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ERNEST LOUIS DAVIS for the Master of Science
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Henry Ten Pas

Modern technology has advanced to such a high degree that education now stands between all men and all work. What it means in specific occupational possibilities and opportunities is the area of this research. The farmer has made tremendous strides in production and is supported by a large group of people who service, process, and distribute the products of the farm. Today there are more jobs in off-farm agricultural occupations than there are on the farm.

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

Information for this study was obtained by mailed questionnaire and by personal interviews with persons that were qualified to supply the desired information about the business and the employees.

The firms surveyed in Yamhill County indicated that a large

number of employees needed an agricultural background. Most of the off-farm agricultural occupations are in the technical categories and no additional opportunities exist in the next five years for the unskilled level.

The greatest number of the off-farm agricultural jobs require a high school education. Over one-half of the employers show some interest in working with the high schools to establish work experience programs for students. A general knowledge of agriculture and rural life is the most needed competency required 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. Current programs should be enriched and extended to serve off-farm agriculture occupations. The Future Farmers of America organization should continue to be a strong and integral part of the vocational agriculture program.

Present and Emerging Agricultural
Occupations in Yamhill County

by

Ernest Louis Davis

A THESIS

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degree of

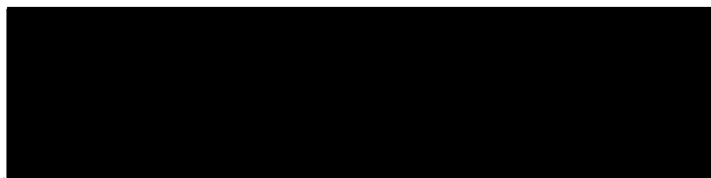
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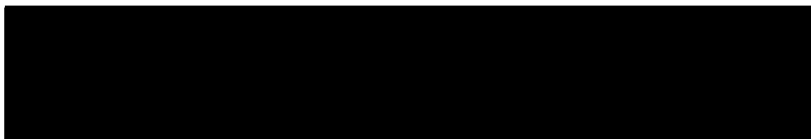
APPROVED:



Professor of Agriculture Education



Director of Vocational Education



Dean of Graduate School

Date thesis is presented

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Typed by Muriel Davis for Ernest Louis Davis

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This study was initiated as a joint study between Mr. Multanen and the author. It was agreed that Mr. Multanen would survey the eastern one-half of Yamhill County and the author would survey the western one-half of Yamhill County. Mr. Multanen completed his part of the study in 1965.

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PRESENT AND EMERGING AGRICULTURAL OCCUPATIONS IN YAMHILL COUNTY

INTRODUCTION

Occupationally, 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 degree that education now stands between all men and all work. What it means in specific occupational possibilities and opportunities is the area of this research.

Today the farmer produces enough food for his family and 30 other people, but this was not so in 1910 or in 1920. This big change can be summed up in one word, education. This education, done in part by the extension service and in part by high school agriculture education classes, largely explains the enormous growth of farm efficiency and productivity.

Statement of the Problem

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

Although the number of productive farms is decreasing, farms are producing more, and it is requiring a larger number of people to service, prepare, and distribute the produce of the farm.

The loss of farms is putting people out of work. These people were principally trained for farming and may not have a salable skill which will allow them to enter the labor market. Essentially, these people must be retrained to be made employable. It has been stated that people in the labor market below the professional level must be trained for as many as five different jobs during their lifetimes because advancing technology continually causes their former jobs to become obsolete.

In the September 1964 issue of Farm Technology, it was conservatively estimated that seven million people are in the business of productive farming, and another 19 million people are engaged in the servicing of farm equipment, in supplying and producing goods for farmers, and in the processing and distributing of farm produce. This adds up to 26 million people or 34% of America's labor force.

The vocational educator of today cannot ignore the 19 million jobs that exist in agriculture outside of productive farming. There are many people in our high schools today that could be trained to fill the urgent need for trained personnel in the complex off-farm agricultural industry. The administrators, and in many cases the school guidance counselors and instructors, are not cognizant of the off-farm agricultural industry that may exist in an area surrounding the school.

Education for a Changing World of Work, the summary report

of a panel of consultants on vocational education, points to the need for vocational and technical education for some 80% of our youth during the present decade. The report stated, "The vocational agriculture program, under federal reimbursement, should be broadened to include instruction and increase 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 in agriculture industry must be identified. There has been a recent effort in agricultural education circles to determine what jobs exist in off-farm agriculture, and what type of training is needed by individuals to successfully fulfill the requirements of the existing jobs. This trend can be classified as a real move ahead in supplying the needs of a community.

Purpose of the Study

For the purpose of maintaining the vocational program at a realistic level, it is imperative that an investigation and evaluation be made to gather pertinent information about the occupations of an area to determine the need for training, the prevalent practices, and the labor supply and turnover.

The purposes of this study are to:

1. Identify off-farm agricultural occupations in Yamhill County.
2. Identify job titles.
3. Estimate present number of employees.
4. List competencies needed for industry.
5. List competencies needed for advancement.
6. Group occupations for which there are common technical and vocational education needs.
7. Group job titles for which there are common technical and vocational education needs.

Assumptions

The initial assumptions for this study are:

1. The more training students receive in vocational agriculture, the greater is the possibility they will be engaged in 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.
7. We must find ways to inform employers as to what can be done in agricultural education to prepare workers.
8. An agricultural background may not be essential in agriculture business but it is very valuable.
9. The agriculture program must be strongly practical.
10. The student and community must see some immediate relevance to the local work situation.

Limitations

The reliability of the data in this study could be limited to the extent of the understanding between the researcher and the parties being interviewed. The author, therefore, lists the following limitations as those being significant to this study.

1. The preliminary survey covered the entire Yamhill County.
2. The preliminary information is based on data collected by a mailed questionnaire.
3. The follow-up survey was conducted by personal interview.
4. The personal interview was selected by random sample from those questionnaires returned from the southern and

western half of the county.

5. The preliminary survey could be filled out by a person not qualified to know the educational needs of the employees.

Definition of Terms

1. Agri-industry. 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 knowledge and skills in agricultural subjects have the following characteristics: (a) on a farm or in another business, agency, or organization which performs one or more of the agricultural functions of producing, processing, distributing, and servicing farm products, (b) employ workers who 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 occupations which deal with: agriculture, forestry, park and recreational area managers; processing food, feed, tobacco, and related products; selling farm and garden equipment and supplies; gardening, landscaping,

and grounds keeping; farm irrigation; soil and water management technicians; forestry conservation; repair of agricultural machinery, horticultural farming; 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. Classes organized and conducted in public secondary schools for pupils who wish to secure systematic instruction in agricultural education. 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 experience in each area.
5. Technical Education. Education to earn a living in an occupation in which success is dependent largely upon 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. 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. It normally does not involve advanced mathematics and science.

7. Work Experience. Employment undertaken as part of the requirements of a school course and designed to provide planned experiences, in the chosen occupation, which are supervised by a teacher-coordinator and the employer.
8. Level of Employment Classification.
 - A. Professional - This group includes occupations that predominantly require a high degree of mental activity by the worker and are concerned with theoretical or practical aspects of complex fields in human endeavor. Such occupations require for the proper performance of the work either extensive and comprehensive academic background or a combination of such education and experience.
 - B. Technical - Occupations concerned with many levels of skills and a wide variety of training requirements. Occupations where one performs specific tasks which are functional parts of scientific activities requiring

knowledge of fundamental theory and requiring highly developed skills.

- C. Proprietor and Managers - Occupations that are involved primarily with responsible policy-making, planning, supervising, coordinating, or guiding the work-activity of others, usually through intermediate supervisors.
- D. Sales - Occupations concerned with the sale of commodities, investments, real estate, products, and services and 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 the preparation, transcribing, transferring, systematizing, or preserving of written communications and records in offices, shops, and other places of work where such functions are performed.
- F. Skilled - This group includes craft and manual occupations that require predominantly a thorough and comprehensive knowledge of processes involved in the work, the exercise of considerable independent judgment, usually 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 group 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 based on wide knowledge of a work field and with the nature and extent of the judgments limited either (a) by application over a relatively narrow task situation or (b) by having important decisions made by others.
- H. Unskilled - This group includes those jobs that require no special training of any kind and can be performed by any person provided he is physically capable.

Location of the 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 principal industry in Yamhill County is agriculture. The bulk of the industry in the western part of the county is lumbering, while the south, north, and central part of the county is diversified farming, and the eastern part of the county is devoted extensively to the production of cannery crops.

The number of farms tabulated by the Yamhill County Extension Service in 1964 was 2,091. The tabulation for 1959 showed 2,155 farms in Yamhill County which shows a decrease of 64 farms in this five year period. It might be interesting to know that in Yamhill County in 1964 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.

Procedures Used in this Study

A review of similar investigations, both underway and completed in other states, was the starting point of this study. This study was developed so that 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 checklist 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.

Delineation of the problem brought forth the scope of the total industrial complex of Yamhill County of which in its broadest sense some knowledge of agriculture would be beneficial; some vocations, however, that would not require a working knowledge of agriculture were eliminated. The author selected only those off-farm business 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 Monty Multanen compiled a list of businesses with these broad qualifications from sources such as: The county directory, the Extension Service, the telephone directories, the Yamhill County Planning Commission, 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 the author. Those from Yamhill, Carlton, Dayton, Lafayette, Dundee, Newberg, and part of McMinnville were placed in the second group to be used by Monty Multanen. There were 91 firms represented in the first group and 90 firms in the second group. Mr. Multanen has completed a study based on the returns from 90 firms in his group.

The author divided the 91 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 57 firms and the "No" group contained 40.

Comprehensive follow-up interviews were conducted with 20 of the 57 "Yes" firms selected at random. Short follow-up interviews were also conducted with 5 of the "No" firms to check the validity of their answers.

A list of firms returning the preliminary questionnaire is shown in the Appendices.

REVIEW OF LITERATURE

If there was much of the early society that we would be happy to leave to history--the bitter toil, the lack of refinement, and the crudeness of manners--there was also much that we would like to preserve as the essence of American character. The life on the frontier and on the farm bred in our people a sturdy and self-reliant quality, an inventive and resourceful mind, a sense of individual worth and integrity, and abhorrence of show and pretense, a fierce assertion of human equality, a deep love of personal freedom (12).

There is much interest and study being focused on vocational education today. It is fast becoming a major concern among educators and government leaders alike.

The former U.S. Commissioner of Education, Francis Keppel, recently estimated that seven million young people will enter the workforce in the next ten years without the benefit of a 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 (33, 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 agriculture occupations (11, p. 3).

Lacy in a recent study of the employment opportunities, the human resources, and vocational education resources in Klamath County, Oregon, tells us that at the present time, a majority of persons entering the labor force lack skills currently in demand. Unfortunately, the acceleration of technical change indicates that this gap may widen rather than close.

Efforts to update vocational programs have pointed out such problem areas as outmoded facilities, personnel lacking recency of training, and outdated curricular programs. Further, the race to meet changing job training demands has caused new curriculums to be fostered without concern for sound articulation of subject matter material or planned educational change. Students eventually suffer unless these mistakes are corrected (27).

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 in a school 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. in 1963 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 broad 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 (17, p. 3).

Number of Employees Needed

Recent studies, conducted in several states, show that there are numerous off-farm agricultural opportunities. A study by Brum

(14, p. 11) in Ohio identified 165,262 workers other than farmers, whose jobs require knowledge and skills in technical agriculture. Brum is supported by the study completed in Michigan (30, p. 1) of which 31.7 percent of the persons, employed by the firms surveyed, had agricultural job titles.

Cushman et al. (17, p. 22) estimated that 28,685 persons were employed full-time in off-farm agricultural occupations in the 260 New York school districts surveyed offering agriculture instruction during 1963-64. It was further estimated in the study that 16,841 additional persons were employed part-time in off-farm agriculture occupations.

In one phase of the Michigan study (30, p. 3) the entire needs of the state were found for two occupational families; machinery sales and service, and nurseries. These two occupational families have an annual need for employees equal to nearly half of the number of vocational agriculture students graduating each year in Michigan.

A similar situation may exist in Oregon. S. C. Dam, Vice President and General Manager of John Deere Company in Portland, in an address given at the forty-fourth annual state-called conference on Agriculture Education, June, 1965, Milwaukie, Oregon stated:

In the state of Oregon alone there are approximately 200 farm implement dealers operating successfully today. According to a recent survey conducted by Mr. Malcolm Smith, Managing Secretary of the Pacific Northwest

Implement Dealers Association. The following jobs need to be filled right now with skilled and semi-skilled young men.

Set-up men	80
Parts men	14
Service men	250
Salesmen	54
Total	398

(18, p. 15-16)

The Michigan study concludes that, "the need for expanded, improved, and new programs of vocational-technical agricultural education at all levels seems quite evident" (30, p. 3).

In various studies across the nation there is general agreement that many workers will be needed in the next five years to fill new jobs being created by our advancing technology, and jobs created by volume of use and production.

Future Employment Opportunities

Mr. Malcolm Smith (18, p. 17) recently conducted a survey in the state of Oregon and revealed a need for men in the agriculture mechanics sales and service occupations in the following categories in the next five years:

Set-up men	400
Parts men	98
Service men	650
Salesmen	124
Total	1,272

The Kansas State Board of Vocational Education (26) 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 off-farm businesses.

A survey of agricultural occupations in Michigan (30, p. 2) indicated the annual need by nursery men for new employees was 194 for expansion and 241 for replacement each year. They will also need in the field of farm machinery sales and service a total of 526 new employees each year (30, p. 1). The Michigan survey projects a need in the next five years for 1,543 agricultural workers for the firms surveyed.

A summary of 16 counties in Pennsylvania (44, p. 7) shows a need for 1,498 new workers in agricultural business and services.

Bailey reports (7, p. 3) an increase of 1,071 workers in agricultural business and services in the next five years. He goes on to say, "The largest increase in Virginia will be in the forestry category. The second and third largest increases will be in ornamental horticulture, followed by wildlife and recreation" (7, p. 38).

The Off-Farm Agriculture Occupation Study for New York State (17, p. 27) 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. Of this study 14,085 jobs would be full time and 9,948 would be in part-time employment.

H. D. Brum (14, p. 1) reports a need of 15,890 new employees including replacements will be needed each year in Ohio. Of this number approximately 1,230 need an educational level of a B. S. degree or more. The remaining 14,660 need an educational level of high school or technical school in order to fulfill their job requirements.

Warren Griffen in his survey of 112 firms in Saline County, Missouri (20, p. 7-8) found that 42 of these firms would need 95 additional employees in the near future and most of these firms could see the need of additional personnel to be field men for the firms, to carry new products to the farmers, and advise the farmers.

The number of employers included in a sampling procedure in Kansas (26) was 1,126. The growth of business in the next five years as estimated by the employers indicated a demand for 2,823 new employees plus 1,475 employees needed due to growth and turnover in a twelve month period. The obvious conclusion is that the need for employees in the agricultural businesses studied will continue to increase.

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 survey 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 three studies.

Table 1. Summary of employment levels of related studies

Levels of Employment	Saline County percent	New York percent	Virginia percent
Unskilled		4.00	
Semi-skilled	44.55	28.00	30.20
Skilled	14.96	27.00	20.50
Proprietors and Managers	13.82	15.00	8.70
Sales	12.36	13.00	11.70
Supervisors and foremen	6.18		
Professional	4.72	4.00	
Technical	2.76	4.00	
Clerical	0.65	4.00	
Service		1.00	
Total	100.00	100.00	71.10

The greatest potential for developing educational programs appears to lie with the "semi-skilled level (7, p. 33). Interviews

pointed out in Griffen's (20, p. 7) study that the increase in the mechanization of the farms, and in the firms closely associated with the farm, made the skilled and semi-skilled group of agriculturally oriented personnel highly important to the operation of their businesses.

Competencies Needed

Education in agricultural competencies as indicated by several studies must become a significant part of the 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 (17, p. 37).

In a Michigan survey (30, p. 6) 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.

A Kansas survey (26, Table 11) 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. " The survey goes on to indicate "employers appeared to favor the classification of the principles of the basic sciences taught as part of the agricultural areas in which it is used as an applied area of knowledge".

Bailey (7, p. 32-33) made a distribution of employees by the knowledge of agriculture required which pointed out that employees need: a comprehensive knowledge of agriculture 18.1 percent, 37.0 percent need a general knowledge of agriculture, 43.1 percent need a casual knowledge of agriculture, and 1.8 percent need no knowledge of agriculture.

H. D. Brum (14, p. 2) indicated "that workers who needed to know technical agriculture also needed to have competency in some of the areas in business and service and in industry as well.

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 State Board of Education study (26) 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:	
Operate properly	1
Maintain	2
Adjust	3
Inspect and trouble-shoot	4
3. Activities for business problems:	
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:	
Meet farm people	1
Meet non-farm people	2
Diagnose, consult, advertise	3
Sell	4
Estimate	5

Background Required

The whole of ones' study, training and experience is of major interest to firms employing individuals for off-farm agricultural jobs. H. D. Brum (14, p. 2) pointed out in the Ohio study that employers of garden supply stores felt that employees of all levels, needed to

have one-third of their knowledge in agriculture, one-third in industrial competencies, and one-third in business and service management.

Much is said about the background preference of off-farm agricultural workers. In a study conducted in Saline County, Missouri (20, p. 17) a majority of the firms interviewed replied that it was essential for prospective employees to have had farm experience.

A majority of respondents in a Michigan study (30, p. 2) listed "farm background" as a requirement or preference for professional workers, technicians, proprietors, managers and sales people. They indicated also that an urban background was never preferred. A small number indicated "no preference" regarding background experience. It would appear according to this study that farm reared boys and girls would have an advantage seeking employment in off-farm agricultural occupations.

Educational Requirements

The Saline County, Missouri Study (20, p. 17) shows a majority of the employers replied that it was desirable for prospective employees to have taken vocational agriculture in high school.

Off-farm agricultural occupation studies indicate that there are differences in the educational levels required. Generally a high school education is the minimum level for entry into jobs. Brum

(14, p. 2) pointed out in his study that no employer wanted to employ people who had less than a high school education.

In a study conducted in New York (17) employers reported that high school completion was required for 57 percent of the full-time workers in off-farm agricultural occupations. Seventeen percent were reported to need less than high school education, and 18 percent needed various levels of education beyond high school.

Griffen's study (20, p. 12) shows that 14 employers replied that an eighth grade education was sufficient for some semi-skilled jobs. Bailey's study (7, p. 35) in Virginia shows that about one-third of the educational requirements were less than the high school graduate.

In the Missouri study (26, p. 12) 180 employers replied that employees should have completed high school and 84 replied that employees should have some training beyond high school. In the Virginia study (7, p. 35) 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 (30, p. 2) that 53.1 percent of the agricultural workers could be replaced by individuals with a high school diploma; 31.2 percent with post-high school education of less than a baccalaureate degree; 10.3 percent with a college degree; and 4.4 percent with a master's degree. The authors concluded that all off-farm agricultural workers of the firms surveyed in Michigan

need a high school education or more.

Age Requirements

The minimum age of entry for workers in the off-farm agricultural jobs as indicated by Griffen (20, p. 12) is from 18 to 25 years. This is supported by the Michigan study (30, p. 3) which found the minimum age for entering the agricultural occupations 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 (20, p. 12) ranged from 47 to 55 years of age.

Salaries

There is a wide range of salaries for workers in off-farm agricultural jobs and they seem to compare favorable with those of other workers performing similar work. The range of wages is generally based on the amount of education the employee has. This is born out by Brum's study (14, p. 2) 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 off-farm agricultural workers in the service worker category receives \$100 or less per week.

The Michigan study (30, p. 2) 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 are preparing students for off-farm occupations.
8. Age requirements and salaries of off-farm agricultural jobs are comparable to similar non-agricultural 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.

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 the 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 a lot 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.

No. of firms	Total employment	Average employed per firm	Number agri. oriented	Average no. agri. oriented	Percent agri. 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,

* See Appendix IV.

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	<u>15</u>	13.39
Base	112	

Firms Interviewed

Twenty firms were selected by a random sampling method and all 20 of the firms were interviewed.

Functions Performed

The firms personally interviewed in this study had numerous functions. In some cases there was such an overlap of functions that it was difficult to decide which was the primary function. Table

4 shows that the 20 firms performed 34 functions.

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

Function	Number	Percent
Retailing	5	25.0
Wholesaling	7	35.0
Service	9	45.0
Processing	2	10.0
Manufacturing	4	20.0
Purchasing	2	10.0
Warehouse	2	10.0
Construction	2	10.0
Transportation	1	5.0
Base	34	

This study shows that service and wholesaling functions were most often performed 45.0 percent and 35.0 percent, respectively.

Employment

The 20 firms interviewed employed a total of 167 people, 72 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--8.35 compared to 19.13; the average number agriculturally oriented is higher--3.60 as compared to 2.93; the percentage agriculturally oriented is 43.71 as compared to 15.36.

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

No. of Firms	Total employment	Average employed per firm	Number agri. oriented	Average no. agri. oriented	Percent agri. oriented
20	167	8.35	72	3.60	43.71

These differences can be attributed to the difference in total employment. When considering the total county, the total employment per firm ranged from 1-400, and the range for the 20 firms interviewed was 1 to 54 employees.

Levels of Employment

When grouping agriculturally-oriented employees into levels of employment, one finds that employees consider there are very few unskilled jobs requiring an agricultural background.

Table 6. Present employees, by levels, who need an agricultural background or are agriculturally-oriented.

Level of Employment	Number	Percent
Professional	6	8.33
Technical	17	23.61
Proprietors and Managers	12	16.66
Sales	9	12.50
Clerical	10	13.88
Skilled	7	9.72
Semi-skilled	10	13.88
Unskilled	<u>1</u>	1.38
Total	72	

Table 6 shows the technical group was the largest and accounted for 23.61 percent of the employees needed orientation in agriculture followed by the positions of proprietors and managers. The rest of the occupations listed did not show a wide difference with the exception of unskilled labor which listed only 1.38 percent.

Future Employment Opportunities

As the number of farms decreases across the nation, many people think that agricultural occupations are declining. This study indicates the future for new employees in off-farm agricultural occupations seem favorable. Not one firm could see a decrease in the need for agriculturally-oriented employees. Of the firms interviewed, those willing to commit themselves on future employee needs indicated a need for at least 29 additional employees in the next five years.

Most employers felt that there would be an increase in activity of goods and services for the farmer and increase in handling and processing the produce of the farm.

In the opinion of most employers the sophisticated methods and machinery being used today would create very few jobs if any for unskilled individuals. It should be noted in Table 7 that the greatest needs will be in the semi-skilled and sales occupations with no need for unskilled workers.

Table 7. Employment opportunities in off-farm agricultural occupations.

Level	Number last year	Present	Next year	Additions next five years
Professional	6	6	6	1
Technical	17	17	18	4
Proprietors and managers	12	12	12	1
Sales	9	9	10	8
Clerical	10	10	10	3
Skilled	7	7	8	2
Semi-skilled	11	10	12	10
Unskilled	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>
Total	73	72	77	29

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

It is essential to know what sources are used by firms to recruit agriculturally-oriented employees. As shown by the following illustration most firms preferred the personal interview; this choice was closely followed by present employees' recommendations. Some firms used a combination of methods for recruiting new employees.

State employment service	3
Advertisements	2
Personal interview	7
Written application	4

Friends' recommendations	2
Present employees' recommendations	5
College placement bureaus	0
Public high schools	1
Persons dropping in	3

It would appear from this data that the high school vocational instructor could do more work with agri-business to learn their employment needs. The students graduating from high school vocational agriculture programs certainly have many of the attitudes and skills needed for entry requirements.

Training Opportunities

Most of the firms interviewed required some type of training for new agriculturally-oriented employees, although as shown in Table 8, six firms said they provided no opportunities or facilities for training proprietors and managers, clerical, or professional employees. Not one firm offered training of any type for employees of the professional level.

Fifteen firms had some training opportunities for proprietors and managers. The firms had very few training opportunities for the remaining occupations; most firms thought there should be some type of training opportunities for all members of their respective

organizations. These same firms indicated a willingness to work with vocational agriculture instructors on post-entry training.

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

	Technical	Proprietors & managers	Sales	Clerical	Skilled	Semi-Skilled	Unskilled
None		4		2			
Formal on job	2	1		1	1	1	2
Informal on job	1	8	5	4	7	5	3
Special courses away	2	2	1	1			
Other		4	1	2			

Willingness to Hire a High School Student Part-time in Order to Learn about the Firm or Occupations Within the Firm

The employers 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 20 employers, 5 replied "yes" and 9 replied "no". Six "would be interested" but were not sure. The 9 that responded negatively gave the following reasons for not cooperating with such a program:

1. Accident insurance not adequate for students.
2. Trade union regulations.

3. Not enough work to keep part-time students.

4. Not enough time to devote to training.

Those firms that were willing to hire students indicated that the student must want to work and must be dependable. The employers were willing to cooperate with the vocational agriculture instructor in training the student.

Educational Requirements

As illustrated in Table 9, most firms felt that at least a high school education was needed for most occupational levels. These same employers indicated that high school completion was sufficient for 37 occupations. Nine jobs required a college degree and 14 required technical school or some college education.

High school agriculture programs could provide the training for most occupations in the semi-skilled and skilled levels.

Table 9. Educational requirements for persons entering off-farm agricultural occupations.

Level	Eighth grade	High school	Technical school	Some college	College completion
Professional				3	3
Technical		3	3		1
Proprietors & managers		13	1		5
Sales		6	1	1	
Clerical		7	4		
Skilled		5	1		
Semi-skilled		3			
Unskilled	$\frac{1}{1}$				
Total	$\frac{1}{1}$	$\frac{37}{37}$	$\frac{10}{10}$	$\frac{4}{4}$	$\frac{9}{9}$

Age Requirements

The minimum ages at which employers would consider hiring new agriculturally-oriented employees ranged from 19-30 years. The maximum ages they would consider ranged from 40 to over 50 years of age. Considering the 72 jobs studied, 44.44 percent of the employers preferred to hire at the 30-39 year age group, 36.11 percent at the 25-29 year age group, 13.88 percent at the 40-49 year age group, 4.16 percent at the 20-24 year age group, and only 1.38 percent at the 19 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 might 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	19	20-24	25-29	30-39	40-49	50+
Professional	25	50+			1	4		1
Technical	20	50		2	8	1	2	
Proprietor & manager	25	50			1	14	3	
Sales	30	50			7	5	2	
Clerical	20	50		1	4	3	3	
Skilled	25	40			3	3		
Semi-skilled	19	40	1		1	2		
Unskilled			—	—	—	—	—	—
Total			1	3	25	32	10	1

Background Required

When employers were asked about background that would be desirable for persons employed in agricultural occupations other than farming, most were in agreement that previous work experience was highly desirable. The same employers felt that farm experience was considered desirable for 36.4 percent of the job titles and that vocational agriculture was considered desirable for 41.9 percent of the job titles. Most the of the employers interviewed felt that college training in 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 agriculture		
	E	D	U	E	D	U	E	D	U	E	D	U
Professional						6			6			6
Technical	2	2			2	2		1	3			4
Proprietor & manager	13	6		2	6	11		8	9		7	11
Sales	3	4			1	6		1	5		1	5
Clerical	1	14	1		4	7		3	8		1	9
Skilled	3	3	2	1	3	5	1	3	4		1	7
Semi-skilled		5	1		1	5		3	3			6
Unskilled		1	3		1	3		1	3			4
Total	22	35	7	3	24	39	1	26	35		16	46

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' studies, 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 off-farm people, diagnosing, consulting, advertising, and selling. This included 86.2 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 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.

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	6	6	6	1		3	6
Technical	17	17	17	14		5	7
Proprietors & managers	12	12	12	7	1	6	12
Sales	9	9	4	3	3	1	10
Clerical	10	9	4	2		2	10
Skilled	7	3	1	7	1	7	1
Semi-skilled	10	5	4	1	5	10	1
Unskilled	1	1		1	1	1	1
Total	72	62	48	36	11	35	48

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 results concerning competencies needed for each occupational level.

General agricultural knowledge was required by 95.8 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. Fifty-eight, or 80.55 percent, of the agriculturally-oriented occupations needed supporting competencies in the following order:

1. Bookkeeping.
2. Business law.
3. Typing.

Table 13. Competencies needed.

Level	Total number	Agriculture mechanics	Animal science	Plant science	Farm management	General agriculture knowledge	Support competencies
Professional	6	1	2	4	3	6	5
Technical	17	8	8	14	14	17	12
Proprietors & managers	12	6	6	8	12	12	12
Sales	9	6	9	9	9	9	9
Clerical	10	6	7	7	7	10	10
Skilled	7	7	7	7	7	7	5
Semi-skilled	10	5	5	5	5	7	5
Unskilled	1	1			1		
Total	72	40	44	54	57	69	58

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, 95.8 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.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Agriculture is more than farming; today it includes all occupations that provide goods and services for the farmer. The nucleus of agriculture is the production farmer because he produces the raw materials that feed, clothe, and shelter our nation. The modern farmer is dependent upon the people that design, manufacture, sell, and service such items as farm machinery, fertilizer, chemicals, feed and medicines. Today's farmer must also rely on those people that provide credit, insurance, and other business and technical services. The processing, transporting and distribution of the products of the farm lies heavily on another group of off-farm agricultural workers that provide a service to the farmer of today.

We must provide adequately prepared workers for the myriad of agricultural occupations that provide goods and services for today's production farmer.

The basic purpose of this study is to identify off-farm agriculture occupations in Yamhill County. Guide lines are needed for maintaining vocational agriculture programs at a realistic level. In order to provide these guide lines an investigation and evaluation (of the industry, the need for training, the prevalent practices, and the labor supply and turnover) was made.

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.

Comprehensive interviews were conducted with 20 firms from the western half of the county. These firms performed numerous functions, many performing more than one. Of the 167 employees in these firms, 43.71 percent were agriculturally-oriented. The highest number of employees worked in the technical employment level. According to the interviews, the firms reported that 29 additional agricultural occupation opportunities would be open to new workers in the next five years. Of the 20 firms interviewed 11 indicated some interest in cooperating with high schools in agriculture experience programs. The study revealed that a high school education was adequate for 60.6 percent of the jobs. Most of the employers interviewed felt that previous work experience was highly desirable. The same employers felt that vocational agriculture training was desirable for 41.9 percent of the job titles. The employers performed many functions and the study shows that a general agriculture knowledge was required by 95.8 percent of all job titles.

Conclusions

1. The future for new employees in off-farm agriculture occupations seems favorable and should provide employment opportunities for vocational agriculture students that do not enter productive farming.
2. Firms employing off-farm agricultural personnel have no definite method for recruiting new employees.
3. Most off-farm occupational opportunities are in the technical occupational level followed by an even distribution through the proprietor and manager, clerical, sales, and semi-skilled levels. No additional off-farm agricultural opportunities exist in the next five years for the unskilled level.
4. Most of the off-farm agricultural jobs require a high school education.
5. Over one-half of the employers show some interest in working with the high schools to establish supervised work experience programs for high school students on a part-time basis.
6. The activities performed by off-farm agricultural workers vary; the average worker was expected to be quite diversified in the type of work to be done.

7. A general knowledge of agriculture and rural life is the most needed competency required for off-farm agricultural workers.
8. All areas of agricultural competencies (plant science, animal science, agricultural mechanics, and farm management) are required for off-farm agricultural occupations.
9. Supporting competencies in bookkeeping, business law, and typing are required for over three-quarters 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 business, 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.

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APPENDIX I

Letters

THE PENNSYLVANIA STATE UNIVERSITY
University Park · Pennsylvania

February 12, 1964

Mr. Ernest L. Davis
Vo-Ag Instructor
Amity Union High School
Amity, Oregon

Dear Mr. Davis:

In answer to your request of January 31, I am enclosing a copy of our interview schedules and an Interviewers' Manual. I am also enclosing a copy of the project outline.

I trust that these materials will be helpful to you in your study and will appreciate receiving information from you after your study is completed. Best of luck to you in this endeavor.

Sincerely yours,

Norman K. Hoover
Associate Professor

NKH:pes

Enclosures

UNIVERSITY OF MISSOURI
Columbia

February 12, 1964

Mr. Ernest L. Davis, Instructor
Vocational Agriculture
Amity, Oregon

Dear Mr. Davis:

Enclosed is an abstract and my study of Agricultural Occupations, Other Than Farming, the information-gathering forms used, and excerpts of the study which was presented at the Research Coordination Conference at Ohio in January.

I hope that these will be of some use to you in your study.

Sincerely yours,

Warren L. Griffin
Research Assistant

WLG/ess

Enclosures

UNIVERSITY OF ILLINOIS
College of Education
Urbana

Agricultural Education

February 11, 1964

Mr. Ernest Davis
Vo-Ag Instructor
Amity
Oregon

Dear Mr. Davis:

I am pleased to learn of your agricultural occupations study in the Yamhill County area. I am sending you copies of the questionnaire forms that we used in our study. I am also sending you a copy of our Interviewers Manual. Please notice that this Interviewers Manual is a "working" copy. It has not been edited for publication.

Good luck to you in your studies.

Sincerely yours,

Lloyd J. Phipps
Professor and Chairman
Agricultural Education

LJP:vr

July 1, 1964

To Supervisor:

Will you take a few minutes for a task which may have significance in up-dating the vocational training offered to our emerging labor force?

Those of us who are concerned with education students for the jobs of today and tomorrow realize that we must evaluate and change our courses of study to meet the existing and future needs of industry. We in the field of agriculture feel that more emphasis must be placed on boys who will make their way into agricultural occupations other than farming.

The purpose of this study is to determine present and emerging non-farm agricultural occupations in Yamhill County. We hope that the information collected will be used as a basis for improving courses of study in Vocational Agriculture, which will better prepare students for future occupational opportunities in agri-industry.

The assistance that you give us in compiling present and emerging job information in agri-industry will help us to accomplish an otherwise time consuming if not impossible task.

It will be appreciated if you would complete and return the enclosed questionnaire at your earliest convenience.

Sincerely yours,

Monty Multanen
Vo-Ag Instructor
Dayton High School

Ernie Davis
Vo-Ag Instructor
Amity High School

APPENDIX II

FIRMS IN YAMHILL COUNTY WHO RETURNED MAILED QUESTIONNAIRE

(See Appendix III, Form I, page 70 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 Garage & 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 II (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 II (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 II (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 & Eustrice 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 III

FORM 1

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

D. Main Function of Firm

- | | |
|---|--|
| <input type="checkbox"/> 1. Retailing
<input type="checkbox"/> 2. Wholesaling
<input type="checkbox"/> 3. Purchasing
<input type="checkbox"/> 4. Processing
<input type="checkbox"/> 5. Manufacturing | <input type="checkbox"/> 6. Service
<input type="checkbox"/> 7. Warehouse
<input type="checkbox"/> 8. Transportation
<input type="checkbox"/> 9. Construction
<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. _____ Total number of people working for this firm.

G. _____ Number of employees that need an agricultural
background or are agriculturally oriented.

OFF-FARM AGRICULTURAL OCCUPATIONAL SURVEY
YAMHILL COUNTY, OREGON

Firm _____

- A. Full time Ag. Oriented B. Part-time Ag. Oriented
 Male Male Male Male
 Female Female 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 agricultural background? _____ How many?
 2. No
1. Yes Would this firm be willing to hire a high school student to work after school, 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?
 2. No

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)

OFF-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 _____

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 | () 43. Selecting |
| () 16. Supervising others | () 44. Inspecting, testing, trouble shooting |
| () 17. Appraising work of others | () 45. Other _____ |
| () 18. Training others | Comments _____ |
| () 19. Inducting new personnel | _____ |
| () 20. Other _____ | |
| Comments _____ | |
| _____ | |
- () K. Working with production, products, materials, or service
- | | |
|--|---|
| () 21. Assembling | () 46. Constructing the above items |
| () 22. Mixing | () 47. Designing |
| () 23. Inspecting | () 48. Repairing |
| () 24. Testing | () 49. Maintaining |
| () 25. Calculating cost | () 50. Operating |
| () 26. Developing techniques | () 51. Assembling |
| () 27. Planning production for service | () 52. Remodeling |
| () 28. Sketching and drawing | () 53. Adjusting |
| () 29. Designing | () 54. Installing |
| () 30. Making and/or building | () 55. Calibrating |
| () 31. Using technical and service manuals, parts lists | () 56. Selecting |
| () 32. Other _____ | () 57. Inspecting, testing, trouble shooting |
| Comments _____ | () 58. Other _____ |
| _____ | Comments _____ |
| | _____ |
- () L. Working with customer's equipment, tools, supplies, or instruments
- | | |
|--------------------------------------|--------------------------------------|
| () 33. Constructing the above items | () 59. Policy making |
| () 34. Designing | () 60. Planning |
| () 35. Repairing | () 61. Promoting |
| () 36. Maintaining | () 62. Keeping records and accounts |
| () 37. Operating | () 63. Filing |
| () 38. Assembling | () 64. Inventory |
| () 39. Remodeling | () 65. Handling money |
| () 40. Adjusting | () 66. Making technical reports |
| () 41. Installing | () 67. Reading technical reports |
| () 42. Calibrating | () 68. Writing articles, copy, etc. |
| | () 69. Making speeches |
| | () 70. Decision making |
| | () 71. Other _____ |
| | Comments _____ |
| | _____ |
- () M. Working with firm's equipment, tools, supplies, or instruments
- | | |
|---|---|
| () 43. Selecting | () 46. Constructing the above items |
| () 44. Inspecting, testing, trouble shooting | () 47. Designing |
| () 45. Other _____ | () 48. Repairing |
| Comments _____ | () 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 | () 62. Keeping records and accounts |
| () 60. Planning | () 63. Filing |
| () 61. Promoting | () 64. Inventory |
| () 62. Keeping records and accounts | () 65. Handling money |
| () 63. Filing | () 66. Making technical reports |
| () 64. Inventory | () 67. Reading technical reports |
| () 65. Handling money | () 68. Writing articles, copy, etc. |
| () 66. Making technical reports | () 69. Making speeches |
| () 67. Reading technical reports | () 70. Decision making |
| () 68. Writing articles, copy, etc. | () 71. Other _____ |
| () 69. Making speeches | Comments _____ |
| () 70. Decision making | _____ |
| () 71. Other _____ | |

- | _____ Firm Code | _____ Job Title Code | _____ Level Code |
|---|--|------------------|
| () O. Agricultural mechanics | () 52. Production equipment (main-
tenance, use, etc.) | |
| () 8. Farm mechanization | () 53. Plant nutrition | |
| () 9. Farm buildings | () 54. Cropland management | |
| () 10. Farm conveniences | () 55. Crop harvesting, storing and
drying | |
| () 11. Tractors and other power units | () 56. Crop marketing | |
| () 12. Electricity | () 57. Horticulture | |
| () 13. Welding | () 58. Floriculture | |
| () 14. Plumbing | () 59. Forestry | |
| () 15. Concrete | () 60. Other _____ | |
| () 16. Carpentry | | |
| () 17. Shop work | () R. Farm Management | |
| () 18. Mechanics | () 61. Economic principles | |
| () 19. Metallurgy | () 62. Farm credit and capital | |
| () 20. Heat | () 63. Farm insurance | |
| () 21. Hydraulics | () 64. Farm taxes | |
| () 22. Other _____ | () 65. Farm layout | |
| () P. Animal Science | () 66. Farm labor | |
| () 23. Livestock production | () 67. Farm law | |
| () 24. Animal nutrition | () 68. Other _____ | |
| () 25. Selecting and grading | () S. General | |
| () 26. Diseases and parasites | () 69. General agriculture and
rural life | |
| () 27. Animal breeding | () 70. Research procedure | |
| () 28. Livestock marketing | () 71. Rural recreation | |
| () 29. Processing livestock products | () 72. Leadership training | |
| () 30. Marketing livestock products | () 73. Other _____ | |
| () 31. Livestock housing and equipment | () T. Supporting Competencies | |
| () 32. Dairying | () 74. Building trades | |
| () 33. Dairy housing and equipment | () 75. Typing | |
| () 34. Marketing dairy products | () 76. Business law | |
| () 35. Processing dairy products | () 77. Bookkeeping | |
| () 36. Artificial insemination | () 78. Mechanical drafting
and design | |
| () 37. Poultry production | () 79. Electronics | |
| () 38. Poultry housing and equipment | () 80. Other _____ | |
| () 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 | | |

APPENDIX IV

The population of the original survey numbered 378 firms. This number constituted the total number of firms in Yamhill County. One hundred eighty-one firms responded to the first questionnaire; this amounted to 47.91% of the original population. One hundred twelve firms or 29.63% of the original population indicated that they had agriculturally-oriented employees.

Of the 297 firms that did not respond to the questionnaire, some were contacted personally to find out why they did not respond. They listed reasons such as: did not see a reason for responding, did not think they qualified, forgot about it, they meant to but it slipped their mind, and some stated that they didn't understand the questionnaire.