

T H E S I S

-----

CONSTRUCTING COURSES OF STUDY IN VOCATIONAL AGRICULTURE  
FOR  
HIGH SCHOOLS OF ARIZONA

-----

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STATE AGRICULT'L COLLEGE  
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Submitted by

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In partial fulfillment of the requirements  
for the Degree of Master of Science

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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY Halbert W. Miller ENTITLED Constructing Courses of Study in Vocational Agriculture for High Schools of Arizona BE ACCEPTED AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE DEGREE OF Master of Science

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Committee on Final Examination

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CHAPTER I  
INTRODUCTION

The Development of Vocational Education in Agriculture  
in Arizona

A brief history of the state vocational education program in agriculture is important in the solution of the major and minor problems of this study.

Arizona's legislature accepted the Vocational Education act passed by Congress through an enabling act approved March 12, 1917. It was not until 1919, however, that the work was started. The programs were mostly of a promotional nature. Reimbursements to schools were on what the school might be doing, so far as agriculture was concerned, rather than on the basis of a state program and on the basis of standards set up by the State Department. If the various agricultural departments of the local high schools could show some semblance of meeting Federal requirements they 'got by.'

On January 1, 1923, there was no record of previous work in the office of the state department aside from the books showing use of Federal allotments. There was not even a record of which schools were receiving reimbursement, or how much was being reimbursed. From June 1, 1923, to September 1, 1924, there was no supervisor of the agricultural program. A teacher trainer in the

University of Arizona was nominally in charge of supervision; his time was so taken up with teaching in the College of Education, however, that there was very little help given the men in the field. No systematic work was done to standardize the work or to plan toward agriculture curricula.

On request of the State Farm Bureau of Arizona that the State Department of Vocational Education develop an agricultural program along practical, beneficial lines, the writer of this study was employed as field agent in agricultural education. He began his work January 11, 1924. A community program in adult vocational education was developed, principally in Maricopa County, the first year. This program spread to other counties. The State Supervisor of Agriculture, who had been granted a year's leave of absence returned in September, 1924. The Field Agent visited during the school term of 1924-1925 all the schools and communities in the state having vocational agricultural departments. Data and information was gathered which proved of value in setting up a definite program and a standard of policies. The Supervisor left the State in June, 1925, and the Field Agent, who is now the State Supervisor, was promoted to the position.

The first step of the present supervisor, on assuming his duties, was the compiling of a program of procedure for vocational agriculture in Arizona. This

was based upon the five year State Plan 1922-1927, then in force. It set up and interpreted all mandatory provisions as given in the policies of the Federal Board and set forth the type of classes, methods of reimbursement, and suggested courses.

While there was much room for improvement in the "Program of Procedure" it was the first instrument which gave to the vocational teachers and the superintendents and principals over the state a definite set of policies to adhere to. In December, 1930, the State Plan as approved for 1927-1932 was printed and mailed to the schools thruout the state. It offers only suggestions for the content of courses in agriculture. There has been no attempt to build curricula or related courses.

The time has arrived, however, when it is necessary that standardized courses of vocational education in agriculture be offered in the Arizona high schools if further progress is to be made.

The Arizona State Plan has already set up certain standards or requirements. In brief the requirements are as follows:

- a. At least a half time teacher.
- b. At least a ninety minute period daily to vocational agriculture.
- c. Ample time for preparation and supervision.
- d. A minimum of extra curricula activities which may interfere with an efficient job of teaching.



e. Ample time to give follow-up supervision to students who have had two years of vocational agriculture.

f. A minimum of two years of vocational agriculture.

g. One year of Plant Production, one year of Livestock Production.

Every secondary school in Arizona in which it would be possible to place a curriculum or course of vocational agricultural education is situated in a community where the farmers must operate at a greater profit in order to survive. The schools need added revenue to expand and to meet increasing needs. The boys need to stay in school longer in order to reach a full maturity of thinking ability and judgment under proper supervision. There is in each of these communities a definite need for a type of training which will develop more efficient farmers. The need is now present and it is urgent. The social and the cultural standards in each of these communities can be improved thru greater farm profits.

The increased enrollment thru persistence of school attendance caused by a richer curricula will bring finances to the school from state funds now being lost. These added resources can be used to further enrich the lives of those who go thru these local institutions of learning. A vocational program which will accomplish these objectives will more than justify itself.

The problem, then, is to construct functioning worth while curricula, courses, and school schedules which will assist administrators in fulfilling a duty and service to the farm population of the state and its society in general.

## CHAPTER II

### STATEMENT OF THE PROBLEM

This study resolves itself into the following major problem:

To formulate curricula, to outline a vocational course, and to construct functioning school schedules for each year's work, and providing for a minimum of two year's work and a maximum of four year's work, in vocational education in agriculture for the secondary schools of Arizona.

One fundamental of this study is to arrive at principles which may be applied in establishing curricula and courses of study in vocational education in agriculture for the secondary schools of Arizona which are situated in agricultural communities.

The problem is not only to establish a course of study but to so fit this course into the predominating secondary school programs that it will function and assist administrators in arranging their school schedules to meet pupil needs. There must be a definite course of study for boys wishing to take vocational agriculture. This course, for maximum value, should be fitted into the high school program and schedule so that there will be a minimum of conflicts and at the same time provide for a well rounded training for the individual.

The value of this study will be in two fields: First, in the proper preparation of students of vocational agriculture; second, it will aid in properly preparing teachers of vocational agriculture so that they will be able to teach those enterprises, units, and phases of agriculture to meet the ever progressive and changing needs of the present day agriculturalist.

The training of teachers varies with the character of the curriculum or curricula and with the way the different studies included therein are organized into definite teaching positions. Therefore, the teacher training institutions must know what the curriculum or curricula is going to be, for which they are to prepare their teachers, in order to be most successful and effective.

The policy of a State Department should be to allow each local secondary school to set up curricula to fit the needs of the particular community to a certain degree. It becomes obvious that there is a limit beyond which this practice should not be permitted to go. There must be some directing head if any uniformity of objectives are to be attained. The head should determine the curriculum or curricula and organize the subjects therein into definite teaching positions. This is the best means by which a systematic endeavor to improve existing conditions can be made.

The following is quoted from Field Studies No. 2, Peabody College: pp. 65, 66, 67.

"The most that can be permitted to small communities is to choose between curricula. When a curricula is chosen it must be followed.----- In the first place, the principal of a small high school is not a principal in any sense of the word. He is more frequently a glorified teacher. Ordinarily he possesses and exercises little power or authority over what is taught or over the selection and assignments of teachers. While usually a college graduate, he has seldom had special preparation for supervising and administering a high school ----- He is usually inexperienced and loaded down with classes. Even if he were prepared, experienced, armed with power, and a man of progressive ideas and ability, he rarely stays long enough in one community to learn much about its real educational needs. ----- Teachers in small high schools have little time or opportunity or interest or ability to study scientifically or to experiment with so delicate and complicated a problem as curriculum adapted to the needs of a given community. As a rule, it is not professional experience and knowledge that determines just what is taught in any one year in a small high school, but the personal interest or prejudice of one or more board members, the particular interest of the principal and what he finds the teachers handed over to him want and can teach. In short, the curricula of small high schools within limits change with the local board members, the principal and the teachers ----- a violation of the first educational right of the child.

"Educational leaders in most states have long since recognized the need of controlling the curricular offerings of small high schools, and the State Departments of Education in twenty-one states are empowered by law to do so."

In Arizona the state board does not control curricula offerings in the high schools except thru minimum requirements for graduation, which are as follows:

- Three years of English
- Two years of Social Science
  - One year of American History
  - One half year of Civics
  - One half year of some other science
- One year of Laboratory Science
- Two years of some form of Physical Education

The State department of vocational education is a permanent organization and is in a position to survey the whole field thru its supervisors and itinerant teacher trainers in vocational agriculture. The department is responsible for the promotion of vocational education in agriculture. It is the logical directing head to build agricultural curricula in vocational education.

In order that this service shall be of value it is necessary that a survey of the present curriculum situation pertaining to vocational education in agriculture be made in the 17 high schools of Arizona now offering education in agriculture. It is also necessary to establish fundamental principles that may be made the basis for constructing functioning curricula in vocational agriculture. Definite curricula must then be constructed which not only meet the needs of the communities and schools but which satisfy the State and Federal requirements in vocational education.

Minor Problems of This Study Follow:

a. To determine by what means past and present curricula in vocational agriculture have been built in the secondary schools of Arizona.

b. To determine principles which should be considered in establishing the course of study to be offered in vocational education in agriculture.

c. To construct a curriculum which will meet the requirement of the State Plan and at the same time meet the conditions in the high school, and the needs of the pupils who wish training in vocational agriculture.

d. To construct functioning courses of study which will meet the requirements of the state plan as to objectives and aims.

e. To make comparative studies of schedules in schools which offer training in vocational agriculture with a view to improving such schedules or concluding that they are adequate to meet present and future needs.

f. To construct school schedules and combinations of schedules including the course in vocational agriculture which will meet all requirements of the State Plan and at the same time will be adaptable in schools under varying conditions in the agricultural communities in the state.

Minor problem(a) will be developed in Chapter III by considering the factors which effect curriculum construction and revision, and by the interpretation of the information gathered by the survey. Minor problem (b) will be dealt with in Chapter IV by a comparative study of authorities in the field of vocational education; and the remaining problems will be treated in Chapters V and VI.

### CHAPTER III

#### THE PRESENT SITUATION

Minor problem (a) is, "To determine by what means past and present curricula in vocational agriculture have been built in the secondary schools of Arizona." In order to approach this problem and gather information for its solution it was necessary to determine the factors that must be considered in the construction or revision of a vocational agricultural curriculum which are:

- I. What are the major occupations of the community for which the curriculum is constructed?
  - a. Will the curriculum influence the persistence of pupils in school?
  - b. Are the common experiences of the students considered in setting up the curriculum and teaching content?
  - c. Will the curriculum meet the vocational needs of the pupils?
  - d. Will the agricultural curriculum affect other curricula in the school?
- II. What is the population of the community?
  - a. The size of the agricultural population groups will largely limit the possibility of school offerings.
  - b. The number of adults in the community and the number of children of school age should be considered.



1. The number in the most productive age groups and those in dependent groups will be of help if the information can be secured.
- c. Are the farmers of the community farm owners or tenants?
  1. Interest in the community and permanency of the boys in school will be largely influenced by this factor.
- d. Are the majority of the farmers more or less economically independent, operating their farms at a profit?
  1. Social heredity of the pupils and the probable school support will depend somewhat upon this factor.
- e. Could the curricula offerings of the schools be increased or modified without seriously affecting school costs?
- f. What is the persistence of boys in high school?
  1. If the high school is the last formal educational opportunity for many pupils that fact will influence the curriculum.
- g. How many pupils attend beyond the compulsory school age?
  1. The interest aroused by properly constructed curricula influences attendance after legal force is inoperative.

2. What is the intelligence of boys in vocational classes?
  3. Will the curriculum meet their vocational interests and needs?
- h. What will be the past school activities of boys?
1. How many may go to college?
  2. How many may go into farming?
  3. How many may go into other occupations?
- i. Is there a need for a vocational agricultural curriculum in the high school serving a particular community?

III. What other curricula are offered in the high school?

- a. What emphasis is placed upon various types of work?
- b. What is required of students by way of constants?
- c. Must all students meet college entrance requirements?

After determining the factors to be considered it was necessary to gather information for applying the factors to the solution of the problem. This was done by means of a personal conference with each agricultural teacher and his superintendent.

As a guide the following outline was used and filled out by the writer at the time of each conference.

Outline for Objective Curriculum Study

School \_\_\_\_\_ Town \_\_\_\_\_

Superintendent \_\_\_\_\_

Teacher \_\_\_\_\_

1. In what year was Vocational Agriculture Department established? \_\_\_\_\_
2. Has it operated continuously since? \_\_\_\_\_
3. Is there a definite Vocational Agriculture curriculum offered? \_\_\_\_\_
4. Get a copy of such curriculum. \_\_\_\_\_
5. What subjects are constant in Vocational Agriculture curriculum? \_\_\_\_\_
6. What subjects are elective? \_\_\_\_\_
7. Does the Vocational Agriculture curriculum lead to graduation meeting college entrance requirements? \_\_\_\_\_
8. How many times has Agriculture Curriculum been revised since establishment of department? \_\_\_\_\_
9. How was present curriculum constructed? \_\_\_\_\_
10. How many years of Vocational Agriculture offered? \_\_\_\_\_
11. What are the titles of courses offered each year?
  1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
12. What is the average number of enterprises offered in each year's Vocational Agriculture instruction? \_\_\_\_\_
13. Are the enterprises taught based upon the needs of the community? \_\_\_\_\_
14. What percentage of projects are in enterprises taught? \_\_\_\_\_
15. How much of teacher's time devoted to Vocational Agriculture? (check)  $\frac{1}{2}$  \_\_\_\_\_  $\frac{3}{4}$  \_\_\_\_\_ Full \_\_\_\_\_
16. Give number of Vocational classes taught. \_\_\_\_\_
17. Length in minutes of each Vocational Agriculture class. \_\_\_\_\_
18. Number of classes per week. \_\_\_\_\_
19. Total number of minutes Vocational Agriculture teachers devoted to classroom teaching each day. \_\_\_\_\_
20. Total number of minutes given by teacher daily to supervision and preparation of agriculture work during school hours. \_\_\_\_\_ Outside of school hours. \_\_\_\_\_

21. Number of non-vocational classes taught or time devoted to study period. \_\_\_\_\_
22. List extra-curricula activities for which Vocational Agriculture teacher is responsible. \_\_\_\_\_
23. How many different teachers have been employed since the department was established? \_\_\_\_\_
24. What non-vocational subjects are best handled by the Vocational Agriculture teacher? \_\_\_\_\_
25. Is the Vocational Agriculture teacher a specialist in any particular phase of agriculture? \_\_\_\_\_
26. Is there a tendency to stress this phase to the neglect of other phases of agriculture? \_\_\_\_\_
27. Where Agriculture Curriculum provides for only two years of Vocational Agriculture, should it be offered,  
Freshman and sophomore years? \_\_\_\_\_  
or  
Junior and Senior years? \_\_\_\_\_
28. Is the Agriculture Curriculum required or elective? \_\_\_\_\_
29. Should the two year minimum Vocational Agriculture program required by the state plan be increased to attain the true objectives of Vocational Agriculture Education? \_\_\_\_\_
30. Where only two years of Vocational Agriculture are offered is there an effort on the part of the teacher to continue his supervision of agricultural students? \_\_\_\_\_
31. What are the limiting factors in offering four years of Vocational Agriculture? \_\_\_\_\_
32. What factors must you consider in maintaining a Vocational Agriculture department? \_\_\_\_\_
33. Are two years of foreign language essential for the efficient training of Vocational Agriculture students? \_\_\_\_\_
34. Total number of pupils enrolled in your school. \_\_\_\_\_
35. Total number of boys enrolled in your school. \_\_\_\_\_
36. Total number of boys enrolled in your Agr. \_\_\_\_\_
37. What percentage of your graduates go to college? \_\_\_\_\_
38. What percentage of your boys taking agriculture go into farming? \_\_\_\_\_
39. What percentage of those entering freshman, graduate? \_\_\_\_\_
40. How does the I Q of the Vocational Agriculture student compare with the average in your school? \_\_\_\_\_
41. Can your present Vocational Agriculture curriculum be improved? If so, in what respects? \_\_\_\_\_
42. Where did the Vocational Agriculture teacher receive his training? \_\_\_\_\_
43. How many teachers in your entire system? \_\_\_\_\_

There were seventeen secondary schools surveyed by personal interview using this outline as indicated. The first procedure after all data was gathered was to designate each school by letter from A to Q inclusive, as follows:

- A. Yuma High School, Yuma
- B. Valley High School, Thatcher
- C. Willcox High School, Willcox
- D. St. David High School, St. David
- E. Snowflake High School, Snowflake
- F. Phoenix High School, Phoenix
- G. Peoria High School, Peoria
- H. Patagonia High School, Patagonia
- I. Marana High School, Marana
- J. Glendale High School, Glendale
- K. Ft. Thomas High School, Ft. Thomas
- L. Florence High School, Florence
- M. Duncan High School, Duncan
- N. Chandler High School, Chandler
- O. Benson High School, Benson
- P. Gilbert High School, Gilbert
- Q. Pima High School, Pima

The second step was to summarize the information obtained; this is shown in Summary I, page 22. From this summary, tabulations of subsequent tables and information were readily made.

Summary I.- Questionnaire findings as to vocational agriculture courses in seventeen Arizona high schools.

Table with 43 columns and 17 rows. Columns include: 1-5: School/Dept info; 6-11: Course/Meeting details; 12-14: Basis/Percentage of Present; 15-19: Average/Length/Number of Minutes; 20-a: Number of Minutes; 20-b: Number of Minutes; 21: Number of Non-Vocational; 22: Teacher's Time; 23: Number of Different Teachers; 24: Non-Voc. Subjects; 25: Subjects in which Agr. Overstress; 26: Tendency to be Taught; 27-a: Should be Taught; 27-b: Should be Taught; 28: Elective; 29: 2 Yr. vision; 30: Is Super-; 31: Limiting Factors; 32: Factors in; 33: Is Foreign; 34: Total Enrollment; 35: Total Enrollment; 36: Total Enrollment; 37: Percentage of Grad's; 38: Percentage of Agr.; 39: Percentage of Freshmen; 40: I.Q. of Agr. Students; 41: Suggested Improvements; 42: Teacher Received; 43: Total Number of Teachers.

\* This school has 2 teachers in agriculture.

## Present Curricula of High Schools in Arizona

The information gathered concerning present and past curricula is given in Summary II, page 24.

There are only four schools which have a definite curriculum in vocational agriculture. This limits the field as to how curricula were formulated in the past. These courses were constructed by grouping the subjects for the purpose of meeting the needs of the pupil or the needs of the community. These four schools constructed their curriculum in vocational agriculture by building around the high school subjects required by the State Board of Education. Agriculture was added to the requirements with one or two electives.

Thirteen schools have no definite curriculum in vocational agriculture but offer the subject of agriculture for two or more years.

The subjects required by the school and the subjects elective are shown in Summary II.

Summary II.- Data which shows how agricultural curriculum were formulated in the past.

4 schools have a definite agricultural curriculum which consists of the subjects required by the State Board of Education, vocational agriculture and possible electives.

13 schools have no agricultural curricula.

11 schools have printed forms showing the subjects offered and what subjects are elective.

16 schools have the subjects required by the State Board of Education as the constants required.

1 school requires one additional year of history.

17 schools offer as elective subjects not required by the State Board of Education.

1 school offers a 4-year course of vocational agriculture which leads to graduation meeting college entrance requirements.

17 schools offer vocational agriculture and additional subjects so that a pupil may select the subjects which will lead to graduation and meet college entrance requirements.



13 schools have made no changes in their curricula since the agricultural department was established.

1 school has made five changes in the curricula since the agricultural department was established.

Logical reasoning would lead one to believe that the element of time would have an influence on the vocational curricula offered in the schools surveyed in the study. It would be supposed that the greater the number of years that have elapsed since the department was established the greater would have been the opportunity to build functioning curricula. The State of Arizona passed the enabling act accepting Federal Aid in 1917 or fourteen years ago. If the departments were established soon after the enabling act was passed and have operated continuously since, the school should have passed thru any experimental stages so far as curricula or courses were concerned.

By referring to Summary I, page 22, we see that schools (B), (E) and (F) established vocational departments in 1919, and that each have a definite curriculum for vocational agriculture. School (J) established the department in 1930; it makes the fourth school which has a definite curriculum.

The length of time during which each of these seventeen schools has offered vocational agriculture and the number of years that have elapsed since the department has been established, is given in Summary III.

Summary III.- Data showing the number of years that agriculture has been taught in the schools, the number of years since the department has been established, and whether the operation of departments has been continuous.

1	school	has	taught	vocational	agriculture	1	year	
1	"	"	"	"	"	2	years	
1	"	"	"	"	"	11	"	
1	"	"	"	"	"	10	"	
2	schools	have	"	"	"	4	"	
2	"	"	"	"	"	6	"	
2	"	"	"	"	"	7	"	
7	"	"	"	"	"	12	"	
1	school	has	had	the	department	established	1	year
1	"	"	"	"	"	"	2	years
1	"	"	"	"	"	"	4	"
1	"	"	"	"	"	"	10	"
1	"	"	"	"	"	"	12	"
1	"	"	"	"	"	"	17	"
6	schools	have	had	the	"	"	12	"

13 schools have offered vocational agriculture continuously since the department was established

2 schools have lost 1 year since the department was established.

2 schools have lost 2 years since the department was established

If the teachers aided in the construction of vocational curricula in the past, their information as to state and local conditions will have to be given consideration. This would depend to a great degree upon where their training was received as it takes the out-of-state teacher three years to accumulate all the necessary information to be proficient in his job. On referring to Summary I, it is found that there are a total of eighteen teachers of vocational agriculture in the seventeen schools. The institutions from which they received their training are as follows:

10 teachers received training at the University of  
Arizona

4 teachers received training at the Utah Agricultural College

2 teachers received training at the Colorado Agricultural College

1 teacher received training at the Kansas Agricultural College

1 teacher received training at the B.Y.U. of Utah

The ten teachers who have received training at the University of Arizona would have information about conditions in the State which should be able to help them to construct vocational curricula for two or four years of agriculture but there is no evidence that they aided or influenced the building of agricultural curricula for their particular school .

Most schools do not have an agriculture curriculum. The school subjects vary from required to elective, with most schools using minimum state requirements as constants. College entrance requirements have an effect on subjects offered and have no doubt affected the building of vocational curricula. No changes in general curricula have been made over a period of years except in four instances. A step has been made to offer subjects to meet pupil or community needs. Most schools give agriculture as electives.

There is a difference in the number of years that agriculture has been taught on a vocational basis. There is a range of from one to seventeen years in the establishment of the department. Those schools giving more than two years of agricultural work differ widely in their offerings. This is also found to be true of those schools offering only the minimum of two years of vocational agriculture.

The courses offered and their contents have a direct bearing on school curricula as well as the purpose

for which the courses were offered. The constants in the school and the possible electives must be weighed in constructing definite curricula. These factors which must receive attention are presented in Summary IV, page 30. An inspection of this information will reveal that the majority of schools claim that they constructed their courses to meet the needs of the pupil. Practically one-fourth of the schools offer courses to meet the college or university entrance requirements. Four schools offer courses to meet the community needs. Only one school has taken a farm survey as the basis for the course. Over half of the schools have only two year courses in vocational agriculture. Three schools have seen fit to exceed the minimum requirement by one year. Nearly one-third give opportunity for four years of vocational training in agriculture. Special subjects aside from the state plan required subjects are offered as indicated. The number of enterprises taken up in any subject vary, but the average is not much above what a good instructor can cover efficiently.

Most of the boy's home projects are in the enterprises taught. Vocational agriculture is an elective subject in all but three of the schools surveyed. These three make vocational agriculture a required subject. This is contrary to all vocational principles. It precludes any chance of the group being selected.

Summary IV.- Informational data as to purpose and content of courses for vocational education in agriculture.

The purpose of the vocational agricultural course:

- 9 schools, to meet the needs of the pupils
- 4, to meet the needs of the community
- 1, to meet college entrance requirements
- 1, based upon a farm survey
- 1, based upon the principal's ideas

The number of years that vocational agriculture is offered:

- 9 schools, for 2 years
- 3 schools, for 3 years
- 5 schools, for 4 years

The subjects offered in vocational agricultural courses now being given:

- 17 schools, Plant Production and Animal Husbandry
- 6, specific instruction in Farm Management
- 1, specific instruction in Marketing
- 1, instruction in individual enterprises in the fourth year
- 1, specific instruction in citriculture
- 2, specialized enterprises in the third year
- 17, enterprises based upon community needs

Vocational agriculture is offered as a subject in:

- 14 schools, as an elective subject
- 3, as a required subject

The number of enterprises offered in any subject:

- 4 is the smallest number
- 8 is the largest number
- 6 is the average number

The percentage of projects carried in the enterprises taught:

- 50 percent is the lowest
- 100 percent is the greatest
- 88 percent is the average

The size of the high school as to enrollment is one of the most important factors in building curricula.

The data gathered upon this subject in the study is tabulated in Summary V.

Summary V.- Enrollment of 17 high schools.

Total pupil enrollment	6655
Average enrollment	391
Total enrollment of boys	3248
Average number of boys in each school	191
Total enrollment of boys in vocational agriculture	451
Average enrollment of each school in vocational agriculture	27
Percentage of all boys who are enrolled in vocational agriculture	14.1
Average percentage of those who enter as freshmen who graduate	50.4
Average percentage of high school graduates who go to college	36.2
Average percentage of vocational students who go into farming	54.4

In order that a basis for considering the enrollment in relation to the average high school in the state, Summary VI, page 32, is offered which does not include figures from the Phoenix Union High School. This school is so large that it is by no means a typical high school.

Summary VI.- Enrollment of the sixteen high schools, other than Phoenix.

Total pupil enrollment	2497
Average enrollment	156
Total enrollment of boys	1207
Average number of boys in each school	75
Total enrollment of boys in vocational agriculture	365
Average enrollment of boys in vocational agriculture for each school	23
Percentage of all boys who are enrolled in vocational agriculture	30.2
Average percentage of those who enter as freshmen who graduate	46.0
Average percentage of high school graduates who go to college	34.7
Average percentage of vocational students who go into farming	56.2

The average enrollment shows that the size of the high schools in rural communities is not large. The total enrollment of boys in these sixteen schools gives us an average enrollment of 75, and, as indicated, an average of 23 for each school enrolled in vocational agriculture. Therefore, we find that we have an average percentage of 30.2 of the boys in each of the sixteen high schools. It is evident that there is at least one good sized class in every high school that can be given training in vocational agriculture. Summary I, tells us that



there are several schools well above this average so we may expect them to offer training to more than one agricultural class each year. Summary VI, shows that only 46 percent of those pupils entering school as freshmen graduate. Surely a well defined curriculum of vocational education in agriculture would interest some part of the 54 percent of those pupils who leave school between the first and fourth year. It would at least give them an opportunity to receive training for farming in their community. Since 56.2 percent of those boys in these rural communities who take vocational training go into the occupation of farming we might judge that a large number of the 54 percent would become farmers.

The 34.7 percent of graduates who go to college includes some of the boys who took vocational agriculture. They, in all probability, enter the college of agriculture. We may conclude from this data that curricula of vocational agriculture can be supported by every one of the seventeen schools and that they will meet a real need. The number of boys enrolled justify such curricula.

In studying the size of the high school for which curricula in vocational education are to be constructed we must learn if there is an adequate teaching staff. Summary I, gives an average of ten teachers for each of the sixteen smallest high schools. Every one of these schools has on its staff one agricultural teacher.

The enrollment in the vocational courses will determine the amount of time he will devote to teaching vocational agriculture. He may have to handle some non-vocational subjects. He should be well prepared in the whole field of agriculture as well as in one or two subjects of the academic field. Summary VII, has been prepared to summarize this data.

Summary VII.- Data in reference to classes taught and teaching speciality.

The subjects which agricultural instructors teach:

- 11, only vocational agriculture
- 7, vocational agriculture and one to three non-vocational subjects

The instructors give as the best non-vocational subjects to teach:

- 14, give the sciences
- 2, give mathematics
- 1, gives manual training
- 1, gives no opinion

The subjects in which instructors have specialized:

- 5, Animal Husbandry
- 3, Agronomy
- 2, Horticulture
- 1, Poultry
- 1, Poultry Diseases
- 1, Science
- 5, did not specialize in any subjects

The teachers who specialized in certain subjects do not neglect the other subjects in teaching vocational agriculture in opinion of seventeen high school principals

Eleven of the eighteen teachers in the seventeen schools are full-time vocational instructors in agriculture. Seven are responsible for some non-vocational subjects. These eighteen teachers feel that the non-vocational subjects they are best fitted to handle are the sciences, mathematics and manual training. The small high school can use the vocational teacher in these subjects. Thirteen of the vocational teachers are found to be specialists in some field of agriculture. Since this does not interfere with their doing efficient teaching in the entire field it will not affect the construction of suitable vocational curricula.

The kind of curriculum constructed will be influenced by the number of years it covers and in what years of the school it will be offered. Summary VIII, page 36, gives this information. It is found that 72.2 percent of the principals and instructors are of the opinion that vocational agriculture should be given at least in the first two years of high school. Since they are in a position to know pupil needs their opinions should be considered. The turnover of the teachers of vocational agriculture may affect the curricula.

It is found by a study of Summary VIII, page 36, that the turnover of teachers is not high when compared with that of academic teachers.

Summary VIII.- Showing the years in which agriculture should be taught and the teacher tenure.

Principals' and instructors' opinion as to where vocational agriculture should be offered:

- 13, first and second year where 2 years are offered
- 4, third and fourth year where 2 years are offered

The number of different teachers employed since the department has been established:

- 4, schools, 1 teacher
- 4, schools, 2 teachers
- 5, schools, 3 teachers
- 3, schools, 4 teachers
- 1, school, 5 teachers
- 1, school, 6 teachers

This summary also shows the number of different teachers in the departments since they were established. It also indicates a degree of permanency. It can be concluded that the curricula will not be affected by the teachers changing often and that the curricula can begin with the first year of school.

The opinion of principals and instructors regarding raising the two year minimum of vocational agriculture as now required must be given consideration. Ten are of the opinion that it should not be increased by requirements but by needs and choice. Curricula covering four years can be constructed, however, and the option of offering that part above two years left with the school.

The number of classes taught daily, as well as the number of minutes devoted to teaching daily, bears a

relation to the curricula. The time for preparation and supervision must be taken into account. Summary IX, records this data. The State plan requires that each class must meet five times per week for a minimum of ninety minutes daily.

Summary IX.- Data concerning the length of class periods, number of classes, number of minutes devoted to teaching daily, time for preparation and supervision.

The length of class periods in schools:

15 have regular class periods of 45 minutes  
15 have vocational periods of 90 minutes  
2 have regular class periods of 60 minutes  
2 have vocational periods of 120 minutes

The number of agriculture classes taught daily by instructors:

8 teach 3 classes  
7 teach 2 classes  
3 teach 1 class

The time that is devoted to agricultural classroom teaching daily:

8 teachers, 270 minutes  
1 teacher, 240 minutes  
6 teachers, 180 minutes  
3 teachers, 90 minutes

The time devoted to preparation during school hours:

2 teachers, 180 minutes daily  
13 teachers, 90 minutes daily  
1 teacher, 45 minutes daily  
1 teacher, 0 minutes daily

The time devoted to supervision outside school hours:

5 teachers, 120 minutes daily  
4 teachers, 90 minutes daily  
2 teachers, 60 minutes daily  
1 teacher, 30 minutes daily  
1 teacher, 0 minutes daily

Since fifteen schools have regular forty-five minute periods and two have sixty minute periods this is all that will be considered, regarding the length of class periods, in constructing curricula.

Fifteen teachers meet two or more classes daily. Eight teachers have three classes daily which indicates three years of agriculture, so the curricula will extend to at least the third year.

The number of minutes that the teacher devotes to vocational teaching daily varies with the class period. The minimum is ninety minutes and the maximum 270 minutes. Ample time is provided for giving the student efficient training in curriculum content where the number of enterprises is not too great.

As shown in Summary I, seventeen teachers are responsible for extra-curricular activities. All of them are responsible for F.F.A. activities; ten are responsible for F.F.A. and one or more other extra-curricular activities.

Too many extra-curricular activities may mean inefficient teaching. Ten of the teachers offer follow-up supervision to boys who have completed the two year minimum. This would indicate that functioning curricula if followed for only two years would enrich the vocational opportunities of the farm boys.

The difficulties, if any, for maintaining the present two year minimum of vocational agriculture should

be given some thought in presenting curricula. The limiting factors for offering a three or four year curricula must be considered also. These factors as presented, found by the survey, are tabulated in Summary X.

Summary X.- Factors in maintaining the present department and in offering four years of agriculture.

The limiting factors in maintaining the present instruction in vocational agriculture as given by principals:

- 2 gave the type of farming in the community
- 4, the small enrollment of agricultural classes
- 1, the lack of its need in the community
- 1, the requirement of home projects
- 1, the community's attitude
- 1, the cost of maintaining the department
- 1, the difficulty of arranging the schedule
- 6, had no difficulties

The factors to be considered in offering four years instruction of vocational agriculture as given by principals:

- 2 gave the pupils' time as too crowded
- 7, the enrollment as too small to warrant
- 1, the equipment as too limited
- 1, the attitude of the community as unfavorable
- 1, the lack of a definite curriculum
- 1, the sixty minute periods do not allow the pupils enough time for required subjects
- 4, the college entrance requirements
- 1, the finances as too limited and the demand not great enough
- 1, would have no difficulties

Limiting factors for maintaining present departments are such that improved curricula in vocational education in agriculture can virtually eliminate them. Such a curriculum should improve the type of farming, increase enrollment, lower costs, change the community's attitude,

prove the value of the project method of instruction, and prove a need for vocational education in agriculture. Opposing factors which must be considered in proposing a four year course of vocational agriculture can easily be overcome. Curricula can be offered which will give pupils time to take all subjects outlined. Enrollment can be increased thru vitalizing courses. Equipment is not a vital factor. Schedules can be made to conform to the sixty minute period altho it is fast disappearing. State and Federal aid will help finance the additional years of vocational education. Regular courses can be constructed and offered.

Sixteen of the seventeen superintendents feel that foreign language is not essential for efficient training in vocational agriculture. One superintendent, however, thinks that, in Arizona, Spanish is essential.

The I. Q. of vocational pupils was also studied. Ten superintendents and principals give the I.Q. of agricultural pupils as average as compared to the school as a whole. Two superintendents and principals give the I.Q. of agricultural pupils as below the average for the school as a whole.

Five superintendents and principals give the I. Q. of vocational pupils as above the average for the school as a whole.

It is evident that most students in vocational agriculture have an I. Q. which is equal to or above that



of the average high school pupil. This will be taken into account in constructing curricula.

## CHAPTER IV

### DETERMINING GUIDING PRINCIPLES FOR FORMULATING CURRICULA OF VOCATIONAL EDUCATION IN AGRICULTURE

Minor problem (b) concerning guiding principles for formulating curricula which will provide for vocational education in agriculture in the secondary schools involves a study of the opinions of recognized authorities upon the subject. Excerpts have been gathered giving views and opinions upon these principles.

The terms used by specialists, non-specialists, teachers and layman in discussing curriculum construction are so varied in their meanings that it will be well to define with more or less clearness the meaning implied by certain terms in this thesis.

In beginning it is well that "Education" be clearly understood; according to Webster,

"Educate v. t. To bring up a child physically or mentally; to lead forth, to bring up; to develop physically, to rear; to develop and cultivate mentally or morally; to expand, strengthen and discipline, as the mind, a faculty. Education n. Act or process of educating; the impartation or acquisition of knowledge, skill, or discipline of character; also the act of training by a prescribed or customary course of study or discipline."

Herbert Spencer says, "To prepare us for complete living is the function which education has to discharge."

Again as to the meaning of "vocation" and "vocational."

"Vocation n. A calling; a summons; a calling to a particular state, business, or profession. Vocational school, curricula, course or type of education, the main purpose of which is to provide training for the occupations or vocations whether in the trades, agriculture or the professions."

On these understandings we may say then that Vocational Education in Agriculture, is bringing up an individual, developing him physically, mentally, morally; to strengthen, cultivate and expand his mind and faculty in such a manner that he can be more efficient in his calling or occupation as an agriculturist. Various writers in the field of vocational education have written on the subject as applied to agriculture.

We find in "Supervision of Vocational Education" by Wright and Allen under the title "Basic Principles of Vocational Education":

"Out of the experience obtained up to date has come a very general agreement among vocational educators as to certain basic principles or standards which must be maintained if any program of vocational education is to be socially and economically efficient." \*

These basic principles have been phrased in various ways by various people but, however stated, they have embodied essentially the following ideas:

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\* Wright and Allen, Supervision of Voc.Ed. p. 29-30.

The Basic Principles of Vocational Education\*

1. Instruction in order to be effective with vocational students must be given to selected groups.
2. The subject matter to be taught must be such as directly functions in the work for which the pupil is being trained.
3. Instructors must have been occupationally trained in the trade or occupation they are to teach.
4. Individual instruction should be given whenever necessary to the progress of any member of the group.
5. Each individual member of the group should be permitted to progress as rapidly as his or her ability will permit, and promotions should be made at any time on the basis of ability to do the work required.
6. Effective training for work can best be given on a real job.
7. All subject-matter and training should be arranged in the most effective instructional order of difficulty.
8. The pupil while being trained should be placed in an occupational atmosphere and environment.
9. The instruction and training should be based upon prevailing occupational standards.
10. Repetitive training in the various operations should be given such as will enable the learner to begin work as an economic asset rather than as an economic liability to his employer.

Here we have principles set up to cover the whole field of vocational education. These, however, are readily transferred to the field of vocational education in agriculture. These principles applied to a curriculum

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\* Wright and Allen, Supervision of Voc.Ed. p. 29-30.

of instruction, limit that curriculum to a vocational basis, and so give us a very clear conception of the type of education necessary.

G. A. Schmidt in his late book, *Efficiency in Vocational Education*, discourses as follows:

"All leading educators today recognize the fact that there is a place for vocational training in any complete system of education.- More than that, practically all leading educators of today make vocational training one of the major objectives of education. It is a generally accepted fact that one is not educated if he cannot successfully follow a useful occupation. --- Vocational education in agriculture is any training of less than college grade the specific purpose of which is to equip persons over fourteen years of age for the effective pursuit of farming." \*

In his book, *New Methods in Teaching Vocational Agriculture*, Professor Schmidt states:

"Education is an attempt to modify an individual according to chosen aims and ideals of the particular society in which he lives. Education is an attempt to fit an individual to meet the individual social, civic, and economic demands of the society of which he is to become a member. A normal individual is entitled to receive, as his birthright, an education which will enable him to meet the demands his society is going to impose upon him. In other words; the individual plus education must equal ability to meet the demands of society. The demands of our society require that:

1. The body, mind and moral character of an individual be developed to the fullest capacity as determined by all underlying factors.
2. The civic and social training be sufficient to enable the individual to meet all civic and social responsibilities.

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\* Schmidt, G. A., *Efficiency in Voc. Ed.* p. 23.

3. The economic capacities be so developed that the individual can earn a respectable living and provide for those who are dependent upon him.

All of these phases in education of an individual should be so coordinated that, when the individual is educated, he has the ability to meet all the demands of the society in which he lives." \*

The above excerpts are from works of recognized authorities in vocational education.

By a careful study of their interpretations or ideas of vocational education as advanced, we will find that in most particulars they agree. It means that men who have given time, thought, and study to the problem of vocational education, have found some fundamental principles which, while stated in different ways, may be coordinated and summarized. The following may represent such a coordination of ideas and be adopted as the principles of vocational education:

- First While in the past there has been a prevailing opinion that there were two separate and distinct types of education, cultural and vocational, this idea is being replaced with the idea that there is one type of education that is both cultural and vocational, and must be so to be effective and real education.
- Second That education must fit for living whole rounded out lives in cooperation with our fellow men, contributing our share to human welfare.
- Third It must so fit a man that he can make an intelligent and adequate living to maintain himself and those dependent upon him, in the society of which he is a part.

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\* Schmidt, G. A., New Methods in Teaching Voc. Agr. p.3.

- Fourth It must develop habits of moral character, habits of living happily in our environment.
- Fifth It must so fit an individual that he can get satisfaction from his occupations, and be in a position to partake of and enjoy the time not spent in actual pursuit of that occupation.
- Sixth It must so train that an individual will not need to apply all his vitality, energy and effort to a monotonous grind of making a living to a detriment of health, happiness and leisure.
- Seventh It must develop skills, habits, knowledge, interests, aptitudes, abilities, ideals, and appreciations in a primary occupation so that a useful, adequate, purposeful, and gainful vocation may be profitably followed.

I believe nothing will be found in the excerpts contradictory to these seven principles underlying vocational education. One or more statements might be added such as:

- (a) That vocational education should begin in the secondary schools.
- (b) That public schools are recognizing the possibilities of broadening their curriculum by adding courses leading to a more rounded preparation for life.
- (c) That any particular course of study in vocational education must be offered to a selected group or groups if the work is to be effective.

Transferring these principles to a specific type of vocational education in agriculture, we can construct curricula for a public school of secondary grade for a selected group of students who are to follow the vocation of farming or agriculture. The curriculum, the course of study, and the subject matter must be the instruments

employed to educate the individuals of the group so that they may continue to progress thru reading and studying, so that they may acquire those attributes which a successful farmer must have for the society in which he moves. These attributes must be developed by the individuals so that they will have an intelligent idea of their civic and community duties and the ability to participate in the affairs pertaining to them; so that they can conserve their health for further performance of those tasks managerial, mental, and physical that their occupations demand of them for success.

The summarization of the fundamental principles as translated into the meaning of "Vocational Education" is not incompatible with policies of the Federal Board for the Control of Vocational Education. Referring to pages 63 and 64, under the title "Text of the Vocational Education Act," we find B on agricultural education beginning with:

- "(d) That education shall be that which is under public supervision or control.
- (e) That the controlling purpose of the education is to fit for useful employment.
- (f) That education shall be less than college grade.
- (g) That education be designed to meet the needs of persons over 14 years of age, who have entered upon or are preparing to enter upon the work of the farm or of the farm home.
- (j) That such schools shall provide for directed or supervised practice in agriculture, either on a farm provided for by the school or other farm, for at least six months per year."



These are the guiding principles which will be observed in formulating functioning curricula for vocational education in agriculture for the secondary schools of Arizona.

CHAPTER V  
BASIS FOR DETERMINING WHAT SHOULD BE TAUGHT  
IN THE RURAL HIGH SCHOOL

1. Composition of student population as to social, economic and mental status. Analysis of pupils abilities, pupil goals, previous preparation, predominant pupil interests and anticipated careers; i.e., practical, social, and industrial needs of the majority of pupils in a particular community. Especially is comprehensive examination of pupils necessary if the principal of the small high school is new to the district.

2. Community needs based on occupational and educational surveys of local community.

3. Analysis of what constitutes high grade current living by adolescents in small communities.

4. Analysis of citizenship needs, i.e., the functional duties of citizens; general cultural needs-- the personal needs of the typical man or woman living in an active cultured community. Social objectives of education, health, social efficiency and worthy use of leisure.

5. Number, ability and qualifications of teachers.

6. Available equipment and local resources.

7. State and federal requirements for accrediting.

8. Minimum requirements for matriculation in the college attracting the largest number of students.

9. Opinions of authorities or experts in the field for which the course of study is constructed.

Professors of secondary education generally agree that college entrance requirements exercise more influence on the small high school than any other single feature. The requirements of college are definite. It is far easier to meet them and thereby serve the comparative few who will go to college than it is to formulate a curriculum which will meet the needs of the majority who are not college bound.

Suggested Improvements for Vocational Program  
in Agriculture

Superintendents and teachers suggest the following as means of improving the vocational agriculture program:

- 5 - add 1 to 2 years to present course
- 3 - standardize state course of study
- 1 - offer more practical course
- 1 - offer a regular presented course
- 2 - plan for a better teacher supervision
- 1 - plan a course to better fit the needs
- 3 - make no suggestions

The suggestions made for improving the vocational education program in agriculture are taken into consideration in the building of curricula in the next chapter.

### The Constructed Curricula

In consideration of the aims, guiding principles, needs, information and facts as developed in this study it is evident that two curricula, one a college preparatory and one purely vocational, can be offered in vocational education in agriculture in the secondary schools which are situated in agricultural communities of Arizona. These proposed curricula meet State and Federal requirements.

The Constructed Curricula

Voc. Agr. College Prep.

Vocational Agriculture

This course qualifies students for college entrance and is recommended for boys who expect to attend an agricultural college to become agricultural teachers, extension specialists, research men, farm managers, or marketing specialists.

Projects are required in all agricultural subjects

This course leads to immediate occupation and is recommended for boys who wish to prepare for general or specialized farming.

Students may specialize in livestock, dairy, poultry, crops, fruits, vegetables, landscape gardening, floriculture, or farm mechanics.

Working capital is accumulated thru continuation projects.

Freshman Year

Semester			Semester	
*45 English I and II	1-2	:	*45 English I	1-2
*45 Algebra I and II	1-2	:	90 Livestock Production or	
90 Livestock Production or		:	Plant Production	1-2
*45 Phys. Education or	1-2	:	*45 Phys. Education or	
Military Training	1-2	:	Military Training	1-2
** Electives:		:	Electives: One Major	
Mechanical Drawing		:	Agricultural elective	
Typing		:	Typing, Gen. Science	
Bookkeeping		:	Physiography	
		:	Ancient History	
		:	Algebra I and II	
		:	Bookkeeping, Glee Club	

Sophomore Year

*45 English III and IV	1-2	:	*45 English II	1-2
*45 Geometry I and II	1-2	:	*45 Biology I	1-2
90 Plant Production or		:	90 Plant Production or	
Livestock Production	1-2	:	Livestock Production	1-2
*45 Military Training or		:	*45 Military Training or	
Phys. Education	1-2	:	Phys. Education	1-2
Electives: One Major		:	Electives: One Major	
Biology, Physiology		:	Adv. Animal Production	
Agricultural elective		:	Specialized Horticulture	
Public Speaking		:	World History	
Typing		:	Geometry I and II	
World History		:	Public Speaking	
Ancient History		:	Typing	

Junior Year			
Semester		:	Semester
*45 English V and VI	1-2	:	*45 English III 1-2
*45 American History	1-2	:	*45 American History 1-2
*45 Foreign Language	1-2	:	90 Specialized Enterprises or
90 Specialized Enterprises or		:	Agricultural Elective 1-2
Agricultural Elective	1-2	:	*45 Military Training or
*45 Military Training		:	Phys. Education 1-2
or		:	Electives: One Major
Phys. Education	1-2	:	Specialized Horticulture
**Electives:		:	Adv. Livestock Prod.
		:	Foreign Language
		:	Chemistry
		:	Typing, Bookkeeping
		:	Introduction to Business
		:	
Senior Year			
*45 Lab. Science	1-2	:	*45 Civics 1
(Biology, Chemistry or Physics)		:	Economics 2
*45 Civics	1	:	90 Farm Management and
Economics	2	:	Marketing 1-2
*45 Foreign Language	1-2	:	*45 Phys. Education or
90 Farm Management and		:	Military Training 1-2
Marketing	1-2	:	Electives: Two Majors
*45 Phys. Education or		:	Agr. Elective
Military Training		:	Foreign Language
**Electives:		:	Chemistry, Physics
		:	Business English
		:	Business Arithmetic
		:	Public Speaking
		:	
		:	

\* Constants (required subjects).  
 \*\* An elective may be taken only in case of fifth subject being allowed.

## CHAPTER VI

### COURSE CONTENT FOR ARIZONA HIGH SCHOOLS

The possible content of a course in vocational education in agriculture for two years in a junior high school or a senior high school, and a four year course in a senior high school is outlined in this chapter.

The course of study is somewhat set out in the mandatory provision of the Federal Act known as the "Smith-Hughes Act" and in the State Plan as written for the five year period beginning July 1, 1927. Neither the Federal Act or the State Plan will be quoted as the provisions are in printed form and are available to those interested.

#### Course of Study

The course of study offered in vocational agriculture shall be for not less than one school year of nine months and make provision for a minimum of six months of supervised practice, including project work, which meets the approval of the State Board for Vocational Education. There should be not less than ninety minutes of actual instruction in agriculture at the school and not less than an average of ninety minutes per day of supervised practical work done at home. This does not mean that the teacher will actually be present to supervise the practical work ninety minutes each day but each pupil

shall spend on an average of ninety minutes per day on the practical work. It is not necessary that agricultural instruction and practical work be given at the same time. In any case, a minimum of six months supervised practice work is required. The time which is set aside each day for instruction in agriculture should be a unit. Where possible, it is suggested that the ninety minute period be given at the beginning or end of a school session or be preceded or succeeded by a vacant period in order that pupils may be allowed additional time for field trips without interfering with the school program. In no case, however, should a unit period of instruction for any one day be less than ninety minutes. The course of study so far as instruction is concerned should be continuous thruout the year rather than divided up into terms.

In a regular Smith-Hughes Vocational Agriculture course, farm shop work and farm mechanics is part of the subject matter of the course and is not a separate course, and must be taken by those enrolled in the agricultural class, taking a prescribed course. The farm shop work, including also repair of farm machinery, motors and tractors, should not occupy more than forty percent of the time devoted to school work in Vocational Agriculture, or two unit periods per week, as the case may be.

The content of courses will vary according to the type of agriculture in the community and with the agricultural conditions of the state. Four-year courses,



however, should always include some instruction in the various fields of agriculture even tho emphasis is laid upon one or more particular fields.

All schools expecting reimbursement for salaries of instructors in departments of Vocational Agriculture must provide for a minimum of two years of instruction. The subject matter shall consist of: First year, Plant Production; second year, Livestock Production. The content of the courses shall be based on the immediate needs of the pupils in the community with the future possible needs being given due consideration.

Two days of instruction in farm shop per week must be provided in practical farm jobs relating to the subject matter being given in each of the respective courses. A minimum of 450 minutes per week of instruction must be provided for or 90 minutes of continuous instruction to the same group for five times a week.

Each pupil must carry on a home project and do the equivalent of 90 minutes supervised practice per day of practical vocational work.

Provision must be made for at least six months supervision of these projects by the instructor. The agriculture teacher has besides the responsibility of the class room the responsibility of teaching each student on the farm. He is also responsible for the leadership in farm community enterprises. The School Board should provide funds to meet the expenses of the instructor's trans-

portation in doing this supervision; this must not be less than \$300.00 per year.

Additional instruction in a third and fourth year of Vocational Agriculture may be offered when conditions are favorable and when the community demands warrant the maintenance of such courses.

A minimum of ninety minutes daily five times per week for not less than nine months class room instruction and the equivalent of ninety minutes daily of supervised practice shall constitute the year's course, with the addition of supervision by the agricultural instructor during the non-school months.

The following shall constitute a vocational course which provides that a pupil may take such a course and at the same time make enough units in those academic subjects to graduate from the high school and enter the state university as provided for in curriculum number one or he may elect curriculum number two and receive more training in agriculture.

### Outline of Course of Study

First Year	Second Year
Vocational Agriculture 2 units Plant Production Home Projects Farm Shop Work and Farm Mechanics	Vocational Agriculture 2 units Livestock Production Home Projects Farm Shop Work and Farm Mechanics
Required non-vocational* subjects 2 to 3 units	Required non-vocational* subjects 2 to 3 units
Electives	Electives

First and second year courses may be reversed if local conditions justify and the change is approved by the State Supervisor of Agricultural Education.

While 90 minutes of instruction is the minimum required by Federal regulations, it is recommended that for maximum results 135 minutes to 180 minutes be devoted to agricultural instruction by the pupil.

The farm shop work should be such as to train pupils in proper care and use of tools and materials, interpreting plans, constructing, and repairing. The construction work should be mainly of wood. The work in iron should be mainly that of repairing. There should also be work in soldering, plumbing, painting, gas engine repairs, rope splicing, belt lacing, harness repair and concrete.

The second year's work should be a continuation of the first, doing such work as would come to the ordinary

\* Note: The non-vocational subjects taught shall be determined by the local school in accord with the curricula adopted. The amount of credit units given for a vocational course shall be determined by the local school.

farm shop. The farm shop work should be taught only as it relates to vocational agriculture and to the subject matter being taught during the school term.

During the last year of the three year or four year course, the mechanics work may be replaced by courses in sociology and economics which are planned with special reference to farm life and farm problems. The non-vocational school time of the pupil may be given to the study of English, civics, history, mathematics, science, or such other subjects as may in the opinion of the local school authorities promote the general education of the students. No Federal reimbursement is given for teaching non-vocational work.

The work given in vocational agriculture is, in the opinion of the State Board for Vocational Education, worth just as much school credit as the non-vocational work given during an equal amount of school time. The matter of additional credit for project work is a matter to be determined by the local school authorities. It should be understood, however, that the project work is an essential part of the vocational work and that credit for agricultural work should not be allowed until the project is satisfactorily completed.

Three years of agriculture may be given, the first two years as outlined, the third year to be selected according to specialized needs of the community.

A fourth year may profitably be offered as intensified instruction in agriculture on specialized enterprise jobs pertaining to:

Farm Management	Farm Marketing
Farm Accounting	Cooperative Principles

The following is an outline showing the distribution of credits covering those subjects required for graduation over a two, three, and four year period as based upon the minimum requirements adopted by the State Board of Education.

SUBJECTS AND CREDITS

	<u>2 yr. prog.</u>	<u>3 yr. prog.</u>	<u>4 yr. prog.</u>
Vocational Agriculture	2 units	4 units	6 units
English	3 "	3 "	3 "
Social Science	2 "	2 "	2 "
a. Am. History	(1) "	(1) "	(1) "
b. Civics-- Const.	( $\frac{1}{2}$ ) "	( $\frac{1}{2}$ ) "	( $\frac{1}{2}$ ) "
c. Economics	( $\frac{1}{2}$ ) "	( $\frac{1}{2}$ ) "	( $\frac{1}{2}$ ) "
Mathematics	2 "	2 "	2 "
Laboratory Science	1 "	1 "	1 "
Physical Education	2 "	2 "	2 "
Electives	4 "	2 "	
<b>Total</b>	<u>16 "</u>	<u>16 "</u>	<u>16 "</u>

"Minimum High School Course adopted by the State Board of Education March 30, 1926"

3 years English  
 2 years Mathematics  
 2 years Social Science  
     1 year American History  
      $\frac{1}{2}$  year Civics-- to cover the Constitutions  
      $\frac{1}{2}$  year of other Social Science  
 1 year Laboratory Science  
 2 years Physical Education

The large majority of pupils who elect vocational agriculture and continue in school above high school will enter the State College of Agriculture. In view of this, the requirements for entrance are given:

<u>Subjects</u>	<u>Units</u>	
English	3	Those pupils who do not intend to prepare for college entrance should confine their non-vocational work to history, civics, English, practical mathematics, and health education.
Geometry	1	
Algebra	1	
Science	1	
History	1	
Civics	$\frac{1}{2}$	
Other Social Science	$\frac{1}{2}$	
Foreign Language	2	
Electives	<u>5</u>	
Total	15	

There are two types of secondary schools in Arizona that are now offering courses in vocational agriculture. The first is the junior high school, when instruction begins with the seventh grade and terminates with the completion of the ninth grade. The second is the regular four year senior high school.

Courses of study which follow on pages 63 and 64 have been outlined for each year of the junior high school and each year of the four year senior high school. The course of study will be the same for the first three years in each type of secondary school. In the junior high school instruction may begin in the seventh or the eighth grade. Two years of vocational agriculture are required as a minimum by the State Board of Education.

COURSE OF STUDY FOR THE JUNIOR HIGH SCHOOL

Seventh Grade	Eighth Grade	Ninth Grade
First Year	Second Year	Third Year
Agriculture	Agriculture	Agriculture
a. Plant Production	a. Livestock Pro-	a. Specialized
Important commun-	duction	Enterprises
ity Enterprises	Important com-	Based upon
b. Farm Shop Work and	munity Enter-	pupils pro-
Farm Mechanics.	prises.	ject and
	b. Farm Shop Work	important
	and Farm Mec-	community
	hanics.	enterprises.
		b. Special Farm
		Shop Work
		and Farm
		Mechanics
		as needed.
Note: The subjects	What is true	The special-
shall be based upon a	of the first year	ized enterpris-
Community survey. The	is true of the	es will be de-
needs of the pupils	second year as to	termined by the
will be met by selec-	subjects offered.	individual needs
ting those enterpris-		rather than the
es and enterprise		group needs.
units that will give		This is also
them instruction to		true of the Farm
fulfill the aims and		shop work and
objectives set up for		farm mechanics.
the particular courses		
The farm mechanics	Same as for	Same as for
is related to the the	first year	first year
agriculture enter-		
prises and the content		
of the course will be		
determined by the		
needs in the community		
Three days of in-	Same as for	Same as for
struction needed in	first year	first year
Plant Production, two		
days in Farm Shop Work		
and Farm Mechanics		

The academic subjects are supplied by the school authorities; some required, some elective, according to curricula adopted.

Note: Due to the vocational minimum age of 14 years it may not be possible to offer voc. ed. in agr. in the seventh or even in the eighth grade, in which case the advanced years are dropped.

COURSE OF STUDY FOR THREE OR FOUR YEAR SENIOR HIGH SCHOOL

Freshman	Sophomore	Junior	Senior
First Year	Second Year	Third Year	Fourth Year
Agriculture	Agriculture	Agriculture	Agriculture
a. Plant Production	a. Livestock production	a. Specialized Enterprises	a. Farm Management.
Important Community Enterprises	Important Community Enterprises	based upon pupils' projects and important community Enterprises	b. Agricultural Economics instead of Farm Shop work and Farm Mechanics
b. Farm Shop work and Farm Mechanics	b. Farm Shop work and Farm Mechanics	b. Special Farm Shop work and Farm Mechanics as needed	
Note: The subjects shall be based upon a community survey. The Needs of the pupils will be met by selecting those enterprises and enterprise units that will give them instruction to fulfill the aims and objectives set up for the particular courses	What is true of the first year is true of the second year as to subjects offered.	The specialized enterprises will be determined by the individual needs rather than the group needs. This is also true of the Farm Shop Work and Farm Mechanics.	Short Units may be offered in: Accounting, Marketing, Budgeting of time and finances, Commercial Law, as need arises.
The farm mechanics is related to the agriculture enterprises and the content of the course will be determined by the needs in the community	Same as for first year	Same as for first year	

The academic subjects followed as required by State or local authorities, and curricula adopted.



CHAPTER VII  
SCHOOL SCHEDULES

Comparison of School Schedules

Eleven of the seventeen schools surveyed had printed forms showing subjects offered. These were in such varied arrangements that comparison was rather difficult. The study, however, reveals the following practices to prevail. Five schools had printed schedules showing the number of periods in the school day, the time for each period, the subject offered in various periods in each school year and the teachers of the subjects.

Four of these schedules gave the number of the period in the left hand column, e.g., I, II, III, IV, etc., using either Roman or Arabic numerals. The next column to the right gave the time of the period, e.g., 9:00 to 9:45. The succeeding columns to the right gave the subject, study hall, home room groups, extra-curricula activities, or vacant periods for each teacher whose name appeared at the head of the column. The number of columns depended upon the number of teachers employed in the system.

One school had the schedule with the teachers shown in the left hand column. The subjects taught by each were given, reading across from left to right in the period column. The periods appeared in columns across the top with the time of each period shown directly beneath.

Four schools had definite curricula. The majority of these showed three: Collegiate, commercial and a third course designated as vocational, general, practical or agricultural.

These four schools gave the name of the course and the subjects required in each year of the course. The number of units of possible electives were given in each year. The electives were any of the subjects in the other two curricula offered.

In most schools the agricultural course is elective; one or two schools as shown in Summary I, page 22, require the course of all freshmen and sophomore boys.

Three schools simply printed the subjects available in each of the four years stating whether the subject was required or elective. The hour at which the subject was given, and the name of teacher were not shown.

The comparison shows that there is a decided need for guiding functioning school schedules showing the place of the vocational course in agriculture in each.

Since all of the schools devote a double period to vocational agriculture, whether the regular period is 45 minutes long or 60 minutes long, the following schedules which are offered as guides will observe this practice.

The majority of schools that would use these schedules are small high schools with a limited number of teachers, hence, only one system will be used. This system is patterned after the "Master Schedule" as given in

Puckett's\* book. The factors controlling schedule-making as given in the same book\*\* are considered in constructing the schedules offered in this thesis.

#### Constructing School Schedules of Recitations

Functioning school schedules are vitally important if the curricula and course of study are to be presented in an orderly organized way. Minor problem number six was to construct functioning school schedules which will provide for the teaching of vocational agriculture in the secondary schools of Arizona and which will meet the requirements of the State Plan for the administration of vocational education.

Combinations of schedules are too numerous to present in this study so the following type schedules are offered.

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\*Puckett, R. C. Making High School Schedules of Recitations. p.150.

\*\*Puckett, R. C. Making High School Schedules of Recitations. pp. 89-106.

SCHEDULE NO. 1

School Schedule of Recitations: 45 Minute Periods

Periods	I	II	III	IV	V	VI	VII	VIII
	'9:00'	9:45'	10:30'	11:15'	1:00'	1:45'	2:30'	3:15'
Teacher	'9:45'	10:30'	11:15'	12:00'	1:45'	2:30'	3:15'	4:00'
Agr. Teacher	Acad	Acad	Lab S, IV		Agr I, or Alt Agr	II	Vaca nt	Vacant
	'Math I	Math II						
	'Eng I	Eng		Frgn Lg III	Eng III		Frgn Lg IV	
							P E II	P E I
				Civ. IV		Am His III		

SCHEDULE NO. II

School Schedule of Recitations: 60 Minute Periods

Periods	I	II	III	IV	V	VI
	9:00	10:00	11:00	1:00	2:00	3:00
Teacher	10:00	11:00	12:00	2:00	3:00	4:00
Agr. Teacher	Acad	Lab.Sc IV		Vacant	Agr. I or Alt. Agr	II
	'Math I	Math II				
	'Eng II	Eng I	Frgn Lg III		Frgn Lg IV	Eng III
	'Am Hist III	Civics IV				
				P E II		P E I
				P E I		P E II

SCHEDULE NO. III

School Schedules of Recitation: 45 Minute Periods

Periods	I	II	III	IV	V	VI	VII	VIII
Teacher	9:00' 9:45'	9:00' 10:30'	10:30' 11:15'	11:15' 12:00'	1:00' 1:45'	1:45' 2:30'	2:30' 3:15'	3:15' 4:00'
Agr. Teacher	Ag III or Alt IV	Vac- ant	Vac- ant	Agr I	Agr I	Agr II	Agr II	
	Math I	Math II						
	Eng II	Eng I			Eng III			
			Frgn Lg III	Frgn Lg IV				
					PE II		PE I	
				Civic IV		A His III		
			Lab Sc IV					

SCHEDULE NO. IV

School Schedules of Recitation: 60 Minute Periods

Periods	I	II	III	IV	V	VI
Teacher	9:00' 10:00'	10:00' 11:00'	11:00' 12:00'	1:00' 2:00'	2:00' 3:00'	3:00' 4:00'
Agr. Teacher	Agr II	Agr II	Agr III or Alt Agr IV	Agr I	Agr I	
	Math I	Math II				
	Eng II	Eng I			Eng III	
	Frgn Lg IV	Frgn Lg III				
				PE I		PE II
	Am His III	Civics IV				
					Lab Sc IV	

Schedule I and II, page 68, are suitable for small schools offering only two years of vocational agriculture and find it necessary to alternate the first and second year. The half-time vocational teacher must have all of his vocational time in one-half day of school either in the morning or in the afternoon. Electives are offered so as not to conflict with required subjects. These same schedules may be used when only two years of vocational agriculture are offered in the same school year, then the second year is given in the seventh and eighth periods marked vacant for the agricultural teacher. First and second year agriculture may be in the first, second, third and fourth periods if conditions warrant.

Schedules III and IV, page 69, are for schools offering three or four years of vocational agriculture. When four years are given it is necessary to alternate the third and fourth year as shown in the first and second periods. Sixteen of the schools would have to use a schedule similar to this as they are too small to support more than one full time teacher. The practice now followed is to alternate the third and fourth year. In some schools employing full time teachers only two years of vocational agriculture are offered. The freshman class is often so large that two sections are necessary. In such cases section two occupies the periods shown as Agr. II or Agr. III. This adjustment can be made so as to prevent conflicts.

The number of electives offered and the number of teachers employed and how elective subjects are assigned to the teachers will affect schedules. Too often in the past the schedule has been arranged to fit the teacher and not to meet the pupil needs. Schedule should be set up to take care of the needs of the greatest number of pupils and then teachers employed who can handle the subjects assigned. Often athletics are permitted to greatly distort the school schedule. It must be kept in mind by the school administrator that pupils are being taught and not subject matter.

There are many different combinations possible in arranging the four schedules presented. With these as a guide the local administrator can easily adjust some one of the four to meet his special situations.

Only two of the schools surveyed in this study have sixty minute periods; one of them is offering three years of vocational agriculture, the other two years. The schedules for sixty minute periods would not be used extensively.

The time that school begins in the morning and the time of closing school in the afternoon will cause a variation in the schedule of recitations. The length and number of periods in the schedule will cause variations between schedules. The number of subjects which require double periods will be a factor in schedule making.

The size of classes and the number of sections will have to be considered. The number of subjects that are assigned to the teacher and the possibility of combining subject classes will influence the final schedule adopted. The number of teachers in the system is a vital factor. Since the average for sixteen of the Arizona schools is 10 it would be reasonable to assume that there are enough teachers to make schedule building fairly easy.

Well organized curricula and schedules are necessary for the proper handling of enrollment and registration. The schedule for each school is an individual matter.



## CHAPTER VIII

### SUMMARY

This study was undertaken to determine the need of functioning curricula, course of study, and school schedules of recitations providing for vocational education in agriculture for the secondary schools of Arizona. The findings as tabulated in Summary I and the nine subsequent summaries indicate that there is a decided need. The object of the study has been accomplished thru analysis of the problem and an interpretation of existing data. As shown by a study of the thesis functioning curricula, courses and school schedules of recitations have been constructed. These will all meet the requirements of the state plan for the administration of vocational education.

In order to determine how curricula in vocational agriculture were formulated in the past and are being formulated at present in Arizona, a study of the existing curricula was made. There were only four of the seventeen schools surveyed that had what might be called a curriculum in vocational agriculture. In each instance this was constructed by taking the subjects that are required by the State Board of Education for graduation from high school and adding agriculture on a vocational basis. All of the other subjects offered were available to agricultural pupils as electives.

It was stated by the superintendents of these four schools that the curriculum was formulated to meet the needs of the pupils. There is no difference between this curriculum and the method practiced in eleven of the schools that have vocational agriculture as an elective and require all students to follow the state minimum course of study. The pupil in either case has access to the same subjects. This in no way helps the pupil who wants an agricultural education and does not wish to go to college. In either of the above methods the student who graduates from the high school will have the necessary credits to enter the University. The curricula found do not provide to high school students the agricultural training that it is possible to offer in four years.

After a study of the writings of authorities on the subjects of secondary education, vocational education and curriculum construction, the guiding principles decided upon for formulating curricula for secondary schools that provide for vocational agriculture are: (1) Determine the occupational standards of the agricultural group of which the pupils will be members; (2) Determine the characteristics of the pupils to be trained; (3) Determine the present and the immediate future needs of the pupils; (4) Determine the materials and facilities at hand for educational purposes; (5) Organize courses in such a way that the subject content can be offered to meet the interests and needs of the agricultural pupils on the level of their

learning and doing ability.

Based upon the above principles two curricula were formulated for the secondary schools of Arizona in vocational agriculture. The first provides for four years of instruction in agriculture and graduation from high school with credits to meet college entrance requirements. This curriculum will meet the demands of one group of students in the high schools of the state. The second curriculum provides for four years instruction in vocational agriculture and offers access to other subjects of value to the pupil. This curriculum will lead to graduation from high school but the student will not have the required credits for college entrance. Both of these curricula meet the requirements of the state plan for the administration of vocational education in Arizona.

A course of study in vocational agriculture has been outlined for each of the three years of the junior high school and for each of the four years of the senior high school. The courses of study will be the same for the first three years of each type of school. The junior high school will start the work in the seventh grade and finish in the ninth grade when three years are offered. The vocational instruction may begin in the eighth grade and terminate in the ninth grade. In this event only the courses outlined for the first two years will be offered in the junior high school. The senior high school may offer only the first two courses, which is the minimum

requirement by the state board. The usual practice is to start the vocational instruction of the senior high school in the freshman year. The third year course may be the last year of vocational agriculture or the fourth year may be given. This is desirable for the best results. There is much elasticity in what may be offered in instruction in each year's work. The terms, plant production, and livestock production allow the school authorities to offer those subjects that will meet the interests and needs of the pupils. This is true of each of the other courses outlined. The course in farmshop work and farm mechanics allows an opportunity for the school to offer instruction in those enterprises which are of importance to the community and which meet the needs of the pupils. The specialized enterprises of the third year make it possible to keep the instruction on a functioning basis. Farm management and marketing of the fourth year leaves the selection of worth while subject matter to the instructor or school administrators. These courses will meet the requirements of the Arizona state plan for vocational education in agriculture.

The comparison of the five school schedules secured from the seventeen schools surveyed reveals that the block system of making schedules of recitations predominates. Eleven of the schools had no printed schedules, the program of classes being on a chart or black board in the principal's office. In these cases no two of them

were alike in form or set-up and no one but the principal could interpret the schedule for classes. It is evident from the study that there is a need for type schedules of recitations showing the place of the classes in vocational agriculture.

Four typical school schedules of recitations were constructed, two providing for two years of vocational agriculture, and two providing for three and four years. Two of these schedules are based upon regular class periods of forty-five minutes. The other two schedules are based upon regular class periods of sixty minutes.

CHAPTER IX

CONCLUSION

The development of the program of vocational education in agriculture for Arizona as well as its present status proves beyond a doubt that there exists a need for curricula and courses of study in the field of vocational agriculture. As indicated in the treatise every authority of note referred to has shown a great need for systematic training for efficiency and progress in the field of agriculture. There is a recognized need for the solution of the curriculum problem.

There is no central directing agency in Arizona held directly responsible for the solution of the problem of providing a suitable curriculum and course of study in vocational agriculture. The state department it seems is the logical central directing agency which should assume this responsibility.

The superintendents, principals, and teachers are not in a position to build the proper curricula to obtain state wide improvement of the agriculture program. They are proved to be inhibited in their judgments by local conditions, lack of information, ability and interests.

The factors considered in this study are of necessity limited. They are, however, recognized import-

ant factors in the construction of a functioning worthwhile course of study in agriculture for Arizona schools under present existing conditions.

The schools of necessity must be given some choice, therefore the courses offered are constructed with considerable elasticity. The curricula are, however, standardized enough to attain definite results if uniformly adopted by schools in agricultural communities.

School schedules constructed by the local administrator have their limitations for efficiency. They are generally made to fit the teachers' needs rather than that of the pupils. Extra-curricula activities, especially athletics, play a large part in distorting school schedules to the detriment of an efficient program for pupils progress.

Experts in curriculum construction as cited have thru investigations and trials evolved some fundamental principles for curriculum construction. These principles have been applied in the building of the suggested course of study for the junior and senior high schools of Arizona. The courses of study offered comply with the aims and objectives in vocational education as laid down in the Federal act. The curricula meet all the requirements of the Arizona state plan. The school schedules offered meet the requirements of the State plan and will function in the schools for which they are intended.

It is acknowledged that other factors, unknown at the time of the study, may influence the adoption of this curriculum. It is, however, an improvement over present practice and a step toward further progress in the state program.

The study is of value in that it meet a recognized need and will assist administrators in improving their school curricula, especially in the field of vocational agriculture.



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