizens, and in making more available to all citizens, the food, clothing, and shelter they require. It is also expected to contribute as any other kind of education to the general purposes of the public schools.

The public schools are concerned with the best total development of human beings. Our task in public school education in agriculture is to aid in developing men and women, who live on farms; work in agricultural businesses, industries, and professions; consume agricultural products; and determine public agricultural policies. We are not primarily interested in developing farmers or agricultural workers.¹¹

Another factor that failed to reveal a significant difference between the above-average group and the below-average group was concerned with the number of schools offering four or more units of vocational home economics. Concerning this factor no significant difference was observed, even though the findings indicated 33 of the above-average group were associated with schools that offered four or more units of vocational home economics; and 25 of the below-average group were associated with schools that offered four or more units of vocational home economics.

No significant difference was exhibited when comparing the average number of teacher changes per department. A significant difference was apparent, however, when the investigator compared the number of departments that revealed no teacher changes since 1948. Thirty-two of the above-average group revealed no teacher changes in contrast to 20 from the below-average group.

Recommended use of criteria developed by the investigator. After compiling the data, testing the null hypothesis to detect significant differences between the above-average and the below-average groups, the writer formulated Supplementary Criteria for Evaluating Programs of Vocational Agriculture. The writer recommends that these criteria be

¹¹H. M. Hamlin, "The Unique Role of Public School Education in Agriculture," The Agricultural Education Magazine, (August 1953), p. 32.

used in measuring the effectiveness of a program of vocational agriculture. Supplementary Criteria for Evaluating Programs of Vocational Agriculture¹² may be found in the Appendix of this thesis.

Those factors which revealed significant differences between the above-average group of departments and the below-average group were used as a guide when the writer developed these supplementary criteria. Each criterion is concerned with a specific factor objectively stated in terms of either the "total number per department" or "average number per student." A suggested goal is itemized for each criterion by listing the "mean" of the above-average group or the "percentage" of the above-average group participating in the activity or the "percentage" of the above-average group reporting an affirmative answer. The means listed represent annual averages.

When a committee is involved in evaluation of a program or department of vocational agriculture, they should consider those factors selected in this study that evidenced significant differences between the above-average group and the below-average group. Those factors are listed in the Supplementary Criteria for Evaluating Programs of Vocational Agriculture.

The first step in evaluating is to determine the accomplishments of the department for the past fiscal year. One of the next steps would be to set goals for the next year by weighing the achievements of the past year and comparing those achievements with the means of the above-average group which are listed in the Appendix. Goals would not need to equal or exceed the means established by the above-average group reported in this study. Goals should be adapted to the specific department being

¹²Appendix, p. 174.

evaluated. The goals accepted for that individual department should be challenging, yet attainable. It is not imperative that all factors listed in the supplementary criteria in the Appendix of this thesis be included as goals or objectives for any department. Those involved in the evaluating should develop only the goals and objectives that seem pertinent and reasonable. The final step is to make plans to accomplish the proposed goals and objectives that have been developed. It is suggested that those criteria developed in this study be used only as a supplement to evaluative criteria already being used.

Evaluation is a continuous process occurring in the public schools of the United States. The purpose of evaluation is to examine the present situation in order to make needed changes and to encourage progress. If the schools are to serve the people living in a democratic community, then the public must be involved in evaluation of the educational programs.

Summary. In evaluating programs of vocational education in agriculture, it is apparent that the major areas for measuring the effectiveness of programs which have been identified in this investigation should be grouped into the following categories:

1. Factors identifying an extensive supervised farm training program
2. Factors pertaining to an active Future Farmers of America chapter
3. Factors characterizing a practical systematic educational program for young farmers and adult farmers
4. Factors related to a desirable school curriculum that is broad enough in scope to meet adequately the needs of boys and girls and adults living in the school community

It is recommended that the undergraduate curriculum in agricultural education provide the needed educational experiences to prospective

teachers of vocational agriculture concerning those vitally important areas identified in the preceding paragraph.

It is recommended that teachers of vocational agriculture, particularly beginning teachers, receive more guidance in initiating and supervising these areas of instruction. It is also recommended they receive guidance in preparing reports to be returned to the State Office of Vocational Education. Supervisors and itinerant teacher trainers in agricultural education should provide such guidance.

It is suggested that revision of some of the report forms be considered. It is also suggested that teachers of vocational agriculture be surveyed concerning the need for revision and simplification of the supervised farm training record book kept by students of vocational agriculture.

CHAPTER IV

SUMMARY AND RECOMMENDATIONS

This thesis has been concerned primarily with evaluation of programs of vocational education in agriculture. Prominent educators in agricultural education have indicated a need for further research regarding this important process. In reviewing the available literature, the investigator observed that little has been done concerning evaluation of programs of vocational agriculture through the application of statistical analysis to data to test the validity of materials surveyed. Most of the studies that were reviewed dealt with subjective opinion-type surveys.

The writer analyzed factors believed to contribute to the effectiveness of programs of vocational agriculture in secondary schools in Oklahoma. Eighty factors were selected on the basis of the literature reviewed and consultations with authorities. Only factors were selected which could be measured objectively. Fifty above-average and 50 below-average departments of vocational agriculture were identified by the five district supervisors in Oklahoma. Data pertaining to these two groups of departments were collated and analyzed. These data were gathered for a three-year period covering the school years of 1949-1950, 1950-1951, and 1951-1952. Data were collected from the materials maintained in the files in the State Office of Vocational Education. Data pertaining to each of the 80 factors were used to test the null hypothesis in order to identify those factors which revealed significant differences between the above-average group of departments and the below-average group. It

was assumed that the five district supervisors of vocational agriculture in Oklahoma could identify above-average departments and below-average departments. It was also assumed that those factors which manifested significant differences by refuting the null hypothesis were valid guides in developing criteria for evaluating programs of vocational agriculture. It was believed that significant differences would identify valid dissimilarities between the two groups. Significant differences, when comparing the two groups, were considered to be important guides in identifying characteristics which contribute to the effectiveness of programs of vocational education in agriculture.

Thus, the purpose of this study was to develop evaluative criteria which could be used in initiating, developing, and administering programs of vocational education in agriculture. The purpose of this study was to aid teachers and prospective teachers of vocational agriculture, teacher trainers in agricultural education, supervisors, administrators, and interested laymen in evaluating programs of vocational agriculture.

Summary. When attempting to identify significant differences between the above-average group of departments of vocational agriculture and the below-average group, the investigator observed that there were four general areas revealed to be of importance. The significant factors considered in this study, therefore, were classified into four major areas assumed to contribute to the effectiveness of programs of vocational agriculture. These four areas are as follows: factors related to the supervised farm training program, factors concerning Future Farmers of America activities, factors pertaining to young farmer and adult farmer education, and factors characterizing the school and school curriculum of which the vocational agriculture program was a component.

On the basis of the findings evidenced in this investigation, a strong supervised farm training program appears to be of utmost importance in the development of an effective program of vocational education in agriculture. A strong supervised farm training program should include production projects, improvement projects, and supplementary farm jobs. The findings of this study indicate that farm visits by the teacher of vocational agriculture are of value in encouraging and supervising farming programs of students. Factors regarding the amount invested in production projects were revealed to be valid criteria when identifying dissimilarities between above-average departments and below-average departments. The amount invested per department and the labor income per department from the total supervised farming program manifested significant differences. The amount invested in specific enterprises and the labor income per department from these enterprises also revealed significant differences between the two groups of departments.

On the basis of the data studied, it is indicated that an active Future Farmers of America organization is another vitally important component of an effective program of vocational education in agriculture. The number of State Farmers degrees awarded and the number of American Farmers degrees awarded are revealed to be valid measures of an effective program of vocational agriculture. These two factors are also related to the supervised farm training program, even though they were grouped with FFA activities. Participation in FFA leadership training activities is another area manifesting significant differences between the above-average group and the below-average group. These activities included participation in advancement ceremonies for FFA members, leadership training schools, public speaking contests, radio and television programs, civic club programs, and preparation of news articles. Participation in judging contests

was another factor which revealed significant differences between the two groups. The above-average group exhibited considerably more crop and livestock winners in the major shows in Oklahoma. Forty-three of the 50 above-average departments held Parent-Son banquets or socials honoring the parents. Twenty-nine of the below-average group held such affairs. This study indicated that other measures of desirable FFA activities are as follows: the number of honorary FFA chapter members, the percentage of the students enrolled in vocational agriculture that are FFA members, the number of members that attend the State and National FFA conventions, and participation in joint Future Homemakers of America and Future Farmers of America socials.

The factors related to young farmer educational programs that revealed significant differences between the two groups of departments are as follows: the number enrolled in classes, the total number of hours of instruction, and the total number of hours of farm visits to homes of young farmers. The other factors related to young farmer and adult farmer education considered in this study failed to reveal significant differences between the means of the two groups.

Findings in this study have shown that the curricular offerings of the school affect programs of vocational education in agriculture. In comparing the two groups, the investigator observed that 24 of the 50 above-average departments were associated with schools that were accredited in the North Central Association, while only 11 of the 50 below-average were associated with schools that were accredited. The size of the school measured in terms of school enrollment in vocational agriculture and the number of curricular units of instruction taught manifested significant differences between the groups. It should be recognized that schools with limited enrollment and with limited curricular offerings generally

did not have above-average programs of vocational agriculture.

Two factors included in this study related to the number of years that vocational agriculture departments had been in operation manifested significant differences between the above-average group and the below-average group. The above-average group of departments had averaged 20.90 years of operation in comparison with an average of 15.38 years for the below-average group. The above-average group showed an almost identical average of 20.02 years of continuous operation; however, the below-average group averaged 12.42 years of continuous operation. It is obvious that the above-average departments had a considerably fewer number of disruptions and periods of discontinuance than did the below-average departments.

Another factor which revealed a significant difference between the two groups was the number of teacher changes that occurred in the departments of vocational agriculture for a six-year period. One may note that teacher changes occurred in 18 of the 50 above-average departments, whereas teacher changes occurred in 30 of the 50 below-average departments.

Recommendations. Any educational program needs careful examination from time to time to keep it in step with the educational and social needs of the people it serves. Evaluation is a vital process that should involve students, parents, teachers, administrators, supervisors, interested laymen, and the public if it is to be the accepted process to be used in the public schools of the United States. Evaluation of an educational program should be made to determine the effectiveness of the present situation and to serve as a guide for planning improvements in order to encourage progress. Evaluation should be confined to a specific individual program; it should not be concerned with a comparison of programs of

various schools. Evaluation should be accomplished by inventorying the achievements and activities of the individual program of a specific school with the purpose of developing or revising goals and objectives. After goals and objectives have been developed, then it should be the responsibility of those concerned to initiate and implement plans for accomplishment of those goals and objectives.

The purpose of this investigation was to develop valid evaluative criteria that could be used in identifying factors which contribute to the effectiveness of programs of vocational education in agriculture. Supplementary Criteria for Evaluating Programs of Vocational Agriculture were developed by the investigator. These criteria may be found in the Appendix of this thesis. It is recommended that these criteria presented in this study be used as a supplement to other evaluative criteria already being used. The mean (average) of the above-average group of departments of vocational agriculture is presented for each factor listed as a criterion in Supplementary Criteria for Evaluating Programs of Vocational Agriculture. Means are presented in the criteria to serve only as a guide for those setting goals, developing objectives, and planning activities of an individual school program of vocational education in agriculture. Goals of any program of vocational agriculture should be determined by considering the past achievements of its program and the logical expectation of its accomplishments for the future. Goals for a particular departmental program, therefore, could be higher or lower than those suggested by one's observing the means of the above-average group presented in the suggested criteria of this thesis.

On the basis of the data studied, the writer recommends that factors related to the supervised farm training program, factors concerning Future Farmers of America activities, factors pertaining to young farmer

and adult farmer education, and factors characterizing the school and school curriculum, which are presented in the Supplementary Criteria for Evaluating Programs of Vocational Agriculture, be weighed carefully by those evaluating programs of vocational education in agriculture. Those factors in the four major areas listed in these criteria revealed significant differences between the above-average group of departments of vocational agriculture and the below-average group. These factors are recommended to be valid guides when committee members are attempting to identify factors contributing to the effectiveness of programs of vocational agriculture.

Supplementary Criteria for Evaluating Programs of Vocational Agriculture and the findings presented in this thesis should facilitate evaluation of programs of vocational education in agriculture. Teachers and prospective teachers of vocational agriculture may find this study useful in identifying the characteristics peculiar to above-average departments. Teacher-trainers in agricultural education may find this report of value when planning and developing the curriculum to better meet the needs of students. The curriculum in agricultural education should include participating experiences for students to become involved in the activities concerning the four major areas emphasized in this investigation. Administrators should become familiar with the complete program of vocational education in agriculture in order to assist beginning teachers in planning and developing effective programs of vocational agriculture. The findings of this study may aid administrators to gain better insight into a complete program. Supervisors of vocational agriculture may find helpful information in this thesis. Interested laymen may also find this study useful in gaining a more comprehensive picture of an effective program of vocational education in agriculture.

The investigator recommends that further research be pursued concerning evaluation of programs of vocational education in agriculture. He would suggest that research be conducted pertaining to evaluation of programs of vocational agriculture in which objective data would be used to test the validity and reliability of evaluative criteria. Objective data should be used to measure the effectiveness of such programs. Research studies pertaining to the improvement of evaluation and evaluative techniques will always be needed if the public schools in the United States are expected to make the desirable changes in order to meet the social and educational needs of the people they serve.

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APPENDIX

SUPPLEMENTARY CRITERIA FOR EVALUATING PROGRAMS OF VOCATIONAL AGRICULTURE

Factors Related to Supervised Farm Training

Criteria pertaining to the department as a unit

	Mean of the above-average departments
a. Total number of production projects completed per department	105.5
b. Total number of improvement projects completed per department	227
c. Total number of supplementary farm jobs completed per department	692.5
d. Total number of supervised farm training visits per department	547.5
e. Total number of hours of self labor per department	5,720
f. Total value of supervised farm training program per department	\$31,000
g. Total net profit per department from super- vised farm training program	\$13,300
h. Total value of self labor per department . . .	\$ 1,674
i. Total value of labor income per department from supervised farm training	\$15,120
j. Total investment in beef production projects per department	\$ 9,950
k. Total investment in swine production projects per department	\$ 7,700
l. Total investment in dairy production projects per department	\$ 5,100
m. Total investment in crop production projects per department	\$ 9,120
n. Total labor income from beef production projects per department	\$ 4,060

	Mean of the above-average departments
o. Total labor income from swine production projects per department	\$ 2,560
p. Total labor income from sheep production projects per department	\$ 431
q. Total labor income from dairy production projects per department	\$ 2,420
r. Total labor income from poultry production projects per department	\$ 504
s. Total labor income from crop production projects per department	\$ 3,920

Criteria pertaining to the student

	Mean of the above-average departments
a. Average number of production projects completed per student	2.26
b. Average number of improvement projects completed per student	4.81
c. Average number of supplementary farm jobs completed per student	15.53
d. Average number of supervised farm training visits per student	12.68
e. Average investment in supervised farm train- ing per student	\$740
f. Average value of labor income per student from supervised farming	\$346

Factors Related to FFA Activities

Criteria pertaining to the department as a unit

	Mean of the above-average departments
a. Total number of FFA members per department	52.9
b. Number of honorary FFA members named annually per department	1.07
c. Number of State Farmer degrees awarded annually per department	1.6
d. Number of American Farmer degrees awarded annually per department19
e. Number of FFA members per department that attended the State FFA convention	7.64
f. Number of judging contests placed in at the inter-scholastic FFA state judging contests per department (high six placings)38
g. Total number of points earned toward the <u>Farmer-Stockman Award</u> per department	2.6
h. Total value of cash winnings per department from judging contests at the three major shows in Oklahoma	\$9.40 ¹⁷⁰
i. Total value of cash winnings per department from crop and livestock exhibited at the three major shows in Oklahoma	\$127
j. Percentage of the students enrolled in vocational agriculture that are members of the local FFA chapter	114 %
	Percentage of the above-average departments that reported
k. Holding FFA advancement ceremonies for members in the local chapter	66 %
l. Participating in FFA leadership training schools	82 %

Percentage
of the above-average
departments that reported

m.	Participating in FFA public speaking contests	20 %
n.	Holding FFA Parent-Son banquet or social honoring parents	86 %
o.	Participating in radio programs	60 %
p.	Participating in television programs	32 %
q.	Presenting FFA programs before civic clubs	86 %
r.	Being represented at the National FFA convention by local FFA members	28 %
s.	Holding joint Future Homemakers of America and Future Farmers of America social or party	48 %
t.	Preparing FFA news publicity regularly	98 %
u.	Providing a State FFA officer (during three-year period)	9 %
v.	Being rated as an "Outstanding FFA Chapter" (during three-year period)	24 %

Factors Related to Adult and Young Farmer Education

Criteria pertaining to the department as a unit

	Mean of the above-average departments
a. Total number enrolled in young farmer classes per department	14.3
b. Total number of hours of young farmer instruction per department	39.7
c. Total number of young farmer visits per department	51.7

Factors Related to the School Curriculum

Criteria pertaining to the department as a unit

	Mean of the above-average departments
a. Total number of students enrolled in all-day classes of vocational agriculture per department	46.2
b. Total number of graduates and drop-outs in college per department	3.14
c. Total number of curricular units of instruction offered in the high school	33.34
d. Total number of years of vocational agriculture since first opening	20.90
e. Total number of continuous years of operation since last opening	20.02
	Percentage of the above-average departments that evidenced
f. Being associated with high schools that were accredited in the North Central Association	48 %
g. No teacher changes occurring within departments for the six-year period	64 %

NOTE: The criteria suggested and the means presented should be assumed to be stated in terms of the average total number per department or the average number per student unless otherwise designated. All means presented represent annual averages for the above-average departments. The percentages given represent the percentage of the above-average departments reporting participation in or indicating an affirmative answer.

VITA

Earl H. Knebel
candidate for the degree of
Doctor of Education

**Thesis: AN ANALYSIS OF FACTORS CONTRIBUTING TO EFFECTIVE PROGRAMS
OF VOCATIONAL AGRICULTURE**

Major: Education

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Experiences: The writer entered the United States Air Force in January, 1943, as a private in the Glider Corps, transferred to Aviation Cadets and was commissioned as an officer with pilot rating. He flew thirty-four combat missions as a bomber pilot in the South Pacific, and was awarded the Distinguished Flying Cross, and the Air Medal with Three Oak Leaf Clusters. He served thirty-five months with the Air Force before being placed on inactive status in December, 1945. He is currently a Captain in the United States Air Force Reserve. The writer taught vocational agriculture at Fairview, Montana, one year, and at Hamilton, Texas for six years. He was graduate assistant in the Agricultural Education Department at the Oklahoma Agricultural and Mechanical College during 1953-1954. Since September, 1954, he has been Assistant Professor in the same department.

THESIS TITLE: AN ANALYSIS OF FACTORS CONTRIBUTING TO EFFECTIVE
PROGRAMS OF VOCATIONAL AGRICULTURE

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