

AN ABSTRACT OF THE THESIS OF

Monty Edward Multanen for the Ed. M. in Agricultural Education
Name) (Degree) (Major)

Date thesis is presented April 20, 1966

Title OFF-FARM AGRICULTURAL OCCUPATIONS IN YAMHILL
COUNTY

Abstract approved

Redacted for privacy
James W. Smith
(Major professor)

Today education stands between all men and all work. What this means in specific off-farm agricultural occupations is the object of this study. Advanced technology and education have helped to develop modern agriculture so that one farmer can now produce enough food for his family and 30 other persons. To achieve this level of production the producer is supported by a large group of personnel who service, process and distribute the products of the farm. There are more jobs in off-farm agricultural occupations today than there are on the farm.

The purpose of this study is to identify and study the off-farm agricultural occupations in Yamhill County.

Information for this study was obtained through a mailed questionnaire and through personal interviews with persons qualified to provide the desired information about the occupations and the employees.

A survey of firms in Yamhill County reveals that a large number have employees needing agricultural backgrounds. Most off-farm agricultural job opportunities are in semi-skilled categories. None are in unskilled categories. There will continue to be an increased demand for workers in off-farm occupations.

The majority of the job opportunities require at least a high school education. Over one-half the employers were willing to cooperate with the school districts in work experience programs for students. A general knowledge of rural life is essential for off-farm agricultural workers.

Based on the findings of this study, production agriculture should continue to be the core of instruction for vocational agriculture. The vocational agriculture program should be enriched and expanded to include specialized training for off-farm occupations. The Future Farmers of America organization should continue to be a strong and integral part of the vocational agriculture program.

OFF-FARM AGRICULTURAL OCCUPATIONS IN
YAMHILL COUNTY

by

MONTY EDWARD MULTANEN

A THESIS

submitted to

OREGON STATE UNIVERSITY

in partial fulfillment of
the requirements for the
degree of

MASTER OF EDUCATION

June 1966

APPROVED:

Redacted for privacy

Professor of Agricultural Education

In Charge of Major

Redacted for privacy

Head of Department of Agricultural Education

Redacted for privacy

Dean of Graduate School

Date thesis is presented April 20, 1966

Typed by Marion F. Palmateer

ACKNOWLEDGMENTS

The author is grateful to the business firms in Yamhill County whose cooperation made this study possible. Special acknowledgments are due Ernest Davis, who helped in initiating this joint study; Dr. Henry A. TenPas and Dr. Philip B. Davis of the teacher training staff of Oregon State University, who supervised this study; and my wife, Susan, who has assisted me in many ways.

TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
I INTRODUCTION	1
Statement of the Problem	1
Purpose of the Study	3
Assumptions	4
Limitations	5
Definition of Terms	5
Location of Study	10
Procedures Used in this Study	11
II REVIEW OF LITERATURE	14
Changing Needs	14
Number of Employees Needed	16
Future Employment Opportunities	17
Levels of Employment	19
Competencies Needed	20
Activities Performed	22
Background Required	23
Educational Requirements	24
Age Requirements	25
Salaries	26
Conclusions	27
III FINDINGS	29
Firms Interviewed	30
Functions Performed	31
Employment	32
Levels of Employment	32
Future Employment Opportunities	33
Sources Most Frequently Used in Securing New	
Employees with an Agricultural Background	35
Training Opportunities	36
Willingness to Hire a High School Student to	
Work Part-time in Order to Learn about the	
Firm or Occupations within the Firm	36
Educational Requirements	37
Age Requirements	38
Background Required	39
Activities and Duties Persons Perform	40
Competencies Needed	44

<u>Chapter</u>	<u>Page</u>
IV SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	49
Summary	49
Conclusions	50
Recommendations	52
BIBLIOGRAPHY	54
APPENDICES	60
APPENDIX I	60
APPENDIX II	62
APPENDIX III	67
APPENDIX IV	72
APPENDIX V	76

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1 Summary of employment levels of related studies.	20
2 Number of firms and employees.	29
3 Functions of firms employing agriculturally oriented personnel.	30
4 Functions performed by firms employing agriculturally oriented personnel.	31
5 Total employment per type of firm and number of employees within the firm who are agriculturally oriented.	32
6 Number of present employees, by levels, who need an agricultural background or are agriculturally oriented.	33
7 Employment opportunities in agricultural occupations other than farming.	34
8 Training opportunities and/or facilities provided for new agriculturally oriented employees.	36
9 Educational requirements for persons entering agricultural occupations other than farming.	38
10 Age requirements for persons entering agricultural occupations other than farming.	39
11 Backgrounds helpful to persons seeking employment in agricultural occupations other than farming.	40
12 Activities and duties persons perform.	42
13 Competencies needed.	45

OFF-FARM AGRICULTURAL OCCUPATIONS IN YAMHILL COUNTY

CHAPTER I

INTRODUCTION

Education stands between man and his work. For some men in some occupations this relationship has always been true, but modern technology has advanced to such a high level that education now stands between all men and all work. What it means in specific off-farm agricultural occupations is the object of this study.

Today the farmer produces enough food for his family and 30 other people. In 1910 he produced for eight others. The reason for this big change can be summed up in one word: education. Efforts of the extension service, federal and state experiment stations, and high school agricultural education classes largely explain the enormous growth of farm efficiency and productivity.

Statement of the Problem

American agriculture is faced with the problem of getting trained people to fill the jobs that are created each year by our advancing technology.

Some may question the preparation of more people for

agricultural occupations if the number of farms is decreasing. What they do not realize is that production is only one phase of agriculture. The number of productive farms is decreasing with many small farms becoming part of larger farms. However, farms are producing more, and a larger number of people are required to service, process, and distribute the products of the farm.

In the September, 1964, issue of Farm Technology (9), it was conservatively estimated that seven million people are in the business of productive farming; another 19 million people are engaged in servicing farm equipment, supplying and producing goods for farmers, and processing and distributing farm produce. This totals 26 million people, or 39 percent of our total labor force.

Society cannot ignore the 19 million jobs that exist in agriculture outside of productive farming. Many people in our high schools could be trained to fill the urgent need for skilled workers in these off-farm agricultural occupations. Society generally, and school personnel specifically, must become more aware of the off-farm agricultural industry that exists in an area surrounding the school.

Education For a Changing World of Work (49), the summary report of a panel of consultants on vocational education, points to the need for vocational and technical education for some 80 percent of our youth during the present decade. The report states that vocational agriculture, under federal reimbursement, should be

broadened to include instruction and increased emphasis on: (1) management, (2) finance, (3) farm mechanization, (4) conservation, (5) forestry, (6) transporting, processing, and marketing the products of the farm. To obtain the broad objectives stated by the panel of consultants on vocational education, the occupations and specific job titles and competencies needed in agricultural industry must be identified.

A recent trend in agricultural education is to ascertain what jobs exist in off-farm agriculture and what type of training they require. The results of these studies are providing a foundation from which educators throughout the nation are revamping vocational agriculture programs.

Purpose of the Study

To maintain the vocational agriculture program at a realistic level, it is imperative that an investigation and evaluation be made to gather pertinent information about the occupational needs of an area in order to determine the kinds of educational programs necessary for the nation's youth. The primary purpose of this study is to identify and study the off-farm agricultural occupations in Yamhill County.

The study is designed:

1. To identify off-farm agricultural occupations in Yamhill

County.

2. To estimate present number of employees.
3. To identify occupational levels of off-farm agriculture workers.
4. To identify job titles of off-farm agriculture workers.
5. To list competencies needed for off-farm occupations.
6. To group occupation levels for which there are common technical and vocational education needs.

Assumptions

The initial assumptions for this study follow.

1. The more training students receive in vocational agriculture, the greater is the possibility they will choose an agricultural occupation.
2. There are job opportunities in business for persons having an agricultural background and/or training.
3. Agricultural businesses have no definite method for locating and recruiting new employees.
4. Previous farm experience and/or training in vocational agriculture increase the employability of persons seeking entry into agricultural occupations.
5. Vocational agriculture has a responsibility to prepare students for entry into all agricultural occupations.

6. It appears impractical to train students completely in specific skills required in a given occupation.

Limitations

The author lists the following limitations as being significant to this study.

1. The preliminary survey covered the entire Yamhill County.
2. Preliminary information is based on data collected by a mailed questionnaire.
3. The follow-up survey was conducted by personal interview.
4. The personal interviews were selected by random sample from those questionnaires returned from the northern half of the county.
5. The preliminary survey could be filled out by a person not qualified to know the educational needs of the employee.

Definition of Terms

For reasons of clarity, the following terms are defined.

1. Agri-industry. This is an inclusive term which embraces a cluster of agricultural occupations pertaining to the business and/or management phases of manufacturing, servicing, processing, and distribution of the products

going into and/or coming from farm production.

2. Agricultural occupations. Occupations involving agricultural knowledge and skills on a farm or in another business, agency, or organization which produces, processes, distributes, or services farm products. Workers need competencies in one or more of the primary areas of plant science, soil science, animal science, farm management, agricultural mechanization, and agricultural leadership. Examples include: forestry, park and recreational area management; food processing, feed, and related products; selling farm and garden equipment and supplies; gardening, landscaping, and grounds-keeping; farm irrigation; soil and water management; forestry conservation; repair of agricultural machinery; horticultural farming; and servicing agricultural production.
3. Curriculum. The sum total of all experiences planned and unplanned which compose a student's life and from which he learns. It involves not only in-school but out-of-school experiences of all types.
4. Agricultural education. Classes organized and conducted in public schools for pupils who wish to secure systematic training for an agricultural occupation. Such instruction is organized on graded levels dealing with exploratory

agricultural experiences, principles and practices in farming, agri-business, and technical agricultural occupations with emphasis on supervised participating experiences in each area.

5. Technical education. Classes organized and conducted in public schools for pupils desiring technical information and understanding of the laws of science and principles of technology as applied to modern design, production, distribution, and service.
6. Vocational education. This is a series of controlled and organized experiences designed to develop skills, abilities, understandings, attitudes, work habits, and appreciations encompassing knowledge and information needed by persons to enter and make progress in employment on a useful and productive basis. The primary function of vocational education is to develop the individual for socially useful work.
7. Work experience. Employment undertaken as part of a school course and designed to provide planned experiences which are supervised by a teacher-coordinator and the employer.
8. Levels of employment. Classification for grouping occupations into eight levels based on the functions performed.
 - a. Professional - This level includes occupations that

require a high degree of mental activity and are concerned with theoretical or practical aspects of complex fields in human endeavor. Such occupations require either extensive and comprehensive academic background or a combination of such education and experience.

- b. Technical - Occupations requiring the performance of specific tasks which are functional parts of scientific activities requiring knowledge of fundamental theory and requiring highly developed skills.
- c. Proprietors and managers - Occupations that are involved primarily with responsible policy-making and require planning, supervision and coordination of the work-activity of others, usually through intermediate supervisors.
- d. Sales - Occupations concerned with the sale of commodities, investments, real estate, products, and services, or occupations that are very closely identified with sales transactions even though they do not involve actual participation in such transactions.
- e. Clerical - Occupations concerned with preparing, transcribing, transferring, systematizing, or preserving written communications and records in offices,

shops, and other places of work where such functions are needed.

- f. Skilled - This level includes crafts and manual occupations that require: a thorough and comprehensive knowledge of processes involved; the exercise of considerable independent judgment; a high degree of manual dexterity; and, in some instances, extensive responsibility for valuable products or equipment. Workers in these occupations usually become qualified by serving apprenticeships or completing extensive training periods.
- g. Semi-skilled - This level includes manual occupations that are characterized by one or a combination of parts of the following requirements: the exercise of manipulative ability of a high order, but limited to a fairly well-defined work routine; major reliance, not so much upon the worker's judgment or dexterity, but upon vigilance and alertness in situations in which lapse in performance would cause extensive damage to product or equipment; and the exercise of independent judgment, to meet variables in the work situation, which is not dependent upon wide knowledge of a work field and which is limited either by

(a) application over a relatively narrow task situation
or (b) decisions of others.

- h. Unskilled - This level includes those jobs that require no special training of any kind and can be performed by almost any person, provided he is physically capable.

Location of Study

Yamhill County is bounded on the north by Washington County, on the east by the Willamette River, on the south by Polk County, and on the west by Tillamook County.

The county seat is McMinnville, which is located 46 miles north of Corvallis and 34 miles southwest of Portland.

The principle industry in Yamhill County is agriculture. The estimated gross agricultural income for 1965 was over 20 million dollars. The chief industry in the western part of the county is lumbering; in the southern, northern, and central parts of the county it is diversified farming; in the eastern part of the county it is the production of cannery crops.

The number of farms tabulated by the Yamhill County Extension Service in 1964 was 2,091. A comparison of this figure with the 1954 tabulation of 2,442 farms indicates a decrease of 351 farms in this ten-year period. As rated by the Yamhill County Extension Service,

there were 1,052 commercial farms, 62 class I farms, 137 class II farms, 228 class III farms, 297 class IV farms, 199 class V farms, and 116 class VI farms in Yamhill County in 1964.

Each of the seven high schools in the county has a vocational agriculture department.

Procedures Used in this Study

A review of similar investigations, both under way and completed in other states, was the starting point of this study. This study was developed so that the data collected could easily be compared to similar studies.

With this in mind, two questionnaires were developed. A preliminary questionnaire was prepared in the form of a post card containing a check list that would permit quick tabulation of answers and at the same time would not take a long time to fill out. A follow-up questionnaire was prepared with the help of material from other studies and in line with the objectives of this study. This questionnaire was used as an instrument in recording the results of the personal interviews.

Determining what firms would receive the preliminary questionnaire emphasized the scope of the total industrial complex of Yamhill County. Firms that, in the opinion of the author, would not require workers with a knowledge of agriculture were eliminated. The

author selected only those off-farm agriculture businesses or industries that, in his opinion, might service, process, or distribute goods or capital of the farmer, or might perform services that would require competencies in one or more of the primary areas of plant science, animal science, soil science, agriculture mechanics, and agricultural business management. Examples of such firms are auto supply, real estate, and insurance companies.

With this definition in mind, the author and Ernest Davis compiled a list of businesses with these broad qualifications from sources such as the county directory, the Extension Service, telephone directories, the Yamhill County Planning Commissions, the Bureau of Trades and Industries, and the Chamber of Commerce.

The preliminary questionnaire and a cover letter explaining the purpose of the study were mailed to the selected firms.

The returned preliminary questionnaires, totaling 181, were divided into two groups. Those returned from Willamina, Sheridan, Amity, and part of McMinnville were placed in one group to be used by Ernest Davis. Those from Yamhill, Carlton, Dayton, Lafayette, Dundee, Newberg, and part of McMinnville were placed in the second group to be used by the author. There were 91 firms represented in the first group and 90 firms in the second group. Mr. Davis is completing a study based upon returns from the 91 firms in his group.

The author divided the returns from 90 firms into two groups:

those that replied "yes" to the question "Is a knowledge of agriculture beneficial in the performance of any of the jobs within the firm?", and those that answered, "no". The "yes" group contained 58 firms; the "no" group contained 32.

Comprehensive follow-up interviews were conducted with 21 of the 58 "yes" firms selected at random. Short follow-up interviews were also conducted with four of the "no" firms to check the validity of their answers. A list of the firms returning the preliminary questionnaire is shown in the appendix.

CHAPTER II

REVIEW OF LITERATURE

Much interest and study has been focused recently on the vocational education needs of this nation.

The former U. S. Commissioner of Education, Francis Keppel, recently estimated that seven million young people will enter the work force in the next ten years without benefit of high school graduation unless steps are taken to provide programs to meet their needs, interests, and motivations. "Some major considerations which demand immediate attention include: the preparation of young people for careers in business, technical occupations, skilled trades, the health occupations, the service trades, distributive occupations, agriculture, and combinations of these" (29, p. 10-11).

Changing Needs

There seems to be no question regarding the need for updating our vocational agriculture programs to meet the changing demands in agriculture. However, these changes should be based upon sound research and reasoning. The following statement by Binkley illustrates the point:

Unless those who have cast their lot with vocational agriculture do some clear thinking and recommitting of

themselves, much of the gain of nearly half a century in vocational agriculture may be lost. The basic philosophy of vocational agriculture is sound. It has been largely responsible for the success of the programs since the start. The need for farmer training is increasing. Likewise, there is an increased need in farming for those who are to enter other agricultural occupations. (11, p. 13)

The occupational survey of an area is an integral part of building a balanced program in a school if one accepts the definition of the balanced program as one which is "tailored to the requirements of communities and defined areas, yet does not lose sight of the patterns emerging in the state and national labor market" (5, p. 9).

In view of the appreciation for the need for change in vocational education, Cushman et al. wrote:

With several states planning extensive studies of employment opportunities and needed competencies in off-farm agricultural occupations during the spring of 1963, it became apparent that several benefits would accrue from a conference jointly sponsored by the National Center for Advance of Study and Research in Agricultural Education and the Agricultural Education branch of the U. S. Office of Education to further develop and coordinate studies in this vital area. Accordingly, plans were developed early in the spring of 1963 for a three-day Research Coordination Conference to be held on the campus of the Ohio State University. The board purposes of the meeting were:

1. To maximize the possibilities for coordinating and achieving commonality in agricultural occupation. Studies being conducted by the several states without violating the integrity of individual state studies;
2. To provide other states with resulting materials and encourage comparable studies;
3. To provide opportunities for individual states to benefit from the experience of others in further developing and refining their proposals. (16, p. 3)

Number of Employees Needed

Recent studies completed in a number of states indicate that there are numerous off-farm agricultural opportunities. Brum (13, p. 11) in Ohio identified 165,262 workers other than farmers whose jobs require knowledge and skills in technical agriculture. The study further identified an additional need for 15,890 new employees per year. Brum is supported by a study completed in Michigan (28, p. 1), in which 31.7 percent of the persons employed by the firms surveyed had agricultural job titles.

Cushman et al. (16) estimated that 28,685 persons were employed full-time in off-farm agricultural occupations in the 260 New York school districts which offered high school agricultural instruction during 1963-64. It was further estimated by Cushman that 16,841 additional persons were employed in part-time off-farm agriculture occupations.

In one phase of the Michigan study (28), the entire needs of the state were found for two occupational families: machinery sales and service, and nurseries. These two occupational families were found to have an annual need for employees equal to nearly half the number of vocational agriculture students graduating each year in Michigan.

If similar conditions and needs exist in Oregon, then one-half of the 600 students graduating from vocational agriculture each year

could be readily employed. This conclusion is also supported in a speech given by S. C. Dam, Vice President and General Manager of the John Deere Company in Portland, at the 44th annual state-called conference on Agriculture Education held in June, 1965, at Milwaukie, Oregon. Dam stated:

In the state of Oregon alone, there are approximately 200 retail implement dealers successfully operating today. These 200 dealers, according to a recent survey conducted by Mr. Malcolm Smith, Managing Secretary of the Pacific Northwest Implement Dealers Association, need the following jobs filled right now with skilled and semi-skilled young men: (17)

Set-up men	80
Parts men	14
Service men	250
Salesmen	<u>54</u>
Total	398

Future Employment Opportunities

Mr. Malcolm Smith (17), Managing Secretary of the Pacific Northwest Implement Dealers Association, conducted a recent survey in the State of Oregon which pointed out a need for men in the agriculture mechanics sales and service occupation, in the following categories, in the next five years:

Set-up men	400
Parts men	98
Service men	650
Salesmen	<u>124</u>
Total	1,172

These figures indicate that if agricultural education enrollments

in Oregon do not increase in the next five years, agriculture mechanics dealers alone will need twice the number of qualified workers graduated. If we are to meet the total needs of agricultural occupations, our enrollments will have to increase many-fold.

Following are the results from a number of studies completed in other states.

In Kansas the State Board of Vocational Education (24) collected information from employers concerning their anticipated needs. The employers estimated that 2,833 additional employees would be needed in the State of Kansas in the next five years, due solely to the growth of agricultural businesses.

The survey of agricultural occupations in Michigan (28) indicated that nurseries needed 194 new employees for expansion and 241 for replacement. Each year Michigan also needs 526 new employees in the field of farm machinery sales and service.

A summary of 17 counties in Pennsylvania (40) revealed a need for 1,498 new workers in agricultural business and services; in Virginia, Bailey (7) predicted an increase of 1,071 workers in agricultural business and services in the next five years.

The Off-farm Agricultural Occupation Study for New York State (16) indicates that during the five-year period 1964-69 a total of 24,033 employment opportunities would be available in the off-farm agricultural occupations in the 260 school districts included in this

study. According to this study, 14,085 jobs would be full-time and 9,948 would be part-time.

H. D. Brum (13) reports an annual need for 15,890 new employees, including replacements, in Ohio. Of this number, approximately 1,230 need a Bachelor of Science degree or more. The remaining 14,660 must be high school or technical school graduates to fulfill job requirements.

Warren Griffen, in his survey of 112 firms in Saline County, Missouri, (19) found that 42 of these firms would need 95 additional employees in the near future, and most could see the need for additional field men to carry new products and services to the farmers.

The obvious conclusion to be drawn from the above-mentioned studies is that the need for employees in the agricultural businesses studied will continue to be large.

Levels of Employment

The number of off-farm agriculture occupations is not enough information on which to base improvement and expansion of agricultural education. Special characteristics, such as levels of employment and competencies required, must be identified if program improvement and expansion is to be fully adequate.

A review of completed studies shows that workers who need skills and knowledge in agriculture are found in all levels of

employment. Following is a table summarizing the three studies.

Table 1. Summary of employment levels of related studies.

Levels of employment	Saline County percent	New York percent	Virginia percent
Unskilled		4	
Semi-skilled	44.55	28	30.2
Skilled	14.96	27	20.5
Proprietors and managers	13.82	15	8.7
Sales	12.36	13	11.7
Supervisors and foremen	6.18		
Professional	4.72	4	
Technical	2.76	4	
Clerical	0.65	4	
Service		1	

The greatest potential for developing educational programs appears to lie with the "semi-skilled" level (7, p. 33). Interviewees pointed out in Griffen's study (19) that increase in the mechanization of farms and firms closely associated with the farm increased the need for skilled and semi-skilled agricultural workers.

Competencies Needed

Development of agricultural competencies, as indicated by several studies, must become a significant part of students' preparation for the world of work.

Cushman et al. indicated in a recent New York study:

Of the 19 annual employment opportunities per school district, all were in occupational families where agricultural business competencies and agricultural mechanics were needed, and 12 were in occupational families where workers needed competencies in plant science. Six employment opportunities fell in occupational families needing competencies in forestry, soil conservation, and outdoor recreation. Only one employment opportunity was in occupational families where animal science competencies were needed. (16, p. 37)

Bailey (7) made a distribution of employees by the amounts of knowledge required which pointed out that 18.1 percent of the employees needed a comprehensive knowledge of agriculture, 37.0 percent needed a general knowledge of agriculture, 43.1 percent needed a casual knowledge of agriculture, and 1.8 percent needed no knowledge of agriculture.

Most of the studies reviewed indicated that many employees in off-farm agricultural jobs needed to have competencies in other areas. For example, in the Michigan study (28), which included 33 competency areas that are not agricultural, interviewees from all occupational families gave ratings of "essential" to "highly desirable" at one or more levels of employment in the areas of salesmanship, customer relations, office procedures, advertising, and business principles.

Employers in garden supply stores in Brum's study (13) pointed out that employees at all levels needed to have one-third of their training

in agriculture, one-third in industrial competencies, and one-third in business and service management. However, the Kansas study points out that little or no emphasis was given by employers to chemistry, physics, advanced mathematics, foreign language, research procedures, electronics, sound and light, metallurgy, and architecture (24). The Kansas study further states that employers appeared to favor the classification of the principles of the basic sciences taught as a part of the agricultural areas in which it is used as an applied area of knowledge (24).

Activities Performed

It is important for vocational teachers in agriculture to know what types of activities are performed by off-farm agriculture workers. The Kansas study (24) ranked in order the following skills under the areas indicated:

1. Activities needed for working in production, products, materials, or service:

	<u>Rank</u>
Use of technical or service manuals	1
Inspection for weaknesses	2
Assembling and mixing	3
Planning productions	4

2. Activities for working with firms' or customers' equipment, tools (hand or power), supplies, and instruments:

	<u>Rank</u>
Operate properly	1
Maintain	2
Adjust	3
Inspect and trouble-shoot	4

3. Activities for business problems:

	<u>Rank</u>
Keeping records and accounts properly	1
Making decisions wisely	2
Handling money properly	3

4. "Handling men" and "being able to train others" were given more than 50 percent of the emphasis on the average by the employers in the Kansas study. The same employers indicated that employees spent 28 percent of the time working with people outside the firm. They felt employees should be able to:

	<u>Rank</u>
Meet farm people	1
Meet non-farm people	2
Diagnose, consult, advertise	3
Sell	4
Estimate	5

Background Required

Much is said about the background preference of off-farm agricultural workers. In the Saline County, Missouri, study (19), a majority of the firms interviewed replied that it was essential for prospective employees to have had farm experience.

A majority of respondents in the Michigan study (28) listed "farm background" as a requirement or preference for professional workers, technicians, proprietors, managers, and sales people; an urban background was never preferred. A small number indicated "no preference" regarding background experience. It would appear, according to the Michigan study and others, that farm-reared boys and girls would have an advantage over non-farm young people when

seeking employment in off-farm agricultural occupations.

Educational Requirements

The Saline County study (19) and others show that a majority of employers indicated it was desirable for prospective employees to have taken vocational agriculture in high school.

Off-farm agricultural occupation studies indicate that there is some disagreement as to what educational levels are required. Generally, a high school education is the minimum level for entry into jobs. Brum (13) pointed out in his study that no employer wanted to employ people who had less than a high school education.

Some differences were found in a study conducted in New York (16). Employers reported that high school completion was required for 57 percent of the full-time workers in off-farm agricultural occupations. Seventeen percent reported that a high school education was not needed and 18 percent needed various levels of education beyond high school.

Bailey's study (7) in Virginia shows that about one-third of the unskilled and semi-skilled workers were in positions where the educational requirements were less than high school graduation.

In the Saline County study (19), 14 employers indicated that an eighth grade education was sufficient for some semi-skilled jobs, 180 employers replied that employees should have completed high

school; 84 replied that employees should have some training beyond high school.

In the Virginia study (7), 48.1 percent of the workers were in positions requiring a high school education or a high school education plus special post-high school training.

It was found in the Michigan study (28) that 53.1 percent of the agricultural workers could be replaced by persons with a high school diploma, 31.2 percent with post-high school education of less than baccalaureate degree, 10.3 percent with a college degree, and 4.4 percent with a master's degree. The authors, therefore, concluded that all non-farm agricultural workers in the firms surveyed in Michigan need a high school education or more.

Age Requirements

Even though a small percentage of the jobs might require less than a high school education, it would be unwise to convey this message to our students today, especially when we consider the minimum age of entry into employment. The minimum age of entry workers in the non-farm agricultural jobs as indicated by Griffen (19) is from 18 to 25 years. This is supported by the Michigan study (28), which found that the minimum age for entering the agricultural occupations studied ranged from a low of 20-21 years at the unskilled level to 25-35 years at the proprietors and managers level. The maximum

age employers would consider in Griffen's study (19) ranged from 47-55 years of age.

Salaries

According to the studies reviewed, a wide range of salaries exists for workers in off-farm agricultural jobs, but they seem to compare favorably with those of other workers performing at similar occupational levels. The range of wages is based on the amount of education the employee has. This is borne out by Brum's study (13), which shows the following:

1. The average agricultural worker in the professional or technical category makes well over \$100 per week.
2. Fifty percent of the workers in agricultural sales make more than \$100 per week; whereas, about one-third make less than \$80 per week.
3. Ninety-five percent of all non-farm agricultural workers in the service worker category receive \$100 or less per week.

The Michigan study (28) indicated top salaries of professional workers, technicians, proprietors, managers, and sales people ranged from \$700 to over \$900 per month.

Conclusions

The conclusions of related studies are summarized as follows:

1. Programs of vocational education in agriculture should be extended to include preparation for off-farm agricultural occupations.
2. The need for employees in off-farm agricultural occupations is great and will continue to grow.
3. An agricultural background and/or vocational agriculture instruction increases one's chances of being employed in off-farm agricultural occupations.
4. There are off-farm agricultural jobs available to both males and females who have an agricultural background.
5. Programs of vocational education in agriculture should be revised and improved in light of the data revealed in studies of their areas.
6. Competencies are needed in agricultural mechanics, agricultural business, and plant and animal production areas.
7. Agricultural education programs should cooperate with other vocational education programs in preparing students for off-farm occupations.
8. Age requirements and salaries of off-farm agricultural jobs are comparable to similar non-agriculture occupations.

9. The majority of off-farm agricultural occupations fall in the semi-skilled and skilled employment levels, with almost no opportunities in the unskilled classification.

CHAPTER III

FINDINGS

A total of 181 firms in Yamhill County completed and returned the mailed questionnaires. One hundred and twelve or 61.88 percent of the firms replied "yes" to the question "Is a knowledge of agriculture beneficial in the performance of any of the jobs within this firm?"

The 181 firms employed a total of 3,417 persons, 542 of whom needed an agricultural background or were agriculturally oriented. As one owner-manager of an appliance and paint store stated on the returned card, "We deal primarily with the farm market. We need to talk farm language. There is lots of room for expansion into the field of irrigation, small tractor tiller and mowing fields, and pumps and sprayers." This was just one reply, but it does exemplify the attitude of many firms.

Table 2. Number of firms and employees.

Number of firms	Total Employment	Average employed per firm	Number agriculturally oriented	Average number agriculturally oriented	Percent agriculturally oriented
181	3,417	19.13	542	2.93	15.36

A complete listing of the firms responding to the mailed questionnaires can be found in the appendix.

The 112 firms which had agriculturally-oriented employees in this study were engaged in a number of activities. In many cases, individual firms performed more than one function. As indicated by Table 3, almost one-half of the firms were engaged in retailing services.

Table 3. Functions of firms employing agriculturally oriented personnel.

Function	Number	Percent
Retailing	53	47.32
Wholesaling	22	19.64
Purchasing	10	8.93
Processing	12	10.71
Manufacturing	11	9.82
Service	48	43.39
Warehouse	4	3.57
Transportation	2	1.79
Construction	6	5.36
Other	15	13.39

Base	112	

Firms Interviewed

Twenty-one firms were selected by a random sampling method. One of the firms had subsequently gone out of business, and another was disregarded when the interviewee clarified his answer by replying that an agricultural background was undoubtedly helpful, but his

employees by no means needed an agricultural background to function effectively.

Functions Performed

The firms personally interviewed in this study had numerous functions. In some cases there was such an over-lap of functions that it was difficult to decide which was the primary function. Table 4 shows that the 19 firms performed 37 functions. One grain company interviewed had seven different functions.

Table 4. Functions performed by firms employing agriculturally oriented personnel.

Function	Number	Percent
Retailing	14	66.66
Wholesaling	4	19.04
Purchasing	2	9.52
Processing	3	14.28
Manufacturing	4	19.04
Service	9	42.85
Warehouse	1	4.76

Base	19	

As was the case with the entire county, retailing and service functions were most often performed, 66.66 percent and 42.85 percent respectively.

Employment

The 19 firms interviewed employed a total of 154 people, 71 of whom were full-time employees with required agricultural backgrounds. A comparison of the sample interviewed with county-wide results (Table 5 as compared to Table 2), reveals that the average total employment is lower--8.10 compared to 19.13; the average number agriculturally oriented is higher--3.73 compared to 2.93; the percentage agriculturally oriented is 46.10 as compared to 15.36.

Table 5. Total employment per type of firm and number of employees within the firm who are agriculturally oriented.

Number of firms	Total Employment	Average employed per firm	Number agriculturally oriented	Average number agriculturally oriented	Percent agriculturally oriented
19	154	8.10	71	3.73	46.10

These differences can be attributed to the difference in total employment. When considering the total county, the total employment per firm ranged from 1 to 400; and the range for those firms interviewed was one to 18 employees.

Levels of Employment

When grouping agriculturally oriented employees into levels of employment, one finds that employers consider there are no unskilled jobs requiring an agricultural background.

The semi-skilled group was the largest and accounted for 26.76 percent of the employees needing agricultural orientation (as shown in Table 6) followed closely by proprietors' and managers' positions and sales occupations. Only 2.81 percent of the jobs were classified as technical, which may be due to employers not clearly defining the difference between highly skilled workers and technicians.

Table 6. Number of present employees, by levels who need an agricultural background or are agriculturally oriented.

Level of Employment	Number	Percent
Professional	2	2.81
Technical	2	2.81
Proprietors and managers	16	22.53
Sales	16	22.53
Clerical	5	7.04
Skilled	11	15.49
Semi-skilled	19	26.76
Unskilled		
Total	71	

Future Employment Opportunities

As the number of farms decreases in the nation, many people think that agricultural occupations are declining. This study indicates the future for new employees in off-farm occupations seems favorable. Not a single firm could foresee a possible decrease in the need for agriculturally oriented employees. Eight employers

indicated a need for 33 additional such employees in the future. A number of employers thought they would need more, but would not commit themselves to a definite number.

Most employers expressed the opinion that more employees will be providing more services to the farmer. One employer, in particular, felt that his business firm would increase in this respect.

As illustrated in Table 7, the agricultural workers in the semi-skilled and skilled levels will be in greatest demand. It should be noted that there is no demand for unskilled workers.

Table 7. Employment opportunities in agricultural occupations other than farming.

Level	Number last year	Present	Next Year	Additions in next five years
Professional	2	2	2	3
Technical	2	2	2	1
Proprietor & manager	16	16	16	
Sales	16	16	17	6
Clerical	5	5	5	
Skilled	11	11	12	8
Semi-skilled	19	19	20	15
Unskilled				
Total	71	71	74	33

Sources Most Frequently Used in Securing New Employees
with an Agricultural Background

It is important to know what contacts are made by firms in locating and recruiting new agriculturally oriented employees. As shown in the following illustration, there was a total lack of a pre-dominant pattern which employers used in hiring new employees. Personal interviews, friends' recommendations, and persons dropping in seeking employment were the methods most frequently used by employers for obtaining new agriculturally oriented personnel.

Number of firms	19
State employment service	2
Advertisements	2
Personal interviews	4
Written applications	2
Friends' recommendations	4
Present employer's recommendation	1
College placement	1
Public high school	0
Persons dropping in	3
Other	2

It would appear from this data that the high school vocational agriculture instructor should begin to develop closer relationships with agri-businesses. The students graduating from high school vocational agriculture programs have many of the attitudes and skills required for entry employment.

Training Opportunities

Most of the firms interviewed provided some type of training for new agriculturally oriented employees, although as shown in Table 8, five firms replied that they provided no further training opportunities. Of those providing training, 13 offered informal on-the-job training.

Table 8. Training opportunities and/or facilities provided for new agriculturally oriented employees.

Number of firms	None	Formal on-the- job	Informal on-the- job	Evening classes	Specialized courses away	Corres- pondence	Other
19	5	1	13	1	1	1	2

Even though there appears to be a lack of formal training programs, a number of employers indicated that they would be interested in cooperating with high school agricultural programs.

Willingness to Hire a High School student to Work Part-time in Order to Learn about the Firm or Occupations within the Firm

The firms were asked if they would be willing to hire a high school student to work, under the supervision of a teacher, in order that he might learn more about this type of firm or occupation within it. Of the 19, 11 replied "yes" and eight replied "no".

Those who responded negatively gave the following reasons for

not cooperating with such a program:

1. Labor union regulations would prevent them from working.
2. Insurance coverage was not adequate for this age group.
3. Company policy would not permit this.
4. Not enough work to keep the person busy.
5. Not willing to spend time training the person when there was no assurance that he would become a permanent employee.

Those firms which were willing to hire students indicated that the student must be dependable and of at least average intelligence. Provided the student was willing to work and learn, the employer was willing to help train him.

Educational Requirements

As illustrated in Table 9, no employers reported that less than a high school education was sufficient for employees at any job level. These same employers recorded that high school completion was sufficient for 49 occupations. Seven jobs required a college degree and 15 required technical school or some college education.

High school agricultural programs could provide the training for most occupations in the semi-skilled and skilled levels. The high school program could also provide the agricultural background for the other occupational levels.

Table 9. Educational requirements for persons entering agricultural occupations other than farming.

Level	Eighth grade	High school	Technical schooling	Some college	College completion
Professional					2
Technical			1		1
Proprietor & manager		7	1	4	4
Sales		11	4	1	
Clerical		3	1	1	
Skilled		9	2		
Semi-skilled		19			
Unskilled					
Total		49	9	6	7

In the author's opinion, the need for training, particularly post-high school, is not reflected in these data. In the present and future, more emphasis will be placed on people acquiring more education and training particularly through the community colleges.

Age Requirements

The minimum ages at which employers would consider hiring new agriculturally oriented employees ranged from 20 to 24 years. The maximum ages they would consider ranged from 41 to 50 years. Considering the 71 job titles studied, 51.15 percent of the employers preferred to hire at the 25- to 29-year age group; 28.61 percent at the 20- to 24-year age group; and 2.24 percent at the 30- to 39-year

age group. Based on this information, it would seem feasible to counsel students to take at least two years of additional training beyond the twelfth grade level, which would probably enable them to enter the work force at a higher occupational level.

Table 10. Age requirements for persons entering agricultural occupations other than farming.

Level	Average Age		Preferred Age		
	Minimum	Maximum	20-24	25-59	30-39
Professional	20	50		2	
Technical	20	50		5	
Proprietor & manager	24	49	2	5	9
Sales	22	41	4	12	
Clerical	20	50	4	12	
Skilled	21	45	5	6	
Semi-skilled	21	45	7	12	
Unskilled					
	Total		20	42	9

Background Required

When employers were asked about backgrounds that would be desirable for persons employed in agricultural occupations other than farming, nearly all were in agreement that previous work experience, farm experience, and vocational agriculture training were highly desirable. Work experience was considered essential for 19.7 percent of the job titles; farm experience and vocational

agriculture training were reported as being essential for 4.22 per cent of the jobs. The majority of employers replied that college training agriculture was unnecessary.

Table 11. Backgrounds helpful to persons seeking employment in agricultural occupations other than farming.

Level	Work experience			Farm experience			Vocational agriculture			Col. training in agriculture		
	E	D	U	E	D	U	E	D	U	E	D	U
Professional	1	1		2			2			1		
Technical		2			2		2			1	1	
Proprietor & manager	8	8			15	1	15	1		1	2	13
Sales		16		1	15		2	14			2	14
Clerical	2	3			5			3	2			5
Skilled	1	9	1		10	1	1	9	1			11
Semi-skilled	2	15	2		17	2		19			2	17
Total	14	54	3	3	64	4	3	64	4	3	7	60

E - Essential

D - Desirable

U - Unnecessary

Activities and Duties Persons Perform

In order to help determine training needs for agriculturally oriented employees in different occupational levels, the employers were asked to describe the work of the employees with the different job titles, first in broad terms and then in more detail. Each job title was classified into occupational levels. The six broad areas

were identified as:

1. Work with people outside the firm.
2. Work with people in the firm.
3. Work with production, products, materials, or service.
4. Work with customer's equipment, tools, supplies, or instruments.
5. Work with firm's equipment, tools, supplies, or instruments.
6. Work with business problems.

The detailed results, according to levels of employment, are shown in Table 12. The highest number of persons employed work with people outside the firm; working with customer's equipment, tools, and supplies was recorded the least. Although there are differences in the activities and duties of the agricultural employees studied, the average worker was expected to be quite diversified.

The employers were asked to describe the activities of their agriculture employees in working with people outside the firm. For the most part, activities could be classified as meeting both farm people and non-farm people, diagnosing, consulting, advertising, and selling. This included 80.5 percent of their answers, indicating a definite training need in this area.

The special skills needed by employees for working with people in the firm, as indicated by the employers, were almost equally

Table 12. Activities and duties persons perform.

Level	Total number	Work people outside	Work people in firm	Production, products, materials, service	Customer's equipment, tools, supplies	Firm's equipment	Business problems
Professional	2	2	1	1			2
Technical	2	2	2	2		2	2
Proprietor & manager	16	16	16	12		7	16
Sales	16	16	2	1	1		16
Clerical	5	5	4	4		1	5
Skilled	11	7	5	6	1	10	5
Semi-skilled	19	17	1	17	5	19	8
Total	71	65	31	43	7	39	54

distributed among the following:

1. Training others.
2. Appraising work of others.
3. Supervising others.
4. Handling personnel.
5. Inducting new personnel.

The employers were asked to identify more fully the special skills needed by their employees in working with the firms' production, products, materials, or service. The skills ranked most often by the employers were:

1. Inspecting.
2. Assembling.
3. Calculating cost.
4. Testing.
5. Using technical service manuals, parts lists.

The employers were asked to check detailed skills for working with customer's equipment, tools, supplies, or instruments. As shown in Table 12, this broad activities classification was the least required area for agriculturally oriented employees. Therefore, not enough detailed skills were checked to be of any significance.

The employers were asked to identify the special skills needed by the workers in relation to working with the firms' equipment, tools, supplies, or instruments. The most highly valued skills were:

1. Maintaining.
2. Operating.
3. Adjusting.

Ranking was the same for the semi-skilled and skilled employment levels.

The employers expected workers to be proficient in working with business problems. They ranked the special skills required in the following order:

1. Keeping records.
2. Handling money.
3. Decision-making.
4. Making technical reports.
5. Reading technical reports.

The proprietor and manager level required the highest percentage of these skills. All the skills were required by the two professional jobs recorded.

Competencies Needed

Employers were in agreement as to the general need for employees in their firms to be familiar with agriculture. To determine in more specific terms those competencies needed, the author asked the employers to identify the broad subject matter areas with which the employees needed to be familiar. Table 13 shows the summarized

Table 13. Competencies needed.

Level	Total number	Agriculture mechanics	Animal science	Plant science	Farm management	General agriculture knowledge	Support competencies
Professional	2	1	2	1	1	2	2
Technical	2	2	1	2	2	2	2
Proprietors & managers	16	10	11	8	7	15	11
Sales	16	6	9	5	9	16	7
Clerical	5	2	1	1	1	5	5
Skilled	11	3	4	6		8	
Semi-skilled	19	6	3	10	1	10	6
Total	71	30	31	33	21	58	33

results concerning competencies needed for each occupational level.

General agricultural knowledge was required by 81.69 percent of all the job titles. Other areas were almost equally required in the following order:

1. Plant science.
2. Animal science.
3. Agricultural mechanics.
4. Farm management.

The employers were asked to indicate the job titles that needed supporting competencies. Thirty-three, or 46.48 percent, of the agriculturally oriented occupations needed supporting competencies in the following order:

1. Book-keeping.
2. Business law.
3. Typing.

This indicates a need for some training in the business skills for almost half the agriculture occupations explored.

The employers were asked to identify in finer detail those competencies needed within each of the broad areas of agricultural mechanics, animal science, plant science, farm management, general and agricultural knowledge.

Under agricultural mechanics, the employers identified competencies in the following areas as being most important:

1. Farm mechanics.
2. Tractors and power units.
3. General shop work.
4. Mechanics.
5. Electricity.
6. Farm buildings.

In the animal science category, an analysis of the data shows a broad distribution, especially for the proprietors and managers level of employment. Considering all the levels of employment, the employers ranked the specific competencies in the following order:

1. Dairy housing and equipment.
2. Livestock production.
3. Poultry diseases and parasites.
4. Animal nutrition.
5. Disease and parasites.

Knowledge of meat cutting was required by two workers.

All competencies were required in the plant science areas as indicated by the employers. The most frequently checked competencies were:

1. Plant diseases.
2. Processing crops.
3. Horticulture.
4. Soil structure and management.

5. Crop production.
6. Plant nutrition.
7. Water management.
8. Agricultural chemicals.
9. Insect and pest controls.

Only three competencies were of any significance in the farm management area. Employers indicated that their agriculturally oriented employees needed most often to understand the following:

1. Farm credit.
2. Economic principles.
3. Land values.

Under the general agriculture area, 81.69 percent of the surveyed job titles require general agriculture and rural life knowledge. Many employers indicated that for their employees to deal successfully with farm people a good agricultural background was a necessity. Employers also indicated that some employees needed leadership training to adequately perform their jobs.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Agriculture is more than farming. Agriculture today includes all the occupations that are related to farming. Production farmers are the nucleus of agriculture; they produce the raw materials that feed and clothe our nation. However, the modern farmer has the help of off-farm service workers--those who design, manufacture, service, and sell such things as machinery, fertilizers, chemicals, and feed, or those who provide credit, insurance, and other business and technical services. Another group of off-farm agriculture workers market, process, transport, and distribute the products of the farm. We in agriculture are faced with the problem of providing adequately prepared workers for all the agricultural occupations created by our advancing technology.

The basic purpose of this study is to identify and study the off-farm agricultural occupations in Yamhill County. Characteristics of firms employing agriculture oriented workers and characteristics of agriculture oriented occupations were sought in order to provide some guide lines for improving vocational agriculture programs in Yamhill County.

A questionnaire was sent to all firms in the county which the author thought might have jobs requiring an agricultural background. A comprehensive follow-up interview was completed, with a random sampling taken of the questionnaires returned by firms which indicated they had agriculturally-oriented occupations.

Personal interviews were conducted with 19 firms in the northern half of the county. These firms performed numerous functions, many performing more than one. Of the 154 employees in these firms, 46.10 percent were agriculturally oriented. The highest number of employees worked in the semi-skilled employment level. Based on the interviews, the firms reported that 33 additional agricultural occupation opportunities would be open to new workers in the next five years. A majority of the firms indicated that they would cooperate with high schools in agricultural work experience programs. The study revealed that a high school education was adequate for 69 percent of the jobs. Most employers indicated that farm experience and vocational agriculture training was desirable. The employees performed various functions, and most employers agreed that a general agricultural knowledge was important for their employees.

Conclusions

1. Off-farm opportunities are sufficient in number to provide

employment for students of vocational agriculture who do not enter agricultural production occupations.

2. Business firms employing persons for off-farm occupations have no definite method for recruiting new employees for agricultural occupations.
3. Most off-farm job opportunities are in the semi-skilled occupational level, followed closely by sales, proprietors and managers, and skilled levels. No off-farm agricultural occupations exist in the unskilled level of employment.
4. The majority of the off-farm occupations require only high school completion, but further training is desirable.
5. Over one-half of the employers are willing to hire high school students on a part-time basis for work experience training programs in cooperation with school districts, to make such a program a part of the high school or post-high school agricultural program.
6. The activities performed by off-farm occupation employees are varied; they deal equally with farm and non-farm persons.
7. A general knowledge of agriculture and rural life is the most-needed requirement for off-farm agricultural workers.
8. All areas of agricultural competencies (plant science,

animal science, agriculture mechanics, and farm management) are required for off-farm agricultural occupations.

9. Supporting competencies in bookkeeping, business law and typing are required for almost one half of the off-farm agricultural occupations.

Recommendations

On the basis of data and findings of the study, the following recommendations seem appropriate:

1. Further studies should be conducted in Yamhill County and the state to identify job titles, occupational levels, and competencies needed, especially in those firms definitely considered agriculturally oriented, such as feed processors and dealers, seed companies, farm machinery dealers, fertilizer companies, food processors, recreational establishments, greenhouse and nursery businesses, farm insurance, real estate, and others.
2. Production agriculture should continue to be the core of instruction for high school vocational agriculture programs.
3. Current programs of vocational agriculture should be enriched and extended to serve off-farm occupations.
4. The Future Farmers of America Organization should continue to be a strong and integral part of the vocational

agriculture programs.

5. The feasibility of developing an area vocational training school within Yamhill County should be studied.
6. The schools should provide occupational information to all high school students, informing them of the opportunities in off-farm agricultural occupations.
7. The vocational agriculture program should cooperate with other vocational education programs to acquaint students with occupational opportunities available and to prepare them for entering these occupations.

BIBLIOGRAPHY

1. American Association of Teacher Educators in Agriculture. Agriculture is more than farming. . . a look at opportunities and educational needs. Alexandria, Virginia, The Future Farmers' Supply Service, 1960. 20 p.
2. American Liberty Press. The sextant series for exploring your future in agriculture. Milwaukee, Wisconsin, 1962. 89 p.
3. American Vocational Association. Definition of terms in vocational and practical arts education. Washington, 1954. 28 p.
4. Applegarth, Boyd, and Lawrence D. Fish. A study of the relationship between employment opportunities and vocational educational programs in Columbia County, Oregon. Eugene, University of Oregon, July, 1965. 144 p.
5. Arnold, Walter. An all-age, all-job program. American Education 1(1):8-9. 1965.
6. Arnold, Walter M. New directions in vocational education. American Vocational Journal 39:8-14. October, 1964.
7. Bailey, Joseph K. Non-farm agricultural employment in West Virginia with implications for vocational education programs. Charleston, West Virginia Division of Vocation, Technical, and Adult Education, January, 1965. 58 p.
8. Basic Systems, Inc., New York. A demographic analysis of the state of Oregon. Prepared for the Governor's Coordination Committee on the Economic Opportunity Act. Salem, Oregon, 1965. 217 p.
9. Berg, Gordon L. (ed.) Agri-business--a sleeping giant! Farm Technology 20(9):11. 1964.
10. Binkley, Harold. Course of study in non-farm agricultural occupations. Lexington, University of Kentucky. August, 1965. 200 p.

11. Binkley, Harold. Initiating programs in non-farm agricultural occupations. Lexington, University of Kentucky. October, 1965. 45 p.
12. Brown, Bert L. Training needs of workers in business associated with agriculture. Olympia, Washington State Board for Vocational Education, 1959. 25 p.
13. Brum, H. D. Employment opportunities in agriculture for Ohio. (Excerpts from the study, "Employment opportunities and needed competencies for workers in Ohio") Washington, Ohio Department of Education in cooperation with the Ohio State University and Agencies of the State and Federal Government, n. d. 11 p.
14. Burchinal, Lee G. Differences in educational and occupational aspirations of farm, small town, and city boys. Rural Sociology 26:120. June, 1961.
15. Burchinal, Lee G. Farm vs. non-farm youth in the urban labor market. Extension Service Review. Washington, U. S. Department of Agriculture. August, 1963. 144 p.
16. Cushman, Harold R., Virgil E. Christensen, and Garry R. Rice. A study of off-farm agricultural occupations in New York State. Ithaca, New York State College of Agriculture, January, 1965. 95 p.
17. Dam, S. C. Training needs in farm machinery sales and services. Proceedings of the 44th Annual State-called Conference on Agriculture Education. Milwaukie, Oregon, June, 1965. 30 p. (Processed.)
18. Gallaher, Art. Plainville, 15 years later. New York, Columbia University Press, 1961. 301 p.
19. Griffin, Warren L. The nature of agricultural occupations other than farming in Saline County, Missouri. Columbia, University of Missouri, 1964. 21 p.
20. Hood River County School District no. 12. Hood River (Oregon) County school vocational education study program. Hood River, August, 1965. 71 p.

21. Hoover, Norman L. Handbook of agricultural occupations. Danville, Interstate, 1963. 254 p.
22. Johnson, John R. Agricultural occupations in Clatsop County. Master's thesis. Corvallis, Oregon State University, 1965. 68 numb. leaves.
23. Judge, Homer V. Employment opportunities and needed competencies in off-farm agricultural occupations in Massachusetts. Boston, Massachusetts Department of Education, 1965. 47 p.
24. Kansas State University. A study of non-farm agricultural occupations in Kansas. Study made in cooperation with the Kansas State Board for Vocational Education, n. d. 28 p. (Processed.)
25. Linson, Marvin G., and Harold Anderson. Handbook for developing and operating agricultural occupations programs. Denver, Colorado State Board for Vocational Education and Colorado State University, 1964. 114 p.
26. Metzler, William H. Change and employment. In Power to Produce: U. S. D. A. Yearbook of Agriculture. Washington, 1960. p. 385-389.
27. Michigan Agricultural Conference and Opportunities for Youth Committee. A survey of agricultural occupations in Michigan. 1963. (Mimeographed.)
28. Michigan Agricultural Conference and the Vocational Agriculture Service of the Michigan Department of Public Instruction. (Summary and conclusions from the) Final report of a survey of agricultural occupations in Michigan. February, 1965. 6 p.
29. Nerden, Joseph T. Vocational education for a dynamic economy. Bulletin of the National Association of Secondary School Principals 49(301):8-14. May, 1965.
30. Ohio State University. Agricultural Education Branch. Reports of research coordination conference on agricultural occupations. Columbus, 1963. 92 p.
31. Ohio State University. Agricultural Education Branch. Report of second research coordination conference on agricultural occupations. Columbus, 1964. 99 p.

32. Ohio State University. Center for Research and Leadership Development in Vocational and Technical Education. Policy and administrative decisions needed when introducing vocational and technical education in agriculture for off-farm occupations. Columbus, August, 1965. 32 numb. leaves.
33. Ohio State University. Center for Research and Leadership Development in Vocational and Technical Education. Vocational and technical education in agriculture for off-farm occupations. Columbus, August, 1965. 49 numb. leaves.
34. Oregon. Department of Education. List of 100 occupations in which the greatest number of men and the greatest number of women are employed in Oregon. Salem, 1964.
35. Oregon. Department of Employment. Oregon labor force projections, 1964-66 and 1964-69. Salem, 1964.
36. Oregon. Department of Employment. The manpower resource of the Portland metropolitan area. Salem, Metropolitan Area Manpower Council, 1964.
37. Oregon. Department of Planning and Development. 1964 directory of Oregon manufacturers and buyers' guide. Portland, 1964. 306 p.
38. Oregon. Department of Planning and Development. Summary report, Oregon comprehensive statewide planning study. Salem, March, 1964.
39. Parnell, Dale. Job cluster curriculum, a blueprint for technical-vocational education in Lane County, Oregon. A cooperative research study of technical-vocational education in public schools of Lane County, Oregon. Eugene, Lane County Intermediate District Board of Education, 1965. 65 p.
40. Pennsylvania State University. Department of Agricultural Education. Technical education needs of persons engaged in agricultural occupations. University Park, January, 1965. 31 p. (Teacher Education Series, Vol. 6, no. 1)
41. Phipps, Lloyd J., et al. Technical education in and for rural areas, Preliminary report no. 1. Technicians and other workers who need technical knowledge. Urbana, University of Illinois Press, June, 1964. 74 p.

42. Prickett, Loy, and Darrell Langevin. Jackson county schools, vocational education research project, a supplement. Medford, Oregon, Jackson County Intermediate Education District, 1965. 65 p.
43. Robinson, Richard T. Factors related to the occupations of Iowa farm male high school graduates. Published jointly by Iowa State University of Science and Technology, Ames; Vocational Agriculture Section, Division of Vocational Education, State Department of Public Instruction, Des Moines. 1964. 22 p.
44. Sewell, William H. The educational and occupational perspectives of rural youth. Unpublished document prepared for the National Conference on Problems of Rural Youth. New York, September 22-25, 1963.
45. Skeans, Charles N. A post high school agricultural educational program for Jefferson County. Master's thesis. Corvallis, Oregon State University, 1964. 57 numb. leaves.
46. Tom, Frederick K. T., Charles W. Hill, and Kingsley L. Greene. Employment opportunities in certain occupations related to farming in the Syracuse economic area, New York. Ithaca, Cornell University, 1961. 27 p.
47. U. S. Congress. Senate. Committee on Labor and Public Welfare. Selected education acts of 1963. Washington, U. S. Government Printing Office, 1963. p. 75-76.
48. U. S. Department of Health, Education, and Welfare. Administration of vocational education. Washington, 1958. 27 p. (Vocational Education Bulletin no. 1, General Series no. 1)
49. U. S. Department of Health, Education, and Welfare. Office of Education. Education for a changing world of work. Report of the panel of consultants on vocational education. Washington, 1961. 296 p.
50. U. S. Department of Labor. Occupational outlook handbook, Washington, 1964. 792 p. (Bulletin no. 1375)
51. Venn, Grant. Man, education, and work. Washington, American Council on Education, 1964. 184 p.

52. Warmbrod, Robert J. Workers employed and employment opportunities for workers needing a knowledge of agriculture. Urbana, University of Illinois, June, 1964. 28 p.
53. Warren, Roland L. Studying your community. New York, Russell Sage Foundation, 1955. 385 p.

APPENDICES

APPENDIX I

Job Titles According to Levels of Firms Interviewed

<u>Level</u>	<u>Total Number</u>	<u>Number</u>	<u>Job title</u>
<u>Professional</u>	2	1	Veterinarian
		1	Agricultural representative for bank
<u>Technical</u>	2	1	Fertilizer technician
		1	Agriculture chemical technician
<u>Proprietors & managers</u>	16	1	Nut and fruit processing plant manager
		1	Supermarket produce manager
		2	Grain company owner-manager
		1	Sheet metal company owner-manager
		1	Poultry processing company manager
		1	Greenhouse owner-manager
		1	Oil company owner-manager
		1	Supply cooperative manager
		1	Supply cooperative assistant manager
		1	Bank manager
		1	Bank assistant manager
		1	Hardware store owner-manager
		1	Grocery store owner-manager
		1	Florist owner-manager
<u>Sales</u>	16	1	Nut and fruit broker
		8	Real estate salesman
		1	Insurance salesman
		1	Farm supply salesman
		2	Farm supply salesclerk
		2	Hardware retail salesclerk
		1	Grocery store sales

<u>Level</u>	<u>Total Number</u>	<u>Number</u>	<u>Job title</u>
<u>Skilled</u>	11	6	Foreman
		2	Meat cutter
		1	Feed mixer
		1	Transplanter
		1	Pump repairman
<u>Semi-skilled</u>	19	3	Delivery man
		2	Fertilizer equipment installator
		1	Irrigationist
		3	Service station attendant
		5	General worker
		1	Meat cutter
		4	Receiving man

APPENDIX II
ACTIVITIES AND DUTIES OF EMPLOYEES

Work With People Outside the Firm

Level	Number	Buying	Selling	Advising, Consulting, and Diagnosing	Meeting Farm People	Non-farm People	Estimating Cost
Professional	2	1	1	2	2	2	1
Technical	2	2	2	2	2	2	2
Proprietors & Managers	16	6	7	13	14	14	7
Sales	16	3	16	9	16	16	16
Clerical	5	2	4	2	5	5	1
Skilled	11	1	6	4	1	1	1
Semi-skilled	<u>19</u>	<u>1</u>	<u>9</u>	<u>8</u>	<u>13</u>	<u>12</u>	<u>2</u>
Total	71	16	45	40	53	52	30

Work With People in the Firm

Level	Number	Handling Personnel	Supervising Others	Appraising Work of Others	Training Others	Inducting New Personnel
Professional	2	1	1	1	1	1
Technical	2	2	2	2	2	1
Proprietors & Managers	16	16	16	16	16	12
Sales	16		2	1	1	1
Clerical	5	2	1		3	2
Skilled	11	4	4	4	4	4
Semi-skilled	<u>19</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>—</u>
Total	71	26	27	25	28	21

Working With Production Materials

Number	No.	Assembling	Mixing	Inspecting	Testing	Calculating Cost	Developing Techniques	Planning Production for Service	Sketching and Drawing	Designing	Making and/or Building	Using Technical and Service Manuals, Parts Lists
Professional	2			1	1							
Technical	2	2	1	2	1	2		2				2
Proprietors & Managers	16	11	5	10	10	12	12	11	3	4	2	4
Sales	16	1			1	1						1
Clerical	5			3	3	3	1	1	1	1	2	3
Skilled	11	5	2	5	2							
Semi-skilled	<u>19</u>	<u>8</u>	<u>5</u>	<u>8</u>	<u>—</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>2</u>	<u>—</u>	<u>7</u>
Total	71	27	13	30	18	19	13	14	5	7	4	17

Working With Customer's Equipment

Levels	Number	Constructing the Above Items	Designing	Repairing	Maintaining	Operating	Assembling	Remodeling	Adjusting	Installing	Calibrating	Selecting	Inspecting, Testing, Trouble Shooting
Professional	2												
Technical	2												
Proprietors & Managers	16												
Sales	16	1		1	1	1	1	1	1	1	1	1	1
Clerical	5												
Skilled	11			1	1		1	1	1	1	1	1	1
Semi-skilled	<u>19</u>	—	—	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	—	<u>1</u>	<u>2</u>	—
Total	71	1		3	4	2	3	3	3	2	3	4	2

Working With Firm's Equipment, Tools, Supplies or Instruments

Levels	Number	Constructing the Above Items	Designing	Repairing	Maintaining	Operating	Assembling	Remodeling	Adjusting	Installing	Calibrating	Selecting	Inspecting, Testing, Trouble Shooting
Professional	2												
Technical	2	1	1	1	1	2	2	1	2	2	1	2	2
Proprietors & Managers	16	1	3	3	5	5	3	2	6	3	4	4	6
Sales	16												
Clerical	5				1	1							
Skilled	11	4	4	6	9	9	5	4	9	5	5	5	5
Semi-skilled	<u>19</u>	<u>2</u>	<u>—</u>	<u>7</u>	<u>18</u>	<u>13</u>	<u>6</u>	<u>2</u>	<u>10</u>	<u>2</u>	<u>2</u>	<u>—</u>	<u>5</u>
Total	71	8	8	17	34	30	16	9	27	12	12	11	18

Working With Business Problems

Levels	Number	Policy Making	Planning	Promoting	Keeping Records and Accounts	Filing	Inventory	Handling Money	Making Technical Reports	Reading Technical Reports	Writing Articles, Copy, etc.	Making Speeches	Decision Making
Professional	2	2	2	2	2	2	2	2	2	2	2	2	2
Technical	2		2	2	1	1	2	1	2	2	2	2	1
Proprietors & Managers	16	13	14	15	15	15	16	13	12	13	10	7	13
Sales	16	3	4	4	16	4	3	7	14	3			15
Clerical	5	1	1	2	5	3	3	5	3	5	2	1	3
Skilled	11			1			2	1		3			
Semi-skilled	<u>19</u>	—	—	—	<u>8</u>	—	—	<u>6</u>	—	<u>4</u>	—	—	<u>1</u>
Total	71	19	23	26	47	25	28	35	33	32	16	12	35

APPENDIX III
COMPETENCIES NEEDED

Competencies Needed in Agriculture Mechanics

Levels	Number	Farm Mechanization	Farm Buildings	Farm Conveniences	Tractors and Other Power Units	Electricity	Welding	Plumbing	Concrete	Carpentry	Shop Work	Mechanics	Metallurgy	Heat	Hydraulics	Other
Professional	2	1	1													
Technical	2	2	1	1	2	1	1	1			1	1				
Proprietors & Managers	16	7	3	2	5	2	1	2	2	2	4	3	1	2	1	
Sales	16	7	3	4	3	5	2	4		4	2	2			2	
Clerical	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Skilled	11					2	2			2	1			1		
Semi-skilled	<u>19</u>	<u>5</u>	<u>2</u>	<u>2</u>	<u>7</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>5</u>	<u>5</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>6</u>
Total	71	24	12	11	19	13	10	10	5	9	16	14	3	4	6	6

Competencies Needed in Animal Science

Levels	Number	Livestock Production	Animal Nutrition	Selecting and Grading	Diseases and Parasites	Animal Breeding	Livestock Marketing	Processing Livestock Products	Marketing Livestock Products	Livestock Housing and Equipment	Dairying	Dairy Housing and Equipment	Marketing Dairy Products	Processing Dairy Products	Artificial Insemination	Poultry Production	Poultry Housing and Equipment	Marketing Poultry Products	Processing Poultry Products	Poultry Diseases and Parasites	Other
Professional	2	3	1		1	1	1					1			1	1	1			1	
Technical	2				1						1	1									
Proprietors & Mangers	16	9	6	5	6	5	7	5	4	4	4	8	4	4	4	5	4	4	6	5	
Sales	16	1	1									7								4	
Clerical	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Skilled	11	3	2	2	2	3	3	4	2	2	2	2	2	2	2	3	2	2	3	2	
Semi-skilled	<u>19</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>1</u>
Total	71	18	13	9	13	11	13	11	9	9	10	22	9	9	10	12	10	9	12	15	1

Competencies Needed in Plant Science

Levels	Number	Social Structure and Management	Water Management	Crop Production	Processing Crop	Plant Diseases	Agricultural Chemicals	Insect and Pest Control	Selecting and Grading	Plant Breeding	Production Equipment (maintenance, use, etc.)	Plant Nutrition	Cropland Management	Crop Harvesting, Storing and Drying	Crop Marketing	Horticulture	Floriculture	Forestry	Other
Professional																			
Technical	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Proprietors & Managers	16	8	8	8	7	8	8	8	6	6	7	8	8	5	6	6	6	5	
Sales	16	2	2	3	1	1	2	2	1			1				1			
Clerical	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Skilled	11	1	1	1	1	5	1	1	1	1	1	3	1	1	1	5	1	1	
Semi-skilled	<u>19</u>	<u>6</u>	<u>6</u>	<u>6</u>	<u>10</u>	<u>9</u>	<u>5</u>	<u>5</u>	<u>4</u>	<u>4</u>	<u>5</u>	<u>5</u>	<u>4</u>	<u>4</u>	<u>2</u>	<u>7</u>	<u>3</u>	<u>2</u>	
Total	71	21	20	21	23	26	19	19	15	14	16	20	16	14	13	23	13	11	

Competencies Needed in Farm Management

Levels	No.	Economic Principles	Farm Credit and Capital	Farm Insurance	Farm Taxes	Farm Layout	Farm Labor	Farm Law	Other (Land Values)
Professional	2	1	1						1
Technical	2	2	2						
Proprietors & Managers	16	5	7			3			2
Sales	16		2	3					6
Clerical	5	1							
Skilled	11								
Semi-skilled	<u>19</u>	<u>1</u>	<u>1</u>	—	—	<u>1</u>	—	—	—
Total	71	10	13	3		4			9

Competencies Needed in General Agriculture Areas

Levels	No.	General Agriculture and Rural Life Knowledge	Research Procedures	Rural Recreation	Leadership Training
Professional	2	2			2
Technical	2	2			1
Proprietors & Managers	16	15			4
Sales	16	16			
Clerical	5	5			
Skilled	11				
Semi-skilled	<u>19</u>	<u>10</u>	—	—	—
Total	71	58			6

Supporting Competencies Needed

Levels	No.	Building Trades	Typing	Business Law	Bookkeeping	Mechanical Drafting and Design	Electronics
Professional	2				2		
Technical	2		1	2	2		
Proprietors & Managers	16	3	3	5	11	2	
Sales	16			1	7		
Clerical	5		5	5	5		
Skilled	11						
Semi-skilled	<u>19</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>5</u>	<u>1</u>	<u>—</u>
Total	71	4	10	14	31	3	

APPENDIX IV

FIRMS IN YAMHILL COUNTY WHO RETURNED MAILED QUESTIONNAIRE

(See Appendix V, Form I, page 76 for key to this listing)

A	C	D	E	F	G
Arrow Drilling & Supply Co. --Newberg	2	1, 6	1	2	2
Amity High School--Amity	10	6	1	14	3
Amity Food Market--Amity	1	1	1	2	2
Alderman Farms--Dayton	2	10	1	400	6
Albers Milling Co. --McMinnville	2	2, 5, 7	1	7	5
Amity Coop. Warehouse--Amity	4	1, 2, 3 4, 6, 7	1	7	3
Amity Hardware & Implement--Amity	1	1, 6	1	6	6
Animal Research Co. --McMinnville	6	2	2	2	0
Auto Electric--McMinnville	3	2	2	6	0
A. & W. Grocery--McMinnville	2	1	1	8	4
Archway Cookie Co. --McMinnville	6	2, 5	1	54	4
Burch Concrete & Supply Co. --McMinnville	2	1, 5	2	15	0
Buchanan Cellars Milling Co. --McMinnville	3	1, 4, 5, 7	1	25	12
Berkes Planing Mill--Sheridan	1	2, 5	2	20	0
Bernards Madsen Grain Co. --Carlton	1	1, 2, 3, 4 5, 6, 7	1	7	7
Burlingham Meeker Co. --Amity	3	1, 2, 4, 6	1	14	12
Bob & Don's Plumbing & Heating--McMinnville	6	1, 6, 9	2	7	0
Blossom Dell Greenhouse--McMinnville	2	1	1	3	3
Bargain City Market--Newberg	3	1	1	5	1
Bergreen's Market--McMinnville	1	1	2	12	0
Belveal's Ice Cream--McMinnville	3	1, 5	1	5	5
Bunn's Insurance & Real Estate--McMinnville	1	1	2	10	0
Boardman D. G. --McMinnville	2	1, 2	1	3	1
Bob's Auto Co. --Newberg	4	1	2	19	0
Bill's Gar age & Service Station--Willamina	1	6	2	1	0
Coast to Coast Stores--McMinnville	1	1	2	3	0
Compton G. L. --McMinnville	1	3, 4	2	200	0
Carlton Packing Co. --Carlton	2	1, 2, 4, 5, 6	2	6	6
Chehalem Valley Mills--Newberg	3	1, 3, 5, 6	1	5	2
City Sanitary Service--McMinnville	3	6	2	8	0
Carlton Hardware & Paint--Carlton	1	2	1	2	2
Coast to Coast Stores--Newberg	2	1	1	5	5
Chamberlin Agency--Newberg	10	6	1	3	3
Carlton Frozen Food Lockers--Carlton	1	4	1	3	0
Copeland Lumber Yards--Sheridan	4	1, 3, 9	1	2	2
Copeland Lumber Yards--McMinnville	4	1	2	4	0
Carlton Rose Nurseries--Carlton	1	2	1	20	20
Compton Nut Co. --Dundee	2	2, 3, 4	1	25	2
Clark's Oil Co. --Newberg	1	1	1	1	1
Carlson A. P. Realty--McMinnville	1	3, 9, 10	1	3	1
Christensen Realty--McMinnville	1	1, 6	1	2	2
Davison's Auto Parts--McMinnville	2	1, 2, 6	1	18	1
Daniels Feed & Farm Supply--Sheridan	2	1	1	2	2
Dave's Grocery--Dayton	1	1	2	3	0

APPENDIX IV(continued)

A	C	D	E	F	G
Dean's Market Inc.--Newberg	4	1	1	21	1
Delmar Market--Carlton	3	1	1	2	2
Dairy Queen Drive In--McMinnville	1	1	2	6	0
Dolash, Wm. Real Estate--Newberg	1	1	1	3	3
Ebner's Electric Motor Service--McMinnville	1	6	2	1	0
Edwards School--Newberg	7	6, 10	2	15	12
Ellingsworth Super Mkt. --Willamina	3	1	2	13	0
First National Bank of McMinnville--McMinnville	10	10	1	22	5
First National Bank of Oregon--Carlton	6	6	1	3	2
Field Emission Corp. --McMinnville	5	5	2	142	0
Farmer's Co-op Creamery--McMinnville	4	1, 4	1	100	100
Farmer's Feed Store--Newberg	1	1	1	2	2
Farmer's Co-op Oil--McMinnville	4	1, 6	1	18	15
Fancher's Paint & Hardware--Sheridan	1	1	1	1	1
1st Federal Savings & Loan Assoc. --McMinnville	4	10	1	6	2
Fredricks Motor Co. --McMinnville	6	1, 8	1	32	1
Garrigus Builders Supply Co. --McMinnville	4	1	2	3	0
Gibbs Electric Co. --Newberg	2	1, 6	2	4	0
Gainer's Cash Grocery & Mkt. --Newberg	1	1	1	4	4
Garris, Eldon--McMinnville	1	9, 10	2	14	0
Garrabrant Lumber Co. --Willamina	10	5	2	50	0
Gills Shop--McMinnville	1	5, 6	2	2	0
Gunness & Peterson Dec. Center--McMinnville	3	1	2	12	0
Gearin Realty--McMinnville	6	6	1	2	2
Hall Sheet Metal Co. --Newberg	2	5	1	2	2
Hagan-Hamilton Insurance Agency--McMinnville	3	6	1	8	8
Harrison Insurance Agency--Sheridan	1	6	1	2	2
Hopp, Ray, Insurance Agency--Newberg	1	6, 10	1	2	1
Hurford, Robert Insurance--Newberg	1	6	1	2	2
Hudson House Inc. --Dundee	4	4	1	10	10
Houser Lumber Co. --Newberg	4	1	2	4	0
Hostetler Realty--Sheridan	1	1, 6	1	1	1
Huntley's Sport Shop--Sheridan	1	1	1	1	1
Haag, A. C. & Co. --McMinnville	4	1, 6	1	7	5
Howard Quilliam--McMinnville	1	9	1	6	6
Ivie Hardware--Sheridan	1	1	2	4	0
Johnson, R. B. --McMinnville	2	5, 9	2	8	0
Johnson Furniture--Newberg	3	1	1	4	3
J-K Asphalt Paving--Newberg	1	9	2	3	0
Kenmar Gardens & Yarn Shop--McMinnville	1	1, 3, 6	1	1	1
Kizer Sheet Metal Co. --McMinnville	2	1, 5, 6	2	6	0
K & J Sports--Newberg	1	1	2	2	0
Kimball, Dr. Richard--Newberg	1	1, 6	1	1	1
Krohns Appliance Center--Newberg	1	1, 6	2	3	0
Lincoln Bank of Taft--Willamina	4	10	1	6	1
Laughlin, C.F. Logging Co. --Yamhill	1	6, 9	1	50	50
Lorenzens Greenhouse--Amity	3	1, 2	1	4	1
McMinnville Auction Yard--McMinnville	3	1	1	13	8

APPENDIX IV (continued)

A	C	D	E	F	G
McMinnville Auto Wreckers & Towing--McM.	3	5	2	4	0
McMinnville Bottling Co.--McMinnville	2	2, 5	2	8	0
McMinnville Electric Co.--McMinnville	2	6, 10	2	3	0
Morris, Richard--McMinnville	1	6	2	4	0
Mione Packing Co.--Newberg	9	4	1	7	1
Mac's Feed & Garden Supply--McMinnville	1	1	1	2	2
McMinnville Tire Service--McMinnville	3	1, 5	2	4	0
Mayfair Market--McMinnville	4	1	2	25	0
Mattox Insurance Agency--Dayton	1	1, 3	1	4	2
McCready, W.J. Lumber Co.--Newberg	4	1	2		
Mt. Hood Silo Co.--McMinnville	1	1, 5, 9	1	5	5
Newberg Auto Parts--Newberg	1	1, 2	1	3	3
Nice Electric--Willamina	2	1, 6	1	8	1
Newberg Hardware--Newberg	1	1	2	4	0
Newberg Realty & Insurance Agency--Newberg	1	10	1	1	1
Northwest Nut Growers--Newberg	4	4	1	90	10
Newberg Auto Freight Inc.--Newberg	10	8	1	6	6
Nor-West Fabrics Inc.--McMinnville	4	5	2	65	0
Nu Veneer Plastics Inc.--McMinnville	3	5	2	8	0
News Register Pub. Co.--McMinnville	3	6	1	40	8
Oregon Mutual Insurance Co.--McMinnville	10	10	2	200	0
Oregon Litho Print Inc.--McMinnville	8	1, 6	2	10	0
Oregon Hotel--McMinnville	2	6, 8, 10	2	6	0
Portland General Electric Co.--Newberg	4	10	1	80	1
Pete Manson Florist--Newberg	1	1	2	1	0
Poseyland--McMinnville	2	1	1	2	2
Pacific Custom Coaters Testing Co. Lab--Amity	6	2	2	14	0
Portland Glove Co.--Carlton	3	5	2	70	0
Pioneer Realty Inc.--McMinnville	3	6, 10	1	4	3
Paddon A. E.--Newberg	1	6	1	1	1
Richfield Products--McMinnville	1	2	1	3	3
Rex Mobile Home--McMinnville	4	5	2	150	0
Risberg Truck Line--McMinnville	7	8	2	6	0
Robison Veterinary Clinic--McMinnville	6	6	1	2	1
Smith Auto Parts Co.--McMinnville	4	2	1	3	3
Squires General Contractor--McMinnville	1	9	2	25	0
Sunshine Dairy--McMinnville	3	1, 2, 3	1	10	10
Stuck Electric--Sheridan	3	6, 9, 10	1	3	3
Safeway--McMinnville	4	1	1	16	1
Safeway--Newberg	4	1	1	12	4
Stan's Market--McMinnville	2	1	2	1	0
S & E Hardware--McMinnville	1	1	2	2	0
Standard Insurance Co.--McMinnville	10	10	1	1	1
State Farm Insurance--McMinnville	1	6	1	1	1
State Farm Insurance--Newberg	1	6	1	2	2
Sam's Market--Newberg	1	1	2	1	1
Shell Oil Co.--Sheridan	1	2, 6	1	2	2
Standard Oil Dist.--Sheridan	10	2	1	3	0

APPENDIX IV (continued)

A	C	D	E	F	G
Shrocks Home Appliance & Paint --Newberg	1	1, 6	1	2	2
Sartron Inc. --Newberg	3	5	2	30	0
Stanley & Co. Real Estate--Newberg	1	6	1	6	6
Strout Realty--Sheridan	1	6	1	8	8
Shirley's--Lafayette	1	1	1	5	5
Spaulding Pulp & Paper--Newberg	4	5	2	150	0
Springbrook Packing Co. --Springbrook	4	4	1	185	9
Trullinger & Eustice Inc. --Yamhill	1	1	1	6	6
Taylor's Hardware Co. --McMinnville	6	1	1	5	2
Talley Insurance Agency--McMinnville	2	6	1	2	2
Tidewater Oil Co. --Newberg	2	2	1	3	2
Tiderington Ref. Inc. --McMinnville	3	6	2	4	0
Tuggle Chev. Co. --Sheridan	1	1	2	6	0
U. S. National Bank of Portland--Amity	4	6	1	4	4
U. S. National Bank of Portland--McMinnville	10	6	1	27	3
U. S. National Bank of Portland--Newberg	4	6	1	16	2
U. S. National Bank of Portland--Sheridan	4	6	1	8	2
Union Oil Co. --McMinnville	1	2	1	4	4
U. S. Plywood Corp. --Willamina	4	5	2	220	0
Union Oil Dist. --Willamina	6	1	1	3	1
United Farm Agency--McMinnville	6	6	1	2	2
Vinton & Larsen Inc. --McMinnville	1	1, 2	2	18	0
Voll Realty Co. --McMinnville	1	6	1	4	4
Valley Maid--Sheridan	1	2	2	2	0
Van Loo's Market--Yamhill	1	1	2	6	0
Wayne's Service Shop--Dayton	1	6	1	1	1
Witycombe's Wood Products--McMinnville	1	5	2	2	0
Western Finance Co. --Newberg	1	6	1	2	1
Welkona Turkeys Inc. --McMinnville	4	10	1		1
Western Auto Store--Newberg	1	1, 6	1	4	4
Willamina Insurance Agency--Willamina	3	6	1	2	0
Willamette Valley Lbr. Co. --Carlton	4	10	2	2	0
Willamina Lumber Co. --Willamina	4	2, 5	1	73	5
White Realty--McMinnville	1	6	1	3	1
West Coast Telephone Co. --McMinnville	10	6	1	56	0
Western Water Conditioning Co. --Newberg	1	1	2	2	0
Willamina Machine Shop--Willamina	3	1, 5	2	1	0
Yackey, Joe, Agency--Newberg	1	10	1	4	3
Yamhill-Carlton School Dist. --Yamhill	10	6	1	21	6
Zimmerman's Grain Co., Inc. --Yamhill	1	1, 2, 3, 4, 5	1	5	5

APPENDIX V

FORM I

AGRICULTURAL OCCUPATIONAL SURVEY
YAMHILL COUNTY

A. Name of Firm _____

Address _____

B. Name of Person Reporting _____

C. Position of Person Reporting

- | | |
|--|--|
| <input type="checkbox"/> 1. Owner ✓ | <input type="checkbox"/> 6. Office manager |
| <input type="checkbox"/> 2. Owner manager | <input type="checkbox"/> 7. Supervisor |
| <input type="checkbox"/> 3. Co-owner manager | <input type="checkbox"/> 8. Sales manager |
| <input type="checkbox"/> 4. Manager hired | <input type="checkbox"/> 9. Foreman _____ |
| <input type="checkbox"/> 5. Personnel director | <input type="checkbox"/> 10. Other _____ |

D. Main Function of Firm

- | | |
|---|--|
| <input type="checkbox"/> 1. Retailing ✓ | <input type="checkbox"/> 6. Service |
| <input type="checkbox"/> 2. Wholesaling | <input type="checkbox"/> 7. Warehouse |
| <input type="checkbox"/> 3. Purchasing | <input type="checkbox"/> 8. Transportation |
| <input type="checkbox"/> 4. Processing | <input type="checkbox"/> 9. Construction |
| <input type="checkbox"/> 5. Manufacturing | <input type="checkbox"/> 10. Other |

- E. ☐ 1. Yes Is a knowledge of agriculture beneficial
in the performance of any of the jobs
☐ 2. No ✓ within this firm?

F. 3 Total number of people working for this firm.G. 0 Number of employees that need an agricultural
background or are agriculturally oriented.

FORM B

OFF-FARM AGRICULTURAL OCCUPATIONAL SURVEY
YAMHILL COUNTY, OREGON

Firm _____

- A. ☐ Full time ☐ Ag. Oriented B. ☐ Part time ☐ Ag. Oriented
☐ Male ☐ Male
☐ Female ☐ Female

- C. Source most frequently used in securing new agriculturally oriented employees:
- | | |
|--|--|
| <input type="checkbox"/> 1. State employment service | <input type="checkbox"/> 6. Present employee's recommendations |
| <input type="checkbox"/> 2. Advertisements | <input type="checkbox"/> 7. College placement bureaus |
| <input type="checkbox"/> 3. Personal interview | <input type="checkbox"/> 8. Public high schools |
| <input type="checkbox"/> 4. Written application | <input type="checkbox"/> 9. Persons dropping in, seeking jobs |
| <input type="checkbox"/> 5. Friend's recommendations | <input type="checkbox"/> 10. Other |

- D. Training opportunities and/or facilities provided for agriculturally oriented employees:
- | | |
|--|---|
| <input type="checkbox"/> 1. None | <input type="checkbox"/> 5. Part time day classes |
| <input type="checkbox"/> 2. Formal on-the-job training | <input type="checkbox"/> 6. Specialized course away from firm |
| <input type="checkbox"/> 3. Informal on-the-job training | <input type="checkbox"/> 7. Correspondence courses |
| <input type="checkbox"/> 4. Evening classes | <input type="checkbox"/> 8. Other _____ |

- E. What phase of this firm do you anticipate will develop most in the future?

- F. () 1. Yes Does this firm anticipate, in the near future, a need for persons with an
() 2. No agricultural background? _____ How many?
- () 1. Yes Would this firm be willing to hire a high school student to work after school,
() 2. No on Saturdays and/or during vacation periods, who is under the supervision
of a school instructor, in order that he might learn more about this type of
firm, or occupations within this firm?

Comments _____

- H. Present job titles and number of workers in each job.

<u>Level</u>	<u>No.</u>	<u>Job Title</u>	<u>Level</u>	<u>No.</u>	<u>Job Title</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

- I. New job titles agriculturally oriented, that are foreseen in firm in next 5 years.

<u>Level</u>	<u>No.</u>	<u>Job Title</u>	<u>Level</u>	<u>No.</u>	<u>Job Title</u>
_____	_____	_____	_____	_____	_____

- J. Level Code: 1. Professional 5. Clerical
2. Technical 6. Skilled
3. Proprietor & Managers 7. Semi-skilled
4. Sales 8. Unskilled (service)

NON-FARM AGRICULTURAL OCCUPATIONAL SURVEY
YAMHILL COUNTY, OREGON
1964

Firm _____

- A. _____ Job Title _____
_____ Level of Employment
- B. Total _____ Male _____ Female _____ No. Employed permanently with this job title.
- C. Total _____ Male _____ Female _____ No. Employed part-time with this job title.
() Year around () No. of months
() 1. Seasonal
- D. _____ No. of different persons employed with this job title last year.
_____ Anticipated number to be employed with this job title next year.
_____ Anticipated additional openings in next 5 years due to growth.
_____ Average annual turnover.
- E. What are the educational requirements for this job?
() 0. None () 3. Technical schooling
() 1. 8th grade completion () 4. Some college
() 2. High school completion () 5. College completion
- F. What are the age requirements for new employees?
_____ Minimum Preferred check with: 1. 19 and under 4. 30 to 39
_____ Maximum 2. 20 to 24 5. 40 to 49
_____ Preferred 3. 25 to 29 6. 50 and over
- G. To what extent would the following backgrounds be helpful in securing this job?
_____ Previous work experience Check with: 1. Essential
_____ Farm experience or background 2. Desirable
_____ High school training in agriculture 3. Unnecessary
_____ College training in agriculture
_____ Other _____
- H. Is any special training provided for a new employee with this job title?
() 0. No Explain _____
() 1. Yes _____

What activities and duties do persons with this job title perform?

- () I. Work with people outside the firm
- | | |
|---|--|
| () 8. Buying | () 39. Remodeling |
| () 9. Selling | () 40. Adjusting |
| () 10. Advising, consulting, and
diagnosing | () 41. Installing |
| () 11. Meeting farm people | () 42. Calibrating |
| () 12. Meeting non-farm people | () 43. Selecting |
| () 13. Estimating cost | () 44. Inspecting, testing, trouble
shooting |
| () 14. Other _____ | () 45. Other _____ |
- Comments _____

_____ Firm Code _____ Job Title Code _____ Level Code

What activities and duties do persons with this job title perform? (continued)

() J. Work with people in the firm

- () 15. Handling personnel
- () 16. Supervising others
- () 17. Appraising work of others
- () 18. Training others
- () 19. Inducting new personnel
- () 20. Other _____

Comments _____

() K. Working with production, products, materials, or service

- () 21. Assembling
- () 22. Mixing
- () 23. Inspecting
- () 24. Testing
- () 25. Calculating cost
- () 26. Developing techniques
- () 27. Planning production for service
- () 28. Sketching and drawing
- () 29. Designing
- () 30. Making and/or building
- () 31. Using technical and service manuals, parts lists
- () 32. Other _____

Comments _____

() L. Working with customer's equipment, tools, supplies, or instruments

- () 33. Constructing the above items
- () 34. Designing
- () 35. Repairing
- () 36. Maintaining
- () 37. Operating
- () 38. Assembling
- () 39. Remodeling
- () 40. Adjusting
- () 41. Installing
- () 42. Calibrating

- () 43. Selecting
- () 44. Inspecting, testing, trouble shooting
- () 45. Other _____

Comments _____

() M. Working with firm's equipment, tools, supplies, or instruments

- () 46. Constructing the above items
- () 47. Designing
- () 48. Repairing
- () 49. Maintaining
- () 50. Operating
- () 51. Assembling
- () 52. Remodeling
- () 53. Adjusting
- () 54. Installing
- () 55. Calibrating
- () 56. Selecting
- () 57. Inspecting, testing, trouble shooting
- () 58. Other _____

Comments _____

() N. Working with business problems

- () 59. Policy making
- () 60. Planning
- () 61. Promoting
- () 62. Keeping records and accounts
- () 63. Filing
- () 64. Inventory
- () 65. Handling money
- () 66. Making technical reports
- () 67. Reading technical reports
- () 68. Writing articles, copy, etc.
- () 69. Making speeches
- () 70. Decision making
- () 71. Other _____

Comments _____

_____ Firm Code _____ Job Title Code _____ Level Code

() O. Agricultural mechanics

- () 8. Farm mechanization
- () 9. Farm buildings
- () 10. Farm conveniences
- () 11. Tractors and other power units
- () 12. Electricity
- () 13. Welding
- () 14. Plumbing
- () 15. Concrete
- () 16. Carpentry
- () 17. Shop work
- () 18. Mechanics
- () 19. Metallurgy
- () 20. Heat
- () 21. Hydraulics
- () 22. Other _____

() P. Animal Science

- () 23. Livestock production
- () 24. Animal nutrition
- () 25. Selecting and grading
- () 26. Diseases and parasites
- () 27. Animal breeding
- () 28. Livestock marketing
- () 29. Processing livestock products
- () 30. Marketing livestock products
- () 31. Livestock housing and equipment
- () 32. Dairying
- () 33. Dairy housing and equipment
- () 34. Marketing dairy products
- () 35. Processing dairy products
- () 36. Artificial insemination
- () 37. Poultry production
- () 38. Poultry housing and equipment
- () 39. Marketing poultry products
- () 40. Processing poultry products
- () 41. Poultry diseases and parasites
- () 42. Other _____

() Q. Plant Science

- () 43. Soil structure and management
- () 44. Water management
- () 45. Crop production
- () 46. Processing crop
- () 47. Plant diseases
- () 48. Agricultural chemicals
- () 49. Insect and pest control
- () 50. Selection and grading
- () 51. Plant breeding

- () 52. Production equipment (main-tenance, use, etc.

- () 53. Plant nutrition
- () 54. Cropland management
- () 55. Crop harvesting, storing and drying
- () 56. Crop marketing
- () 57. Horticulture
- () 58. Floriculture
- () 59. Forestry
- () 60. Other _____

() R. Farm Management

- () 61. Economic principles
- () 62. Farm credit and capital
- () 63. Farm insurance
- () 64. Farm taxes
- () 65. Farm layout
- () 66. Farm labor
- () 67. Farm law
- () 68. Other _____

() S. General

- () 69. General agriculture and rural life
- () 70. Research procedure
- () 71. Rural recreation
- () 72. Leadership training
- () 73. Other _____

() T. Supporting Competencies

- () 74. Building trades
- () 75. Typing
- () 76. Business law
- () 77. Bookkeeping
- () 78. Mechanical drafting and design
- () 79. Electronics
- () 80. Other _____