The purpose of this study was to develop an Agricultural Education program which would meet the needs of a larger segment of the agriculturally interested students in Roseburg Junior and Senior High Schools. Some of the questions answered included: what are the self-expressed interests of rural boys in the Roseburg school district relative to formal agricultural instruction; who should take agriculture at the high school level; would courses in Forestry and/or in Nursery and Greenhouse Management be desirable for high school students; would Basic Agriculture be a desirable course offering in the junior high schools; what should be included in each of the areas taught in the Agricultural Education program; and how many instructors will be required for the total program.

Related literature and materials reviewed in connection with this study revealed a need for increased exploration and vocational education to better acquaint students with the world of work. Opportunity to explore and assess the student's capabilities, interests and goals will better prepare him for a wise occupational choice. It is the task of the school to aid the student in the discovery of these occupational essentials.
Since a large percentage of our work force is employed in occupations directly related to agriculture, there is strong support for additional agricultural education and experience. This need is further intensified since few of these future employees come from a rural background and since almost one-half of the vacancies for agricultural graduates remain unfilled annually. Significant also is the fact that 60 percent of the jobs in Oregon are with the forest industry.

The findings of this study disclosed significant interest in all the agricultural areas considered. Sixty-four percent of all the boys surveyed indicated an interest in an agricultural career. The most popular areas of interest were in farm power and shop with agriculture science, building construction, vocational agriculture, and forestry, not far behind. Areas of least relative interest included electricity, soil and water management, and nursery management. Basic Agriculture was rated first choice among boys in grades seven and eight.

The proposed Agricultural Education program will include: Basic Agriculture in both junior high ninth grades; Vocational Agriculture each year in the senior high school; and Nursery and Greenhouse Management and Forestry courses for juniors or seniors in high school.

Courses of study are included for each of the four areas in the program.

Instructional help for the total proposed program will require two full-time instructors. Until such time as the courses in forestry and nursery become a part of the curriculum, only one-half of one of the two instructors' time will be necessary to handle the basic and vocational agriculture courses.
THE AGRICULTURAL EDUCATION PROGRAM
IN
ROSEBURG JUNIOR AND SENIOR HIGH SCHOOLS

by

CURTIS EUGENE LOEWEN

A THESIS
submitted to
OREGON STATE UNIVERSITY

in partial fulfillment of
the requirements for the
degree of
MASTER OF EDUCATION

April 1964
APPROVED: Redacted for Privacy

Professor of Agricultural Education

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In Charge of Major

Redacted for Privacy

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Head of Department of Agricultural Education

Redacted for Privacy

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Dean of Graduate School

Date thesis is presented April 23, 1964

Typed by Ray Deal
ACKNOWLEDGMENTS

This thesis represents the assistance of several individuals who have contributed to its development.

Special acknowledgements are due Henry A. Ten Pas and Philip B. Davis of the teacher training staff at Oregon State University for their supervision and guidance of this study.
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THE AGRICULTURAL EDUCATION PROGRAM

IN

ROSEBURG JUNIOR AND SENIOR HIGH SCHOOL

CHAPTER I

INTRODUCTION

Since the Smith-Hughes Act was passed in 1917, vocational agriculture has been recognized as the high school and post-high school program for training present and prospective farmers to be proficient in farming. This emphasis has been especially true when the program was located in rural communities. In more diversified areas vocational agriculture has extended a broader educational influence. Supplemental information has enriched the program by including pertinent material concerning related occupations as well. Because the farming population continues to decrease and the production of food and fiber continues to increase, vocational agriculture is correspondingly challenged to meet the needs of a changing agriculture.

The Roseburg Senior High School Agriculture Department was established in 1924. It continued until the spring of 1960 at which time the school board decided that the vocational agriculture program terminate at the end of that school year. Subsequently, the program was discontinued. As a result of this action numerous parents and interested members of the community turned to the State Department of Agricultural Education for assistance in re-establishing the program. Agricultural information from the area was compiled
and a questionnaire was designed and distributed to determine the advisability of an agriculture program in the high school.

After a summary of the survey was presented to the school board, vocational agriculture was re-instated on a three-year trial basis starting July 1, 1961. Thus far the program has maintained an enrollment of over fifty students per year in these three years. It now appears highly beneficial that a new survey be taken in an effort to: (1) evaluate the present program, (2) examine the possibility of reaching more students, (3) effectively meet the needs of a changing agriculture, (4) assist the advisory council, the school board, the administration and the instructor in determining direction for the agriculture program in the immediate future, as well as "tool up" for the future.

**Problem and Situation**

Roseburg shares a common problem with innumerable communities in the United States. This problem stems from the fact that vocational agriculture is in a transitional period. The emphasis formerly placed on production agriculture is being re-interpreted and broadened to include training and exploration in agricultural occupations as well. Farming is only one of these occupations.

American agriculture has experienced spectacular technological and educational change during the past several years. This influence has introduced equally significant changes in people, in their needs and in their occupational opportunities. Our own profession
is maturing because it is now more concerned with changing people than adding to agriculture's productivity.

Another aspect of the problem arises from the nature of the community and its present situation. Roseburg has several local peculiarities. To date it has a three-year high school in a largely urban locale. Vocational agriculture is available one hour in the sophomore year, two hours in the junior year, and one hour in the senior year. It is not available in either of the two junior high schools, and there are no other courses pertaining to agriculture offered in the school system. This condition imposes some serious restrictions on those students desiring maximum benefit and instruction in basic agricultural information in areas such as the place of food and fiber in our lives, conservation of agricultural resources, and occupational opportunities in agriculture.

Although the Roseburg High School facilities are located in a largely urban community, the outlying portion of the district is strongly agricultural. Areas surrounding the district are almost exclusively forestry, ranching and farming. The major source of income for this community, the forest industries, amounts to approximately six million dollars. Occupations in forestry are predominant in the community. At the same time, instruction in forestry is virtually unavailable to Roseburg students except for approximately seven weeks scattered throughout the three-year vocational agriculture program.
In a few states forestry is considered an integral part of agriculture. In Oregon, where both agriculture and forestry have been such an important part of the economy, they are often considered separately. Since they have been separated in organization, they have often become separate in people's thinking.

According to Hamlin and his "community program concept," instruction should be adapted to each community (6). It is obvious there exists a time lag between occupations in forestry and education in forestry at Roseburg.

PURPOSE OF THE STUDY

The purpose of this study is to develop an Agricultural Education program which will meet the needs of a larger segment of the agriculturally interested students in Roseburg Junior and Senior High Schools. The results of such a study could provide information, support and guide lines to the advisory council and the instructor for present and future plans in agricultural education instruction.

Some of the specific questions to be answered include:

1. What are the self-expressed needs and interests of the rural boys in the Roseburg school district relative to formal agricultural instruction?

2. Who should take agriculture at the high school level?

3. Would separate courses in Forestry and/or Nursery and Greenhouse Management be a desirable offering (elective) for high
school students?

4. Would it be desirable to include agricultural instruction in either or both junior high schools? If so, how much and on what grade level?

5. What should be included in a course outline for each of the areas—Vocational Agriculture, Basic Agriculture, Forestry and Nursery and Greenhouse Management—taught in the Agricultural Education program?

6. How much instructional help will be required for the total program as proposed?

Answers to these questions would enable the present and future personnel in agriculture in conjunction with the administration and the school board to plan the type and scope of program needed in the Roseburg school district.

LIMITATIONS OF THE STUDY

The content of this study is designed to apply to the Roseburg School District #4, although portions of it may be applicable elsewhere, especially in Western Oregon, where similar circumstances exist. It is further restricted to the formal instruction of Agricultural Education in the junior and senior high schools in Roseburg. This restriction is needed at this time since the community college anticipated in the area may offer agricultural instruction also.
A major limitation is introduced into this study by the use of an interest survey questionnaire. Inherent in this type of information-gathering device are certain weaknesses which must be realized before they are to be of any value. Factors affecting the reliability of this survey include:

1. Age and maturity of the recipient.
2. Background and experience in agriculture.
3. Ability to read and comprehend the questions asked.
4. Pressure (pro or con) from parents and/or friends.
5. Momentary interests.
7. Opinions and biases.

Another limitation which requires attention is the fact that the population surveyed included only male students, grades seven through eleven, who have rural addresses. Boys with these qualifications comprised only 20 percent of the total number of boys in these grades. The girls were omitted completely. Obviously, then, a significantly large group of students was not tested. Because of lack of time and the nature of the subject to be studied, this procedure was followed.

**Research Procedure**

**Data Gathering**

The data for this study were obtained through the use of a revised questionnaire designed to register interest in various
aspects of the present and the possible future Agricultural Education program in Roseburg. This questionnaire has been used three years ago by the State Department of Agricultural Education to re-establish the program. Further detail was obtained by allowing, in most cases, one of four choices: strongly interested, interested, undecided and not interested, rather than the formerly used "yes-or-no" alternative. A copy of the survey instrument is in Appendix A.

The method used to determine who was to receive questionnaires involved several preparatory steps. It was determined that 67 percent of the presently enrolled vocational agriculture students have rural addresses and that 98 percent of them are boys. Also, the junior high schools were comprised of three grades each, seven through nine. It appeared logical to use as our population, to be sampled, boys with rural addresses from grades seven through eleven. The seniors were omitted since they would be graduating this year. A subsequent count of all the boys meeting these criteria was made. Table I shows the breakdown of the number of boy students in the various grades and schools. An equal number of figures was taken from a table of random numbers (11, p. 507) in an effort to arrive at a random sample within the established criteria. The random numbers were applied to the names in alphabetical order starting, by chance, with the high school students.
## Table 1

**School Population and Survey Record**

### Senior High School

<table>
<thead>
<tr>
<th>Grade</th>
<th>Total Boys</th>
<th>Rural Boys</th>
<th>Number Surveyed</th>
<th>Percentage Surveyed</th>
<th>Number Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>303</td>
<td>61</td>
<td>34</td>
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<td>28</td>
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<tr>
<td>11</td>
<td>224</td>
<td>38</td>
<td>26</td>
<td>68.0</td>
<td>20</td>
</tr>
<tr>
<td>Totals</td>
<td>527</td>
<td>99</td>
<td>60</td>
<td>60.6</td>
<td>48</td>
</tr>
</tbody>
</table>

### Fremont Junior High School

<table>
<thead>
<tr>
<th>Grade</th>
<th>Total Boys</th>
<th>Rural Boys</th>
<th>Number Surveyed</th>
<th>Percentage Surveyed</th>
<th>Number Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>128</td>
<td>28</td>
<td>18</td>
<td>64.0</td>
<td>16</td>
</tr>
<tr>
<td>8</td>
<td>118</td>
<td>34</td>
<td>18</td>
<td>52.9</td>
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<td>9</td>
<td>129</td>
<td>29</td>
<td>22</td>
<td>75.8</td>
<td>19</td>
</tr>
<tr>
<td>Totals</td>
<td>374</td>
<td>91</td>
<td>58</td>
<td>63.7</td>
<td>51</td>
</tr>
</tbody>
</table>

### Joseph Lane Junior High School

<table>
<thead>
<tr>
<th>Grade</th>
<th>Total Boys</th>
<th>Rural Boys</th>
<th>Number Surveyed</th>
<th>Percentage Surveyed</th>
<th>Number Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>128</td>
<td>31</td>
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<tr>
<td>8</td>
<td>117</td>
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<td>6</td>
<td>50.0</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>137</td>
<td>26</td>
<td>10</td>
<td>61.6</td>
<td>9</td>
</tr>
<tr>
<td>Totals</td>
<td>382</td>
<td>67</td>
<td>36</td>
<td>53.7</td>
<td>30</td>
</tr>
</tbody>
</table>
TABLE I (SUMMARY)

TOTAL BOYS SURVEYED BY GRADERS

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number Surveyed</th>
<th>Percentage Surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>38</td>
<td>64.4</td>
</tr>
<tr>
<td>8</td>
<td>24</td>
<td>52.1</td>
</tr>
<tr>
<td>9</td>
<td>32</td>
<td>60.0</td>
</tr>
<tr>
<td>10</td>
<td>34</td>
<td>55.7</td>
</tr>
<tr>
<td>11</td>
<td>26</td>
<td>68.0</td>
</tr>
</tbody>
</table>

Total Boys (Grades 7-11) 1283
Total Rural Boys 257
Percent Rural Boys 20
Total Boys Surveyed 154
Total Returns 129
Percent Returns 83.8

Following these preliminaries, the sampling questionnaires were issued to 59 percent of the population. These were distributed through the school offices and handed to the students by their respective teachers. Each questionnaire contained the appropriate student's name on the cover for identification and follow-up if needed. Consultation and assistance from parents was suggested at the beginning of the questionnaire.

Follow-up phone calls to about forty students were necessary to have 83 percent of the questionnaires returned out of the 154 boys receiving them. The following discussion will be influenced by the
results drawn from the returned questionnaires.

TREATMENT OF DATA

The data collected from the selected group were concerned with the following areas:

1. Interest in a career in agriculture
2. Choice of agricultural career
3. Interest in Farm Shop
4. Interest in Soil and Water Management
5. Interest in Rural Electrification
6. Interest in Farm Buildings and Conveniences
7. Interest in Farm Power and Machinery
8. Interest in Agricultural Science
9. Interest in Supervised Farming Projects
10. Interest in Placement or Agricultural Experience Program
11. Interest in the complete Vocational Agriculture Program
12. Interest in Basic Agriculture in Junior High School
13. Interest in a Forestry course
14. Interest in a Nursery and Greenhouse Management course

DEFINITIONS

1. Agriculture Education Program: The total scope of activity and instruction in the junior and senior high schools in or related to agriculture. In addition to the specific agriculture courses (I, II, III and IV), it includes forestry and nursery management.
2. **Vocational Agriculture (Program):** That part of the agriculture education program which includes the supervised farming program or agriculture experience or farm placement program and the Future Farmers of America organization as an integral part of instruction.

3. **Supervised Farming Program (Project):** The farming activities carried on by the student of vocational agriculture usually, but not necessarily, on his home farm under the supervision of the agricultural instructor and his parents.

4. **Future Farmers of America (FFA):** A national organization of, by, and for boys studying Vocational Agriculture in public secondary schools which operate under provisions of the National Vocational Education Act. The F.F.A. is an intra-curricular part of the Vocational Education in Agriculture of America. It constitutes an effective device for leadership training and teaching through participating experiences.

5. **Agriculture Experience Program or Farm Placement:** These are means whereby a student may receive work experience and education in some field of agriculture which will properly substitute for the supervised farming program.

6. **Rural address:** An address which includes a route and box number.

7. **Forestry Course:** An elective course providing activities and study in forestry apart from the vocational agriculture program in the senior high school.
8. **Nursery (and Greenhouse) Management**: An elective course provided for the study and exploration of plant growth, development and propagation, apart from the regular vocational agriculture program.

9. **Instructional Program**: Learning experiences provided for the agricultural student in the classroom, laboratory, shop, field, home farm or wherever the agricultural principles are applied.

10. **Intern teacher**: An agricultural education graduate without teaching experience who accepts a half-time teaching responsibility for not less than six months and up to one full year at a half-time salary.

11. **Internship**: An experimental program designed to improve teaching through the assistance of a qualified supervising teacher.
CHAPTER II

RELATED STUDIES AND MATERIALS

In a study of this nature it is not only necessary to determine interest in "what" should be taught to students at different levels of development but equally important, perhaps, "why" they should be so taught. It is the author's contention that an understanding of the reason for education is the key to the what and to the how being considered.

This chapter is a review of related studies. This should provide a basis for understanding and suggested ways of solving similar problems.

EVERY CITIZEN MUST WORK

"Society recognizes the fact that every citizen should be equipped to contribute effectively to the welfare of the group. The highest possible welfare is achieved only when each individual produces to the limits of his maximum capacity. For this reason, the necessity for equipping each person for some occupation is a fact that even the most primitive society has recognized" (14, p.17).
One of the outstanding characteristics of our culture is the right of the individual to choose his work. This is in direct contrast to totalitarian societies, where the state either tells the individual what to do or manipulates the economic system so that, in effect, he has no freedom of choice. Even primitive societies allowed no occupational choice since division of labor was based solely on sex. In other societies a stable caste system compels the sons to follow the father's footsteps (6, p. 3).

In every society the developing of youth is, in large measure, determined by the responsibilities which these same youth will face in adulthood. Since individual and community survival depends on adults being able "to wrest a livelihood out of a niggardly nature," work has always stood at the very center of adult life. Its central significance, in turn, has helped to mold the way in which the young are prepared for the effectual discharge of their adult responsibilities (7, p. 46).

**OCCUPATIONAL PREPARATION AT HOME**

Children learn about the crucial importance of work at about the same time they learn the significance of words and numbers. Although the child cannot fully appreciate all the ways and values of adults, he can glean certain significant insights surprisingly early. For example, Dad's work, he learns, is directly associated
with the home, food and toys he enjoys, especially if Dad should lose his job (7, p. 47).

Even before a child starts to school, he has become acquainted with many aspects and attitudes about work and its rewards. His home, in some measure, is a hotel, a restaurant, a recreation center, a school, a laundry, a carpentry shop, an electrical shop, a farm, and a variety of other industrial, business, educational and agricultural enterprises. These enterprises are carried on by the members of the household, and each one may have a part in many of them (16, p. 84).

Recent changes are introducing significant limitations in the early life of the child for preoccupational exploration at home. These changes now taking place cannot fail to have a marked impact on the education and training of youth.

Urban industrialised life has, for the most part, brought an end to the family pattern of life. While parents and children still operate as a team in small retail establishments and on the diminishing number of farms, most children have little to do with the process of earning a livelihood. What is more, the work which their parents do may be such that the child has no way of appreciating what is involved (7, p. 54).
LIMITATIONS OF WORK EXPERIENCE AT HOME

The most far-reaching consequences of this revolution in work has been the difficulty that young people now have learning about work from their parents. Where their parents work, how they work, the significance of what they do and much more that used to be part of every farm boy's direct experience now take place beyond the child's view (7, p. 55). Increasingly, the world's work is being done behind wire fences, inside brick walls and behind closed doors.

The fact that father brings home only a little of his total work experience means that the child gains only a skewed and unbalanced view of work. Most likely, discussions between his parents will deal with the least pleasant aspects of his father's work, not the satisfying elements (7, p. 55).

NEED FOR EXPLORATION AND EXPERIENCE

At the same time that work is becoming less and less of a real thing to the young child, his period of preparation for work is being constantly lengthened. Thus, many children find it difficult to maintain interest in school work since they do not see how it affects what they will do after they leave school. At the very same time that they are sorely in need of relating their occupational objective to their current school effort, the
link between the two is being weakened by most children's remoteness from any actual work experience (16, p. 84–85).

EXPLORATION OPPORTUNITIES AT SCHOOL

Donald Super alerts us to the function and consequences of youthful experiences by pointing out the value and need of exploration. This is an attempt on the child's part to find a place in life; it is to develop and implement an adequate self-concept. In the course of the child's home and school activities, he finds out about the nature of the work involved, how well he likes it, and how he compares or hears performance compared with those of others. It is through this exploration that the formation of the self-concept begins to take shape. The kind of role he may play in life begins to emerge starting even in childhood (16, p. 84–85).

In contemporary cultures the school as a social institution has taken over many functions formerly exercised by the home. It is obvious that the school is the adolescent exploratory institution PAR EXCELLENCE. Education means to lead out, to develop; in other words, to assist the individual to emerge in the adult world as an effective adult (16, p. 85).

The curriculum of the late years of junior high, throughout high school and the early years in college may properly be viewed
as exploratory in much of its content and purpose. Thus the original basis of the junior high school was provision of opportunity to try out a variety of subjects, ranging from various shops to foreign languages, so that a wise choice of high school curricula might be made (16, p. 85).

**STAGES OF VOCATIONAL DEVELOPMENT**

Super (16, p. 221) considers all of adolescence, the stages of growing up or becoming an adult, the period of exploration. The same period, generally between ages six and nineteen, is divided up, by Eli Ginsberg, (6, p. 61-65) into three distinct periods of the occupational decision-making process. They include:

one, the fantasy period; two, the tentative-choice period; and three, the realistic-choice period.

Both authorities agree that during the first period, between ages five and eleven, a child can dream about the future, assuming the role of an adult. He might envision himself as a fireman, policeman, or a cowboy. In pre-adolescence, between ages eleven and thirteen, the child enters the second period which may continue up to age nineteen, the tentative-choice period. This is the time when he becomes dissatisfied with the solution suggested by his parents. He realizes he must do something about his choice of occupation. Tentatively he considers the career of perhaps a pilot, a forest ranger, or a professional athlete. With few
exceptions the realistic choice period is not entered until early adulthood, after age nineteen.

Groups studied by Ginsberg indicated a definite change in pattern between the younger and the older age groups. The younger children were motivated by a desire for "functional pleasure," e.g., the particular activity is conceived as being pleasurable. The older ones were more concerned with accomplishing certain results from which they would derive satisfaction (6, p. 61).

Super and Overstreet (17, p. 158) in a study on *Vocational Maturity in Ninth Grade Boys* pointed out that vocational choice is a process extending over a period of time. In grade nine vocational maturity is not characterized as having consistent, realistic preferences or as having begun to make a place for oneself in the world of work. Requiring these boys to make a specific vocational choice at this stage of development is often premature. Education in the ninth grade should be so organized as to make mental tasks, to arouse an awareness of the need to make pre-occupational and occupational choices, and to orient adolescents to the kinds and sequences of choices which they will be called upon to make and to the factors which they should consider in making these choices.
ROLE OF INTEREST AND PREFERENCE IN VOCATIONAL CHOICES

Several pertinent observations concerning the role of interest in vocational development are offered by Super in his book, *Psychology of Careers*. He distinguishes between vocational interest and vocational preference. His evidence indicates that vocational interest is a better prediction of the subsequent career than the vocational preference. Expressions of vocational preference are influenced by one's peer group, one's parents and one's social strata. On the other hand, when preferences are consistent over a period of years, as in some children and adolescents, they have been shown to have a bearing on the occupation entered and on the stability in that occupation (16, p. 222).

Ginsberg reminds us that a satisfactory occupational choice cannot be made unless an individual considers his interests, capacities, and goals. Failure to do so is apt to lead to frustration (7, p. 6).

Aside from the home it is the task of the school to aid the student in the discovery and the development of these occupational essentials.

The school has often reached beyond the task of preparing young people for the future. However, it is there that they receive instruction in the body of knowledge without which they cannot effectively meet the demands of adulthood. The school
also attempts to give all young people, regardless of their background, a reasonably fair start in life to enable them to go as far as their capabilities will take them in the competitive adult race (7, p. 50).

**VOCATIONAL EDUCATION**

The Committee on Research and Publications of the American Vocational Association stated the aims of vocational education as being: "... education designed to develop skills, abilities, understandings, attitudes, work habits and appreciations encompassing knowledge and information needed by workers to enter and make progress in employment on a useful and productive basis. It is an integral part of the total educational program and contributes toward the development of good citizens by developing their physical, social, civic, cultural and economic competencies" (14, p.17).

If this kind of education were available in a greater number of our schools, there is little reason to believe that one of our more serious problems would be present. The problem of students leaving school permanently before graduation is referred to as drop-outs. In several studies on these drop-outs there is one consistent find: "... for some time before they quit, they were getting little, if anything out of school" (7, p. 62).
It was further observed that the complete range of experience required by young people is not available under our present educational structure. They want, and need, a chance to grow up quickly, not slowly. They need a job, income and adult relationships. Ginsberg conceives the school as doing its job well if it succeeds in instilling in its pupils a respect for learning and provides them with the basic skills they need later in life (7, p. 137).

In a recent talk presented by Leonard Kunzman, Oregon State Department Director of Agricultural Education, reference was made to job opportunities in agriculture. Forty percent of all jobs in the United States are related to the field of agriculture. Within this forty percent there are some 500 different job classifications to select. Annually, there are over 15,000 occupations available to agricultural college graduates, 7,000 of which remain unfilled. He indicated, for the most part, these agricultural jobs need some basic knowledge and/or experience in farming (10).

A study made by Chester Hutchison, Ohio State University, on job opportunities gave a break down of the number of college graduates needed in the eight major fields of agriculture:

1. Agricultural business - 3,000 per year
2. Agricultural communications - 500 per year
3. Agricultural conservation - 1,000 per year
4. Agricultural education - 3,000 per year
5. Agricultural industry - 3,000 per year
6. Agricultural production - 2,000 per year
7. Agricultural research - 1,000 per year
8. Agricultural services - 1,500 per year

**PRINCIPLE APPROACH**

Every vocational agriculture instructor faces the dilemma of what and how much of a given subject matter area to teach. There is never enough time to cover the material the way he would like. The problem is further complicated when an attempt is made to unify his teaching material with related materials in other classes. An approach toward solving this problem was offered by Dan Dunham in a recent master's thesis. He indicates that consolidation, correlation, and unification of related subject matter may be achieved by the application of the principle approach. This approach requires identifying and stressing those basic principles on which the subject matter considered, as well as related subjects, rests. He proposes that all areas of instruction contain basic principles which should provide a core for all instruction. By the use of this procedure two additional benefits accrue: student understanding and transfer is enhanced and a general up-grading of content results (4).
GENERAL AGRICULTURE IN NEW YORK

Ernest Mohle of the New York State Department of Agriculture Education says that seventh and eighth grade general agriculture offers the only real pre-vocational opportunity "to these students for learning of educational and occupational opportunities in the broad field of agriculture. Practically every other segment of our economy is given a place in the pre-high school orientation program. With farming becoming more a minority phase of our economy, in terms of members, this is increasingly important" (13).

The New York State guide for teaching General Agriculture points out that the courses are offered to "pupils who have an interest in farming but who may not have the intent to become farmers." It allows pupils to explore agricultural opportunities and to decide whether or not they wish to train for farming or one of 500 careers for which some understanding of agriculture could contribute to better vocational competence (13).

AGRICULTURE EDUCATION IN LOS ANGELES CITY SCHOOLS

A recent review of the Los Angeles City School System disclosed that some 25,000 students are enrolled in their agriculture programs including both girls and boys from grades seven through twelve. They indicate that over fifty percent of the students in colleges of agriculture come from metropolitan area and that the number is increasing (12).
Their basis for providing agriculture education in such a metropolitan area as Los Angeles is two-fold. First, the subject areas of agriculture can contribute directly to the objectives of good general education since:

1. Agriculture is basically indispensable to human welfare and should be understood by all students.

2. Acquaintance with agriculture develops in the student an understanding and appreciation for the fundamentals underlying wealth and strength of communities, states, and nation.

3. Agriculture applies skills, basic facts, and scientific knowledge in the development of means for better living.

4. It encourages good student work habits, self-reliance, and acceptance of responsibility.

5. Students of all abilities may find opportunities for self-expression and creative work in agriculture.

6. Agriculture teaches students appreciation for nature and its role in contributing to attractive environments in the home and community.

Secondly, there are broad considerations which stem from the important role of agriculture as a supporting foundation of the American way of life.

1. Every citizen is dependent upon agriculture for food and to a substantial degree the raw materials for clothing and shelter.
2. Greater understanding between city and rural people is essential to continuing solutions for changing American economic and social patterns.

3. A large percentage (40%) of the work force in the United States is employed in occupations directly related to agriculture (12).

**FARM FORESTRY**

In a study of Farm Forestry Curriculum for Vocational Agriculture, Fred Fowler called attention to several significant facts that could apply to the Roseburg area. He noted that over sixty percent of Oregon wage earners are employed by the forest industry. Continued progress and prosperity hinges upon the continual exercise of improved sustained yield production, management, and logging techniques. He recognizes the importance of people becoming aware of the tremendously significant role our forests play in our lives. He proposes that sound educational programs in our schools can help develop favorable attitudes toward conservation as well as help supply the forest industry with interested, competent people as employees (5).

The importance of preparing youth for a wise decision in their choice of a useful occupation provides us with ample reason to concern ourselves with the education of youth. The fact that the school is assuming an increasingly important role in providing opportunity for exploration and training in a wide variety of areas, based upon
availability and choice of subjects, causes us to probe further into what should be taught as well as how it might be more effectively taught.
A general analysis of the survey will be made relative to interest in the areas studied. Responses from the questionnaires of "strongly interested" and "interested" will be combined for simplicity. Tables illustrating responses in each category of information will include: interest in an agricultural career; vocational agriculture subject matter areas; supervised farming or agricultural work experience; the complete vocational agriculture program; a basic agriculture course; a forestry course; and a nursery and greenhouse management course.

AGRICULTURAL CAREERS (TABLE II)

It can be readily observed from Table II that significant interest is found in an agricultural career. An average of 63 percent of the total rural population of boys surveyed indicated interest in at least one of the career areas. The most prevalent choice was production agriculture. There is some reason to believe that an element of fantasy is evident here in view of a prevailing notion, even among adults, eventually to have a little place outside of town where they can raise some livestock and have a garden. The fact that production agriculture attracted the most interest corresponds with a strong desire for independence, especially at this age level, which is characterized
TABLE II

INTEREST IN AGRICULTURAL CAREERS

A. Agricultural Careers:

<table>
<thead>
<tr>
<th>School</th>
<th>Total No. Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>66</td>
<td>72</td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>48</td>
<td>72</td>
</tr>
<tr>
<td>Totals</td>
<td>257</td>
<td>161</td>
<td>63 Average</td>
</tr>
</tbody>
</table>

B. Choice of Agricultural Careers:

<table>
<thead>
<tr>
<th>Senior High Boys</th>
<th>Junior High Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Choice</td>
<td>Production</td>
</tr>
<tr>
<td>Second Choice</td>
<td>Conservation</td>
</tr>
<tr>
<td>Third Choice</td>
<td>Education</td>
</tr>
<tr>
<td>Fourth Choice</td>
<td>(Several tied)</td>
</tr>
</tbody>
</table>

by the farmer or rancher. This choice of occupation, along with the others more frequently given, can be further modified as the student acquires more knowledge and experience.

SUBJECT MATTER AREAS IN VOCATIONAL AGRICULTURE (TABLE III)

Interest was significant in each of the six general areas taught in vocational agriculture. Power and machinery received the greatest response including 69 percent of the boys surveyed. Farm shop rated slightly lower with 66 percent of the boys interested.
<table>
<thead>
<tr>
<th>School</th>
<th>Total No.</th>
<th>Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>61</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>59</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>50</td>
<td>74</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>257</strong></td>
<td><strong>170</strong></td>
<td><strong>66 Average</strong></td>
<td></td>
</tr>
</tbody>
</table>

**B. Soils and Water Management:**

<table>
<thead>
<tr>
<th>School</th>
<th>Total No.</th>
<th>Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>35</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>36</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>22</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>257</strong></td>
<td><strong>93</strong></td>
<td><strong>36 Average</strong></td>
<td></td>
</tr>
</tbody>
</table>

**C. Rural Electrification:**

<table>
<thead>
<tr>
<th>School</th>
<th>Total No.</th>
<th>Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>35</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>27</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>22</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>257</strong></td>
<td><strong>84</strong></td>
<td><strong>33 Average</strong></td>
<td></td>
</tr>
</tbody>
</table>
### D. Farm Buildings and Conveniences:

<table>
<thead>
<tr>
<th>School</th>
<th>Total No. Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>37</td>
<td>41</td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>45</td>
<td>67</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>257</td>
<td>129</td>
<td>50 Average</td>
</tr>
</tbody>
</table>

### E. Farm Power and Machinery:

<table>
<thead>
<tr>
<th>School</th>
<th>Total No. Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>71</td>
<td>78</td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>45</td>
<td>68</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>257</td>
<td>178</td>
<td>69 Average</td>
</tr>
</tbody>
</table>

### F. Agricultural Sciences:

<table>
<thead>
<tr>
<th>School</th>
<th>Total No. Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>59</td>
<td>65</td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>33</td>
<td>50</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>257</td>
<td>133</td>
<td>52 Average</td>
</tr>
</tbody>
</table>

This finding reflects a general interest among boys of this age level in engines, welding, and shop work. The least desired areas given were electricity and soil and water management having 33 and 36 percent respectively. Even at this rate over one-third of the boys tested
### TABLE IV

INTEREST IN SUPERVISED FARMING OR AGRICULTURAL EXPERIENCE

<table>
<thead>
<tr>
<th>School</th>
<th>Total No. Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>35</td>
<td>52</td>
</tr>
<tr>
<td>Totals</td>
<td>257</td>
<td>86</td>
<td>33 Average</td>
</tr>
</tbody>
</table>

B. Placement or Agricultural Experience:

<table>
<thead>
<tr>
<th>School</th>
<th>Total No. Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>28</td>
<td>31</td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>35</td>
<td>53</td>
</tr>
<tr>
<td>Totals</td>
<td>257</td>
<td>106</td>
<td>42 Average</td>
</tr>
</tbody>
</table>

expressed some interest in these less popular areas. Agriculture science and building construction met with an intermediate response between the highest and lowest indications of interest.

**SUPERVISED FARMING AND AGRICULTURAL EXPERIENCE PROGRAMS (TABLE IV)**

Considerable interest was identified in the areas of work experience and application in agriculture. The placement or agricultural experience program which substitutes for the supervised
farming project seems to appeal to a larger number of students. This may result from several reasons: the student may have limited opportunity to develop a satisfactory farming program and/or he may wish to acquire a job, earn money, and gain experience in some agricultural field. Upon further analysis it was determined that an increase of about 20 percent more junior boys than sophomore boys desired this arrangement. Even so, one-third of the boys surveyed verified an interest in the supervised farming project.

**COMPLETE VOCATIONAL AGRICULTURAL PROGRAM (TABLE V)**

The students specifying an interest in vocational agriculture, it might be reviewed, accepted the requirement of the supervised farming project or an agricultural placement or experience alternative for this study. Over seventy-three boys expressed an interest in the complete program for next year. It is coincidental that there are forty-one sophomore and junior boys presently enrolled in vocational agriculture and there are thirty-nine boys showing interest from the same two grades, according to the survey. There are thirty-four present freshmen anticipated for the vocational agriculture program next year.

**BASIC AGRICULTURE (TABLE VI)**

Strong interest was registered for a ninth grade course in basic agriculture by the junior high students surveyed. Additional analysis, not shown, revealed that about 90 percent of the boys
TABLE V

INTEREST IN THE COMPLETE VOCATIONAL AGRICULTURAL PROGRAM

A. According to Schools (All Grades)

<table>
<thead>
<tr>
<th>School</th>
<th>Total No. Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>36</td>
<td>54</td>
</tr>
<tr>
<td>Totals</td>
<td>257</td>
<td>130</td>
<td>51 Average</td>
</tr>
</tbody>
</table>

B. Grades Nine Through Eleven

<table>
<thead>
<tr>
<th>Grades</th>
<th>Ninth</th>
<th>Tenth</th>
<th>Eleventh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Rural Students</td>
<td>1384</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>Percentage Rural Students</td>
<td>66.7</td>
<td>32.0</td>
<td>50.0</td>
</tr>
</tbody>
</table>

indicating interest in vocational agriculture also specified their interest in basic agriculture. It is assumed by the investigator that a basic agriculture course in junior high could be tailored to fit those students desiring vocational agriculture at the same time.

Because the sample was assumed to be representative, these figures essentially indicate that thirty eighth grade boys at Fremont Junior High School desire either basic or vocational agriculture. All the eighth grade boys surveyed in the Joseph Lane Junior High School registered an interest in the agriculture course.
### TABLE VI

**INTEREST IN BASIC AGRICULTURE IN THE JUNIOR HIGH SCHOOLS**

<table>
<thead>
<tr>
<th>School</th>
<th>Total No. Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fremont Junior High</td>
<td>62</td>
<td>50</td>
<td>81</td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>43</td>
<td>31</td>
<td>73</td>
</tr>
<tr>
<td>Totals</td>
<td>105</td>
<td>81</td>
<td>77 Average</td>
</tr>
</tbody>
</table>

### B. Eighth Grade Only in Both Schools

<table>
<thead>
<tr>
<th></th>
<th>Fremont</th>
<th>Joseph Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected Number of Students</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>Percentage Rural Students</td>
<td>87</td>
<td>100</td>
</tr>
</tbody>
</table>

**FORESTRY COURSE (TABLE VII)**

Almost one-half of the senior high students surveyed gave evidence of their interest in a course in forestry apart from the regular vocational agriculture program. This means that a total of forty-eight boys are potential members of such a course should it be available next year.

**NURSERY AND GREENHOUSE MANAGEMENT (TABLE VIII)**

Table VIII - B points to the possibility of a class of seventeen in a course of Nursery and Greenhouse Management for prospective juniors and seniors. The interest is weighted heavily toward next year's juniors rather than seniors. Nevertheless, a class of this
It must be kept in mind that a course of this type may appeal more to city or urban students unsampled in the present survey.

The possibility of dividing the year into two semesters for the purpose of providing instruction in both forestry and nursery was considered by the investigator. Unfortunately, less than ten percent of the students desiring one course also were interested in the other.

**Popularity Rating of All Areas Studied (Table II)**

It was apparent that there were some rather consistent interest patterns in the several areas studied. Farm power and farm shop
TABLE VIII

INTEREST IN A NURSERY AND GREENHOUSE MANAGEMENT COURSE IN ROSEBURG

SENIOR HIGH SCHOOL

A. Interest According to Schools (All Grades)

<table>
<thead>
<tr>
<th>School</th>
<th>Total No. Rural Boys</th>
<th>No. Boys Interested</th>
<th>Percent Boys Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High</td>
<td>99</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Fremont Junior High</td>
<td>91</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Joseph Lane Junior High</td>
<td>67</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Totals</td>
<td>257</td>
<td>48</td>
<td>20 Average</td>
</tr>
</tbody>
</table>

B. Interest in Grades Ten and Eleven

<table>
<thead>
<tr>
<th>Grade</th>
<th>Tenth</th>
<th>Eleventh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected Number of Students</td>
<td>15</td>
<td>2.0</td>
</tr>
<tr>
<td>Percentage Rural Students</td>
<td>25.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

The interest in forestry intensified as the students matured. The complete agriculture program was desired most in the eighth, ninth and eleventh grades, the ninth registering the most interest.

rated highest with a slight edge for power in all five grades surveyed with little exception. The difference was found in the seventh and eighth grades where basic agriculture was rated equal to or slightly above power in popularity. Agricultural careers held consistently high throughout all but one of the groups, the sophomores. Closely behind careers followed agriculture science, building construction, vocational agriculture and forestry, respectively. The interest in forestry intensified as the students matured. The complete agriculture program was desired most in the eighth, ninth and eleventh grades, the ninth registering the most interest.
<table>
<thead>
<tr>
<th>Areas</th>
<th>All Grades</th>
<th>Grade 11</th>
<th>Grade 10</th>
<th>Grade 9</th>
<th>Grade 8</th>
<th>Grade 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>87</td>
<td>13</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>173</td>
<td>25</td>
<td>37</td>
<td>34</td>
<td>42</td>
<td>37</td>
</tr>
<tr>
<td>Shop</td>
<td>85</td>
<td>14</td>
<td>16</td>
<td>19</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>170</td>
<td>27</td>
<td>35</td>
<td>36</td>
<td>37</td>
<td>35</td>
</tr>
<tr>
<td>Career</td>
<td>80</td>
<td>12</td>
<td>11</td>
<td>17</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>159</td>
<td>23</td>
<td>24</td>
<td>32</td>
<td>44</td>
<td>37</td>
</tr>
<tr>
<td>Agriculture Science</td>
<td>67</td>
<td>9</td>
<td>11</td>
<td>14</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>134</td>
<td>17</td>
<td>24</td>
<td>27</td>
<td>35</td>
<td>31</td>
</tr>
<tr>
<td>Buildings</td>
<td>64</td>
<td>10</td>
<td>13</td>
<td>13</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>127</td>
<td>19</td>
<td>28</td>
<td>24</td>
<td>24</td>
<td>31</td>
</tr>
<tr>
<td>Vocational-Agriculture</td>
<td>63</td>
<td>10</td>
<td>9</td>
<td>18</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>126</td>
<td>19</td>
<td>20</td>
<td>34</td>
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* Assuming sample is representative.
The four areas which consistently rated the lowest were: Soil and Water, Electricity, Supervised Farming Projects and Nursery, the latter commanding the least interest, i.e., the fewest number of boys indicating interest. None of these seem to have the challenge or peer acceptance qualities that might be associated with shop, power, building construction, or even forestry.

On the junior high level the data verified that the boys in corresponding grades generally had similar interests. The major difference recorded was due to the number of students qualifying for the survey in each school.

In view of the relevance of interest to academic and occupational success it appears that an educational program should utilize this powerful force to better prepare students for their future.
CHAPTER IV

PROPOSED PROGRAM

The Agriculture Education program in Roseburg School District #4 will be largely confined to the senior high school with Basic Agriculture offered in both junior high ninth grades. In addition to the subsequent classes of Agriculture II, III and IV, two new courses are being proposed for interested juniors and seniors in the high school. These courses will include one year each of Forestry and Nursery Management. This proposal has the support of the agricultural advisory council to the school board.

BASIC AGRICULTURE IN THE JUNIOR HIGH SCHOOL

The Basic Agriculture course has been approved by the Roseburg school administration and will be introduced to both junior high schools in the fall of 1964. The course will place the emphasis on an inductive, problem solving, principle approach rather than on subject matter. It will stress basic principles as they apply to agricultural practices. The nature of the course will be exploratory with special adaptation to the level of the ninth grade learner.

Basic Agriculture will comprise six general categories: Occupational and educational information in agriculture; Biological principles and plant science; Physiological principles and animal science; Youth leadership principles; and Decision-making principles.
Each category will involve six principles, one for each week. Activities, problems, demonstrations and/or experiments will be used to introduce the teaching of each principle. These methods are to promote the discovery of causes before the principle is formally stated. A principle learned in this manner is already fairly well understood.

The purposes of this course are: to provide a foundation for further agricultural education or other science courses; to explore the world of work program; and to serve as basic terminal agriculture education. Since human welfare finds agriculture basically indispensable, the conditions and problems connected with its food and fiber source should be understood by all students. Also, at this stage of their development these students should be made aware of occupational choices available in all aspects of agriculture.

During their first year, the students should be encouraged to begin their supervised farming programs or to select other agricultural work experience. In so doing they may join the FFA and participate in the various contests and activities provided by the organization. Nevertheless, a project is not a requirement of the course.

The following discussion focuses attention on the six basic agriculture categories to be taught. One principle will be given, as an example, for each category. These examples will provide a foundation for the course in Basic Agriculture.
I. OCCUPATIONAL AND EDUCATIONAL INFORMATION IN AGRICULTURE

**Principle:** Exploration of the work force of Roseburg reveals many occupations requiring agriculture skill and information.

In this area the students will explore the world of work with special application toward how they can determine their future occupation. Emphasis will be placed upon agricultural occupations on the national, state, and local levels. Consideration of background, experiences, interests, and abilities will be analyzed in relation to occupational choices. Further study will include vocational preparation in a chosen field.

II. MECHANICAL APPLICATIONS IN AGRICULTURE

**Principle:** Work (mass + force = movement) can be utilized by man through levers, wheels and similar machines.

In teaching this principle a common farm tool such as a pitch fork may be used. Varying the position of the hand (fulcrum) along the fork handle demonstrates the corresponding requirements of force (effort) which can be further altered by varying the load (resistance). Through this means a basic physics principle of leverage may be discovered by observing these simple applications.

III. BIOLOGICAL PRINCIPLES AND PLANT SCIENCE

**Principle:** Viable seeds germinate when conditions of dormancy are satisfied and environmental conditions are favorable.
To discover the principle of seed germination a controlled experiment may be conducted. This experiment should include diverse environmental conditions such as: placing seeds in media which is either too dry, too wet or properly moist; providing proper and improper temperature; and supplying varying degrees of light. The varied conditions would provide the results from which appropriate generalizations could be made.

IV. PHYSIOLOGICAL PRINCIPLES AND ANIMAL SCIENCE

Principle: Living things are able to perpetuate their own kind from a part of themselves (sexually and/or asexually).

Since this principle interplays with plants and animals, examples of both will be studied. Both types of reproduction, sexual and asexual, will be discussed, illustrated or demonstrated with seeds, eggs and cuttings to discover the means by which living things are perpetuated. Application to farm livestock and crops will provide references and examples.

V. YOUTH LEADERSHIP PRINCIPLES

Principle: Group participation situations provide each individual with the opportunity and the accompanying responsibility to contribute in cooperative self realization.

This activity is designed to promote an understanding of the democratic process, its advantages and limitations. Through the means of committee work, the students can learn the benefits of cooperation, democratic leadership, equality of the individual and
freedom to participate in a group.

VI. DECISION-MAKING PRINCIPLES

Principle: Self-analysis should be utilized in order to arrive at the economic principle of comparative advantage.

Principles of economics have broad applications which could be introduced in other situations. For example, Roseburg's dominant industry is forestry. This fact gives students who are raised in its environment a comparative advantage in choosing a forestry occupation over students reared in the Eastern Oregon range country.

VOCATIONAL AGRICULTURE IN THE SENIOR HIGH SCHOOL

The bulk of the agricultural education program is carried on under vocational agriculture at the senior high school. It is during this three-year period of exploration and training that the students often develop a sound basis for an occupational choice related to agriculture. For those who wish to enter farming or ranching, it is a time when they can begin to establish themselves in their own speciality through the supervised farming program. While the majority of students maintain some type of supervised farming program, some of them may be engaged in an agricultural work experience or in the placement program. These experiences, too, can broaden their education through the application of principles and practices studied in the class room. At the same time, the boys have an opportunity to develop skills in leadership and to earn additional recognition through the Future Farmers of America. This
organization provides various contests and awards: in judging livestock, in dairy and soils, in parliamentary procedure and public speaking, in mechanical skills, and in the advancement of degrees within the organization itself.

The high school program is divided into the sophomore, junior and senior years with one hour, two hours, and one hour instruction per day, respectively. The following course outline is proposed for the three individual classes.

AGRICULTURE II (SOPHOMORE)

AGRICULTURE SCIENCE

I. ANIMAL SCIENCE . . . . . . . . . . . . . . . . . . 30 hours

A. Livestock and dairy production
   1. Care and management
   2. Parasites and diseases
   3. Production records

B. Poultry production
   1. Care and management
   2. Parasites and diseases
   3. Egg quality

II. PLANT SCIENCE . . . . . . . . . . . . . . . . . . 40 hours

A. Grass and legumes
   1. Varieties and combinations
   2. Pasture establishment
   3. Seed production
B. Hay and silage
  1. Varieties
  2. Production
  3. Harvesting

C. Truck crops, fruits and nuts
  1. Local varieties
  2. Production
  3. Harvesting
  4. Marketing

D. Weeds and insects
  1. Control
  2. Eradication

E. Plant nutrition
  1. Major and minor nutrients
  2. Sources
  3. Influence on plants
  4. Influence of pH and liming

F. Forestry
  1. Tree growth
  2. Tree planting
  3. Christmas tree production
  4. Forest ecology
  5. Forest protection

III. FFA ........................................... 20 hours
  A. Organization, goals, awards
  B. Program of work
C. Parliamentary procedure

D. Public Speaking

IV. FARM MANAGEMENT ............................................ 5 hours

A. Basic economic principles
   1. Supply and demand
   2. Diminishing returns

B. Credit
   1. Types and sources
   2. Loan qualifications

V. SUPERVISED FARMING PROGRAM ............................ 20 hours

A. Starting to farm

B. Project planning

C. Records

AGRICULTURE MECHANICS

I. FARM SHOP .......................................................... 25 hours

A. Tools
   1. Identification, use, safety
   2. Conditioning and repair

B. Metal work
   1. Tap, die, drill, file (project)

C. Woodwork
   1. Measure, saw, drill, fasten (project)

D. Painting and brush cleaning
E. Arc welding
   1. Operation and safety
   2. Flat welding
   3. Electrodes
F. Oxyacetylene welding
   1. Operation and safety
   2. Cutting and fusing

II. RURAL ELECTRICITY ......................................................... 8 hours
   A. Electricity and its use
   B. Circuit protection
      1. Fuses and types
      2. Wire sizes and types
   C. Measuring electricity
      1. Volts, amps, watts
   D. Safety
   E. Extension cord repair

III. FARM POWER AND MACHINERY ............................................. 10 hours
   A. Tractor operation and safety
   B. Truck and tractor maintenance
      1. Oil change, air cleaner, radiator
      2. Tires, battery, fan belt

IV. SOIL AND WATER MANAGEMENT ............................................. 5 hours
   A. Soil judging
   B. Seedbed preparation
   C. Soil testing and reaction
V. BUILDINGS AND CONVENIENCES ............... 3 hours

A. Fence building

B. Brace cutting

AGRICULTURE III (JUNIOR YEAR)

AGRICULTURAL SCIENCE

I. ANIMAL SCIENCE .................. 35 hours

A. Nutrition
   1. Nutrients and their functions
   2. Digestive systems
   3. Nutrient requirements
   4. Feed additives
   5. Balancing rations
   6. Utilizing local feeds

B. Diseases of livestock
   1. Cause or cycle
   2. Prevention
   3. Treatment and/or cure
   4. Eradication programs

II. PLANT SCIENCE .................. 60 hours

A. Pruning principles and practices
   1. Fruit trees
   2. Nut trees
   3. Berries
B. Pasture management
   1. Rotation and clipping
   2. Fertilizing and liming
   3. Maximum utilization
C. Farm Forestry management
   1. Pruning and thinning
   2. Cruising and scaling
   3. Harvesting techniques
   4. Logging safety
D. Nursery and Greenhouse management
   1. Plant reproduction
   2. Plant propagation
      a. Seed
      b. Vegetative propagation
      c. Cutting
      d. Layering
      e. Grafting and budding
   3. Rooting substances
   4. Plant growth factors
   5. Transplanting
   6. Pruning and care
   7. Moisture
   8. Fertilizer
   9. Sunlight and shade
   10. Soils and mixtures
III. FFA .......................... 30 hours
   A. Program of work
   B. Committee work
   C. Parliamentary procedure
   D. Public speaking

IV. FARM MANAGEMENT ............... 30 hours
   A. Social security
   B. Farm business
      1. Buying or leasing
      2. Analysing or selecting a farm
      3. Combining production factors
      4. Cost analysis
   C. Agricultural chemical use
      1. Weedicides
      2. Rodenticides
      3. Insecticides

V. S.F.P. ............................ 30 hours
   A. Records
   B. Project visitation and recommendation
   C. Project expansion

FARM MECHANICS

I. FARM SHOP ......................... 80 hours
   A. Drill bit sharpening
   B. Arc welding (all positions)
   C. Oxyacetetylene welding
1. Cutting and brazing

D. Shop project (wood and/or metal)
   1. Plans
   2. Bill of materials
   3. Construction

II. RURAL ELECTRICITY . . . . . . . . . . . . . . . . . . . . . 20 hours
   A. Electrical code
   B. Electrical materials
   C. Wiring combinations and skills
   D. Service entrance requirements

III. FARM POWER AND MACHINERY . . . . . . . . . . . . . . . . 20 hours
   A. Engine systems
   B. Diesel engine principles
   C. Engine timing and tappet adjustment
   D. Trouble shooting

IV. SOIL AND WATER MANAGEMENT . . . . . . . . . . . . . . 20 hours
   A. Soil moisture
   B. Irrigation
     1. Methods, equipment and layout

V. FARM BUILDINGS AND CONVENIENCES . . . . . . . . . . . . 25 hours
   A. Building construction
     1. Bill of materials
     2. Framing
     3. Flooring
     4. Siding
5. Rafters
6. Roofing

AGRICULTURE IV (SENIOR CLASS)

AGRICULTURAL SCIENCE

I. ANIMAL SCIENCE .............................................. 40 hours

A. Marketing livestock
   1. Economic cycles
   2. Marketing functions
   3. Slaughter house procedure
   4. Wholesale - retail

B. Principles of animal breeding
   1. Estral cycles
   2. Semen testing
   3. Reproductive organs
   4. Breeding for maximum production

C. Principles of genetics
   1. Basic rules of inheritance
   2. Inbreeding
   3. Cross-breeding
   4. Records of performance

D. Career possibilities in Animal Science

II. PLANT SCIENCE .............................................. 25 hours

A. Home beautification
   1. Lawn establishment and care
2. Lawn diseases and pests
3. Landscaping principles

B. Forestry marketing and industry
1. Forest products
2. Outlets (markets)
3. Types of local industries
4. Contracts and sales
5. Forest occupations

C. Career possibilities in forestry

III. FFA ................................................. 20 hours
A. Program of work
B. Committee work
C. Public speaking
D. Parliamentary procedure

IV. FARM MANAGEMENT .............................. 20 hours
A. Agriculture finance
   1. Farm income tax reporting
   2. Investments
   3. Insurance
B. Farm Law
   1. Real estate
   2. Real and personal property
   3. Title, deed, bill of sale
   4. Water rights
   5. Mineral rights
6. Hunting laws

C. Government programs
   1. Government subsidies
   2. Commodity Credit Corporation
   3. Agriculture policy and alternatives

V. S.F.P. ........................................ 10 hours
   A. Records
   B. Project plans
      1. Expansion
      2. Disposal

FARM MECHANICS

I. FARM SHOP .................................... 15 hours
   A. Shop project

II. RURAL ELECTRIFICATION ..................... 8 hours
   A. Motors
      1. Principles, selection
      2. Cleaning, reversing

III. FARM POWER AND MACHINERY ................. 3 hours
    A. Hydraulic system
       1. Principles, uses, maintenance

IV. SOIL AND WATER MANAGEMENT .................. 20 hours
    A. Use of farm level
       1. Differential leveling
       2. Profile leveling
       3. Drainage ditch layout
4. Building foundation layout

V. FARM BUILDINGS AND CONVENIENCES . . . . . . . . . . 10 hours

A. Farm building
B. Concrete work
C. Water system

The foregoing proposed course of study for vocational agriculture is suggested as a guide for determining subject matter content to be stressed in the Roseburg area. No effort has been made to suggest how the material is to be taught. The methods and materials employed for maximum teaching effectiveness are left up to the discretion of the instructor involved. It is assumed, however, that all the available resources of the instructor, the school, and the community will be utilized. These resources would include local field trips, local resource personnel, demonstrations, activities, films, and other visual aids to supplement classroom instruction. Strong encouragement will be directed toward each student applying the appropriate principles and practices to his supervised farming program and wherever possible.

For students who wish to receive special emphasis in the principal industry in the Roseburg area, a proposed course is offered in forestry. This course is to be offered to junior and senior high school students with the following objectives:

1. To acquaint the students with occupations available in forestry.
2. To develop a broader understanding and appreciation for the largest industry and natural resource in Oregon.

3. To assist in the education and the preparation of interested students desiring a career in forestry.

4. To promote active participation in the conservation and utilization of our forests.

5. To gain an understanding of the conditions and problems surrounding that large segment of our Oregon population engaged in a forestry occupation.

PROPOSED COURSE OF STUDY IN FORESTRY FOR SENIOR HIGH SCHOOL STUDENTS

A. The Forest ........................................ 5 hours
   1. Forest defined
   2. Kinds of forests and their locations
   3. The forest community

B. Forests and Man .................................. 10 hours
   1. The history of man's dependence on forests
   2. Forest values
      a. Forest products
         (1) Manufactured wood products
         (2) Poles, piling, posts
         (3) Pulp and paper products
         (4) Fuel wood
         (5) By-products
         (6) Naval stores
(7) Forage for animals
(8) Fish and game
b. Water conservation
c. Soil conservation
d. Recreation
e. Wildlife
f. Aesthetic value
g. Forests and national defense

C. Forest Resources ........................................... 3 hours
   1. Forest resources of the United States
   2. Forest resources of other countries
   3. Conservation of forest resources

D. Forestry ....................................................... 2 hours
   1. The meaning of forestry
      a. A science, an art
      b. A business
      c. Public policy

E. History of Forests and Forestry in the United States,
   Forest Legislation and Forest Policy Development. 5 hours
   1. Colonial period
   2. Revolutionary period
   3. Period of westward expansion
   4. End of the frontier; the conservation movement
   5. Present situation
   6. Future outlook
F. Forests and Forestry in Oregon . . . . . . . . . . . . . . . 10 hours

1. Forest areas, types, ownerships and values

2. State forestry legislation

3. Forestry agencies and their functions
   a. U. S. Forest Service
   b. National Park Service
   c. Bureau of Land Management
   d. Bureau of Indian Affairs
   e. State Division of Forestry
   f. County Extension Foresters

G. Forest Management . . . . . . . . . . . . . . . . . . . . . . 100 hours

1. Problems of forest management (5 hours)
   a. Federal and state regulations
   b. Taxation
   c. Public support
   d. Small ownerships

2. Timber management (15 hours)
   a. The timber management plan
   b. Cutting system
   c. Silviculture treatments
      (1) Thinning
      (2) Pruning
      (3) Burning
      (4) Planting
3. Forest utilization (35 hours)

a. Logging
   (1) History of logging
   (2) Logging techniques
   (3) Logging processes
      (a) Felling, bucking, limbing
      (b) Yarding, loading
      (c) Transporting
   (4) Laws related to logging
   (5) Safety in logging
   (6) Contracts related to timber sales

b. Harvesting other forest crops
   (1) Pulpwood
   (2) Fuelwood
   (3) Posts, piling, poles, ties
   (4) Christmas trees
   (5) Miscellaneous crops

c. Forest mensuration
   (1) Measuring tree growth
   (2) Measuring standing trees
   (3) Measuring forests
   (4) Measuring logs, stacked wood and pieces

4. Forest protection (15 hours)

a. Forest fires
   (1) History and significance in Oregon
(2) Causes of forest fires
(3) Prevention of forest fires
(4) Pre-suppression activities
(5) Suppression of forest fires

b. Forest insects
(1) Role of insects in the forest
(2) Appraisal of damage caused by insects
(3) Principal forest insects in Oregon
(4) Control of destructive insects

c. Forest diseases
(1) Extent of damage by disease
(2) Kinds and causes of disease
(3) Control and prevention of disease

d. Protection from other forest enemies
(1) Forest animals
   (a) Porcupines
   (b) Bears
   (c) Deer and livestock
   (d) Rodents

(2) Natural phenomena
   (a) Wind
   (b) Rain, hail, ice, snow
   (c) Temperature (unfavorable)

(3) Man's activities
5. Growing the forest crop (10 hours)
   a. Seeding and planting
      (1) Natural reproduction
      (2) Artificial reproduction
         (a) Reasons for planting
         (b) Choosing species
         (c) Seeds or seedlings
         (d) Seed sources
         (e) The forest nursery
         (f) Planting techniques
         (g) Federal and state cooperation in planting

6. Marketing the forest product (10 hours)
   a. Valuation of raw materials
   b. Forest markets, types, locations
   c. When and how to sell

7. Farm forests and economics (6 hours)
   a. Management
   b. Establishment
   c. Cash crop

8. Log grading (4 hours)

H. Manufacturing and Marketing Forest Products . . . . . 10 hours

1. Lumber manufacture
   a. The lumber industry
      (1) Economic importance
      (2) Historical background
b. The saw mill operation
   (1) The cold deck
   (2) The mill pond
   (3) The head saw
   (4) The re-saw
   (5) The edger
   (6) The trimmer
   (7) The green chain
   (8) The saw room
   (9) The power plant
   (10) The yard
   (11) The kilns
   (12) The plainer
   (13) The storage sheds

c. Lumber grades

2. Manufacture of other forest products
   a. Veneer and plywood
   b. Pulp and paper products
   c. Hardboard

3. Marketing forest products
   a. Location of markets
   b. Agents of distribution
   c. Supply and demand for forest products

I. Forest Research Organizations ......... 5 hours
   1. U. S. Forest Service Experiment stations
a. Research units
b. Experimental forests
c. Forest products laboratories

2. Oregon State Experiment Station and Forests

3. Research by universities and colleges

4. Private research
   a. Western Pine Association Research Laboratory
   b. Timber Engineering Company
   c. Company research

J. Careers in Forestry . . . . . . . . . . . . . . . . . . . . . . . 10 hours

1. Professional forestry
   a. Federal, state and county foresters
   b. Forest ranger
   c. Junior forester
   d. Junior range examiner
   e. Assistant forest supervisor
   f. Forest supervisor
   g. Research forester
   h. Teaching and research at forest schools
   i. Forest engineer

2. Private forestry
   a. Managing private and commercial forests
   b. Consulting foresters
   c. Managing forestry and trade associations
NURSERY MANAGEMENT

On the strength of the interest found in the survey, coupled with the agricultural advisory council's consideration and support, the investigator proposes that a one-year course be offered to junior and senior high school students in nursery management. This proposal is presupposing the availability of a greenhouse to serve as a laboratory for the course. It should be available to interested boys and girls. Few elective subjects, perhaps, apply so generally to people anticipating a normal role in our society as horticulture. It provides a sizeable portion of our food supply. It is a boundless source of beauty in our homes, cities, rural landscapes, parks, gardens and areas of the great out-of-doors. As our standard of living continues to rise and as people are confronted with more leisure time for themselves, the opportunity for hobby development, home beautification, adventure and exercise intrigues many of them with horticultural pursuits. At the same time, occupational opportunities are increasing at a corresponding rate in nursery, greenhouse and floral businesses.

The purposes of this course include the following:

1. To provide an opportunity for receiving, applying, and
experimenting with the principles of plant growth, reproduction and propagation.

2. To stimulate worthwhile hobbies which can be carried on throughout life.

3. To provide a foundation on which a part-time or full-time occupation can be established.

4. To encourage a project of home beautification while learning is being carried on.

The course, as proposed, is for the duration of one year and would require one hour of each school day.

PROPOSED COURSE OF STUDY IN NURSERY AND GREENHOUSE MANAGEMENT FOR HIGH SCHOOL JUNIORS AND SENIORS

A. Horticulture in everyday life

1. Fruits
2. Vegetables
3. Ornamental plants
4. Landscaping
5. Nursery production
6. Seed production

B. Plants and how they grow

1. Anatomy of plants
   a. Stem
   b. Leaf
   c. Bud
2. Plant growth processes
   a. Photosynthesis
   b. Respiration
   c. Assimilation
   d. Absorption
   e. Transpiration
   f. Translocation

3. Internal factors
   a. Age of plant
   b. Heredity
   c. Growth regulators
   d. Dormant period
   e. Rest period

C. Plants and their environment

1. Temperature
   a. Optimum conditions
      (1) Cool - season plants
      (2) Warm - season plants
   b. Adverse conditions
   c. Hardiness

2. Moisture
   a. Why water is needed by plants
b. Why water is needed in the soil

c. Effects of abnormal amounts of water

3. Light
   a. Intensity
   b. Quality
   c. Photo period

4. Nutrients
   a. Major nutrients
   b. Minor nutrients
   c. Basic plant requirements

5. Interrelationships of all environmental factors

6. Soil type
   a. Texture
      (1) Sandy
      (2) Clay
      (3) Loam
   b. Additives
      (1) Compost
      (2) Sawdust
      (3) Peatmoss

7. Ventilation

D. Growing plants from seeds

1. What is a seed

2. Using good seed
   a. Characteristics
b. Testing seed

c. Longevity of seed

d. Conditions for germination

3. Growing plants for transplanting

a. Plant growing structures
   (1) Cold frames
   (2) Hot beds
   (3) Greenhouses

b. Planting the seeds

c. Seedling care

d. Transplanting

4. Planting seeds out-of-doors

a. Date of planting

b. Seedbed preparation

c. Seed treatment

d. Rate of seeding

e. Depth of planting

f. Care of seedlings

5. Special practices in seedage

a. Stratification

b. Scarification

c. Embryo culture

E. Growing plants asexually

1. Vegetative reproduction
   a. Environmental conditions
b. Internal conditions

2. Layerage
   a. Tip layerage
   b. Simple layerage
   c. Trench layerage
   d. Mound layerage
   e. Air layerage

3. Cutting
   a. Types of media
   b. Herbaceous cuttings
   c. Evergreen cuttings
   d. Woody cuttings
   e. Leaf bud cuttings
   f. Leaf cuttings
   g. Root cuttings

4. Special cutting practices
   a. Bottom heat
   b. Fluorescent lights
   c. Mist propagation
   d. Rooting hormones
   e. Rooting media

F. Grafting and budding

1. Principles of graftage
2. Methods of graftage
   a. Whip or tongue
b. Cleft graft
c. Side graft
d. Bridging graft

3. Methods of budding
   a. Shield or T-budding
   b. Patch budding
c. Chip budding

G. Pruning

1. Principles of training and pruning
   a. Modification of special dominance
   b. Balance of roots and tops
   c. Alternating phases of growth
   d. Considering environmental factors

2. Objectives of training and pruning
   a. Control direction of growth
   b. Develop a strong framework
   c. Control amount of growth
   d. Influence productiveness
   e. Improve quality of product
   f. Utilize space efficiently

3. Methods of training and pruning
   a. Heading back
   b. Subordination
   c. Thinning out
d. Fruit thinning
e. Disbudding  
f. Summer pruning  
g. Severe pruning  
h. Root pruning  

4. General procedures in pruning  
   a. Necessary equipment  
   b. Making cuts  
   c. Treating wounds  

5. Pruning woody ornamental plants  
   a. Trees  
   b. Shrubs  

6. Pruning herbaceous plants  
   a. Chrysanthemum  
   b. Annuals for transplanting  

H. Controlling pests  

1. Pests  
   a. Insects, mites and nematodes  
   b. Disease  
   c. Rodents  
   d. Weeds  

2. Control methods  
   a. Physical methods  
   b. Chemical methods  
   c. Natural methods
I. Introduction to landscaping

1. Landscape principles
2. Plants and shrubs combinations
3. Landscape planning
4. Determine cost and materials of plan

The course, as outlined, assumes the availability of a greenhouse to be used as the laboratory. Basic equipment and materials which should be provided by the school are as follows: soil mixture and/or rooting media, wooden flats, tables, sprinkler cans, clay pots, knives, wooden pot labels, rooting powder, spray materials, spray pump and pruning shears. Perhaps a few basic plants will be needed at first to provide material for propagation. Students will be encouraged, however, to utilize plant sources from home if possible. Eventually, an arboretum should be established to provide opportunity for additional laboratory work and experimentation. The arboretum will further provide a constant source of plant materials for instruction and also add beauty to the school campus.

MULTIPLE-MAN DEPARTMENT

The total agricultural education program, as proposed by the author, would require a minimum of two full-time instructors. Both men should be graduates in agriculture education, one of whom should either have a minor in forestry or have had considerable experience in the forest industry, such as logging. It would also
TABLE X

CLASS SCHEDULE FOR A MULTIPLE-MAN DEPARTMENT

<table>
<thead>
<tr>
<th></th>
<th>Senior High</th>
<th>Fremont</th>
<th>Joseph Lane</th>
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<tbody>
<tr>
<td>Number of Classes</td>
<td>Hours Per Class</td>
<td>Number of Classes</td>
<td>Hours Per Class</td>
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<tr>
<td>Ag I</td>
<td>2</td>
<td>1</td>
<td>1</td>
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<td>Ag II</td>
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<td>Ag III</td>
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<tr>
<td>Ag IV</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Forestry</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Nursery</td>
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be desirable for one instructor to have the equivalent of a split minor in horticulture, in order to best qualify for the nursery course.

Table X provides us with the succeeding list and frequency of classes included in the total Agriculture Education program. Actual time of instruction for the total program would require ten hours. This period of time involves teaching at three different schools; hence, additional time must be allowed for travel, in view of the distance between the schools. A practical consideration would be to allow three hours time in the morning for the two different junior high classes; thus a grand total of eleven hours would satisfactorily meet the schedule's demand. This proposal would permit the use of two instructors, full-time, with five actual
class periods each.

Theoretically, instructor A would teach two Ag I classes, Ag III (a two hour class), and Ag IV. Instructor B would teach two Ag II classes, two forestry classes, and one nursery and greenhouse management class. This division is an effort to divide the number of preparations as equally as possible between the two instructors. On the other hand, since instructor B may wish to be more actively engaged with the FFA boys, he may find it desirable to exchange one of the other courses for an Ag class or two. This division could not be arbitrarily predetermined but should rather be assumed after the two instructors involved assess their strong and weak areas. Then they can attempt to provide the best instruction, available between them, for the students' benefit.

**INTERN PROGRAM**

Until the total agriculture education program, as proposed, becomes a reality, it will be necessary to obtain the services of two instructors to handle the junior and senior high school Agriculture I through IV classes. One teacher's time will be fully utilized, while the other will be involved only half-time. These circumstances suggest two possibilities; first, the half-time instructor would need to leave the department and teach other subjects during the remaining half day. Second, the half-time instructor could be an intern employed for the half-time period only. The latter possibility appears to the author to be the most desirable.
TABLE XI

CLASS SCHEDULE WITH A TEACHER INTERN

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<tr>
<th>Senior High</th>
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<tr>
<td>Ag I</td>
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<td>Ag II</td>
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<td>2</td>
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<td></td>
</tr>
<tr>
<td>Ag III</td>
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<td>1</td>
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</table>

It may be difficult to match an agriculture instructor's preparation with the other courses he would be asked to teach. It would be further complicated if other openings were unavailable. On the other hand, an internship not only provides for the required amount of extra time but also allows the opportunity for improvement of teacher preparation. Hence, the agriculture department gains the needed assistance while the intern gains the needed experience.

Table XI lists as available next year those classes which total seven hours of instruction. Additional time required would necessitate two more hours, one for travel between schools and one for intern supervision. Therefore, a total of nine hours would constitute the total instructional load.
The purpose of this study has been to develop an Agricultural Education program which will meet the need of more agriculturally interested students in Roseburg Junior and Senior High Schools. It was observed by the author that the present three-year program entertained several neglected aspects. These omissions were more clearly identified in view of the current agricultural education trends as well as the nature of the Roseburg community.

Review of related materials revealed a need for increased exploration and vocational education to better acquaint students with the world of work. Opportunity to explore and assess his capacities, interests, and goals better prepares the student for a wise occupational choice. These choices, which change during the various developmental stages of the child, become more realistic, usually, after age nineteen. The ultimate choice of a career is much more predictable on the basis of vocational interest than on vocational preference. It is increasingly the responsibility of the school to provide the necessary experiences and knowledge for future employment.

In view of the large percentage (40%) of our work force being employed in occupations directly related to agriculture, there is strong support for additional agricultural education and experience.
This need is intensified since few of these future employees come from a rural environment and since almost one-half of the vacancies for agricultural graduates remain unfilled annually. Significant also is the fact that six out of ten jobs in the state of Oregon are with the forest industry. This fact gives reason to assume that forestry deserves more educational emphasis.

A survey was taken to register interest in different aspects of agriculture in the following areas: in a career in agriculture; in which choice of agricultural careers; in farm shop; in soil and water management; in rural electrification, in farm buildings and conveniences, in farm power and machinery, in agriculture science; in supervised farming projects; in a placement or an agricultural experience program; in the complete vocational agriculture program; in junior high basic agriculture; in a forestry course; and in a nursery and greenhouse management course.

Questionnaires were distributed at random among 154 out of 257 boys in grades seven through eleven having rural addresses. The dissemination of the questionnaires was handled through the school offices. The total number of boys in these same grades amounted to 1,283, which indicated that a 12 percent sample was surveyed. Over 83 percent of the questionnaires were returned.

The survey disclosed interest in all areas. Sixty-four percent of all the boys indicated an interest in a career in agriculture. Their first choice was in production (farming or ranching), second was in conservation, and third included both education and research.
The most popular areas of interest were in farm power and shop with agriculture science, buildings, vocational agriculture and forestry following, not far behind. The least relative interest was in nursery, soil and water management, and electricity.

Basic agriculture in the junior high school rated first in interest among boys in grades seven and eight in both schools. A projected total of forty-two eighth grade students indicated a desire for the course next year.

Interest in the high school vocational agriculture program was indicated by a projected total of 73 freshmen, sophomores and juniors. Coincidentally there are 41 sophomore and junior boys presently enrolled in vocational agriculture while the projected figure is 39 for the same two grades.

The forestry and nursery management courses being investigated received a varied response. The interest in forestry was revealed by a total of 48 sophomore and junior boys desiring the course. At the same time only 17 boys from the same grades specified an interest in nursery management. It was observed by the investigator that the nursery course might appeal more to the unsampled city students and/or girls.

Over 42 boys declared an interest in the placement or agriculture work experience program. This points to an area of great potential as a substitute for the supervised farming program.

The proposed Agriculture Education program in the Roseburg Junior and Senior High Schools will be comprised of a ninth grade
basic agriculture (Agriculture I) in both junior high schools, a three-year vocational agriculture (Agriculture II, III and IV) in the senior high school, and two additional courses in forestry and nursery management.

Agriculture I is basic to all subsequent courses in the department, including forestry and nursery management. This basic course provides an opportunity for freshmen to explore the broad field of agriculture and to lay a foundation for further agricultural or related study. Shop facilities are unavailable until the students reach high school. Interested students may begin their supervised farming programs during this period, though none are required. Those meeting the requirements may join and participate in the FFA.

Agriculture II is designed for sophomores who wish to continue their agriculture education. The general emphasis is placed on production in the various areas studied. Basic shop skills are also introduced during this year. Full opportunity to engage in the FFA activities is made available.

Agriculture III offers two hours per day of instruction allowing for maximum instructional advantage to juniors. During this year, special stress is placed on agriculture mechanics which requires more time in the shop. The science areas emphasize the general theme of management. Field trips are also utilized due to the added time.

Agriculture IV is reserved for seniors who desire the maximum benefit from the total agriculture program. The emphasis in
agriculture science is generally in marketing and establishment in farming. Detailed attention is also focused on occupational alternatives in agriculture. The more complex areas and applications such as genetics, physiology of reproduction, and surveying are presented at this level.

During the junior or senior year a student who wishes to acquire additional education in forestry or nursery without taking the full four years of agriculture may elect one of these courses after taking the basic agriculture course in junior high. These electives are to be available as one-year courses. The nursery management course will utilize a greenhouse as a laboratory. The forestry course will attempt to cover the breadth, with some depth, and the vocational possibilities of the forest industry.

The complete agriculture program as proposed will require a multiple-man department. Two full-time agriculture instructors will need to share the ten scheduled classes in such a way that each teacher's qualifications contribute to maximum quality and efficiency of instruction.

The 1964-65 program, as agreed upon by the school board, will add one basic agriculture class in each of the two junior high schools to the present three-year high school program. This addition will necessitate the services of another half-time instructor. This situation invites a teacher intern possibility to share the load while gaining experience under supervision. The full-time teacher will be responsible for the two junior high classes. He will also
continue with the senior class, assume one of the sophomore classes, and provide an hour of supervision for the intern. In the meantime, the intern will assume the two-hour junior class and one sophomore class, with a teaching load of three hours or one-half day.

CONCLUSIONS

The following conclusions are made by the investigator based on the results of this study:

1. There is a strong need for a basic agriculture course on the ninth grade level not only from the interest disclosed from the survey but also from the responsibility assumed by the school to provide the needed exploration and knowledge to aid students in pre-vocational choices.

2. Forestry instruction needs considerably more emphasis in the Roseburg school system in view of the predominant forest industry surrounding Roseburg, the interest discovered through the survey, and the support provided by the advisory council.

3. The agriculture program must provide opportunities and experiences for the development of skills, abilities, attitudes, understandings and work habits which will contribute to the success of each student desiring a career in agriculture.

4. An agriculture advisory council deserves strong consideration for the development, promotion and improvement of
an agriculture education program.

5. The survey taken was not extensive enough to build a program. Too large a segment was left out completely excluding girls and all boys without rural addresses.

6. A multiple-man department is essential for the provision of an adequate agricultural education program in Roseburg. This suggests two full-time agriculture instructors. The division of class responsibilities would be determined by the instructors' capabilities.

RECOMMENDATIONS

The following recommendations based on this study are:

1. That the proposed program herein become a reality as quickly as finances, facilities, and qualified assistance become available.

2. That a survey of the total student body be taken to determine the agricultural interests and aspirations of all students both rural and city.

3. That a survey of the occupational needs of the Roseburg community be used as additional guide lines for instruction and direction.

4. That the possibility of acquiring a forestry plot for use as a laboratory in forestry demonstration, experimentation, and application be examined.

5. That the possibility of establishing a one-or two-week summer camp in forestry be examined to supplement regular
instruction for boys interested in a forestry occupation.

6. That an adult program in agriculture be included in the
next attempt to suggest a complete agricultural education
program.

7. That an evaluation of the agriculture program be made
annually with the aid of the advisory council and the
general recommendations and trends available from the
state department and the teacher-training staff at
Oregon State University.

8. That vocational agriculture emphasize the inductive approach
in the laboratory as well as the deductive subject matter
approach in the classroom.
BIBLIOGRAPHY


9. Hutchison, Chester S. Assistant Dean, College of Agriculture, Ohio State University, Study of job opportunities. Columbus, Ohio, 1959. 8 numbered leaves. (mimeographed)


This is a questionnaire for boys in grades seven through eleven for the purpose of determining their needs and interest in the field of agriculture.
If possible please have your parents assist you in answering this questionnaire. Above all, we would appreciate your honesty in each answer. Please check (x) each question once.

1. Are you interested in some career in agriculture?  
   - Strongly interested  
   - Interested  
   - Undecided  
   - Not Interested

2. Check the Agricultural career that most accurately describes your interest:

<table>
<thead>
<tr>
<th>A. Production</th>
<th>B. Research</th>
<th>C. Education</th>
<th>D. Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming</td>
<td>Crops and Livestock or soils</td>
<td>County Agent</td>
<td>Equipment &amp; Machinery</td>
</tr>
<tr>
<td>Ranching</td>
<td>Forestry</td>
<td>Agriculture Teacher</td>
<td>Feed &amp; Seed</td>
</tr>
<tr>
<td>Timber</td>
<td>Equipment and Machinery</td>
<td>Government Agency</td>
<td>Fertilizers</td>
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<tr>
<td>Greenhouse</td>
<td>Marketing and/or Processing</td>
<td>Farm Organization</td>
<td>Food</td>
</tr>
<tr>
<td>Nursery</td>
<td>Rural Sociology</td>
<td></td>
<td>Forest Products</td>
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</tbody>
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<tr>
<th>E. Business</th>
<th>F. Services</th>
<th>G. Communications</th>
<th>H. Conservation</th>
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</thead>
<tbody>
<tr>
<td>Bank (Ag advisor)</td>
<td>Federal (Forester, Foreign Inspector, State Consultant, Private Technician, Veterinarian)</td>
<td>Advertising</td>
<td>Forest</td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
<td>Radio or TV</td>
<td>Soil</td>
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<td>Land appraisal</td>
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<td>Motion Pictures</td>
<td>Water</td>
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<td>Publications</td>
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<thead>
<tr>
<th>I. Recreation</th>
<th>J. Not Interested</th>
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<tbody>
<tr>
<td>Game Preserves</td>
<td></td>
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<tr>
<td>Parks</td>
<td></td>
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<tr>
<td>Playgrounds</td>
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<tr>
<td>Golf Courses</td>
<td></td>
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</tbody>
</table>
Please indicate your personal interest in any or all of the following subject areas:

3. **Farm Shop**  
   **Strongly Interested___** **Interested___** **Undecided___** **Not Interested___**
   
   **Arc Welding**  
   Flat, horizontal, vertical up and down, overhead welding; project using above welds; hardsurfacing

   **Oxy-Acetylene Welding of Mild Steel, Brazing, Cutting**

   **Woodwork**  
   Reading simple plans, use of hand tools, saws, square, plane, wood auger bit, nail set, drills, countersink, etc; project using above tools plus nail and screw fasteners

   **Metal Work**  
   Drilling, tap and die work, tempering, soldering and cutting

   **Tool Identification**  
   Proper and safe use of tools, reconditioning and sharpening tools

4. **Soil and Water Management**  
   **Strongly Interested___** **Interested___** **Undecided___** **Not Interested___**
   

5. **Rural Electrification**  
   **Strongly Interested___** **Interested___** **Undecided___** **Not Interested___**
   
   Principles of electricity, measuring, cost, wiring arrangements, selection and maintenance of electric motors, electrical code and safety practices to be observed in care, use and installation of electrical devices
6. Farm Buildings and Conveniences

   Strongly Interested___ Interested___ Undecided___ Not Interested___

   Building construction, use of framing square, concrete work, forms, foundations, building lay-out, selection of power tools for shops, fence construction

7. Farm Power and Machinery

   Strongly Interested___ Interested___ Undecided___ Not Interested___

   Tractor Maintenance
   Lubrication, battery care, air cleaner, wheel bearings, radiator care, tire care, belt adjustments, etc.

   Engines (Gas and Diesel)
   Principles, systems, timing, tappet adjustment, plugs and points

   Hydraulic systems and Motors
   Principles, care and maintenance

   Adjustment and Repair of Machinery
   Plow, mower, drill, etc.

8. Agricultural Science

   Strongly Interested___ Interested___ Undecided___ Not Interested___

   Farm Forestry
   Identification, planting, pruning, thinning, cruising, harvesting, marketing timber; forest products, Christmas trees, poles, posts, logs, etc.

   Nursery and Greenhouse Management
   Principles and practices of plant production and propagation

   Use of Commercial Fertilizers and Farm Chemicals
Livestock, Dairy, Crops and Poultry
   Selection, care and management, marketing fitting, showing and judging livestock

Veterinary Medicine
   When to call a vet and what to do before he comes

Nutrition and Feeding Balanced Rations

Genetics and Reproduction
   Basic principles and their application in livestock improvement

Farm Business
   Legal contracts, leases, loans, taxes, law, accounting, insurance, etc.

Rural Leadership
   Public speaking, parliamentary procedure, organized group activities under adult leadership

9. **Supervised Farming Projects**
   Strongly Interested___Interested___Undecided___Not Interested___

Direct supervision (visits to students' home and/or farm by the instructor) during the school year and summer months

Instruction in the classroom based on students' projects at home

Business agreements between parents and students, financial records, budgets, inventories, expenses, receipts, production records and labor records

Participation and competition in local, community and state activities and degrees based upon progress and knowledge
10. **Placement or Agricultural Experience Program**

   Strongly Interested____ Interested____

   Undecided____ Not Interested____

   Substitutes for the farming project when home farm and/or rental opportunities are not available or adequate

   Opportunity to gain actual experience under supervision, in an agricultural area such as: working on a farm, in a feed and seed store, in a greenhouse, in a slaughter house, in a farm equipment shop, for a veterinarian, etc. Acquire experience in as many aspects of the area as possible to maximize educational benefits

11. Would you be interested in taking the complete Vocational Agriculture Program as outlined from 3 through 10 above? (Please check one)

   a. As a three year program (Soph, Jr., Sr.) . . .

   b. As a four year program (Fr., So., Jr., Sr.) . . .

   c. Neither one . . . . . . . . . . . . . . . . . . . .

12. **Attention 7th and 8th Grade Students:**

   Would you be interested in taking a one year course in general or basic agriculture (requiring no project) in Junior High school?

   It would include: How and where our food and fiber is produced; common breeds of livestock, dairy and poultry; basic crops and their distribution; soil, water, forestry and wildlife conservation; country living part or full-time; survey of occupations related to agriculture

   a. Eighth grade level . . . . . . . . . . .

   b. Ninth grade level . . . . . . . . . . .

   c. Neither . . . . . . . . . . . . . . . . . .

13. **Attention 9th through 11th Grade Students:**

   Did you take a course in Agriculture while in Junior High? Yes____ No____ If not, why?

   a. None available____

   b. None desired____
14. Would you be interested in taking a FORESTRY course (in high school) apart from that offered in the regular Vocational Agriculture Program:

Tree identification and characteristics, forest soils, forestry production and management, logging operations and safety, forest products, forest fire and disease control, forestry career opportunities, etc.

a. One year one-hour course . . .

b. One year two-hour course . . .

c. Neither one . . . . . . . .

15. Would you be interested in taking a course (in high school) in Greenhouse and Nursery Management (if a greenhouse were available) apart from the regular Vocational Agriculture Program?

Principles of plant growth, propagation and reproduction; budding, grafting, pruning and transplanting; selection of shrubs and flowers for home beautification and landscaping; laboratory experience and actual practice

Please return this questionnaire to your school office promptly.

Thank you for your cooperation and immediate attention.