

A STUDY OF VOCATIONAL AGRICULTURE
AS TAUGHT IN KANSAS HIGH SCHOOLS

by

Robert Kilby Farrar
B.S. Kansas State Agricultural College, 1896

Submitted to the Department
of Education and the Faculty
of the Graduate School of
the University of Kansas in
partial fulfillment of the
requirements for the degree of
Master of Science in Education

Approved by:

F. P. O'Brien

Instructor in charge

Raymond W. Schwepker

Dean of Education

Date: 7-31-25

Acknowledgements

The writer of this report is under obligations to numerous friends for helpful criticisms during its preparation; to Dean Raymond A. Schwegler for instruction in the technique of writing a thesis; to Dr. F. P. O'Brien for guidance in writing the report; to Mr. L. B. Pollom, State Supervisor of Vocational Agriculture, and to his office force for assistance while securing data on file in that office; and finally to the teachers of vocational agriculture who furnished information on the farm-shop questionnaire.

A STUDY OF VOCATIONAL AGRICULTURE
AS TAUGHT IN KANSAS HIGH SCHOOLS

Contents

I. Introduction

The Problem and Its Scope
Practical Nature of the Problem
Organization and Plan of Vocational Agriculture
Nature of the Data and How Secured
Variety, Extent and Adequacy

II. Presentation and analysis of Data

The High Schools That Offer Vocational Agriculture
The Course of Study
The Method of Instruction
Projects Used in Vocational Agriculture
The Farm-Shop Work
The Teaching Personnel in Vocational Agriculture

III. Conclusions

As to Character and Scope of Curriculum
As to Methods of Instruction and Their Success
As to the Teaching Personnel

1

A STUDY OF VOCATIONAL AGRICULTURE
AS TAUGHT IN KANSAS HIGH SCHOOLS

I. INTRODUCTION

This study involves the collection, verification, analysis and presentation of facts in relation to the status of vocational agriculture in Kansas public high schools. In the main, three questions as stated here, present the problem treated in this report.

A. What is the character and scope of the curriculum in high school vocational agriculture?

B. What are the prevailing methods of instruction in these high schools, and with what success are these methods attended?

C. What does the teaching personnel in vocational agriculture work imply with reference to teaching efficiency?

The field of vocational agriculture is comparatively new and is even yet in the experimental stage. The most enthusiastic advocates of such training recognize the need of further experimentation and investigation before being sure of the best procedure. Since the state and the nation are both actively engaged in an extensive program of training in vocational agriculture, it is desirable to know the facts pertaining to the subject as taught in the high schools of Kansas.

A knowledge of these facts should be of value to all those who in any way are concerned with instruction or with the

administration of the subject; to administrators and boards of administration in planning their educational programs; and perhaps even to the State and the Federal Boards for Vocational Education in shaping their policies or procedure.

Something of the development and present status of this subject of instruction may be indicated by the fact that 79 of the Kansas public high schools offered work in vocational agriculture during the year ending June 1925. Of these schools two are in cities of the first class; eleven in cities of the second class; fifty-five in cities of the third class; and eleven in community high schools. The work has developed gradually following the enactment of the Smith-Hughes act by Congress in 1917.

The enrollment of boys in vocational agriculture in the high schools of Kansas during the year 1924--25 is 1634. Besides this number, there are 604 other boys in these 79 schools who have had at least a year of such work, but who are not now enrolled in the work. The median enrollment per school in vocational agriculture is 19 students.

The budget for salaries of Kansas vocational agriculture teachers for the present year is about \$135,000. Half of this amount is paid by local taxation, while the other half comes from the state and federal aid as reimbursement for maintaining vocational work.

The subject matter, in general, in vocational agriculture consists of instruction in animal production, crop produc-

tion and farm-shop work. Practical applications connected with farm problems are presented in relation to regular subject matter as occasion offers. Approximately half of the pupil's time is devoted to other school subjects than the vocational studies named here.

A period of 180 minutes constitutes the daily requirement for vocational subjects, according to the state plans* in vocational agriculture. At least one-third but not to exceed two-fifths of this time is devoted to farm-shop work. This time is a continuous session. Each school through its teacher is responsible for the execution of this prescribed plan, but it is permitted freedom in arranging its daily schedule. In some schools the five-day plan is in vogue, that is, the the three hour vocational period is divided daily between agriculture and farm-shop work on the basis of 3 to 2. In others, the three-hour vocational period is devoted to agriculture three days of the week and to farm-shop work two days.

In order to present more clearly how the work is directed, a brief summary of the printed plans* for vocational agriculture in Kansas is presented here. These directions and requirements include 44 pages and are distributed by the State Board for Vocational Agriculture.

Vocational agriculture teachers, before they are employed in schools reimbursed for vocational work, shall be approved by the State Board for Vocational Education, and shall be qualified

*

Bulletin No. 6, Plans for Vocational Education in Kansas.

with reference to age, education, farm experience and personality. The state supervisor of vocational agriculture, in addition to the these requirements, must have taught such work successfully for three years, and his qualities of leadership must be such as will insure success in making contact with teachers, school officials, and others with whom he must deal. This official's duties, as enumerated in the state plans, are extensive, and he is given sufficient authority to enable him to maintain high standards of work among the vocational schools.

The subject matter of vocational agriculture taught in the public high schools shall include (1) animal production, including dairying; (2) crop production, including soils; and (3) farm-shop work. All of this work shall be presented with applications to practical work on the farm. While the method of instruction to be followed in vocational agriculture is left largely to the discretion of the state supervisor, the state plans do specify that the project method is to be the basis of instruction, and that class or school projects, and individual home projects shall be used in connection with class, laboratory, and field work.

The other definite requirements for state and federal aid to schools offering vocational agriculture, relate to the suitability of the school plant, its equipment and maintenance; the employment of an approved teacher at a minimum salary of \$1800; a minimum enrollment of 10 students the first year and thereafter of 6 students in each course offered; and minimum admission requirements. Reports to, and inspection by the state supervisor are required.

The organization of the Federal Board for Vocational Education* was provided for in the Federal law of 1917, known as the Smith-Hughes act. The organization of the Kansas State Board for Vocational Education** followed the action of state legislature in accepting the provisions of the Smith-Hughes act. Accordingly the State Board adopted plans for vocational education in Kansas***. These plans provide for three types of vocational education.

1. Agricultural Education
2. Trade and Industrial Education
3. Home Economics Education

The State Board for Vocational Education is the governing power of all vocational work within the state. The State Superintendent of Public Instruction is chairman of the board. The State Board appoints the State Director of Vocational Education, and with the approval of this director, it appoints supervisors of the various types of work. This administrative corps has its office in the State House at Topeka. Normally, the work in vocational agriculture is directed by the state supervisor of this subject. This official is the one with whom all of the vocational agriculture schools deal in their relations with the state board.

Federal and state aid is allowed to full-time vocational agriculture schools to the amount of \$1250; to half-time schools

* Vocational Educational Act, Approved Feb. 23, 1917 (Smith-Hughes)
** House Bill 886, Laws of 1917, Session of Kansas Legislature
*** Bulletin No. 6, Plans for Vocational Education in Kansas

\$750. All expenses above these reimbursements must be paid from local taxation. Federal aid is matched dollar for dollar by state aid in Kansas. Federal money apportioned to vocational agriculture can be expended only for: (a) Salaries of teachers, supervisors, and directors of agriculture, and, (b) Maintenance of teacher training for vocational work. No federal money may be used for purchase, erection, preservation, or repair of any building, or for the purchase or rental of land.

This study is based upon data secured by the writer, from teachers reports to the state office, and from a questionnaire to the teachers of vocational agriculture in the high schools of this state. The reports were made by the teachers who had full knowledge of the work at the time the reports were made. After admitting the possibilities of error in such reports, it is undoubtedly true that it would be impossible to secure more accurate information of this kind in any other manner. And while other errors may have been made in compiling materials, to the best of the writer's knowledge and belief, the data presented do represent the facts essentially as they existed at the time when the various reports were made.

After a careful search in the library of the University of Kansas, and after correspondence with leaders in vocational agriculture, the writer felt assured that no careful study of exactly this kind, had been made in Kansas. The 1923 Year Book of the Federal Board for Vocational Education contains printed information regarding what had actually been done in Kansas, but this information had been furnished by the state supervisor.

This official gave the writer every assistance possible in gathering from original reports any information desired. In some cases the supervisor wrote special letters to the vocational teachers to secure certain information needed by the writer. In other cases the writer secured the information through correspondence with the persons possessing it. The latter practically was the method used in securing the farm-shop questionnaire data. This questionnaire was sent to each of the 79 vocational teachers, with the result that ninety percent of the teachers answered the questionnaire in a prompt and satisfactory manner.

Professor C.A. Prosser claims that teachers must be trained as teachers and trained in agriculture. The Report of a Survey of the School System of St. Paul, Minn., by a commission of which Prosser was the head, quite definitely presents the main theories as to what was expected to come from vocational agriculture education at the time when such work was planned (1917) in Kansas, and the Chanute, Kansas, School Survey, 1924, presents the more recent views. Both of these reports present the main features of the curriculum as well as of other phases of vocational education. These citations may be considered sufficiently authoritative for an evaluation of the attainments of vocational agriculture among the high schools of Kansas.

II. PRESENTATION AND ANALYSIS OF DATA

Information regarding the types and sizes of high schools offering vocational agriculture was secured by the writer from the high school principals reports to the state superintendent in September 1924, and from the teachers reports to the state supervisor. The data concern boys only. The table which follows shows the distribution of enrollment in the various types of schools.

Table I. Analysis of Total Enrollment of Boys in High Schools Offering Vocational Agriculture

Enrollments	Frequencies by cities			In		Teachers of Agriculture	
	First Class	Second Class	Third Class	Community Schools	Total	Full Time	Half Time
To-24			8		8	1	7
25---49			22	1	23	10	13
50---74			14	3	17	8	9
75---99		1	5	2	8	2	6
100--124		2	2	1	5	4	1
125--149		1	4		5	5	
150--174		2		1	3	3	
175--199		1			1	1	
200--224				1	1	1	
225--249				1	1	1	

325--349		2			2	2	
350--374		1			1	1	

400--424		1			1	1	

450--474	1				1	1	
475--499				1	1	1	

900--924	1				1	1	
Total Schools	2	11	55	11	79	43	36
Total Enrol.	1430	2235	2979	1631	8275	5661	2614
Percent who are farm boys	15.7	34.1	60.6	27.9	41.2	43.2	39.6
Number farm boys enrolled who are reached by							
Vocat. Agri.	225	762	1803	618	3408		
Percent farm boys enrolled who are reached by							
Vocat. Agri.	2.4	55.5	79.5	52.1	65.5		

Table I shows the total number of boys in the high schools of different sizes, and the class of city in which the schools are located. It also shows the distribution of enrollment as to full-time and half-time vocational agriculture work. A full-time school is one in which the vocational teacher devotes his entire time to teaching vocational agriculture. A half-time school is one in which he devotes half of his time to other work. Of the 79 schools teaching vocational agriculture, 43 are full-time and 36 are half-time schools. The total enrollments of boys in the various types of schools are indicated at the foot of the table. The percent of such enrollment who are farm boys is also indicated,- for example, the two schools in cities of the first class have a total enrollment of 1430 boys, of ^{of whom} 15.7 percent are farm boys. At the foot of the table, the number and the percent of farm boys enrolled who are reached by vocational agriculture is indicated.

From the data in Table I, it is evident that the schools in cities of the first class reach but a small percent of the comparatively small enrollment of farm boys. The schools in cities of the second class and the community schools are about equally efficient in reaching their farm boys with vocational agriculture. Cities of the third class reach a high percent of their farm boys. From these facts, it seems that the schools in the cities of the third class offer the most fruitful field for the promotion of vocational agriculture.

Scatter Diagram No. 1.

Scatter Diagram Showing Size of High Schools and the Vocational Agriculture Enrollment in 79 Schools for the Year 1924-25

Total boys in school	Vocational Agriculture Enrollment									
	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54
To--24	1	5	2							
25---49		11	5	2	4	1				
50---74	1	2	5	7						
75---99		4	2	2						
100---124				1	2	1				
125---149					1	1	2			1
150---174				1	1		1			
175---199				1						
200---224						1				
225---249				1						
250---274										
275---299										
300---324										
325---349						1			1	
350---374					1					
375-above			1		2	1				

From this diagram it may be seen that in high schools enrolling fewer than 25 boys, one school enrolled from 5 to 9 boys, five schools enrolled from 10 to 14 boys, and two schools enrolled from 15 to 19 boys in vocational agriculture.

Table II. Enrollment Data on Vocational Agriculture Schools
for the School Year Beginning September 1924

Distribution of enrollment	Frequency by schools
6---10	6
11---14	18
15---19	16
20---24	15
25---29	12
30---34	7
35---39	3
40---44	0
45---49	1
50---54	4
Total	79 schools
Enrollment	1634 boys
Range of enrollment	9 to 54 boys
Median enrollment per school	19 boys

This table shows the distribution of enrollments in the 79 high schools teaching vocational agriculture during the school year beginning September 1924. The total enrollment of boys was 1634. The actual range of enrollment was from 9 to 54, and the median enrollment was 19 boys.

There seems to be a general agreement among teachers of vocational agriculture that large classes are not desirable. Much of the laboratory work calls for individual instruction, hence the size of the section is important. A full-time teacher who handles a total enrollment of 30 to 35 students is carrying a full teaching load. Sections of 15 to 18 students are considered almost ideal. In case a school has a large enrollment in the first year work and a small enrollment in the second year, the sections may be made approximately equal in size by transferring a few of the stronger students from the larger group to the smaller. This is justified by the probability of pupils receiving more individual attention in sections of moderate size, and the fact that one course frequently is not a prerequisite of the other.

There were 36 half-time vocational agriculture teachers during the school year beginning September 1924. The other subjects taught by these teachers were as follows: Normal Training in 12 schools; General Agriculture 8; Grade Agriculture 2; General Science 3; Manual Training 7; Botany 1; Physics 9; Mechanical Drawing 1; Commercial Subjects 2; Civics 3; Algebra 2; Geometry 2; History 1; Arithmetic 1; Band 1; and Athletics 8.

To what extent are the farm boys in Kansas high schools enrolled in vocational agriculture? The data in the table below were secured from the teachers preliminary reports.

Table III. Percent of Farm Boys in High School Enrolled in Vocational Agriculture, September 1924

Type of school	No. of schools	Farm boys enrolled	Percents		Total
			Enrolled in Voc. Agr.	Having had Voc. Agr.	
City of First Class	2	225	20.0	6.2	26.2
Second Class	11	862	35.9	13.1	49.0
Third Class	55	1803	58.4	21.1	79.5
Community Sch.	11	618	36.5	15.5	52.0
Totals	79	3508	46.5	17.2	63.7

The first line in this table means that in September 1924, two schools in cities of the first class enrolled a total of 225 farm boys, of whom 20 percent were enrolled in vocational agriculture classes, and 6.2 percent had had at least a year of such work. A total of 26.2 percent of the farm boys enrolled in these schools had taken some work in vocational agriculture. The totals are shown at the foot of the table.

Scatter Diagram No. 2.

Scatter Diagram Showing Percent of Farm Boys Reached
by Vocational Agriculture in High Schools of
Different Size in September 1924

Percent of Farm Boys Reached by Vocational Agriculture

	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Farm Boys in H. Sch.										
0---9										
10---19									1	9
20---29						3	1	2	3	8
30---39				1	1	2	3	1	3	4
40---49			1	1		3	1	2	1	3
50---59					1		1	3	1	
60---69					1	2				
70---79			1	1	1	1	1	1		
80---89					1					
90---99				1	2		2			
100--109					1					
110--119										
120--129		1	1	1						

This diagram shows that in small high schools a higher percent of farm boys enrolled in school take vocational agriculture than in the larger high schools. For example, in 24 of the high schools which enroll less than 50 farm boys, at least 90 percent of the farm boys take that subject.

"First Year" agriculture means the first year that agriculture is taken by the student, consequently a senior in high school may take it. Occasionally a boy carries two years of vocational agriculture at a time. This of course, prevents him from doing any other kind of high school work, and naturally it is permitted only in cases of older boys with limited time whose responsibilities on the home farm are heavy. From the reports of teachers at the end of the first month of school, the following data were assembled.

Table IV. Classification of the Enrollment in Vocational Agriculture by Years of Work in September 1924

Years of work taught	Schools in cities of			In Community schools	Total	Percent of total enrollment in Vocational Agr.
	First Class	Second Class	Third Class			
First	24	177	680	139	1020	62.5
Second	21	89	285	91	486	29.7
Third		44	79	5	128	7.8
Totals	45	310	1044	235	1634	100.%
Percent total Agr. Enrol.	2.7	18.9	63.9	14.4	100.%	

The table above shows the enrollment in vocational agriculture work by years of work taught in various types of schools, the total enrollment in that work, the percent of such total enrollment by years, and the percent of total enrollment in agriculture by schools of different types.

It is significant that most of the total enrollment in vocational agriculture is in the work of the first and the second years. One school in a city of the third class reported an enrollment of 7 students in the fourth year work. The writer combined these with the third year enrollment. This school, however,

is teaching only two years of work during the current year. There appears to be a strong tendency for the vocational schools to confine their work to only two years. It is also significant that nearly 64 percent of the total enrollment in vocational agriculture is in the 55 schools in cities of the third class.

The teachers reports to the state supervisor at the end of the first month of school, September 1924, show that 23 schools were offering one year of vocational agriculture, 51 schools were offering two years, and 5 schools were offering three years of work.

With but one vocational teacher, a school can offer but two years of work at a time. While not always desirable, alternation of courses is feasible, and is practiced to some extent. For example, the largest combined enrollment of second and third year vocational students in any one of the five schools teaching the third year of work in September 1924 was 18 students, so the plan of alternation solves the class schedule problem in these schools. Fourteen of the half-time vocational schools reported that they are offering two years of vocational work. In only one of these schools was the combined enrollment as high as 20 students, hence the plan of alternation is feasible with them.

The present tendency among vocational agriculture high schools is to offer two years of work, rather than more. This work includes animal production as the basis of first year, and crop production as the basis of the second year of instruction. Other general subject matter is presented in connection with these courses. Farm management, for example, is of importance at every step in farm procedure, consequently it comes up many times in

both courses. Farm-shop work is offered during both the first and the second year as required by the state plan. If offered at all in later work, it is given only incidentally. Individual or home-projects are carried by each student for at least six months of each years work. The projects are selected along some line or phase of the agriculture course for the year.

Since the daily vocational period is three hours in length, and is not interrupted by other school work, it is possible to provide a flexibility of daily schedule such as will enable the teacher to adapt his work to seasonal requirements, weather conditions, and to meet the special needs of his work as it develops. Thus a teacher may devote the entire vocational instruction period for several days at a time to special subjects away from the school premises. This is frequently advisable in handling field subjects, and sometimes in handling individual project work. Even a farm-shop project undertaken by the class may be urgent for a time, as for example, when the class is constructing or remodelling a farm building. There is some danger of unsystematic procedure arising from careless use of a flexible program, but in the hands of a competent teacher, there need not be serious abuse of such a practice.

In accordance with modern ideas of * curriculum construction, the community farm problems should, and, to a large extent, do constitute an important part of the curriculum taught in vocational agriculture. The farm-shop work and the individual home-

*Bobbitt, F.W.--The Curriculum
 Bonser, F.G.---The Elementary School Curriculum
 Charters, W.W.--Curriculum Construction
 Meriam, J.L.--Child Life and the Curriculum

projects are examples of such problems.

The state plan contemplates the use of school or class-projects, and of individual home projects as the two types of project work to be done by the vocational agriculture schools. The schools appear to have been fairly successful in working out projects of the latter type. As judged by the fact that only scattering reports of school or class projects are on file with the state supervisor, and, also from the rather meager list reported by the teachers in the table below, it seems that the schools have been less successful in developing this type of work.

The school or class-project is a demonstrational joint project in which the class takes charge and becomes responsible for the work. Its scope varies with circumstances and often with the particular interest and ability of the teacher in charge. The writer secured the data in the table below direct from the vocational teachers in connection with the farm-shop questionnaire (See page 34), which was sent to all of the 79 teachers and returned by 71. Only 39 teachers reported having any kind of class or school projects. Some reported having two or three such projects.

Table V. School or Class Projects in Vocational Agriculture
for the Year Beginning September 1924

Nature of project-----	Frequency
Class building or farm-shop project	5
Incubation of chicks	8
Winter egg production	5
Dairy projects	2
Cow test association	1
Baby beef and cattle feeding	4
Hog feeding	3
Crop and variety tests	4
Landscaping and irrigation	2
Orchard spraying	1
Hotbed	4
Gardening	12

The building projects referred to Table V were financed by persons for whom the buildings were constructed, while all of the others were financed by the boys who were sometimes assisted by the teacher. In most cases the proceeds from these projects, if there were any, went into incidental and school expense funds. Financial risks and the frequent absence of personal interest undoubtedly are two important factors hindering the development of this type of work.

The individual or home-project is a part of the work required of every boy who takes vocational agriculture. With the cooperation of his parents and the teacher, the boy selects and carries out an animal project on the farm during the year of his course in animal production. Similarly he carries out a crop production project. In this work, the objectives in mind are to make some money, to learn something, and to acquire a sense of personal responsibility. The boy who enters his project wholeheartedly is sure to learn something, and he may or he may not make money. The obligation rests upon the teacher to so guide the boy that his procedure shall be along safe lines.

The individual home-projects that have been developed among the vocational agriculture schools include work with hogs, cattle, poultry, corn, wheat, oats, potatoes, sorghums, and gardening. In all of these projects, the work is done under actual farm conditions. Where possible, it is arranged so that the boy is financially responsible for his work. This implies that he shall have the profits as well as bear the losses that may develop. The boy is to be free to exercise his own judgment, guided to some extent by the teacher.

The individual home-projects are begun as early in the school year as possible, depending of course upon the nature of the project and the seasonal conditions. The work is continued until it is brought to a natural end, when the final reports are filed with the teacher, who makes the final report to the state supervisor. This report includes a complete record of the project. It covers all expenditures of initial cost of animal, or use of land, feed, labor charges for self or hire, veterinary charges, receipts and inventory. This gives the boy some training in the work of farm accounting. During the time while the project is proceeding, the boys receive classroom instruction along the line of the project.

The final reports are transmitted to the state supervisor about January, - for example, the final reports for the individual home-projects carried out during the school year 1922-23, were sent to the state supervisor about January 1924. Because of the evident lack of uniformity of accounting, as for instance, in the time required for the care of livestock, the details of the reports are not strictly comparable financially. However, in a general way the figures show something of the tendencies that prevail in this work.

Detailed analysis of the individual home-projects developed during the two school years 1922-23, and 1923-24 are shown in tables numbered VII to XVI, on pages 23 to 32.

A "drop-out" or a failure in home-project work is a boy who has enrolled regularly in a home-project and has begun his work, but for some reason or other does not complete his project

on time for the teachers final report of project work to the state supervisor. Such a student may later complete his project or he may never complete it as a finished job. While it is desirable that all projects be brought to completion, it is undoubtedly true that many so called drop-outs or failures may have learned more regardless of their apparent failures than some others who have finished their projects regularly.

Among the numerous causes of failures in home-project work are the following: drought, floods, changes in home plans for which the boy may not be responsible, failure to arrange for satisfactory equipment, lack of cooperation by the parent, indifference on the part of the boy, and sometimes failure or inability of the teacher to successfully organize the work.

Of the 1185 boys who enrolled in home-project work for the year beginning September 1922, there were 883 (74.5 percent) who completed and reported their work regularly. This leaves 302 boys (25.5 percent) who were so called failures or drop-outs in home-project work. During this year 58 schools offered work in vocational agriculture. The mean enrollment per school in that year was 20.4 pupils.

Among the schools that retain the same vocational teacher for a number of years, better results are secured in completing the home-projects. This is partly due to the fact that some projects cannot be completed by the end of the school year and must be completed later.

From the teachers "preliminary report" which he makes to the state supervisor at the end of the first month of school, the

writer compiled the following information concerning the home-project work planned for the school year 1923-24. During this year 68 schools were teaching vocational agriculture. Some schools had as many as six different home-projects in process. From an analysis of home-project work for this year, several facts are readily observed in the table following.

While the total number of animal projects (178) is only slightly greater than the total number of crop projects (164), the enrollment in animal projects (718) is nearly twice as great as that in crop production (433). The total number of projects (342) conducted by 68 schools include 30 different types of projects. Most of the projects are of the production type, while a few of them are designed primarily as demonstrations for the community.

The four animal projects (hog, dairy, beef, and poultry) are all popular. Of the crop production projects, corn leads in popularity, with potato growing second. The poultry project is especially popular among the "town boys" enrolled in vocational agriculture. This project is by its nature better adapted to town conditions than are most of the other projects. Potato growing is frequently done on town lots by boys who do not live on a farm. Other projects adapted to the work of the boy who lives in town are the dairy, and the garden or truck projects. This explains to some extent at least, the apparent popularity of these projects.

Of the total enrollment (1151) in all projects, the farm boy enrollment (931) is 81 percent, and the town boy enrollment (220) is 19 percent. A town boy is one who has had no practical

experience on a farm. Many town boys are sufficiently "farm minded" to do vocational work as successfully as is the boy with practical farm experience. The classifications as farm boys and as town boys were made by the teachers. Fifty-eight percent of the boys financed their own projects, and about forty percent are financed by some one else, while a few did not report the information.

Table VI. Facts Concerning the Home-Projects Undertaken During the School Year Beginning September 1923

Names of projects conducted	Number of schools	Enrollment of boys from the			Who finances the boy in his project work?		
		Farm	Town	Total	Boy	Parent	Not rept'd
ANIMAL							
Hog	54	288	48	336	184	147	5
Dairy	34	81	19	100	59	36	5
Beef	33	73	5	78	47	31	
Poultry	43	85	102	187	108	76	3
Other	14	16	1	17	7	10	
Totals	178	543	175	718	405	300	13
CROP							
Corn	35	155	3	158	93	63	2
Potato	24	33	15	48	29	19	
Garden	20	23	22	45	32	13	
Sorghum	18	45	2	47	28	19	
Wheat	17	30	0	30	19	11	
Oats	13	28	0	28	19	9	
Alfalfa	8	10	1	11	9	2	
Fruit	5	5	2	7	3	1	3
Others	24	59	0	59	28	11	20
Totals	164	388	45	433	260	148	25
Both totals	342	931	220	1151	665	448	38

The first line of this table means that 54 schools conducted hog projects, with a total enrollment of 288 farm boys and 48 town boys, - a total of 336 boys conducting individual home-projects with hogs. Of these boys, 184 financed themselves, and 147 were financed by their parents or some one else, and the plan of financing was not reported by 5 boys.

The "hog project" as an individual or home-project includes several types of work with swine,- as the pure bred, hog fattening, and the sow and litter.

Table VII. Facts concerning the Hog Project in Vocational Agriculture for Two Years

Distribution of enrollment	Frequencies by schools	
	1922-23	1923-24
1 ---4	9	32
5 ---8	21	19
9 --12	18	6
13 --18	2	1
Total number of schools	50	58
Enrollment by years	334	276
Median enrollment	6	4
Range of enrollment	1 to 14	1 to 18
Total profit by years	\$16,678.81	\$10,684.92
Mean " per school	333.57	184.22
" " " boy	49.94	38.71
Number boys losing money	16	28
Totals of their losses	109.25	277.44

During the first year nine schools, and during the second year thirty-two schools enrolled from 1 to 4 boys in the work of the hog project. Fifty schools conducted the hog project the first year and fifty-eight conducted it the second year. While the mean gain per boy for all of the boys was \$49.94 the first year and \$38.71 the next, there were sixteen boys who lost money the first year, and twenty-eight the next.

The data for these two years indicate that the hog project is a popular one, and that it is reasonably safe financially as a home-project to be undertaken in vocational agriculture.

The "poultry project" includes several types of work, - as egg production, culling farm flocks, hatching chicks, capon production, and raising turkeys, ducks, or geese. The work is done under farm conditions, though in some cases, this project is handled by a town boy, who, on a small scale, does his work in town. Seasonal conditions and the nature of the project permit beginning different phases of the project at various times during the year. The boy may begin with a setting of eggs, or he may begin with the farm flock depending upon his interests and the circumstances.

Table VIII. Facts Concerning the Poultry Project in Vocational Agriculture for Two Years

Distribution of enrollment	Frequencies by schools	
	1922-23	1923-24
1 --- 3	26	24
4 --- 6	6	10
7 --- 9	1	4
10 --- 12	0	2
Summary of facts by years		
Total number of schools	33	40
" enrollment by years	80	149
Range of enrollment	1 to 7	1 to 11
Total profit	\$2,977.10	\$5,024.45
Mean profit per school	62.94	125.61
" " " boy	25.96	33.77
Number boys losing money	3	6
Total of their losses	\$37.09	\$109.53

Twenty-six schools enrolled from one to three boys in 1922-23, and twenty-four schools enrolled that number the next year in the poultry project. The first column in the summary of facts means that in 1922-23, there were thirty-three schools with a total enrollment of 80 boys, with a range in enrollment of from 1 to 7 boys per school. The total gain was \$2,077.10 in 1922-23.

The "corn project" is the growing of one or more acres of corn under farm conditions. The boy rents the land from his father or from a neighbor. He must contend with the uncertainties of seasonal conditions as well as with those of marketing.

Table IX. Facts Concerning the Corn Project in Vocational Agriculture for Two Years

Distribution of enrollment			School frequency 1922-23, 1923-24			Distribution number acres			School frequency 1922-23, 1923-24		
1	7	5	1	---	9	4		2			
2	0	4	10	---	19	3		5			
3	5	3	20	---	29	4		8			
4	5	8	30	---	39	6		2			
5	0	5	40	---	49	3		6			
6	3	2	50	---	59	2		2			
7	1	2	60	---	69	0		1			
8	0	1	70	---	79	0		2			
9	0	0	80	---	89	0		2			
10	2	0	90	---	99	0		1			
14	0	1	109	--	119	1		0			

Tabular summary of facts by years	1922-23	1923-24
Number of schools with corn	23	31
Total enrollment by years	87	127
Range of " by schools	1 to 10	1 to 14
Number acres grown by years	673	1184
Range of acres grown by schools	1 to 120	1 to 50
Median acres grown per school	40	30
" enrollment boys per school	3	8
Total profits from corn projects	\$4,209.34	\$20,187.59
Mean profit per school	183.01	651.21
" " " boy	48.38	158.96
" " " acre	6.25	17.05

This table reads: Each of seven schools enrolled one boy in the corn project in 1922-23, and each of five schools enrolled one boy in 1923-24. From one to nine acres of corn were grown by each of four schools the first year, and by each of two schools the next year.

These data indicate that the corn project is a popular one and that it is reasonably safe financially in vocational work.

The "beef project" as used here includes baby-beef production, cattle feeding, growing pure bred heifers, and pasturing of cattle. In some cases the boy keeps a pig in connection with beef production. From the data on the reports, it was impossible for the writer to make a more satisfactory separation of the numerous types of work here involved.

Table X. Facts Concerning the Beef Project in Vocational Agriculture for Two Years.

Distribution of enrollment	School frequency 1922-23.	School frequency 1923-24	Distribution number cattle	School frequency 1922-23.	School frequency 1923-24
1	11	14	1	5	12
2	6	10	2	4	9
3	2	9	3	1	2
4	2	2	4	5	8
--	--	--	5	0	4
6	0	1	6	2	0
8	0	2	8	2	1
9	1	0	9	0	1
			12	1	0
			13	1	1
			55	1	0

Tabular summary of facts by years	1922-23	1923-24
Number schools with projects	22	38
Total enrollment by years	46	78
Range enrollment of boys by schools	1 to 9	1 to 8
Total number cattle handled	144	134
Range in " " " per school	1 to 55	1 to 22
" " " " boy	1 to 55	1 to 12
Total profit on all beef projects	\$1126.34	\$1935.31
" " per school	51.20	50.93
" " head of cattle	7.82	14.44
" " boy in beef project	24.49	23.53
Number of boys losing money	5	9
Total of their losses	41.93	292.31

During the year 1922-23 each of 11 schools enrolled one boy, and during the next year each of 14 schools enrolled one boy in the beef project. Each of 5 schools worked with one head of cattle during the first year, and each of 12 schools worked with one head the next year.

These data indicate that the beef project is used extensively in vocational agriculture work.

The "potato project" is that of growing from a quarter of an acre to several acres of potatoes under farm conditions. A boy living in town sometimes grows his potatoes on town lots.

Table XI. Facts Concerning the Potato Project in Vocational Agriculture for Two School Years

Distribution of enrollment			School frequency			Distribution of acres grown			School frequency		
			1922-23.			1923-24					
1	4	9	Less than 1	5	6						
2	4	7	1 -to 2	2	8						
3	3	2	2 --- 3	1	1						
--	--	--	3 --- 4	1	2						
5	0	1	4 --- 5	1	2						
--	--	--	5 --- 6	1	0						
8	1	0	11 ---12	1	0						

Tabular summary of facts by years	1922-23	1923-24
Number schools with projects	12	19
Total enrollment of boys	29	34
Range in enrollment per school	1 to 8	1 to 5
Total number acres potatoes grown	35	27
Total profit from all potato projects	\$302.70	\$1290.62
Mean " " per school	25.23	67.93
" " " boy	10.44	37.96
" " " acre	9.21	47.80
Number boys losing money by years	5	3
Total of their losses	113.25	33.05

The first line in the above table reads as follows: Four schools enrolled one boy each in the potato project in 1922-23, and nine schools enrolled one each the next year, and also, less than one acre of potatoes were grown in the project by each of five schools in 1922-23, and by each of six schools in 1923-24. The summarization of facts is arranged in columns by years.

The "dairy" project as used here includes milk production whether by dairy or by beef type of cattle used. The work is done under the usual farm conditions, and consists of work with one or more cows. In some cases a town boy assumes the responsi-

bility of caring for the family milk cow. In dairy sections, the boy frequently has a milk route, while in other sections he finds other ways of disposing of his product.

Table XII. Facts Concerning the Dairy Project in Vocational Agriculture for Two School Years

Distribution of enrollment			Distribution of number of cows		
School frequency 1922-23, 1923-24			School frequency 1922-23, 1923-24		
1	3	14	1	5	8
2	6	8	2	3	7
3	6	2	3	3	2
4	2	0	4	2	1
5	1	2	5	3	1
--	--	--	6	2	4
9	0	1	7	1	2
			8	1	1
			11	1	1
			14	1	0
			16	1	0

Tabular summary of facts by years 1922-23 1923-24

Number schools with projects	23	27
Total enrollment of boys	54	55
Range of " " by schools	1 to 8	1 to 8
Number of cows handled	111	94
Range in number of cows per school	1 to 16	1 to 8
" " " " " " boy	1 to 8	1 to 3
Total profits on all projects	\$5082.39	\$6118.41
Mean " " per school	220.09	226.60
" " " cow	48.78	65.09
" " " boy	94.12	111.24
Number of boys losing money	3	1
Total of their losses	73.60	15.00

In 1922-23 eight schools enrolled one boy each, and the next year fourteen schools enrolled one boy each, and the first year 5 schools handled one cow each, while 8 schools handled one each the next year. From these data, it appears that the dairy project is used extensively among the schools teaching vocational agriculture.

The "wheat project" is that of growing one or more acres of wheat under farm conditions. The boy rents the land from his father or from a neighbor, and contends with the seasonal and marketing conditions.

Table XIII. Facts Concerning the Wheat Project in Vocational Agriculture for Two School years

Distribution of enrollment	School frequency		Distribution number acres	School frequency	
	1922-23.	1923-24		1922-23.	1923-24
1	6	10	1 -- 9	1	2
2	4	5	10 --19	1	5
3	4	1	20 --29	4	3
4	0	1	30 --39	3	2
5	1	1	40 --49	1	1
			50 --59	0	1
			60 --69	1	2
			70 --79	1	0
			90 --99	1	1
			100 --109	2	1

Tabular summary of facts by years	1922-23.	1923-24
Number schools with wheat projects	15	18
Total enrollment of boys	32	32
Range of enrollment of boys	1 to 5	1 to 5
Number of acres of wheat grown	779	846
Range in number acres per school	1 to 180	2 to 310
Median number acres per school	40	28
Total profit from all wheat projects	\$2496.75	\$10,598.50
Mean " per school	166.45	588.80
" " " boy	78.02	331.40
" " " acre	3.21	12.53

In this table, it is shown that 6 schools enrolled one boy each the first year, and 10 schools enrolled one each the next year. In 1922-23 one school grew from one to nine acres of wheat, and the next year each of two schools grew that many acres. From these data, the wheat project does not appear to be as popular as some of the other projects seem to be.

The "oats project" consists in growing one or more acres

of oats under farm conditions. The boy rents the land and contends with all of the seasonal and market conditions.

Table XIV. Facts Concerning the Oats Project in Vocational Agriculture for Two School Years

Distribution of enrollment			School frequency			Distribution of enrollment			School frequency		
1922-23.			1923-24			1922-23.			1923-24		
1						1	---	9	1		2
2			2			10	---	19	1		3
3			1			20	---	29	1		2
4			1			30	---	39	1		0
--			--			-----			--		--
6			1			69	---	80	1		1

Tabular summary of facts on oats project 1922-23. 1923-24

Total number schools with projects		5	8
" enrollment of boys by years		15	13
" number acres of oats grown		144	179
Total profit from oats project		\$481.00	\$773.75
Mean " per school		96.20	96.72
" " " boy		32.67	59.52
" " " acre		3.33	4.32

Two schools enrolled one boy each in 1922-23, and four schools enrolled one each the next year. One school grew from one to nine acres of oats the first year, and two schools grew that acreage each the next year.

The "sorghum project" consists in growing one or more acres of kafir, cane, milo, or of feterita under farm conditions. These crops are grown for the seed, the feed, and sometimes, in this connection, for demonstrational purposes. The writer has included a few reports on millet and on sudan grass in the tabulation of the following table.

Table XV. Facts Concerning the Sorghum Project in Vocational Agriculture for Two School Years

Distribution of enrollment			School frequency			Distribution number acres			School frequency		
1922-23.			1923-24			1922-23.			1923-24		
1	4	9	1	---	9	4		8			
2	5	7	10	---	19	2		6			
3	1	2	20	---	29	1		3			
4	0	2	30	---	39	1		2			
6	1	0	40	---	49	2		1			
8	0	1	50	---	59	1		0			
9	1	0	60	---	69	1		1			

Tabular summary of facts on sorghum project		1922-23.	1923-24
Total number of schools with sorghum		12	21
" enrollment of boys by years		32	45
Range of " " " per school		1 to 9	1 to 8
Total number acres sorghum grown		270	365
Range in number acres per school		4 to 62	5 to 68
Median number acres per school		30	15
Total profit from all sorghum projects		\$1470.09	\$3658.63
Mean " per school		85.62	174.22
" " " boy		28.54	81.30
" " " acre		3.31	10.02

Four schools enrolled one boy each in the sorghum project in 1922-23, and nine schools enrolled one boy each the next year. During the first year 4 schools grew from one to nine acres of sorghum each, while five schools each grew that acreage the next. These data indicate that the sorghum project is fairly popular, and it appears to be reasonably safe financially as a project in vocational agriculture.

The vocational agriculture schools have with one or more boys tried out a number of various other projects with greater or less success. To give some idea of this work and the results secured, the following tabulation has been made. The data were taken by the writer from the teachers final reports to the state supervisor on the work for the school year 1923-24.

Table XVI. Facts Concerning Miscellaneous Projects in Vocational Agriculture for the School Year 1923-24

Name of project	Frequency by schools	Total enrollment	Total profits	Scope of returns from project
Legumes	7	8	\$561.21	64 tons of feed 60 bu. of seed
Sheep	6	10	1199.37	2 car loads fed
Orchard	3	3	604.70	4220 trees
Barley	2	2	21.60	29 acres
Garden	22	50	3225.43	76 acres

The first line in the above table means that in 1923-24 seven schools had legume projects, enrolling a total of 8 boys, and making a total gain of \$564.21 from producing 64 tons of feed and 60 bushels of seed. The garden project includes the production of truck of all kinds, hotbed products, popcorn, berries, and watermelons.

In this study no effort has been made to investigate the kinds, value and amount of agriculture laboratory equipment installed in the vocational schools. No investigation was made regarding the types of machinery, nor of the exact nature or amount of other farm-shop equipment already installed. However, some data were secured incidentally, and these are shown in the appendix on page 57 of this report.

Those engaged in the work of vocational agricultural education appear to agree that the theory of the State Board for Vocational Education is correct in that farm-shop work is essential in training for vocational agriculture. The reports on file in the office of the state supervisor on this phase of the work are extremely meager. To secure satisfactory data for this

study it seemed advisable to use a questionnaire in securing the information.

A questionnaire was carefully prepared by the writer. The cooperation of the state supervisor of vocational agriculture was secured. The questionnaire was sent to each vocational teacher with a letter from the writer, a circular letter from the state supervisor, and a return self-addressed stamped envelope.

The questionnaire was sent to each of the 79 teachers of vocational agriculture with the result that 53 teachers answered promptly. The questionnaire was then mailed a second time to the 26 teachers who had not answered. From this 18 more responses came, leaving 8 teachers who had not answered. Thus the response of 71 of the 79 teachers (90 percent) was considered very satisfactory for the purposes of this study.

The answers to the questionnaire were to the point and were easily tabulated by the writer, who believes that the information thus presented is quite complete and fairly accurate as to the scope of what is being done in the farm-shop work this year in schools offering vocational agriculture.

Copies of the questionnaire and the two letters are inserted here.

Name School _____ Teacher _____ Shop Enrollment _____

Following each general process listed below, please write the kinds and appropriate number of such jobs done since Sept. 1. If more space is needed, use the back of this sheet, listing by same number.

For EXAMPLE, following No. 1. "Tool sharpening" - Saws 3, Axes 6, Flow shares 5 Auger bits 11, Others 10.

1. Tool sharpening _____
2. Handles replaced _____
3. Made farm appliances _____
4. Farm buildings constructed _____
5. Building interiors remodeled _____
6. Constructed or installed home convenience _____
7. Cement concrete work _____
8. Plumbing jobs _____
9. Harness repair jobs _____
10. Soldering jobs _____
11. Simple weldings _____
12. Made small iron articles _____
13. Jobs requiring tempering _____
14. Farm machinery repaired _____
15. Others _____
16. Number gas engines repaired _____ tractors _____ Automobiles _____
17. Total number auto repair jobs is _____ where the usual garage charge would cost from \$1.00 up to \$ _____. Estimated savings approximately \$ _____
18. Total approximate present value of all shop equipment is \$ _____, of which the machinery is worth \$ _____, and small tools are worth \$ _____.

SCHOOL OR CLASS PROJECTS (Agriculture--not shop work)

1. Besides the home-projects, do you have SCHOOL or CLASS PROJECTS? _____
2. Name or type and scope of class projects, if any _____
3. How are they financed? _____
4. Nature and location of equipment _____
5. Any features of special interest or importance _____
6. Did the school have a class project last year? _____ Important results from it _____

Lawrence, Kansas
February 6, 1925.

To the Teacher of Vocational Agriculturo:

Through the cooperation of Mr. Lester B. Pollom, State Supervisor of Agriculture, I have secured much valuable information concerning vocational agriculture as taught in the Kansas public schools. I am, by training and experience, much interested in this field, and am making a study of this subject with special reference to content, teaching practice, and teaching personel.

The farm-shop work being done in many of the schools is reported to be very valuable and is of concern in my study, but to date no definite facts have been assembled on this phase of required work in vocational agriculture.

Will you therefore kindly fill out as fully as possible the enclosed questionnaire, and mail it to me in the enclosed self-addressed stamped envelope? Please do this with the assistance of the class at its next meeting, if possible, and return it to me without delay.

This information will be used only impersonally, so no objectionable comparisons will be made among teachers or schools.

I shall appreciate your cooperation in this, and I thank you in advance for your promptness in sending the information.

Very truly,

R. K. Farrar,

1344 Ky. Street, Lawrence, Kansas.

Topeka, Kansas
Jan. 30, 1925.

TO THE TEACHERS OF
VOCATIONAL AGRICULTURE;

Mr. R. K. Farrar, Lawrence, Kansas, is enclosing a letter of his own, also a questionnaire, asking for certain information regarding the status of the FARM SHOP work in your school.

He needs this information in preparing his thesis for the degree of Master of Science. It is a study in which we are all interested, and I believe the results he obtains will be of use to you in your school work, as well as this office. I am furnishing him the available information in this office.

I urge you to answer his questionnaire as fully as possible; give him the facts as best you can and do it right away. Do not think what you may be doing is so little that it is not worth reporting. If we all report something, we shall be able to make a fine showing.

Very truly yours,

Lester B. Pollom,

Supervisor Vocational
Agriculture.

Table XVII. Facts Reported in Farm-Shop Questionnaire
from 71 of the 79 Schools

Items reported on questionnaire as grouped by the writer	Number of schools reporting such work	Total num- ber of the activities reported	Range in number of activities by schools
1. Tool sharpening			
Saws	65	689	2 to 50
Axes, hatchets	50	189	1 -- 16
Chisels of all kinds	55	1179	5 -- 100
Knives, sickles, scythes	25	349	2 -- 80
Auger and drill bits	45	558	2 -- 60
Plane bits, scrapers	44	857	3 -- 61
Shears, scissors	4	27	1 -- 17
Plowshares, shovels, etc.	8	50	1 -- 29
Unclassified miscellaneous	18	299	1 -- 100
2. Handles replaced			
Hammer, hatchet, mallet	49	320	1 -- 50
Axes, sledge, maul	33	197	1 -- 74
Hoe, rake, fork	11	40	1 -- 7
Spade, shovel, post auger	13	33	1 -- 6
Saw	12	32	1 -- 8
Unclassified	20	154	1 -- 43
3. Made farm appliances			
Sleds, stools, cornracks	13	142	2 -- 40
Porch swings	8	28	1 -- 8
Ladders, jacks, gates	22	143	1 -- 22
Feeders, troughs	55	383	1 -- 43
Trap nests, sectional nests	15	182	1 -- 50
Hay racks, smut treating machine	7	11	1 -- 4
Wheel barrows, Oat sprouters	11	20	1 -- 4
Clamps, saw horse	12	67	1 -- 10
Lab. tables, cases, lockers	17	97	2 -- 27
Wagonbox, tongue, buggy bed	22	33	1 -- 4
Eveners, single trees, yokes	28	256	1 -- 47
Work benches, vises	7	32	1 -- 13
Unclassified	35	354	1 -- 72
4. Farm buildings constructed			
Sheep, poultry, dog houses	17	20	1 -- 5
Silo and barn roofs	2	2	1 only
Pens, coops, bins	10	19	1 -- 4
Shops, bleachers	13	22	1 -- 6
5. Building interiors remodeled			
Buildings and equipment	31	57	1 -- 8

(Continued on next page)

6. Constructed or installed home conveniences			
Furniture	16	125	1 to 35
Cases	7	26	2 --- 7
Unclassified	16	48	1 --- 15
7. Cement concrete work			
Floors, walks	20	21	1 --- 2
Foundations, steps	11	14	1 ---- 2
Chimney and forge foundations	8	14	1 ---- 3
Posts, anchors, etc	7	38	1 ---- 16
Unclassified	5	20	1 ---- 14
8. Plumbing jobs			
Pipe work, sinks, showers	15	30	1 ---- 16
Pump repair jobs	4	9	1 ---- 6
Electric wiring installation	4	6	1 ---- 2
Unclassified	10	22	1 ---- 14
9. Harness repair jobs			
General repairing	39	340	1 ---- 35
Oiling harness	8	50	1 ---- 50
10. Soldering			
Simple to difficult mending	50	888	1 --- 108
11. Simple welding, various types			
	40	328	1 --- 35
12. Made small iron articles			
Chisels, punches, screw driv.	14	350	7 --- 84
Unclassified	45	1033	1 --- 105
13. Tempering jobs, numerous			
	45	985	1 --- 110
14. Farm machinery repaired			
Plows, cultivators, discs	13	25	1 ---- 8
Binder, mower, wagon	12	20	1 ---- 4
Belt, pulley, rope work	11	95	1 --- 24
Unclassified	32	298	1 --- 76
15. Gas engine, tractor repairs			
Gas engines repaired	17	43	1 --- 5
Tractors repaired	6	6	1 only
Automobile jobs reported	48	462	1 --- 100
17. Automobile repair work:---The estimated savings in repair work as compared with commercial garage charges were estimated at a total of \$2029.56, or an average saving per job of \$4.39.			

Table XVIII. Approximate Present Value Farm-Shop Equipment
(Estimates by teachers in 71 schools)

Distribution of estimated value shop equipment	Total of machinery and small tools	Machinery alone	Small tools alone
	Frequency	Frequency	Frequency
Below \$99	6	33	10
\$100 to 199	11	16	20
200 -- 299	6	6	17
300 -- 399	18	4	14
400 -- 499	8	3	8
500 ---599	7	2	0
600 -- 699	2	1	0
700 -- 799	4	2	1
800 -- 899	3	1	0
900 -- 999	0	0	0
1000 --1099	2	0	0
1100 --1199	1	0	0
2000 -----	1	2	1
2500 -----	1	1	0
4000 -----	1	0	0

This table shows that the estimated present value of both machinery and small tools in each of six of the farm-shops is less than \$99.00. The machinery alone is estimated at a value of less than \$99. in thirty-three farm shops. And the small tools alone in ten shops are estimated at a value of less than \$99.

The farm-shop equipment in many of the vocational agriculture schools is meager. From these data it is seen that more than half of the schools have less than \$400. worth of equipment in machinery and small tools. Sixty-one of the farm-shops have less than \$400. worth of small tools. Comparatively few of the shops are equipped with much machinery. The schools that do have expensive equipment have equipped for other than vocational agriculture work, and are now using it for both types of work.

THE TEACHING PERSONNEL IN VOCATIONAL AGRICULTURE
IN THE KANSAS HIGH SCHOOLS

The data for the teaching personnel are based upon the "Applications for Approval as Teacher of Vocational Agriculture" in Schools Receiving Federal and State Aid". These reports are on file in the office of the state supervisor of vocational agriculture, Topeka, Kansas. The date of the report used is the same as when the teacher was approved for vocational agriculture work. Some of the teachers were not elected to positions for one or more years after approval. The data in the tables below were compiled by the writer.

Table XIX. Ages of Teachers of Vocational Agriculture

Ages	Frequency
20 to 24	9
25 -- 29	44
30 -- 34	16
35 -- 39	2
40 -- 44	3
45 -- 49	0
50 -- 54	2

Summary	
Number teachers employed in 1924-25	79
Number " ages not reported	3
Range of ages of 76 teachers	21 to 52
Median age of teachers	27

At the time of approval as teachers of vocational agriculture, nine of the teachers were 20 to 24 years of age, forty-four were from 25 to 29, sixteen were from 30 to 34, and but two teachers were as old as 50 years. From these data that it appears 70 percent of the vocational teachers are men less than 30 years of age when they apply for approval.

Table XX. High School and College Training of Teachers of Vocational Agriculture

High school training	
Number who graduated from high school	66
" not reported as graduating	13
Attended high school in Kansas	65
" " " " other states	13
College training	
Number holding degrees of A.B. or B.S.	76
Educated in colleges of Kansas	73
" " " " other states	6
Professional training	
Received at Kansas State Agr. College	70
" " similar schools	9
Having 18 hours credit in education	59
" 12 " " but less than 18	13
Data not available for	7

The above table summarizes the facts as to the high school training, the general college training, and the professional training for the teaching of vocational agriculture for all teachers engaged in such work for the school year 1924-25. The fact so many teachers have attended Kansas high schools suggests that they may be familiar with the situation in Kansas from their early experience. Since all of them are college graduates, they should possess the academic preparation needed for the work. And again, since practically all have met the professional requirements of the State Board of Education, it appears that the vocational agriculture teachers are at least reasonably well trained for their work.

Official transcripts are on file in the office of the state supervisor of vocational agriculture for 53 of the 79 teachers. From these the writer compiled the data below which show the college scholarship records for these teachers. However since they are not objective ratings, they cannot be considered of so

great importance as if they were. The grades are shown by the letters E, G, M, P, and F,-- E representing the highest grade and F a failure.

Table XXI. College Scholarship Records of 53 Teachers of Vocational Agriculture

Grade	Total frequency	Percent of total
E	685	12
G	2140	37
M	1677	29
P	1243	21.5
F	29	.5
Total	5774	100

Of a total of 5774 grades made by 53 vocational teachers, 685 or 12 percent were E's. The distribution of these college grades is shown in the graphical form below.

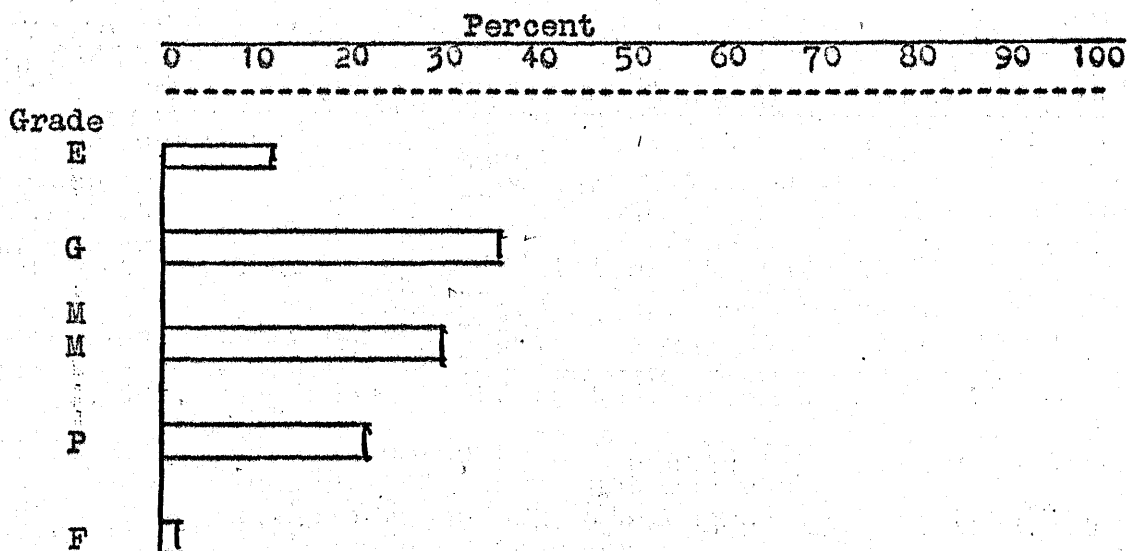


Table XXII. Farm Experience of Teachers of Vocational Agriculture When Approved for Such Work

Number of teachers who were raised on a farm	46
Others who have farmed or managed a farm	19
The remainder who have worked on a farm	14

A valuable part of the preparation of a vocational agriculture teacher is his actual experience with the work on a farm.

The 79 Kansas vocational teachers have had farm experience.

Table XXIII. Experience of Teachers in Teaching Vocational Agriculture Including the Present Year

Number of years	Number of teachers
1	18
2	18
3	14
4	7
5	4
6	9
7	9

Eighteen teachers are now teaching their first year of vocational agriculture, while nine teachers are now teaching their seventh year of such work. The median teaching experience in this work is three years.

Table XXIV. Tenure of Position of Teachers of Vocational Agriculture Including the Present Year

Years in present position	Number of teachers
1	31
2	20
3	9
4	6
5	6
6	5
7	2

Thirty-one teachers (40 percent) are now serving their first year in their present position. The median number of years in the present position is two years.

Table XXV. Salaries of Teachers of Vocational Agriculture
in Kansas for the School Year 1924-25

Distribution of salaries	Frequency
\$1800 to \$1899	3
1900 -- 1999	1
2000 -- 2099	18
2100 -- 2199	10
2200 -- 2299	13
2300 -- 2399	4
2400 -- 2499	14
2500 -- 2599	8
2600 -- 2699	5
2700 -- 2800	1
Not reported	1

Three of the teachers of vocational agriculture received a salary of from 1800 to 1899 dollars. The range of salaries is from 1800 to 2800 dollars, while the median salary is 2300. The teachers are paid by the district board of education on a twelve month basis. The schools are then reimbursed by state and federal aid to the extent of half of the salary of the teachers.

The mean cost for teachers alone per pupil enrolled in this work was \$81.50 for the year 1924-25. In considering the pupil cost of vocational agriculture education it is important to remember that each pupil is receiving three hours of training per day in an education that is supposed to function immediately in his life work,- a point that does not apply so definitely in ordinary educational training. Vocational training is usually more expensive than general educational training. Furthermore, the community contacts made by a competent vocational teacher are considered by the community to be of great value.

III. SUMMARY AND CONCLUSIONS

1. Seventy-nine high schools in Kansas are teaching vocational agriculture. Their enrollment in this work ranges from 9 to 54 boys, with a median enrollment of 19. The total high school enrollment of boys in these schools varies from less than 25 to more than 900, while the median enrollment is 62. Seventy percent of these schools are located in cities of the third class where 60 percent of the boys are classed as farm boys.

2. In general, more than 60 percent of the farm boys take vocational agriculture. In more than half of the schools which offer this work (43), it is on a full-time basis. Usually not more than two years of vocational agriculture work is offered.

3. The methods of instruction include both home (individual) and school (class) projects. These pertain chiefly to animal and crop production. Seventy-five percent of the 1185 boys enrolled in home-projects in 1922-23 completed their projects with full records of their procedure and results. Usually the projects were conducted under normal farm conditions, and showed significant profits.

4. An analysis of the farm-shop work and its equipment was made by means of a questionnaire, showing a large number and variety of shop activities with an equipment having an average value of less than \$400.

5. The teaching personnel in vocational agriculture in Kansas

high schools consists of mature men, whose average age is less than 30, well prepared in agriculture, and fairly well prepared as teachers. It appears that the teaching personnel should not fail in accomplishing its part in making agricultural education measure up to the expectations of those who advocate such training.

Finally, it is the opinion of the writer that the work of the vocational agriculture schools would be improved by a further application of modern methods of curriculum construction; that the beginning teachers in vocational agriculture should be more closely supervised; that the farm-shop work should be developed along lines other than that of furniture construction more than is apparent in some schools; that the farm-shop problems on bulky, heavy machinery be handled at the home farm, rather than by bringing them to the well equipped school shop which frequently has an environment not familiar on most farms; that in all activities the school should function in the community at the homes whenever possible; and that it appears that some teachers demand more equipment than is necessary or can be used to advantage.

BIBLIOGRAPHY

Technique of Procedure

- How to Measure in Education,- W.A.McCall
 Statistical Methods Applied to Education,- H.O.Rugg

Sources of Data

- Year Book, 1923, Federal Board for Vocational Education
 Bulletin No.6, Plans for Vocational Education in Kansas
 The Smith-Hughes Act, 1917, Congressional Act
 House Bill No. 886 of the 1917 Session of Kansas Legislature
 Reports of State Supervisor of Vocational Agriculture,-L.B.Pollom
 Teachers Reports to State Supervisor, Topeka, Kansas
 High Schools Principals Report to State Superintendent, Sept.1924

Theory of Vocational Agriculture Education

- Report of a Survey of the School System of St.Paul, Minn.,
 in 1917, Part III,-The Vocational Problem,
 pages 661 to 759,- C.A.Prosser
 Why Federal Aid for Vocational Education,- C.A.Prosser
 Chanute, Kansas, School Survey Report, 1924,
 by C.V.Williams, H.P.Smith, and F.P.O'Brien

Vocational Instruction

- New Methods in Teaching Vocational Agriculture,1924,-G.A.Schmidt
 The Instructor, The Man, and The Job,- C.R.Allen
 Vocational Education in Teaching School, 1923,- Theo.H.Eaton
 Methods of Vocational Agriculture,- Storm and Davis
 Vocational Agriculture Bulletin No.23, March 1925,
 Project Observation,- L.B.Pollom

APPENDIX

The materials contained in the following pages were collected by the writer with the same care as was used in collecting the data of the main part of the report. The writer considers them of interest but not essential to the report, hence their inclusion in the appendix.

The state supervisor of vocational agriculture or his representative visits each school offering vocational agriculture at least annually. His notes of conditions as he found them among the various schools were used by the writer in assembling information as follows.

Table XXVI. Criticisms Concerning the Vocational Agriculture Schools Made by the State Supervisor for the School Year 1924-25

Nature of criticism	Frequency by schools
Unsatisfactory building	2
Teacher slow, visionary, or lacks inspiration	4
" demands too much equipment	1
" has excessive extra duties	2
" not keeping records satisfactorily	1
" doing no shop work, or no projects	2
Class too large, or with too many town boys	3
Doubtful situation	5
Teacher original, promising, superior	11

The items in the above table constitute some of the problems of followup work confronting the supervisor of vocational agriculture.

The attitude of the community, the superintendent, and of the school board, as well as that of the students, towards vocational work has much to do with successful work. In his notes, the supervisor noted that in 38 schools the attitude of all concerned was satisfactory, that in 4 schools it was passive, in 9 schools only fair, in one school negative, and in 1 the attitude of the superintendent was doubtful.

In vocational agriculture it is necessary for the teacher to reach his community through actual field activities. From his visits to the schools, the supervisor has observed various methods

in use by the teachers for this purpose, as listed in the table following.

Table XXVII. Methods of Making Contact with the Community in Use by the Teachers of Vocational Agriculture As Observed by the State Supervisor in 1924-25

Method of contact named	Frequency by teachers
School participation at fairs	26
Evening schools of 3 to 6 days	20
Stock judging work	6
Judging exhibits by teacher	6
Demonstrations among rural schools	5
Dairy shows	3
Gopher poisoning	1
Pure bred sire organization work	2
Other incidental community activities	38

As indicated by the above table it appears that the teachers who place their services at the disposal of the community, find many ways of making the school function in community life. Some of the teachers do much of their field work on Saturday. The reports show that 30 of the 79 teachers do a part of the work of supervising home projects on Saturday. Some of them handle pre-vocational work (club work) on Saturday. The plan of using Saturday for community service appears to strengthen the vocational work in the estimation of the community. In a number of cases the communities are reported to have voluntarily made a cash bonus to the teacher who has demonstrated that his work is of practical value to the community. Field trips are not made by the class on Saturday, except on special occasions.

The state supervisors report of inspection shows that there is no uniform method followed in allowing transportation expenses of the teacher. Nine schools provide a school car. In other schools he is allowed mileage of from 2 to 10 cents, or

upkeep of his own car, or in some a cash allowance of from \$100 to \$390 is allowed.

There are no records on file in the office of the state supervisor of vocational agriculture that show the exact nature or amount and value of agriculture laboratory and of farm-shop equipment already installed. Some light however is thrown upon this phase of the status of vocational agriculture by noting the existing needs and the additions reported to have been made during the summer of 1924. From the reports of the teachers made to the state supervisor at the end of the first month of school, the writer has compiled the following lists of needs and additions in equipment.

Table XXVIII. Summary of Teachers Reports of Additions and Needs in Agriculture Laboratory in September 1924

Nature of materials	Number of schools	
	Added	Needed
Samples of corn materials	15	6
Milk testing apparatus	6	8
Caponizing sets, poultry apparatus	3	2
Soil testing supplies	5	7
Pictures, maps, charts, blackboards	6	2
Cabinets, cases, containers	3	
Power sprayer, pruning tools	1	1
Meat laboratory	1	
\$5.00 to \$55.00 supplies not itemized	4	
Laboratory for agriculture		2
Laboratory furniture		4
Heat for laboratory		1
Farm tools		2
Microscopes		3
Equipment reported complete	24	3
Nothing whatever added	9	

In September 1924, 15 teachers reported to the state supervisor that samples of corn materials had been added during the summer, and six other teachers reported that in their judgment such materials were needed in their schools.

Table XXIX. Summary of Teachers Reports of Additions and Needs
in Farm-shop Equipment in September 1924

Nature of materials	Number of schools	
	Added	Needed
New farm shops	2	5
Forges	4	8
Leather working tools and equipment	6	2
Small tools of various kinds	29	11
Auto and tractor repair tools	1	1
Line shaft installed, machinery	1	1
Woodworking tools	2	1
Grindstone		1
Furniture, supply cases, etc	3	1
Shop floor		1
Equipment complete	34	1
Replacement	4	2
No additions whatever	9	25
\$25.00 to \$375.00. not itemized	17	

In farm-shop work two teachers reported to the state supervisor that new farm-shops had been built for use in vocational agriculture, and five other teachers reported that in their judgment new farm-shops were needed in their school equipment.

From the reports of teachers to the state supervisor at the end of the first month of school, September 1924, the writer has compiled the data given below regarding textbooks and reference books used in the vocational agriculture schools. In some cases the textbooks are in the hands of students, while in others they are used mainly as reference books, several copies of each being provided in the library. In fact, these texts form the basis of the reference library in vocational agriculture.

Table XXX. Extent to Which Various Textbooks Are Used in
the Vocational Agriculture Schools (1924)

Name of textbook used	Number of schools
Plumb, Farm Animals	54
Henry and Morrison	18
Harper, Farm Animals	2
Eyles and Warren, Dairying	2
Washburn, Dairying	1
Vaughan, Market Classes	1
Craig, Stock Judging	1
Gay, Stock Judging	1
Wilson and Warburton, Field Crops	19
Montgomery, Field Crops	14
Livingston, Field Crops	3
Piper, Forage Plants	1
Carleton, Small Grains	1
Whitson and Wakster, Soil Fertility	14
Miller, Soil and Its Management	2
Lyon and Fippin, Soils	1
Weir, Soils	1
Waters, Agriculture	2
Green, Vegetable Gardening	1
Bass, Farm Management	2
Davidson, Agricultural Engineering	2
Lippincott Series	1
Gray, Introduction to Agricultural Econom.	1
Griffith, Woodwork	5
General Reference and Bulletins	5

Fifty-eight of the 79 schools are reported as having added 367 reference books to their libraries during the last year. Four schools report the addition of a total of 808 bulletins. Thirty-two schools are reported as not needing any more reference books, while twenty-five schools are reported as needing such books.

LIST OF TABLES

	Page
I. Analysis of Total Enrollment of Boys in High Schools Offering Vocational Agriculture	8
II. Enrollment Data on Vocational Agriculture Schools for the School Year Beginning September 1924	11
III. Percent of Farm Boys in High School Enrolled in Vocational Agriculture, September 1924	12
IV. Classification of the Enrollment in Vocational Agriculture by Years of Work, September 1924	14
V. School or Class Projects in Vocational Agriculture for the Year Beginning September 1924	17
VI. Facts Concerning the Home Projects Undertaken During the School Year Beginning September 1923	22
VII. Facts Concerning the Hog Project in Vocational Agri. for Two Years	23
VIII. Facts Concerning the Poultry Project in Vocational Agriculture for Two Years	24
IX. Facts Concerning the Corn Project in Vocational Agriculture for Two Years	25
X. Facts Concerning the Beef Project in Vocational Agriculture for Two Years	26
XI. Facts Concerning the Potato Project in Vocational Agriculture for Two Years	27
XII. Facts Concerning the Dairy Project in Vocational Agriculture for Two Years	28
XIII. Facts Concerning the Wheat Project in Vocational Agriculture for Two Years	29
XIV. Facts Concerning the Oats Project in Vocational Agriculture for Two Years	30
XV. Facts Concerning the Sorghum Project in Vocational Agriculture for Two Years	31
XVI. Facts Concerning Miscellaneous Projects in Vocational Agriculture for Two Years	32
XVII. Facts Reported in Farm-Shop Questionnaire	37
XVIII. Approximate Present Value of Farm-Shop Equipment (Estimates by teachers in 71 schools)	39
XIX. Ages of Teachers of Vocational Agriculture	40

	Page
XX. School High and College Training of Teachers of Vocational Agriculture	41
XXI. College Scholarship Records of 53 Teachers of Vocational Agriculture	42
XXII. Farm Experience of Teachers of Vocational Agriculture When Approved for Such Work	42
XXIII. Experience of Teachers in Teaching Vocational Agriculture Including the Present Year	43
XXIV. Tenure of Position of Teachers of Vocational Agriculture Including the Present Year	43
XXV. Salaries of Teachers of Vocational Agriculture in Kansas for the School Year 1924-25	44
XXVI. Criticisms Concerning the Vocational Agriculture Made by the State Supervisor, 1924-25	49
XXVII. Methods of Making Contact with the Community in Use by Teachers of Vocational Agriculture as Observed by the State Supervisor, 1924-25	50
XXVIII. Summary of Teachers Reports of Additions and Needs in Agriculture Laboratory in September 1924	51
XXIX. Summary of Teachers Reports of Additions and Needs of Farm-Shop Equipment in September 1924	52
XXX. Extent to Which Various Textbooks Are Used in the Vocational Agriculture Schools (1924)	53

Inserts

Copy of Farm-Shop Questionnaire	34
Letter of Transmittal with Farm-Shop Questionnaire	35
State Supervisor's Letter for Enclosure with "	36

Scatter Diagrams

No. 1. Showing Size of High Schools and the Vocational Agriculture Enrollment in 79 Schools for the School Year Beginning September 1924	10
No. 2. Showing Percent of Farm Boys Reached by Vocational Agriculture in High Schools of Different Size	13