CRITICAL FACTORS INVOLVED IN THE EVALUATION AND USE OF OCCUPATIONAL INFORMATION IN AGRICULTURE IN THE NORTH-CENTRAL REGION

by

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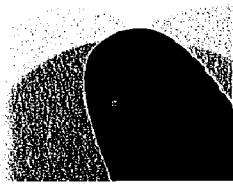

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

For the past several decades teachers of vocational agriculture have sensed an increasing need for materials containing occupational information in their fields which might be used for career guidance of their pupils. But in more or less recent years the advancement of agricultural opportunities beyond one's own community has demonstrated that pamphlets and bulletins of occupational information have increased in importance as a method of disseminating information for guidance in the choice of an occupation.

When World War II came to an end the demand for these materials became tremendous, and in an endeavor to meet it, several United States governmental agencies and a number of private publishers began to produce a variety of materials, with the following chaotic results: (1) a large amount of materials has been prepared on certain vocations, while on others the materials are either severely limited or completely lacking; (2) some of the materials are written in a popular style for promotional or publicity purposes; others relate facts in a simple, objective manner; (3) some of the materials are free or inexpensive; others are costly; (4) some are directed toward special groups in a specific locality; others are more general in their coverage; (5) some present only

general information, while others deal with specific details; and (6) some, such as bulletins and monographs, may be easily and inexpensively revised, whereas books and films can be revised only with difficulty and at considerable expense.

These conditions have created a serious problem for teachers of vocational agriculture in the selection of current and reliable occupational information for use by themselves and their pupils, and it would seem that some means should be devised whereby, through the use of certain criteria, a standard form of evaluation might be placed upon published works for the benefit of interested persons. Thus the following questions arise: (1) What are the critical factors in evaluating occupational information in agriculture? (2) What type of information about an occupation does the student want? (3) What are the preferred characteristics of format and style of a bulletin, pamphlet, or similar publication? (4) Where can reliable and inexpensive materials be obtained on careers in agriculture and related fields? (5) How can such publications best be filed so as to provide maximum efficiency in their use?

Satisfactory answers to these questions should produce reliable information which would assist high-school students in making their choices in agriculture and related occupations.

Statement of the problem. The problem which presents itself, therefore, may be stated generally as follows: To ascertain the characteristics of the desired informational materials and the best means for their evaluation. But a further analysis of the problem suggests that this be broken down more specifically into four parts; and these form a convenient and accurate statement of the purpose of this study: (1) to determine the critical factors of occupational information in agriculture desired by teachers of vocational agriculture; (2) to determine these same factors as desired by students in vocational agriculture; (3) to prepare an evaluative instrument in the light of these critical factors for the appraising of such occupational information; and (4) to evaluate the available, inexpensive information in this area of interest.

Scope of the study. It was not the intent of this study to test the significance of all the factors concerning all occupational information with the entire population of teachers and students of vocational agriculture in the United States. Only those factors which the authorities in the field have discussed most frequently in the literature were used. These were submitted in questionnaires to selected teachers of vocational agriculture and their students in the North-Central Region.

Data concerning the status of occupational information available in the agriculture departments in the respective schools were gathered, i.e., size of the library (number of pamphlets and number of job-opportunities encompassed), the students' desire for the materials, the teachers' need for the materials, their experiences in securing and using such materials, and the number of days spent in teaching each class the content of the materials.

Since it would have been an undertaking far too stupendous for this study to assemble and evaluate all occupational information in agriculture, only such publications were used for evaluation as conformed to the following criteria: (1) they should be written to provide occupational but not technical information; (2) they should be adapted for use in the North-Central Region; (3) they should be inexpensive, costing one dollar or less; and (4) they should be concerned only with productive and related occupations in agriculture. No attempt has been made in this connection to determine the teachers' or pupils' methods of using the information or to measure their effectiveness in class.

Importance of the study. Providing information on opportunities in all vocations, including agriculture, is one of the essential services of a good guidance program in any high school, and therefore evaluation of the appropriate

materials is usually made by trained personnel attached to larger schools. However, in the smaller schools the responsibility of counseling students of agriculture falls upon the teacher of vocational agriculture or others who are often inadequately trained in this skill. This presents a problem, the significance of which is emphasized by the recent literature in the field.

Weiss states:

> There are few secondary schools that are staffed with trained individuals in counseling and guidance. Because such a person is rarely found in the schools that offer vocational agriculture, it is becoming more and more necessary for the vocational agriculture teacher to equip himself to offer that service.[1]

In another study, made in 1953, Sommerville found that no organized guidance work was being done in a large percentage of rural high schools in Virginia, and that therefore teachers of vocational agriculture, upon whom the duty of counseling students interested in agriculture generally falls, need more guidance information and more publications which relate to agricultural and related occupations. He recommended that these teachers use more and better guidance practices in order to advise their students effectively toward

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[1] J. N. Weiss, "Counseling and Guidance," The Agricultural Education Magazine, 23:110, November, 1950.

making an intelligent choice of a life work.[2]

The importance of providing students with the right kind and amount of information has been spotlighted by Williamson, who listed as many as thirteen common fallacies which may misdirect a young person in choosing an occupation.[3]

But it is not enough to prepare and evaluate materials; some central place should be provided where interested students may have easy access to the information. Of this Long and Worthington said:

> Guidance is growing and concomitant with the tremendous growth of guidance is the development of vocational libraries. The urgent need for occupational information was recognized during the depression days of the 1930's. The creation of occupational information gained impetus during the World War II emergency.[4]

The extent to which the total area of agricultural occupations has entered into guidance literature still remains to be analyzed, but that they have not received adequate attention is indicated by Brayfield and Mickelson, who found that career guidance of all types and for all occupations was more

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[2] James Harris Sommerville, "A Survey of the Guidance Practices Followed by Virginia Teachers of Vocational Agriculture," (unpublished Master's thesis, Virginia Polytechnic Institute, Blacksburg, 1953), p. 106.

[3] E. G. Williamson, Students and Occupations (New York: Henry Holt and Company, 1937), Chap. II, passim.

[4] Louis Long and Henietta Worthington, "The Vocational Library," Occupations, 30:115-18, November, 1951.

or less concentrated upon the white-collar and professional occupations, and that the manual and minimal skill level vocations, together with farming, were relatively neglected.[5]

Brayfield had previously stated that "occupational information as one phase of guidance methodology had not had sufficient critical analysis or research."[6] He also emphasized that the "shot-gun" method of using materials in giving assistance in the choice of a career was fruitless. He stated, at the same time, that whereas no specific formula had been devised for using published occupational information, increasing emphasis was being placed upon its use in a highly selective and individualized manner by integrating it carefully into the counseling program.[7]

Speaking in this connection, Hamlin had this to say: "Evaluation is the key to improvement. . . . We shall not improve if we value too highly what we have."[8] Then, drawing his conclusions regarding the process of appraisal, he stated

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[5] Arthur H. Brayfield and Grace T. Mickelson, "Disparities in Occupational Information Coverage," Occupations, 20:506-8, April, 1951.

[6] Arthur H. Brayfield, "'Dissemination' of Occupational Information," Occupations, 29:411-13, March, 1951.

[7] Ibid., p. 412.

[8] H. M. Hamlin, "What Is of Value?" The Agricultural Education Magazine, 23:220, April, 1951.

also: "Evaluation is a shared process, not a prerogative delegated exclusively to teachers."[9] Thus, he suggests the desirability of having students assist in making evaluations.

It is the hope of the writer that the findings and implications of this study will be of assistance in solving many of the problems in assembling, evaluating, and filing occupational information in agriculture, both for "production occupations" and "farm services and other related occupations."

Definitions of terms used. In order to make this study more meaningful it seems desirable to find a common ground of understanding of some of the basic terms. The terms which may have different connotation to different individuals are therefore defined.

1. Critical factors. Characteristics, conditions, or other elements analyzed which produce results, or careful judgments.
2. Evaluation. A term used to denote the process of appraising or judging the worth or value of something. The process includes the selection and weighting of criteria, also the gathering and summarizing of evidence. Evaluation reveals the

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[9] Ibid., p. 229.

weaknesses and strengths of the item being evaluated.

3. Evaluative instrument. A device, scale, or score card which assists in determining an objective judgment or value.

4. North-Central Region. This is one of the four geographic regions in organization of Federal administration for vocational education. The states are: Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

5. Occupational information in agriculture. There seems to be general agreement on the general scope of the term "occupational information." A National Conference committee report on occupational information gives the following description:

> Occupational information, as used in this report, is defined as accurate, up-to-date treatment and interpretation of data important to the process of occupational selection, preparation, placement, and adjustment. Socio-economic trends, which affect all areas of occupational information, are important elements in this field.[10]

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[10] Federal Security Agency, United States Office of Education, Division of Vocational Education, Counselor Competencies in Occupational Information (Miscellaneous Publication 3314-3. Washington, D.C.: United States Government Printing Office, 1949), p. 1.

This description represents the concept of occupational information as used in this study, except that it is limited to occupations in agriculture and those related to agriculture.

6. Production occupations. In this study the term refers to those occupations where raw products are produced on the farm.
7. Farm service and other related occupations. The farm service occupations render services to farmers, such as tractor or equipment repairs. Other related occupations are those which require some agricultural knowledge, for example, salesmen or distributors of farm equipment and special supplies.
8. State supervisor of vocational agriculture. The person directly responsible for the administration of vocational agriculture from the state level.
9. Student of vocational agriculture. An individual who is regularly enrolled in high school and studying vocational agriculture as specified by the Smith-Hughes[11] and subsequent acts.

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[11] United States Congress, Public Laws of the United States of America Passed by the Sixty-Fourth Congress, 1915-1917 (Vol. XXXIX, Part I. Washington, D.C.: United States Government Printing Office, 1917), pp. 929-36.

10. Teacher of vocational agriculture. One who is employed by a public school and who teaches one or more classes of vocational agriculture for which reimbursement is paid to the school from funds provided by the Smith-Hughes and subsequent acts.

CHAPTER II

REVIEW OF RELATED LITERATURE

In view of the rapid growth in the publication, since World War II, of materials relating to the various agricultural vocations, a number of educators have interested themselves in reviewing these materials from the standpoint of their efficacy in proper guidance. They have seen that while the problem of establishing young men in farming and related occupations is naturally associated with the opportunities at hand, yet the channeling of youth into the most suitable occupations is often dependent upon their contact with reliable printed information. They have seen, too, that since farming has become highly mechanized and the demand for manpower has decreased, many farm boys who have wished to maintain their connection with some phase of agricultural life have found it necessary to leave their own community and often their own state in search of work. These educators have felt that proper materials in the hands of such boys would assist them in finding the opportunities which would suit them individually and lead them to a successful career.

A survey of the work of these educators discloses that their studies are divisible into six categories. This chapter will be devoted to a brief survey of the literature as it is grouped in each of these: (1) importance of occupational

information, (2) some techniques and factors influencing occupational choice, (3) opportunities, placement, and satisfaction, (4) evaluating occupational information, (5) availability of occupational information in agriculture and related fields, and (6) filing of occupational information materials.

Importance of occupational information. As will be pointed out later in this chapter, a large percentage of the people abandon the occupation of their first choice within a few years. Maier suggests in his study of the problems relating to teaching vocational guidance that the number of these unintelligent choices made by students justifies the idea of giving assistance to young people in school.[1] That teachers themselves are aware of the need was pointed out by Ross, who administered an opinion scale to 562 Iowa teachers in 1948, and reported that 90 percent recognized the importance of occupational information and were interested in making it a part of their classwork.[2] Bedell and Nelson conducted a survey on the use of occupational information in 300 rural high schools in Nebraska, each having twelve years of instruction. These schools were located in towns with a

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[1] William J. Maier, "The Problem of Teaching for Vocational Choice in Trumanburg, New York," (unpublished Master's thesis, Cornell University, Ithaca, New York, 1923), p. 116.

[2] Roland R. Ross, "Occupational Information in the Schools," Occupations, 27:397-98, March, 1949.

population of 2,500 or less. The opinions of 311 teachers in these schools showed that 80 percent of them thought that the study of occupational information should be included in the high-school curriculum; less than 40 percent of them felt that they were qualified to teach it in their courses; and 60 percent believed that courses in occupational information relating to a teacher's major field of study should be a prerequisite for the granting of a teaching certificate. The educators felt that teacher-training institutions should offer these courses both at the undergraduate and graduate levels.[3]

Christensen was of the opinion that occupational information was important in that it could and should perform four distinct functions for the student. He believed, however, that in order to do so it should possess the following four characteristics. It should be (1) instructional by providing adequate data for making an occupational choice, (2) instrumental in convincing the client of the need for occupational planning, (3) distributional by being available, and (4) therapeutical by assisting the counselor in scaling down the ambitions of the client without losing face, especially when occupational choices are dictated by emotions, glamour, or

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[3] Ralph Bedell and William Howard Nelson, "Educators' Opinions on Occupational Information Used in Rural High Schools," Occupations, 29:205-6, December, 1950.

romance.[4] Baer and Roeber, in discussing the importance of occupational information, had this to say:

> Occupational information is an educational essential, whatever the conditions of the labor market may be. In periods of widespread unemployment, when jobs are hard to find, counselors, students, and parents all recognize the need for occupational information. As a result, they demand and use more and more occupational literature. During periods of full employment, when jobs are easy to obtain, however, many of these persons unfortunately do not fully appreciate the values of occupational information.[5]

Some factors and techniques influencing the choice of an occupation. The choice of a career is seldom a simple affair, but rather, because of a number of influences operating upon the individual when endeavoring to arrive at a decision for a life work, it may become a complex process. Speer and Jasker conducted a study with 107 persons desiring occupational information. They reported that those who lacked adequate occupational information and also lacked adequate information about their own abilities were more likely to select unsuitable occupational goals, but that those who had direct contact with the occupation had more adequate information and more appropriate vocational plans. They pointed out that occupational information may be obtained from reading materials;

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[4] Thomas E. Christensen, "Functions of Occupational Information in Counseling," Occupations, 28:11-14, May, 1950.

[5] Max F. Baer and Edward C. Roeber, Occupational Information, Its Nature and Use (Chicago: Science Research Associates, Inc., 1951), p. 2.

from friends, relatives, and others engaged in the occupation; from personal work experiences; or from general education.[6] That it should not be difficult for a person to obtain career information was proved by Lowenstein and Hoppock, whose study showed that enrollment in courses for guidance in the United States exceeded 150,000, and that every state except Nevada included such courses in its school offerings.[7]

Cochrane expressed the following view with regard to the choice of a vocation:

> A person planning his future should know the personal characteristics and requirements of workers in various occupations and the level of intelligence, general education, special aptitudes, and training expected of one who enters a specific occupation. He must ask: Do I have or can I acquire these requisites? Other questions pertain to interest in the work, stability of employment, earnings, chances of promotion, competition, social prestige, and the like. Qualitative data on occupations are necessary for sound vocational planning.[8]

Olshansky took quite a different view of the matter of choosing an occupation by saying that jobs choose people and that people do not choose jobs. His premise was based upon

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[6] George S. Speer and Leslie Jasker, "The Influence of Occupational Information on Occupational Goals," Occupations, 28:15-17, October, 1949.

[7] N. Lowenstein and R. Hoppock, "Teaching of Occupations in 1952," Personnel and Guidance Journal, 31:441-44, April, 1953.

[8] R. Cochrane, "Helping Youth Discover Opportunities," California Journal of Secondary Education, 21:96-98, February, 1946.

the fact that a high percentage of siblings choose the occupation levels of their parents.[9]

Beilen stressed what he calls "the community occupational survey" as a technique for obtaining occupation information. His assumption was that students who had knowledge of the types of job opportunities actually available made more realistic occupational choices.[10] At the same time, a study by Nick indicated that the occupational choices of groups of high-school students may be changed by providing occupational information to these groups.[11]

The use of films and visits to places of employment has gained in popularity in recent years as techniques in teaching occupational information. Miller conducted an experiment with these two techniques. He used three matched groups, two experimental and one control, each consisting of 33 members. One experimental group visited ten industries, while the other group saw ten vocational guidance films. Each group was given comparable instruction following the visitation or use of the film. The gains for the experimental groups were

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[9] S. S. Olshansky, "New Light on Job Choice," Occupations, 29:603-4, May, 1951.

[10] H. Beilen, "Community Occupational Surveys and Studies of Occupational Choice," Personnel and Guidance Journal, 31:455-57, April, 1953.

[11] E. W. Nick, "High School Boys Choose Vocations," Occupations, 20:264-69, January, 1942.

significant at the one-percent level of confidence. Miller concluded that students learn about occupations and jobs when vocational films and job visits followed by discussion were used as primary teaching techniques. Both experimental techniques appeared to be almost equally effective as instructional tools in the areas under investigation, but job visits yielded more significant results than vocational films in terms of gains in occupational information, selection of career choices, and stability of occupational choice.[12]

Fisher designed a questionnaire to obtain information regarding the selection of vocations. It was submitted to 1,356 students enrolled in the general curriculum of the College of Liberal Arts and Sciences of the University of Illinois. He reported that one-third of the freshmen and two-thirds of the seniors had indicated that they had selected vocations. Fifty-one percent of the students' reasons for selection of vocations were directly associated with interest in the vocation, while only 11 percent were associated with anticipated ability to do the work, and 6 percent were associated with what the student believed to be available opportunities for future employment in chosen

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[12] Ray A. Miller, "Teaching Occupations Using Films and Field Trips," Personnel and Guidance Journal, 31:373-75, March, 1953.

vocations. Only 1 percent based their decision for choice of vocation upon descriptive literature.[13]

Opportunities, placement, and satisfaction. Many studies have been made to determine occupational opportunities, occupational placement, and occupational satisfaction. Only a few of the major studies which are closely related to this study are reviewed, i.e., occupations in agriculture and related occupations.

Nylund conducted a study in the Spencer-Van Etten Community in the State of New York and found no real opportunities for full-time men on the farms in that community except for the chance to become a hired man. Occupational opportunities were available, however, in "related service occupations," such as services or businesses which assemble, grade, process, and transport the products of the farm to market.[14]

Knight reported that in 1940 the Tennessee vocational agriculture teachers commenced to study the placement-establishment problem under the combined sponsorship of the State Division for Vocational Education and the Department of

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[13] Robert P. Fisher, "Need for Vocational Information," Journal of Higher Education, 16:270-73, May, 1945.

[14] F. A. Nylund, "The Discovery and Analysis of the Occupational Opportunities in Farming and Related Service Occupations for Former Students of Vocational Agriculture," (unpublished Doctor's dissertation, Cornell University, Ithaca, New York, 1946), pp. 221-25.

Agricultural Education at the University of Tennessee. The investigation included approximately 70 percent of the 246 Tennessee communities which were served by both white and negro teachers of vocational agriculture. Contacts were made with two groups of potential employers: (a) 13,054 farm operators, and (b) 1,568 individuals who owned or managed local businesses closely related to agriculture. They found that few Tennessee farmers reached ownership by passing progressively from hired hand to renter to owner, but that ownership and tenancy were most frequently immediate. The opportunities in related occupations for boys with training in vocational agriculture were few.[15]

Wright, in 1943, made a critical review of 106 studies in agricultural education conducted during the previous 20 years in all parts of the country. The majority of these studies had dealt with the problems of occupational distribution of former students of vocational agriculture, but very few of them were devoted exclusively to the discovery and analysis of occupational opportunities in farming and in related occupations. Wright found great differences in the occupational distribution of former students of vocational agriculture in the various sections of the country and in

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[15] E. B. Knight, "Placement Opportunities in Farming and Related Occupations for Tennessee Students of Vocational Agriculture," Occupations, 20:116-21, November, 1941.

specific areas within states. His survey revealed that larger proportions of former students enter farming who meet the following conditions than those who do not: leave school before graduation, study vocational agriculture, receive lower grades, attend fewer years of high school, sons of farmers, attend small schools, attend special schools of agriculture, study more years of agriculture, have larger and more successful supervised farming programs, and participate in extracurricular activities of an agricultural nature.[16]

In 1933, Hamlin reviewed the studies in agricultural education pertaining to occupational distribution of persons who had taken courses in vocational agriculture. On the basis of the studies available he concluded that one may expect one-third to one-half of the members of any given high-school class to spend their lives in occupations not directly related to agriculture.[17]

In 1939 Deyoe surveyed the careers of 941 boys who took one or more years of vocational agriculture in 20 Michigan high schools during the period from 1918 to 1935 and reported

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[16] Carlton E. Wright, "Occupational Distribution, Entrance into Farming, and Opportunities for Farming of Former Students of Vocational Agriculture," (unpublished Doctor's dissertation, Cornell University, Ithaca, New York, 1943), pp. 532-34.

[17] H. M. Hamlin, "Summary of Measurement Studies in Agricultural Education," Agricultural Education Magazine, 6:74-77, 80, November; 90-93, 96, December, 1933.

that 60.5 percent were farming, 6.6 percent were in occupations related to farming, and 32.9 percent were in non-agricultural occupations.[18]

Very few studies have been made in agricultural education to determine the degree of satisfaction of occupational choices. Anderson, in studying young men ten years after they left Pennsylvania rural high schools, found that only 20 percent of the boys actually entered immediately the occupations of their first choice; after ten years 50 percent of them had abandoned the occupation of their first choice.[19] Gregory wished to determine the various factors influencing students of vocational agriculture to choose farming as a vocation and found that 40 percent of those studied had changed either "into" or "out of" farming during the six-year period, 1931 to 1937. Of those leaving farming, 29 percent had returned to farming by 1937.[20]

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[18] George Percy Deyoe, Young Men from Michigan Farms (State Board of Control for Vocational Education, Bulletin No. 256. Lansing, Michigan: 1939), 56 pp.

[19] Clarence Scott Anderson, "Young Men 10 Years after Leaving Pennsylvania Rural High Schools," (nonthesis study, Pennsylvania State College, State College, 1946), p. 38.

[20] Raymond William Gregory, "Factors Influencing Establishment in Farming of Former Students in Vocational Agriculture," (unpublished Doctor's dissertation, Cornell University, Ithaca, New York, 1937), pp. 120-22.

Studying a group of out-of-school farm youth, Bender found that 90 percent of the young farmers wished to establish their homes on farms, as compared with 60 percent of the young farm women. He stated that this was significant at the five-percent level of confidence, and that if these preferences were typical of the young farm men and women throughout the country there would likely be more bachelor farmers in the future.[21]

Evaluating occupational information. If the teacher of vocational agriculture is to make intelligent use of the great variety of occupational literature which is available, he must have in mind standards for judging the adequacy of these materials. The standards reviewed here are those which have been used to some extent by counselors and librarians in appraising occupational literature.

Early efforts to evaluate occupational literature were made by Lane, the results of whose work were published in 1926,[22] and revised in 1931.[23] The National Vocational

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[21] Ralph E. Bender, "The Development of a Problem Check List and a Demonstration of Its Use in Planning Rural Youth Programs," (unpublished Doctor's dissertation, Ohio State University, Columbus, 1947), p. 307.

[22] Mary Rogers Lane, "The Content, Volume, and Uses of Occupational Studies," Vocational Guidance Magazine, 4:326-33, April, 1926.

[23] The outline was accepted under the title, "The Outline Used in Preparing Occupational Studies; Form A for a Long Study; Form B for a Short Study," Vocational Guidance Magazine, 9:356-59, May, 1931.

Guidance Association, under the direction of Mary P. Corre and Josephine Streit Shapiro, revised Lane's works still further.[24] The resulting outline became known as the "Basic Outline." Later revisions of the Basic Outline were published in 1940,[25] and 1950.[26]

In 1934-35 Porter and Sumner, in an endeavor to measure format and style of agricultural college bulletins, contacted the editors of bulletins in the agricultural colleges and asked them to give their personal opinions concerning the factors that make a popular or unpopular publication.

Professor Bristow Adams of Cornell University made the following reply:

> So far, I have seen very little relation between the style of a bulletin and the demand for that bulletin; in other words, demand is based on the number of persons engaged in the farming enterprise, rather than on the qualities of the bulletin itself. For example, Cornell poultry bulletins are printed in large editions and the supply is soon exhausted, in spite of the fact that some of them are by no means models of what a bulletin should be.

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[24] The National Vocational Guidance Association, "Distinguishing Marks of a Good Occupational Monograph," Occupations, 18:129-30, November, 1939.

[25] The National Vocational Guidance Association, "Content of a Good Occupational Monograph--The Basic Outline," Occupations, 19:20-23, October, 1940.

[26] The National Vocational Guidance Association, "Standards for Use in Preparing and Evaluating Occupational Literature," Occupations, 28:319-24, February, 1950.

> Of the bulletins which have not had a popular appeal, 286, "The Common, or Air-Cooled, Apple Storage and Its Management," might have been expected to have a considerable demand because the apple crop is commercially important in New York. The bulletin has not been popular. I think it is because it is too technical and too long, and because a large number of apple growers have progressed beyond the air-cooled storage stage, and depend upon modern cold-storage warehouses.[27]

Professor A. J. Patch of Michigan State College expressed his views to Porter and Sumner as follows:

> Special 231 is a technical bulletin masquerading in a costume to simulate a popular bulletin. No one was deceived very much. This is one of the most expensive jobs ever published here, which should prove that mere expenditure of money does not make a bulletin popular. . . . In the group of bulletins which have had a large distribution, Special bulletin 183 has been revised and reprinted many times. It contains essential information of importance to many people. Technicalities are avoided, the style is terse and understandable, and the language is simple without showing any evidence of being written down. The cuts are numerous and of good quality.[28]

Lincoln has prepared an outline for the evaluation of occupational pamphlets in which five main topics are considered. They are:

> To which individuals (pupils, teachers, or parents) would the pamphlets be valuable?
> How is the subject matter presented? (story, descriptive, etc.)

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[27] Wilford Dowdle Porter and W. A. Sumner, Measuring Format and Style of Agricultural College Bulletins (Department of Agricultural Journalism, College of Agriculture, Bulletin No. 7. Madison, Wisconsin: University of Wisconsin, 1936), p. 7.

[28] Ibid., pp. 11 f.

Who collected information?
Was information verified?
What uses can be made of the pamphlet?[29]

Woellner and Lyman developed a score card for estimating the value of a vocational book used for individual reading. In this card they assigned to the section on content 800 of a possible 1,000 points: occupational information 400 points, reader's interest 150 points, and appreciation and ideals 250 points. The second main section dealt with mechanical make-up to which were given 100 points; and the remaining 100 points were distributed to subtopics under the general heading of composition and rhetoric.[30]

For evaluating occupational literature, Froelich designed a checklist which consists of five sections, each having a numerical value: content 60 points, author 10 points, illustrations 5 points, and format 15 points. The numerical values were determined in the following manner: Forty separate pieces of occupational information were checked by two full-time counselors. Those items which the counselors said were characteristic of 75 percent of the publications were retained in the final scale. A rough index of discrimination

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[29] Mildred E. Lincoln, Teaching about Vocational Life (Scranton, Pennsylvania: International Textbook Company, 1937), pp. 430-32.

[30] R. C. Woellner and R. H. Lyman, "Score Card for Evaluating the Value of a Vocational Book Used for Individual Reading," School Review, 38:191-99, March, 1930.

was computed. Twenty "good" and 20 "poor" publications were selected, each of which was then checked against all items in the checklist. If the counselors agreed that an item was characteristic of a publication, one point was given. Separate totals for the "good" and "poor" groups were computed for each item and the total "good" points were divided by the total "poor" points for each of the thirteen items in the scale, the dividend serving as the index of discrimination. For example, they assigned ten points to the "good" group for illustration, while the "poor" group received only four points. Thus, ten divided by four gave an index discrimination of 2.5. Weights were then assigned with regard for the relative discriminatory power of the items. The scale thus developed is referred to as the "North Dakota Checklist for Evaluation of Occupational Literature."[31] This checklist appears to be more of a quantitative nature, and does not provide for rating of the quality of the materials presented.

Drucker has made only slight modifications of the "North Dakota Checklist for Evaluation of Occupational Literature" for use in Ohio.[32]

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[31] Clifford P. Froelich, "An Instrument for Evaluating Occupational Literature," Occupations, 20:581-85, May, 1942.

[32] Mary J. Drucker, Evaluating an Occupational Information Library (Division of Vocational Education, Bulletin No. GP-1. Columbus, Ohio: State Department of Education, November, 1951), p. 7.

Oxhandler worked with 50 freshman homemaking girls at Ohio State University to determine what makes an occupational information pamphlet popular, and found that the most popular ones had fewer words per heading, more outlining of subject matter, more pictures, and large type with more white space between lines and paragraphs. Therefore the pamphlets that appeared easy to read, and from which information could be easily obtained were the most popular ones.[33]

Brayfield and Reed applied the revised Flesch[34] method of measuring readability and human interest to sample passages from current occupational literature on skilled and semi-skilled occupations. They reported that 65 percent of the publications studied for ease of reading were rated "very difficult" and the remainder rated "difficult." For human interest, 71 percent were judged "dull," and the remaining ones were judged "mildly interesting."[35]

Availability of occupational information in agriculture and related fields. Very little has been written directly

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33 Avis Oxhandler, "What Makes an Occupational Information Pamphlet Popular?" Occupations, 29:26-29, October, 1950.

34 R. A. Flesch, "A New Readability Yardstick," Journal of Applied Psychology, 32:221-23, June, 1948.

35 Arthur H. Brayfield and P. A. Reed, "How Readable Are Occupational Information Booklets?" Journal of Applied Psychology, 34:325-28, October, 1950.

on this subject, but most studies pertaining to occupational information imply that there is a paucity of adequate materials. Byram prepared a list of occupations in and related to agriculture other than productive farming, and there were indications of an inadequacy of occupational information available to farm boys.[36]

Brayfield and Mickelson made a study of occupational information coverage. As mentioned in another connection in this paper, they reported that occupational information was concentrated upon the white-collar and professional occupations; manual and minimal skill level occupations and farming were relatively neglected. They stated also that a realistic analysis of occupational structure and trends by writers and publishers was needed so that gaps in coverage could be reduced.[37]

Filing occupational information. In a recent publication Baer and Roeber point out that there are several goals which are common to all good plans for filing occupational information. They are: (1) a simple plan, (2) an expandable plan, (3) an attractive plan, and (4) a psychologically

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[36] Harold M. Byram, "Opportunities for the Farm-Reared Boy," Occupations, 17:114-21, November, 1938.

[37] Arthur H. Brayfield and Grace T. Mickelson, "Disparities in Occupational Information Coverage," Occupations, 29:506-8, April, 1951.

appropriate plan, meaning one which meets the needs of the students rather than the needs of counselors and librarians.[38] Shartle, in reviewing several filing plans, had this to say:

> In filing occupational information the important thing is to have a system that meets the needs rather than copy or adapt a particular system. Adopting the Dictionary or a modification of it has the advantage of grouping similar occupations together.
>
> Regardless of what system is used the number of breakdowns can be governed by the amount and variety of information one has to file and by the breadth of information that one deals with at any specific time.[39]

Filing systems may be one of two distinct types, the alphabetical system and the system based on titles and codes of the Dictionary of Occupational Titles.[40] Each type is being modified and adjusted to meet the filing needs throughout the country. The SRA (Science Research Associates) plan is alphabetical and can be expanded indefinitely. This plan includes a guidebook, How to Build an Occupational Library.[41]

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[38] Baer and Roeber, Occupational Information, Its Nature and Use, pp. 36-370.

[39] Carroll L. Shartle, Occupational Information, Its Development and Application (New York: Prentice-Hall, Inc., 1946), p. 144.

[40] United States Employment Service, United States Department of Labor, Dictionary of Occupational Titles (Washington, D.C.: United States Government Printing Office, 1949), Vols. I, II.

[41] John R. Yale, How to Build an Occupational Information Library (Chicago: Science Research Associates, 1946), 120 pp.

The Compton College Plan,[42] the Virginia Plan,[43] and the Missouri Plan[44] are the alphabetical type with slight modifications. Handsville,[45] Gachet,[46] and Kennedy[47] developed plans strongly resembling one another but with slight modifications, all based on the Dictionary of Occupational Titles.

The Michigan filing plan is an alphabetical subject index by fields of work based upon those used in the Dictionary of Occupational Titles. The terms of the plan were so defined that materials for all occupations are filed in 165 folders.[48] This appears to be a simple, and very practical plan for small libraries where semiskilled persons are

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[42] Elizabeth Neal, "Filing Occupational Information Alphabetically," Occupations, 22:503-6, May, 1944.

[43] State Consultation Service, Division of Secondary Education, Occupational Information: A Manual (Richmond, Virginia: Library and Textbook Service of the Division of Related Instructional Services, 1949), pp. 31-53.

[44] Edward C. Roeber, Missouri Plan for Filing Unbound Materials on Occupations (Columbus, Missouri: University of Missouri, 1950).

[45] Raymond M. Handsville, "How to File Occupational Information," Occupations, 22:35-38, October, 1943.

[46] Rochelle R. Gachet, "Filing Occupational Information for Women," Occupations, 22:354-57, March, 1944.

[47] E. G. Kennedy, Occupational Information, A Course of Study (Topeka, Kansas: State Board for Vocational Education, March, 1949), pp. 78-91.

[48] Michigan Plan for Filing and Indexing Occupational Material can be purchased from the Sturgis Printing Company, Sturgis, Michigan.

employed as librarians. Furthermore, high-school students may be easily taught how to use it.

In this chapter an attempt has been made to show the importance and availability of occupational information in agriculture and related fields. The practices which have been used in evaluating these materials have been reviewed in order that a satisfactory method may be developed for evaluating occupational information in agriculture. After a thorough investigation of the research on the problem defined in this study, it was concluded that there were no studies directly concerned with this problem. Therefore, closely related literature of occupational information has been reviewed. Since filing of such materials may create a problem, the most popular filing systems for occupational information have been cited and will be used as a basis for recommending a satisfactory filing system for use in agricultural libraries.

In the next chapter will be discussed the methods of collecting, analyzing, and using data which were gathered for this study.

CHAPTER III

SECURING, ANALYZING, AND USING DATA

This chapter treats the following phases of the study: (1) the general plan adopted for securing the data on occupational information in agriculture; (2) the development of the questionnaires and of the plan for administration; (3) the trial use and subsequent revision of the instructions and questionnaires; (4) the selection of the teachers of vocational agriculture to whom the questionnaires were to be sent; (5) the distribution and administration of materials for collecting data; (6) the methods of analyzing the data; and (7) the uses of the data.

General plan for securing data. As previously discussed in Chapter I, one purpose of the study was to determine the critical factors of occupational information in agriculture which teachers and students of vocational agriculture in the North-Central Region found most useful for their needs. To accomplish this objective two questionnaires were developed, one for the teachers of vocational agriculture and the other for the students.

According to methods described later, teachers were selected and then asked to cooperate in the following ways: (1) by personally answering a questionnaire; (2) by directing

their students in checking questionnaires; and (3) by tabulating the results of each class. These three steps are presented more fully in separate sections of this chapter.

Development of the questionnaires and of the plan for administration. After a review of the literature to determine the important characteristics of and the critical factors in occupational information, only those characteristics and factors on which there was general agreement in the literature were selected for use in the questionnaires. It was desirable also to secure both teachers' and students' opinions on most of the items selected, but there were certain items which required only the teachers' answers, e.g., the number of occupational pamphlets in the school's agriculture library; and there were some which pertained only to the students, e.g., their preference for certain occupations as a possible vocation. As a consequence it was decided to prepare two different forms.

Both questionnaires contained a list of "characteristics of occupational pamphlets" which were to be rated as "very important," "important," or "unimportant." (See Appendix A.) The first sixteen characteristics on the questionnaire were modifications of those listed in "Standards for Use in Preparing and Evaluating Occupational

Literature."[1] The remaining two characteristics were emphasized in the early literature by Porter and Sumner,[2] and more recently by Oxhandler.[3] There were other important characteristics of occupational information emphasized by Oxhandler,[4] i.e., pictures, tables, and writing style. A preference response for these items was more desirable than the ratings applied to the other items. These characteristics are defined in Chapter IV.

The teacher's questionnaire included items which sought to obtain data concerning the number of occupational pamphlets and books in the library of the department of vocational agriculture, the number of agricultural occupations presented in these pamphlets and books, the number of days spent presenting to classes the available occupational information in agriculture, the kind and suitability of the filing system, and the teacher's preference as to where his students should obtain information concerning agricultural occupations.

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[1] The National Vocational Guidance Association, "Standards for Use in Preparing and Evaluating Occupational Literature," Occupations, 28:319-24, February, 1950.

[2] Wilford Dowdle Porter and W. A. Sumner, Measuring Format and Style of Agricultural College Bulletins (Department of Agricultural Journalism, College of Agriculture, Bulletin No. 7. Madison, Wisconsin: University of Wisconsin, 1936), p. 7.

[3] Avis Oxhandler, "What Makes an Occupational Information Pamphlet Popular?" Occupations, 29:26-29, October, 1950.

[4] Loc. cit.

The teachers were asked to check the items relating their experiences with these sources of occupational information: (1) printed materials, (2) films, filmstrips, and slides, (3) field trips to farms, and (4) people engaged in the occupation. The above sources were each checked for the ease of securing them, their teaching value, and their frequency of use. (See teacher's questionnaire in Appendix A.)

The students' questionnaires were designed to obtain such personal data as their preferences for sources of occupational information, their opinions of the value of occupational information in agriculture, and their opinions of the value of field trips to farms or to other places of work to learn about an occupation.

The last section in both questionnaires was devoted to an "Occupation Checklist in Agriculture." The occupations were placed in two classifications, "Production Occupations," and "Farm Service and Other Related Occupations." (These two terms have been previously defined in the section, "Definitions of Terms Used.") The teachers were asked to check those occupations on which materials were needed, but which were lacking in the agricultural library. The students were asked to check the occupations in which they were interested as a possible vocation.

The checklist was developed after a careful consideration of the classifications of agriculture and related

occupations in the Dictionary of Occupational Titles,[5] and Byram's[6] classification of occupations for the agriculturally trained. The titles found on the available publications in agricultural and related occupations also influenced the entries on the checklist.

In order that the questionnaires might be uniformly administered, it seemed important that a well-organized plan be developed for use in collecting the data. The following procedure was devised to be tested in an experimental situation: (1) giving the teacher opportunity to answer his questionnaire before distributing questionnaires to the students (to prevent the students' opinions from influencing the teacher's reaction); (2) thoroughly acquainting the students with the materials under consideration by providing an opportunity for them to examine them carefully; and (3) determining the approximate length of time necessary for examining the materials, checking of the questionnaires and tabulating the responses.

Trial use and revisions of the instructions and the questionnaires. Because of the importance of testing not

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[5] United States Employment Service, United States Department of Labor, Dictionary of Occupational Titles (Washington, D.C.: United States Government Printing Office, 1949), Vols. I, II.

[6] Harold M. Byram, Occupations for the Agriculturally Trained (Ames, Iowa: Collegiate Press, Iowa State College, 1936), 28 pp.

only the questionnaires, but also the proposed plan for administering them to the students, as previously mentioned, arrangements were made with five Michigan teachers of vocational agriculture for a trial test. The agriculture departments used were Charlotte, Grand Ledge, Olivet, Owosso, and Williamston. For this purpose only one agriculture class was used at each school, but a good sampling resulted in that there were three freshman classes of 52 students, one junior class of 11, and one senior class of 16.

The writer was present at each trial test to observe and to make note of any questions by the students or teacher pertaining to the questionnaires or any additional instructions necessary for administering the questionnaires to the groups. The time required in each of the following steps was also noted: (1) for the teacher to introduce the study to the students, (2) for the students to examine the pamphlets, (3) for the students to check the questionnaires, and (4) for the teacher to tabulate the results with the assistance of the class members. These trial tests proved to be very helpful in clarifying several questions and statements in the instructions. The timing of each step made it possible to plan a smooth sequence of operation and to recommend a time schedule so that the gathering of the data might be completed in one class period.

Selection of teachers of vocational agriculture. It was stated in Chapter I that selected teachers of vocational agriculture in the North-Central Region were used for this study. This region was selected for the following reasons: (1) the writer had an opportunity to make personal contacts with the leaders in agricultural education of each state of the region, (2) the states of this region appeared to be fairly homogeneous in opportunities for farming and related occupations, and (3) to hold the expenditure to an amount which would not be prohibitive. In an effort to have each of the states in this region represented in the study, the investigator attended the Regional Conference of Supervisors and Teacher-Trainers in Agriculture at Chicago in March, 1952. He made a special effort at that time to meet each supervisor and to discuss this research problem with him. Then, immediately following the conference, a letter was written to each of these officials (see Appendix A) requesting the names and addresses of five teachers of vocational agriculture in his area and mentioning that those who had used occupational information materials with their classes were preferred. The State Supervisors responded by recommending the five teachers or by sending a copy of their teacher directory.

Thereupon five teachers of vocational agriculture in each state in this Region were contacted by letter (see

Appendix A) and their cooperation was solicited. The letter explained briefly and gave the approximate time required for participation. Of the 65 teachers who were contacted, 54 (83 percent) signified their agreement to participate in the study by returning a self-addressed postal card which had been enclosed in the explanatory letter. The card also gave the number of students in each class of vocational agriculture.

Distribution and administration of materials for collecting data. When the postal card was received from each teacher, the necessary materials were mailed to him immediately. They consisted of: (1) instructions for conducting the study; (2) student questionnaires sufficient for total enrollment in all vocational agriculture classes; (3) teacher's questionnaire; (4) occupational pamphlets in sufficient number to meet the needs of the largest class; and (5) self-addressed envelope for mailing the results. (See Appendix A.) The occupational pamphlets sent covered twelve different occupations in agriculture and were representative of the inexpensive materials available.

The instructions recommended that the teachers conduct the study as follows: (1) to answer their own questionnaires before presenting the forms to their students (for reasons previously mentioned); (2) to use about five minutes to

introduce the study to the class by relating certain experiences as that suggested on page two of the instructions, and then to distribute the pamphlets to the students, allowing them about 15 minutes to become familiar with the materials under consideration; (3) to place a student's questionnaire in the hands of each member in the class and allow 12 to 15 minutes for checking; (4) to summarize the students' answers on the forms provided for that purpose; and (5) to mail immediately the completed teacher's questionnaire and the summary of the students' responses in the self-addressed envelope which was provided. (A copy of these instructions is found in Appendix A.)

Of the 54 teachers who agreed to cooperate in the study, 51, or 95 percent, returned the required materials containing the results in a highly satisfactory condition.

Methods of analyzing data. A composite tabulation was subsequently made of the teachers' responses to the questionnaires and one was likewise made of the responses of the students participating in the study. Since the results in many instances reported both juniors and seniors in Classes III and IV, it seemed advisable to combine the results of these two groups. Some of the data are shown in tabulated form when statistical treatment was not required; however, for most of the data it was necessary to determine the

significance of differences or the levels of significance. When it was necessary to do this, the proportions of responses for each of the three categories were computed for those factors according to the opinions expressed by each group, namely, teachers, Class I, Class II, Classes III and IV, and the total of all classes. In order to determine the significance of the difference between proportions, it was necessary to compute the standard error of the two largest proportions, the standard error of the difference between these two proportions, and the critical ratio. The critical ratio is equal to the difference of two proportions divided by the standard error of the difference. A critical ratio of two or more of the difference to the standard error of the difference between two proportions is not likely to be a chance difference. Critical ratios of two, and two and six-tenths are significant at the five- and the one-percent levels, respectively. The critical ratio of two, or the five percent level of significance was used as the cutting point throughout this study, although in many instances the one percent level of significance was pointed out. Additional methods used are discussed in Chapter IV as they were applied to specific data.

Uses of the data. The data secured by these means were used: (1) to prepare an evaluative instrument (score card);

(2) to evaluate the available materials which were selected by the criteria set forth in the "Scope of the Study," Chapter I; (3) to discover the sources and coverage of the current materials by preparing an annotated bibliography; and (4) to recommend a filing system to teachers of vocational agriculture.

Limitations of the study. Because of conditions beyond control of the writer, certain limitations are inherent in this study, though it is doubtful that the reliability of the results obtained is affected by them. (1) Because of the irregular responses of the teachers, the number of schools in the respective states varied from two to five. (2) The number of students and teachers represented varied from state to state. (3) The study did not encompass periods of both high and low farmer income, but only a period of relative prosperity. (4) The findings of this study are not necessarily applicable to other regions in the United States or to any specific area in the North-Central Region, but may be helpful to other regions.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction. As was stated in the previous chapter, the sampling used in this study was a purposive selection of certain teachers of vocational agriculture and their students in the North-Central Region. Of the 65 teachers (5 from each of the 13 states) who were solicited to cooperate in the study, 51 or 78 percent participated. Each teacher checked or answered the questionnaire which had been sent to him. Also, according to the proposed plan, each teacher motivated his students to examine some occupational information pamphlets in agriculture and directed their checking of individual questionnaires. The results furnished by the execution of the above plan provided the data used in this study. Table I shows that the teachers of vocational agriculture of 51 schools cooperated in this study. The range was from 2 to 5 teachers per state, or an average of 3.9 teachers per state. The 2,150 students consisted of 738 in Class I (freshmen), 642 in Class II (sophomores), and 770 in Classes III and IV (juniors and seniors). Classes III and IV were combined since most schools reported that they were composed of both junior and senior students. There was an average of 14.5 students per school in Class I, with a range of 8 to 27.5. Class II had an average of 12.6 students per school with a range of

TABLE I

DISTRIBUTION OF COOPERATING STUDENTS OF VOCATIONAL AGRICULTURE BY STATES WITH AVERAGE AND RANGE PER CLASS

State	Number of cooperating schools	Number of students per class			
		I	II	III & IV	Total
Illinois	4	50	32	59	141
Indiana	4	32	27	24	83
Iowa	4	66	63	54	183
Kansas	2	55	32	29	116
Kentucky	3	51	45	82	178
Michigan	5	99	64	69	232
Minnesota	3	37	38	46	121
Missouri	4	49	41	37	127
Nebraska	4	48	58	67	173
North Dakota	5	54	77	78	209
Ohio	3	33	33	36	102
South Dakota	5	55	61	84	200
Wisconsin	5	109	71	105	285
Total	51	738	642	770	2,150
Average	3.9*	14.5	12.6	13.1	42.2
Range	2-5*	8-27.5	6.8-16	6-27.3	20.8-59.3

*Number of schools.

6.8 to 16. For Classes III and IV combined, the average was 13.1 students per school with a range of 6 to 27.3. The average and range of the total of all classes represent the number of students in the vocational agriculture departments per school, namely 42.2, and 20.8 to 59.3 students respectively.

(A list of the cooperating teachers, names of the schools, and addresses may be seen in Appendix A.)

These data have been analyzed by computing the proportions and the critical ratios. Critical ratios of 2 and of 2.6 designate the 5 and the 1 percent levels of significance respectively.

The discussion of these data follows the order of appearance on the students' questionnaire. Special data concerning occupational information are discussed near the end of this chapter.

Preferences for pictures. Teachers and students were asked to give their preferences concerning colored pictures, black and white pictures, or the necessity of pictures in occupational information in agriculture. Preferences of teachers were similar to preferences of students. (See Table II.) Preferences for colored pictures over black and white were significant at the 1 percent level; all groups had critical ratios greater than 2.6. Preferences for black

TABLE II

PREFERENCES OF STUDENTS AND TEACHERS FOR PICTURES IN OCCUPATIONAL INFORMATION IN AGRICULTURE

Students and teachers reporting		Preference for colored pictures		Preference for black and white pictures		Pictures were not necessary		Critical ratio*
Group	Number	Number	Percent	Number	Percent	Number	Percent	
Class I	738	533	72.2	169	22.9	36	4.9	21.9
Class II	642	473	73.7	153	23.8	16	2.5	20.6
Classes III and IV	770	546	70.9	184	23.9	40	5.2	17.7
All classes	2,150	1,552	72.2	506	23.5	92	4.3	36.5
Teachers	50	36	72.0	13	26.0	1	5.2	5.2

*Based on the difference of the two largest proportions.

and white pictures ranged from 22.9 to 26 percent, slightly increasing from Class I to the teachers. A very low percent, 2 to 5, stated pictures were not necessary in the materials.

Preferences for writing style. Table III shows that students and teachers preferred a style which combined paragraphing and outlining. This preference, with a critical ratio slightly above two, was significant at the five-percent level for Class I students. For all other classes and for teachers it was significant at the one-percent level. A larger percent (74.5) of teachers than students (46.7) indicated a preference for a combination of paragraphing and outlining. Also, a greater proportion of teachers preferred outlining to paragraphing. The preceding two findings may be explained by the fact that teachers usually read more extensively and may appreciate the terseness of materials. The students preferred paragraphing to outlining. A logical hypothesis might be that materials which are outlined are more difficult for students to interpret and are less interesting.

Approximately the same percentage of teachers preferred a combination of outline and paragraph writing style as those who preferred colored pictures. This was not true of the students. Considering all classes, only 46.7 percent preferred a combination of outline and paragraph writing, whereas 72.2 percent preferred colored pictures.

TABLE III

PREFERENCES OF STUDENTS AND TEACHERS FOR WRITING STYLE OF OCCUPATIONAL INFORMATION IN AGRICULTURE

Students and teachers reporting		Preference for paragraph form		Preference for outline form		Preference for combination of paragraph and outline		Critical ratio*
Group	Number	Number	Percent	Number	Percent	Number	Percent	
Class I	738	283	38.4	128	17.3	327	44.3	2.3
Class II	642	240	37.4	95	14.8	307	47.8	3.8
Classes III and IV	770	274	35.6	127	16.5	369	47.9	5.4
All classes	2,150	797	37.1	350	16.3	1,003	46.7	6.3
Teachers	51	5	7.8	8	15.7	38	74.5	7.4

*Based on the difference of the two largest proportions.

Preferences for tables. The teachers and students were asked if they "like," "dislike," or "neither like nor dislike" tables in occupational information materials. Both students and teachers preferred information presented in tables. (See Table IV.) Preferences of all groups were significant at the one-percent level. The critical ratio was between "like" and "dislike" for information presented in tables. Twelve percent or less of all groups disliked tables. The proportion of each group neither liking nor disliking tables ranged from 27 to 34 percent.

Sixty percent of the teachers preferred information presented in tables, as compared with 74 percent who preferred a combination of paragraph and outline writing style; 72 percent preferred colored pictures. The students' preferences for the three items were: 60.3 percent for tables, 46.7 percent for combination of paragraph and outline writing style, and 72.2 percent for colored pictures.

Value of occupational information materials. The teachers and students did not agree in their opinions as to the value of these materials. (See Table V.) Fifty-six to 57.8 percent of the students thought that occupational information was "valuable" as compared to 39.1 percent of the teachers. Sixty-one percent of the teachers recognized "some value" of these materials compared to about 37 percent of the students.

TABLE IV

PREFERENCES OF STUDENTS AND TEACHERS FOR TABLES IN OCCUPATIONAL INFORMATION IN AGRICULTURE

Students and teachers reporting		Like tables		Dislike tables		Neither like nor dislike tables		Critical ratio*
Group	Number	Number	Percent	Number	Percent	Number	Percent	
Class I	738	469	63.6	60	8.1	209	28.3	14.6
Class II	642	390	60.8	80	12.5	172	26.8	13.0
Classes III and IV	770	438	56.9	86	11.2	246	32.0	10.2
All classes	2,150	1,297	60.3	226	10.5	627	29.2	21.7
Teachers	50	30	60.0	3	6.0	17	34.0	2.7

*Based on the difference of the two largest proportions.

TABLE V

OPINIONS OF STUDENTS AND TEACHERS OF VALUE OF OCCUPATIONAL INFORMATION IN AGRICULTURE

Students and teachers reporting		Information has much value		Information has some value		Information has little value		Critical ratio*
Group	Number	Number	Percent	Number	Percent	Number	Percent	
Class I	738	414	56.1	277	37.5	47	6.4	7.3
Class II	642	371	57.8	229	35.7	42	6.5	8.2
Classes III and IV	770	438	56.9	280	36.4	52	6.8	8.3
All classes	2,150	1,223	56.9	786	36.6	141	6.6	13.6
Teachers	46	18	39.1	28	60.9	0	0.0	2.1

*Based on the difference of the two largest proportions.

Only a small percent of the students (6.8 or less) thought that these materials were of only "little value" as compared to the fact that no teachers expressed preferences for "little value." The preferences of all groups of the students were significant at the one-percent level, as compared to the five-percent level for teachers.

Preferences of students for source of occupational information materials. As indicated in Table VI, students preferred field trips to films or printed materials as a source of occupational information in agriculture. The critical ratios revealed that the preference of all groups for field trips was highly significant at the one-percent level. Films were preferred to printed materials. Of the students in all classes, 54 percent preferred field trips, 28.9 percent preferred films, and 17 percent preferred printed materials. Homogeneity existed in all groups.

Value of field trips. In reference to the value of field trips to learn about an occupation in agriculture, 75.8 to 83.3 percent of the students and teachers thought that they were of "much value." Only a small percent of the students and teachers thought that field trips were of "no value." The opinions of all groups that field trips have "much value" were highly significant at the one-percent level (Table VII).

TABLE VI

PREFERENCES OF STUDENTS FOR SOURCE OF OCCUPATIONAL INFORMATION IN AGRICULTURE

Students reporting		Preference for printed materials		Preference for films		Preference for field trips		Critical ratio*
Group	Number	Number	Percent	Number	Percent	Number	Percent	
Class I	738	131	17.8	195	26.4	412	55.8	12.1
Class II	642	98	15.3	196	30.5	348	54.2	8.8
Classes III and IV	770	137	17.8	231	30.0	402	52.2	9.3
All classes	2,150	366	17.0	622	28.9	1,162	54.1	17.3

*Based on the difference of the two largest proportions.

TABLE VII

OPINIONS OF STUDENTS AND TEACHERS OF VALUE OF FIELD TRIPS FOR INFORMATION ABOUT AN OCCUPATION IN AGRICULTURE

Students and teachers reporting		Field trips have much value		Field trips have some value		Field trips have no value		Critical ratio*
Group	Number	Number	Percent	Number	Percent	Number	Percent	
Class I	738	580	78.6	146	19.8	12	1.6	27.9
Class II	642	513	79.9	118	18.4	11	1.7	27.9
Classes III and IV	770	584	75.8	162	21.0	24	3.1	25.8
All classes	2,150	1,677	78.0	426	19.8	47	2.2	46.7
Teachers	48	40	83.3	8	16.7	0	0.0	8.8

*Based on the difference of the two largest proportions.

Although 54 percent of the students in all classes preferred field trips, 78 percent recognized field trips as of "much value" in teaching occupational information in agriculture.

Persons from whom students of vocational agriculture preferred to obtain occupational information. It was interesting to note in Table VIII that 53 percent of Class I, 57 percent of Class II, and 61 percent of Classes III and IV (a gradual increase) preferred to obtain occupational information from people who were engaged in the occupation. In each case these percentages were significant at the one-percent level. The percentages of students who preferred the teacher of agriculture as the source of occupational information were 41.6 for Class I, 40.3 for Class II, and 33.6 for Classes III and IV. A gradual decrease was noted. However, the percentages are not significantly different.

The percentage of students who preferred to obtain occupational information from the school counselor was very small, only 4.6 percent for all classes. To determine whether there was a difference between the preferences of the students from the smaller schools and of the students from the larger schools, the following data were secured and analyzed.

The population of each town or city in which the schools were located was secured from the Census of Population: 1950.

TABLE VIII

PERSONS FROM WHOM STUDENTS PREFER TO OBTAIN OCCUPATIONAL INFORMATION IN AGRICULTURE

Students reporting		From the agriculture teacher		From the school counselor		From people engaged in the occupation		Critical ratio*
Group	Number	Number	Percent	Number	Percent	Number	Percent	
Class I	738	307	41.6	40	5.4	391	53.0	4.4
Class II	642	259	40.3	17	2.7	366	57.0	6.1
Classes III and IV	770	259	33.6	41	5.3	470	61.0	11.2
All classes	2,150	825	38.4	98	4.6	1,227	57.1	12.5

*Based on the difference of the two largest proportions.

There were nine towns with a population of less than 1,000, and nine towns with a population greater than 7,750.[1] When the critical ratio was computed, there was no significant difference between the percentage of students who preferred counselors in the nine smaller towns (3.8 percent) and those in the nine larger towns (4.0 percent).

Type of occupation most likely to be chosen as a career. Table IX gives the results of the students' responses to the question, "What type of occupation are you most likely to choose as a career, farming, one related to farming, or non-agricultural?" Opinions of all groups were highly significant at the one-percent level, with percentages for farming of 72.8 for Class I, 70.7 for Class II, 72.2 for Classes III and IV, and 72.0 for all classes. The next largest percentages were for careers related to farming. Students of all classes considered, 91 percent thought that they would choose a career in farming or one related to farming. Only 9 percent thought that they would choose a nonagricultural career. These data are in agreement with studies reported in the review of related literature (Chapter II) that siblings tend to choose the occupational levels of their parents. The

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[1] Census of Population: 1950 (Bureau of the Census, United States Department of Commerce, Vol. I. Washington, D.C.: United States Government Printing Office, 1952).

TABLE IX

STUDENTS' OPINIONS OF THEIR MOST LIKELY CHOICE OF AN OCCUPATION AS A CAREER

Students reporting		Farming Occupation		Occupation Related to Farming		Non-agricultural occupation		Critical ratio*
Group	Number	Number	Percent	Number	Percent	Number	Percent	
Class I	738	537	72.8	128	17.3	73	9.9	25.8
Class II	642	454	70.7	137	21.3	51	7.9	20.4
Classes III and IV	770	556	72.2	145	18.8	69	9.0	23.6
All classes	2,150	1,547	72.0	410	19.1	193	9.0	41.0

*Based on the difference of the two largest proportions.

data also validate the selection of students for classes in vocational agriculture as is required by the Smith-Hughes Acts.[2]

Preferences for some selected characteristics of occupational information. As was stated in Chapter III, both the student's and the teacher's questionnaires contained a list of 18 characteristics of occupational pamphlets which were rated as "very important," "important," or "unimportant." These data were tabulated, as previously, in the following groups: Class I, Class II, Classes III and IV, all classes, and teachers. Tables X, XII, XIV, XVI, and XVIII reveal the preferences by numbers for the various groups. Likewise, Tables XI, XIII, XV, XVII, and XIX reveal percentages for each group. Homogeneity was noted in all groups. The discussion will be based upon Tables XVII and XIX, and the significant differences will be pointed out for two groups, "all students" and "teachers."

In Table XVII the characteristic, "advancement in an occupation," showed no significant difference in the proportion of the students, but in Table XIX (for teachers), there was significant difference in the proportions at the

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[2] United States Congress, Public Laws of the United States of America Passed by the Sixty-Fourth Congress, 1915-1917 (Vol. XXXIX, Part I. Washington, D.C.: United States Government Printing Office, 1917).

TABLE X

PREFERENCES OF STUDENTS IN CLASS I FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE

Characteristics	Number of students			
	V	I	U	Total
Brief general history	157	450	91	698
Importance to society	266	324	108	698
Duties and responsibilities	523	154	21	698
Number employees and trends	203	347	148	698
Qualifications	319	267	112	698
Preparation	503	174	21	698
Methods of entering	269	383	46	698
Time required to attain skill	241	384	73	698
Advancement	305	340	53	698
Related occupations	106	413	179	698
Earnings	479	201	18	698
Conditions of work	427	235	36	698
Professional organizations	126	423	149	698
Typical places of employment	191	410	97	698
Advantages and disadvantages	196	419	83	698
Sources of information	171	445	82	698
Easy to read	298	331	69	698
Easy to understand	406	276	16	698

TABLE XI

PREFERENCES OF STUDENTS IN CLASS I FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE BY PERCENTAGE AND CRITICAL RATIO

Characteristics	Percent of students			Critical ratio*
	V	I	U	
Brief general history	22.5	64.5	13.0	17.5
Importance to society	38.1	46.4	15.5	3.2
Duties and responsibilities	74.9	22.1	3.0	23.2
Number employees and trends	29.1	49.7	21.2	8.4
Qualifications	45.7	38.3	16.1	2.9
Preparation	72.1	24.9	3.0	20.1
Methods of entering	38.5	54.9	6.6	6.2
Time required to attain skill	34.5	55.0	10.5	8.2
Advancement	43.7	48.7	7.6	1.9
Related occupations	15.2	59.2	25.6	13.6
Earnings	68.6	28.8	2.6	16.3
Conditions of work	61.2	33.7	5.2	10.7
Professional organizations	18.1	60.6	21.4	16.3
Typical places of employment	27.4	58.7	13.9	12.5
Advantages and disadvantages	28.1	60.0	11.9	12.7
Sources of information	24.5	63.8	11.8	16.1
Easy to read	42.7	47.4	9.9	1.8
Easy to understand	58.2	39.5	2.3	7.1

*Based on the difference of the two largest proportions.

TABLE XII

PREFERENCES OF STUDENTS IN CLASS II FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE

Characteristics	Number of students			
	V	I	U	Total
Brief general history	163	385	92	640
Importance to society	230	339	71	640
Duties and responsibilities	471	153	16	640
Number employees and trends	200	319	121	640
Qualifications	328	246	66	640
Preparation	483	148	9	640
Methods of entering	272	332	36	640
Time required to attain skill	273	317	50	640
Advancement	306	297	37	640
Related occupations	99	388	153	640
Earnings	430	192	18	640
Conditions of work	398	211	31	640
Professional organizations	97	386	157	640
Typical places of employment	158	391	91	640
Advantages and disadvantages	184	365	91	640
Sources of information	155	396	89	640
Easy to read	259	311	70	640
Easy to understand	333	278	29	640

TABLE XIII

PREFERENCES OF STUDENTS IN CLASS II FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE BY PERCENTAGE AND CRITICAL RATIO

Characteristics	Percent of students			Critical ratio*
	V	I	U	
Brief general history	25.5	60.2	14.4	13.4
Importance to society	35.9	53.0	11.1	6.2
Duties and responsibilities	73.6	23.9	2.5	20.4
Number employees and trends	31.3	49.8	18.9	6.9
Qualifications	51.3	38.4	10.3	4.7
Preparation	75.5	23.1	1.4	21.9
Methods of entering	42.5	51.9	5.6	3.4
Time required to attain skill	42.7	49.5	7.8	2.5
Advancement	47.8	46.4	5.8	.5
Related occupations	15.5	60.6	23.9	14.3
Earnings	67.2	30.0	2.8	14.3
Conditions of work	62.2	33.0	4.8	11.0
Professional organizations	15.2	60.3	24.5	13.9
Typical places of employment	24.7	61.1	14.2	14.2
Advantages and disadvantages	28.8	57.0	14.2	10.7
Sources of information	24.2	61.9	13.9	14.7
Easy to read	40.5	48.6	10.9	2.9
Easy to understand	52.0	43.4	4.5	3.2

*Based on the difference of the two largest proportions.

TABLE XIV

PREFERENCES OF STUDENTS IN CLASSES III AND IV FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE

Characteristics	Number of students			
	V	I	U	Total
Brief general history	203	477	89	769
Importance to society	253	404	112	769
Duties and responsibilities	540	201	28	769
Number employees and trends	239	408	122	769
Qualifications	347	302	120	769
Preparation	540	207	22	769
Methods of entering	313	399	57	769
Time required to attain skill	306	405	58	769
Advancement	372	331	66	769
Related occupations	146	479	144	769
Earnings	473	249	47	769
Conditions of work	463	252	54	769
Professional organizations	157	457	155	769
Typical places of employment	204	461	104	769
Advantages and disadvantages	213	455	101	769
Sources of information	143	512	114	769
Easy to read	262	410	97	769
Easy to understand	374	359	36	769

TABLE XV

PREFERENCES OF STUDENTS IN CLASSES III AND IV FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE BY PERCENTAGE AND CRITICAL RATIO

Characteristics	Percent of students			Critical ratio*
	V	I	U	
Brief general history	26.4	62.0	11.6	15.0
Importance to society	32.9	52.5	14.6	8.0
Duties and responsibilities	70.2	26.1	3.6	19.3
Number employees and trends	31.1	53.1	15.9	9.0
Qualifications	45.1	39.3	15.6	2.3
Preparation	70.2	26.9	2.9	18.8
Methods of entering	40.7	51.9	7.4	4.1
Time required to attain skill	39.8	52.7	7.5	4.7
Advancement	48.4	43.0	8.6	2.1
Related occupations	19.0	62.3	18.7	19.2
Earnings	61.5	32.4	6.1	12.0
Conditions of work	60.2	32.8	7.0	11.3
Professional organizations	20.4	59.4	20.2	17.0
Typical places of employment	26.5	60.0	13.5	14.0
Advantages and disadvantages	27.7	59.2	13.1	13.2
Sources of information	18.6	66.6	14.8	21.9
Easy to read	34.1	53.3	12.6	7.8
Easy to understand	48.6	46.7	4.7	.8

*Based on the difference of the two largest proportions.

TABLE XVI

PREFERENCES OF STUDENTS IN ALL CLASSES FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE

Characteristics	Number of students			
	V	I	U	Total
Brief general history	523	1,312	272	2,107
Importance to society	749	1,067	291	2,107
Duties and responsibilities	1,534	508	65	2,107
Number employees and trends	642	1,074	391	2,107
Qualifications	994	815	298	2,107
Preparation	1,526	529	52	2,107
Methods of entering	854	1,114	139	2,107
Time required to attain skill	820	1,106	181	2,107
Advancement	983	968	156	2,107
Related occupations	351	1,280	476	2,107
Earnings	1,382	642	83	2,107
Conditions of work	1,288	698	121	2,107
Professional organizations	380	1,266	461	2,107
Typical places of employment	553	1,262	292	2,107
Advantages and disadvantages	593	1,239	275	2,107
Sources of information	469	1,353	285	2,107
Easy to read	819	1,052	236	2,107
Easy to understand	1,113	913	81	2,107

TABLE XVII

PREFERENCES OF STUDENTS IN ALL CLASSES FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE BY PERCENTAGE AND CRITICAL RATIO

Characteristics	Percent of students			Critical ratio*
	V	I	U	
Brief general history	24.8	62.3	12.9	26.6
Importance to society	35.6	50.6	13.8	10.0
Duties and responsibilities	72.8	24.1	3.1	36.1
Number employees and trends	30.5	51.0	18.6	13.8
Qualifications	47.2	38.7	14.1	5.6
Preparation	72.4	25.1	2.5	34.7
Methods of entering	40.5	52.9	6.6	8.2
Time required to attain skill	38.9	52.5	8.6	9.3
Advancement	46.7	45.9	7.4	.5
Related occupations	16.7	60.8	22.6	27.4
Earnings	65.6	30.5	3.9	24.4
Conditions of work	61.1	33.1	5.7	18.9
Professional organizations	18.0	60.1	21.9	27.4
Typical places of employment	26.3	59.9	13.9	23.4
Advantages and disadvantages	28.1	58.8	13.1	21.1
Sources of information	22.3	64.2	13.5	30.4
Easy to read	38.9	49.9	11.2	7.3
Easy to understand	52.8	43.3	3.8	6.2

*Based on the difference of the two largest proportions.

TABLE XVIII

PREFERENCES OF TEACHERS FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE

Characteristics	Number of teachers			
	V	I	U	Total
Brief general history	9	35	7	51
Importance to society	19	29	3	51
Duties and responsibilities	40	11	0	51
Number employees and trends	22	27	2	51
Qualifications	41	10	0	51
Preparation	45	6	0	51
Methods of entering	22	28	1	51
Time required to attain skill	24	26	1	51
Advancement	35	16	0	51
Related occupations	9	41	1	51
Earnings	32	19	0	51
Conditions of work	34	16	1	51
Professional organizations	2	30	19	51
Typical places of employment	13	36	2	51
Advantages and disadvantages	12	37	2	51
Sources of information	7	41	3	51
Easy to read	27	25	1	51
Easy to understand	30	21	0	51

TABLE XIX

PREFERENCES OF TEACHERS FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE BY PERCENTAGE AND CRITICAL RATIO

Characteristics	Percent of teachers			Critical ratio*
	V	I	U	
Brief general history	17.7	68.6	13.7	6.1
Importance to society	37.3	56.9	5.9	2.0
Duties and responsibilities	78.4	21.6	0.0	7.0
Number employees and trends	43.1	52.9	3.9	1.0
Qualifications	80.4	19.6	0.0	7.7
Preparation	88.2	11.8	0.0	12.0
Methods of entering	43.1	54.9	2.0	1.2
Time required to attain skill	47.1	51.0	2.0	.4
Advancement	68.6	31.4	0.0	4.1
Related occupations	17.7	80.4	2.0	8.2
Earnings	62.8	37.3	0.0	2.7
Conditions of work	66.7	31.4	2.0	3.8
Professional organizations	3.9	58.8	37.3	2.2
Typical places of employment	25.5	70.6	3.9	5.2
Advantages and disadvantages	23.5	72.6	3.9	5.7
Sources of information	13.7	80.4	5.9	9.1
Easy to read	49.0	49.0	2.0	.0
Easy to understand	58.8	41.2	.0	1.8

*Based on the difference of the two largest proportions.

one-percent level. All other characteristics in Table XVII were significant at the one-percent level for "all students." There were no significant differences in the proportions of teachers for the following characteristics: (1) number of employees and trends in occupation, (2) methods of entering the occupation, (3) time required to attain skill in the occupation, (4) readability, and (5) easiness of comprehension. Two characteristics were significant at the five-percent level: (1) importance of the occupation to society, and (2) professional organizations of the occupation. The remaining characteristics were significant at the one-percent level. It was interesting to note that the students and teachers did not agree on a single characteristic as being insignificant. Therefore all characteristics were used in the evaluative instrument for appraising occupational information in agriculture.

On the form used to summarize the students' preferences for the characteristics of occupational information in agriculture, the teachers were asked to list other characteristics which the students agreed should be added to the proposed list. There were no additional items recommended. However, one teacher suggested that the size of pamphlets should be standardized in order to facilitate filing.

Evaluative instrument. In developing this instrument or score card for evaluating occupational information

materials in agriculture, the selected characteristics discussed in the previous section were used. Three other characteristics were also used, namely, pictures, writing style, and tables. These data were shown in Tables II, III, and IV respectively.

The next step in developing the evaluative instrument was to determine the proper value of each characteristic. Naturally, this value should reflect the preferences of the students and the teachers. Although there was a ratio of 42 students to one teacher, it seemed reasonable and desirable to give equal value to the preferences of both groups. This was done by adding the proportions of corresponding preferences of each characteristic and dividing by two to obtain an average. (See Table XX.) Several attempts were made to use weighted values on each of the three preference categories and to use the sum of the proportionate values as a value for each characteristic, but in every case this method failed to give a wide enough spread of the values between the characteristics. Since the characteristics were carefully selected and were highly significant to the students or to the teachers, or to both, every attempt to produce normalized values was unsatisfactory. The most satisfactory value for each characteristic was produced by totaling the average proportions of the rating "very important," and the largest average proportion for pictures, writing style, and tables.

TABLE XX

PREFERENCES OF STUDENTS AND TEACHERS FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE BY AVERAGE PERCENT

Characteristics	Average percent		
	V	I	U
Brief general history	21.2	65.5	13.3
Importance to society	36.4	53.8	4.9
Duties and responsibilities	75.6	22.8	1.5
Number employees and trends	36.8	52.0	11.2
Qualifications	63.8	29.2	7.1
Preparation	80.3	18.4	1.2
Methods of entering	41.8	53.9	4.3
Time required to attain skill	43.0	51.7	5.3
Advancement	57.6	38.7	3.7
Related occupations	17.2	70.6	12.3
Earnings	64.2	33.9	2.0
Conditions of work	63.9	32.3	3.9
Professional organizations	11.0	59.5	29.6
Typical places of employment	25.9	65.3	8.9
Advantages and disadvantages	25.8	65.7	8.5
Sources of information	18.0	72.3	9.7
Easy to read	44.0	49.5	6.6
Easy to understand	55.8	42.3	1.9

(See Table XXI.) In order that the values of the characteristics total 100 points on the evaluative instrument, it was necessary to calculate a shrinking factor. This was done by dividing 100 (total points desired on the instrument) by the sum of the proportions and multiplying by 100, i.e., $\frac{100}{975.2} \times 100 = 10.25$, the shrinking factor. This factor multiplied by the average proportion value of each characteristic gave the desired value for each item on the score card. These values were rounded to the nearest whole number to simplify the use of the instrument (Table XXI).

The last two characteristics on the evaluative instrument, pictures and writing style, were different from the others in that there were preferences for different types, i.e., colored pictures or black and white pictures. Preferences for writing style were (1) all paragraph, (2) all outline, or (3) a combination of paragraph and outline. It was necessary to compute the average proportion of students and teachers for the other preferences. These values were .248 for black and white pictures, .224 for all paragraph form, and .160 for all outline form. These values for the evaluative instrument were derived by multiplying the average proportion of students' and teachers' preferences for each item by the shrinking factor used on the preceding page, i.e., .248 x 10.25 = 2.542. When the value was rounded to

TABLE XXI

PREFERENCES OF STUDENTS AND TEACHERS FOR SOME SELECTED CHARACTERISTICS OF OCCUPATIONAL INFORMATION IN AGRICULTURE RATED AS VERY IMPORTANT WITH PREFERENCES OF TABLES, PICTURES, AND WRITING STYLE BY AVERAGE PERCENT

Characteristics	Percent x 10.25	Percent	Value
Brief general history	21.2	2.18	2
Importance to society	36.4	3.73	4
Duties and responsibilities	75.6	7.75	8
Number employees and trends	36.8	3.77	4
Qualifications	63.8	6.54	6
Preparation	80.3	8.23	8
Methods of entering	41.8	4.29	4
Time required to attain skill	43.0	4.41	4
Advancement	57.6	5.91	6
Related occupations	17.2	1.76	2
Earnings	64.2	6.58	7
Conditions of work	63.9	6.55	7
Professional organizations	11.0	1.13	1
Typical places of employment	25.9	2.65	3
Advantages and disadvantages	25.8	2.65	3
Sources of information	18.0	1.84	2
Easy to read	44.0	4.50	4
Easy to understand	55.8	5.72	6
Information in tables	60.2	6.17	6
Pictures	72.1	7.39	7
Writing style	60.6	6.21	6
Total	975.2	99.96	100

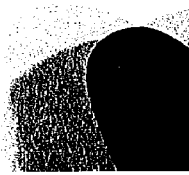
the nearest whole number, the value for black and white pictures was three. The same method was used to determine the value of each type of writing style. These values were not placed on the evaluative instrument, but their function was explained in the directions for using the instrument.

The selected characteristics were condensed for convenience in use of the instrument. However, a more detailed explanation of these terms seemed desirable for a complete understanding of their use. The interpretation of the characteristics used in the evaluative instrument was:

1. Brief general history: the origin, the stages of development, and surpassing major difficulties.
2. Importance to society: the necessity of the occupation and its contribution.
3. Duties and responsibilities: the definition of the occupation, laws and regulations, nature of tasks, and necessary equipment and materials.
4. Number of employees and trends: number engaged, sex, age, geographical distribution, special population segments, increase or decrease in number of workers, reasons for oversupply or undersupply of workers, and need for annual replacements.
5. Qualifications: physical, mental, social, and personal abilities, age range, sex, essential skills, special tools and equipment, and requirements for

license or certificate.

6. Preparation: general education requirements, experience, special training, and opportunities for training.
7. Methods of entering the occupation: apprenticing, hiring, renting, managing, or owning.
8. Time required to attain skill: length of apprenticeship, and special training period.
9. Advancement: the expansion of the enterprise and the opportunity for advancement.
10. Related occupations: occupations to which jobs may lead and occupations from which one may transfer.
11. Earnings: beginning wage, wage range, average wage, and maximum wage. May include considerations other than cash.
12. Conditions of work: daily and weekly schedules, regularity of hours, health and occupational hazards, vacations, and general routine.
13. Professional organizations: their function, purpose, activities, size, and benefits.
14. Typical places of employment: geographical location, indoor, outdoor, and availability of conveniences.
15. Advantages and disadvantages not otherwise enumerated: roads, utility services, markets, schools,



churches, housing, insurance, and retirement.

16. Sources of information: a list of available supplementary materials concerning the occupation and a list of associations, firms, or individuals who may provide further information.
17. Ease of reading: type of paper, type of print, length of sentences, and length of paragraphs.
18. Ease of understanding: clarity and vocabulary.
19. Information in tables: groups of figures with explanatory statements in table form.
20. Pictures: occupational activity in colored pictures, or black and white (plain) pictures.
21. Writing style: paragraphing, outlining, or combination of paragraphing and outlining.

The characteristics on the instrument were classified into two sections, "characteristics of content" and "characteristics of mechanical make-up." (See Table XXII.) The maximum points allowed were given, and a space was provided for scoring each characteristic.

TABLE XXII

EVALUATIVE INSTRUMENT FOR OCCUPATIONAL INFORMATION IN AGRICULTURE

Characteristics	Maximum points	Score
A. Characteristics of content		
Brief general history	2	
Importance to society	4	
Duties and responsibilities	8	
Number employees and trends	4	
Qualifications	6	
Preparation	8	
Methods of entering occupation	4	
Time required to attain skill	4	
Advancement	6	
Related occupations	2	
Earnings	7	
Conditions of work	7	
Professional organizations	1	
Typical places of employment	3	
Advantages and disadvantages	3	
Sources of information	2	
B. Characteristics of mechanical make-up		
Ease of reading	4	
Ease of understanding	6	
Information in tables	6	
Pictures	7	
Writing style	6	
Total	100	

The directions for use of the instrument are as follows:

A. Characteristics of Content

1. Condition or provision is present or made to a very satisfactory degree--maximum points
2. Condition or provision is present or made to a fair degree--one-half of maximum points
3. Condition or provision is not present or is not made to a satisfactory degree--no points

B. Characteristics of Mechanical Make-Up

1. Scoring ease of reading and ease of understanding
   a. Very satisfactory for group--maximum points
   b. Some difficulty encountered by group--one-half of maximum points
   c. Difficult for group--no points
2. Scoring tables
   a. All adaptable information is satisfactorily shown in simple tables--maximum points
   b. Most of the adaptable information is shown in acceptable degree--one-half of maximum points
   c. Tables not present or not acceptable--no points
3. Scoring pictures (maximum points for colored--7,

for black and white--3. Score is given for only one type, not both.)

a. Pictures (according to type) are present in a very satisfactory degree--maximum points

b. Pictures (according to type) present in a fair degree--one-half of maximum points

c. Pictures are not present or are not satisfactory--no points

4. Scoring writing style

a. Very satisfactory degree of combination outline and paragraph--maximum points

b. Fair degree of combination outline and paragraph--one-half maximum points

c. All paragraph--2 points

d. All outline--2 points

Ratings

Superior . . . 85-100 points Fair . . . 55-69 points

Good . . . . . 70-84 points Poor . . . 40-54 points

Unsatisfactory . . . 39 points or less

In order to test the reliability of the evaluative instrument, three occupational information pamphlets were selected: (1) a publication written by a professional association, (2) one by a commercial publisher, and (3) one

published by the United States Department of Agriculture. The three pamphlets were representative of typical occupational information which can be secured on agriculture and related occupations. (See Appendix C.) Five teachers of vocational agriculture and five school counselors were then solicited to rate the three pamphlets individually. The average scores of these two groups for each pamphlet are shown in Table XXIIA. An average score for each characteristic of each pamphlet was computed for the five teachers and likewise for the five counselors. The correlation coefficients were computed between the teachers' and counselors' scores for the 21 characteristics. They were: +.92 for pamphlet I, +.97 for pamphlet II, and +.91 for pamphlet III. These coefficients were found to be significant at the 5 percent level which indicate that the evaluative instrument yields consistent results.

TABLE XXIIA

EVALUATIONS OF PAMPHLETS ON OCCUPATIONAL INFORMATION BY FIVE TEACHERS AND FIVE COUNSELORS

	Teachers' average score	Counselors' average score
Pamphlet I	80	84
Pamphlet II	85	86
Pamphlet III	62	47

To test the instrument further, the available inexpensive occupational information pamphlets, bulletins, abstracts, and monographs in agriculture which are adapted for use in the North-Central Region were collected and evaluated by the instrument. An annotated bibliography of these materials revealing the rating derived by this instrument or score card has been prepared and placed in Appendix B. Neither the criteria used in the selection of the materials nor the ratings given the materials are intended to cast a reflection upon the writers, publishers, or anyone connected with the preparation of the materials evaluated in this study.

Status of library. An attempt was made to determine the number of pamphlets and books pertaining to occupational information available in the agricultural library. As is borne out in Table XXIII, an average of 34 pamphlets and books in the agricultural libraries was reported by the 42 schools. These materials presented an average of 18.6 occupations. As for the range, there was an average of 9.3 to 180 pamphlets and books per library, presenting an average of 2.7 to 57.5 occupations. Further study of the data show that apparently the schools included in the study from Indiana, Iowa, Michigan, Ohio, and Wisconsin were making available more occupational information pamphlets and books than were the schools of other states in the Region.

TABLE XXIII

NUMBER OF PAMPHLETS AND BOOKS ON OCCUPATIONAL INFORMATION IN AGRICULTURE LIBRARY BY STATES AND NUMBER OF OCCUPATIONS PRESENTED

State	Number of schools reporting	Number of copies	Number of occupations
Illinois	4	61	91
Indiana	4	137	111
Iowa	4	257	90
Kansas	1	50	50
Kentucky	3	77	33
Michigan	5	148	86
Minnesota	2	20	10
Missouri	3	28	8
Nebraska	4	45	23
North Dakota	4	56	46
Ohio	2	360	115
South Dakota	2	46	42
Wisconsin	4	144	76
Total	42	1,429	781
Average per school		34	18.6
Range per school		9.3-180	2.7-57.5

Filing systems. Table XXIV shows the number of teachers who reported having satisfactory or unsatisfactory filing systems for occupational information in agriculture. It can be seen that only 19 teachers, or 37 percent, reported satisfactory filing systems for occupational information in the agricultural department library. Those reporting satisfactory filing systems were asked to describe the systems briefly. The descriptions have been classified into four types. These and the number of schools using each were as follows: (1) seven were filing occupational pamphlets with subject-matter bulletins, (2) five were filing all occupational pamphlets in one folder or bulletin box and they were labeled "occupational pamphlets," (3) two were using materials filed in the regular library which was conveniently accessible to the agriculture department, and (4) five were filing occupational information materials alphabetically by occupations.

Demand by teachers for occupational information in agriculture. The list of agricultural occupations, classified into "production" and "farm service and other related occupations," was checked by the teachers to indicate whether they needed materials on certain occupations. The results in Tables XXV and XXVI, obviously, point out the occupations on which materials were in the greatest demand by the 51

TABLE XXIV

STATUS OF FILING SYSTEMS OF OCCUPATIONAL INFORMATION IN AGRICULTURE BY STATES

State	Number of schools reporting	Satisfactory filing system	
		Yes	No
Illinois	4	1	3
Indiana	4	1	3
Iowa	4	1	3
Kansas	2	0	2
Kentucky	3	2	1
Michigan	5	2	3
Minnesota	3	0	3
Missouri	4	2	2
Nebraska	4	2	2
North Dakota	5	1	4
Ohio	3	2	1
South Dakota	5	1	4
Wisconsin	5	4	1
Total	51	19	32

TABLE XXV

DISTRIBUTION OF TEACHERS' NEEDS OF OCCUPATIONAL INFORMATION IN AGRICULTURE BY PRODUCTION OCCUPATIONS

Occupations	51 teachers reporting	
	Number	Percent
Farm manager	32	62.8
Nurseryman	28	54.0
Florist	25	49.0
Herdsman	25	49.0
Wildlife producer	25	49.0
Fur farmer	21	41.2
Seed producer	21	41.2
Beekeeper	19	37.3
Forest farmer	17	33.3
Dairy breeder	15	29.4
Livestock breeder	13	25.5
Vegetable farmer	13	25.5
Fruit farmer	12	23.5
Rabbit farmer	12	23.5
Poultry breeder	11	21.6
Dairy farmer	9	17.6
Small grain farmer	9	17.6
Livestock farmer	8	15.7
Poultry farmer	8	15.7
Livestock feeder	7	13.7
Corn farmer	5	9.8
Hay producer	5	9.8
Tobacco farmer	4	7.8
Cotton farmer	2	3.9

TABLE XXVI

DISTRIBUTION OF TEACHERS' NEEDS OF OCCUPATIONAL INFORMATION IN AGRICULTURE BY FARM SERVICE AND OTHER RELATED OCCUPATIONS

Occupations	51 teachers reporting	
	Number	Percent
Agricultural radio announcer	37	72.6
Livestock buyer or shipper	33	64.7
Agricultural editor	32	62.8
Inspector (milk, feed, etc.)	31	60.8
Game warden	30	58.8
Wildlife specialist	30	58.8
Airplane dusting service	28	54.9
Veterinarian	28	54.9
Farm implement dealer	25	49.0
Grain elevator operator	24	47.1
Milk plant operator	23	45.1
Seed, feed, fertilizer dealer	23	45.1
Hatchery operator	22	43.1
Tree surgeon	22	43.1
Agricultural engineer	21	41.2
Artificial inseminator	20	39.2
Cold storage operator	20	39.2
Cow tester (D.H.I.A.)	20	39.2
Agricultural economist	19	37.3

TABLE XXVI (continued)

Occupations	51 teachers reporting	
	Number	Percent
Landscape architect	19	37.3
Field crop buyer	18	35.3
Soil conservationist	18	35.3
Marketing specialist	18	35.3
Landscape gardener	17	33.3
Entomologist	17	33.3
Crop specialist	16	31.4
Forester	16	31.4
Research specialist	16	31.4
Animal husbandry specialist	15	29.4
Blacksmith or farm mechanic	14	27.5
Agricultural county agent	14	27.5
Food technologist	14	27.5
Dairy specialist	13	25.5
Poultry products buyer	13	25.5
Agricultural teacher	12	23.5
Sheep shearer	12	23.5
Poultry specialist	11	21.6
Fruit or vegetable buyer	10	19.6
Fruit specialist	10	19.6
Vegetable crop specialist	7	13.7

teachers. For instance, in Table XXV, the needs most frequently reported were for materials pertaining to farm managers, nurserymen, florists, herdsmen, wildlife producers, and fur farmers. There was less need for materials about cotton, tobacco, corn, hay, livestock feeding, and poultry farming. The minute need for these materials did not necessarily mean that there was a lack of interest in these occupations, for the teachers may have had an ample supply of available materials; but some of these occupations may not have been adapted to the North-Central Region as a whole, therefore, the needs for these materials were small. The greatest demand by the teachers for materials was "farm service and other related occupations." In studying the needs for occupational materials of the two classifications (Tables XXV and XXVI), it appears that materials are limited in this area of study.

Demand by students for occupational information in agriculture. Students were asked to check those occupations in which they were interested as a possible career. Their interests in production occupations are shown in Table XXVII. More meaningful comparisons may be made by examining the ranked percentages in Table XXVIII. In each instance where there was a significant difference at the five-percent level in the proportions of the students in Class I and Class II

TABLE XXVII

DISTRIBUTION OF STUDENTS' INTERESTS IN PRODUCTION OCCUPATIONS AS POSSIBLE VOCATIONS

Occupations	Number of students			
	I 698	II 640	III & IV 669	Total 2,007
Livestock farmer	435	392	476	1,303
Small grain farmer	392	360	431	1,183
Dairy farmer	364	325	393	1,082
Corn farmer	333	285	337	955
Livestock feeder	277	256	313	846
Hay producer	280	221	313	814
Farm manager	264	220	315	799
Livestock breeder	234	235	299	768
Wildlife producer	276	247	244	767
Herdsman	233	206	282	721
Dairy breeder	219	173	202	594
Seed producer	170	139	212	521
Poultry farmer	166	120	148	434
Forest farmer	125	141	133	399
Fur farmer	151	110	105	366
Fruit farmer	107	88	69	264
Vegetable farmer	73	65	53	191
Beekeeper	59	46	53	158
Tobacco farmer	51	43	63	157
Rabbit farmer	68	45	41	154
Poultry breeder	56	35	42	133
Nurseryman	41	32	31	104
Florist	24	29	23	76
Cotton farmer	11	15	23	49

TABLE XXVIII

DISTRIBUTION OF STUDENTS' INTERESTS IN PRODUCTION OCCUPATIONS AS POSSIBLE VOCATIONS BY PERCENT AND SIGNIFICANCE OF DIFFERENCE BETWEEN CLASSES AT FIVE-PERCENT LEVEL

	Percent of students			
Occupations	I 698	II 640	III & IV 669	Total 2,007
Livestock farmer	62.3	61.3	61.8	64.9
Small grain farmer	56.2	56.3	56.0	58.9
Dairy farmer	52.1	50.8	51.0	53.9
Corn farmer	47.7	44.5	43.7	47.6
Livestock feeder	33.5	36.7	38.8	42.2
Hay producer	40.1[a]	34.5[ac]	40.6[c]	40.6
Farm manager	37.8	34.4[c]	40.9[c]	39.8
Livestock breeder	33.5[b]	36.7	38.8[b]	38.3
Wildlife producer	39.5[b]	38.6[c]	31.7[bc]	38.2
Herdsman	33.4	32.2	36.6	35.9
Dairy breeder	31.9[ab]	27.0[a]	26.2[b]	29.6
Seed producer	24.4	21.7[c]	27.5[c]	26.0
Poultry farmer	23.8[ab]	18.8[a]	19.2[b]	21.6
Forest farmer	17.9	22.0[c]	17.3[c]	19.9
Fur farmer	21.6[ab]	17.2[a]	13.6[b]	18.2
Fruit farmer	15.3[b]	13.8[c]	9.0[bc]	13.2
Vegetable farmer	10.5[b]	10.2[c]	6.9[bc]	9.5
Beekeeper	8.5	7.2	6.9	7.9
Tobacco farmer	7.3	6.7	8.2	7.8
Rabbit farmer	9.7[ab]	7.0[a]	5.3[b]	7.7
Poultry breeder	8.0[ab]	5.5[a]	5.5[b]	6.6
Nurseryman	5.9	5.0	4.0	5.2
Florist	3.4	4.5[c]	3.0[c]	3.8
Cotton farmer	1.6	2.3	3.0	2.4

[a]Significant difference between classes I and II; [b]class I and classes III & IV; [c]class II and classes III & IV.

and also in Class I and Classes III and IV, the greater interest was in favor of Class I students. Of the nine occupations where there was a significant difference between Class II and Classes III and IV, Class II had the greatest proportion in five instances, and Classes III and IV in the other four instances. In light of these data, one might safely conclude that Class I students were more interested in exploring career opportunities in farming than were the students in the other classes.

To test the degree of association between the teachers' stated needs for materials in "production occupations" (Table XXV) with those of the students (Table XXVIII), the correlation coefficient (r) was determined. The Spearman Rank Correlation gave a negative value of .1913, and by the Product Moment Method a negative r of .1541 was obtained. According to the F test, in a universe where there is no correlation, an F of this size (.506) would be expected. Therefore, these correlation coefficients are not significant.

The occupations concerning the students' interests in "farm service and other related occupations" were ranked in order of importance (Tables XXIX and XXX). The number of students per class is shown in the first table, and the percent is shown in the latter. Analysis of the significant differences in the percentages of the classes shows that the

TABLE XXIX

DISTRIBUTION OF STUDENTS' INTERESTS IN FARM SERVICE AND OTHER RELATED OCCUPATIONS AS POSSIBLE VOCATIONS

Occupations	Number of students			
	I	II	III & IV	Total
	698	640	669	2,007
Game warden	308	285	324	917
Blacksmith or farm mechanic	283	248	328	859
Wildlife specialist	315	269	258	842
Farm implement dealer	334	226	288	748
Airplane dusting service	216	190	258	664
Veterinarian	224	176	243	643
Forester	198	185	188	571
Agricultural engineer	154	169	187	510
Soil conservationist	165	153	172	490
Seed, feed, fertilizer dealer	144	103	151	398
Livestock buyer and shipper	120	120	151	391
Cow tester (D.H.I.A.)	132	98	131	361
Grain elevator operator	118	84	139	341
Tree surgeon	125	90	81	296
Artificial inseminator	87	81	117	285
Animal husbandry specialist	83	82	118	283
Dairy specialist	106	85	90	281
County agricultural agent	94	81	87	263
Inspector, milk, feed, etc.	90	74	99	263

TABLE XXIX (continued)

Occupations	Number of students I 698	II 640	III & IV 669	Total 2,007
Landscape architect	83	75	79	237
Agricultural teacher	83	65	79	227
Sheep shearer	80	65	76	221
Field crop buyer	76	49	77	202
Milk plant operator	83	48	69	200
Crop specialist	82	59	52	193
Agricultural radio announcer	57	57	70	184
Hatchery operator	61	37	41	139
Research specialist	50	37	47	134
Fruit or vegetable buyer	54	29	45	128
Landscape gardener	41	45	42	128
Agricultural editor	51	32	38	121
Marketing specialist	34	34	50	118
Poultry products buyer	46	27	36	109
Cold storage operator	42	28	34	104
Agricultural economist	40	25	38	103
Poultry specialist	38	24	40	102
Vegetable crop specialist	44	25	22	91
Entomologist	21	32	30	83
Fruit specialist	37	25	17	79
Food technologist	19	17	18	54

TABLE XXX

DISTRIBUTION OF STUDENTS' INTERESTS IN FARM SERVICE AND OTHER RELATED OCCUPATIONS AS POSSIBLE VOCATIONS BY PERCENT AND SIGNIFICANCE OF DIFFERENCE BETWEEN CLASSES AT THE FIVE-PERCENT LEVEL

Occupations	Percent of students			
	I 698	II 640	III & IV 669	Total 2,007
Game warden	44.1	44.5	42.1	45.6
Blacksmith or farm mechanic	40.5	38.8	42.6	42.8
Wildlife specialist	45.1[b]	42.0[c]	33.5[bc]	42.0
Farm implement dealer	33.5	35.3	37.4	37.3
Airplane dusting service	30.9[b]	29.7	33.5[b]	33.1
Veterinarian	32.1[a]	27.5[ac]	31.6[c]	32.0
Forester	28.4	28.9[c]	24.4[c]	28.5
Agricultural engineer	22.1	26.4	24.3	25.4
Soil conservationist	23.6	23.9	22.3	24.4
Seed, feed, fertilizer dealer	20.6[a]	16.1[ac]	19.6[c]	19.8
Livestock buyer and shipper	17.2	18.8	19.6	19.5
Cow tester (D.H.I.A.)	18.9[a]	15.3[a]	17.0	18.0
Grain elevator operator	16.9[a]	13.1[ac]	18.1[c]	17.0
Tree surgeon	17.9[ab]	14.1[a]	10.1[b]	14.7
Artificial inseminator	12.5	12.7	15.2	14.2
Animal husbandry specialist	11.9	12.8	15.3	14.1
Dairy specialist	15.2	13.3	11.7	14.0
County agricultural agent	13.5	12.7	11.3	13.1
Inspector, milk, feed, etc.	12.9	11.6	12.9	13.1

TABLE XXX (continued)

Occupations	Percent of students			
	I 698	II 640	III & IV 669	Total 2,007
Landscape architect	11.9	11.7	10.3	11.8
Agricultural teacher	11.9	10.2	10.3	11.3
Sheep shearer	11.5	10.2	9.8	11.0
Field crop buyer	10.9	7.7	10.0	10.1
Milk plant operator	11.9[a]	7.5[a]	9.0	10.0
Crop specialist	11.7[b]	9.2	6.8[b]	9.6
Agricultural radio announcer	8.2	8.9	9.1	9.2
Hatchery operator	8.7[ab]	5.8[a]	5.3[b]	6.9
Research specialist	7.2	5.8	6.1	6.7
Fruit or vegetable buyer	7.7[a]	4.5[a]	5.8	6.4
Landscape gardener	5.9	7.0	5.5	6.4
Agricultural editor	7.3	5.0	4.9	6.0
Marketing specialist	4.9	5.3	6.5	5.9
Poultry products buyer	6.6[a]	4.2[a]	4.7	5.4
Cold storage operator	6.0	4.4	4.4	5.2
Agricultural economist	5.7	3.9	4.9	5.1
Poultry specialist	5.4	3.8	5.2	5.0
Vegetable crop specialist	6.3[b]	3.9	2.9[b]	4.5
Entomologist	3.0	5.0	3.9	4.1
Fruit specialist	5.3[b]	3.9[c]	2.2[ac]	3.9
Food technologist	2.7	2.7	2.3	2.7

[a]Significant difference between classes I and II; [b]class I and classes III & IV; [c]class II and classes III & IV.

same condition was found to exist as in the production occupations; that is, where significant difference occurs, the greater proportion favors Class I over the other classes. There was one exception; students in Classes III and IV showed greater interest in airplane dusting service as a career than did Class I students.

When the rank correlation coefficient was computed between the teachers' need for and the students' interest in materials concerning farm service and other related occupations in agriculture, a positive r of .4777 was obtained. The Product Moment Method gave a positive r of .4013. Both r's were tested by the F test with one and 38 degrees of freedom. They were found to be insignificant at the five-percent level of confidence. Although r was insignificant, it may be said that slight to moderate correlation existed.

To ascertain further the students' occupational interests, the teachers were asked to report occupations other than those pertaining to agriculture and related fields which students had definitely selected as vocations. Auto mechanics and aviation were the most popular; they were reported five and four times respectively. Carpentry was reported by three teachers. The following occupations were reported twice each: architectural work, military service, electrical engineering, mechanical engineering, professional basketball and baseball, safety patrol, and truck driving.

Those mentioned only once were bank clerking, car dealing, civil engineering, diesel engineering, drafting, factory work, medicine, painting, and radio engineering. No effort was made to determine the number of students who had made the above choices.

Experiences of teachers as to ease of securing, teaching value, and frequency of use of certain occupational information materials in agriculture. The materials were divided into four groups for consideration: (1) printed materials, (2) films, filmstrips, and slides, (3) field trips to farms and other places of work, and (4) information from resource people. (See Table XXXI.) For further comparison, Table XXXII gives the percent of the teachers' experiences for each of the four groups.

The teachers indicated that they had had "some difficulty" in securing printed materials. It was further revealed that these materials had "some" teaching value and that they were "seldom" used. There was found to be a significant difference in the proportion of the teachers' experiences at the five-percent level between "easy" to secure and "some difficulty" in securing, between "some" teaching value and "no" teaching value, and between "often" and "seldom" used. From these data it can be concluded that these teachers had "some difficulty" in securing printed

TABLE XXXI

EXPERIENCES OF TEACHERS CONCERNING EASE OF SECURING, TEACHING VALUE, AND FREQUENCY OF USE OF CERTAIN OCCUPATIONAL INFORMATION IN AGRICULTURE

Factors	Ease of securing				Teaching value				How often used			
	Number				Number				Number			
	Easy	Some difficulty	Difficult	Total	Much	Some	None	Total	Often	Seldom	Never	Total
Printed Materials	10	26	14	50	18	28	0	46	18	29	0	47
Films, filmstrips, and slides	13	12	23	48	25	19	1	45	13	27	6	46
Field trips to farms, etc.	21	22	7	50	40	8	0	48	27	23	1	51
Resource people	13	30	6	49	29	15	1	45	10	33	5	48

TABLE XXXII

EXPERIENCES OF TEACHERS CONCERNING EASE OF SECURING, TEACHING VALUE, AND FREQUENCY OF USE OF CERTAIN OCCUPATIONAL INFORMATION IN AGRICULTURE BY PERCENT

Factors	Ease of securing (Percent)			Teaching value (Percent)			How often used (Percent)		
	Easy	Some difficulty	Difficult	Much	Some	None	Often	Seldom	Never
Printed Materials	20*	52*	28	39	61*	0*	38*	62*	0
Films, filmstrips, and slides	27	25	48	56*	42	2*	28*	59*	13
Field trips to farms, etc.	42	44	14	83*	17*	0	53*	45	2*
Resource people	27	61*	12*	64*	33*	2	21*	69*	10

*Differences are statistically significant at five-percent level.

materials, that these materials had "some" teaching value, but that they were "seldom" used.

There was no significant difference in the proportions of teachers' experiences pertaining to the ease of securing films, filmstrips, and slides. However, significant differences at the five-percent level were found in the proportions between "much" teaching value and "no" teaching value, and between "often" used and "seldom" used. It might be concluded that these teachers recognized the important teaching value of films, filmstrips, and slides, but seldom used them.

There were no significant differences in proportions of experiences concerning ease of securing or arranging field trips to farms or other places of work related to agricultural occupations. However, significant differences at the five-percent level were noted between the proportions for "much" teaching value and "some" teaching value, and how "often" used and "never" used. It was evident that these teachers thought there was "much" teaching value in field trips and that they used them extensively.

Another very important source of occupational information was people who were engaged in agricultural occupations. These people were often referred to as "resource people," and they were sometimes invited to discuss their occupations with the students. In this study significant differences

were found at the five-percent level in the teachers' experiences concerning ease of securing, teaching value, and frequency of use of resource people. The significant differences occurred in the proportions concerning ease of securing, between "some difficulty" and "difficult," between "much" and "some" teaching value, and between "often" and "seldom" used. It was evident that teachers had "some difficulty" in securing resource people, that there was "much" value in their use, but that they were "seldom" used.

Preferences of teachers as to source of students' occupational information in agriculture. The source from which students should obtain their occupational information appears to have been a controversial matter among educators for the past decade. In Table XXXIII the data indicate rather strongly the preference of teachers of vocational agriculture for the sources of occupational information in agriculture for their students. Of the 51 teachers, 45 preferred to integrate occupational information in their teaching of agriculture; six preferred that their students obtain occupational information in an occupations course; and three designated the occupations course as a second choice. Reading in the library only, as a source of occupational information was not the first choice of any teacher. However, it was designated as a second choice by four teachers and third choice by one

TABLE XXXIII

PREFERENCES OF TEACHERS FOR SOURCE OF STUDENTS' OCCUPATIONAL INFORMATION IN AGRICULTURE BY STATES

State	Number of schools reporting	Integrated in agriculture	Occupations course	Reading in library
Illinois	4	3	1	0
Indiana	4	3	1	0
Iowa	4	2	2+1*	0
Kansas	2	2	1*	1**
Kentucky	3	3	0	0
Michigan	5	5	0	0
Minnesota	3	2	1	0
Missouri	4	4	1*	0
Nebraska	4	4	0	1*
North Dakota	5	5	0	0
Ohio	3	3	0	2*
South Dakota	5	4	1	0
Wisconsin	5	5	0	1*
Total	51	45	6	0

*Second choice (not included in total).

**Third choice (not included in total).

teacher. The second and third choices were not solicited.

The preferences of teachers as to the source of occupational information for their students tend to parallel the preferences of students, as has been previously discussed and shown in Tables VI and VIII; i.e., students preferred field trips and people who were engaged in the occupation as sources of occupational information.

Number of days occupational information was taught. The data in Table XXXIV reveal the average number of days that occupational information was taught in each class. Of the 50 schools reporting in the 13 states, the average number of days per class was 3.5 for Class I, 2 for Class II, and 3.7 for Classes III and IV combined. However, the following ranges existed: 0 to 18 for Class I, 0 to 4.7 for Class II, and 1 to 7 for the combined Classes III and IV. With two exceptions the selected schools in five states which had the greatest supply of pamphlets and books presenting occupational information, as was shown in Table XXIII, led in the total number of days spent in teaching occupational information. The exceptions were the selected schools in Kentucky, which ranked sixth in number of pamphlets and books, but were first in the total number of days spent teaching occupational information in all classes; the second were the selected schools

TABLE XXXIV

AVERAGE NUMBER OF DAYS PER CLASS DEVOTED TO STUDYING OCCUPATIONAL INFORMATION

State	Number of schools reporting	Vocational agriculture class			
		I	II	III & IV	Total
Illinois	4	3.5	.3	5.6	9.4
Indiana	4	.7	1.7	4.0	6.4
Iowa	4	2.2	3.5	5.5	11.2
Kansas	1	0	0	2.5	2.5
Kentucky	3	18.0	1.7	1.5	21.2
Michigan	5	5.6	1.6	3.6	10.8
Minnesota	3	2.3	4.0	4.1	10.4
Missouri	4	3.5	2.5	3.4	9.4
Nebraska	4	1.0	1.2	2.4	4.6
North Dakota	5	1.8	.8	1.0	3.6
Ohio	3	3.3	4.7	7.0	15.0
South Dakota	5	1.0	1.4	3.5	5.9
Wisconsin	5	2.2	1.8	4.2	8.2
Total	50	45.1	25.2	48.3	118.6
Average	3.9	3.5	2.0	3.7	3.3
Range	1-5	0-18	0-4.7	1-7	2.5-21.2

in Minnesota, which had the smallest supply of pamphlets and books, but ranked fifth in the total number of days spent in teaching occupational information to all classes. Apparently other types of occupational information, such as field trips and films, were used extensively in these two states.

In summarizing these data it appears that the teaching of occupational information in general was given a small amount of time. Scarcity of suitable materials and time spent in teaching such information may be concomitant factors.

The following chapter, "Summary, Conclusions, and Recommendations," is a resume of the problem, the method of attack, the findings presented in this chapter, and the conclusions which are based upon the relevant findings of this study.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The organization of this chapter is as follows: (1) the summary, which consists of a statement of the problem and the method of attack; the findings, which are organized as to the sample, the characteristics of occupational information, occupational choice, the demand for occupational information, and the library and filing system; (2) conclusions; (3) recommendations; and (4) problems for further study.

Summary

The problem. The purposes of this study were: (1) to determine the critical factors of occupational information in agriculture desired by teachers of vocational agriculture, (2) to determine the same factors desired by the students of vocational agriculture, (3) to develop an evaluative instrument, in light of the critical factors found above, for evaluating occupational information in agriculture, and (4) to evaluate the available inexpensive occupational information in agriculture.

Method of attack. The problem was attacked by the development of two questionnaires concerning occupational information in agriculture. One questionnaire was for

teachers of vocational agriculture and the second was for students of vocational agriculture. Both questionnaires obtained the individual's opinion regarding certain characteristics of occupational information in agriculture. They differed in two respects: (1) information concerning the availability and use of occupational information could be more accurately obtained from the teachers, and (2) the teachers checked a list of agricultural and related occupations about which they needed materials, whereas the students checked occupations in which they were interested as possible vocations.

With the assistance of the state supervisors of vocational agriculture in the North-Central Region, five teachers were selected in each state and were solicited to cooperate in answering and checking a questionnaire and to direct the students in their classes to check individually a copy of the students' questionnaire. Fifty-one of the 65 selected teachers cooperated in furnishing the data for this study. There were 2,150 students who participated. The information obtained was used in developing an instrument by which occupational information in agriculture can be objectively evaluated.

The sample.

1. The average number of students per class in

vocational agriculture was Class I, 14.5; Class II, 12.6; and Classes III and IV, 13.1.

2. The range of students per class, based on averages of schools by states, was Class I, 8 to 27.5; Class II, 6.8 to 16; and Classes III and IV, 6 to 27.3.
3. There was an average of 42.2 students per department of agriculture, and the range based on averages of schools by states was 20.8 to 59.3.

Preferences concerning occupational information.

1. Students** (72.2 percent) and teachers** (72 percent) preferred colored pictures to black and white (plain).
2. Students** (46.7 percent) and teachers** (74.5 percent) preferred occupational information written in combination paragraph and outline form.
3. Students** (60.3 percent) and teachers** (60 percent) liked tabulated information.
4. Students** (56.9 percent) recognized occupational information as having "much value"; teachers* (60.9 percent) recognized occupational information as

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**Significant at the one-percent level.

*Significant at the five-percent level.

having "some value."

5. Students** (52.2 percent) and teachers** (54.1 per cent) preferred field trips to films and printed materials.
6. Students** (78 percent) and teachers** (83.3 percent) thought that field trips had "much" value in obtaining occupational information.
7. Students** (57.1 percent) preferred to obtain occupational information from people who were engaged in the occupation.
8. Only a low percent (4.6) of the students preferred to obtain occupational information from counselors. The critical ratio showed that there was no significant difference between the students of large and of small towns in this preference.
9. Students** preferred all characteristics used in the evaluative instrument except "advancement," which they thought was insignificant.
10. Teachers** disagreed with the students by preferring that information concerning "advancement" be included.
11. All characteristics used in the evaluative instrument were significant at the one-percent level of

---

**Significant at the one-percent level.

confidence for the proportions of the students and/or teachers.

12. To test the reliability of the instrument, three selected pamphlets were scored by five teachers of vocational agriculture and by five counselors. Average item scores were computed for the teachers and for the counselors and then correlated. The correlation coefficients were: .92 for pamphlet I, .97 for pamphlet II, and .91 for pamphlet III. These coefficients were found to be significant at the five-percent level.

Demand for occupational information.

1. From 4 to 63 percent of the teachers reported need for materials on specified production occupations.
2. From 14 to 73 percent of the teachers reported need for materials on specified farm service and other related occupations.
3. From 2.4 to 65 percent of the students showed an interest in materials on specified production occupations as possible careers.
4. From 2 to 46 percent of the students showed an interest in specified farm service and other related occupations.
5. Greater interest in occupational information in

agriculture was shown by students in Class I than was shown by the other classes.

6. A negative correlation coefficient of .1541 existed between the teachers' need for and the students' interest in materials on production occupations.
7. A positive correlation coefficient of .4013 was found between the teachers' needs for and the students' interests in materials on farm service and other related occupations.

Occupational choices.

1. Seventy-two percent of the students thought that they were most likely to choose farming as a career.
2. Nineteen percent of the students thought that they were most likely to enter occupations related to farming.
3. Only nine percent of the students thought that they were most likely to choose nonagricultural occupations.

Libraries, filing systems, and extent of use of occupational information.

1. There was an average of 34 occupational information pamphlets covering 18.6 agricultural and related occupations per department library.
2. Sixty-five percent of the teachers reported that they

did not have satisfactory filing systems for occupational information in agriculture.

3. Teachers revealed that they had had "some" difficulty in securing printed materials, that these materials had "some" teaching value, but had been "seldom" used.
4. Teachers revealed that films were "difficult" to secure, that they had "much" teaching value, and that they had been "seldom" used.
5. Teachers revealed that they had had "some" difficulty in arranging field trips to farms and places where people worked, that these trips had "much" teaching value, and that they had been "often" used.
6. Teachers reported that they had had "some" difficulty in securing resource people, that they had been of "much" teaching value, and that they had been "seldom" used.
7. Approximately 90 percent of the teachers preferred to integrate occupational information in agriculture in their classes rather than to have the students obtain such information either in an occupations course or by reading in the library.
8. In teaching occupational information the average number of days per class was 3.5 for Class I, 2 for Class II, and 3.7 for Classes III and IV combined.

Conclusions

This study revealed the critical factors of occupational information in agriculture desired by students and teachers of vocational agriculture. These critical factors were used in the construction of an instrument to evaluate occupational information in agriculture. The instrument was tested and found to be satisfactory. Also, this instrument was used to evaluate the available inexpensive occupational information materials in agriculture and related occupations.

Recommendations

1. Teachers of vocational agriculture should expand their efforts in securing, evaluating, systematically filing, and using current occupational information in agriculture.
2. Information concerning the occupation should be integrated in each agricultural enterprise when taught to each class.
3. Field trips should be well planned in order to integrate occupational with technical information.
4. More extensive use should be made of resource people in disseminating occupational information in agriculture.
5. The evaluative instrument developed in this study

can reliably be used in evaluating all printed occupational information in agriculture. It may also be helpful in evaluating field trips, films, and resource people for purposes of occupational information in agriculture.

6. Agricultural specialists and teachers should prepare for publication information pertaining to those occupations which are in demand by teachers and/or students.
7. In schools which have counselors and/or occupations courses, the teacher of vocational agriculture should be used as a consultant concerning agricultural and related occupations.
8. Institutions preparing teachers of agriculture should provide at both the undergraduate and graduate levels for opportunities for studying occupational information.

Problems for Further Study

1. To determine the most effective techniques in the use of occupational information in agriculture.
2. To determine the basic criteria necessary to consider in choosing a permanent and successful career.
3. To determine the most effective filing system for occupational information in a library for a department of vocational agriculture.

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APPENDIX A

DIRECTORY OF STATE LEADERS COOPERATING IN THE STUDY

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Harold B. Taylor, State Supervisor of Agricultural Education, Room 215, State House, Indianapolis, Indiana

H. T. Hall, Supervisor, Agricultural Education, Board for Vocational Education, Des Moines, Iowa

Lester B. Pollom, Supervisor, State Board for Vocational Education, Topeka, Kansas

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Carl M. Humphrey, Director of Agricultural Education, Department of Education, Jefferson, Missouri

Harold F. Duis, State Supervisor of Agricultural Services, Board of Vocational Education, Lincoln 9, Nebraska

Ernest L. DeAlton, State Supervisor of Agricultural Education, North Dakota Agricultural College, State College Station, Fargo, North Dakota

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H. E. Urton, State Supervisor of Agricultural Education, Department of Public Instruction, Division of Vocational Education, Pierre, South Dakota

Louis M. Sasman, Chief of Agricultural Education, State Board of Vocational and Adult Education, State Office Building, Madison 2, Wisconsin

DIRECTORY OF COOPERATING TEACHERS OF VOCATIONAL AGRICULTURE

ILLINOIS

Elwyn Wilson, Durand

Gale Gossett, Princeton

Frank O. Young, Table Grove

Richard J. Martin, Wyoming

INDIANA

Paul Bateman, Garrett

Glendon Sears, Washington TWP, Gaston

Burton Brinkerhoff, Montpelier

Roger Van Winkle, Salomie TWP, Warren

IOWA

Joe Cerwinske, Dallas Center

Rex E. Ruch, Denison

R. V. Diggins, Eagle Grove

M. F. Grosscup, Jesup

KANSAS

Maurice Little, Sherman High School, Goodland

Ira L. Plank, Windfield

KENTUCKY

Horace Nicholson, Old Kentucky Home H.S., Bardstown

H. O. Williams, Warren County H.S., Bowling Green

R. L. Kelly, Mumfordville

MICHIGAN

Charles F. Jessup, Climax

Ronald C. Warner, Lapeer

E. K. Sell, Lawrence

Glen Nesman, Springport

Archibald R. Earl, Arenac Eastern H.S., Twining

MINNESOTA

Thomas W. Raine, Owatonna

C. W. Dowling, St. Peter

H. L. Beucler, Tracy

MISSOURI

George L. Roberts, Charleston

Oliver E. Barnard, Kirksville

Maxwell Lampo, Neosho

J. L. Evans, St. Charles

NEBRASKA

Duane M. Nielson, Auburn

Robert O. Gingery, David City

Walter M. Crumbliss, Ravenna

Dean Lancaster, West Point

NORTH DAKOTA

Harold Holte, Harvey

Emil Villager, Langdon

Carl R. Arnstrup, Park River

Charles J. Challey, Valley City

Elmer L. Olson, Williston

OHIO

George H. Krill, Ashland

C. E. Wood, Bryan

L. J. George, Piqua

SOUTH DAKOTA

Robert Thompson, Brookings

W. R. Bryant, Canton

Warren Miller, Clark

Delmer J. Dooley, Platte

Wayne C. Gray, Sturgis

WISCONSIN

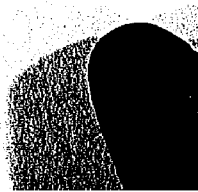
John A. Perkins, Neillsville

F. J. Miller, Oshkosh

R. J. Delorit, Plymouth

Charles Kucirek, Portage

C. B. Campbell, River Falls



COPY OF LETTER TO STATE SUPERVISORS IN THE NORTH-CENTRAL REGION REQUESTING NAMES AND ADDRESSES OF FIVE TEACHERS

318 Albert Ave.
East Lansing, Michigan
March 16, 1952

Mr. _____ _____
Supervisor of Agricultural Education
_____, _____

Dear Mr. _____:

I enjoyed the two days that I spent at your regional conference last week in Chicago. One could not help being impressed with the friendliness and sincerity of the entire group as they proceeded with their meetings.

I probably mentioned to you about the nature of a study that I have started at Michigan State College. It is an attempt to determine the critical factors of occupational information materials desired by teachers and students of vocational agriculture. When these factors have been determined I will develop a rating instrument for evaluating occupational materials. The available materials in agriculture and related occupations will be evaluated and an annotated bibliography prepared.

In making the study, I plan to use five vocational agriculture teachers and their students in each state of the North-Central Region. I have carefully prepared a questionnaire for the teachers and one for the students. The questionnaires are to be checked which will require about fifteen minutes.

I need the names and addresses of five of your teachers so that I can contact them immediately and solicit their cooperation. Teachers who have used occupational information materials with their classes are preferred. Your cooperation in selection of these five teachers will be greatly appreciated. A copy of the summary of the study will be sent to you and to each cooperating teacher. Please let me hear from you soon.

Yours very truly,

T. R. Buie

COPY OF TYPICAL LETTER RECEIVED FROM THE STATE SUPERVISORS SUPPLYING NAMES AND ADDRESSES OF TEACHERS

March 19, 1952

Mr. T. R. Buie
318 Albert Ave.
East Lansing, Michigan

Dear Mr. Buie:

It was a pleasure to meet you at our Conference and I am glad it was possible for you to attend and meet the men in our region.

I am sure that the following five Vocational Agriculture Instructors will be willing to assist you in your study:

_____ _____, _____ _____

_____ _____, _____ _____

_____ _____, _____ _____

_____ _____, _____ _____

_____ _____, _____ _____

Sincerely yours,

_____

State Supervisor
Agricultural Education

COPY OF A PROGRESS REPORT LETTER WRITTEN TO THE STATE SUPERVISORS

318 Albert Ave.
East Lansing, Michigan
July 5, 1952

_____ _____

_____ _____ _____

_____, _____

Dear Mr. _____:

I thought that you might be interested in the progress of my study concerning the evaluation of occupational information materials in agriculture. I solicited five vocational agriculture teachers from each state of the North-Central Region to participate in the study. I am pleased to report that of the sixty-five teachers contacted, fifty-four agreed to participate in the study. I have received the results from fifty-one teachers which included 2,150 students of vocational agriculture.

I am elated over the fine cooperation that I have received and I would like to express to you my sincere appreciation for the assistance that you gave in supplying the names and addresses of teachers in your state.

Sincerely yours,

T. R. Buie

COPY OF TYPICAL LETTER FROM STATE SUPERVISORS
ACKNOWLEDGING THE PROGRESS REPORT

July 9, 1952

Mr. T. R. Buie
318 Albert Avenue
East Lansing, Michigan

Dear Mr. Buie:

I appreciate your letter of July 5th making a report of progress in your study. I shall look forward to receiving a copy of the findings.

Sincerely yours,

COPY OF LETTER TO TEACHERS SOLICITING THEIR COOPERATION

318 Albert Ave.
East Lansing, Mich.
April 10, 1952

_____ _____

_____ _____

Dear Mr. _____:

I have contacted your State Supervisor of Agricultural Education and you have been selected as one of five in your state who would probably be interested in participating in a study with your classes of vocational agriculture. The study attempts to determine the characteristics desired by teachers and students of vocational agriculture in occupational information or career materials. The outcome of this study should provide the basis of improving these materials to better meet the needs of the teachers and students in agriculture.

The study will involve your checking a simple questionnaire and directing a short study unit in each of your vocational agriculture classes. The study unit will consist of the students' reading and examining several occupational pamphlets to develop an understanding of occupational information before checking a questionnaire. The unit can be completed in a one hour period, including the summarization of the students' questionnaires. All of the materials necessary for the study can be sent to you immediately.

The pamphlets will cover a number of occupations in agriculture and related occupations. These pamphlets are for your department library after the study. I think that they will be a welcome asset to you in your teaching.

As you probably realize, the area of occupational information has been sadly neglected by most of us in the past. We should begin to place more emphasis upon it in the future in order to assist our students in making intelligent choices of agricultural occupations. You are probably aware of the importance of this problem and I hope that you will be able to find time to make a valuable contribution. This study is being done under the supervision of the department of Agricultural Education, Michigan State College.

Your participation in the study will be appreciated and I will send you a summary of the study. Please fill out the attached postal card and return immediately.

Sincerely yours,
T. R. Buie

COPY OF INFORMATION REQUESTED ON POSTAL CARD SENT WITH THE LETTER SOLICITING THE COOPERATION OF TEACHERS

PLEASE RETURN IMMEDIATELY

Yes __ No __ I will participate in making the study.

Yes __ No __ I would like a summary of your study.

Number of students in each voc. agriculture class

1st yr. ___ 2nd yr. ___ 3rd yr. ___ 4th yr. __

_____ _____

School Address

Sign _____

COPY OF LETTER WHICH ACCOMPANIED QUESTIONNAIRES AND PAMPHLETS

318 Albert Ave.
East Lansing, Mich.
April 17, 1952

_____ _____

_____, _____

Dear Mr. _____:

I appreciate your promptness in returning the postal card stating that you will participate with your classes of vocational agriculture in the occupational information study.

The materials for the study are being sent to you under separate cover. They consist of (1) instructions, a suggested procedure; (2) occupational pamphlets; (3) a teacher's questionnaire; (4) questionnaire for each student in vocational agriculture; and (5) a form for summarizing the questionnaires. Only the teacher's questionnaire and the summary of the students' questionnaires are to be returned to me. The pamphlets are yours to keep after the study. I think that you will find these pamphlets very interesting and helpful to your students.

I am looking forward to receiving the results of the study from you and your department. You will receive a copy of the summary of the study as soon as it is completed.

With best wishes to you and your department, I remain,

Sincerely yours,

T. R. Buie

COPY OF PLAN FOR ADMINISTERING THE QUESTIONNAIRES TO THE STUDENTS

Instructions for Conducting the Study

General Information

This study has been tested in several vocational agriculture classes in order to estimate the minimum time required, to eliminate the possible errors, and to plan a smooth sequence for conducting the study.

The pamphlets of occupational information are used in the study merely to develop a sound basis for each individual to express his opinions. By the students' having an opportunity to examine and read portions of three or four pamphlets, they should thoroughly understand the questions and statements in the questionnaire concerning Occupational Information Materials.

The following procedure for conducting the study is recommended for several reasons. First, so that all participating vocational agriculture departments will perform the study on the same basis. And second, it secures the opinions of each individual without the influence of others. This factor is very important.

Procedure

Step 1. The teacher will fill out the questionnaire (labeled Teacher's Questionnaire) before submitting the study to his classes. This will eliminate the influence of the students' reactions upon the teacher.

Step 2. The teacher should use about five minutes to introduce the study to each class of vocational agriculture by relating the following or similar information.

A person's knowledge of an occupation before entering it, appears to be of great importance to his success and happiness. Studies reveal that many young people are slow to select an occupation and that a large number of them abandon the occupation of their first choice after entering it. This may be due to the lack of knowledge about occupations.

In 1945 Robert P. Fisher of the University of Illinois designed a questionnaire to obtain information regarding several vocational problems. It was submitted to 1,356 students enrolled in the general curriculum of the Liberal Arts and Sciences of the University. He reported that two-thirds of the freshmen and one-third of the seniors had not selected a vocation.

In 1946 C. S. Anderson, Pennsylvania State College, studied young men ten years after leaving Pennsylvania Rural High Schools. He found that only 20% of boys actually entered immediately the occupation of their first choice; after ten years, 50% of them had left the occupation of their first choice.

George P. Deyoe reported from studying 941 boys who took one or more years of vocational agriculture in 20 Michigan high schools during the period of 1918 to 1935, that 60.5% were farming, 6.6% were in occupations related to farming, and 32.9% were in nonagricultural occupations.

It seems safe to assume that good occupational materials properly used might assist in solving the problem. Also, it seems safe to assume that if occupational materials are to be effective, they must present the information needed by the student in the manner desired by them. Therefore, we have been selected to participate in a very important study.

I have pamphlets on a number of agricultural occupations. You should be able to examine and read portions of three or four of your choice in about fifteen minutes. When you have finished with your first pamphlet, exchange with someone for another. Pay close attention to the type of information presented about each occupation, tables, pictures, ease of reading, and ease of understanding.

I shall list these five points on the blackboard. Also, note the characteristics that you like or dislike about each pamphlet that you read.

Distribute the pamphlets to the class. Allow approximately fifteen minutes for reading, then distribute the questionnaire.

Step 3. Direct students to fill out questionnaire. They should rapidly check only one answer to each question. Explain that there are no correct answers. Each individual's opinions are the correct answers for him. Please do not permit students to discuss their opinions until after all students have completed the questionnaire. The questionnaire should be completed in fifteen minutes or less.

Step 4. Please summarize the students' questionnaires on the form provided for this purpose. Summarization can be done quickly and easily by asking the students to raise their hands to the item that they checked in each question when called. For example, those checking item "a" in question one will

raise their hands. Make the count and record the number. Do this for item "b" and "c." Go to the next question until all have been summarized. Fifteen to twenty minutes will be needed for summarizing the questionnaires.

Step 5. Mail immediately, both the Teacher's questionnaire and summary of the students' questionnaire, in the self-addressed envelope.

COPY OF TEACHER'S QUESTIONNAIRE

Teacher's Questionnaire

_____ _____

School Address

Please answer questions by filling in the blanks.

1. How many occupational pamphlets and books do you have?

_____

2. How many agricultural occupations do these cover? _____

3. How many days per year do you usually spend with each class in teaching occupational information?

1st yr. ___ 2nd yr. ___ 3rd yr. ___ 4th yr. ___

4. a. Do you have a satisfactory filing system of occupational information materials? _____

b. If so, describe briefly. _____

_____

_____

Please check (x) your preference to each of the following questions.

5. Where do you prefer that your students get their information about agricultural occupations?

a. integrated into agricultural courses _____

b. in occupations course _____

c. reading information in the school library _____

6. How do you feel about the use of pictures in occupational materials, which is your preference?

a. colored ____ b. black and white ____ c. not necessary _____

7. Which writing style do you prefer in reading about occupations?

   a. written in paragraph __ b. written in outline form __

   c. combination of paragraphing and outlining __

8. How well do you like pamphlets with tables?

   a. like __ b. dislike __ c. neither like nor dislike __

Please check (x) in the columns which best express your experience concerning occupational information materials.

Factors	Ease of securing			Teaching value			How often used		
	Easy	Some difficulty	Difficult	Much	Some	None	Often	Seldom	Never
Printed occupational information materials									
Films, filmstrips, slides									
Field trips to farms, etc. to study the occupation in action									
Resource people--those engaged in the occupation									

Characteristics of Occupational Pamphlets

Please encircle one of the letters at the end of each item to express your opinion as to the value of that type of information in occupational materials.

V means "very important."
I means "important."
U means "unimportant."

1.	Brief general history of the occupation.	V	I	U
2.	Importance of occupation to society.	V	I	U
3.	Duties and responsibilities of the occupation.	V	I	U
4.	Number of workers engaged in occupation & trends.	V	I	U
5.	Qualifications: sex, age, skills, etc.	V	I	U
6.	Preparation: education, training, & experience.	V	I	U
7.	Methods of entering the occupation.	V	I	U
8.	Time required to attain skill in occupation.	V	I	U
9.	Opportunity for advancement.	V	I	U
10.	Related occupations.	V	I	U
11.	Earnings: salary or range of income.	V	I	U
12.	Conditions of work: hours, regularity, hazards.	V	I	U
13.	Professional organizations in the occupation.	V	I	U
14.	Typical places of employment.	V	I	U
15.	Advantages & disadvantages not otherwise enumerated.	V	I	U
16.	Suggested sources of additional information.	V	I	U
17.	Materials easy to read.	V	I	U
18.	Materials easy to understand.	V	I	U

Occupation Checklist in Agriculture

Student: Please check those occupations which you are interested in as a possible vocation.

Teacher: Please check those occupations in which you need materials and do not have them.

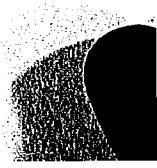
Production Occupations

1. ___ Beekeeper
2. ___ Dairy breeder (registered cattle)
3. ___ Dairy farmer
4. ___ Corn farmer
5. ___ Cotton farmer
6. ___ Farm manager
7. ___ Florist
8. ___ Forest farmer
9. ___ Fruit farmer
10. ___ Fur farmer (fox, mink, etc.)
11. ___ Hay producer
12. ___ Herdsman (livestock)
13. ___ Livestock breeder (all other, except dairy cattle)
14. ___ Livestock farmer
15. ___ Livestock feeder (finishing for market)
16. ___ Nurseryman
17. ___ Poultry breeder
18. ___ Poultry farmer (meat, eggs, etc.)

19. ___ Rabbit farmer (meat)
20. ___ Seed producer
21. ___ Small grain farmer (oats, wheat, etc.)
22. ___ Tobacco farmer
23. ___ Vegetable farmer
24. ___ Wildlife producer

Farm Service and Other Related Occupations

1. ___ Airplane crop dusting service
2. ___ Agricultural economist
3. ___ Agricultural editor or reporter
4. ___ Agricultural engineer
5. ___ Agricultural radio announcer
6. ___ Agricultural teacher
7. ___ Animal husbandry specialist
8. ___ Artificial inseminator
9. ___ Blacksmith or farm machinery mechanic
10. ___ County agricultural or 4-H agent
11. ___ Crop specialist
12. ___ Cold storage operator
13. ___ Cow tester (D.H.I.A.)
14. ___ Dairy specialist
15. ___ Entomologist (insect specialist)
16. ___ Farm implement dealer
17. ___ Field crop buyer or shipper



18. ___ Food technologist
19. ___ Forester
20. ___ Fruit or vegetable buyer or shipper
21. ___ Fruit specialist
22. ___ Game warden
23. ___ Grain elevator operator
24. ___ Hatchery operator
25. ___ Inspector (meat, milk, feed, seed, etc.)
26. ___ Landscape architect
27. ___ Landscape gardener
28. ___ Livestock auctioneer, buyer or shipper
29. ___ Marketing specialist
30. ___ Milk plant operator
31. ___ Poultry and poultry products buyer or shipper
32. ___ Poultry specialist
33. ___ Research specialist
34. ___ Seed, feed, fertilizer dealer
35. ___ Sheep shearer
36. ___ Soil conservationist
37. ___ Tree surgeon
38. ___ Vegetable crop specialist
39. ___ Veterinarian
40. ___ Wildlife specialist

COPY OF STUDENT'S QUESTIONNAIRE

Please check your first preference to each of the following questions.

1. How do you feel about the use of pictures in occupational materials, which is your preference?

   a. colored ___ b. black and white ___ c. not necessary ___

2. Which writing style do you prefer in reading about occupations?

   a. written in paragraph ___ b. written in outline form ___

   c. combination of paragraphing and outlining ___

3. How well do you like pamphlets with tables?

   a. like ___ b. dislike ___ c. neither like nor dislike ___

4. How valuable are occupational information materials in agriculture to you?

   a. valuable ___ b. some value ___ c. little value ___

5. From which of these sources do you prefer to get occupational information?

   a. printed materials ___ b. films ___ c. field trips ___

6. How valuable are field trips to farms or places where people work to learn about an occupation?

   a. much value ___ b. some value ___ c. no value ___

7. From whom do you prefer to get your occupational information?

   a. agriculture teacher ___ b. school counselor ___

   c. talking with people in the occupation ___

8. Which type of occupation are you most likely to choose as a career?

   a. farming ___ b. related to agriculture (agricultural knowledge required) ___ c. nonagricultural (agricultural knowledge <u>not</u> <u>required</u>) ___

Characteristics of Occupational Pamphlets

Please encircle one of the letters at the end of each item to express your opinion as to the value of that type of information in occupational materials.

V means "very important."

I means "important."

U means "unimportant."

1.	Brief general history of the occupation.	V	I	U
2.	Importance of occupation to society.	V	I	U
3.	Duties and responsibilities of the occupation.	V	I	U
4.	Number of workers engaged in occupation & trends.	V	I	U
5.	Qualifications: sex, age, skills, etc.	V	I	U
6.	Preparation: education, training, experience.	V	I	U
7.	Methods of entering the occupation.	V	I	U
8.	Time required to attain skill in occupation.	V	I	U
9.	Opportunity for advancement.	V	I	U
10.	Related occupations.	V	I	U
11.	Earnings: salary or range of income.	V	I	U
12.	Conditions of work: hours, regularity, hazards.	V	I	U
13.	Professional organizations in the occupation.	V	I	U
14.	Typical places of employment.	V	I	U
15.	Advantages & disadvantages not otherwise enumerated.	V	I	U
16.	Suggested sources of additional information.	V	I	U
17.	Materials easy to read.	V	I	U
18.	Materials easy to understand.	V	I	U

Occupation Checklist in Agriculture

Student: Please check those occupations in which you are interested in as a possible vocation.

Teacher: Please check those occupations in which you need materials and do not have them.

Production Occupations

1. ___ Beekeeper
2. ___ Dairy breeder (registered cattle)
3. ___ Dairy farmer
4. ___ Corn farmer
5. ___ Cotton farmer
6. ___ Farm manager
7. ___ Florist
8. ___ Forest farmer
9. ___ Fruit farmer
10. ___ Fur farmer (fox, mink, etc.)
11. ___ Hay producer
12. ___ Herdsman (livestock)
13. ___ Livestock breeder (all other, except dairy cattle)
14. ___ Livestock farmer
15. ___ Livestock feeder (finishing for market)
16. ___ Nurseryman
17. ___ Poultry breeder
18. ___ Poultry farmer (meat, eggs, etc.)

19. ___ Rabbit farmer (meat)
20. ___ Seed producer
21. ___ Small grain farmer (oats, wheat, etc.)
22. ___ Tobacco farmer
23. ___ Vegetable farmer
24. ___ Wildlife producer

Farm Service and Other Related Occupations

1. ___ Airplane crop dusting service
2. ___ Agricultural economist
3. ___ Agricultural editor or reporter
4. ___ Agricultural engineer
5. ___ Agricultural radio announcer
6. ___ Agricultural teacher
7. ___ Animal husbandry specialist
8. ___ Artificial inseminator
9. ___ Blacksmith or farm machinery mechanic
10. ___ County agricultural or 4-H agent
11. ___ Crop specialist
12. ___ Cold storage operator
13. ___ Cow tester (D.H.I.A.)
14. ___ Dairy specialist
15. ___ Entomologist (insect specialist)
16. ___ Farm implement dealer
17. ___ Field crop buyer or shipper

18. ___ Food technologist
19. ___ Forester
20. ___ Fruit or vegetable buyer or shipper
21. ___ Fruit specialist
22. ___ Game warden
23. ___ Grain elevator operator
24. ___ Hatchery operator
25. ___ Inspector (meat, milk, feed, seed, etc.)
26. ___ Landscape architect
27. ___ Landscape gardener
28. ___ Livestock auctioneer, buyer or shipper
29. ___ Marketing specialist
30. ___ Milk plant operator
31. ___ Poultry and poultry products buyer or shipper
32. ___ Poultry specialist
33. ___ Research specialist
34. ___ Seed, feed, fertilizer dealer
35. ___ Sheep shearer
36. ___ Soil conservationist
37. ___ Tree surgeon
38. ___ Vegetable crop specialist
39. ___ Veterinarian
40. ___ Wildlife specialist

COPY OF FORMS USED IN SUMMARIZING RESULTS OF STUDENTS' QUESTIONNAIRES

Summary of Students' Questionnaire by Classes

School _____ Address _____

The number of students choosing each item in each question by classes of Vocational Agriculture.

Questions	Class I			Class II			Class III			Class IV		
	a	b	c	a	b	c	a	b	c	a	b	c
1												
2												
3												
4												
5												
6												
7												
8												

Summary of Ratings of Characteristics by Classes

Item	Class I			Class II			Class III			Class IV		
	V	I	U	V	I	U	V	I	U	V	I	U
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												

List the Items Which the Classes Agree Should Be Added

1
2
3
4

Summary of Occupations Checklist by Classes in Agriculture

Item Number	Class I	Class II	Class III	Class IV
A Group 1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

Summary of Occupations Checklist by Classes in Agriculture

Item Number	Class I	Class II	Class III	Class IV
B Group 1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				

List those occupations outside of agriculture and related fields which class members have definitely selected as a vocation: 1 2 3 4

COPY OF REMINDER LETTER REQUESTING RETURN OF TEACHER'S QUESTIONNAIRE AND RESULTS OF STUDENTS' QUESTIONNAIRES

318 Albert Ave.
East Lansing, Mich.
May 19, 1952

_____ _____

_____, _____

Dear Sir:

I have received the results from about two-thirds of the schools participating in the study of occupational information materials. They appear to be interesting and significant. I feel confident that the study will make a valuable contribution toward the improvement of occupational materials in agriculture, as well as provide an annotated bibliography of the current materials that are available.

If you have not mailed your results, you are probably in the process of making the study. I am looking forward to receiving your results at your earliest possible convenience.

Sincerely yours,

T. R. Buie

APPENDIX B

ANNOTATED BIBLIOGRAPHY OF SELECTED OCCUPATIONAL INFORMATION IN AGRICULTURE

The following materials have been evaluated by the investigator with the instrument developed in this study and their ratings are given as either superior, good, fair, poor, or unsatisfactory. (Those bulletins marked *, dealing with specialized fields where only job description is given, are often superior within their limited coverage, but may be marked "poor" because of their omission of information necessary to a full understanding of even the specialized field.) Furthermore, they have been classified into two groups: first, Production Occupations, with ten subgroups; and second, Farm Service and Other Related Occupations, with 12 subgroups. These categories may be used as a basis for filing occupational information. One drawer of the filing cabinet, with 22 properly labeled, manila folders or 22 bulletin boxes would be satisfactory to contain the materials.

A. Production Occupations

1. Cash Grain Farmer

The Job of the Wheat Farmer, Occupational Brief No. 67, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. This pamphlet is easy to read and understand. It very briefly discusses the occupation with emphasis on duties and earnings.

2. Cotton Farmer

The Job of the Cotton Farmer, Occupational Brief No. 56, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 13 pp. 5¢.

Fair. This pamphlet portrays very briefly the life of the cotton farmer. It emphasizes duties, qualifications, methods of becoming established, and earnings.

3. Crop Speciality Farmer

Beekeeper, Vocational Guidance Centre, Ontario College of Education, University of Toronto, Toronto 5, Ontario, Canada, 1950. 4 pp. 7¢.

Good. A well written monograph covering very adequately such items as history and importance of the occupation to society, duties, and earnings of those engaged in the work.

Beginning in the Nursery Business, John J. Pinney, American Nurseryman, 343 South Dearborn St., Chicago, Illinois, 1946. 48 pp. 50¢.

Fair. A guide for planning a nursery business. Deals with retailing, landscaping, mail orders, financing and keeping records.

Florist. Vocational Guidance Centre, Ontario College of Education, University of Toronto, Toronto 5, Ontario, Canada, 1952. 4 pp. 15¢.

Good. A valuable aid to those persons planning to become florists. A concise discussion covers such topics as becoming established, nature of the work, qualifications, preparation, and earnings.

Flower Shop Management as a Career, Research No. 63, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1950. 24 pp. 95¢.

Fair. Deals with the retailing, wholesaling, and growing of flowers. It discusses the attractive and unattractive features of the enterprises and the expected income.

Fur Farming, Research No. 155, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1946. 19 pp. 95¢.

Good. The history and the importance of the industry are discussed. The qualifications, duties, and expected income are emphasized.

The Job of the Speciality Farmer, Occupational Brief No. 68, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. This pamphlet was designed to acquaint the veteran of World War II with the possibilities of occupations that produce seeds, flowers, unusual fruits, mushrooms, medicine plants, fur animals, rabbits, fish, and snakes. It emphasizes abilities and preparation which a person should possess for the various occupations.

The Job of the Tobacco Farmer, Occupational Brief No. 65, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 13 pp. 5¢.

Fair. A brief discussion of tobacco growing as an occupation. Emphasis is placed upon financial aid for the World War II veterans who are interested in becoming tobacco farmers.

4. Dairy Farmer

Dairy Farming as a Career, Research No. 79, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1945. 24 pp. 95¢.

Good. A well written publication describing the nature of the work, qualifications, duties, and expected income.

The Job of the Dairy Farmer, Occupational Brief No. 57, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. A pamphlet prepared for the war veterans with particular emphasis on securing financial help to enter the occupation. It also covers the duties and responsibilities of the dairy farmer.

5. Forest and Wildlife Farmer

Careers in Forestry, Occupational Monograph by Charles N. Elliott, Science Research Associates, 57 West Grand Avenue, Chicago 10, Illinois, 1947. 48 pp. 40¢.

Superior. An excellent monograph describing the duties, qualifications, earnings, and nature of the work.

Professional Opportunities in the Wildlife Field, David B. Turner, Wildlife Management Institute, 822 Investment Bldg., Washington 5, D.C., 1948. 208 pp. $1.00.

Good. This bulletin deals with information about outdoor careers. The desired training, the opportunities for employment and the expected earnings are discussed.

This Is Our Company, Davey Tree Expert Company, Kent, Ohio, 27 pp. Free.

Fair. This pamphlet with its supplemental pamphlets, i.e., The Story of the Davey Organization and Training and Work of Davey Tree Experts, was written to advertise the training program in tree surgery. All three describe personal qualifications, preparation requirements, nature of the work, and expected income.

6. Fruit Farmer

Horticulture as a Career, Research No. 21, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1946. 20 pp. 95¢.

Fair. Opportunities for the trained and unskilled in horticulture are discussed in this panorama. Job preparation and expected income are emphasized.

Jobs in Horticulture, Occupational Monograph by Gilbert W. Wernicke, Science Research Associates, 57 West Grand Avenue, Chicago 10, Illinois, 1944. 48 pp. 40¢.

Superior. An excellent bulletin giving a brief description of the various occupations and opportunities in horticulture. Qualification, training, and earnings are also discussed.

Opportunities in Horticulture, C. Owen Brantley, Vocational Guidance Manuals, Inc., 45 West 45th St., New York 36, New York. Revised 1953. 96 pp. $1.00.

Good. The training requirements, personal qualifications, and nature of the work are described in detail for the basic occupations in horticulture. Emphasis is also on the expected earnings.

The Job of the Berry Farmer, Occupational Brief No. 54, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 12 pp. 5¢.

Fair. This pamphlet calls attention to the type of work, duties, qualifications, and earnings of the berry farmer. Loan benefits for veterans of World War II received attention.

The Job of the Fruit Farmer, Occupational Brief No. 59, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. This pamphlet was prepared for war veterans who might be interested in becoming fruit farmers. It discusses

qualifications, income, cost of getting established, and sources of financial help.

The Job of the Pecan, Tung-Nut, Walnut, and Similar Farmers, Occupational Brief No. 62, Superintendent of Documents, United States Printing Office, Washington, D.C., 1947. 12 pp. 5¢.

Fair. A brief discussion of the problems of establishing an orchard and of financial assistance for veterans. Also treated are the qualifications of, training for, and the income from this type of farming.

7. General Farmer

Agriculture, Vocational Monograph No. 3, Field Enterprises, Inc., Educational Division, 35 East Wacker Drive, Chicago, Illinois, 1938. 9 pp. 10¢.

Poor. Although this monograph is quite old it contains several commendable features: (1) a classification of occupational opportunities in agriculture, and (2) extensive recommendations for training and sources of additional information.

Careers in Agriculture for Veterans, Bureau of Agricultural Education, State Education Department, Albany 1, New York, n.d. Free.

Fair. This pamphlet deals with employment opportunities, need for training, and sources of credit.

Contribution of Agriculture (Our Foundation of Life) to Health...Happiness...Prosperity, Bureau of Educational Services, The Byron G. Moon Company, Inc., 401 Broadway, New York 13, New York, 1946. 22 pp. Free.

Fair. This pamphlet deals with the major farm enterprises as to their economic importance in the United States. It contains pictures and brief discussion of the nature of the work on the farm.

Farm Management as a Career, Research No. 53, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1936. 17 pp. 95¢.

Fair. Although many of the farm problems have changed since this booklet was written, its discussion of the opportunities for employment, training requirements, and the advantages and disadvantages of the occupation remain pertinent.

General Farmer, Vocational Guidance Centre, Ontario College of Education, University of Toronto, Toronto 5, Ontario, Canada, 1950. 4 pp. 10¢.

Good. A well written pamphlet covering the nature of the work on the general farm. Qualifications, preparation, earnings, advantages, and disadvantages are emphasized.

General Farm Jobs, Michigan Unemployment Compensation Commission, 7310 Woodward Avenue, Detroit 2, Michigan, 1951. 30 pp. 25¢.

Superior. This booklet deals with job titles, job locations, and wage ranges. It also discusses the nature of the work, training requirements, and qualifications.

Getting Started in Farming, Farmers' Bulletin No. 1961, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1949. 34 pp. 15¢.

Good. A bulletin on the problems of getting started in the various types of farming. Emphasis is placed on farming conditions in the various regions of the country and the expected income.

If You're Thinking of a Little Place in the Country, AIS 14, Bureau of Agricultural Economics, United States Department of Agriculture, Washington, D.C., 1946. 12 pp. Free.

Poor. This pamphlet rates poor because of its narrow scope of information. However, as it pertains to city workers who anticipate part-time farming, it may be considered an excellent bulletin for its purpose.

Living and Working on a Farm, Prepared by College of Agriculture, University of Illinois, Issued by Illinois State Council of Defense, Springfield, Illinois, 1943. 60 pp. Free.

Superior. Living and working on the farm are portrayed very vividly. Duties and training requirements are emphasized.

Modern Agriculture as a Career, Research No. 20, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1950. 24 pp. 95¢.

Good. A discussion of the nature of the work and duties of the general farmer. Emphasis is on modern machinery and laborsaving devices.

Opportunities in Farming, Paul W. Chapman, Science Research Associates, 57 West Grand Avenue, Chicago 10, Illinois, 1947. 48 pp. 40¢.

Superior. This excellent pamphlet deals with farming as a career, the types of farming, classes of farm workers, and trends in farming. Emphasis is given to a discussion of incomes derived, training requirements, qualifications, and the nature of the work.

Part-Time Farming, Farmers' Bulletin No. 1966, United States Department of Agriculture, Washington, D.C., 1948. 18 pp. Free.

Good. An excellent bulletin for people who work in the city but live in the country. The problems of the part-time farmer are discussed, i.e., kinds of crops to raise, personal qualifications, duties and responsibilities, amount of land needed, and expected earnings.

Seasonal Farm Jobs, Michigan Unemployment Compensation Commission, 7310 Woodward Avenue, Detroit 2, Michigan, 1951. 36 pp. 25¢ each or five copies for 50¢.

Good. The history and the importance of seasonal labor needs are discussed. It also deals with job specifications, earnings, working conditions, and qualifications.

Shall I Be a Farmer? AWI 105, United States Department of Agriculture, Washington, D.C., 1946. 33 pp. Free.

Good. This pamphlet was designed for persons who are planning a career in farming. The advantages and disadvantages of the leading enterprises are briefly discussed. Emphasis is on methods of getting started in the occupation and the expected returns.

The Job of the Farmer: General Survey, Occupational Brief No. 58, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. The qualifications, duties, and equipment needed are the main topics of discussion. Although it was prepared for the war veterans, it may be helpful to other persons planning a career of general farming.

The Job of the General Farmer, Occupational Brief No. 60, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 12 pp. 5¢.

Fair. The pamphlet describes the life of a general farmer and his qualifications. Since it was prepared for war veterans the sources of financial aid are listed.

The Job of the Part-Time Farmer, Occupational Brief No. 63, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. A pamphlet prepared for war veterans who plan part-time farming to supplement the regular income. The kinds of products, the facilities needed, and the amount of investment are the major topics.

8. Livestock Farmer

Animal Husbandry as a Career, Research No. 22, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1948. 16 pp. 95¢.

Good. This booklet deals with the job on the livestock farm and careers for the college trained in animal husbandry. Emphasis is given to training requirements, qualifications, duties, earnings, and the nature of the work.

Beef Cattle Breeding and Raising as a Career, Research No. 166, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1947. 16 pp. 95¢.

Good. This booklet gives the history and describes the cattle raising industry in various sections of the United States. Also, it discusses investments, types of cattle raising, nature of the work, training requirements, qualifications, and earnings.

The Job of the Corn-Hog-Cattle Farmer, Occupational Brief No. 55, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. A brief discussion of the production of corn and its use as feed for hogs and cattle, stressing the duties and nature of the work. Mention is made of qualifications, earnings, and sources of financial aid for veterans.

The Job of the Livestock Farmer, Occupational Brief No. 61, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. This occupational brief describes the nature of work, personal qualifications and training requirements, earnings, and sources of financial aid.

9. Poultry Farmer

Poultryman, Vocational Guidance Centre, Ontario College of Education, University of Toronto, Toronto 5, Ontario, Canada, 1950. 4 pp. 10¢.

Good. Although this monograph was written for the poultryman in Canada, it has many practical adaptations for the North-Central region of the United States. The publication treats very adequately the importance of occupations, nature of the work, personal qualifications necessary for success, and earnings.

Poultry Farming as a Career, Research No. 170, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1947. 20 pp. 95¢.

Good. The various phases of poultry raising are described as to the nature of the work to be performed. Qualifications, training requirements, earnings, and duties are discussed concerning each phase of the poultry industry.

The Job of the Poultry Farmer, Occupational Brief No. 64, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 13 pp. 5¢.

Fair. This pamphlet presents a general description of poultry farming and the basic qualifications which are necessary for success. The estimated amount of investment in land, buildings, and equipment is presented, as well as the expected income.

10. Truck Farmer

The Job of the Truck Farmer, Occupational Brief No. 66, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 13 pp. 5¢.

Fair. This pamphlet was prepared to assist war veterans to decide whether they possess the qualifications and ability to succeed in truck farming. The facilities necessary for truck farming and expected income are presented.

Vegetable Farming as a Career, Research No. 175, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1947. 16 pp. 95¢.

Good. The history of commercial production is presented. The nature of the work, qualifications, preparation, and earnings are discussed.

B. Farm Service and Other Related Occupations

1. Economist

The Job of the Economist, Occupational Brief No. 12, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. It presents a good description of the duties, qualifications, necessary preparation, and salary of an economist.

2. Educational Worker

Careers as County Agricultural Agent, Research No. 160, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1950. 20 pp. 95¢.

Good. A history of the development of county agricultural extension work is discussed quite adequately. The pamphlet also deals with their qualifications, training requirements, nature of the work, and their expected earnings.

Jobs in Rural Service, Occupational Monograph by Paul W. Chapman, Science Research Associates, 57 West Grand Avenue,

Chicago 10, Illinois, 1947. 48 pp. 40¢.

Superior. This booklet presents the modern educational and technical services available to farmers. It deals with the opportunities, nature of the work, personal qualifications, training, and salaries for all the major occupations related to agriculture.

Rural Teacher, Occupational Abstract No. 15, Occupational Index, Inc., New York University, Washington Square, New York 3, New York, 1944. 6 pp. 50¢.

Fair. The life of the rural teacher, his qualifications, preparation, and compensation are treated in this pamphlet.

Teaching, Vocational Monograph No. 30, Field Enterprise, Inc., 35 East Wacker Drive, Chicago, Illinois, 1938. 10 pp. 10¢.

Fair. Although some of the data in this pamphlet are outmoded, it presents the basic information concerning the nature of the work, and the preparation and qualifications of the teacher.

Teaching Vocational Agriculture as a Career, Department of Vocational Education, Michigan State College, East Lansing, Michigan, 1951. 15 pp. Free.

Superior. This excellent bulletin portrays the nature of the work, and the personal qualifications, preparation, opportunities for placement, and salaries of teachers of vocational agriculture.

The Job of the Vocational Counselor, Occupational Brief No. 51, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 13 pp. 5¢.

Fair. This pamphlet briefly describes the nature of the work, personal qualifications, preparation requirements, and salaries of vocational counselors.

The Job of the Vocational Teacher, Occupational Brief No. 49, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. The vocational teachers of agriculture, distributive occupations, and trades are discussed in general in relation to the nature of work, personal qualifications, preparation requirements, and salaries.

3. Engineer

Agricultural Engineering as a Career, Research No. 152, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1946. 19 pp. 95¢.

Good. The various phases and the nature of the work are discussed in this booklet. Emphasis is given to the training requirements, qualifications, and expected income.

Agricultural Engineering as a Professional Career, American Society of Agricultural Engineers, Saint Joseph, Michigan, n.d. 8 pp. Free.

Fair. This booklet deals mainly with description of

the different phases of engineering, the opportunities for employment, and the required preparation and qualifications for those persons who are planning a career.

Agricultural Machinery Industry, E. W. Axe and Company, Inc., 730 Fifth Avenue, New York, New York, 1943. 46 pp. Free.

Fair. Opportunities for employment, salaries and trends in the industry are discussed.

Careers Resulting from Rural Electrification, Research No. 120, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1946. 20 pp. 95¢.

Good. The types of jobs and the opportunities for employment are discussed. It also deals with the nature of the work, training requirements, qualifications, and expected earnings.

*Handbook of Descriptions of Specialized Fields in Agricultural Engineering, Superintendent of Documents, United States Government Printing Office, 1944. 5 pp. 5¢.

Poor. This pamphlet rates low because it is limited in the scope of information. However, excellent treatment is given the nature of the work in certain specialized fields of agricultural engineering.

4. Forester

A Job with the Forest Service, Forest Service, United

States Department of Agriculture, Washington, D.C., 1950. 11 pp. Free.

Good. This leaflet furnishes concise information concerning employment possibilities, qualifications, preparation, and earning of jobs in the forestry service.

Careers in Forestry, Miscellaneous Publication No. 249, Forest Service, United States Department of Agriculture, Washington, D.C., n.d. 22 pp. Free.

Superior. An excellent bulletin presenting occupational information on careers in forestry with emphasis on training, qualification, earnings, and nature of the work.

Forestry, Guidance Leaflet No. 16, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1937. 11 pp. 5¢.

Fair. The opportunities for employment, and the compensation and training of foresters are the topics emphasized in this leaflet.

Forestry, Research No. 23, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1949. 24 pp. 95¢.

Good. The nature of the work and the importance of the industry are discussed. The pamphlet also deals with the opportunities for employment, training requirements, qualifications, and salaries.

Forestry, Vocational and Professional Monograph No. 8, Lewis C. Swain, Bellman Publishing Company, Inc., Boston, Massachusetts, 1946. 20 pp. 50¢.

Fair. The nature of the work, qualifications, training requirements, and salaries are discussed.

*Handbook of Descriptions of Specialized Fields in Forestry, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1945. 11 pp. 5¢.

Poor. Despite excellent descriptions of specialized jobs in forestry, the essential information is lacking.

The Job of the Forester, Occupational Brief No. 24, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. The nature of the work, the personal qualifications, preparation requirements, and salary of a forester are presented in this pamphlet.

The Work of the U.S. Forest Service, Miscellaneous Publication No. 290, Forest Service, United States Department of Agriculture, Washington, D.C., 1945. 32 pp. Free.

Good. Emphasis in this bulletin is placed on the nature of the work, personal qualifications, training, and earnings of the forester.

5. Journalist and Reporter

Jobs and Futures, Rural Journalism, Reprint from Mademoiselle, Street and Smith Publications, Inc., 575 Madison Avenue, New York 22, New York, January, 1947. 4 pp. 10¢.

Fair. A unique article describing the work of the rural editors throughout the country, as well as their personal qualifications and expected income.

Jobs in Rural Journalism, Occupational Monograph by Elmo Scott Watson, Science Research Associates, 57 West Grand Avenue, Chicago, Illinois, 1947. 48 pp. 40¢.

Superior. An excellent bulletin presenting the nature of the work, opportunities for employment, personal qualifications, and earnings of a journalist.

Reporter, Vocational Guidance Centre, Ontario College of Education, University of Toronto, Toronto 5, Ontario, Canada, 1950. 4 pp. 10¢.

Good. A well written monograph presenting the history, importance, and nature of the work, and the personal qualifications, preparation, and earnings of the reporter.

6. Landscape Architect

Landscape Architect, Occupational Abstract No. 9, Occupational Index, Inc., New York University, Washington Square, New York 3, New York, 1944. 6 pp. 50¢.

Fair. A concise leaflet presenting the necessary abilities and preparation of the landscape architect as well as his compensation and opportunities for employment.

Landscape Architecture as a Career, Research No. 13, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1938. 14 pp. 95¢.

Fair. This booklet discusses the nature of the work as it applies to cemeteries, parks, and playgrounds. Qualifications, training requirements, and expected income are emphasized.

Landscape Architecture as a Future Life Work, American Society of Landscape Architects, Nine Park Street, Boston 8, Massachusetts, 1953. 2 pp. Free.

Good. An up-to-date resume of the history of landscape architecture, the nature of the work, the number of people engaged in the work, and the potential earnings.

7. Products Buyer and Processor

Careers in Dairy Products Industry, Research No. 80, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1937. 30 pp. 95¢.

Good. The opportunities for employment, and nature of the work in several types of dairy industry are discussed.

Frozen Food Lockers, Occupational Abstract No. 86, Occupational Index, Inc., New York University, Washington

Square, New York 3, New York, 1945. 6 pp. 50¢.

Fair. This leaflet presents the nature of the work, qualifications, and preparation of persons employed in locker plants, and the income they received.

8. Retailer. Farm Supplies and Equipment

Establishing and Operating a Retail Feed and Farm Supply Store, Industrial (Small Business) Series No. 45, Superintendent of Documents, United States Government Printing Office, Washington, D.C., n.d. 38 pp. 15¢.

Superior. This bulletin deals with the nature of the business, establishment of the business, display of supplies and products, and the financial and management problems of the retail feed and farm supply business.

9. Scientist: Including Fish and Wildlife

Agriculture, Vocational and Professional Monograph No. 11, Maurice D. Jones, Bellman Publishing Company, Inc., Boston, Massachusetts, 1946. 39 pp. 50¢.

Fair. A detail list of opportunities for the agriculturally trained is given with brief job descriptions.

Agricultural and Biological Sciences, Description of Profession's Series, Pamphlet No. 1, United States Employment Service, Department of Labor, Washington, D.C., 1948. 39 pp. Free.

Good. This contains descriptions of 15 professions and analyzes the nature of their work, educational qualifications, requisites for each, the related nonprofessional occupations, and placement possibilities.

Agricultural Research Scientist, Announcement No. 109, United States Civil Service Commission, Washington, D.C., 1948. 23 pp. Free.

Good. This booklet presents descriptions of 20 professions, the qualifications for each, and the Civil Service grades with their respective salaries.

Careers Ahead in Agriculture, Agricultural Education Bureau, State Education Department, Albany 1, New York. 4 pp. Free.

Fair. Opportunities in farm contracting are discussed concerning the nature of the work, investments, and expected returns.

Careers in Soil Conservation, Agricultural Information Bulletin No. 76, Soil Conservation Service, United States Department of Agriculture, Washington, D.C., 1952. 12 pp. Free.

Fair. A pictorial description with limited discussion of the positions, nature of the work, qualifications, and salaries are given.

Career Service Opportunities in the United States Department of Agriculture, Agriculture Handbook No. 45, Division of Employment, Office of Personnel, United States Department of Agriculture, Washington, D.C., 1952. 52 pp. Free.

Superior. This excellent handbook describes the many positions to which one may aspire in the Department of Agriculture. Other information concerning qualifications for each position, nature of their work and its salary schedule is presented.

Careers in Technical Agriculture, B'nai B'rith Occupational Brief, B'nai B'rith Vocational Service Bureau, 1761 R Street, N.W., Washington 9, D.C., 1952. 7 pp. 20¢.

Fair. A pamphlet describing the nature of the work in the broad specialized fields dealing with plant, animal, food, and soil. Personal and educational qualifications as well as possible income receive attention.

Employment Opportunities, Michigan Department of Conservation, Elvin Court, Lansing, Michigan, 1952. 31 pp. Free.

Good. This pamphlet deals with the various types of specialists employed in the service. The training requirements, qualifications, nature of the work, and salaries are discussed.

Employment Possibilities in the Fish and Wildlife Service, Division of Administration, United States Department

of the Interior, Washington, D.C., n.d. 10 pp. Free.

Fair. This pamphlet describes the nature of the work, opportunities for employment in, the special qualifications for, and the salaries to be expected from positions in the fish and wildlife service.

Government Service, Vocational Monograph No. 13, Field Enterprises, Inc., 35 East Wacker Drive, Chicago, Illinois, 1938. 13 pp. 10¢.

Fair. This monograph gives a good general description of the work in government service. It presents the types of services, including foreign service, and income to be expected.

*Handbook of Specialized Fields in Agronomy and Soil Science, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1945. 10 pp. 5¢.

Poor. This pamphlet rates poor because of the narrow scope of information. However, it furnishes an excellent description of the various fields of specialization in agronomy.

*Handbook of Descriptions of Specialized Fields in Animal, Dairy, and Poultry Husbandry and Dairy Products Technology, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1945. 18 pp. 10¢.

Poor. A valuable pamphlet for the specialized fields listed above. Rated poor because of the narrow scope of information presented.

*Handbook of Descriptions of Specialized Fields in Entomology, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1945. 14 pp. 10¢.

Poor. An important bulletin, but presenting only the descriptions of the specialized fields in entomology. Other essential occupational information is lacking.

*Handbook of Descriptions of Specialized Fields in Horticulture, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1945. 6 pp. 5¢.

Poor. A valuable bulletin on the specialized fields in horticulture. Incomplete as far as occupational information is concerned.

*Handbook of Descriptions of Specialized Fields in Plant Pathology, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1945. 7 pp. 5¢.

Poor. A very useful bulletin describing the specialized fields in plant pathology.

*Handbook of Descriptions of Specialized Fields in Zoology and Parasitology, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1945. 14 pp. 10¢.

Poor. An essential pamphlet describing the specialized fields in zoology and parasitology. It fails to furnish information in other areas of the occupations.

Plant Pathologist, Occupational Abstract No. 110, Occupational Index, Inc., New York University, Washington Square, New York 3, New York, 1948. 6 pp. 50¢.

Fair. A leaflet emphasizing the nature of the work, qualifications, preparation, employment opportunities, and earnings of a plant pathologist.

Research Careers in Agriculture, Research No. 210, The Institute for Research, 537 South Dearborn St., Chicago 5, Illinois, 1950. 24 pp. 95¢.

Good. The various types of research in agriculture are discussed. Qualifications, training requirements, and salaries are emphasized.

The Agricultural Research Center of the United States Department of Agriculture, Agricultural Handbook 43, Agricultural Research Administration, United States Department of Agriculture, Washington, D.C., 1952. 48 pp. Free.

Good. A bulletin dealing primarily with the nature of the work conducted at the research center. It discusses the number of persons employed and the specialized fields.

*The Jobs of the Agricultural and Biological Scientists, Occupational Brief No. 3, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 22 pp. 5¢.

Fair. This pamphlet presents excellent descriptions of the professions in agriculture and biology. Qualifications,

preparation, and salaries are emphasized.

*The Jobs of the Animal, Dairy, and Poultry Husbandmen and Technologists, Occupational Brief No. 4, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. This pamphlet very briefly presents the nature of the work, qualifications, and earnings of the jobs listed in the title.

*The Jobs of the Botanist, Plant Pathologist, and Plant Physiologist, Occupational Brief No. 7, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. The jobs listed in the title are defined and the qualifications, preparation, and earnings are discussed.

*The Jobs of the Horticulturist, Agronomist, and Soil Scientist, Occupational Brief No. 27, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 14 pp. 5¢.

Fair. This pamphlet deals with the nature of the work, qualifications, preparation, and earnings of persons filling the jobs mentioned in the title.

*The Jobs of the Zoologist, Parasitology, and Entomologist, Occupational Brief No. 53, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 13 pp. 5¢.

Fair. The nature of the work of the above jobs is described and the qualifications, preparation, and earnings are presented.

10. Service Technician

Blacksmith, Occupational Abstract No. 36, Occupational Brief No. 36, Occupational Index, Inc., New York University, Washington Square, New York 3, New York, 1948. 6 pp. 50¢.

Fair. This leaflet emphasizes the blacksmith in industry rather than the rural blacksmith which services farming equipment. The nature of the work, qualifications, unions, preparation, earnings, and advancement are discussed.

Blacksmith, Occupational Guide, Employment Service, United States Department of Labor, Washington, D.C., 1947. 5 pp. Free.

Fair. A leaflet defining terms used in the blacksmith trade. The nature of the work, training, qualifications, and working conditions are discussed.

11. Trucker

Getting into the Trucking Industry, American Trucking Associates, Inc., 1424 16th Street, N.W., Washington 6, D.C., 1953. 22 pp. Free.

Good. This pamphlet deals quite adequately with the steps in becoming established in the trucking business, such as obtaining permits, the regulations (state and federal),

margin of profit, management, and safety precautions.

12. Veterinarian

Careers in the U.S. Army Veterinary Corps! Department of the Army, Office of the Surgeon General, Washington, D.C., 1949. 12 pp. Free.

Good. This pamphlet presents the opportunities in the army veterinary corps, the nature of the work, qualifications, and salary.

The Job of the Veterinarian, Occupational Brief No. 50, Superintendent of Documents, United States Government Printing Office, Washington, D.C., 1947. 10 pp. 5¢.

Fair. The type of work, qualifications, opportunities, and training are discussed.

Veterinarian, Occupational Abstract No. 52, Occupational Index, Inc., New York University, Washington Square, New York 3, New York, 1945. 6 pp. 50¢.

Fair. This leaflet emphasizes the nature of the work, abilities required, training, earnings, method of entrance, and advancement.

Veterinarian, Vocational Guidance Centre, Ontario College of Education, University of Toronto, Toronto 5, Ontario, Canada, 1950. 4 pp. 7¢.

Good. This up-to-date pamphlet discusses the number employed, working conditions, training opportunities,

employment opportunities, special regulations, salaries, and trends.

Veterinarian, Michigan Unemployment Compensation Commission, 7310 Woodward Avenue, Detroit 2, Michigan, 1948. 19 pp. 25¢.

Good. This pamphlet deals with the veterinary opportunities in the Detroit area. Qualifications, training requirements, and earnings are also discussed.

Veterinary Medicine as a Career, American Veterinary Medical Association, 600 South Michigan Avenue, Chicago 5, Illinois, 1951. 15 pp. Free.

Good. This pamphlet briefly discusses the college study required, the opportunities for service in the profession, the personal qualifications that make for success, and the rewards that may be expected.

Veterinary Medicine as a Career, Research No. 71, The Institute of Research, 537 South Dearborn St., Chicago 5, Illinois, 1936. 18 pp. 95¢.

Fair. The history and employment opportunities are discussed in this pamphlet. Also, the qualifications, training requirements, and earnings are emphasized.

APPENDIX C

Pamphlet I, Veterinary Medicine as a Career

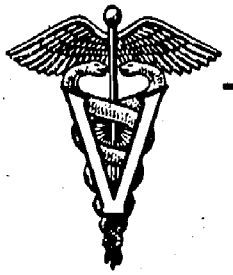
Pamphlet II, Opportunities in Farming

Pamphlet III, The Job of the Corn-Hog-Cattle Farmer

Veterinary Medicine As a Career

Veterinary Medicine As a Career

This booklet answers questions often asked by high school students who are considering veterinary medicine as a career. It briefly discusses the college study required, the opportunities for service in the profession, the personal qualifications that make for success, and the rewards that may be expected.



Published by

American Veterinary Medical Association

600 South Michigan Avenue

Chicago 5 Illinois

VETERINARY MEDICINE is the science and art that deals with all aspects of the health and reproduction of domestic animals and of wild animals in captivity, including the prevention, cure, alleviation, and eradication of their diseases.

The *science* of veterinary medicine embodies the knowledge gained through many individuals' observations, planned research, and testing. The *art* of veterinary medicine is the personal ability to make practical, effective use of that knowledge.

Like the practitioner of human medicine and other branches of medical science, the veterinarian is guided by a code of ethics that guards both the honor of his profession and the welfare of the patients and clients he serves.

His work is divided into three phases: (1) Prevention of animal diseases by the use of vaccines and by helping owners to improve sanitary practices, feeding standards, and management methods. (2) Medical and surgical treatment of ailments and injuries. (3) Safeguarding and improving the nation's supply of foods derived from animals—meat, dairy products, poultry, and eggs—and protecting the public from diseases which may be transmitted from animals to man, such as brucellosis and rabies.

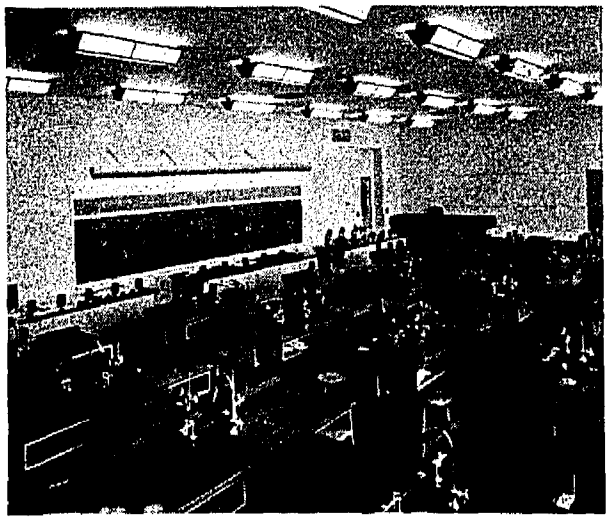
These broad and varied responsibilities of the general practitioner explain why today's students must train six years in college to obtain a degree in veterinary medicine. In fact, the typical present-day general practice can no longer be compared with that of thirty or forty years ago, when care of horses and mules was the principal field and when four years of college training was considered sufficient preparation.

Historical Background

It has been said that "veterinary medicine developed contemporaneously with the domestication of animals." The ancient Egyptians left traces of their knowledge of this art, and the first authentic record of animal physicians was found in the laws of Assyria as laid down by Hammurabi in 2200 B.C.—almost a thousand years before Moses. In the centuries that followed, veterinary medicine experienced periods of popularity and progress, as well as periods of suppression, before it finally became established as a respected profession on a scientific par with human medicine and dentistry.

Records of formal education in veterinary medicine trace back to about 1740, when a privately owned academy of equitation in Lyon, France, included instruction on equine medicine in its curriculum. This academy was absorbed into the public educational

system of France in 1761, by decree of Louis XV. The first English college of veterinary medicine was established in London in 1791.



Every college of veterinary medicine has its own well-equipped classrooms where students learn modern techniques of animal care and disease diagnosis.

Veterinary medical education in the United States began as a privately financed operation in 1852 with the chartering of the Veterinary College of Philadelphia, which went out of existence without ever graduating a class. The first United States school that actually operated and graduated a few veterinarians was the Boston Veterinary Institute, organized in 1854. Canada's first school of veterinary medicine was the Ontario Veterinary College, established in 1862 and still in operation today. Subsequently, schools began to spring up all over the United States and Canada, reaching a peak of 25 in 1916. A few publicly supported schools were among them, but the great majority were privately financed. At the close of World War I, however, the number of private institutions began to dwindle and eventually all of them gave way to schools of veterinary medicine operated in connection with state or provincial colleges and universities.

Prerequisites for a Degree

Before a high school graduate may enroll in a college of veterinary medicine for the four-year professional course, he must complete two years of pre-professional college study. The requirements for pre-professional courses and credits are specified by each institution and vary with different colleges. Chemistry (inorganic and organic and biochemistry), zoölogy, botany, physics, English composition, and speech are helpful. However, the prospective student's exact selection of courses should be guided by advice from the college of veterinary medicine to which he expects to apply for admission.

High school study of the above-mentioned subjects is valuable, but not essential. Knowledge of Latin will make it easier to understand medical terminology.

Although the curriculum is not the same in all colleges of veterinary medicine, each school must meet certain minimum requirements in order to qualify for recognition by the American Veterinary Medical Association. The four years of professional study must include not less than 4,000 clock hours of instruction, divided on the following percentage basis:

	Per Cent
Anatomy, including histology and embryology	15.0 to 17.0
Physiology and biochemistry	7.5 to 11.0
Pathology, bacteriology, and immunology	10.5 to 14.0
Parasitology	3.0 to 5.0
Pharmacology and materia medica	3.0 to 4.0
Food hygiene	3.0 to 4.0
Surgery (exclusive of clinics)	5.0 to 6.5
Diseases of the reproductive system	2.0 to 3.0
Medicine (exclusive of clinics)	9.0 to 10.0
Clinics (combined)	25.0 to 30.0
Miscellaneous and electives	4.0 to 6.0

Recognized Schools

The Council on Education of the American Veterinary Medical Association makes an inspection of each recognized school at least once every three years, to determine whether that school is continuing to satisfy requirements for recognition and accreditation by the

This calf is seriously ill. Its life rests on the veterinarian's ability to make a speedy diagnosis of the trouble and start appropriate treatment without delay.

Association. In the case of a new school, inspection is made during the year prior to the graduation of the first class. Prospective students should ask about the accreditation status of the school to which they apply.

Following are the schools of veterinary medicine in the United States and Canada; unless otherwise indicated, each school qualified for approval on the basis of inspection made by the Association's Council on Education prior to the fall of 1951:

Alabama Polytechnic Institute, College of Veterinary Medicine, Auburn, Ala.

*California, University of, School of Veterinary Medicine, Davis, Calif.

Colorado Agricultural and Mechanical College, Division of Veterinary Medicine, Fort Collins, Colo.

Georgia, University of, School of Veterinary Medicine, Athens, Ga.

*Illinois, University of, College of Veterinary Medicine, Urbana, Ill.

Iowa State College, Division of Veterinary Medicine, Ames, Iowa.

Kansas State College, School of Veterinary Medicine, Manhattan, Kan.

Michigan State College, School of Veterinary Medicine, East Lansing, Mich.

Minnesota, University of, School of Veterinary Medicine, St. Paul, Minn.

Missouri, University of, College of Veterinary Medicine, Columbia, Mo.

New York State Veterinary College, Cornell University, Ithaca, N. Y.

Ohio State University, College of Veterinary Medicine, Columbus, Ohio.

Oklahoma Agricultural and Mechanical College, School of Veterinary Medicine, Stillwater, Okla.

Ontario Veterinary College, University of Toronto, Guelph, Ont. (Canada)

Pennsylvania, University of, School of Veterinary Medicine, Philadelphia, Pa.

Quebec, School of Veterinary Medicine of the Province of (affiliate of University of Montreal), St. Hyacinthe, Que. (Canada). French instruction only.

Texas Agricultural and Mechanical College, School of Veterinary Medicine, College Station, Texas.

Tuskegee Institute, School of Veterinary Medicine, Tuskegee Institute, Ala.

Washington, State College of, College of Veterinary Medicine, Pullman, Wash.

*Opened in the fall of 1948; not yet inspected for AVMA accreditation at the time this booklet was published.

License to Practice

The degree, Doctor of Veterinary Medicine (usually designated D.V.M.), is conferred at graduation, after which the veterinarian must obtain a license to practice in the state of his choice. Examinations, which generally are rigid, are given by the state board of veterinary medical examiners annually or semiannually. There also is a National Board of Veterinary Medical Examiners which gives examinations that may be accepted in lieu of certain parts of any state's own examination.

The Profession at Work

Figures compiled by the American Veterinary Medical Association in 1951 showed 16,000 veterinarians in the United States. It is estimated that the profession's population will increase by approximately 500 each year until a total of 20,000 to 25,000 is reached.

Veterinarians work constantly to insure the safety and purity of milk by protecting the health of the cows that produce it. The veterinarian shown here is taking a sample of milk which he will test for the presence of disease germs, such as mastitis. If the cow proves to be infected, he will treat her and work closely with the owner to prevent further infection.

About 60 per cent engage in private general practice, which involves the care of all species of domestic animals. Another 10 per cent specialize, devoting all or nearly all of their time to the care of one class of animals, such as pets, dairy cattle, beef cattle, race horses, hogs, or poultry. There also are opportunities for specialized work with ranch-raised fur animals, zoo and circus animals.

The remaining 30 per cent are employed in various

Development and testing of vaccines for protecting animals against disease is another phase of the profession's work. This veterinarian is working with chicken embryos to make a vaccine that will be used for horses.

branches of federal, state, and local governments, in teaching and research, in agricultural extension work, and in commercial fields.

A Typical Rural Practice.—Preventing the outbreak and spread of diseases among farm animals and the economic loss caused thereby is a primary responsibility of the veterinarian who engages in general practice. This includes regular physical examinations and disease-testing of livestock, and counseling with the owner on sanitary measures, environmental conditions, feeding, and breeding. Also included is preventive vaccination for such diseases as blackleg and brucellosis in cattle, cholera and erysipelas in hogs, enterotoxemia and soremouth in lambs and sheep, equine encephalomyelitis (sleeping sickness) in horses, fowlpox and Newcastle disease in poultry, rabies and distemper in dogs. When prevention fails, the veterinarian diagnoses the ailment and treats the patient with the best drugs and techniques at his command. Surgery is performed under anesthesia and under the most aseptic conditions that farm surroundings will permit.

Some veterinarians carry on general practice from private clinics and from hospitals having accommodations for both livestock and pets, but the majority treat their patients right on the farm.

While thus serving a rural population, the practitioner has many opportunities to help prevent human illness through the control of animal diseases that are dangerous to man. In this connection, he may give advice on the protection of farm families against any of about 20 animal diseases known to be of major importance to public health in North America.

If he has spare hours after attending to the demands of his private practice, he may obtain part-time employment in disease eradication work with the Bureau of Animal Industry of the United States Department of Agriculture or with state regulatory agencies. There also are opportunities for sideline work with state

Routine physical examinations of pets and livestock are a gratifying part of the veterinarian's work because they give him an opportunity to detect disease and other abnormal conditions before it is too late for successful treatment. (Photo courtesy TV program, "The Animal Clinic.")

and municipal health departments and as part-time inspector in local meat-packing plants.

A Typical Urban Practice.—The veterinarian who locates in a large city usually devotes all or a substantial part of his time to the care of pets and needs a specially constructed, well-equipped hospital for this. Besides the initial investment in land and building, an outlay of several thousand dollars is required for clinical, surgical, x-ray, and laboratory equipment.

In some areas, the number of pet hospitals already matches or may even be in excess of public needs, and for this reason the specialized small animal field

Federally employed veterinarians are on duty in every government-inspected meat packing plant to make sure that only sound, healthful meat gets to American dinner tables. Here, a veterinarian is inspecting internal organs to see if there is any animal disease or deterioration that may be dangerous to consumers.

offers the new graduate fewer opportunities than a general practice. However, the veterinarian who becomes successfully established in small animal practice finds much gratification in his work.

Federal Government Work.—The United States Department of Agriculture maintains a full-time staff of about 1,500 veterinarians whose principal assignments are meat inspection in federally inspected packing plants and field work in animal disease eradication. The Department's Bureau of Animal Industry is the largest single government employer of veterinarians in peacetime.

Meat inspection is a public health service, that the federal government and certain states and cities provide for the protection of consumers. By inspecting animals before, at the time of, and after slaughter, as well as during processing operations, veterinarians detect and bar from public channels any meat that is made unsafe by animal disease or other contamination.

Additional opportunities in the Department of Agriculture include stockyards supervision, poultry inspection, enforcement of import and export regulations, research work on animal health problems, and licensing supervision over the manufacture of serums and vaccines for animals.

The next largest government users of veterinarians are the Army and Air Force. Approximately 2,200 veterinarians served as commissioned officers in the armed forces during World War II. At present, about 600 are on active duty, although the number fluctuates with the size of the armed forces. The principal activity is inspection of foods, especially meat and dairy products, to prevent unwholesome or poor-quality foods from being served to troops. The strikingly low incidence of food poisoning and other food-borne diseases in the United States armed forces is largely attributable to this activity. Other services performed by the veterinarian in uniform are care of military animals, such as guard dogs and pack animals, sanitary inspection of camps, research on animal diseases, control of diseases that may be spread from animals to troops, and care of pets owned by armed forces personnel.

Other agencies of the federal government that employ veterinarians are the United States Public Health Service and the Food and Drug Administration. American veterinarians also serve with international agencies, such as the World Health Organization.

State and Municipal Government Work.—Veterinarians employed by state government bureaus are concerned primarily with disease control and eradication in coöperation with federal veterinarians and private practitioners, and with public health protection

Veterinarians supervise food inspection as commissioned officers of the armed forces, in addition to caring for the health of military animals. The Veterinary Corps officer here is inspecting turkeys.

through the inspection of meat, milk, and other foods. Some counties and many cities engage veterinarians to inspect meat, meat products, meat markets, dairy farms, dairy plants, and restaurants.

Opportunities for Women.—Some women have enjoyed success in the practice of veterinary medicine, but the number who have sought to enter this pro-

These girls were students in a midwestern school of veterinary medicine at the time this picture was taken. There are about 120 women veterinarians in the United States.

fession is small. Also, several of the veterinary medical colleges are reluctant or refuse to enroll women because the physical demands are so great, particularly where large farm animals are concerned. It is generally felt that the woman veterinarian's greatest opportunity for service is in the field of small animal practice and in laboratory or research work, although a few determined and capable individuals have distinguished themselves in other fields, including the care of zoo animals and dairy cattle.

Personal Qualifications

Physical stamina is needed because of the long working hours and the fact that difficult emergency calls usually come during the hours that are ordinarily devoted to rest—late at night and early in the morning.

Good health also is important because calls are made in all kinds of weather, and there are many risks of exposure to disease.

Strength is an advantage because the veterinarian must frequently handle large, struggling animals alone, trained help often not being available on country calls.

Understanding of animals, gained by close association with them, is very desirable because it enables a person to handle them without fear of personal injury. Moreover, animals sense fear and react unfavorably to it—a factor that will prevent necessary coöperation between veterinarian and patient.

Good powers of observation are essential. The animal patient can not answer questions, so it is necessary for the veterinarian to observe all deviations from the normal in order to judge the nature and extent of trouble. The diagnosis depends upon evidence gathered as he watches and examines the patient and upon the interpretation he places on the bits of evidence he gathers.

Attention to new scientific developments is important. Improved drugs, operations, and instruments are being reported at all professional meetings and in the journals and books devoted to veterinary medicine. The veterinarian who does not read current literature and maintain active membership in local, state, and national veterinary medical associations is guilty of neglecting his patients as well as himself.

Interest in the community gives the veterinarian an opportunity to expand his usefulness. By taking an active role in community affairs, he finds many chances to apply his scientific knowledge toward the betterment of his neighbors' health and welfare.

Ability to meet clients can not be overemphasized. The animal owner expects a courteous, understandable

explanation of the case and wants to be assured that the animal will get best possible care.

The Financial Side

Earnings of practicing veterinarians are modest, despite the years spent on study and the long hours of work. Fees for most veterinary medical and surgical services are small compared with those of a physician or dentist. The average graduate must invest about $2,500 in drugs and instruments to begin private practice in a farming area and a great deal more than that if he wants to open a hospital. Also needed is an automobile for making calls. In return, he may expect to have a net income of $3,000 to $4,000 the first year if he selects his location wisely. His income will increase as he becomes established and may be expected to double in five or six years, but from then on the rise is slower.

Veterinarians in cities ordinarily have larger incomes than those in rural areas, but living costs are correspondingly higher. Some individuals advance more rapidly than others, and some go on to specialize in fields that call for unusual skill and, therefore, better financial returns. A specialist may have an income of $15,000 a year, but only the exceptional veterinarian earns more than that.

Information about salaries and opportunities for employment with the federal government, such as in the Department of Agriculture, can be obtained from any local office of the United States Civil Service Commission. At the time of publication of this booklet, veterinarians being engaged for meat inspection or field work in animal disease control would start with a classification of GS-7 at an annual salary of $3,825, with stipulated yearly increases and retirement provisions and with opportunities for advancement to higher-salary grades.

Salaries of veterinarians in state, county, and municipal employ are, in most cases, below the scale paid by the federal government.

Veterinarians entering the Army or Air Force are commissioned as officers, with initial rank depending upon their experience and age and with excellent opportunity for gradual elevation to the rank of colonel.

About 2.5 per cent of the nation's veterinarians pursue careers in private industry—in executive posts, research, and sales, often with manufacturers of pharmaceutical and biological products. The salaries are attractive and compare with those of other professional men in similar lines of work.

If you could look into the mind of a veterinarian who has had a busy day, this is what you might see . . . a picture of many different kinds of animal patients he has treated during that day. Like the doctor of human medicine, the veterinarian is devoted to his patients—never lets them out of his mind until he has done everything within his power to help them.

OPPORTUNITIES IN FARMING

by PAUL W. CHAPMAN

AMERICAN JOB SERIES

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OPPORTUNITIES IN FARMING

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United States Office of Education

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FOREWORD

From any point of view, farming is one of the world's most important occupations.

Approximately one-fourth of the population of the United States lives on farms. Each year almost 500,000 young men enter upon the business of farming. Few occupations offer employment for so many young Americans.

No occupation provides such a high degree of independence and self-sufficiency as farming. Farmers produce, or may produce, their own food; the occupation of farming provides a place in which to live. Food and shelter are two of life's necessities; they are the items in the family budget which normally call for the largest expenditures.

Few workers are more independent than farmers. They do not depend for employment upon others, who, for one reason or another, may prevent their working. While farmers who make a success work hard and sometimes for long hours, they are free from the regular hours of urban workers.

No work offers a greater variety of employment than farming. Regardless of the place where one lives, or the type of farming in which he is engaged, there is some change in the work each season.

Farming is also a mode of life. To be a farmer means that one must live on a farm. Whether or not this has an appeal depends upon the interests of the individual. Farm life becomes more attractive as modern conveniences — electricity, telephones, butane gas, and others — are made available. Good roads, cars, radios, mail delivery, and other developments make farm life more and more like life in towns and cities so far as conveniences and comforts are concerned.

It is often said that farmers do not make much money. This is true. It is also true of most other people, regardless of their vocations. But farmers do as well as city workers in the matter of saving money and acquiring property. In fact, the average farm family owns more property than the typical city family.

Farming is important in the economy of the nation because farmers supply the raw materials for most of our food, clothing, and shelter. It is also important for the reason that it makes possible so many other vocations, including those that transport, process, and sell farm products. For these reasons all of us, regardless of where we live or what we do, should be interested in learning more about the vocation of farming.

I

FARMING AS A CAREER

FARMING, which is the oldest of all occupations, has lost none of its importance with the passing of time.

All of us, regardless of where we live or what we do, are dependent upon farming for the food we eat, most of the fibers from which our clothes are made, and some of the materials used in the homes in which we live.

Farming is the most essential of all occupations. Not only are we dependent upon it for food and other necessities, but it also provides jobs for more than half of America's urban workers. These jobs involve buying, packing, processing, transporting, selling, and using farm commodities.

Methods of working change rapidly in this day of science and engineering. New occupations are created; old vocations pass out of existence. But the business of farming is so vital in supplying the needs of mankind that the time will never come when civilization can exist without farmers. Farmers make possible the existence of large cities. If there were no farmers, each individual would find it necessary to spend the major portion of his time producing food for himself and those dependent upon him.

Farming is one of America's major occupations from the standpoint of the number of persons for whom it provides employment. Nine million workers were engaged in farming just prior to World War II; at that time approximately one-fourth of the nation's population lived on farms. During the war the number of farm workers declined. In the future the percentage of the nation's labor force engaged in farming will continue to decrease, but this will mean better and more favorable opportunities for those who choose this type of employment.

In the colonial period of our history, 97 per cent of the nation's population was engaged in farming. At that time farming was a mode of living, rather than a business devoted to the production of commodities for sale. Commercial farming began with the establishment of the plantation system of operation in the South and the use of labor-saving machinery in the Middle West. It is the extended use of farm machinery that has made Americans the most efficient producers of farm products in the world.

Over a long period of years, each new labor-saving machine invented and manufactured for use on farms has decreased the percentage of our labor force required in agricultural occupations. As recently as 1850, almost 70 per cent of our employed people were working on farms. With each new patented farm tool that was made available — including the chilled steel plow, the reaper, thresher, haying machine, combine, tractor — the percentage of workers needed on farms decreased. It is now less than 20 per cent. The number of workers needed will continue to decline.

Better tools make farm work easier and add to the appeal of the occupation. They also tend to increase farm income, but add to the capital requirements for farming not only through the cost of the machines but also because they increase the amount of land required for efficient operation of the family-size farm, which is now approaching a national average of 200 acres.

A Way of Life

Farming is still, however, a way of life, since the operator must live on the land for which he assumes managerial responsibility. But conveniences and rural improvements have added to the attractiveness of country life. During recent years electricity has been made available to most rural sections. Telephone lines are being extended to rural homes everywhere. Highways are paved or hard-surfaced. In fact, life in the country has been made so attractive that thousands of families have left the congested sections of cities to make their homes in suburban and rural communities. Also, the number of subsistence or part-time farms is increasing. These are small farms on which people live in order to

enjoy the advantages of country life and, perhaps, to reduce living expenses, but which are not designed to provide all of the family's income. Usually one or more members of such families are employed in some non-farm vocation and commute daily to the office, factory, or store in which they work.

That farming is a way of life has, no doubt, added to the popularity of the vocation. It is said that Thomas Jefferson loved his farm home at Monticello so much that he continued to spend money improving it after his income had been reduced and his savings depleted through public service. Today, countless successful men who have accumulated a fortune turn to farming not for the money they can make but for the pleasure which farming and farm life make possible.

Farming has never lacked for recruits. For one hundred years the number of farms in the United States has increased quite consistently. As shown in Table 1, entitled *Number of Farms in the United States*, there are, and have been for many years, more than six million farms in the nation. Since each operator manages his farm for an average of not more than thirty years, this means that to hold the number approximately constant, about 200,000 young men must enter upon the business of farming for themselves each year. This is a large number; it is about 20 per cent of any given age group. But there have always been enough of these young men who selected farming as their vocation to take the places of those who dropped out.

TABLE 1

NUMBER OF FARMS IN THE UNITED STATES

Year	Number of Farms	Per Cent Gain or Loss
1850	1,449,073	
1860	2,004,077	41.1
1870	2,659,985	30.1
1880	4,008,907	50.7
1890	4,564,641	13.9
1900	5,737,372	25.7
1910	6,361,502	10.9
1920	6,448,343	1.4
1930	6,288,648	−2.5
1940	6,096,799	−2.2
1950*	6,157,766	1.0

*Estimated

It is evident that the number of farms in the United States is tending to become stabilized at about six million. The number of cotton farms in the South is decreasing; the number of part-time or suburban farms is increasing.

Here's Work That Satisfies

What is the peculiar appeal which farming holds for so many men and women?

Perhaps the explanation lies in the fact that it is a business which enables one to satisfy the creative urge which is universal in all persons with ambition and ability. For some this desire is expressed in creating books, pictures, and music; for others the same impulse finds expression in the building of houses, bridges, and roads. But there are no more satisfying materials with which to work than plants and animals.

Security is another factor which gives life on the land an appeal to many. But the majority of those young men and women who choose farming as their vocation do so because they are the sons and daughters of farmers. In the past it has been relatively easy for them to establish themselves in farming and difficult for them to enter other occupations. Their comparative isolation from other types of work, as compared with boys and girls in cities, has often led to a career in farming for the reason that they knew little or nothing about other types of work. This is no longer true to the same extent that it has been in the past, and, as a result, a larger number of boys and girls have left the farm in recent years than ever before. Again, this trend increases the opportunities of farming for those who choose the vocation.

Are You Interested in Farming?

Personal interest should, in most cases, be the determining factor in the selection of an occupation. In every walk of life there are successful men and women. To paraphrase a line from one of Sidney Lanier's poems, *there is more in the man than there is in the job!*

To determine whether one is interested in farming, it will be helpful to think about the following questions:

1. Do you like to work outdoors?
2. Does living in the open country appeal to you?
3. Do you like plants and animals?
4. Are you interested in watching their growth from day to day?
5. Do you enjoy visiting farms and market places where farm products are sold?
6. Are you satisfied to spend much of your time alone?
7. Are you willing to work long hours during certain seasons of the year?
8. Do you like to plan your own work?
9. Do you have enough will power to control your own actions; to work when no one tells you to do so?
10. Can you manage your financial affairs successfully?
11. Are you strong enough to handle the tools that are used in farming?

If you can answer *yes* to all these questions, you doubtless possess the more important personal characteristics required for success in farming. Those who answer the majority in the negative should seek some other vocation.

Not all the persons who possess the qualifications for success in farming will wish to choose this occupation as a career. Many will feel that they will be happier in some other type of work. Some may think that other types of employment offer greater opportunities for making money or other rewards in which they are interested. Such individuals will, perhaps, want to compare the advantages and disadvantages of farming with other work opportunities. It is well to remember, however, that in the final analysis the advantages and disadvantages of any kind of work are, to a great extent, matters of personal opinion.

Survey the advantages and disadvantages

For those who wish to weigh the advantages and disadvantages of farming as an occupation, the following lists will stimulate helpful thinking:

Advantages of Farming

1. A man works for himself.
2. It is healthful outdoor work.
3. Farming offers security from unemployment.
4. There is a variety in the work to be done.
5. Personal and household expenses are small.
6. A farmer may be home with his family.
7. There is no danger of losing the job.
8. It is a mode of living that makes saving possible.
9. Farmers live well compared with city workers who earn the same amount of money.
10. Farming provides opportunities for stimulating employment in the improvement of crops and livestock and other creative achievements.

Disadvantages of Farming

1. Capital is required to get established.
2. Income is uncertain.
3. There is no weekly or monthly pay check.
4. Farmers cannot as a rule set a price on their own products.
5. A farmer competes with untrained workers, making for low wage scales.
6. There may be overproduction and low prices.
7. Outdoor work must be done in bad weather.
8. Schools, churches, and entertainment facilities may not be convenient, or of sufficiently high standard, in rural districts.
9. It is difficult to get away for vacations.
10. The achievements in farming are not recognized to the same extent as success in other lines of work.

Many of the former disadvantages of farming no longer exist. Improved machinery is removing drudgery. Radios, highways, and cars have eliminated isolation. Science is reducing the hazards of production and farm cooperatives are improving marketing. Nationwide programs are seeking to bring supply and demand closer together so there will be a more stable price for farm commodities. And, perhaps most important of all for young men who wish to enter the business, a loan program has been placed in operation by the federal government through which any young man with a farm background may borrow the money to buy a farm and be given forty years, if necessary, in which to pay for it. This loan plan, directed by the Farmers Home Administration, has special privileges provided for the veterans of World War II. It is much easier for a young man to buy a farm for himself today than it was before this favorable loan policy was established.

What Does the Future Hold?

The outlook for farming is, on the whole, quite promising. During the war it was impossible to produce enough food and feed to meet the demands of the American people. This condition was due not only to the fact that many people left farms to enter the armed forces and work in war plants but also to increased demand. Food was sent overseas to our fighting forces and also to the armies of all members of the United Nations family. Under terms of what was called lend-lease, food was also sent to the civilian population of England. To meet the conditions which these exports created, food was rationed in the United States. During the war, feed for American livestock and poultry was imported from Canada and South America.

After the war was over there was little decrease in the demand for food because of the relief program carried on in Europe and Asia. American food was shipped into these war-ravaged countries. Many years are required to adjust production after a great war. American food relief was carried on for six years following the close of World War I.

While the war was in progress and during the period of postwar adjustment our population has been increasing, and with it a greater demand for farm products has been created. This demand will doubtless remain at a permanently higher level; also, as our supply of natural resources is depleted, farm products are used more and more as raw materials for industry.

Henry Ford said, for example, that we will soon be growing our automobiles. Already the Ford Motor Company and associated industries use vast quantities of farm products, including cotton, wool, sugar cane, and soybeans. Plastics are made from soybeans, fiberboard from sugar cane, upholstery from wool, and, among other uses, cotton goes into tires.

In every section of the nation there are specialized crops grown for industrial uses. Flax is grown for the making of linen in the Northwest; hemp is produced for the making of rope in a wide area of our country. In Florida there are many crops produced for industry. Ramie, a new fiber plant imported from China, is being grown to supply the demands of several industrial plants. Lemongrass, a plant also imported

from the Orient, is used for the making of oil that goes into perfumes and cosmetics. Cloth is being made from milk.

Through chemistry, scientists have learned that all organic substances contain, in the main, the same elements. This means that through the processes of chemistry these substances can be changed from one form to another. This is why cloth can be made from coal; and rubber, from oil. The same knowledge makes it clear that alcohol can be made from any starchy plant and that such plants can be converted into many useful products, including fuel to operate automobiles. All these scientific discoveries are helpful to both industry and agriculture. They will increase the employment opportunities of our people.

In commenting upon the outlook for farming, Edward A. O'Neal, President of the American Farm Bureau Federation, an organization which includes among its members farmers from all parts of our country, said recently, "I am convinced that the outlook is more favorable for equality for agriculture than it has been for many years. So I would say that any young man who is a countryman at heart can prepare to follow this vocation with a fair prospect that he will be able to live well. There will never be opportunities for accumulating great wealth on the farm, but there will be abundant opportunities to live purposefully and constructively, and to achieve a fair measure of financial success."

II

FARM OCCUPATIONS

AGRICULTURE literally means the care, or cultivation, of fields. During the heyday of the Roman Empire, the word had a restricted meaning in keeping with its derivation—*ager*, a noun meaning "field" and *cultura*, a verb meaning "to cultivate." Today the term also embraces a man's production of all forms of plant and animal life.

In the days of Horace and Virgil, cities were enclosed by walls. Outside the gates large fields were devoted to the production of grain and forage crops. The limited space within the walls was used for the growing of fruits and vegetables. In the event of attack, the people of the city could withdraw from the fields and live for a time within the walls, where the crops most valuable for food were produced. The care of those crops grown within the walls was known as horticulture. In Latin, *hortus*, means an "enclosure" or a "garden."

Agriculture is a Broad Field

The word agriculture today in the United States is used as a comprehensive, all-embracing term, which includes the "culture" of all plants. It also includes the production of all livestock. Formerly, the care of animals was spoken of as "husbandry," a word which implies wise management. We now use the term "animal husbandry," to mean livestock farming, but it is regarded also as a part — an essential part — of agriculture.

Strictly speaking, all persons engaging in the production of plants and animals for use or sale are agriculturists. But according to custom and usage they are known as *farmers*. The word "agriculturist" has come to apply to those persons engaged in scientific and economic occupations related to farming.

Farming is not just one occupation, but many, and today many kinds of farming are practiced in the United States. The U. S. Census Bureau classifies all farms into twelve groups. These are called *farm types*. The name of the type is taken from the crop which brings in 40 per cent or more of the total farm income. Thus, if 40 per cent or more of a farmer's income is derived from the sale of milk, his farm is known as a *dairy farm*, even though he produces products for sale other than those

obtained through the management of dairy cattle. The twelve types of farms recognized by the Bureau of the Census are: *general, cash-grain, cotton, crop-specialty, fruit, truck, dairy, animal-specialty, stock-ranch, poultry, self-sufficing*, and *abnormal*. A brief explanation of these terms is as follows:

General — farms producing a great variety of products, no one of which accounts for as much as 40 per cent of the total gross income.

Cash-Grain — farms depending on the sale of one or more of the following crops: wheat, corn, oats, barley, flax, rye, buckwheat, rice, and grain sorghum.

Cotton — farms deriving at least 40 per cent of their earnings from cotton (lint) and cottonseed.

Crop-Specialty — farms selling sweet sorghum, sugar cane, sugar beets, maple sugar, soybeans, cowpeas, field peas and beans, tobacco, hay, peanuts, Irish potatoes, sweet potatoes, mushrooms, or other minor field crops.

Fruit — farms specializing in the production of apples, peaches, all tree fruits, nuts, grapes, strawberries, raspberries, cranberries and other like crops.

Truck — farms growing and selling vegetables.

Dairy — farms producing and selling milk, cream, butter, dairy cows, and calves.

Animal Specialty — farms specializing in the production and sale of cattle, sheep, hogs, goats, wool, mohair and, possibly, slaughtered animals.

Stock-Ranch — ranches, mostly in the Far West, devoted to the production of animals grown largely on grass.

Poultry — farms selling chickens, ducks, turkeys, geese, and eggs.

Self-Sufficing — farms on which the value of the products used by the operator's family is 50 per cent or more of the total farm production.

Abnormal — includes five sub-types: farms of institution or country estates, farms operated on part time, boarding and lodging farms, farms emphasizing forest products, or farms operated by a dealer in livestock.

Locality Helps Decide Type of Farming

Climate, soil, rainfall, markets, and many other factors play a part in determining the type of farming which dominates in any section. Apples, for example, cannot be grown profitably in all parts of the country. There are usually logical, practical reasons for the type of farming found in any community or section. It represents the collective experience of all the people who have ever farmed in the locality.

While there are only twelve types of farming listed by the Bureau of the Census, this list does not by any means present a complete picture of America's farming opportunities. Most of the types may be subdivided into different kinds of farming, each of which is a distinct occupation. To illustrate, there are about 150,000 fruit farmers in the United States. But this number includes men growing apples in Washington, peaches in Georgia, walnuts in California, and cranberries in New Jersey. Each is actually a separate occupation. In the same way, each type may be subdivided many times. There are, perhaps, around 100 kinds of farming in which one may engage. Each of these requires special technical information; each presents different problems; and each has some peculiar appeal which seems to present unique opportunities.

TABLE 2

PRODUCTS THAT FARMS PRODUCE

Major Source of Income	Number of Farms	Value of Products
Livestock	726,162	$1,800,000,000
Dairy Products	619,006	1,214,000,000
Poultry	217,418	359,000,000
Other livestock	20,251	50,000,000
Field Crops	2,185,986	3,016,000,000
Vegetables	80,116	179,000,000
Fruits	133,685	300,000,000
Horticulture (Special Crops)	18,950	131,000,000
Forest Products	23,300	25,000,000
Subsistence	1,942,729	966,000,000

Furthermore, an analysis of the products produced on any farm is necessary to have a complete understanding of the scope of its production activities. This is not revealed by a classification according to type. The fruit farm, for example, may also produce hay for sale and the cotton farm may sell pecans, eggs, and some milk.

When farms are classified on the basis of their main source of income, which is really a type-of-farming classification, it is revealed that there are more farmers who derive the major portion of their income

from field crops than any other source; there were 2,185,986 such farms. These are mainly cotton farms in the South and wheat farms in the belt from North Dakota through Oklahoma.

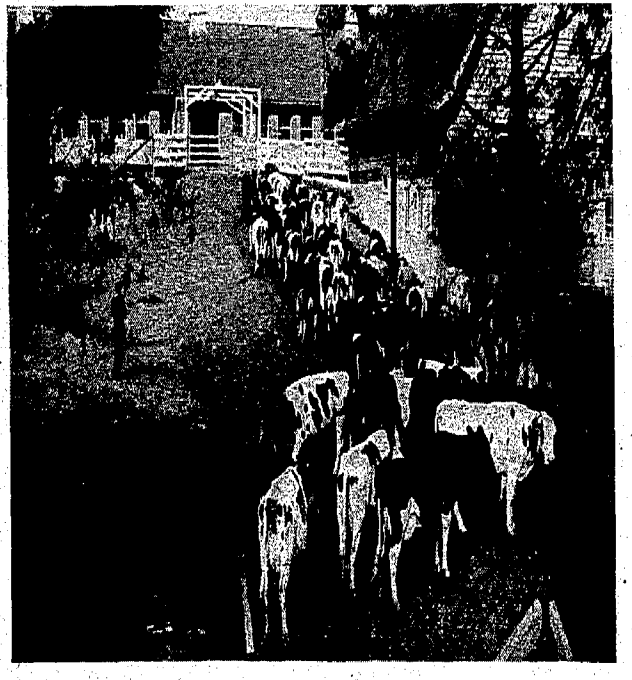
The second largest group of farms is the *subsistence type;* these are self-sufficing farms on which the major portion of the commodities produced are used by the farm family. These include the part-time farms from which one or more members of the family go each day to work in factories, stores and offices.

Livestock farms, dairy farms, and poultry farms — in the order listed — follow; the total value of products produced on these farms almost equals the combined value of the field crops, fruits, and vegetables.

The smallest farms in size are those producing poultry, vegetables, fruit, and cotton. These farms average less than 70 acres in size. The largest farms, averaging almost 3,000 acres in size, are those of the stock-ranch type, which are found in the West. Grain farms rank second from the standpoint of size, averaging approximately 500 acres.

On the basis of type of farming followed, gross returns are highest on stock-ranch farms and lowest on cotton farms, if self-sufficing farms are not considered. On the basis of normal income the types of farms rank as follows: *stock-ranch, animal-specialty, fruit, cash-grain, dairy, poultry, crop-specialty, vegetable, general,* and *cotton.*

The income derived from farms of the several types is, for the most part, in direct proportion of the capital invested in farm and equipment, including livestock.



Dairying is a major source of farm income

Different Kinds of Farm Work

Within each type of farming there are employment possibilities for four classes of workers. These are: (1) *farm owners,* (2) *managers,* (3) *tenants,* and (4) *laborers,* often called "*hired hands.*"

A "farmer" or "farm operator," according to the census classification, is a man who directs the operation of a farm. Hence, owners of farms, who do not themselves direct the operations, are not reported as farmers. Farmers are divided into three general classes, *owners, managers,* and *tenants.*

Farm owners include (1) farmers operating only their own land and (2) those operating their own land and some land rented from others.

Managers are farmers who are conducting farm operations for the owners for wages or salaries.

Farm tenants are farmers who, as tenants, croppers, or renters, operate only hired land. Five classes of tenants are recognized, as follows:

(1) *Share Tenants* — those who pay the owner of the land a certain share of the products, as one-half, one-third, or one-quarter, for the use of the farm, but furnish their own farm equipment and animals.

(2) *Croppers* — share tenants who do not furnish their work animals.

(3) *Share-Cash Tenants* — those who pay a share of the products for part of the land rented by them and cash for another part.

(4) *Cash Tenants* — those who pay a cash rental, as $7 per acre for crop land, or $500 for the use of the entire farm.

(5) *Standing Renters* — those who pay a stated amount of farm products for the use of the farm, as three bales of cotton, or 500 bushels of corn.

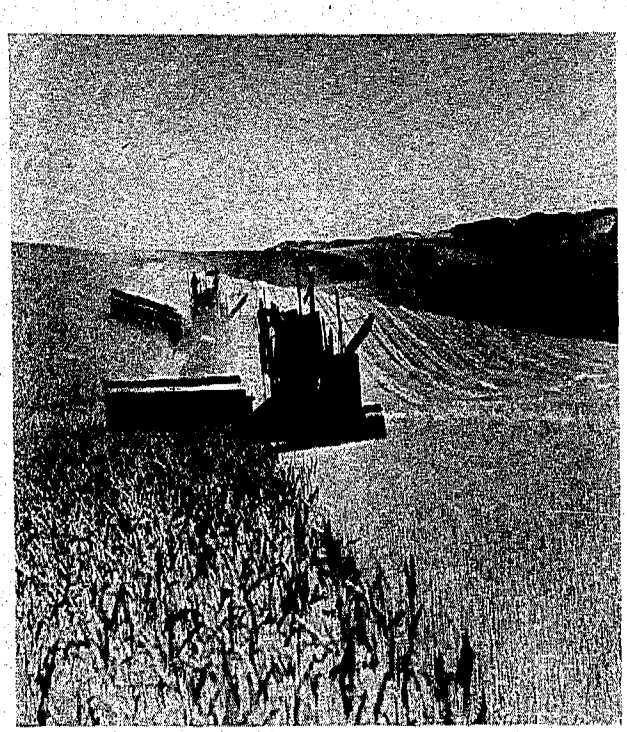
Hired hands are laborers employed for cash payments on a temporary or permanent basis.

Trends in Farming

To give some idea of the approximate number of workers in each group, when there were 6,288,000 farms reported for the nation, there were 3,368,000 owners, 56,000 managers, and 2,664,000 tenants. At the same time, about 4,390,000 farm hands were employed, largely on a seasonal basis.

For many years the number of "hands" required on farms has been decreasing. This is due mainly to the improvement and increased use of farm machinery.

Years ago, for example, thousands upon thousands of transient workers and college students obtained summer employment in the wheat fields of the West. This work opportunity no longer exists, except for a limited few. Under the harvesting methods used at the opening of the century, many "hands" were needed to cut the grain, operate the threshing machine, and carry the wheat to the granary or elevator. Now a machine, called a combine, cuts and threshes the grain at one operation. Human labor has become a minor factor in the growing of grain.



The combine saves the labor of many hands

Labor-saving machinery has been applied to most farm operations. Cotton was the last important crop in the nation to be produced entirely by hand. But recently a mechanical cotton picker has been placed on the market which will harvest as much cotton in a day as fifty hand-pickers. This machine will revolutionize cotton growing. In addition, machines will be used for cultivating and doing the other jobs once done by hand. High wages for city workers have finally forced the mechanization of farming in all parts of the nation. The mule in the South is to be replaced by the tractor. This is a sign of progress. Farmers using mules in the past have cultivated but an average of 25 acres as compared with 125 acres for farmers using tractors and modern equipment. This change will increase farm income per worker, but it will reduce the number of farm operators and increase the number of acres in the average farm.

For decades the percentage of tenant farmers has been increasing. Prior to 1880, 75 per cent of the farmers of the United States owned their own land. By 1935, fewer than one-half of the nation's farm operators were full owners. That tenancy should have increased was a logical development. It was only little more than two generations ago when the settlement of the great middle-western portion of our country was made possible by the development of transportation facilities. Men (some still alive) took part in the "run" that opened the State of Oklahoma to homesteaders. Land was cheap and easily acquired. But with the passing of the frontier and the dissipation of the public domain, land became limited and hence relatively expensive.

It is generally assumed that tenancy is an undesirable position, as compared with ownership. This is true insofar as ownership represents a capital reserve, or accumulation of earnings. It is not necessarily true, however, that a farm operator with limited capital can earn more money as an owner than he can as a renter. Through wise management he may be able to get a larger income through investments in stock and equipment than in land. Probably the majority of our better farmers rent land in addition to that which they own. This is a modern trend in farming which has resulted from the extensive use of labor-saving machinery.

Tenancy itself is not a social blight, except insofar as it is a symptom of unfair distribution of earnings which makes it necessary for farmers to live on their capital rather than on their incomes. And tenancy is often a step toward ownership. A young man preparing to enter upon the business of farming with capital limited to a few hundred dollars can become a share tenant much more easily than he can become a farm owner.

Farming occupations are so varied in their requirements that any individual who desires to enter the business can find some opportunity suited to his means and experience.

III

WORK ON THE FARM

FARMING is today, thanks to power and labor-saving machinery, far easier from the standpoint of working hours and drudgery than in the early history of our country.

In the early period of our history, farm workers during the winter months pulled the fiber from cotton seeds with their fingers — one pound in a day. Then, Eli Whitney invented the cotton gin to do this work. Now a bale of cotton — 1,500 pounds as it comes from the field — may be separated from the seed at the community gin in a few minutes.

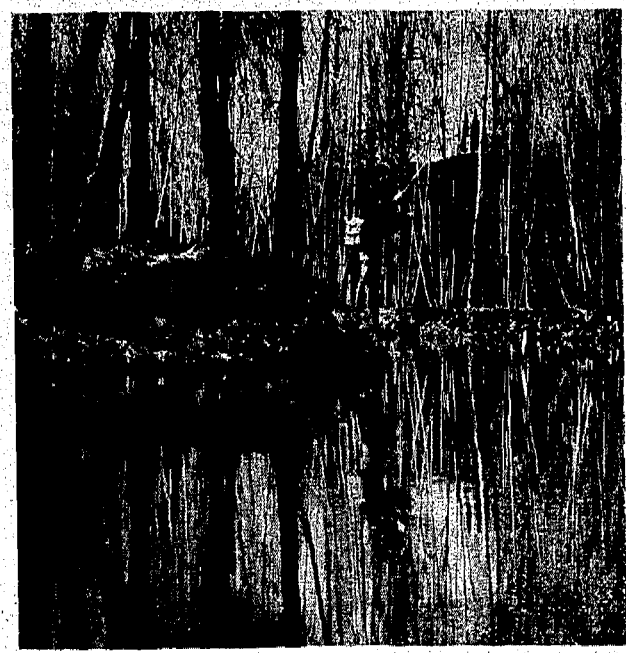
The same progress, generally speaking, has been made in the jobs that are involved in livestock farming. Dairy cows are milked with machines that enable one worker to care for more cows than was possible when milking was done by hand. Science has discovered that animals know how to balance their own rations, so they may get the protein, carbohydrates, and other nutrients required. This has led, especially with chickens and hogs, to use of self-feeders, which can be filled with feed in sufficient quantities to meet the requirements of the flock or herd for several days.

There are, however, still a few jobs to be done on the farm that require hand labor, such as the picking of fruits and vegetables. But some of these are being eliminated; for example, in the sections growing English peas for canning plants, the crop is gathered with machines — like hay — and the peas are separated from the vines with machinery, and in the canning plants they are hulled with machines.

Every year farming is made easier and machines make it possible for one person to produce more with fewer hours of labor.

Timing is Important

Farming is seasonal work. Most crops are annuals; that is, they are planted once every year and produce one harvest. During the planting and harvesting seasons, farmers must often work long hours. But, on the other hand, there are days during the "off season" when there is little or no work to be done. Each year, for example, farmers have what is sometimes called the "laying by" period. This is a time, perhaps a month or more in late summer, after the crops have been cultivated



Farmers find enjoyment in "off-season" recreation

the last time and before harvest, when there is very little work to be done on the farm. During this period, in some sections of the country there are farm festivals and other public gatherings of a social nature. Also, during this period, farmers may, if they like, go fishing or engage in other forms of recreation.

The farmer has the advantage of planning his operations so that work may be increased or decreased, in accord with his own personal needs and desires.

Some farmers grow only annual field crops. This means that during the winter season they have little or no work to do. But such farmers, as a rule, make little money; they are really under-employed because to produce such crops requires only about 150 to 200 days of work each year. If some animal enterprises, like dairy cows or chickens, are added to the program, then work is added and the income increased.

Also, some farmers devote all their land to the growing of perennial crops — crops that are not planted each year. Among such crops, for example, are trees — forest trees and fruit trees, permanent pastures with such crops as kudzu, alfalfa, and lespedeza. Growing such crops reduces the hours of labor on the farm.

How Much Work is There?

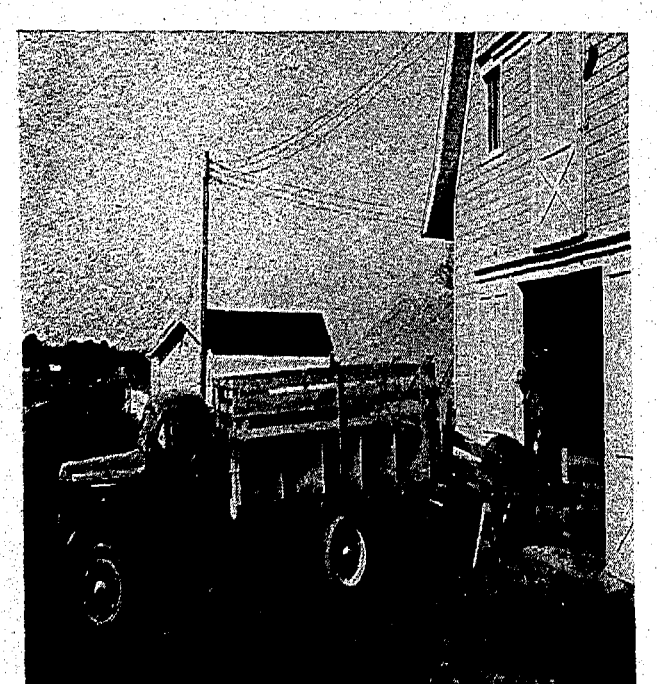
With any modern system of farming the length of the typical working day on the farm is getting shorter. To illustrate: on the farms where horses or mules are used, it is necessary for farm workers to get up

early in the morning and go to the barn and feed the workstock as soon as possible after getting out of bed. Then, while the farm hands are eating breakfast, the horses are eating, too. After breakfast, or before, the horses must be curried and brushed; often, in the evening at the close of the day's work, they must be washed to prevent harness sores. But these time-consuming chores are eliminated on farms where tractors are used — and that means, today, almost 2,000,000 American farms.

At one time people in all vocations worked ten or more hours each day. Later, the working day for most industrial and commercial employees was reduced to eight hours. It was said about this time in our history, that the farmer was the first to adopt the eight-hour day — eight in the morning and eight in the afternoon. Such a working schedule, which even then was seasonal, is a thing of the past; today farmers, with good management programs, work about the same number of hours as those in other occupations.

In some sections of the country, farmers, by adopting new methods, are making material reductions in the amount of work which they must do. For example, in some fruit-growing regions producers are members of cooperative associations which fertilize, prune, and spray the trees and gather the fruit. These same organizations market the crops.

Also, in some communities processing plants gather the crops. In the Everglades of Florida, where ramie — a perennial, fiber-producing plant — is grown, the crop is gathered by the "factory" for which it is produced under contract.



"Off to Market!" Good farmers should be good salesmen

Dehydration plants in the South harvest feed crops for farmers, chop, grind, and dry the feed, and then haul it to the farmer's storage bins. This reduces the amount of labor required to operate a farm.

Selling farm products is a job that must be done. Often farmers use much of their time selling the products they produce. Frequently, if they are good salesmen, time spent in this way is very profitable. But more and more farm products are sold by farmers' cooperative associations or by marketing concerns or agencies that come to the farm to pick up the commodities. This eliminates another time-consuming task and permits the farmer to devote all his time and energy to the jobs involved in production. Usually this is a step toward greater efficiency and higher farm incomes.

Only the most efficient methods of working can be tolerated on farms today, if satisfactory incomes are to be made. This condition grows out of high wages for labor. When farm workers could be employed for fifty cents a day, or even one dollar, workers could "earn" the money by producing little. Under these conditions it was possible to use hand tools. But when wages paid industrial workers increased to five dollars a day or more, then farmers were compelled to meet this competition by greater production. This could be achieved only through the use of power-operated tools and machinery. Such a change made farm work easier and more desirable, but it also increased the capital required for farming.

In spite of the fact that farm work is easier today than ever before, due to improved tools, equipment, and machines, it is still a strenuous task. Only persons physically fit should choose this vocation. On the other hand, it is healthful outdoor life that will make strong bodies. It has the appeal of offering a variety of work. Above all else the farmer is his own boss. Perhaps there is no vocation which offers greater freedom to the individual.

IV

INCOMES FROM FARMING

FARM incomes vary widely. There are thousands of farm families that eke out a bare existence; other thousands make more money each year than independent professional men, whose average earnings are higher than any of those of any large group of American citizens.

Wide differences in income characterize any group in which the use of capital is involved, or in any group in which the individual is a worker, an executive, and a proprietor. Who can say, for example, how much a merchant makes? A merchant may be one of America's sixty wealthiest families or he may be a man scarcely able to meet his monthly living expenses. The same variation applies to farm incomes.

When management and capital are factors in determining the income of individuals, earnings are unequally divided. Thirty-five per cent of the farmers of America earn 80 per cent of the national farm income. A similar unequal division applies to stores, factories, hotels, and other business enterprises.

The Truth About Farm Incomes

Years ago farming was thought to be a very profitable occupation; in fact, it was regarded as a way of getting rich. More recently, the conclusion has been reached by the general public that farming offers less opportunity for personal gain than any vocation which might be selected. Both viewpoints are somewhat in error.

Farmers who made "fortunes" years ago did so, not so much from farming operations as from increases in the price of land. In our early history land was cheap; as a matter of fact the Department of the Interior was created by the federal government to give away land. At one time, it was possible for any young man to get a farm for nothing, simply by living on the land. This was known as homesteading. But with the increase in population land became valuable; it sold for high prices, compared with those that had been paid for it earlier. It is interesting to note that many farmers fifty years ago retired with as little as $10,000 in savings. This was possible because living costs were low and interest rates were high. Money "rented" for 10 per cent or more. Now, you know, the interest rate paid on savings accounts averages about 2 per cent.

Today a man with a family to support could not live on the income derived from a capital investment of $10,000.

But if the picture of farming as painted in popular fancy during the early days of the century was too rosy, today it is often too dark. Fiction writers and political speakers have sometimes given the impression that farmers are a poverty-stricken group. In our best-selling novels we often read of unfortunate groups of farm people with a low standard of living, and for many years between the great world wars politicians talked much of the need for farm relief. Neither of these presentations is accurate.

Farm Incomes Vary

Millions of farm families are today earning satisfactory incomes which compare favorably with other groups of American citizens. In the accumulation of property the farmer has done as well as the urban worker. Farmers, who constitute about one-fourth of the nation's population, also own one-fourth of the nation's property. The average value of the property owned by farm families in the United States is $9,668, as compared with property holdings of $8,709 for urban families.

In California, Florida, Massachusetts, New Jersey, and perhaps one or two other states, farmers earn more than urban workers. In the majority of states, however, farmers' earnings are lower than those of persons engaged in urban occupations.

Climatic advantages, intensive farming, large-scale operations, and nearness-to-markets account for those farm incomes which are excessively high, in relation to what may be regarded as normal earnings.

California probably ranks first among the states in the variety of farm commodities produced. Many of these crops, such as fruits, represent a high investment of capital, when compared with general farming throughout the nation. Irrigation, which brings high returns, is also costly. California's crops, many of which are advertised in the nation's leading magazines, are usually sold by cooperative associations owned by farmers. Cooperative marketing associations usually increase the earnings of their farmer members.

Florida, also a fruit-producing state with high per-acre investments in citrus groves, is, in the main, a large-scale farming area. Many of its cattle and timber operators own thousands of acres of land. Also, Florida's farmers earn high incomes from producing winter vegetables and other out-of-season crops.

Farmers in Massachusetts and New Jersey have the advantage of being located near the nation's largest consuming centers. It is always a distinct advantage for producers to be located close to dependable markets. It will be noted, for example, that dairy farmers are usually concentrated

around large cities, where they may sell fluid milk, since that brings higher returns than milk sold in the form of butter or cheese.

It Costs More to Live in the City

City incomes are usually higher than those earned by farm or rural people. They have to be. It costs more to live in a city than it does to live on a farm or in a small town. This is one of the reasons why it is difficult to compare incomes.

Modern farms offer millions of Americans an ideal way of life

The "savings" of farm families as against city families in rent, food, and other normal living expenses, are substantial. For example, the typical city family spent, before the war, about $52.50 a month, or more than $600 a year, for food. This was from one-half to one-third the total annual earnings of the average urban worker at that time. So, in calculating the total earnings of farmers, it is necessary to include the "savings" that are possible in the cost of living.

Gross Income of Farms

From the figures given in the table entitled, *Per Farm Value of Products Produced,* it is possible to secure, for a normal year, a classification of the farms of the United States on the basis of gross income. It will be noted, for example, that 5.4 per cent of all the farms in the nation produced crops and commodities worth less than $100. These farms were, of course, primarily places of residence; in most instances the families on these farms earned their living by working in some nearby town or industrial community. The same may be said for a high percentage of the low-income farms. Part-time farming, combined with part-time industrial or other employment, is increasing very rapidly and will doubtless continue to do so.

TABLE 3

PER FARM VALUE OF PRODUCTS PRODUCED

Value Per Farm	Per Cent of All Farms	Per Cent of Products
$ 1— 99	5.4	0.2
100— 249	13.3	1.8
250— 399	13.5	3.4
400— 599	14.3	5.5
600— 749	7.9	4.1
750— 999	9.4	6.4
1,000—1,499	11.6	11.1
1,500—1,999	6.8	9.2
2,000—2,499	4.3	7.5
2,500—3,999	6.2	15.0
4,000—5,999	2.7	10.2
6,000—9,999	1.5	8.5
10,000 and over	1.0	17.2
	97.9	100.1

The table shows also that 1 per cent of the nation's farmers produced commodities worth $10,000 or more in this typical prewar year. And it is also interesting to note that these farmers — 1 per cent of the nation's total number — made 17.2 per cent of the nation's total farm production. Adding those farmers in the four high-income brackets, it is shown that 11.3 per cent of the nation's farmers produced 40.9 per cent of the nation's farm products.

This same unequal division of income applies to all occupations of the same general nature as farming. Consider, for example, the hotel business.

There are more than 30,000 hotels in the United States. But one-fourth of all the money earned from the hotel business goes to 150 hotels, each of which has more than 500 rooms. These 150 hotels earn more than the 22,000 hotels at the bottom of the list, which have fewer than 50 guest rooms each. This uneven distribution is typical of the incomes of merchants, industrialists, lawyers, authors, actors, and all vocations which depend for income upon the ability of management or the use of invested capital.

With respect to farming, it should be pointed out that half the farms in the nation are less than 100 acres in size, and the majority of these are less than 50 acres in size. Such farms are too small to provide an adequate income from the growing of field crops or the production of beef or dairy cattle. The typical *general* farm in the United States is 174 acres in size; this is a "family size" farm, which means that most of the work is done by the farm operator and the members of his family. Of course, such farms use improved, labor-saving machinery. It is said by officials of the U. S. Department of Agriculture that the size of the "family" farm will increase in the future. It is believed that such farms will be at least 200 acres in size.

Small farms will produce a satisfactory income only when devoted to some specialized production such as fruit, flowers, vegetables, or chickens.

Poultry offers a profitable specialization for small farms

Farm Income and Capital Invested

As a principle it may be stated, for farms large and small, that farm income varies directly with the amount of capital invested. This applies to all types of farming operations. For example, it was pointed out by Theodore W. Schultz, Professor of Agricultural Economics, University of Chicago, that farms devoted to the growing of crops could, in most instances, make larger incomes if some animal enterprise were added to the program of farm production. But such a change means, of course, that a larger amount of capital would be required to carry out the more complete and well-rounded program.

Supply and Demand

Farm incomes vary widely from time to time, depending upon general business conditions. For instance, during World War I, cotton was selling for 45 cents a pound. Many farmers held their cotton, believing that it would go to 50 cents a pound. But it never did. By 1933, it was selling for less than 5 cents a pound. Then, during World War II, it increased again to more than 20 cents a pound.

When farm prices go up, land values increase. During World War I and the two years that followed, land that normally sold for $75 an acre brought $200 or more. Then it declined in price so that it was difficult to find a buyer at $50. Again, during and after World War II, land prices increased. Farmers should not buy land when it is too high. Land is never worth more for farming purposes than the amount which it will earn from the sale of the products which it will produce.

The price of farm products, and land, varies with the demand. When factories are operating at capacity, workers buy more and better food. They also buy more and better clothing. This buying helps increase farm incomes.

But when factories are closed and laborers are out of work, there is little demand for farm products. Farmers cannot quit farming as easily as a factory can stop operations. Farming is, for the most part, a long-time business. It requires, for instance, three years to produce a dairy cow.

To help farmers meet the situation resulting from varying demand, laws have been passed by Congress which seek to keep supply and demand in the proper relationship. Such laws have been helpful to farmers and to the nation as a whole, but they are not within the control of individual farmers. The young man who wishes to earn a good income from farming must be prepared to study the business, and follow the examples, so far as this is possible, of men in the occupation who have been successful.

The Master Farmer

Years ago, the *Prairie Farmer*, a farm magazine published in Illinois, began an unique program of selecting and honoring outstanding farmers — it was called the *Master Farmer* program. Other farm papers accepted and carried forward the plan. A score card was developed as a basis for selecting farmers worthy of recognition. It provided for a scale of points under each of the following heads: (1) *management of farm*, (2) *business ability*, (3) *appearance of farm and home*, (4) *home life*, and (5) *citizenship*. Those who meet the test of standing high in these five classifications are good farmers and good citizens. And, on the basis of accurate records, after a large number of Master Farmers had been selected in all parts of the United States, it was found that all of them were men whose earnings compared favorably with those in other walks of life.

V

TRAINING FOR FARMING

ANYONE may enter the business of farming. There are no specific training requirements to be met.

Lawyers, accountants, and pharmacists must pass examination. Airplane pilots must have a license; teachers must hold a certificate. Special qualifications are required for entering many occupations, but anyone who cares to do so may become a farmer.

This does not mean that farming is a simple, routine type of work which requires no preparation. Not at all! It merely means that farmers and society have erected no barriers around the vocation. As a matter of fact, farming is a complex business. It involves production in accord with the principles of science; it embraces sales responsibilities; it deals with the management of capital and labor. To become outstandingly successful, farmers must possess the best qualities of laborers, businessmen, and scientists.

William Dempster Hoard, one-time governor of Wisconsin, said, "The truth of the whole matter is this — that as far as mental effort, extensive learning, and applied knowledge are concerned — the management of soil and animal life call for the exercise of brain power a thousand times greater than is required in the so-called learned professions."

Farmers have not always agreed with the viewpoint concerning their work expressed by Governor Hoard. Years ago they did not look with favor upon what they often called "book" farming. One farm boy who was studying in an agricultural college in the South pointed out the fallacy of this point of view in the following statement:

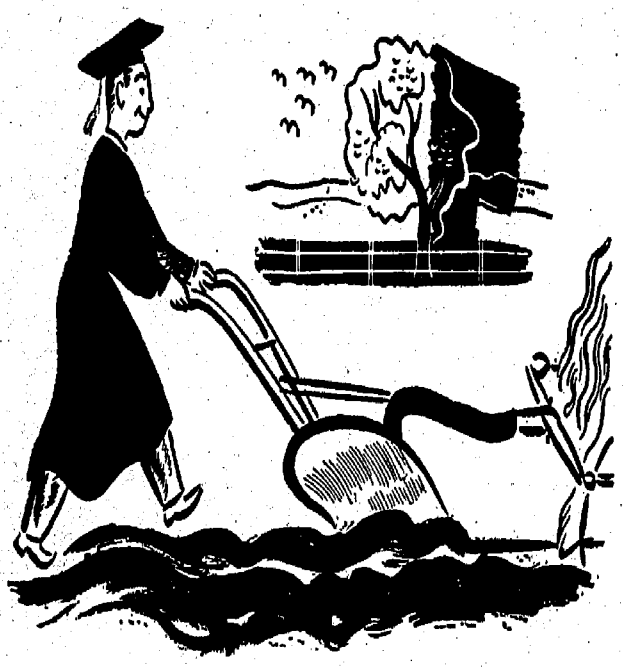
> "My father was 'agin' education for farm folks, yet he got out of bed every morning from the signal of a clock made by a skilled workman and put on shoes and clothes made by educated manufacturers. His breakfast was cooked on a stove and in utensils made by skilled hands. Every tool he used during the day was the product of scientific and mechanical training. At night he slept in a bed made in a well-organized factory operated under the supervision of trained executives.
>
> "In our factory-built truck, he hauled our produce to educated buyers and bought our supplies from educated merchants. Our meager earnings he first deposited with educated bankers, and sometimes invested them in the schemes concocted by educated crooks. He lost enough money in this way to give a good education to all his children. But he had never seen any use in 'edjicashun' for folks that was 'farmin' and thus he handicapped nine persons who, with

the proper education, might have become successful farmers and leaders in rural life."

The point of view expressed in this statement no longer exists, except in rare instances. Farmers today are quick to understand that while teachers of agriculture are not always practical men with extensive experience, they do have information that wise farmers may convert into profits.

Education Pays

Training for farmers pays dividends. Cornell University, for example, makes farm management studies through which the business operations of farmers in New York State are analyzed. These studies show that there is a close correlation between education and income. As a group, farmers with training in agriculture have higher incomes than those who have never studied farm operation as a business and a science. The same relative advantage holds true for those farmers who study vocational agriculture in high school as compared with those who do not have this educational experience.



Good farmers must know as much as professors

Fortunately, every person interested in farming may secure excellent training for the vocation. Training opportunities for farming may be divided into two groups — *formal* and *informal*. Formal training opportunities are those that involve regular schooling on an organized basis, informal facilities include those aids through which farmers may obtain

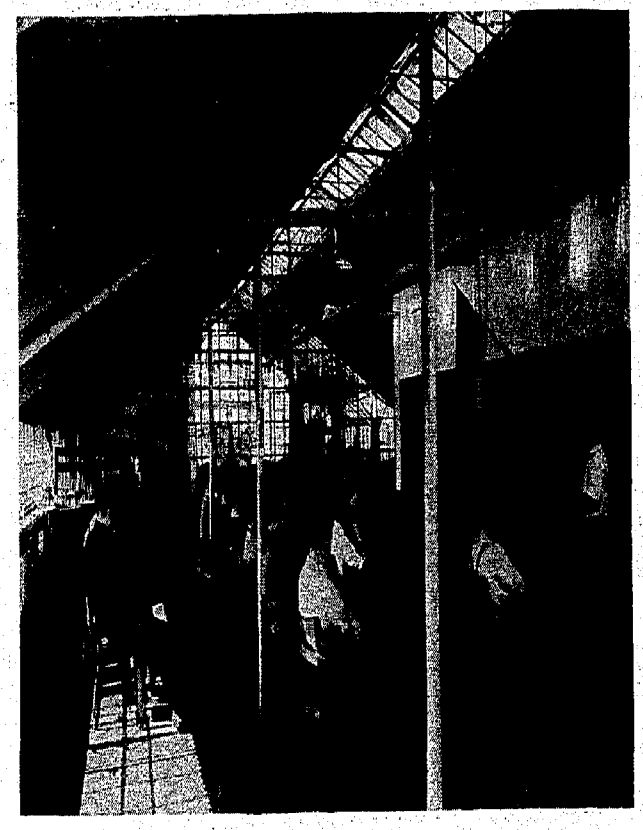
specific information about any problem or subject in which they may be interested.

Formal education for the vocation of farming may be obtained on both the high school and the college level.

The Land-grant Colleges

Years ago, when Lincoln was President of the United States, a bill was passed by Congress which created an agricultural college in every state in the nation. This was called the Morrill Act; the institutions created were known as land-grant colleges. All land-grant colleges are affiliated with the U. S. Department of Agriculture and the U. S. Office of Education; all receive some federal funds for carrying on their program of activities. All programs involve three types of work known as *teaching*, *extension*, and *research*. The teaching activities deal with formal education for agricultural occupations, including farming, at the college level.

Any boy who is a high school graduate, or any person over twenty-one years of age, may enter a state agricultural college. In about one-half the states of our nation these agricultural colleges are part of the state university; in the other half they are separate institutions, sometimes called technical or agricultural and mechanical colleges.



These boys will be scientific farmers

Agricultural colleges offer courses leading to degrees. At the end of what is thought as a four-year course, which may be completed in three calendar years, a graduate earns a *bachelor of science* degree. By doing graduate work for one year a *master's degree* may be secured; about one-third of the colleges also award the *doctor's degree*, which normally requires graduate study for three years beyond the first college degree obtained. Farmers are not interested in graduate degrees, as a rule. Such educational programs are designed for the training of scientists.

Not all land-grant college programs leading to the bachelor's degree are alike; they vary with each college. But all, after certain basic courses have been taken, permit the student to specialize in some field in which he has a primary interest. For example: one student may "major" in poultry, another in dairying, a third in farm management. This does not mean that other types of studies are eliminated from the program. Not at all! There will be many elective courses to be chosen. A student interested mainly in livestock enterprises will study agronomy — the science of field crop production; a specialist in floriculture may outline a program that will include a list of subjects ranging from genetics to marketing.

Students in agricultural colleges need not plan to secure a degree. Many institutions have a one-year course which includes the basic subjects of primary interest to farmers. Some of the colleges offer short courses, varying in length from one week to one year, in which training is offered in specialized fields.

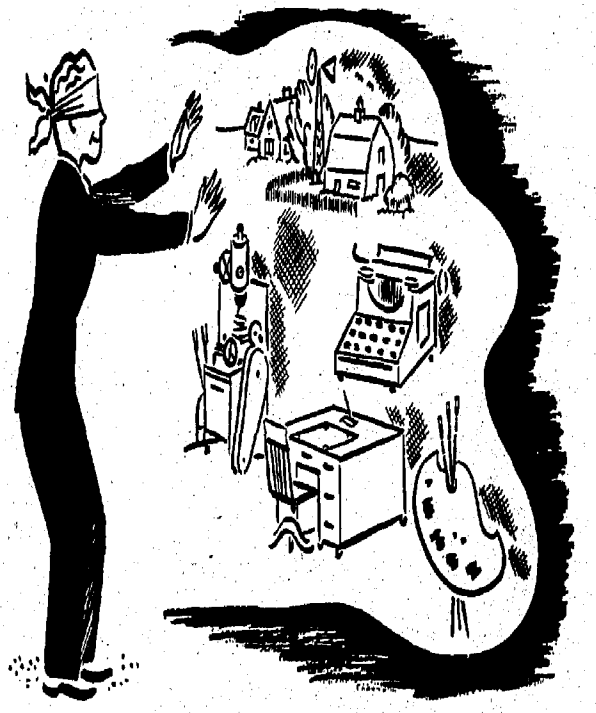
The school year in agricultural colleges, as in other institutions of higher learning, is divided into quarters or semesters, which makes it possible for students to enter these colleges or universities at intervals of three or four months throughout the year. For example, in a college operating on the quarter system, a student may begin his training program in September, January, April, and June.

The Veteran

Veterans of World War II may attend colleges of agriculture, and all other institutions of higher learning, and get most, if not all, expenses paid by the federal government. Under provisions of the G. I. Bill of Rights and other related legislation, federal funds are available for paying all fees, buying books, and meeting other expenses incident to securing a college education up to a maximum of $500 a year. In addition, the veterans get $65, or more, each month, to pay living expenses. Benefits of this legislation were extended to men entering the Army and Navy after the close of World War II; this will mean that for the next ten years men and women will be entitled to go to college with little or no cost to themselves. Thousands have availed themselves of the opportunity.

The Smith-Hughes Act

Naturally, not all farmers go to college; in fact, the number of college graduates engaged in farming is very small. But during recent years a very large number of young farmers have been studying agriculture as a part of their high school education.



Don't choose your vocation blindfolded

In 1917 the National Vocational Education Act, commonly called the Smith-Hughes Act, was passed by the Congress of the United States. Under the terms of this legislation a teacher of vocational agriculture may be employed in every rural high school of the nation. These teachers are employed for twelve months in the year; they teach agriculture in the classroom, laboratory, and shop; they supervise the practical farm work of their students in the field. This is a very desirable and practical type of training for a boy who wishes to become a farmer. The teachers of vocational agriculture are all farm-reared; they are men who have had practical farming experience. In addition, it is a requirement that they must be graduates of an agricultural college with special preparation for the teaching of agriculture and related subjects.

Specialists Help Farmers

The informal training aids available to farmers are numerous. Most of these services are supplied by the federal, state, and local governments.

In 1914, the Agricultural Extension Service was created through the passage of the Smith-Lever Act. Funds available through this legislation make it possible to place a *county agent* and a *home demonstration agent* in every county in the nation. In addition, many counties, under the same general legislation, are able to employ a man and a woman to work with farm boys and girls. These men and women organize and carry on the 4-H Club program. County agents work with farmers; home demonstration agents work with farm women. All of these agents of the Extension Service have offices in the county seat towns; they are glad to have anyone call on them who is interested in farming. They will give or secure information on any subject related to farming; they will provide bulletins free of charge on any farming activity of local importance.

Other Farm Services

In addition to the agents provided under the Smith-Lever Act, there are many other agricultural service workers located in county seat towns throughout the nation.

Several years ago, there was created what is called the Soil Conservation Service. This is an agency designed to help farmers control the erosion of their soils. Many soil conservation districts have been formed. In these districts, which are created by the farmers living in them, there are conservation specialists who will help farmers plan their farming systems with a view to conserving the fertility of the land.

During the economic depression which followed World War I, the Farm Security Administration was created. In 1946 it became the Farmers Home Administration. The most important work this agency is doing, from the standpoint of general interest, is the loaning of money for the purchase of land. (see Chapter VII).

There are several other farm service agencies. In many towns, for example, there is an office of the Farm Credit Administration (see Chapter VII) which loans money to farmers for producing crops, buying machinery and supplies, and for other like purposes. These are called Production Credit Associations. Also, in every county there is an office of the Production and Marketing Administration. This is the agency, formerly called the Triple-A (Agricultural Adjustment Administration), which is charged with the responsibility of helping farmers with business matters related to production and marketing. All agricultural agency workers are glad to explain their work to anyone who is interested.

Of course, the United States Department of Agriculture, with headquarters in Washington, is the parent or head of most of the agricultural agencies that have local offices throughout the nation. Also, in every state

there are experimental stations operated by the state college of agriculture in cooperation with the Department of Agriculture.

Where to Get Farm Information

Any person wishing information on any important agricultural subject may secure a bulletin — for the most part distributed free — on the subject simply by writing to the state college of agriculture. The U. S. Department of Agriculture publishes thousands of bulletins and circulars. Most of these may be obtained without cost by writing to the Department in Washington, or by writing to one's congressman or senators. There are some publications of the Department which are not distributed free. These may be obtained from the Government Printing Office, Washington, D. C., through the Superintendent of Documents.

In addition to the printed matter available to farmers without cost, all agricultural colleges welcome letters of inquiry. Each letter received is turned over to a specialist for reply.

No group of American citizens is served so completely and freely with educational aids as the farmer. But to no group are such aids so essential.

VI

GETTING A START IN FARMING

IN EVERY occupational field there are several job levels. Today's office boy may eventually become the owner of a business. The apprentice in a machine shop looks forward to the time when he will become shop foreman. Bellboys in hotels aspire to clerkships, and clerks wish to become managers.

For convenience in classification, it may be said that in each occupational field there are *beginning jobs, intermediate jobs,* and *terminal jobs.* Beginning jobs are open to those with little or no experience. Intermediate jobs are steps that lead to terminal jobs. Terminal jobs are those in any field to which the majority of those in the work aspire.

In farming, "*hired men*" or "*wage hands*", *apprentices, and farmers' sons* hold what may be regarded as beginning jobs. *Tenants, junior partners,* and *managers* occupy what may be considered intermediate jobs. *Landowner-operators* represent the terminal positions which most farm workers hope to reach.

Low Earnings, but Good Experiences for Hired Hands

Hired hands make very little money. A few years ago they were the lowest paid workers, in terms of cash salary, in the nation. Board, room, and laundry are, in most parts of the country, supplied as part of the compensation of farm hands. Men with families are given houses in which to live; often they receive part or all their food supply.

At one time in American history, when farm lands were cheap and all wages were low, such a beginning job in farming was a step toward land ownership. Today, the possible savings from such employment would never enable one to accumulate enough capital to buy a farm of his own. Such work may, however, be the means of acquiring needed and valuable experience — an essential for successful farm management.

Even a young man reared on a farm may need additional experience. Suppose for example, that a boy grew up on an all-cotton farm, or a farm on which nothing was produced except wheat, and decided that in farming for himself he wished to operate a dairy farm. It would be helpful if, for a time, he could work for a good dairyman. The same thing would apply with respect to a change from any one type of farming to another; or for that matter, to any change from one section of the nation to another.

In borrowing money to buy land it is often necessary to "have a farm background." Experience acquired on a good farm adds, not alone to one's chances for success, but also to one's credit rating.

Veterans of World War II, who wish to go into farming for themselves, have an excellent opportunity to secure useful experience. As part of the training program provided by the Veterans Administration, provision has been made for what is called *on-the-job training.* Under this program an ex-service man may get a job on a farm and draw, in addition to what he earns as a beginner, funds for maintenance or subsistence. This is a form of apprenticeship.

Apprenticeship has for centuries been the accepted way of learning a trade. This, you will recall, was the way Benjamin Franklin learned to be a printer. All farmers' sons are virtually apprentices; their work experience is the most valuable asset that the majority of these boys possess; a very large percentage of the nation's farmers are recruited from their ranks. Such training may be used later in life when these boys begin farming for themselves, or it may be used also in the many vocations that are related to farming. City boys may apprentice themselves to farmers as a means of learning the fundamentals of farm operation. They should enter into an agreement to stay for a definite period of time — perhaps two or three years — and have some understanding about wages. The service man's on-the-job training program follows these general principles. Information concerning the program may be secured from any office of the Veterans Administration.

Beef on the hoof is money in the bank for these young farmers

Managers, Junior Partners, Tenants, Owners

After having had experience in a beginning job, the following jobs in farming may be open to an individual: farm manager, junior partner, tenant, or farm owner.

There are fewer than 70,000 farm managers in the United States. Most of them make very little money. The majority operate farms for persons living in cities who inherited the land. Most owners of this class have little interest in farming. They look upon their inheritance as capital which should return dividends. Where such farms are large enough to have promising income possibilities, their managers should seek a working contract — extending over a period of years — which will give them an increasing share of the net earnings. In this way successful managers will be able to accumulate some capital. A few managers, most of whom are working on private estates or corporation farms, receive such attractive salaries that they have no desire to become owner-operators.

Junior partners are, for the most part, farmers' sons. Such a relationship between father and son is ideal. Such relationships should be encouraged, especially since the time will come, in most instances, when the son must assume the responsibilities of the father. Most such arrangements which are not successful fail because there is no definite provision for a division of the earnings. Young men want money of their own, and failure to get it explains why many boys leave the farm.

Tenancy represents a step toward ownership. How well tenants get along depends upon many factors, other than their own ability. They cannot make much progress if, for example, the farm they operate is too small a unit for efficient returns on labor; they must have tools that will enable them to compete with the better class of farmers producing the same products. Some tenants make more money than landowners; they find it more profitable to invest capital in tools and livestock than in land. Of course, many who make little more than "farm hands" will never be able to improve their economic position. Under the so-called Tenant Purchase Program, initiated several years ago by the Farmers Home Administration, any capable individual in the status of a tenant was given the opportunity to buy a farm of his own, even though he had no substantial sum to invest as a down payment. Thousands of tenants through this program have become landowners.

Here is the story of one such farmer owner as told by a county banker, who took an interest in this young man. Many other such stories could be told: "A young man in our community obtained help from FHA in buying a small farm. This government agency built him a nice home and a barn. He started on a program of crop farming, but soon decided

he could make more money if he had some dairy cows. We loaned him the money to buy cows — $3,500. Then, he decided that he should grow more feed. This meant a tractor, so we let him have the money to get a tractor and the implements he needed; this equipment cost about $2,200. Soon he found that he needed a combine, so we let him have another $1,000. He got along fine, working hard and paying the bank something out of every milk check. Soon he decided that he needed more land. Fifty acres adjoining his own land were for sale, so we let him have the money to buy it. Now he grows wheat, oats, and hay, and has developed excellent pastures. By the end of this year he will be worth $10,000. He will have paid back all the money he has borrowed. During the time he owed us several thousand dollars he carried some life insurance payable to the bank. We are glad we had a part in helping this young man make a success of farming."

Learn to Save

Any young man who is interested in farming for himself will, upon reflection, see the necessity for acquiring capital. For the majority of young men this means earning and saving.

Farm youth organizations stress working, earning, saving

Most farm boys have some opportunity to make money. Earning and saving are emphasized in the work of 4-H Clubs and in the program of the FFA — Future Farmers of America.

In attempting to do anything worth while, it is advisable to set a goal. The farm boys of one state decided they would set a goal of earning and saving $1,000 during the four years they were in high school. Perhaps this was too large a sum, but the idea was sound. It might have been better to set a goal of $100, or more, for the first year and then have increased the sum annually. Saving money is difficult. One of the best plans for saving available to farm boys is that of investing in something that grows — say a calf. Some of today's successful dairymen with large, valuable herds began the enterprise as boys by buying calves. All livestock and poultry projects lend themselves to this desirable type of investment for those farm boys who want to make and save some money.

The progress of an individual from one job level to another commonly is spoken of as climbing the vocational ladder.

In a bulletin published by the United States Office of Education entitled, *Young Men in Farming*, a report indicates that the development of the young farmer often occurs in the following order:

1. Allowances
2. Developing a single farm enterprise
3. Working as a hired hand
4. Having a share in a farm business
5. Renting a farm
6. Becoming a part owner
7. Buy a farm

Through these steps, and some work at other occupations for short periods, the majority of farm owners ascend the ladder of farming. Individuals may skip some of the seven rungs, but, in the main, each leads to a higher level of responsibility and success in farming.

VII

FARM OWNERSHIP AND OPERATION

FARMING, like all business, involves the use of capital. Capital, of course, refers to money invested in the business. Farmers need money, in the main, for two reasons: (1) to buy a farm, and (2) to equip and operate the farm.

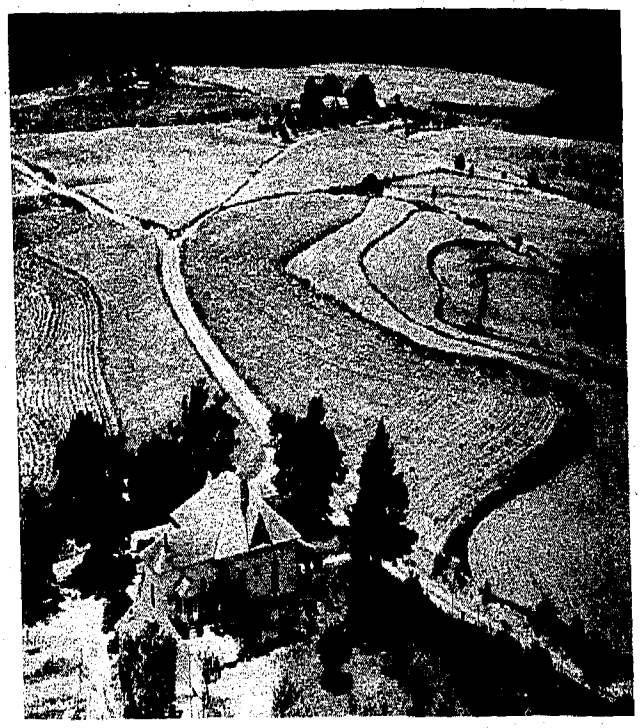
Buying a farm may involve selecting a location and a specific place. On the other hand, many young men buy the family farm, or one in their neighborhood. In buying a farm, however, the purchaser is selecting a place to live and work. He should, therefore, ask and answer these questions: (1) *What are the characteristics of the rural community in which I wish to live?* (2) *What are the essential requirements of a farm from the standpoint of profitable development and operation?*

Your Neighbors

Wise buyers will wish to select a community in which they will find congenial neighbors. This means, normally, people who are progressive and industrious. These characteristics of people are indicated in a community by good schools, churches, roads, and facilities for recreation. Good rural communities always have markets for the farm commodities purchased in the locality. Often there are local plants such as creameries, canneries, and flour mills, for processing farm products. Usually farmers' cooperative associations are found in outstanding rural communities. Also, it is advisable to locate in a community where farmers are already making a success of the type of farming in which the buyer wishes to engage.

Your Farm and Its Soil

As to the choice of a farm, nothing can be more important than the basic character of the soil. It pays to buy land that is, or can be made, productive. The productivity of any land is indicated by the native plants that it produces, and, of course, by the crops and yields made by farmers in the locality. Wherever trees grow big and plants have a glossy, dark green color, land is fertile and productive. Also, of course, the farm must be suited to the type of farming to be practiced. Rolling hills may, for example, be desirable for pastures but not for cultivated crops. For live-



Contour farming reduces soil erosion

stock a clear stream or some water supply may be desirable, though not essential. In addition, the size of the farm — in relation to the type of farming to be done and the capital to be invested — is an important consideration in selecting a place to purchase.

Borrowing Money

Most persons who buy a farm must borrow some money. This money may be obtained in several ways and from several sources. Often when young men buy from relatives or friends, long-time payment plans can be agreed upon without legal formality. But money for the purchase of farms may be obtained from loan agencies, including those operated by the federal government.

The federal government operates two agencies which will help young men buy farms. These are: (1) *Farm Credit Administration*, and (2) *Farmers Home Administration.*

There are twelve federal land banks in the United States, which are operated as part of the program of the Farm Credit Administration. The location of the land bank serving any locality may be obtained by writing the U. S. Department of Agriculture, Washington, D. C., or inquiring at the office of the agricultural agent in any county.

In discussing the question of loaning money to help pay for a farm the FCA makes the following statement, which applies equally well to

the factors that must be taken into consideration by all loan agencies, both private and public: "In judging the ability of a man to handle a farm mortgage one meets with three C's — *character, capacity for farming, and capital.* When rating a farmer under these headings it is necessary not only to consider him but his family as well. Farming is a family business, dependent for its success in large measure on the cooperation of every member."

If the FCA is satisfied as to these three C's and the farming record of the applicant, a loan to buy a farm will be made. The loan will carry a low rate of interest. It may be repaid in installments over a period of years. The length of the repayment period usually varies from 10 to 35 years. But the FCA will loan only about 50 or 60 per cent of the total value of the farm. This means that the buyer must have, or be able to secure elsewhere, the balance of the capital required.

Farm Credit Administration loans are very satisfactory provided the purchaser has a substantial sum to make a down payment. But there are many young men of good character and an adequate background of farm experience who do not have the money required to buy a farm through the FCA plan. Such individuals, especially veterans of World War II, will find it easier and more satisfactory to apply to the Farmers Home Administration for assistance in purchasing a farm.

The Farmers Home Administration has an office in most county seat towns throughout the United States. Full information about its loan plan may be obtained from these offices, or secured by writing the U. S. Department of Agriculture, Washington, D. C. Under some circumstances loans may be secured which cover the total cost of the farm. Borrowers are charged a low interest rate and given as much as 40 years in which to repay the loan. Special considerations are given to veterans who wish to become farm owners.

Interest Rates are Important

The rate of interest one is required to pay in securing a long-time loan is very important. Consider, for example, the difference between 8 and 5 per cent on a loan of $8,000. At 8 per cent the interest cost in one year amounts to $640. But if only 5 per cent is charged the annual interest payment is but $400. The difference is $240, or a saving of $20 a month in the cost of "using" the money. When money is borrowed over a period of years, one finds very often that the interest paid is as much or more than the amount borrowed.

In borrowing money to buy a farm, it is usually agreed in the contract or notes that the total sum or balance may be paid at any interest-paying date. Very often farmers who have borrowed money from FCA

or FHA and been given from 20 to 40 years to pay off the loan, have in periods of favorable prices been able to retire the debt in from three to five years. Both these lending agencies, however, are anxious that no person borrow money when land values are too high. It is always true when foods are scarce, as in the periods during and after wars, that land prices rise with the price of farm products. It is difficult, if not impossible, to buy land at an abnormally high price and pay it back with the proceeds from farming when prices are low. It would, in most instances, pay to rent rather than to buy land when prices are high.

Many farmers must borrow money from year to year to carry on or expand their operations. The same policy is followed, of course, by business men.

All commercial banks will loan money to farmers to carry on their business. These are short-term loans, as compared with a loan for the buying of land. Commercial banks are not interested, as a usual policy, in making loans for the buying of land.

Also both agencies of the federal government previously mentioned — Farm Credit Administration and Farmers Home Administration — make loans to farmers to buy machinery, tools, implements, and supplies.

Keeping Records

All agencies that make loans to farmers want to know, in as much detail as possible, how the farmer is getting along with his business. To supply this information, as well as for many other reasons, it is necessary for farmers to keep books, just like any other business concern. The so-called Production Credit Offices, which are part of the program of the Farm Credit Administration and which are located in many rural centers, have a form — as do many commercial banks — which farmers must fill out in making application for a loan. This form is a summary of the farmer's business operations.

The U. S. Department of Agriculture has many bulletins dealing with farm record keeping which it will send free to anyone on request. Also, it is possible to secure farm record books at the local office of the county agent and the representatives of the Production and Marketing Administration. For countless reasons, including the payment of income taxes, farmers must keep books.

Good Salesmanship Means Profits

Farmers are salesmen as well as producers. All farmers must give thought to the selling of the commodities they produce. There are many ways in which selling may be done effectively.

Many farmers "sell" grain, hay, and other feeds by keeping livestock and poultry. In this way they usually get a higher price from these products than if they sold them in the form in which they were harvested.

Some farmers living along highways often maintain roadside markets and these markets are increasing in popularity. Other farmers pack their products under their own trademark, just as business concerns do. And, then, some farmers, including producers of pure-bred livestock, give their farms a name which is featured in advertising. All these elements of good salesmanship pay worth-while dividends.

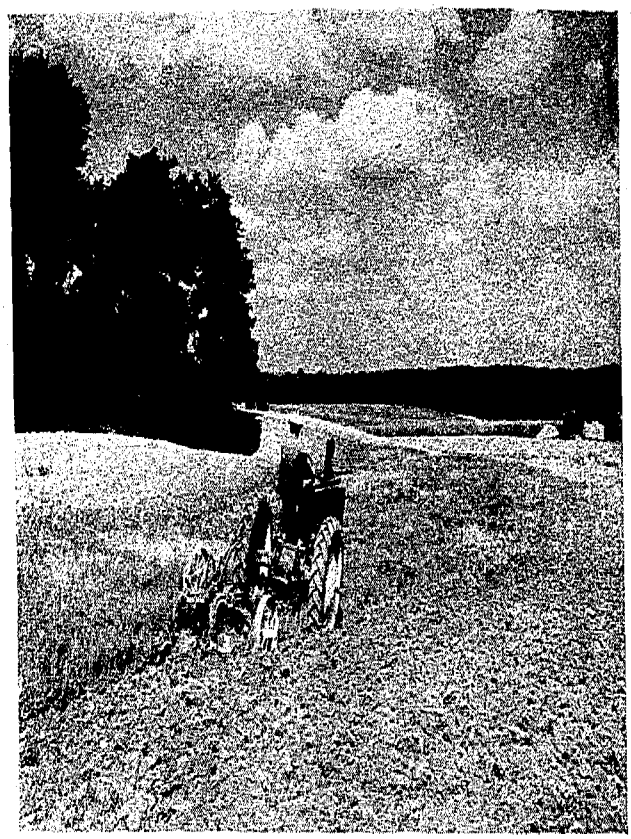
Millions of farmers, including, for example, the growers of citrus fruits, are members of cooperative associations which market their products. These farmers, by rendering some of the sales services required to place their products in the hands of the ultimate consumers, earn more money than those who neglect to give attention to the important task of selling the products they grow.

The Best Mules in the World!

Farming offers a great challenge to those who like it. They can carve for themselves a career of service and satisfaction. They can make for themselves almost any kind of farm and any kind of farming career they choose.

Years ago, for example, a boy lived in Missouri who decided that he would have the finest mule farm in the nation. He bought his first mule by paying for it with two pocket knives, a pistol, and four dollars in cash. Then, he advertised in his local paper that he would like to buy a farm on credit for the purpose of making it the greatest mule farm in the world. A local man, who liked such spirit, sold the boy a farm on credit. Year after year, he improved his mules. He showed them at "world's fairs" and won the highest prizes. Each year he held a sale, and each year his mules sold for more money than they had brought the year before. He printed the amount of money taken in at these annual sales on his farm letterheads. The sums grew until they were very large — more than $50,000 a year. Finally, the University of Missouri hung the portrait of this farmer on the walls of its agricultural library in recognition of his contribution to making his state the leading mule producing state of the nation, and Dean E. A. Trowbridge said of him, "Missouri is proud of the record made by L. M. Monsees. But he is loved and honored for his high ideals and outstanding character. He is a man worthy of emulation."

In this mechanical age possibly no young man would aspire to become a world leader in the production of mules. But the principle



Labor saving machinery increases production and income

may be applied to any farm enterprise. And determination and ambition will, in any field, win the same recognition and satisfaction that came to L. M. Monsees as a result of attaining a goal that to him was worthy of his best efforts.

OTHER SOURCES OF INFORMATION

Training

Informal — 4-H Clubs; F.F.A., your county or home demonstration agent; your state director of the Agricultural Extension Service; the U. S. Department of Agriculture, Washington D. C.

High School — Your local school; your State Department of Education; the U. S. Office of Education, Washington, D. C.

College — Your state university or land-grant college; U. S. Office of Education, Washington, D. C.

Pamphlet Information

Local — Free bulletins in the office of your county agent.

State — Free bulletins and circulars from your state extension service, at your state university or land-grant college.

National — Free farmers' bulletins from the U. S. Department of Agriculture, Washington, D. C., which may be obtained by writing the department or your congressman or senators.

Farm Loans

Banks — Your local bank.

FCA — Farm Credit Administration, Washington, D. C.

FHA — Farmers Home Administration, local county office, or FHA Washington, D. C.

VA — Veterans Administration, local office, state office, or national office, Washington, D. C.

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Career in Engineering, A
by Lowell O. Stewart

Careers in Forestry
by Charles N. Elliott

Careers in Labor Relations
by Florence Peterson

Careers in Public Health
by Adrian G. Gould

Careers in Wildlife Management
by Charles N. Elliott

Clerical Occupations
by Lester J. Schloerb and Leland L. Medsker

Employment Trends in the Printing Trades
by E. W. Andrews

Fields of Personnel Work, The
by John G. Darley and Ralph F. Berdie

Highway Jobs
by R. E. Royall

How to Choose a Career
by J. Anthony Humphreys

How to Get THE Job
by Mitchell Dreese

Instrument Makers
by Edward Schmid and Michael Brand

Job in Banking, A
by Joseph J. Schroeder

Jobs in Domestic Service
by Jean Collier Brown

Jobs in Horticulture
by Gilbert W. Wernicke

Jobs in Rural Journalism
by Elmo Scott Watson

Jobs in Rural Service
by Paul W. Chapman

Jobs in the Aircraft Industry
by Albert T. Helbing

Jobs in the Foundry
by Ernest L. Bowman

Jobs in the Machine Shop
by Ernest L. Bowman

Occupations in Radio
by Kenneth G. Bartlett

Occupations in Rubber
by Charles W. Ufford

Opportunities for Statistical Workers
by Donald E. V. Henderson

Opportunities in Farming
by Paul W. Chapman

Photography as a Vocation
by Andrew B. Hecht and George J. Berkowitz

Teaching as a Career
by Cyril O. Houle

Your Future in Chemistry
by V. F. Kimball and M. R. Bhagwat

Your Personality and Your Job
by Paul W. Chapman

Write for complete catalog of occupational information materials

THE JOBS OF THE HORTICULTURIST, AGRONOMIST, AND SOIL SCIENTIST

- WHAT THEY DO
- HOW THEY QUALIFY
- WHAT THEY EARN
- WHAT ARE THE EMPLOYMENT OUTLOOKS

Revised 1 July 1947 Occupational Brief No. 27

Prepared by the National Roster of Scientific and Specialized Personnel of the War Manpower Commission for use in the education programs of the Armed Services.

THE JOBS OF THE HORTICULTURIST (0-39.62), AGRONOMIST (0-39.54), AND SOIL CHEMIST (0-39.54)†

What Do Horticulturists Do? Most professional horticulturists are technically trained men who carry out experiments or investigations on problems relating to the breeding, production, storage, processing, and transit of fruits and nuts, garden vegetable crops, flowers and ornamental plants, and nursery stock. Their objective in breeding is to obtain, through hybridization and selection, new and improved plant varieties that have high yield, quality, and nutritional value; that are more adaptable to certain climates, regions, uses, or processes, such as canning or freezing, or that are resistant to specific diseases. Their work in crop production is to develop methods of growing which will insure maximum yields and highest quality. They determine for a given crop the best rotation, soil,

†Dictionary of Occupational Titles code number.

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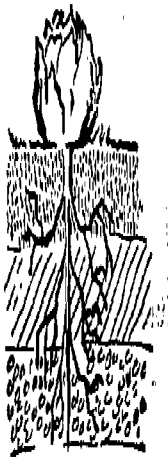
and fertilizer practices and the best planting, spraying, cultivation and harvesting methods. They may also study the best time for harvesting, and the best temperature and humidity for storage and transit of a crop.

Many horticulturists serve as extension workers who present technical information to the public, especially to farmers, through demonstrations, classes, and lectures; still others teach horticulture in colleges and universities.

What Do Agronomists Do? Most professional agronomists are research men who carry out experiments or investigations in the field or laboratory relating to the breeding, production, use, storage, and transit of field crops, such as forage and cereal crops, cotton, sugarcane, tobacco, and root crops. The objectives sought are similar to those of the horticulturist. Other important phases of work carried out by agronomists include extension activities and the teaching of agronomy in colleges and universities.



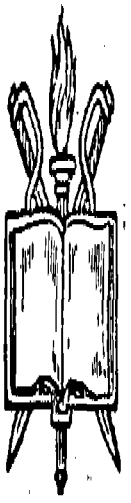
What Do Soil Scientists Do? The soil scientist primarily does research work in the field and laboratory. He also teaches in colleges and universities, and advises on rural land use and management or on the use of soil in connection with construction work. He carries out research work to learn the basic principles of soil origin, distribution, and composition; its chemical and physical properties; and the application of such knowledge to soil management practice, crop production, and farming systems. Some of the specific applications relate to irrigation and drainage practice, land tillage, and run-off and erosion control.

How Do You Qualify in These Fields? You usually take a 4-year college course leading to a Bachelor of Science (B. S.) degree in agronomy, horticulture, or soil science; or often in agriculture or botany. Most professional men in these fields also possess an advanced degree, such as: Master of Science (M. S.) or Doctor of Philosophy (Ph. D.). Such degrees are highly desirable for entrance into and advancement in research or teaching work. The graduate in any of these fields obtains a job by direct application to prospective employers, or in the case of most Federal or State Government jobs, by written application to the appropriate Civil Service agency.

Who Should or Should Not Take Up Training in These Fields? To take up these sciences you should have an aptitude for and an interest in: College training in technical agricultural subjects, botany, and chemistry; the study of plant and soil processes which involve complex chemical and physical reactions; painstaking manipulation and study of plant tissues under the microscope; continuous study of technical publications in an agricultural science; and clear and concise expression in writing. If you lived and worked on a farm and liked to use scientific information you probably will enjoy working in one of these sciences. If you served as medical laboratory technician, chemical laboratory assistant, pharmacist's mate, pharmacy technician, specialist (laboratory), or in related jobs you may like the research phases of work of a horticulturist, agronomist, or soil scientist. Some of the tests which you have taken in the service may supply additional information about your occupational aptitudes; however, only a person who is trained to interpret test results can tell whether your test scores show that you have any special abilities for a given occupation.

Where Do Men in These Fields Work, What Do They Earn, and What Is the Outlook? Most men in these fields are employed by State agricultural experiment stations, the U. S. Department of Agriculture, and by colleges and universities; Others work for packers, canners, seedsmen, and manufacturers of insecticides and fertilizers. In 1945, entrance salaries for men with graduate degrees ranged from $2,320 to $2,980 a year, and those with 10 to 20 years' experience usually earned from $3,640 to $5,180 a year. Employment prospects depend largely upon Federal and State appropriations for work in these agricultural fields. The trend probably will be toward somewhat greater employment of agronomists, soil scientists, and horticulturists by manufacturers of insecticides, fungicides, and fertilizers; by packers, canners, seedsmen, and agricultural cooperatives; and by firms engaged in the production of tropical crops. It is estimated that in 1942, there were between 2,000 and 2,500 professional horticulturists, and from 2,500 to 3,000 agronomists and soil scientists. A majority of the latter group were soil scientists.

Where Can You Prepare for These Fields and What Subjects Do You Take? You can prepare for these fields by attending a college or university which offers a degree with a major in horticulture, agronomy, soil science, or agriculture. Desirable high school preparatory courses include biology, chemistry, physics, and algebra. The college course usually includes basic biological sciences such as botany and zoology, chemistry, physics, college algebra, and English composition; and advanced courses such as plant pathology, plant physiology, entomology, horticulture, agronomy, genetics, soil science, agricultural bacteriology, biological chemistry, biostatistics, plant taxonomy, plant morphology, plant ecology, histology, cytology, and economic botany. Graduates studies will be concentrated in advanced courses in the particular science in which you seek a degree.



How Can USAFI Help a Serviceman To Prepare as a Horticulturist, Agronomist, or Soil Scientist? The U. S. Armed Forces Institute offers to servicemen many correspondence courses that will help to prepare for the horticulturist's, agronomist's, or soil scientist's work, for example: H151, General Science; H152, Inorganic Chemistry; H156, Physics, X713, College Algebra; and C712, Plane Trigonometry. Offered also are the following self-study courses: EM 442, Foundations of Biology; EM 445, A Textbook of General Botany; EM 451, Introductory College Chemistry; EM 466, Physics; EM 884, Growing Tree and Small Fruits; EM825, Soils; and EM826, Crops. In addition, a large number of college and university correspondence courses are available to servicemen through USAFI. Local off-duty classes may be set up

by your education officer.* For more information about the above courses, consult both the USAFI Catalog and your education officer.*

*Army—Information-Education Officer; Air Force—Information-Education Officer; Navy—Educational Services Officer, Education Officer, or Training Officer; Marine Corps—Special Services Officer; and Coast Guard—Education Officer.

How Can You Apply for Academic Credit for Military Experience? Most civilian educational institutions will grant credit for your military training, experience, and off-duty study. The schools and colleges will decide, however, whether or not you are entitled to credit. To apply for credit while you are still in the service, get USAFI Form 47 (Application for Credit for Educational Achievement During Military Service) from your education officer,* the nearest oversea USAFI branch, or USAFI, Madison 3, Wis. Fill out the form and mail it to the school or college of your choice along with a letter indicating that you are planning to prepare to be a horticulturist, agronomist, or soil scientist. Also, you may ask the school or college to recommend specific courses (USAFI, Marine Corps Institute, Coast Guard Institute, or university correspondence) that will be acceptable for additional credit.

*See footnote on p. 10.

Depending on the amount of high school work you have already completed acceptably, you may work toward or possibly complete your high school diploma requirements while in service by using USAFI Form 47 and by passing such USAFI examinations or completing such USAFI courses as your high school may require. If you have finished high school, use USAFI Form 47 and write to the college of your choice asking what procedure you should follow in making application for admission and what, if any, credit will be granted. If you have already done some college work use the same method to find out if you can get credit toward your degree. For full information, see the officer* at your station or base who handles off-duty educational activities.

If you are a veteran, use in place of USAFI Form 47 a certified copy of your separation qualification record (Army—WD AGO Form 100; Air Force—WD AGO Form 100; Navy—Nav Pers 553; U. S. M. C.—Report of Separation; Coast Guard—NAVCG 553).

*See footnote on p. 10.

Where Can You Find Out More About Education in These Sciences? You can get information about schools and colleges that prepare for these sciences by writing to: American Society for Horticultural Science, Michigan State College, East Lansing, Mich.; American Society of Agronomy, Morgantown, W. Va.; Soil Science Society of America, Morgantown, W. Va. Your education officer* may be able to help you. Information about these sciences can be found in the Army Vocational Information Kit and the Navy Occupational Information File if one is available at your station. Veterans may get information, especially about Government financial aid for education, at the nearest Veterans Information Center.

*See footnote on p. 10.

What Jobs Are Related to These Fields? A man trained in horticulture or agronomy, with or without some additional training on the job or special part-time courses, may find employment as park naturalist, botanist, plant pathologist, plant physiologist, industrial mycologist, range or forest ecologist, marine biologist, quarantine inspector, nurseryman, microbiologist, agricultural bacteriologist, plant breeder, salesman or buyer of agricultural products, landscaper, florist, seedsman, grader or inspector of horticultural products, and director of a botanic garden, arboretum, or park. A soil scientist may qualify in some of the above occupations and in addition, as soil and fertilizer chemist, soil microbiologist, mineralogist, soil physicist, and plant ecologist.

Training in horticulture, agronomy, or soil science is highly advantageous for a career in crop farming, such as vegetables, wheat, or fruit.

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CRITICAL FACTORS INVOLVED IN THE EVALUATION AND USE OF OCCUPATIONAL INFORMATION IN AGRICULTURE IN THE NORTH-CENTRAL REGION

By

Tollie Raymond Buie

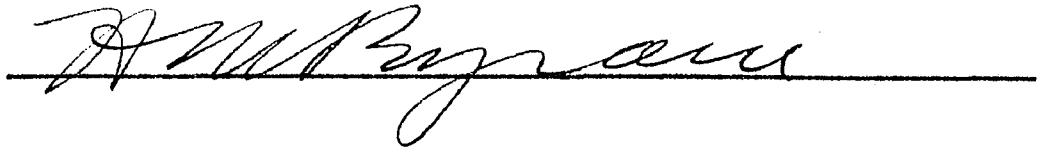
AN ABSTRACT

Submitted to the School of Graduate Studies of Michigan State College of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

School of Education

Year 1953

Approved 

CRITICAL FACTORS INVOLVED IN THE EVALUATION AND USE OF OCCUPATIONAL INFORMATION IN AGRICULTURE IN THE NORTH-CENTRAL REGION

By

Tollie Raymond Buie

The Problem

The purposes of this study were: (1) to determine the critical factors of occupational information in agriculture desired by teachers of vocational agriculture, (2) to determine the same factors desired by the students of vocational agriculture, (3) to develop an evaluative instrument for evaluating occupational information in agriculture, and (4) to evaluate the available inexpensive occupational information in agriculture.

Method of Study

An analysis was made of 21 characteristics of occupational information commonly discussed in the occupational literature to determine those desired by either a significant proportion of the 51 selected teachers of vocational agriculture or their 2,150 students of the North-Central Region (thirteen states).

Two questionnaires were prepared, one for the teachers and the other for the students. In addition to the 21 characteristics previously mentioned related factors pertaining to occupational information, which concerned only the teachers or the students, were included in the respective questionnaires. The teachers answered and checked their questionnaires and directed the students in their classes to check individually a copy of the student's questionnaire. These data were summarized and analyzed for three high-school class groups and for teachers.

Findings

The teachers and students recognized the teaching value and importance of current and reliable occupational information for assisting individuals in choosing a vocation.

Colored pictures, rather than black and white pictures or the absence of pictures, were preferred by a significantly greater number of teachers and students.

A combination of paragraph and outline form, rather than paragraph form or outline form only, was preferred by a significantly greater number of teachers and students.

Information presented in tabulated form was preferred, rather than "disliked" or considered "unimportant," by a significantly greater number of teachers and students.

The remaining 18 characteristics of occupational information were rated "very important," "important," and "unimportant"; significant differences existed in the percent of students preferring all of the characteristics, except one. This one exception was highly significant to the teachers. Also, the differences in the percentages for five of the 18 characteristics were not significant for the teachers but these five were highly significant to the students.

All of the selected characteristics were used in the development of the instrument for evaluating occupational information, and the percentage of students and/or teachers preferring each item was highly significant.

A test of reliability in the use of the evaluative instrument was performed by computing the correlation coefficients for three selected pamphlets. The average scores for each characteristic given by five teachers of vocational agriculture were correlated with those given by five counselors. The correlations were: +.92 for pamphlet I, +.97 for pamphlet II, and +.91 for pamphlet III. These coefficients were significant at the 5 percent level.

A second test of reliability of the instrument was made by collecting, evaluating, and preparing an annotated bibliography of the inexpensive occupational information pamphlets in agriculture. The results obtained by the use of the evaluative instrument were highly satisfactory.

The annotated bibliography revealed the adequacy of coverage of materials on the agricultural and related occupations.

A significant number of teachers preferred to integrate occupational information in their classes. Also, they recognized the teaching value of the various sources of information.

A negative correlation coefficient of .1541 was computed between the teachers' expressed need for and the students' interests in materials on production occupations; the reverse existed concerning farm service and other related occupations, i.e., a positive correlation coefficient of .4013.

The students indicated their most likely choice of an occupation with 72 percent in farming, 19 percent in occupations related to farming, and 9 percent in nonagricultural occupations.

Fifty-three percent of the teachers revealed that they were using field trips extensively in teaching occupational information in agriculture.

Sixty-five percent of the teachers reported unsatisfactory filing systems for printed materials.