

ED 022 019

VT 004 906

By- Loreen, C.O.

OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS FOR YOUTH FOR NON-FARM AGRICULTURAL JOBS IN WASHINGTON STATE.

Washington State Board for Vocational Education, Olympia; Washington State Univ., Pullman. Agricultural Education.

Pub Date Feb 67

Note- 92p.

EDRS Price MF-\$0.50 HC-\$3.76

Descriptors- AGRICULTURAL EDUCATION, AGRICULTURAL SKILLS, *EDUCATIONAL NEEDS, EMPLOYERS, *EMPLOYMENT QUALIFICATIONS, EMPLOYMENT STATISTICS, *JOB SKILLS, MANPOWER NEEDS, OCCUPATIONAL CLUSTERS, OCCUPATIONAL INFORMATION, *OCCUPATIONAL SURVEYS, OFF FARM AGRICULTURAL OCCUPATIONS, QUESTIONNAIRES

Identifiers- Washington

The objectives of the study were to identify present and emerging off-farm agricultural occupations and to determine for present and anticipated numbers of employees, competencies needed for entry and advancement, job characteristics, and educational needs. A sample of 472 was drawn from a population of 2,952 firms. Of 437 firms contacted by 60 trained interviewers, 336 employed persons needed agricultural competency. Findings indicated that about 2,200 firms employed about 35,000 persons of which 13,000 (37 percent) in 158 job titles needed agricultural competencies. Each year for the next 5 years, the 2,200 firms will need 240 additional and 400 replacement employees. Employees generally started at 23 to 30 years of age and stayed in a job 11 to 15 years. A wide range of salaries averaged \$462 per month and a longer than 40-hour week was prevalent. High school graduation was the minimum educational requirement for most jobs. Farm background and work experience were advantageous to job seekers. Competencies for most job titles included (1) employee relations with supervisors, (2) employee relations with fellow workers, (3) communications, and (4) salesmanship and customer relations. Specific competencies were identified for each job title, and grouping of competencies was evident. (JM)

Occupational Opportunities and Training Needs of Youth for Non-Farm Agricultural Jobs in Washington State



ED022019

VT00490C

Agricultural Education
 Washington State University
 Pullman, Washington

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE
PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS
STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION
POSITION OR POLICY.

Occupational Opportunities and Training

Needs for Youth for Non-Farm

Agricultural Jobs in Washington State

A Report of a Study

By

C. O. Loreen

Professor of Agricultural Education

³ Agricultural Education
Department of Education
³ WASHINGTON STATE UNIVERSITY
³ Pullman, Washington

in Cooperation with

⁴ The State Board for Vocational Education,
⁴ Olympia, Washington

February, 1967

TABLE OF CONTENTS

	Page
PREFACE.	ii
ACKNOWLEDGMENTS	iii
INTRODUCTION	1
Related Studies	2
Purpose of the Study	6
Specific Objectives of the Study.	6
Definition of Terms	6
Basic Assumptions	7
Major Limitations of the Study	7
Procedure	7
PRESENTATION OF DATA	9
General Information, Firms and Employees	9
Location of Firms by Counties	9
Listings of Agricultural Occupations Other Than Farming	9
Per Cent of Firm's Business Devoted to Agriculture	11
Positions of Persons Interviewed.	12
Dates of Establishment of Firms in Sample	13
Findings	14
Major Products, Services, and Number of Establishments	14
Number of Employees and Expected Increases	14
Hiring Ages	15
Hours Worked Per Week.	15
Tenure by Job Titles	16
Monthly Salaries	17
Activities and Duties by Job Title.	17
Residential Background Preference	18
Educational Level Desired.	19
Experience Desired.	19
Restrictions to Employment	20
Education Desired to Advance	21
Competencies Associated with Job Titles	21
Job Titles Requiring Specific Groups of Competencies for Entry and Advancement	22
Relationships of Competencies	23
Relationships of Groups of Competencies	23
SUMMARY OF FINDINGS	25
CONCLUSIONS.	27
BIBLIOGRAPHY	28
APPENDIX-A	A-1
APPENDIX-B	B-1

PREFACE

Rural youth continue to find difficulty in securing employment in their rural communities. Production farming holds much promise for many young people, but many must seek employment outside of the sphere of production agriculture. Saleable skills are needed for those who hope to compete favorably for the many jobs in industry that are agriculturally based and for which training in agriculture is desirable or essential.

Information contained in this publication will be of value to school administrators and teachers for planning sound programs of vocational agriculture to meet the growing demands of the non-farm agricultural occupations. It will also be useful for guidance counselors and students as they jointly plan careers and prepare for job opportunities.

ACKNOWLEDGMENTS

This report was made possible by a grant of the State Board for Vocational Education, Olympia, to Washington State University for the purpose of conducting a state-wide study of employment opportunities in non-farm agricultural occupations.

Acknowledgment is expressed to the 437 business firms and their employees for their generous response to the requests for information. Appreciation is expressed to the 60 teachers and other persons who assisted in the gathering of information.

Special acknowledgment is expressed to Bert L. Brown, State Director of Agricultural Education, for much assistance in planning and completing this study. Appreciation is also expressed to Joel Magisos, Gilbert A. Long, and Kenneth Owen, Assistant Professors of Agricultural Education, for valuable suggestions and assistance in conducting this study.

INTRODUCTION

In the United States today approximately 10,000 secondary schools offer courses in vocational agriculture. In these schools, 11,000 teachers provide systematic instruction in agriculture to about 426,000 students. Ever since the passage of the Smith-Hughes Act in 1917, these programs were designed to train persons for farming.

Because of technological changes in agricultural production, there has been a shift of jobs formerly performed on the farm to off-farm, urban centers. Agriculture is continuing its rapidly changing features. It no longer is confined to farming operations, but embraces many businesses and services which are farm or farm product based. The Vocational Education Act of 1963 broadened the scope of vocational agriculture to include not only training for farming, but also the training for non-farm agricultural occupations.

Fewer but larger farms is the continuing trend in U.S. agriculture. Preliminary data for 1966 indicate we have 3,286,000 farms with an average size of 350 acres.¹ In 1959, these totals stood at 4,105,000 and 288.

The changes in estimated national totals have been much greater for the number of farms than for land in farms. Farm numbers during the period 1959 to 1966 declined 20 per cent, while land in farms decreased only 3 per cent.

Discontinuance of small farming enterprises and merging of larger units with existing farms continue as important influences in the change in farm numbers.

Final estimates by the Crop Reporting Board for 1965 gave the total land in farms as 1,155,000 acres, a decrease of less than 1 per cent from 1964.

The great gains since 1940 in hourly output in the production of food and feed grains have not been matched in the production of livestock. However, a special push has been under way in recent years to improve the labor productivity in livestock production. Technical means are now available for increasing output of labor even beyond the large increases made in crop production. It is now possible to produce with two or three hours of work the beef that took 25 hours a few years ago; to care for 15,000 hens with the labor that was once needed for 1,500 hens.²

There are 6.5 million workers in production farming and 16.5 million workers in processing, distributing, and providing farm supplies. This 23 million equals more than one-third of the nation's working population.³ This is the largest single employment complex in America. Most of the workers in this large employment group need preemployment education and training in agriculture. Without these millions of people, and without proper educational opportunities for them, our miraculous system of food and fiber production would not exist.

¹The Farm Index, V, No. 3 (March, 1966), p. 13.

²Ibid., V, No. 4 (April, 1966), p. 5.

³USDA Fact Book of U.S. Agriculture, January, 1965.

In Washington State fewer farmers, but bigger farms, produced \$637.3 million worth of agricultural products in 1964. The latest Census Bureau report said the 1964 farm product sales total was \$68 million greater than in 1959, the last previous year of a federal census in the state.⁴

The report said 44.7 per cent of Washington's 42,693,760 acres was in farms in 1964. That is about 1 per cent more than in 1959. But, the number of individual farms dropped from 51,574 to 45,574, and the average farm size jumped from 362.9 to 418.1 acres.

The Bureau said the average value per farm* also jumped from \$55,075 in 1959 to \$65,609. Crop sales accounted for \$381 million of the 1964 state farm income total, \$27 million above the 1959 figure.

An even greater gain was reported for livestock and livestock products, jumping from \$215.4 million in 1959 to \$255.6 million in 1964.

Field crops were reported up \$12 million to \$240.7 million, and sales of fruits and nuts jumped from \$11 million to \$96.8 million according to the Bureau.

Yakima County led the state's 39 counties in 1964 with sales totaling \$118 million. Grant County was second at \$63 million.

As our state and nation continue toward more urbanization and as farms become larger and more productive, there will continue to be an increased need for more skill and knowledge, not only in production agriculture but in those occupations related to farming as well.

Related Studies

Numerous studies dealing with employment in off-farm agricultural occupations have been conducted throughout the United States in the past two years. A number of these were initiated as the result of a conference that was held at Ohio State University in January of 1964 to plan and promote such studies. A brief review of several of these studies is presented in the following paragraphs.

Richard A. Baker⁵ found from a sample of 20 Alabama counties that: (1) there were 17 different types of off-farm agricultural businesses,

⁴Emory Wilcox, 1964 U.S. Census of Agriculture: Washington, Preliminary Report, Series AC 64-P1 (Washington, D.C.: U.S. Department of Commerce, Bureau of Census, September, 1966).

*Farm: 10 acres or more or if less, having sales of \$250 or more annually.

⁵Baker, R. A. A Study of Employment Opportunities in Off-Farm Agricultural Occupations in Alabama, Department of Vocational, Technical and Practical Arts Education, Auburn University, Auburn, Alabama, 1965.

industries, and services operating in the 20 counties; (2) there were 184 different off-farm agricultural occupations in the 20 counties; (3) employers preferred employees with farm or rural background; and (4) data collected from employers projected an 8 per cent increase in number of opportunities available in off-farm agricultural occupations five years hence in the 20 counties.

William Stevenson,⁶ reporting studies of some 700 Oklahoma agriculturally based firms, concluded that certain competencies appeared to be important regardless of the type of business or level of employment. The competencies desired most by employers were:

1. Customer Relations
2. Writing
3. Salesmanship
4. Safety
5. Public Speech
6. Employee Relations with Fellow Workers
7. Experience in Management Decisions and Problem-Solving
8. Inventory, Stock Control, and Warehousing
9. Receiving, Marking, and Shipping
10. Employee-Supervisor Relations.

Roy L. Butler⁷ concluded that 644 employees will be needed in ornamental horticultural businesses in Oklahoma in the next five years. Many managers expressed concern regarding the possibility that potential employees with the desired training would not be available.

Mark F. O'Neill⁸ determined that there were 539 part-time and full-time employees engaged in nursery, landscape, and tree service businesses in Kent County, Michigan, in 1966.

After interviews with representatives of 121 establishments in Arizona, L. A. Wagley found that there will be a 20 per cent increase in the number of employees who need agricultural training. Service personnel will be in greatest demand; sales personnel will be in second greatest demand. Of the 5,427 total employees in the establishments, 779 or 14.4 per cent currently need training in agriculture. The categories presently requiring the greatest number of employees are "Sales" and "Processing."⁹

⁶Stevenson, William, "Characteristics and Competencies Desired By Employees in Agricultural Related Businesses," The Agricultural Education Magazine, Volume 38 (April, 1966), pp. 236-37.

⁷Roy Lunn Butler, A Study of Employment Opportunities and Characteristics Desired for Gainful Employment in Ornamental Horticultural Occupations in Oklahoma. Report, M. S., 1965, Oklahoma State University, 35 p. Department of Agricultural Education, Oklahoma State University, Stillwater.

⁸Mark F. O'Neill, A Survey of Occupations in the Nursery, Landscape and Tree Service Businesses in Kent County, Michigan, Michigan Department of Education, Lansing, Michigan, March, 1966.

⁹L. A. Wagley, Educational Requirements for Off-the-Farm Agricultural Occupations in Yuma County, Arizona (unpublished Ed.D. dissertation, University of Arizona, Graduate College, 1964).

C. L. Mondart and C. M. Curtis studied businesses engaged in handling farm products and/or providing Agricultural Services in seven metropolitan areas of Louisiana. They found that 30 per cent of all their workers had agricultural competencies. There is an expected increase of 8.2 per cent of total workers needing these competencies in five years.¹⁰

H. V. Judge, in a Massachusetts study based on interviews with selected employers of workers in agricultural businesses and using a 10 per cent state-wide sample, drew these conclusions: over one-half of the firms interviewed listed sales as the main function of the firm; over 60 per cent of the employers stated they would be willing to hire high school students as trainees in their firms; there were 30,591 total full-time and part-time workers employed in agricultural businesses, compared with 17,000 persons engaged in production on farms in the state; and 63 per cent of the workers in businesses needed agricultural competencies.¹¹

W. L. Griffin interviewed representatives of agriculturally related businesses in Missouri that employed personnel whose knowledge of agriculture was beneficial in their job performance. He found that almost one-half of the firms surveyed were classified under Farm Supplies and Equipment. The majority of the firms surveyed had been in business over 15 years. Almost 70 per cent of the firms were willing to cooperate in a program of hiring high school students as trainees. Methods most frequently used by the employers for obtaining agriculturally oriented personnel were: friends' recommendations, persons dropping in seeking employment, and present employees' recommendations.¹²

H. R. Cushman, V. E. Christensen, and G. R. Bice, in a New York study based on interviews with representatives of businesses and services which have employees needing agricultural competencies, concluded that the occupational groups expecting the largest percentage increase of employees in the next five years were "Farm Machinery Sales and Services" and "Wild-life and Recreation." The occupational group expecting the largest number increase of employees in the next five years was "Farm Supplies and

¹⁰C. O. Mondart and C. M. Curtis, Occupational Opportunities and Training Needs for Nonfarm Agricultural Jobs in the Metropolitan Areas of Louisiana (Louisiana State University, College of Agriculture, January, 1965).

¹¹H. V. Judge, Competencies Needed in Non-Farm Agricultural Occupations in Massachusetts, Research Study Presented to the Massachusetts Vocational School Directors, Auburn, Massachusetts, March 2, 1965.

¹²W. L. Griffin, Agricultural Occupations Other Than Farming in Missouri, Joint Staff Study--State Department of Education, Teachers of Vocational Agriculture, Agricultural Education Department, University of Missouri, 1964.

Equipment." It was further estimated that an additional 18,950 persons would be employed in these groups as part-time workers.¹³

From the findings of the foregoing and other studies, the following generalizations have been drawn:¹⁴

1. Almost half the people employed in off-farm agricultural businesses need education or training in agriculture.
2. Employers expect about a 20 per cent increase in the number of employees needing agricultural competencies in the next five years. This parallels the anticipated expansion in the total labor force.
3. Need for greatest numbers of agriculturally trained employees will be in agricultural supplies sales and services, agricultural machinery sales and services, ornamental horticulture services, and livestock and crop food products marketing and distribution.
4. Agricultural competencies needed are mainly determined by the products handled by the business.
5. Many of the agricultural subjects taught to students preparing for production farming also will be needed by students who enter off-farm agricultural occupations.
6. There are many instances in which vocational agriculture may support, or be supported by, other vocational subjects taught.
7. Salesmanship, human relations, and business management are competencies needed by all employees, but in varying degrees.
8. Industrial competency needs generally are low for most fields of activity in agricultural businesses.
9. Beginning salaries and wages for service workers are relatively low. Effective training programs should make it possible for new employees to earn higher incomes.
10. To continue in a vocational-technical education program beyond the twelfth grade is appropriate for many persons, since most employers consider 20 years to be a minimum entry age.
11. Trainees with a farm background or farm experience have a definite advantage when seeking employment in off-farm agricultural businesses.

¹³H. R. Cushman, V. E. Christensen, and G. R. Bice, Off-Farm Occupations in New York State, A Cooperative Research Project of the Rural Education Department, New York State College of Agriculture, and the Bureau of Agricultural Education, Albany, New York, 1965.

¹⁴Summary of Research Findings in Off-Farm Agricultural Occupations, Center for Vocational and Technical Education (Columbus, Ohio: The Ohio State University, 1965), pp. v-vi.

12. Occupational titles needing the greatest number of new employees, not including professional workers, in the next five years are:

Agricultural Machinery Mechanic
 Agricultural Machinery Mechanic's Helper
 Agricultural Machinery Set-up Man
 Agricultural Machinery Salesman
 Agricultural Machinery Partsman
 Agricultural Supplies Salesman
 Agricultural Supplies Serviceman
 Agricultural Supplies Deliveryman
 Greenhouse Grower
 Greenhouse Worker
 Nursery Worker
 Greenskeeper
 Groundskeeper
 Food Products Processman
 Food Products Salesman
 Food Products Department Manager

Purpose of the Study

The purpose of this study was to secure information about the non-farm agricultural occupations in the state of Washington upon which to provide occupational guidance in agriculture and to aid in planning new programs in agricultural education.

Specific Objectives of the Study

1. To identify present and emerging agricultural occupations, other than farming, for which vocational and technical education should be available.
2. To determine present and anticipated numbers of employees in these occupations and their job titles.
3. To determine competencies needed for entry and advancement in these occupations.
4. To determine other characteristics of these occupations such as salary, age for entry, physical requirements, and other qualities desired in the employee.
5. To determine the educational needs of those employed in these occupations.

Definition of Terms

An agricultural occupation, for the purpose of this study, is one in which the workers need competencies (knowledge and skills) in one or more of the primary areas of plant science, animal science, agricultural business management and marketing, and agricultural mechanization.

Basic Assumptions

The following statements were believed to be generally accepted and were not studied in this project:

1. Employers and the employees themselves could identify the competencies needed for successful job performance.
2. Information secured through this study would provide valuable information for curriculum development for off-farm agricultural occupations training programs.
3. The master list of firms is reasonably complete and representative of the businesses and services which employ persons needing agricultural competencies.

Major Limitations of the Study

These statements served to circumscribe this study:

1. This study was concerned primarily with those positions which are generally considered below the professional level.
2. The study was limited to firms doing business in Washington that were believed to employ persons that need proficiency in agricultural competencies.
3. The study may have been limited by some variation in the diligence and accuracy of the sixty interviewers.
4. The study may have been limited because there was no single official source at the state level from which to secure a reliable list of firms which employed agriculturally competent personnel.

Procedure

Data were gathered by means of survey forms. The information was secured through personal interviews with owners, managers, or other persons in companies, businesses, and agencies who were considered best qualified to provide the desired information about the occupations and the employees.

Teachers of agriculture throughout the state prepared lists of the businesses in their areas that in their judgment employed people in the agricultural occupations. The yellow pages in telephone directories were used in compiling these lists. The lists were then combined and alphabetized into a master list of 2,952 firms. It was not possible to determine how accurately this master list represented all of the businesses and service agencies in the state which were in some way agriculturally related and thus employed persons who needed agricultural competencies.

Teachers of agriculture were given an opportunity to volunteer for interviewing. Sixty teachers volunteered and attended a half-day training session following the annual 1965 Vocational Agriculture Teachers Conference

at Bellingham. Techniques of interviewing were explained. Teachers were given an opportunity to study the forms and to ask questions in order fully to understand the forms and all other aspects relating to the gathering of information.

From the master list of 2,952 firms a sample of 472 firms was drawn. Assignments for interviewing were then given to the teachers who volunteered. The teachers were paid for each firm interviewed, for mileage, and for other expenses incurred in gathering the information.

PRESENTATION OF DATA

General Information, Firms, and Employees

Of 472 samples drawn from the total population, 437 were contacted by interviewers. Of the firms interviewed, 336 employed persons who needed agricultural competencies. Since 75 per cent of the firms in the sample employed persons who needed agricultural competencies, the assumption was made that 75 per cent of the total population had this characteristic. It was thus assumed that the total population of firms that employed agriculturally trained persons was 2,214. The responding sample represented 15 per cent of the total population.

Each of the firms that were included in the study was asked to supply information about the business such as location, kind of product or service dealt with, the per cent of business devoted to agriculture along with other information. Tables 1 through 5 deal with the general information gathered about the businesses and services included in the study.

Location of Firms by Counties

In Table 1 is a listing of the counties showing the population and the number of farms and the number of firms which were located in each of the counties. Nearly all of the counties in the state are well represented. Some small counties, however, and counties which had relatively few establishments that employ agriculturally trained people were not represented in the sample. Lewis County is an exception and needs special comment. Firms which were located in Lewis County and that were included in the original sample could not be contacted and thus no information was gathered from Lewis County places of business. As one would expect, a large number of firms were drawn in Yakima and King counties. Other counties with fairly large representation were Chelan, Pierce, Skagit, Spokane, Whatcom, and Whitman. There seems to be no uniform pattern of relationship between the number of firms included in the study by counties, either by the number of farms in these counties or by the population in the county.

Listings of Agricultural Occupations Other Than Farming

Table A-1 lists the various agricultural occupations other than farming by job title. These job titles are taken from the Dictionary of Occupational Titles, and have been grouped into "families" in accordance with the product or service to which they are related.¹⁵ Also shown is the number of employees that were reported in this study in each job title. There were few job titles for which there were no employees reported. For many there was not a sufficient number of responses upon which to base sound calculations.

Responses indicated that in the firms covered by this study, employees served in 158 different job titles. Calculations are based largely on the 49 job titles for which there were adequate numbers of responses.

¹⁵Dictionary of Occupational Titles, Definition of Titles, Vol. 1,
Washington: Government Printing Office, 1949.

TABLE 1

LOCATION OF FIRMS IN SAMPLE BY COUNTIES

County	Population	Number of Farms	Number of Firms
Adams	9,929	744	1
Asotin	12,909	234	
Benton	62,070	1,249	5
Chelan	40,744	1,483	16
Clallam	30,022	723	2
Clark	93,809	2,610	8
Columbia	4,569	299	1
Cowlitz	57,801	867	10
Douglas	14,890	866	1
Ferry	3,889	248	1
Franklin	23,342	789	4
Garfield	2,976	248	4
Grant	46,477	1,592	8
Grays Harbor	54,465	756	4
Island	19,638	441	
Jefferson	9,639	209	
King	935,014	1,825	66
Kitsap	84,176	845	4
Kittitas	20,467	737	6
Klickitat	13,455	656	2
Lewis	41,858	2,139	
Lincoln	10,919	935	7
Mason	16,251	297	3
Okanogan	25,520	1,618	6
Pacific	14,674	450	1
Pend Oreille	6,914	310	
Pierce	321,590	2,054	22
San Juan	2,872	166	5
Skagit	51,350	1,540	20
Skamania	5,207	161	
Snohomish	172,199	2,413	8
Spokane	278,333	2,375	19
Stevens	17,884	1,455	1
Thurston	55,049	1,193	4
Wahkiakum	3,426	278	
Walla Walla	42,195	914	6
Whatcom	70,317	2,782	15
Whitman	31,263	1,633	18
Yakima	145,112	5,440	58
Total			336

These occupational families had few employees reported: Wildlife and Recreation, Farm Service Occupations, and Agricultural Service Occupations. The reason for this is that firms and services that employed persons largely at the professional level were not included in the study. For example, many of the job titles in the Agricultural Services Occupations are generally filled by college graduates.

The number of responses by "Families of Occupations" are shown in Table 2. Since there was a relatively small number of firms and agencies in the sample that dealt in "services," it is understandable that there would be few responses from the "Service" and "Wildlife and Recreation" occupations.

TABLE 2
NUMBER OF RESPONSES BY FAMILIES OF OCCUPATIONS

Families of Occupations	Number of Responses	Per Cent
100 Farm Machinery Sales and Service Occupations	185	22.0
200 Farm Supplies and Equipment Occupations	193	22.8
300 Livestock and Poultry Industries Occupations	118	14.0
400 Crops, Forestry, and Soil Conservation Occupations	176	20.8
500 Ornamental Horticulture Occupations	107	12.7
600 Wildlife and Recreation Occupations	7	.8
700 Farm Service Occupations	25	3.0
800 Agricultural Service Occupations	33	3.9
Total	844	100.0

Per Cent of Firm's Business Devoted to Agriculture

A prerequisite for selecting a firm to be included in the study was that it be agriculturally based and likely to employ persons that have agricultural competencies. It is clear from the data in Table 3 that the majority of the firms dealt exclusively with agriculture. Nearly two-thirds of the firms devoted 90 per cent or more of their business to agriculture. Twelve per cent of the firms devoted less than half of their business to agriculture.

TABLE 3

PER CENT OF FIRMS' BUSINESS DEVOTED TO AGRICULTURE

Per Cent Devoted to Agriculture	Number of Firms
100	190
90 to 99	29
80 to 89	18
70 to 79	13
60 to 69	12
Less than 50	40
Services--golf course, parks	15
No response	19

Positions of Persons Interviewed

It is evident that the interviewers were successful in securing their information from the firms' managements in nearly all cases. Nearly 90 per cent of the respondents were managers, owner-managers, presidents, or sales managers. Details are shown in Table 4.

TABLE 4

POSITIONS OF PERSONS INTERVIEWED

Position	Number Reported
Manager	134
Owner-Manager	136
President of Corporation	16
Veterinarian	10
Sales Manager	6
Unit Conservationist	2
Secretary-Treasurer	5
Vice-President of Corporation	3
Personnel Manager	4
Field Representative	3
Clerk	2
Greenskeeping Foreman (golf course)	2
Bookkeeper	2
All others	11

Dates of Establishment of Firms in Sample

Nearly one-fourth of the firms responding in this study were established prior to 1930. Just over one-half of the firms were established since 1940. Details can be seen in Table 5.

TABLE 5

DATES OF ESTABLISHMENT OF FIRMS IN SAMPLE

Dates Established	Number of Firms
Prior to 1900	12
1901 to 1920	25
1921 to 1930	41
1931 to 1940	65
1941 to 1950	70
1951 to 1960	77
1961 to present	31
Not reporting	15

FindingsMajor Products, Services, and
Number of Establishments

Examination of the data in Table A-2 reveals that the major products and services of the firms in the study were:

1. Farm Machinery and Equipment Retail Sales and Service
2. Feed, Seed Processing and Retail, and Farm Supplies Retail
3. Farm Chemicals
4. Dairy Products Processors and Distributors
5. Fruit Processing, Sales, Warehousing
6. Nursery Production, Sales, Landscaping Service
7. Flower Production and Sales
8. Agricultural Service Organizations

The 336 firms that supplied the information shown in Table A-2 employed a total of 5,228 persons on a full-time basis.

Few women needing a knowledge of agriculture were employed in the establishments included in this study. All of the 21 women employed were serving in office positions except for one egg candler, one veterinary assistant, and one groomer.

Number of Employees and
Expected Increases

Data in Table A-3 show that in the 336 firms there were employed 1,953 persons who needed competencies in agriculture. Respondents estimated that a total of 2,135 such employees would be needed in these firms by 1970. Based on these figures, it was calculated that there are presently about 13,000 employees in Washington who require competencies in agriculture (sample = 15 per cent of population) and that 14,230 or an increase of 9.5 per cent will be required by 1970.

Table A-3 also contains data which show where increased employment might be expected. Occupations destined for expansion are Machinery Sales and Service area, Grain Elevator Employees, and Landscape Gardeners.

An examination of the figures in Table A-3 also reveals that there is apt to be less demand for Managers of Farm Machinery Sales and Service Businesses, Dairy Plant Employees, and Sales Managers of firms in crops, forestry, and soil conservation.

Hiring Ages

With respect to hiring ages, the responses, as summarized in Table A-3, show rather clearly that firms generally are not interested in hiring the young man just out of high school. Indications are that most firms have a minimum hiring age of around 23 years. Hiring age of cannery plant employees was 19 years, but many of these are quite likely seasonal employees. Another exception was the hiring age for clerks where the mean in years was reported as 18.

TABLE 6

JOB TITLES FOR WHICH HIRING AGES WERE RELATIVELY HIGH

Code No.	Job Title	No. of Responses	Mean Years
104	Farm machinery service center foreman	8	35.00
208	Feed mill	3	44.00
202	Sales manager	3	35.00
222	Office manager	6	40.00
307	Fieldman	3	35.00
332	Cattle feeder and herdsman	2	40.00
333	Lot manager.	2	35.00
343	Hatchery manager	3	35.00
401	Cannery or processing plant fieldman	14	36.60
501	City, state, or national park employee	3	37.50
609	Riding instructor.	4	38.00
718	Rural real estate representative	3	37.50
824	Farm credit manager.	2	35.00

More details on hiring ages are shown in Table 6 where data indicate that the hiring age for many job titles, especially those having managerial responsibility, are apt to be in the 35 to 40 year range.

Hours Worked Per Week

The number of hours that employees work per week is shown by job titles in Table A-4. It is evident from an examination of the data in Table A-4 that most job titles, on the average, demand more than a 40-hour week.

Only a few of the job titles such as "Dairy Plant Employee," 36 hours; "Farm Equipment and Supply Salesman," 40 hours; "Office Manager," 40 hours and "Crop Sprayer," 40 hours held to the 40-hour week or less on the average. It would appear that employees in the great majority of the job titles in non-farm agricultural occupations were employed from 44 to 50 hours per week on the average.

Those with management responsibility seemed to fall quite consistently in the range of 46 to 48 hours of work per week.

In Table 7 are listed the job titles of many employees and their mean hours of work per week. Note that many of these job titles have managerial aspects and that many are salesmen.

TABLE 7
NUMBER OF HOURS WORKED PER WEEK FOR JOB TITLES
WITH MEANS ABOVE 46

Code Number and Job Title	Number Reporting	Mean Hours
104 Farm Machinery Service Center Foreman	8	48
106 Farm Machinery Parts Manager.	19	47
107 Farm Machinery Salesman	22	47
200 Store Clerk	4	50
206 Farm Equipment Serviceman	5	47
213 Truck Driver, Fertilizer.	5	48
217 Chemical Fieldman	15	47
218 Assistant Manager (Farm Supplies)	7	50
302 Dairy Plant Manager	6	49
321 Meat Department Manager	2	48
324 Livestock Auction Manager	4	48
501 Park Employee	3	47
502 Florist	25	47
507 Golf Course Superintendent	7	47
609 Riding Instructor	4	48
718 Rural Real Estate Representative	3	56
721 Manager (Farm Service Occupations)	3	52
724 Pilot's Helper	4	60

Tenure by Job Titles

There seemed to be a rather wide range in the number of years that employees worked in a particular job title. Examination of the data in

Table A-3 shows quite clearly that those in managerial job titles had longer tenure than most other employees. For example, the office worker in the farm machinery sales and service business had a job tenure of 8.5 years, the mechanic had nearly 10 years, and the manager 18 years. It is likely that in these firms many of the workers who display competence as employees are advanced and eventually attain managerial position.

The means of the years of tenure for several groups were:

- a. Farm machinery sales and service, 10.9 years.
- b. Farm supplies and equipment, 12.7 years.
- c. Crops, forestry, and soil conservation occupations, 15.2 years.

The implication that can be drawn from the data is that many employees have long tenure due to job satisfaction, opportunity for advancement, or for other reasons choose not to leave the firm.

Monthly Salaries

Monthly salaries of employees are shown by families of occupations and by job titles in Table A-4. One must realize that there is often a wide range of salaries in any given occupation depending on many factors among which may be length of service and the level of performance of the employee. Obviously, managerial positions pay higher salaries even at the "beginning stage." The beginning manager has likely had many years of successful work experience before he becomes a manager.

It should also be recognized that salaries shown in Table A-4 include salaries of some professional people and salaries of many college graduates who usually command higher salaries than employees whose formal education ended with graduation from high school.

Lower salaries seem to prevail on the average for the groups "Ornamental Horticulture Occupations" and "Wildlife and Recreation Occupations" than in other occupational families.

For 565 respondents, it was found that the mean beginning monthly salary was \$462 and that the mean of high salaries obtained was \$677 per month.

Activities and Duties by Job Title

The activities and duties associated with each job title are shown in Table A-5. Each respondent was asked to identify the activities and duties of his particular job title by means of an open end question. Nearly all respondents identified three or more activities. Those who had management responsibilities obviously performed a wider range of duties.

Included here are only those job titles in which four or more employees were reported. With respect to the listings of activities and duties, only those mentioned most frequently were included. Although there were many other activities and duties that were mentioned only once, they were deemed of less importance and were thus omitted from the listing.

One might observe from the information in Table A-5 that the activities and duties listed for each job title are those which one would generally expect.

Residential Background Preference

Upon examination of the data in Table 8, it seems clear that employers prefer a farm background for employees in non-farm agricultural occupations. Collectively, 53 per cent of the responses favored a farm background. Nearly one-third expressed no preference with respect to residential background, and 15 per cent gave rural non-farm as their preference. Only 1 per cent expressed preference for an urban background.

TABLE 8
EMPLOYER PREFERENCE OF RESIDENTIAL BACKGROUND
FOR NEW EMPLOYEES

Job Title by Groups	No. of Resp.	Farm		Rural Non-farm		Urban		No. Preference	
		No.	%	No.	%	No.	%	No.	%
Farm Machinery Sales and Service Occupations	185	105	57	33	18	3	2	44	23
Farm Supplies and Equipment Occupations	191	119	62	23	12	2	1	47	25
Livestock and Poultry Industries Occupations	115	66	57	7	6	1	1	42	37
Crops, Forestry, and Soil Conservation Occup.	175	83	47	30	17	0	0	65	37
Ornamental Horticulture Occupations	105	37	34	23	21	3	3	42	40
Wildlife and Recreation Occupations	7	3	43	2	29	0	0	2	29
Farm Service Occupations	25	11	44	6	24	1	4	7	28
Agricultural Service Occupations	34	22	65	3	9	0	0	9	26
All	841	446	53	127	15	10		258	31

Educational Level Desired

The educational level desired in employees in the firms cooperating is revealed by the data in Table A-6. It is evident that the person seeking employment in off-farm agricultural occupations should have at least a high school education. Only three per cent of the respondents indicated that high school education was not necessary. Thirty-seven per cent said that high school graduation was sufficient education for entry into the occupation and one-third of the responses indicated that technical education beyond high school or "some college work" would be desirable. It was revealing that nearly one-fourth of the responses stated that college graduation was desired.

The job titles for which there was the most frequent expression of need for the baccalaureate degree were in the managerial or supervisory areas. Other job titles for which the need for a degree was frequently expressed were: fieldmen (7), florists (5), landscape architects (5), office workers (5), farm organization staff (4), livestock or produce buyers (4), agricultural engineers (3), salesmen (3), and dairy plant employees (3).

In view of the large number of responses indicating that education beyond high school is desired for a large portion of employees, and that employers generally desire a more mature employee, it seems clear that the young people who plan to enter employment in non-farm agricultural occupations should plan to enroll for training beyond high school.

Experience Desired

Many respondents failed to indicate whether experience was desired. Of those who did respond, many expressed the opinion that some kind of work experience in a particular area is desired. The kind of work experience seemed of less importance. Details are shown in Table 9.

TABLE 9

EXPERIENCE DESIRED FOR ENTRY

Kind of Experience	Times Mentioned
Experience in particular area	203
General farm experience.	40
Office and related experience.	31
Livestock experience	17
Farm machinery experience	14
Crops production	9
Truck driving.	6
Fruit production	4
Agricultural services	2
Other	16

Restrictions to Employment

Respondents were asked to indicate if they thought there were any restrictions to the entry of people into the various occupations included in the study. Relatively few thought that "licensing or certification," "labor laws," or "labor union restrictions" were barriers to entry. However, one-third of the responses indicated that "physical (age, strength)" was a consideration in entry into the occupation. Table 10 gives details on these responses.

TABLE 10

RESTRICTIONS TO EMPLOYMENT

Restrictions	No. of Responses
Licensing or Certification.	47
Labor Law Restrictions	44
Labor Union Restrictions	50
Physical (age, strength)	286

Education Desired To Advance

The question dealing with the education desired to advance on the job did not seem important to respondents as many failed to express their opinions. It was clear that those who responded favored "on-job training" as the best means of training for advancing on the job. Table 11 depicts the responses.

TABLE 11
EDUCATION DESIRED TO ADVANCE

Desired Education	No. of Responses
On-job Training	219
Agricultural College or Technical Institute	40
Short Courses Provided by Industry	25
Public School Adult Class	6

Competencies Associated with Job Titles

Respondents were asked to indicate which of the listed competencies would be "desirable" to have and which "essential" to have for the particular job title in question. The responses were given numerical value by calculating the index number¹⁶ of the responses for each job title. A summary of these findings is shown in Table A-7 where all competencies with index numbers of 39 or over are shown in descending order of importance.

An examination of the listings in the table reveals that more competencies are needed by those having managerial responsibility than those who serve as employees without such responsibility.

The more specialized jobs seem to require only a limited number of competencies.

As stated above, only those competencies having index numbers of 39 or more are listed in Table A-7. Of the competencies deemed important enough to be listed, many appear to be important to most of the 46 job titles.

¹⁶The index number is defined:

$$\text{Index no.} = \frac{\text{number of "desirable" responses} + 2 (\text{no. of "essential" resp})}{\text{maximum possible "desirable" responses} + 2 (\text{"essential" resp})} \times 100$$

These are the competencies and the number of job titles for which they are important:

Employee relations with supervisor	43
Employee relations with fellow workers	43
Salesmanship and customer relations	35
Communications	32
Inventory, stock control, warehousing	24
Business mathematics	24

Job Titles Requiring Specific Groups of Competencies for Entry and Advancement

In order to determine the relative importance of each group of competencies to each job title, the competency index number¹⁷ was calculated for each job title. Shown in Table A-8 are the listings of the job titles that need specific groups of competencies. Only those job titles having a competency index of 25 or higher are listed. The lists of job titles are longest for the groups of competencies "Duties of Employees" and "Business Organization and Supervision." These groups of competencies are of such a nature that the respondents, who themselves were in business, felt that the competencies were important in many of the job titles.

The listings in Table A-8 give evidence that relatively few of the job titles reported in this study needed "Trade and Industrial" groups of competencies.

¹⁷The competency index numbers which are used in Table A-8 are defined as:

$$\text{Index} = \frac{\text{No. of resp. "desirable" + 2 (no. of resp. "essential")}}{\text{Maximum possible no. of "desirable" resp. + 2 ("essen" resp.)}} \times 100$$

For example, for the job title 207, Feed Salesman, the six responses showed that the five Animal Sciences competencies were judged "desirable" 14 times and "essential" 11 times. Thus, 14 and 2 (11) were placed above the line. "Essential" responses were given two times the importance of "desirable." Below the line was placed the total number of possible responses or five times the greatest possible number of responses thus 5×2 (6) where 6 is number of times "essential" could be checked and 2 the weighting given to essential. The five is used because there are five competencies and thus five possible responses under Animal Sciences. The calculation for this example, which had six responses, is then:

$$\text{Competency Index} = \frac{14 + 2 (11)}{5 \times 2 (6)} \times 100 = 60$$

Relationships of Competencies

An examination of Table A-9 reveals the relationships that exist among competencies.¹⁸ It should be noted that close relationships exist among specific competencies within groups of competencies. For example, when "Plant propagation, seed production" is important, the other plant science competencies are relatively important.

The data also indicate that the "Trades and Industries" competencies are generally of little importance when "Agricultural" competencies are important. There seems to be a relatively close relationship between "Agricultural" competencies and "Business and Distribution" competencies.

Relationships of Groups of Competencies

A careful study of the patterns of relationships that are displayed in Table A-9 leads to the conclusion that close relationships exist among groups of competencies. For example, when competencies in the group "Plant Sciences" are important, the group of competencies "Business Organization and Supervision" is also important as are the "Duties of Employees" competencies.

Listed below are the groups of competencies that seem to have a closer relationship to the underlined group of competencies than to other groups. That is, the group in question is underlined, and listed immediately below are the closely related groups of competencies.

Plant Sciences

Business Organization and Supervision
Duties of Employees
Agricultural Business Management and Marketing
Agricultural Mechanics and Automation

¹⁸ Each respondent indicated how important he thought each competency was for performing tasks in the job title in which he served. A value of one was placed on each response of "desirable" and a value of two was given to each response of "essential." The total value of a particular competency was N (number of times the competency was checked "desirable") plus $2N$ (number of times the competency was checked "essential"). Thus for the competency, "plant propagation and seed production" the total value of responses was 417. With this as the base of 100 per cent, a determination was made of the percentages that the total value of each other competency had to the base. Thus for the competency "plant propagation and seed production" having a total value of 417, there were sufficient responses to the competency "plant growth and fertilization" to make a total value 344 for a percentage of 83. In other words, the data would indicate that when 100 agricultural employees indicate that the competency "plant propagation and seed production" is important, 83 of them are likely also to indicate that the competency "plant growth and fertilization" is important.

Animal Sciences

Business Organization and Supervision
 Plant Sciences
 Duties of Employees
 Agricultural Mechanics and Automation
 Agricultural Business Management and Marketing

Agricultural Business Management and Marketing

Management and Economics of Business
 Duties of Employees
 Business Organization and Supervision

Agricultural Mechanics and Automation

Plant Sciences
 Business Organization and Supervision
 Agricultural Business Management and Marketing
 Duties of Employees

Duties of Employees

Business Organization and Supervision
 Management and Economics of Business
 Agricultural Business Management and Marketing

Business Organization and Supervision

Duties of Employees
 Management and Economics of Business
 Agricultural Business Management and Marketing

Management and Economics of Business

Business Organization and Supervision
 Duties of Employees
 Agricultural Business Management and Marketing

Construction Trades

Related Subjects
 Metal Trades
 Business Organization and Supervision
 Agricultural Mechanics and Automation

Metal Trades

Related Subjects
 Agricultural Mechanics and Automation

Technicians

Related Subjects
 Metal Trades
 Business Organization and Supervision

Electrical Trades

Metal Trades
 Related Subjects
 Construction Trades
 Technician

SUMMARY OF FINDINGS

Calculations based on the sample would indicate that there were probably around 2200 establishments in Washington that employed persons who need competencies in agriculture. These firms were likely employing around 35,000 persons of which 13,000 or 37 per cent needed agricultural competencies.

The 336 firms that cooperated in this study indicated that in the next five years they would probably hire an additional 1200 employees needing agricultural training. This is less than a 10 per cent increase for the five years. Each year the 2200 firms will need, for increased employment, 240 employees. In addition they will probably need nearly 400 employees as annual replacements. Thus it is estimated that around 640 agriculturally trained persons will be needed each year for employment in non-farm agricultural occupation in Washington.

The 768 responses indicated employment in 158 different job titles.

Firms generally did not hire their employees just out of high school, but preferred those who were 23 to 30 years of age. These employees stayed in a given job title from 11 to 15 years on the average.

These employees worked more than the 40-hour week which is now so common in industry. Those with managerial responsibility worked more hours per week, on the average, than those without managerial responsibility.

The mean of all beginning salaries reported was \$462 per month, and the mean of all high salaries reported was \$677 per month. There was a wide range in salaries.

Persons seeking employment in non-farm agricultural occupations should have at least a high school education. For a large portion of the positions, the employee should have some education beyond high school. Nearly a quarter of the responses indicated that college graduation was desired, especially for management positions.

A farm background and some type of work experience was found to have definite advantage to the person seeking employment in a non-farm agricultural position.

These competencies were considered important for entry into most of the job titles:

1. Employee relations with supervisor.
2. Employee relations with fellow workers.
3. Communications.
4. Salesmanship and customer relations.

Specific competencies which were important for entry into the job titles included in the study were identified for each job title. Also identified were the job titles which needed specific groups of competencies.

Grouping of the competencies included in the study was evident. There was close relationship among the plant science competencies just as there was close relationship among the animal science competencies, the agricultural mechanics competencies, and the agricultural business management competencies.

CONCLUSIONS

A study of the foregoing data and findings indicates these conclusions:

1. Over one-third of the people employed in non-farm agricultural businesses need education in agriculture.
2. Employers expect nearly a 10 per cent increase in the number of employees needing agricultural competencies in the next five years.
3. The need for a greater number of agriculturally trained employees is expected in Farm Supplies and Equipment Sales, Farm Machinery Sales and Service, and in Ornamental Horticulture occupations.
4. Many of the agricultural subjects taught to students preparing for production farming will be needed by persons who enter non-farm agricultural occupations.
5. There are occasions in which other vocational subjects will support agricultural training programs for non-farm agricultural occupations.
6. Communications, salesmanship and customer relations, employee relations with supervisor, and employee relations with fellow workers are needed by a high percentage of employees.
7. Trades and industrial competency needs generally are low for most fields of activity in agricultural business.
8. Continuing education beyond high school is quite appropriate for many persons, since most employers consider 23 to be the minimum entry age.
9. Persons with a farm background have a definite advantage when seeking employment in non-farm agricultural businesses.
10. Most of the firms interviewed were multifunctional. Purchasing, service, and retailing were the predominant functions among the businesses studied.
11. It is estimated that around 640 new employees who are agriculturally trained will be needed in non-farm agricultural occupations in Washington each year.

BIBLIOGRAPHY

- Agan, R. J. Study of Non-Farm Agricultural Occupations in Kansas. Department of Agricultural Education, Kansas State University, Manhattan, Kansas, 1963. 27 pp.
- Baker, James K. and Woodin, Ralph J. Educational Needs of Animal Science Technicians. A Digest of a Ph.D. Dissertation: Research Series in Agricultural Education. Columbus: Ohio State University, 1966.
- Baker, R. A. A Study of Employment Opportunities in Off-Farm Agricultural Occupations in Alabama. Dept. of Voc. Education, Auburn, Alabama, 1965.
- Barwick, R. P. Identification of Off-Farm Agricultural Occupations. Preliminary Report, Agricultural Education Publication, No. 3, Delaware, 1965. 38 pp.
- Brookover, Wilber B. and Nosow, Sigmund. "A Sociological Analysis of Vocational Education in the United States." Education for a Changing World of Work. Appendix III, United States Department of Health, Education and Welfare, Office of Education, Publication No. OE-80026, Washington, D.C.: Superintendent of Documents, Government Printing Office, 1963. 17 pp.
- Brown, Bert L. Training Needs of Workers in Businesses Associated with Agriculture. Washington State Board for Vocational Education, Olympia, Washington, 1959. 25 pp.
- Bundy, C. E. and Blake, D. L. Competencies in Agriculture Needed by Males Employed in Off-Farm Agricultural Occupations. Cooperative Study State Department of Education, and Iowa Agriculture and Home Economics Experiment Station, Iowa State University of Science and Technology, Ames, and the Vocational Agriculture Section, State Department of Public Instruction, Des Moines, Iowa, 1965.
- Butler, Roy Lynn. A Study of Employment Opportunities and Characteristics Desired for Gainful Employment in Ornamental Horticultural Occupations in Oklahoma. Report, M. S., Oklahoma State University, Department of Agricultural Education, Stillwater, Oklahoma, 1965. 35 pp.
- Christensen, Howard H. Employment Opportunities in Selected Non-Farm Businesses and Government Agencies as Related to Agricultural Training or Background, Agricultural Economics and Education Department, University of Nevada, Reno, Nevada, 1965. 96 pp.
- Clark, R. M. "Training for Non-Farm Agricultural Occupations," The Agricultural Education Magazine, October 1960, p. 84.
- Clark, R. M. The Nature of Non-Farm Agricultural Occupations. East Lansing, Michigan: Michigan State University, College of Education, 1962.
- Clark, R. M. Vocational Competencies Needed in Non-Farm Agricultural Occupations. East Lansing, Michigan: Michigan State University, College of Education, 1954.

- Curtis, C. M. and Mondart, C. L. Occupational Opportunities and Training Needs of Youth for Non-Farm Agricultural Jobs in the Baton Rouge Area. Vocational Agricultural Education, School of Vocational Education, College of Agriculture, Louisiana State University, 1965.
- Curtis, C. M. and Mondart, C. L. Occupational Opportunities and Training Needs of Youth for Non-Farm Agricultural Jobs in the Lake Charles Area. Vocational Agricultural Education, School of Vocational Education, College of Agriculture, Louisiana State University, 1965.
- Curits, C. M. and Mondart, C. L. Occupational Opportunities and Training Needs for Non-Farm Agricultural Jobs in the Metropolitan Areas of Louisiana. Vocational Agriculture Education No. 6, School of Vocational Education, College of Agriculture, Louisiana State University, Baton Rouge, Louisiana, 1965.
- Cushman, Harold R., Christensen, Virgil E., and Bice, Gary R. A Study of Off-Farm Agricultural Occupations in New York State. Ithaca, New York: New York State College of Agriculture, Cornell University, 1965. 95 pp.
- Davis, John H. and Goldberg, Ray A. A Concept of Agricultural Business. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1957. 136 pp.
- Dillion, Roy D. Comparison of Certain Abilities Needed by Workers in Licensed Ornamental Horticulture Businesses. Report of Thesis, Ed. D., Urbana, Illinois: University of Illinois, 1965. 42 pp.
- Dillion, Roy D. and Cain, Paul S. Employment Opportunities and Usable Agricultural Skills in Non-Farm Agricultural Occupations in Appalachia. School of Applied Sciences and Technology. Morehead Kentucky: Morehead State University, 1966.
- Edington, E. D. and Stevenson, B. W. Determining Training and Educational Needs for Persons Employed in Agricultural Occupations in Oklahoma. Cooperative Study, College of Agriculture, Oklahoma State University, and the Oklahoma State Department of Vocational Education, Stillwater, Oklahoma, 1964. 89 pp.
- Foster, Paul J. A Study of Agricultural Occupations Other Than Farming and Ranching in Colorado. State Board for Vocational Education, Denver, Colorado, 1965. 41 pp.
- Griffin, W. L. Agricultural Occupations Other Than Farming in Missouri. Joint Staff Study--State Department of Education, Teachers of Vocational Agriculture, Agricultural Education Department, University of Missouri, 1964.
- Hoover, Norman K., McClay, David R., and Stevens, Glenn Z. Off-Farm Agricultural Occupations in Pennsylvania. Joint Study-Department of Agricultural Education, The Pennsylvania State University, University Park and the Division of Agricultural Education, Pennsylvania State Department of Public Instruction, Harrisburg, Pennsylvania, Teacher Education Research Series, Vol. VII, No. 1, 1966. 36 pp.

- Hoover, Norman, K., McClay, David R., and Stevens, Glenn Z. Technical Education Needs of Persons Engaged in Agricultural Occupations. Joint Study-Department of Agricultural Education, The Pennsylvania State University, University Park, and the Division of Agricultural Education, Pennsylvania, 1965.
- Horner, J. T. A Study of Non-Farm Agricultural Occupations in Nebraska. Lincoln: Department of Agricultural Education, University of Nebraska, 1964.
- Judge, H. V. Competencies Needed in Non-Farm Agricultural Occupations in Massachusetts. Research Study presented to the Massachusetts Vocational School Directors, Auburn, Massachusetts, March 2, 1965.
- Judge, Homer V. Employment Opportunities and Needed Competencies in Off-Farm Agricultural Occupations in Massachusetts. Massachusetts Department of Education, Division of Vocational Education, Boston 16, Massachusetts, June, 1965. 47 pp.
- Long, Gilbert A. A Study of the Vocational Opportunities and Training Needs for a Rural Community of Northeastern Washington. Pullman: Washington State University, 1964. 86 pp.
- Masley, Philip T. Curricula Implications for Non-Farm Agricultural Employment in Connecticut. Research Coordinating Unit, Bureau of Vocational Services, Hartford, 1966.
- O'Neill, Mark E. A Survey of Occupations in the Nursery, Landscape and Tree Service Businesses in Kent County, Michigan. Michigan Department of Education, Lansing, Michigan, March, 1966.
- Richardson, Burl B. and Edington, Everett D. The Training Needed for Selected Farm Related Occupations in Four Counties in Oklahoma. Oklahoma State University, Stillwater, Oklahoma, 1964. 35 pp.
- Schank, Dean R. A Study of the Off-Farm Agriculture Occupations of Utah's Salt Lake and South Davis Counties to Determine Educational Needs. Department of Agricultural Education, Utah State University, Logan, Utah. 1964. 55 pp.
- Stevenson, William. "Characteristics and Competencies Desired by Employees in Agricultural Related Businesses." The Agricultural Education Magazine, Vol. 38, April, 1966, pp. 336-337.
- Summary of Research Findings in Off-Farm Agricultural Occupations. Center for Vocational and Technical Education, Columbus, Ohio: The Ohio State University, 1965. pp. v-vi.
- The Farm Index, V, No. 3, March, 1966. 13 pp.
- Thompson, Orville, E. Training Requirements of Workers in the Production and Distribution of Nursery Products. University of California, Davis, California, 1959. 33 pp.
- USDA Fact Book of U. S. Agriculture, January, 1965.

Venn Grant Man, Education and Work: Post Secondary Vocational and Technical Education. Washington: American Council on Education, 1964.

Wagley, L. A. Educational Requirements for Off-the-Farm Agricultural Occupations in Yuma County, Arizona. Unpublished Ed. D. dissertation, University of Arizona, Graduate College, 1964.

Wilcox, Emory 1964 U.S. Census of Agriculture: Washington. Preliminary Report, Series AC 64-Pl. Washington, D.C.: U.S. Department of Commerce, Bureau of Census, September, 1966.

APPENDIX - A

LIST OF TABLES

- A-1 Partial Listing of Agricultural Occupations Other Than Farming and Ranching, Classified by Agricultural Occupation Families and Number Reported in Each Job Title
- A-2 Major Product or Service, Number of Establishments, and Number of Employees
- A-3 Number of Persons Now Employed Full-Time and Estimates for 1970, Hiring Age, and Tenure in Agricultural Business in Washington
- A-4 Hours Worked Per Week and Salaries
- A-5 Activities and Duties by Job Titles
- A-6 Educational Level Desired for Persons Entering Agricultural Occupations Other Than Farming
- A-7 Competencies Associated with Job Titles
- A-8 Job Titles Which Need Specific Groups of Competencies
- A-9 Importance of Competencies in Relation to a Given Competency

TABLE A-1

PARTIAL LISTING OF AGRICULTURAL OCCUPATIONS OTHER THAN
FARMING AND RANCHING, CLASSIFIED BY AGRICULTURAL
OCCUPATION FAMILIES AND NUMBER REPORTED IN EACH
JOB TITLE

I. FARM MACHINERY SALES AND SERVICE OCCUPATIONS

Code No.	Job Title	Number Reported
100	Blacksmith, welder, and general repairman	11
101	Custom farm machine operator	0
102	Farm machinery mechanic's helper	2
103	Farm machinery mechanics	35
104	Farm machinery service center foreman	8
105	Farm machinery parts helper or clerk	3
106	Farm machinery parts manager	19
107	Farm machinery salesman	22
108	Farm machinery fieldman	1
109	Farm tire service operator	0
110	Manager	23
111	Assistant manager	1
112	Office worker	38
113	Equipment operator	4
114	Equipment manager	4
115	Machinist	3
116	Sales manager	2
117	Equipment salesman	3
118	Electrician	0
150	Other	6

II. FARM SUPPLIES AND EQUIPMENT OCCUPATIONS

200	Store clerk	4
201	Farm hardware and equipment store employee	2
202	Sales manager	3
203	Farm hardware and equipment store assistant manager	3
204	Farm hardware and equipment store office worker (bookkeeper, clerk)	3
205	Farm equipment fieldman	2
206	Farm equipment serviceman	5
207	Feed salesman	6
208	Feed mill employee	3
209	Farm cooperative service store employee	3
210	Farm equipment and supplies salesman	11
211	Truck driver for a feed mill or farmer cooperative	6
212	Truck driver for a fuel distributor	10
213	Truck driver for spreading bulk fertilizer or chemical sprays	5
214	Manager	43
215	District manager	6
216	Plant manager	8
217	Chemical fieldman	15
218	Assistant manager	7

TABLE A-1--Continued

219	Warehouseman	11
220	Salesman	11
221	Buyer	1
222	Office manager	6
223	Driver	2
224	Nutrition consultant and salesman-promotion specialist	1
225	Hay truck driver	0
226	Horticulture specialist	1
250	Other	13
251	Laboratory technician	2
III. LIVESTOCK AND POULTRY INDUSTRIES OCCUPATIONS		
A.	Dairying, dairy manufacturing and processing	
	300 Dairy herd supervisor	1
	301 Dairy plant employee	13
	302 Dairy plant manager	6
	303 DHIA tester	3
	304 Milk sanitarian	1
	305 Milk truck driver	5
	306 Route salesman	2
	307 Fieldman	3
	308 Sales manager	1
	310 Other	2
B.	Livestock marketing and processing	
	320 Butcher	9
	321 Meat department manager	2
	322 Livestock auction employee	0
	323 Livestock auctioneers	0
	324 Livestock auction manager	4
	325 Livestock buyer	9
	326 Livestock dealer	0
	327 Livestock truck driver	3
	328 Slaughter house or locker plant manager	1
	329 Slaughter house or locker plant employee	4
	330 Stockyard employee	1
	331 Office worker	1
	332 Cattle feeder and herdsman	2
	333 Lot manager	2
	334 Lot co-manager	1
	335 Salesman	3
	336 Other	1
	337 Inspector	1
C.	Poultry industry occupations	
	340 Egg grader	1
	341 Egg inspector	0
	342 Hatchery employee	3
	343 Hatchery manager	3
	344 Poultry and egg buyer	0
	345 Poultry debeaker	0
	346 Poultry processing plant manager	2

TABLE A-1--Continued

347	Poultry processing plant assistant manager	0
348	Poultry sexer	0
349	Salesman	2
350	Poultry processing laborer	2
D.	Livestock industry occupations (not elsewhere classified)	
360	Animal industry laboratory	1
361	Animal industry laboratory assistant	3
362	Animal industry laboratory veterinarian	0
363	Apiary inspector	0
364	Livestock disease control worker	0
365	Veterinarian	5
366	Veterinarian's assistant	7
367	Receptionist	3
370	Other	1
375	Groomer	4
IV. CROPS, FORESTRY, AND SOIL CONSERVATION OCCUPATIONS		
400	Cannery or processing plant employee	16
401	Cannery or processing plant fieldman	14
402	Field crop, fruit and vegetable inspection employee (fieldman)	10
403	Forester	0
404	Fruit and vegetable produce buyer	4
405	Fruit and vegetable employee	1
406	Fruit and vegetable manager	3
407	Grain elevator employee	9
408	Grain elevator manager	11
409	Irrigation ditchrider	1
410	Lumberman or sawmill employee	1
411	Sawmill employee	5
412	Sawmill foreman	0
413	Manager	32
414	Soil conservationist	3
415	Soil conservationist aid	1
416	Soil conservation technician	2
417	State or national forest employee	0
418	Woodsman	1
419	Sales manager	10
420	Soil scientist	1
421	Warehouse manager	8
422	Clerical	6
423	Foreman	7
424	Driver salesman	0
425	Other	14
426	Bookkeeper	5
427	Plant superintendent	3
428	Salesman	4
429	Mechanic	2
430	Production manager	1
431	Orchard foreman	1

TABLE A-1--Continued

V. ORNAMENTAL HORTICULTURE OCCUPATIONS

501	City, state or national park employee	3
502	Florist or flower grower	25
503	Garden center employee	1
504	Garden center manager	1
505	Greenhouse employee	2
506	Greenhouse manager	2
507	Golf course superintendent	7
508	Golf course employee	7
509	Ground maintenance employee	4
510	Landscape architect	6
511	Landscape gardener	14
512	Nursery employee	7
513	Nursery manager	3
514	Tree pruner	4
515	Tree surgeon	1
516	Sales manager	12
517	Laborer	2
518	Ground maintenance superintendent	2
519	Clerk	0
520	Other	4

VI. WILDLIFE AND RECREATION OCCUPATIONS

601	Fish warden	0
602	Game bird propagator	0
603	Game management employee	1
607	Game farm employee	2
608	Other	0
609	Riding instructor	4
610	Ranch foreman	0

VII. FARM SERVICE OCCUPATIONS

701	Artificial inseminator	5
702	Country butcher	0
703	Crop duster	1
704	Crop pollinator	0
705	Crop sprayer	3
706	Custom farm machine worker	1
707	Farm appraiser	0
708	Farm building painter	0
709	Farm building renovator	0
710	Feed and hammer mill operator	0
711	Field supervisor (A.S.C.)	0
712	Fruit caretaker	0
713	Fruit sprayer	0
714	Lime spreader	0
715	Mobile blacksmith shop operator	0
716	Mobile repair shop operator	0
717	Rural insurance representative	2
718	Rural real estate representative	3

TABLE A-1--Continued

719	Sheep dipper	0
720	Sheep shearer	0
721	Manager	3
722	Driver-Distributor	0
723	Surveyor	0
724	Pilot's helper	4
725	Other	2
726	Laboratory technician	1
727	Well driller	0

VIII. AGRICULTURAL SERVICE OCCUPATIONS

801	Farm auctioneer	1
802	A.S.C. field superintendent	1
803	A.S.C. office manager	2
804	A.S.C. checker	1
805	Farm placement representative	0
806	Farm advisory work, consultant	2
807	Field representative for agricultural marketing business	0
808	Agricultural advertising	0
809	Agricultural newspaper and magazine work	0
810	Farm appraiser	0
811	Farmer organization staff person	4
812	Agricultural economist	0
813	Agricultural engineer	7
814	Agricultural journalist	1
815	Agronomist	1
816	Agricultural college instructor	0
817	Entomologist	0
818	Extension work--county agent	0
819	Plant pathologist	0
820	Rural sociologist	0
821	Soil conservationist	0
822	Vocational agriculture instructor	0
823	A.S.C.S. clerk, office	4
824	Farm credit manager	2
825	Farm credit employee	2
826	Farm loans-credit	3
827	Other	2

TABLE A-2

MAJOR PRODUCT OR SERVICE, NUMBER OF ESTABLISHMENTS, AND NUMBER OF EMPLOYEES

Occupational Family and Major Product or Service	Number of Establishments	Total Number of Employees
<u>Farm Machinery Sales and Service Occupations</u>		
Farm Equipment Service	10	54
Farm Machinery and Chemical Combination Retail Sales	1	45
Farm Machinery and Equipment Retail Sales and Service	34	385
Processing Materials and Equipment	1	25
Farm Equipment Wholesalers	1	11
<u>Farm Supplies and Equipment Occupations</u>		
Consumer, Farm Supply Cooperatives	7	143
Farm Chemicals	15	157
Farm Fuel	2	4
Farm Supply Retail Stores	10	42
Feed Manufacturers, Haulers, and Wholesalers	6	43
Feed, Seed Processing and Retail, Chemicals and Farm Supplies Combination	26	191
<u>Livestock and Poultry Industries Occupations</u>		
Dairy Products Processors and Distributors	16	585
Livestock Sales and Service	8	43
Meat Processing and Wholesale	14	448
Poultry and Poultry Processing and Sales	4	133
<u>Crops, Forestry, and Soil Conservation Occupations</u>		
Food Processing and Distribution	8	286
Forestry	1	5
Fruit Processing, Sales and Warehousing	23	1,486

TABLE A-2--Continued

Occupational Family and Major Product or Service	Number of Establishments	Total Number of Employees
Grain Processing, Sales and Warehousing	12	100
Lumber and Wood Products	4	193
Other Crops--Processing, Wholesale, Warehousing	1	15
<u>Ornamental Horticulture Occupations</u>		
Flower Production and Sales	16	65
Nursery Production, Sales and Landscaping Service	33	135
Ornamental Plant Service and Turf Care	10	30
Production Agriculture--intensely specialized	3	12
Golf Course, Recreation	10	74
<u>Wildlife and Recreation Occupations</u>		
Game Birds and Riding Instruction	4	16
<u>Farm Service Occupations</u>		
Agricultural Chemical Manufacturers and Wholesale	3	26
Pest Control Service	6	25
<u>Agricultural Service Occupations</u>		
Agricultural Service Occupations	36	366
Service Organizations	2	13
<u>Other</u>		
	9	70
Totals	336	5,228

A. 8

TABLE A-3

NUMBER OF PERSONS NOW EMPLOYED FULL-TIME AND ESTIMATES FOR 1970, HIRING AGE,
AND TENURE IN AGRICULTURAL BUSINESSES IN WASHINGTON

Job Titles	Number Reporting	Now Employed	Expected in 1970	Hiring Age Mean	Mean Years in Job Title
<u>100 Series</u>					
Farm Machinery Sales and Service					
Blacksmith, welder, and general repairman.	11	26	51	27	5.8
Farm machinery mechanics	35	114	135	26	9.7
Farm machinery parts manager	19	24	26	24	10.6
Farm machinery salesman.	22	53	66	30	12.1
Manager	23	32	26	33	18.1
Office worker	38	67	78	24	8.5
Other	39	54	71		
Totals or Means	187	370	453	27	10.9
<u>200 Series</u>					
Farm Supplies and Equipment					
Farm equipment and supplies					
salesman	11	23	26	23	13.7
Truck driver for a fuel distributor	10	14	19	26	9.1
Manager	43	50	45	31	14.9
Chemical field man	15	50	67	29	10.2
Warehouseman	11	30	38	26	14.2
Salesman	11	21	37	25	8.2
Other	92	173	212		
Totals or Means	193	361	444	28	12.7

TABLE A-3--Continued

Job Titles	Number Reporting	Now Employed	Expected in 1970	Hiring Age Mean	Mean Years in Job Title
<u>300 Series</u>					
Livestock and Poultry Industries					
Dairy plant employee.	13	77	57	25	11.9
Other.	105	434	445		
Totals or Means.	118	511	502	25	11.9
<u>400 Series</u>					
Crops, Forestry, Soil Conservation					
Cannery or processing plant					
employee.	16	52	47	19	12.4
Cannery or processing plant					
fieldman.	14	16	17	37	15.0
Field crop, fruit and vegetable					
inspection employee.	10	18	15	25	13.6
Grain elevator manager	11	13	15	30	16.1
Manager	32	34	32	34	16.5
Sales manager.	10	20	7		16.3
Other	83	199	195		
Totals or Means.	176	352	328	30	15.2
<u>500 Series</u>					
Ornamental Horticulture					
Florist or flower grower	25	50	45	25	18.8
Landscape architect	14	23	36	27	11.7
Sales manager.	12	25	20	22	12.5
Other	56	86	113		
Totals or Means.	107	184	214	25	15.4

TABLE A-3--Continued

Job Titles	Number Reporting	Now Employed	Expected in 1970	Hiring Age? Mean	Mean Years in Job Title
<u>600 Series</u>					
Wildlife and Recreation.	7	7	12		
<u>700 Series</u>					
Farm Service	25	141	149		
<u>800 Series</u>					
Agricultural Service	33	27	33		
Totals		1,953	2,135		

TABLE A-4

HOURS WORKED PER WEEK AND SALARIES

Code Number and Job Title	Number Reported	Mean Hours Worked Per Week	Mean Salary Per Month Begin.	Mean Salary Per Month High
I. FARM MACHINERY SALES AND SERVICES				
100 Blacksmith, Welder, and General Repairman	9	42	\$362	\$475
103 Farm Machinery Mechanics	33	44	389	554
104 Farm Machinery Service Center	8	48	563	756
106 Farm Machinery Parts Manager	19	47	408	579
107 Farm Machinery Salesman	20	47	371	709
110 Manager	21	45	606	1,838
112 Office Worker	31	41	377	505
150 Other	6	47	475	625
Totals or Means	147		\$428	\$760
II. FARM SUPPLIES AND EQUIPMENT				
207 Feed Salesman	6	46	\$325	\$500
210 Farm Equipment and Supply Salesman	11	40	375	533
211 Truck Driver, Feed Mill	5	41	355	413
212 Truck Driver, Distributor	7	44	400	469
213 Truck Driver, Bulk Fertilizer or Chemical	5	48	500	583
214 Manager	43	46	497	737
215 District Manager	6	44	691	854
216 Plant Manager	8	46	480	670
217 Chemical Field Man	15	50	429	566
218 Assistant Manager	7	50	357	451
219 Warehouseman	8	42	388	538
220 Salesman	11	46	475	617
222 Office Manager	6	40	575	725
250 Other	12	41	407	561
Totals or Means	150		\$519	\$620

TABLE A-4--Continued

Code Number and Job Title		Number Reported	Mean Hours Worked Per Week	Mean Salary Per Month Begin.	Mean Salary Per Month High
III. LIVESTOCK AND POULTRY INDUSTRIES					
301	Dairy Plant Employee	4	36	\$500	\$666
302	Dairy Plant Manager	6	49	488	600
320	Butcher	9	42	400	500
325	Livestock Buyer	9	44	533	967
365	Veterinarian, Professional	5	56	750	1,500
366	Veterinarian's Assistant	7	48	292	313
367	Receptionist	5	40	330	340
Totals or Means		45		\$461	\$685
IV. CROPS, FORESTRY, AND SOIL CONSERVATION					
400	Cannery or Processing Plant Employee	6	42	\$475	\$605
401	Cannery or Processing Plant Fieldman	14	44	469	664
402	Field Crop, Fruit, and Vegetable Inspector	9	43	438	563
407	Grain Elevator Employee	5	41	400	550
408	Grain Elevator Manager	11	47	446	606
413	Manager	31	47	535	811
419	Sales Manager	10	45	600	800
421	Warehouse Manager	8	44	456	638
423	Foreman	6	45	500	500
425	Other	9	41	375	550
Totals or Means		109		\$485	\$675

TABLE A-4--Continued

Code Number and Job Title	Number Reported	Mean Hours Worked Per Week	Mean Salary Per Month Begin.	Mean Salary Per Month High
V. ORNAMENTAL HORTICULTURE				
502 Florist or Flower Grower	25	48	\$319	\$531
507 Golf Course Superintendent	6	47	500	963
508 Golf Course Employee	7	45	367	550
510 Landscape Architect	6	47	533	933
511 Landscape Gardener	14	42	425	575
512 Nursery Employee	6	46	298	468
516 Sales Manager	11	44	383	533
Totals or Means	75		\$382	\$602
VI. WILDLIFE AND RECREATION				
603 Game Management Employees	1	50	\$490	\$550
607 Game Farm Employees	2	50	435	470
609 Riding Instructor	4	48	200	713
Totals or Means	7		\$308	\$620
VII. FARM SERVICE				
701 Artificial Inseminator	5	44	\$465	\$765
705 Crop Sprayer	3	40	666	980
718 Rural Real Estate Representative	3	56	270	830
721 Manager	3	52	563	938
724 Pilots Helper	3	60	298	298
Totals or Means	17		\$453	\$763
VIII. AGRICULTURAL SERVICE				
811 Farmer Organization Staff Person	4	40	\$625	\$833
813 Agricultural Engineer	6	41	675	850
826 Farm Loans, Credit	5	41	375	575
Totals or Means	15		\$561	\$754
Total and Means of all reporting	565		\$462	\$677

TABLE A-5
ACTIVITIES AND DUTIES BY JOB TITLES

Code No. and Job Titles	No. in Job Title	No. of Responses	Duties Reported, Descending Order	No. of Times Mentioned
112 Office Worker	38	98	Keep records Inventory control Correspondence Answer phone Communications Fiscal controls Make out statements Receptionist Sell products and merchandise	24 12 11 10 7 7 6 6 6
200 Country Store Clerk	4	13	Sell products and merchandise	3
202 Sales Manager	4	12	Sell products and merchandise Advertising	3 2
206 Farm Equipment Serviceman	5	10	Machinery maintenance	5
207 Feed Salesman	6	15	Sell products and merchandise Figure bills Delivery and pick up	5 2 2
210 Farm Equipment and Supplies Salesman	11	32	Sell products and merchandise Selling equipment Comb. bookkeeping, collection, sales Suggest rates, method of fert. appl. Sell chemicals Suggest rates, methods of herb., fung. application Suggest rates, methods of insecticide application	4 3 3 3 3 2 2

A-15

TABLE A-5--Continued

Code No. and Job Titles	No. in Job Title	No. of Responses	Duties Reported, Descending Order	No. of Times Mentioned
211 Truck Driver, Feed Mill or Coop.	6	16	Truck driver	6
			Delivery and pick up	4
			Sell products and merchandise	2
212 Truck Driver for a Fuel Distributor	10	30	Sell products and merchandise	6
			Truck driver	5
			Keep records	4
			Figure bills	3
			Delivery and pick up	3
			Service appliances	2
			Machinery maintenance	2
213 Truck Driver, Spread Bulk Fertilizer	5	13	Suggest rates, methods of fert. application	2
			Truck driver	1
214 Manager	43	119	General management	29
			Supervise personnel	14
			Purchase and sales of supplies	8
			Sell products and merchandise	6
			Supervision of accounting, finances	6
			Inventory control	5
			Keep records	5
			Sell chemicals	4
			Supervise oper. of pack., store, ship.	4
215 District Manager	6	16	Supervise personnel	4
			Inventory control	2
			Sell products and merchandise	2

A-16

TABLE A-5--Continued

Code No. and Job Titles	No. in Job Title	No. of Responses	Duties Reported, Descending Order	No. of Times Mentioned
216 Plant Manager	8	21	Supervise personnel	4
			Inventory control	3
			Maintain and manage warehouse and plant	3
			General management	2
			Comb. bookkeeping, collection, sales	2
217 Chemical Fieldman	15	39	Suggest rates, methods of fert. application	7
			Application of chemicals	5
			Link between processor and grower	4
			Suggest rates, methods of herb, fung. application	4
			Suggest rates, methods of insecticide application	4
			Sell chemicals	3
218 Assistant Manager	7	18	General management	2
			Keep records	2
			Machinery maintenance	2
219 Warehouseman	11	33	Warehouse machinery operation	5
			Bag and package products	4
			Supervise oper. of pack., stor., ship.	4
			Load and unload cars	4
			Run processing equipment	3
220 Chemical Salesman	11	21	Sell chemicals	6
			Selling equipment	2
222 Office Manager	6	19	Supervision of accounting, finances	3
			Supervise personnel	2
			General management	2
			Answer phone	2

A-17

TABLE A-5--Continued

Code No. and Job Titles	No. in Job Title	No. of Responses	Duties Reported, Descending Order	No. of Times Mentioned
			Correspondence Keep records	2 2
301 Dairy Plant Employee	13	22	Processing dairy products Run processing equipment	10 6
302 Dairy Plant Manager	6	12	General management Supervise personnel	3 2
305 Milk Truck Driver	5	10	Delivery and pick up Truck driver	4 3
320 Butcher	9	15	Butchering, meat cutting Run processing equipment	9 2
325 Livestock Buyer	9	14	Buying from grower Sales-buying-customer relations Truck driver	5 2 2
366 Veterinarian's Assistant	7	16	Assist veterinarian General clean up	5 4
400 Cannery or Processing Plant Employee	16	24	Bag and package products Produce inspection and grading Maintain and manage warehouse and plant Load and unload cars Supervise oper. of pack., stor., ship.	5 4 3 3 2
401 Cannery or Processing Plant Fieldman	14	31	Link between processor and grower Suggest rates, methods of insecticide application	10 3

A-18

TABLE A-5--Continued

Code No. and Job Titles	No. in Job Title	No. of Responses	Duties Reported, Descending Order	No. of Times Mentioned
			Suggest rates, methods of herb, fung. application	3
			Suggest rates, methods of fert. application	3
			Field collection work	3
402 Field Crop, Fruit, Vegetable Inspection Employee	10	17	Fruit quality control Link between processor or grower Supervise oper. of pack., stor., ship. Produce inspection and grading	5 3 3 2
407 Grain Elevator Employee Warehouse Employees	9	23	Load and unload cars General clean up Warehouse machinery operation	5 4 3
408 Grain Elevator Manager- Warehouse Foreman	11	26	Supervise oper. of pack., stor., ship Supervise personnel Keep records Warehouse machinery operation	5 4 2 2
413 Manager	32	86	General management Supervise personnel Keep records Maintain and manage warehouse & plant Sell products and merchandise Buying from grower Professional Buying and selling of fresh goods Field equipment operations	26 7 6 4 4 4 4 4 3 2

TABLE A-5--Continued

Code No. and Job Titles	No. in Job Title	No. of Responses	Duties Reported, Descending Order	No. of Times Mentioned
419 Sales Manager	10	15	Sell products and merchandise Buying and selling of fresh goods Purchase and sales of supplies Professional	4 2 2 2
421 Warehouse Foreman	8	19	Maintain and manage warehouse and plant Supervise oper. of pack., stor., ship Supervise personnel Warehouse machinery operation	4 3 3 3
422 Clerical	6	17	Answer phone Keep records Correspondence	4 4 3
423 Foreman	7	13	Maintain and manage warehouse and plant Supervise oper. of pack., stor., ship. Machinery maintenance Fruit quality control Load and unload cars	2 2 2 2 2
426 Bookkeeper	5	10	Keep records	5
502 Florist or Flower Grower	25	77	Arrange flowers Delivery and pick up Comb. bookkeeping, collection, sales Plant propagation Sell products and merchandise Making window displays Keep records Application of chemicals	15 11 6 6 5 5 4 4
507 Golf Course Superintendent	7	19	Management of grounds General management	2 2

TABLE A-5--Continued

Code No. and Job Titles	No. in Job Title	No. of Responses	Duties Reported, Descending Order	No. of Times Mentioned
508 Golf Course Employee	7	21	Management-customer relations Keep records Comb. bookkeeping, collection, sales Instruction of customers	2 2 2 2
510 Landscape Architect	6	10	Turf care Maintenance of grounds Plant propagation Application of chemicals	4 3 3 3
511 Landscape Gardener	14	27	Landscape--layout and design Landscape--layout and design Horticulture labor Plant propagation Horticultural service Pruning and trimming Field equipment operations	6 5 3 3 3 2 2
512 Nursery Employee	7	11	Horticultural labor Plant propagation	2 2
516 Nursery Salesman	10	30	Sell products and merchandise Making window displays Comb. bookkeeping, collection, sales Arrange flowers Horticultural management of greenhouse	6 3 3 3 2
701 Artificial Inseminator	5	9	Keep records Artificial inseminator	3 2

TABLE A-5--Continued

Code No. and Job Titles	No. in Job Title	No. of Responses	Duties Reported, Descending Order	No. of Times Mentioned
813 Agricultural Engineer	7	12	Machinery maintenance Designing and building equipment Professional	3 2 2

TABLE A-6

EDUCATIONAL LEVEL DESIRED FOR PERSONS ENTERING AGRICULTURAL
OCCUPATIONS OTHER THAN FARMING

Code No. and Job Title	No. of Responses	Less Than H.S.	H.S.	Tech.	Some College	Jr. Col. Grad.	M.S. Grad.	DVM	PhD
FARM MACHINERY SALES AND SERVICE OCCUPATIONS									
103 Farm Machinery Mechanics	34		15	18		1			
107 Farm Machinery Salesman	22		9	3	9		1		
110 Manager	23	1	3	5	7		7		
112 Office Worker	38		14	10	8	1	5		
Totals	117	1	41	36	24	2	13		
FARM SUPPLIES AND EQUIPMENT OCCUPATIONS									
210 Farm Equipment and Supplies Salesman	11		6	1	3		1		
214 Manager	43	1	8	2	8	3	21		
217 Chemical Fieldman	15		5	1	4	1	4		
250 Other	13		3	1	2		7		
Totals	82	1	22	5	17	4	33		
LIVESTOCK AND POULTRY INDUSTRIES OCCUPATIONS									
301 Dairy Plant Employee	13	1	8	1			3		
320 Butcher	9	1	7	1					
325 Livestock Buyer	9	1	4		2	1	2		
366 Veterinarian's Assistant	7	1	4	1			1		
Totals	38	3	23	3	2	1	5		

TABLE A-6--Continued

Code No. and Job Title	Less				No. of Responses	H.S.	Tech.	Some College	Jr. Col. Grad.	Col. Grad.	M.S.	DVM PhD
	No. of Responses	Than H.S.	H.S.	Tech.								
CROPS, FORESTRY, AND SOIL CONSERVATION OCCUPATIONS												
400 Cannery or Processing Plant Employee.	16	5	9	2								
401 Cannery or Processing Plant Fieldman.	15	4	1	3				7				
408 Grain Elevator Manager.	11	6	1	2				2				
413 Manager	33	4	4	11				1		15	2	
425 Other	14	1	3	4				1		5		
Totals.	89	6	26	5	20	1	29	2				
ORNAMENTAL HORTICULTURE OCCUPATIONS												
502 Florist or Flower Grower.	25	2	11	4	3			5				
511 Landscape Gardener	14	8	3	1	1			1				
516 Sales Manager	11	3	3	5	2			1		2		
Totals.	50	2	22	7	9	2	10					
AGRICULTURAL SERVICE OCCUPATIONS												
811 Farm Appraiser	4							4				
813 Agricultural Engineer.	7		2	2	2			1		3		
823 ASCS Clerk, Office.	4	2	2	1	1			1		1		
Totals.	15	2	2	2	3	2	8					
Totals of All Responses	843	28	314	127	165	27	173	3	7			
Per. Cent of Total	100	3.23	37.3	15.1	19.6	2.85	20.52	.35	.83			



TABLE A-7

COMPETENCIES ASSOCIATED WITH JOB TITLES

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
<u>Farm Machinery Sales and Service</u>			
Blacksmith, Welder, and General Repairman	9	<ol style="list-style-type: none"> 1. Welding 2. Employee relations with supervisor 3. Employee relations with fellow workers 4. Communications 5. Blueprint reading 6. Technical and service manuals 7. Machinist 8. Salesmanship and customer relations 	61 56 50 50 44 39 39 39
Farm Machinery Mechanics	33	<ol style="list-style-type: none"> 1. Engines, repair and maintenance 2. Farm power and machinery 3. Employee relations with fellow workers 4. Welding 5. Hydraulics and pneumatics 6. Employee relations with supervisor 7. Machinist 8. Technical and service manuals 9. Salesmanship and customer relations 	70 65 65 64 58 56 55 55 52
Farm Machinery Service Center Foreman	8	<ol style="list-style-type: none"> 1. Farm power and machinery 2. Employee relations with fellow workers 3. Employee relations with supervisor 4. Communications 5. Machinist 6. Hydraulics and pneumatics 7. Technical and service manuals 8. Salesmanship and customer relations 9. Engines, repair and maintenance 	69 63 56 50 50 50 50 44 44
Farm Machinery Parts Manager	19	<ol style="list-style-type: none"> 1. Salesmanship and customer relations 2. Employee relations with fellow workers 3. Business mathematics 4. Inventory, stock control, warehousing 5. Employee relations with supervisor 6. Receiving, marking, shipping 7. Buying and merchandising 8. Window and store display 9. Farm power and machinery 10. Communications 11. Internal business organizations 12. Technical and service manuals 13. Bookkeeping, office machines 14. Engines, repair and maintenance 	71 71 68 68 66 61 61 58 53 53 47 47 42 39
Farm Machinery Salesman	20	<ol style="list-style-type: none"> 1. Salesmanship and customer relations 2. Employee relations with supervisor 3. Employee relations with fellow workers 4. Farm power and machinery 5. Communications 6. Business mathematics 7. Technical and service manuals 8. Buying and merchandising 9. Trade relationship, promotion 10. Hydraulics and pneumatics 11. Engines, repair and maintenance 	78 73 73 60 58 58 48 45 45 43 40

TABLE A-7--Continued

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
Manager	21	1. Salesmanship and customer relations	90
		2. Buying and merchandising	83
		3. Employee relations with fellow workers	81
		4. Business mathematics	81
		5. Inventory, stock control, warehousing	79
		6. Capital management, financing	79
		7. Employee relations with supervisor	74
		8. Farm power and machinery	74
		9. Budgeting, records and analysis	69
		10. Internal business organizations	69
		11. Communications	67
		12. Trade relationships, promotion	67
		13. Receiving, marking, shipping	60
		14. Marketing practices	60
		15. Technical and service manuals	60
		16. Bookkeeping, office machines	60
		17. Labor management	57
		18. Farm financing credit, taxes, etc.	57
		19. Government, reg (ICC, PUC, FICA)	57
		20. Accounting taxes	57
		21. Agricultural policy	55
		22. Window and store display	52
		23. Engines, repair and maintenance	52
Office Worker	31	1. Employee relations with fellow workers	73
		2. Business mathematics	71
		3. Bookkeeping, office machines	71
		4. Salesmanship and customer relations	68
		5. Employee relations with supervisor	66
		6. Communications	61
		7. Inventory, stock control, warehousing	53
		8. Accounting, taxes	53
		9. Internal business organizations	48
		10. Budgeting, records and analysis	48
		11. Buying, and merchandising	47
		12. Farm financing (Credit, taxes, etc.)	45
		13. Receiving, marking, shipping	45
		14. Government reg (ICC, PUC, FICA)	40
<u>Farm Supplies and Equipment</u>			
Farm Equipment Serviceman	5	1. Farm power and machinery	60
		2. Employee relations with supervisor	50
		3. Employee relations with fellow workers	50
		4. Painting and finishing	50
		5. Plumbing	50
		6. Engines, repair and maintenance	50
		7. Machinist	50
		8. Sheet metal, tinsmith, coppersmith	40
		9. Welding	40
		10. Hydraulics and pneumatics	40
		11. Electrical wiring	40
Feed Salesman	6	1. Salesmanship and customer relations	83
		2. Business mathematics	83
		3. Employee relations with supervisor	75
		4. Employee relations with fellow workers	67
		5. Animal growth, feeding	67
		6. Health and sanitation	67

TABLE A-7--Continued

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
		7. Window and store display	58
		8. Communications	58
		9. Receiving, marking, shipping	58
		10. Housing and equipment	58
		11. Performing production practices	50
		12. Animal breeding, selection	50
		13. Inventory, stock control, warehousing	50
Farm Equipment and Supplies Salesman	11	1. Plant growth, fertilization	68
		2. Control of insects, diseases, weeds	59
		3. Salesmanship and customer relations	55
		4. Employee relations with fellow workers	55
		5. Employee relations with supervisor	50
		6. Business mathematics	45
Truck Driver for a Feed Mill or Farmer Coop	5	1. Salesmanship and customer relations	40
Truck Driver for a Fuel Distributor	7	1. Employee relations with supervisor	64
		2. Employee relations with fellow workers	64
Truck Driver for Spreading Bulk Fertilizer	5	1. Employee relations with supervisor	70
		2. Employee relations with fellow workers	60
		3. Inventory, stock control, warehousing	50
		4. Technical and service manuals	50
		5. Farm power and machinery	40
		6. Receiving, marking, and shipping	40
Manager	43	1. Salesmanship and customer relations	79
		2. Inventory, stock control, warehousing	77
		3. Employee relations with fellow workers	74
		4. Employee relations with supervisor	74
		5. Buying and merchandising	74
		6. Business mathematics	71
		7. Communications	69
		8. Internal business organizations	66
		9. Receiving, marking, shipping	64
		10. Trade relationships, promotion	62
		11. Bookkeeping, office machines	60
		12. Capital management, financing	59
		13. Marketing practices	57
		14. Plant growth, fertilization	57
		15. Budgeting, records and analysis	56
		16. Control of insects, diseases, weeds	55
		17. Labor management	52
		18. Accounting, taxes	51
		19. Government reg (ICC, PUC, FICA)	51
		20. Farm financing (credit, taxes, etc.)	48
		21. Performing production practices	45
District Manager	6	1. Salesmanship and customer relations	75
		2. Employee relations with supervisor	75
		3. Employee relations with fellow workers	75
		4. Internal business organizations	75
		5. Marketing practices	75
		6. Communications	58
		7. Buying and merchandising	58
		8. Trade relationship, promotion	58
		9. Inventory, stock control, warehousing	50

TABLE A-7--Continued

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
		10. Business mathematics	50
		11. Agricultural policy	50
		12. Capital management, financing	50
Plant Manager	8	1. Employee relations with supervisor	81
		2. Employee relations with fellow workers	81
		3. Receiving, marking, shipping	75
		4. Salesmanship and customer relations	69
		5. Inventory, stock control, warehousing	69
		6. Communications	63
		7. Business mathematics	63
		8. Buying and merchandising	56
		9. Internal business organizations	50
		10. Labor management	50
		11. Government reg. (ICC, PUC, FICA)	50
		12. Trade relationships, promotion	44
		13. Marketing practices	44
Chemical Field Man	15	1. Control of insects, diseases, weeds	63
		2. Salesmanship and customer relations	60
		3. Employee relations with fellow workers	57
		4. Employee relations with supervisor	53
		5. Communications	53
		6. Performing production practices	47
		7. Plant growth, fertilization	47
		8. Soil and water management	40
		9. Business mathematics	40
Assistant Manager	7	1. Salesmanship and customer relations	79
		2. Business mathematics	79
		3. Receiving, marking, shipping	64
		4. Labor management	64
		5. Farm power and machinery	64
		6. Bookkeeping, office machines	64
		7. Employee relations with supervisor	64
		8. Employee relations with fellow workers	64
		9. Inventory, stock control, warehousing	64
		10. Internal business organizations	57
		11. Communications	57
		12. Marketing practices	57
		13. Buying and merchandising	50
		14. Capital management, financing	50
		15. Accounting, taxes	50
Warehouseman	8	1. Employee relations with supervisor	69
		2. Employee relations with fellow workers	69
		3. Receiving, marking, shipping	56
		4. Communications	50
		5. Salesmanship and customer relations	50
		6. Inventory, stock control, warehousing	50
Salesman	11	1. Salesmanship and customer relations	68
		2. Employee relations with supervisor	59
		3. Employee relations with fellow workers	59
		4. Performing production practices	55
		5. Communications	50
		6. Business mathematics	50
		7. Plant growth, fertilization	45
		8. Receiving, marking, shipping	45

TABLE A-7--Continued

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
Office Manager	6	1. Employee relations with supervisor	83
		2. Employee relations with fellow workers	83
		3. Inventory, stock control, warehousing	75
		4. Accounting, taxes	75
		5. Business mathematics	75
		6. Communications	67
		7. Bookkeeping, office machines	67
		8. Marketing practices	67
		9. Internal business organizations	67
		10. Government Reg. (ICC, PUC, FICA)	67
		11. Budgeting, records and analysis	58
		12. Farm financing (credit, taxes, etc.)	58
		13. Labor management	58
		14. Agricultural policy	58
		15. Buying and merchandising	58
		16. Capital management, financing	58
		17. Trade relationships, promotion	50
		18. Salesmanship and customer relations	50
<u>Livestock and Poultry Industries</u>			
Dairy Plant Manager	6	1. Employee relations with supervisor	58
		2. Employee relations with fellow workers	58
		3. Inventory, stock control, warehousing	58
		4. Government reg. (ICC, PUC, FICA)	58
		5. Business mathematics	58
		6. Buying and merchandising	58
		7. Communications	42
		8. Receiving, marking, shipping	42
		9. Salesmanship and customer relations	42
		10. Budgeting, records, and analysis	42
		11. Internal business organizations	42
		12. Building maintenance	42
Butcher	9	1. Health and sanitation	61
		2. Employee relations with supervisor	56
		3. Employee relations with fellow workers	56
		4. Receiving, marking, shipping	44
		5. Salesmanship and customer relations	39
		6. Performing production practices	39
Livestock Buyer	9	1. Employee relations with fellow workers	83
		2. Employee relations with supervisor	78
		3. Buying and merchandising	78
		4. Health and sanitation	78
		5. Animal growth, feeding	72
		6. Salesmanship and customer relations	72
		7. Animal breeding, selection	67
		8. Receiving, marking, shipping	56
		9. Communications	56
		10. Business mathematics	56
		11. Marketing practices	56
		12. Housing and equipment	44
		13. Inventory, stock control, warehousing	39
Veterinarian	5	1. Animal growth, feeding	70
		2. Health and sanitation	70
		3. Animal breeding, selection	60
		4. Housing and equipment	60

TABLE A-7--Continued

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
		5. Salesmanship and customer relations	60
		6. Employee relations with supervisor	50
		7. Buying and merchandising	50
		8. Inventory, stock control, warehousing	50
		9. Budgeting, records and analysis	40
		10. Marketing practices	40
		11. Agricultural policy	40
		12. Performing production practices	40
		13. Communications	40
		14. Business mathematics	40
		15. Bookkeeping, office machines	40
		16. Internal business organizations	40
Veterinarian Assistant	7	1. Communications	64
		2. Employee relations with fellow workers	64
		3. Salesmanship and customer relations	43
		4. Health and sanitation	43
Receptionist	5	1. Communications	50
		2. Employee relations with fellow workers	50
		3. Bookkeeping, office machines	50
<u>Crops, Forestry, and Soil Cons.</u>			
Cannery or Processing Plant Employee	6	1. Employee relations with supervisor	58
		2. Employee relations with fellow workers	58
		3. Inventory, stock control, warehousing	58
		4. Quality control	50
		5. Building maintenance	42
		6. Heating, vent, refrig, and air cond.	42
Cannery or Processing Plant Fieldman	14	1. Employee relations with supervisor	79
		2. Employee relations with fellow workers	79
		3. Control of insects, diseases, weeds	79
		4. Plant growth, fertilization	75
		5. Performing production practices	68
		6. Soil and water management	64
		7. Plant propagation, seed production	61
		8. Marketing practices	50
		9. Agricultural policy	50
		10. Salesmanship and customer relations	50
		11. Communications	46
		12. Budgeting, records and analysis	46
		13. Farm financing (credit, taxes, etc.)	46
		14. Labor management	43
		15. Buying and merchandising	43
		16. Quality control	39
Field Crop, Fruit and Vegetable Inspection Employee	9	1. Employee relations with fellow workers	67
		2. Employee relations with supervisor	61
		3. Control of insects, diseases, weeds	50
		4. Government reg (ICC, PUC, FICA)	44
		5. Quality control	39
Grain Elevator Employee	5	1. Employee relations with supervisor	50
		2. Employee relations with fellow workers	40
		3. Building maintenance	40
		4. Receiving marking, shipping	40
		5. Communications	40

TABLE A-7--Continued

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
		6. Carpentry and cabinetmaking	40
		7. Sheet metal, tinsmith, coppersmith	40
		8. Technical and service manuals	40
Grain Elevator Manager	11	1. Employee relations with fellow workers	68
		2. Employee relations with supervisor	64
		3. Receiving, marking, shipping	64
		4. Inventory, stock control, warehousing	59
		5. Communications	55
		6. Business mathematics	55
		7. Salesmanship and customer relations	50
		8. Internal business organizations	45
		9. Building maintenance	41
Manager	31	1. Budgeting, records and analysis	85
		2. Labor management	77
		3. Employee relations with fellow workers	77
		4. Capital management, financing	77
		5. Inventory, stock control, warehousing	74
		6. Buying and merchandising	73
		7. Marketing practices	73
		8. Agricultural policy	69
		9. Business mathematics	69
		10. Employee relations with supervisor	69
		11. Internal business organizations	69
		12. Farm financing (credit, taxes, etc.)	65
		13. Accounting, taxes	63
		14. Communications	61
		15. Bookkeeping, office machines	60
		16. Receiving, marking, shipping	58
		17. Salesmanship and customer relations	58
		18. Farm power and machinery	58
		19. Trade relationships, promotion	58
		20. Performing production practices	53
		21. Control of insects, diseases, weeds	52
		22. Plant propagation, seed production	50
		23. Government reg. (ICC, PUC, FICA)	50
		24. Plant growth, fertilization	47
		25. Soil and water management	45
Sales Manager	10	1. Budgeting, records and analysis	55
		2. Marketing practices	55
		3. Agricultural Policy	55
		4. Salesmanship and customer relations	55
		5. Business mathematics	55
		6. Buying and merchandising	55
		7. Communications	50
		8. Employee relations with supervisor	50
		9. Employee relations with fellow workers	50
		10. Inventory, stock control, warehousing	50
		11. Government reg. (ICC, PUC, FICA)	50
		12. Capital management, financing	45
		13. Trade relationships, promotion	45
		14. Internal business organizations	40
		15. Receiving, marking, shipping	40

TABLE A-7--Continued

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
Warehouse manager	8	1. Employee relations with supervisor	63
		2. Employee relations with fellow workers	63
		3. Receiving, marking, shipping	50
		4. Labor management	50
		5. Inventory, stock control, warehousing	44
		6. Building maintenance	44
Foreman	6	1. Employee relations with supervisor	67
		2. Employee relations with fellow workers	67
		3. Building maintenance	58
		4. Inventory, stock control, warehousing	50
		5. Internal business organizations	50
		6. Quality control	50
		7. Heating, vent. refrig., and air cond.	42
		8. Salesmanship and customer relations	42
		9. Technical and service manuals	42
<u>Ornamental Horticulture</u>			
Florist or Flower Grower	25	1. Salesmanship and customer relations	84
		2. Employee relations with supervisor	74
		3. Employee relations with fellow workers	74
		4. Communications	68
		5. Business mathematics	66
		6. Buying and merchandising	60
		7. Window and store display	56
		8. Plant growth, fertilization	56
		9. Control of insects, diseases, weeds	56
		10. Receiving, marking, shipping	54
		11. Inventory, stock control, warehousing	52
		12. Soil and water management	50
		13. Plant propagation, seed production	46
		14. Bookkeeping, office machines	46
		15. Trade relationships, promotion	46
		16. Performing production practices	44
Golf Course Superintendent	6	1. Plant growth, fertilization	83
		2. Control of insects, diseases, weeds	83
		3. Soil and water management	83
		4. Performing production practices	75
		5. Business mathematics	67
		6. Communications	58
		7. Plant propagation, seed production	58
		8. Employee relations with supervisor	58
		9. Employee relations with fellow workers	50
		10. Buying and merchandising	50
		11. Inventory, stock control, warehousing	50
		12. Internal business organizations	50
		13. Bookkeeping, office machines	50
		14. Budgeting, records and analysis	50
		15. Labor management	50
		16. Soil structures (ditches, ponds, etc.)	42
		17. Capital management, financing	42
		18. Accounting, taxes	42

TABLE A-7--Continued

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
Golf Course Employee	7	1. Employee relations with supervisor	64
		2. Employee relations with fellow workers	64
		3. Control of insects, diseases, weeds	50
		4. Soil and water management	50
		5. Plant growth, fertilization	43
		6. Performing production practices	43
		7. Farm power and machinery	43
Landscape Architect	6	1. Control of insects, diseases, weeds	83
		2. Plant growth, fertilization	75
		3. Employee relations with supervisor	75
		4. Employee relations with fellow workers	75
		5. Drafting (design, building, elevations)	75
		6. Blueprint reading	75
		7. Technical and Service manuals	75
		8. Soil and water management	67
		9. Salesmanship and customer relations	67
		10. Business mathematics	67
		11. Bookkeeping, office machines	67
		12. Buying and merchandising	67
		13. Internal business organizations	58
		14. Plant propagation, seed production	50
		15. Inventory, stock control, warehousing	50
		16. Carpentry and cabinetmaking	50
		17. Hydraulics and pneumatics	50
		18. Performing production practices	42
		19. Farm power and machinery	42
		20. Soil structures (ditches, ponds, etc.)	42
		21. Accounting, taxes	42
		22. Trade relationships, promotion	42
		23. Plumbing	42
Landscape Gardener	14	1. Plant growth, fertilization	68
		2. Soil and water management	64
		3. Employee relations with fellow workers	61
		4. Employee relations with supervisor	57
		5. Control of insects, diseases, weeds	57
		6. Communications	50
		7. Salesmanship and customer relations	50
		8. Masonry	43
		9. Technical and service manuals	39
Nursery Employee	6	1. Employee relations with fellow workers	50
		2. Employee relations with supervisor	50
		3. Communications	50
		4. Control of insects, diseases, weeds	50
		5. Performing production practices	50
		6. Soil and water management	42
		7. Plant growth, fertilization	42
		8. Marketing practices	42
		9. Salesmanship and customer relations	42

TABLE A-7--Continued

For Entry Into These Job Titles	No. of Responses	These Competencies are Important (in descending order)	Index Number
Sales Manager	11	1. Salesmanship and customer relations	82
		2. Communications	73
		3. Employee relations with supervisor	73
		4. Employee relations with fellow workers	68
		5. Business mathematics	64
		6. Control of insects, diseases, weeds	59
		7. Inventory, stock control, warehousing	55
		8. Plant growth, fertilization	55
		9. Receiving, marking, shipping	50
		10. Buying and merchandising	50
		11. Soil and water management	45
		12. Performing production practices	41
		13. Window and store display	41
		14. Internal business organizations	41
<u>Farm Service Occupations</u>			
Artificial Inseminator	5	1. Communications	60
		2. Salesmanship and customer relations	60
		3. Animal breeding, selection	60
		4. Health and sanitation	50
		5. Performing production practices	50
		6. Employee relations with supervisor	50
		7. Animal growth, feeding	40
		8. Housing and equipment	40
		9. Bookkeeping, office machines	40
		10. Inventory, stock control, warehousing	40
<u>Agricultural Service Occup.</u>			
Agricultural Engineerer	6	1. Employee relations with supervisor	67
		2. Employee relations with fellow workers	67
		3. Blueprint reading	67
		4. Technical and service manuals	50
		5. Hydraulic and pneumatics	50
		6. Soil structures (ditches, ponds, etc.)	42
		7. Government reg. (ICC, PUC, FICA)	42
		8. Drafting (design, building, elevations)	42
Farm Loans - Credit	5	1. Employee relations with fellow workers	70
		2. Business mathematics	70
		3. Employee relations with supervisor	60
		4. Salesmanship and customer relations	60
		5. Capital management, financing	60
		6. Accounting, taxes	60
		7. Communications	50
		8. Bookkeeping, office machines	50
		9. Government reg. (ICC, PUC, FICA)	50
		10. Internal business organizations	40

A-35
TABLE A-8

JOB TITLES WHICH NEED SPECIFIC GROUPS OF COMPETENCIES

These Job Titles		Comp. Index	Need these Groups of Competencies		
Code No.	Job Title				
401	Fieldman, Cannery or processing	69			
507	Golf course superintendent	66			
510	Landscape architect	63			
210	Salesman, farm equipment and supplies	52	A. Agricultural Competencies 1. Plant Sciences a. Plant propagation, seed production b. Plant growth, fertilization c. Control of insects, diseases, weeds d. Soil and Water Management e. Performing production practices		
502	Florist or flower grower	52			
511	Landscape gardner	50			
214	Mgr., Farm supply and Equipment	49			
413	Mgr., Crops, Forestry Occup.	47			
217	Fieldman, chemical	46			
508	Golf course employee	44			
516	Sales mgr., ornamental horticulture	43			
220	Salesman, general	42			
512	Nursery employee	37			
402	Field crop, fruit & veg. insp, employee	31			
107	Salesman, farm machinery	26			
110	Manager, farm machinery sales	26			
408	Grain elevator manager	26			
421	Warehouse manager	25			
365	Veterinarian	60		2. Animal Sciences a. Animal breeding, selection b. Animal growth, feeding c. Health and sanitation d. Housing and equipment e. Performing production	
325	Livestock buyer	60			
207	Feed salesman	60			
701	Artificial inseminator	48			
320	Butcher	33			
214	Manager, farm supplies	29			
222	Office manager	28			
210	Salesman, supplies and equipment	28			
413	Mgr; crops, forestry, and soil cons.	71			3. Agricultural Business Management and Marketing a. Budgeting, records, and analysis b. Farm Financing (credit, taxes, etc.) c. Labor management d. Marketing practices e. Agricultural Policy
222	Off. mgr; farm supp. and equip. occup	60			
811	Farmer organization staff person	57			
110	Mgr; farm machinery sales and ser. occup.	54			
214	Mgr; farm supp. and equip. occup	51			
207	Farm equipment serviceman	50			
419	Sales mgr; crops, forestry, & soil cons.	48			
401	Cannery or processing plant fieldman	47			
218	Asst. mgr; farm supp. and equipment occup.	47			
114	Equipment manager	45			
216	Plant mgr; farm supp. and equip. occup	40			
325	Livestock buyer	33			
112	Off. worker; farm mach. sales & serv. occup.	32			
408	Grain elevator manager	30			
107	Farm machinery salesman	30			
106	Farm machinery parts manager	30			
220	Salesman; farm supplies and equip. occup.	29			
210	Farm equipment and supplies salesman	27			
421	Warehouse manager	27			

TABLE A-8--Continued

These Job Titles		Need These Groups of Competencies
Code No.	Job Title	Comp. Index
114	Equipment manager	42
110	Mgr; farm machinery sales and service	40
107	Farm machinery salesman	34
218	Asst. manager; farm supp. and equip.	34
216	Plant mgr; farm supplies and equip.	31
401	Cannery or processing plant fieldman	30
408	Grain elevator manager	30
210	Farm equipment and supplies salesman	28
106	Farm machinery parts manager	27
413	Mgr; crops, forestry, and soil cons.	27
510	Landscape architect	26
104	Farm machinery service center foreman	25
214	Mgr; farm supplies and equip.	64
218	Asst. manager; farm supp. and equip.	63
110	Mgr; farm machinery sales and serv.	62
502	Florist or flower grower	62
207	Feed Salesman	59
106	Farm machinery parts manager	58
216	Plant manager; farm supp. and equip.	58
516	Sales mgr; ornamental horticulture	54
413	Mgr; crops, forestry, and soil cons.	52
200	Store clerk	50
112	Off. worker; farm machinery sales & serv.	48
222	Office manager	47
510	Landscape architect	47
325	Livestock buyer	44
408	Grain elevator manager	43
107	Farm machinery salesman	42
329	Slaughter house or locker plant employee	41
404	Fruit and vegetable produce buyer	41
419	Sales mgr; crops, forestry, and soil cons.	41
507	Golf course superintendent	41
220	Salesman; farm supplies and equip.	40
422	Clerical	33
210	Farm equipment and supplies salesman	32
421	Warehouse manager	29
217	Chemical fieldman	28
320	Butcher	26
214	Mgr; farm supplies and equip.	73
222	Office mgr; farm supplies and equip.	73
413	Mgr; crops, forestry, and soil cons.	73
110	Mgr; farm machinery sales and serv.	70
216	Plant mgr; farm supplies and equip.	67
215	District manager	66
510	Landscape architect	65
106	Farm machinery parts manager	62
325	Livestock buyer	61
218	Assistant manager	60
502	Florist or flower grower	58
302	Dairy plant manager	53
4. Agricultural Mechanics and Automation		
a. Farm power and machinery		
b. Farm buildings and conveniences		
c. Rural electrification and processing		
d. Soil structures (ditches, ponds, etc.)		
e. Farm construction and maintenance		
B. Business and Distribution Competencies		
1. Duties of Employees		
a. Communications		
b. Receiving, marking, shipping		
c. Window and store display		
d. Salesmanship and customer relations		
e. Business mathematics		
f. Bookkeeping, office machines		
2. Business Organization and Supervision		
a. Employee relations with supervisor		
b. Employee relations with fellow workers		
c. Buying and merchandising		
d. Inventory, stock control, warehousing		
e. Internal business organization		

TABLE A-8--Continued

These Job Titles		Need these Groups of Competencies
Code No.	Job Title	Comp. Index
401	Cannery or process. plant fieldman	53
516	Sales mgr; ornamental horticulture	52
408	Grain elevator manager	52
207	Feed salesman	50
419	Sales mgr; crops, forestry, and soil cons.	49
107	Farm machinery salesman	47
112	Off. worker; farm machinery sales and serv.	46
423	Foreman	44
507	Golf course superintendent	44
220	Salesman; farm supplies and equip.	42
421	Warehouse mgr; crops, forestry & soil cons.	41
508	Golf course employee	38
210	Farm equipment and supplies salesman	38
511	Landscape gardener	35
402	Field crop, fruit & veg. insp. empl. fieldman	33
104	Farm machinery service center foreman	32
813	Agricultural engineer	32
103	Farm machinery mechanics	32
212	Truck driver for a fuel distributor	26
217	Chemical fieldman	26
222	Off. mgr; farm supplies and equip.	62
413	Manager; crops, forestry, and soil cons.	62
110	Mgr; farm machinery sales & serv.	59
214	Manager; farm supplies and equip.	55
324	Livestock auction manager	50
365	Veterinarian	50
218	Asst. mgr; farm supplies and equipment	44
419	Sales manager	43
302	Dairy plant manager	41
112	Off. worker; farm machinery sales and service	33
507	Golf course superintendent	32
401	Cannery or process, plant fieldman	31
502	Florist or flower grower	30
325	Livestock buyer	29
106	Farm machinery parts manager	28
510	Landscape architect	34
423	Foreman	29
114	Equipment manager	28
216	Plant manager; farm supp. and equipment	26
		3. Management and Economics of Business
		a. Capital management, financing
		b. Accounting, taxes
		c. Trade relationships, promotion, advertising
		d. Government regulations (ICC, PUC, FICA)
		C. Trade and Industrial Competencies
		1. Construction Trades
		a. Building maintenance
		b. Masonry
		c. Carpentry and cabinetmaking
		d. Sheet metal, tinsmith, coppersmith
		e. Painting and finishing
		f. Plumbing
		g. Heating, ventilation, refrigeration, and air conditioning

TABLE A-8--Continued

These Job Titles		Need these Groups of Competencies	
Code. No.	Job Title	Comp. Index	
103	Farm machinery mechanics	59	2. Metal Trades a. Engines, repair and maintenance b. Machinist c. Welding
104	Farm machinery serv. center foreman	43	
110	Manager; farm machinery sales and service	42	
100	Blacksmith, welder, & general repairman	34	
106	Farm machinery parts manager	27	
107	Farm machinery salesman	25	
510	Landscape architect	43	3. Technicians a. Drafting (design, building, elevations) b. Hydraulics and pneumatics c. Industrial chemistry d. Quality control
813	Agricultural engineer	28	
110	Manager; farm machinery sales and service	27	
103	Farm machinery mechanics	25	
510	Landscape architect	75	4. Related Subjects a. Blueprint reading b. Technical and service manuals and handbooks, etc.
813	Agricultural engineer	50	
110	Manager; farm machinery sales and service	44	
103	Farm machinery mechanics	40	
511	Landscape gardener	37	
106	Farm machinery parts manager	31	
107	Farm machinery salesman	29	
413	Manager; crops, forestry, and soil cons.	28	

TABLE A-9

IMPORTANCE OF COMPETENCIES IN RELATION
TO A GIVEN COMPETENCY

When the Given Competency is 100 the Other
Competencies are of this Relative Importance
(Read vertical column)

Ident. No.	Identification number of Competency: <u>Competencies</u>	1	2	3	4	5
1.	Plant propagation, seed production	100	66	61	67	70
2.	Plant growth, fertilization	83	100	84	84	79
3.	Control of insects, diseases, weeds	78	88	100	80	80
4.	Soil and water management	73	74	67	100	80
5.	Performing production practices	73	66	64	76	100
6.	Animal breeding, selection	28	22	20	24	26
7.	Animal growth, feeding	32	27	26	30	31
8.	Health and sanitation	32	27	27	31	32
9.	Housing and equipment	30	26	24	28	30
10.	Performing production practices	28	23	21	27	29
11.	Budgeting, records and analysis	43	35	35	36	42
12.	Farm financing (credit, taxes, etc.)	37	28	29	32	36
13.	Labor management	44	36	36	37	42
14.	Marketing practices	44	34	36	39	43
15.	Agricultural policy	40	33	33	37	42
16.	Farm power and machinery	47	41	39	44	45
17.	Farm buildings and conveniences	42	33	32	38	39
18.	Rural electrification and processing	29	23	22	27	27
19.	Soil structures (ditches, ponds, etc.)	46	39	34	49	44
20.	Farm construction and maintenance	40	32	30	37	37
21.	Communications	44	48	45	45	46
22.	Receiving, marking, shipping	35	34	34	33	36
23.	Window and store display	24	24	23	24	24
24.	Salesmanship and customer relations	42	51	50	47	47
25.	Business mathematics	43	43	44	44	45
26.	Bookkeeping, office machines	35	36	36	36	38
27.	Employee relations with supervisor	47	54	52	51	50
28.	Employee relations with fellow workers	48	55	52	52	50
29.	Buying and merchandising	39	40	40	40	41
30.	Inventory, stock control, warehousing	40	38	40	37	42
31.	Internal business organizations	37	38	38	38	40
32.	Capital management, financing	35	32	32	33	36
33.	Accounting, taxes	31	27	26	28	30
34.	Trade relationships, promotion	38	35	34	38	40
35.	Government regulations	35	34	33	33	35
36.	Building maintenance	30	21	20	26	26
37.	Masonry	15	11	11	15	14
38.	Carpentry and cabinetmaking	19	14	14	18	18
39.	Sheet metal, tinsmith, coppersmith	14	11	11	13	14
40.	Painting and finishing	22	16	16	19	21
41.	Plumbing	21	16	15	21	21
42.	Heating, ventilation, refrigeration	15	13	14	15	16
43.	Engines, repair and maintenance	29	24	24	30	33
44.	Machinist	19	14	13	19	19
45.	Welding	19	16	17	20	22
46.	Drafting (design, building, elevations)	19	14	13	19	19
47.	Hydraulics and pneumatics	17	12	12	17	16
48.	Industrial chemistry	19	15	15	17	19
49.	Quality control	24	20	22	22	25
50.	Electrical wiring	16	12	12	15	16
51.	Electrical power and distribution	14	11	11	14	16
52.	Electronics	9	7	7	9	10
53.	Appliance repair	15	12	12	15	16
54.	Blueprint reading	21	18	17	23	22
55.	Technical and ser. manuals, handbook	32	27	29	33	25

TABLE A-9--Continued

Ident. No.	Identification number of Competency:	6	7	8	9	10
	<u>Competencies</u>					
1.	Plant propagation, seed production	49	44	38	45	46
2.	Plant growth, fertilization	47	45	41	48	47
3.	Control of insects, diseases, weeds	46	47	42	46	44
4.	Soil and water management	45	44	40	45	49
5.	Performing production practices	46	44	39	47	50
6.	Animal breeding selection	100	68	58	69	75
7.	Animal growth, feeding	87	100	75	79	79
8.	Health and sanitation	85	85	100	83	84
9.	Housing and equipment	80	73	67	100	83
10.	Performing production practices	79	65	60	74	100
11.	Budgeting, records and analysis	41	42	39	40	42
12.	Farm financing (credit, taxes, etc.)	38	35	30	36	38
13.	Labor management	41	39	37	39	43
14.	Marketing practices	50	45	44	46	49
15.	Agricultural policy	42	40	37	41	45
16.	Farm power and machinery	48	42	37	45	44
17.	Farm buildings and conveniences	54	45	40	51	51
18.	Rural electrification and processing	38	31	28	36	37
19.	Soil structures (ditches, ponds, etc.)	43	37	32	39	42
20.	Farm construction and maintenance	46	40	35	44	45
21.	Communications	44	50	47	47	49
22.	Receiving, marking, shipping	39	39	40	41	44
23.	Window and store display	33	30	27	33	32
24.	Salesmanship and customer relations	42	48	47	48	46
25.	Business mathematics	46	49	49	49	49
26.	Bookkeeping, office machines	38	39	35	34	35
27.	Employee relations with supervisor	44	49	52	47	47
28.	Employee relations with fellow workers	48	50	54	50	49
29.	Buying and merchandising	40	44	42	40	39
30.	Inventory, stock control, warehousing	42	45	45	44	44
31.	Internal business organizations	40	40	36	37	39
32.	Capital management, financing	29	34	29	29	31
33.	Accounting, taxes	31	29	27	26	30
34.	Trade relationships, promotion	38	39	35	37	38
35.	Government regulations	38	36	36	37	37
36.	Building maintenance	30	25	23	26	25
37.	Masonry	13	10	9	11	12
38.	Carpentry and cabinetmaking	19	15	14	16	17
39.	Sheet metal, tinsmith, coppersmith	15	12	12	14	14
40.	Painting and finishing	20	17	16	20	18
41.	Plumbing	20	17	16	18	18
42.	Heating, ventilation refrigeration	16	13	14	20	18
43.	Engines, repair and maintenance	28	25	21	27	26
44.	Machinist	19	15	13	16	17
45.	Welding	19	16	13	19	20
46.	Drafting (design, building, elevations)	20	16	15	20	19
47.	Hydraulics and pneumatics	15	13	13	17	18
48.	Industrial chemistry	18	14	13	16	18
49.	Quality control	25	24	23	24	29
50.	Electrical wiring	17	15	14	17	16
51.	Electrical power and distribution	14	12	12	15	15
52.	Electronics	11	9	8	9	10
53.	Appliance repair	15	13	13	15	15
54.	Blueprint reading	21	18	15	20	21
55.	Technical and ser. manuals, handbooks	31	30	27	32	32

TABLE A-9--Continued

Ident. No.	Competencies	Identification number of Competency:				
		11	12	13	14	15
1.	Plant propagation, seed production	32	36	37	33	35
2.	Plant growth, fertilization	33	34	37	32	36
3.	Control of insects, diseases, weeds	35	36	39	36	37
4.	Soil and water management	30	34	34	32	35
5.	Performing production practices	33	36	36	34	38
6.	Animal breeding, selection	18	21	20	22	21
7.	Animal growth, feeding	23	25	24	25	26
8.	Health and sanitation	25	25	26	28	27
9.	Housing and equipment	20	24	22	24	24
10.	Performing production practices	19	22	21	22	24
11.	Budgeting, records and analysis	100	84	72	69	70
12.	Farm financing (credit, taxes, etc.)	66	100	59	60	65
13.	Labor management	66	69	100	65	65
14.	Marketing practices	69	76	71	100	78
15.	Agricultural policy	60	71	62	67	100
16.	Farm power and machinery	34	39	39	30	36
17.	Farm buildings and conveniences	30	34	34	29	33
18.	Rural electrification and processing	22	26	23	22	26
19.	Soil structures (ditches, ponds, etc.)	28	32	31	26	33
20.	Farm construction and maintenance	27	32	31	27	31
21.	Communications	55	49	54	52	54
22.	Receiving, marking, shipping	44	42	50	51	46
23.	Window and store display	24	27	26	28	26
24.	Salesmanship and customer relations	56	51	55	53	53
25.	Business mathematics	56	51	55	57	56
26.	Bookkeeping, office machines	47	46	46	44	47
27.	Employee relations with supervisor	59	51	58	56	56
28.	Employee relations with fellow workers	56	50	59	57	55
29.	Buying and merchandising	54	49	52	56	49
30.	Inventory, stock control, warehousing	56	49	57	56	48
31.	Internal business organizations	48	50	49	48	52
32.	Capital management, financing	50	55	48	48	47
33.	Accounting, taxes	44	51	43	32	43
34.	Trade relationships, promotion	46	47	47	49	49
35.	Government regulations	48	49	46	51	58
36.	Building maintenance	22	23	25	22	25
37.	Masonry	10	11	13	10	11
38.	Carpentry and cabinetmaking	12	13	15	13	13
39.	Sheet metal, tinsmith, coppersmith	10	11	13	10	11
40.	Painting and finishing	14	15	18	14	16
41.	Plumbing	14	16	17	15	16
42.	Heating, ventilation, refrigeration	13	14	17	16	16
43.	Engines, repair and maintenance	22	25	29	23	26
44.	Machinist	12	15	17	13	17
45.	Welding	14	16	20	14	19
46.	Drafting (design, building, elevations)	14	15	15	12	16
47.	Hydraulics and pneumatics	13	15	16	13	16
48.	Industrial chemistry	12	12	14	13	15
49.	Quality control	26	25	26	24	26
50.	Electrical wiring	13	14	16	14	14
51.	Electrical power and distribution	11	12	14	10	12
52.	Electronics	6	7	8	6	7
53.	Appliance repair	9	11	12	10	11
54.	Blueprint reading	18	20	21	16	20
55.	Technical and ser. manuals, handbooks	33	32	32	30	33

TABLE A-9--Continued

Ident. No.	Identification number of Competency:	16	17	18	19	20
	<u>Competencies</u>					
1.	Plant propagation, seed production	35	50	50	55	53
2.	Plant growth, fertilization	38	49	50	58	52
3.	Control of insects, diseases, weeds	38	50	50	54	51
4.	Soil and water management	36	49	51	64	53
5.	Performing production practices	35	49	49	55	50
6.	Animal breeding, selection	21	37	37	30	35
7.	Animal growth, feeding	24	40	38	32	39
8.	Health and sanitation	23	40	40	32	38
9.	Housing and equipment	23	41	41	32	39
10.	Performing production practices	20	37	38	31	36
11.	Budgeting, records and analysis	34	47	49	44	47
12.	Farm financing (credit, taxes, etc.)	31	42	45	40	43
13.	Labor management	35	49	48	45	49
14.	Marketing practices	30	46	49	41	47
15.	Agricultural policy	31	45	50	45	46
16.	Farm power and machinery	100	81	80	75	75
17.	Farm buildings and conveniences	51	100	80	60	77
18.	Rural electrification and processing	35	56	100	52	59
19.	Soil structures (ditches, ponds, etc.)	47	60	74	100	69
20.	Farm construction and maintenance	43	70	77	63	100
21.	Communications	47	48	51	47	49
22.	Receiving, marking, shipping	31	37	41	31	35
23.	Window and store display	25	32	35	28	31
24.	Salesmanship and customer relations	50	45	40	44	45
25.	Business mathematics	39	47	47	44	46
26.	Bookkeeping, office machines	28	37	42	33	39
27.	Employee relations with supervisor	54	44	47	49	48
28.	Employee relations with fellow workers	56	46	49	50	48
29.	Buying and merchandising	36	43	44	38	43
30.	Inventory, stock control, warehousing	41	45	44	41	46
31.	Internal business organizations	38	46	47	44	44
32.	Capital management, financing	26	35	40	36	37
33.	Accounting, taxes	23	33	39	30	35
34.	Trade relationships, promotion	32	43	46	42	44
35.	Government regulations	30	40	46	43	42
36.	Building maintenance	30	39	46	38	44
37.	Masonry	13	17	25	21	20
38.	Carpentry and cabinetmaking	17	22	31	24	25
39.	Sheet metal, tinsmith, coppersmith	17	19	29	19	23
40.	Painting and finishing	23	29	36	27	31
41.	Plumbing	22	28	36	28	30
42.	Heating, ventilation, refrigeration	16	24	36	21	26
43.	Engines, repair and maintenance	47	44	43	41	40
44.	Machinist	28	28	31	23	26
45.	Welding	33	30	32	25	31
46.	Drafting (design, building, elevations)	19	24	28	26	22
47.	Hydraulics and pneumatics	25	25	31	24	26
48.	Industrial chemistry	14	18	23	21	19
49.	Quality control	26	30	37	30	29
50.	Electrical wiring	21	28	35	24	27
51.	Electrical power and distribution	17	22	30	20	23
52.	Electronics	10	13	20	13	14
53.	Appliance repair	15	19	24	21	21
54.	Blueprint reading	27	28	36	32	29
55.	Technical and ser. manuals, handbooks	46	42	45	44	44

TABLE A-9--Continued

Ident. No.	Identification number of Competency:	21	22	23	24	25	26
	<u>Competencies</u>						
1.	Plant propagation, seed production	22	24	30	19	23	27
2.	Plant growth, fertilization	30	29	37	28	28	34
3.	Control of insects, diseases, weeds	29	30	38	29	31	36
4.	Soil and water management	24	25	33	22	26	30
5.	Performing production practices	24	26	32	21	25	30
6.	Animal breeding, selection	13	15	24	11	14	17
7.	Animal growth, feeding	18	20	28	16	19	22
8.	Health and sanitation	20	23	29	17	22	22
9.	Housing and equipment	16	19	28	14	18	18
10.	Performing production practices	15	18	24	12	16	16
11.	Budgeting, records and analysis	36	39	40	32	40	47
12.	Farm financing (credit, taxes, etc.)	25	30	35	23	28	36
13.	Labor management	32	41	39	29	36	42
14.	Marketing practices	34	46	46	31	40	44
15.	Agricultural policy	30	36	38	27	34	41
16.	Farm power and machinery	31	28	41	29	28	28
17.	Farm buildings and conveniences	20	21	34	17	21	24
18.	Rural electrification and processing	15	17	26	10	15	19
19.	Soil structures (ditches, ponds, etc.)	19	18	29	16	20	21
20.	Farm construction and maintenance	19	18	30	15	19	23
21.	Communications	100	71	75	63	62	62
22.	Receiving, marking, shipping	51	100	77	46	50	51
23.	Window and store display	29	42	100	26	30	35
24.	Salesmanship and customer relations	71	72	75	100	71	66
25.	Business mathematics	57	64	71	58	100	71
26.	Bookkeeping, office machines	40	46	58	38	55	100
27.	Employee relations with supervisor	73	69	73	71	66	62
28.	Employee relations with fellow workers	74	71	74	74	67	62
29.	Buying and merchandising	48	62	67	47	57	59
30.	Inventory, stock control, warehousing	51	71	71	49	59	60
31.	Internal business organizations	45	47	56	41	49	56
32.	Capital management, financing	34	38	44	30	40	49
33.	Accounting, taxes	29	35	41	26	40	53
34.	Trade relationships, promotion	40	47	64	34	45	52
35.	Government regulations	38	45	49	35	44	51
36.	Building maintenance	18	20	25	14	18	22
37.	Masonry	9	11	14	7	9	12
38.	Carpentry and cabinetmaking	10	13	17	8	11	14
39.	Sheet metal, tinsmith, coppersmith	10	12	14	9	12	13
40.	Painting and finishing	13	16	18	12	14	17
41.	Plumbing	13	15	17	11	15	15
42.	Heating, ventilation, refrigeration	11	16	19	9	12	16
43.	Engines, repair and maintenance	23	24	28	21	20	23
44.	Machinist	13	14	16	11	12	13
45.	Welding	16	14	17	14	14	16
46.	Drafting (design, building, elevations)	10	10	17	9	12	15
47.	Hydraulics and pneumatics	12	13	19	11	13	14
48.	Industrial chemistry	10	10	14	7	9	12
49.	Quality control	22	22	25	18	20	22
50.	Electrical wiring	12	14	17	10	12	13
51.	Electrical power and distribution	9	11	13	8	9	11
52.	Electronics	6	7	10	4	6	7
53.	Appliance repair	8	11	13	6	8	11
54.	Blueprint reading	14	16	20	13	15	19
55.	Technical and ser. manuals, handbooks	32	30	33	28	27	29

TABLE A-9--Continued

Ident. No.	Identification number of Competency: <u>Competencies</u>	27	28	29	30	31
		1.	Plant propagation, seed production	19	18	26
2.	Plant growth, fertilization	26	26	32	28	34
3.	Control of insects, diseases, weeds	27	26	34	30	35
4.	Soil and water management	22	21	28	24	29
5.	Performing production practices	21	20	28	26	29
6.	Animal breeding, selection	10	11	15	14	16
7.	Animal growth, feeding	14	14	21	20	21
8.	Health and sanitation	17	17	23	22	21
9.	Housing and equipment	13	13	18	18	17
10.	Performing production practices	11	11	15	16	17
11.	Budgeting, records and analysis	31	28	46	44	44
12.	Farm financing (credit, taxes, etc.)	21	20	33	30	37
13.	Labor management	28	27	41	40	42
14.	Marketing practices	29	28	48	44	44
15.	Agricultural policy	25	24	36	33	42
16.	Farm power and machinery	28	28	31	32	36
17.	Farm buildings and conveniences	15	15	24	22	27
18.	Rural electrification and processing	11	11	17	15	19
19.	Soil structures (ditches, ponds, etc.)	16	16	20	20	25
20.	Farm construction and maintenance	14	14	21	21	24
21.	Communications	58	57	63	61	63
22.	Receiving, marking, shipping	40	39	59	61	49
23.	Window and store display	23	22	35	33	31
24.	Business mathematics	64	64	70	66	65
25.	Business mathematics	48	47	70	65	64
26.	Bookkeeping, office machines	32	31	51	47	52
27.	Employee relations with supervisor	100	90	75	75	73
28.	Employee relations with fellow workers	94	100	75	74	76
29.	Buying and merchandising	45	44	100	72	68
30.	Inventory, stock control, warehousing	50	48	79	100	74
31.	Internal business organizations	41	41	63	62	100
32.	Capital management, financing	26	25	47	41	48
33.	Accounting, taxes	23	23	38	36	45
34.	Trade relationships, promotion	30	30	50	48	51
35.	Government regulations	35	33	49	46	52
36.	Building maintenance	15	15	19	21	25
37.	Masonry	6	6	10	9	11
38.	Carpentry and cabinetmaking	8	7	11	11	13
39.	Sheet metal, tinsmith, coppersmith	9	8	12	10	13
40.	Painting and finishing	11	10	14	14	17
41.	Plumbing	11	10	14	13	17
42.	Heating, ventilation, refrigeration	10	9	12	12	16
43.	Engines, repair and maintenance	21	20	22	22	26
44.	Machinist	11	11	11	11	14
45.	Welding	15	14	15	15	15
46.	Drafting (design, building, elevations)	8	8	14	12	15
47.	Hydraulics and pneumatics	12	11	14	12	14
48.	Industrial chemistry	8	8	11	11	13
49.	Quality control	20	19	22	25	28
50.	Electrical wiring	10	9	13	13	15
51.	Electrical power and distribution	7	7	10	11	12
52.	Electronics	4	4	6	5	6
53.	Appliance repair	6	6	9	9	10
54.	Blueprint reading	13	12	17	15	19
55.	Technical and ser. manuals, handbooks	30	29	32	33	34

TABLE A-9--Continued

Ident. No.	Identification number of Competency:	32	33	34	35
	<u>Competencies:</u>				
1.	Plant propagation, seed production	32	30	31	28
2.	Plant growth, fertilization	36	32	36	33
3.	Control of insects, diseases, weeds	38	33	36	34
4.	Soil and water management	33	30	34	28
5.	Performing production practices	34	30	34	28
6.	Animal breeding, selection	15	17	18	17
7.	Animal growth, feeding	23	21	24	21
8.	Health and sanitation	22	22	24	24
9.	Housing and equipment	18	17	20	20
10.	Performing production practices	17	17	19	18
11.	Budgeting, records and analysis	60	56	49	50
12.	Farm financing (credit, taxes, etc.)	52	51	39	40
13.	Labor management	53	50	46	43
14.	Marketing practices	58	54	53	53
15.	Agricultural Policy	49	48	45	52
16.	Farm power and machinery	32	30	35	31
17.	Farm buildings and conveniences	27	27	29	26
18.	Rural electrification and processing	21	22	22	21
19.	Soil structures (ditches, ponds, etc.)	28	24	29	28
20.	Farm construction and maintenance	26	26	27	26
21.	Communications	62	57	66	61
22.	Receiving, marking, shipping	50	49	56	51
23.	Window and store display	32	31	41	30
24.	Salesmanship and customer relations	63	58	64	63
25.	Business mathematics	70	72	68	65
26.	Bookkeeping, office machines	59	67	56	53
27.	Employee relations with supervisor	59	57	62	69
28.	Employee relations with fellow workers	61	59	64	69
29.	Buying and merchandising	66	57	63	60
30.	Inventory, stock control, warehousing	64	59	67	61
31.	Internal business organizations	63	62	59	59
32.	Capital management, financing	100	78	61	60
33.	Accounting, taxes	74	100	56	56
34.	Trade relationships, promotion	69	67	100	60
35.	Government regulations	70	68	62	100
36.	Building maintenance	25	26	25	24
37.	Masonry	13	13	11	11
38.	Carpentry and cabinetmaking	14	15	13	13
39.	Sheet metal, tinsmith, coppersmith	13	15	12	14
40.	Painting and finishing	16	18	16	15
41.	Plumbing	18	19	17	16
42.	Heating, ventilation, refrigeration	15	16	16	16
43.	Engines, repair and maintenance	24	25	26	23
44.	Machinist	15	16	14	15
45.	Welding	17	17	16	16
46.	Drafting (design, building, elevations)	14	15	16	16
47.	Hydraulics and pneumatics	15	17	17	15
48.	Industrial chemistry	13	13	15	13
49.	Quality control	24	22	24	28
50.	Electrical wiring	16	16	16	14
51.	Electrical power and distribution	12	13	13	12
52.	Electronics	10	10	8	8
53.	Appliance repair	13	15	13	13
54.	Blueprint reading	20	21	19	20
55.	Technical and ser. manuals, handbooks	34	30	37	35

TABLE A-9--Continued

Ident. No.	Competencies	36	37	38	39	40	41	42
1.	Plant propagation, seed production	39	41	44	32	39	38	33
2.	Plant growth, fertilization	35	38	40	31	37	37	34
3.	Control of insects, diseases, weeds	34	37	40	32	37	36	37
4.	Soil and water management	36	45	44	34	38	43	34
5.	Performing production practices	35	40	43	35	40	40	36
6.	Animal breeding, selection	22	21	25	21	21	21	20
7.	Animal growth, feeding	24	20	25	21	22	23	21
8.	Health and sanitation	26	21	27	24	25	24	25
9.	Housing and equipment	22	21	25	22	24	22	28
10.	Performing production practices	20	20	23	20	20	20	22
11.	Budgeting, records and analysis	37	35	35	30	33	34	36
12.	Farm financing (credit, taxes, etc.)	30	31	29	26	28	30	31
13.	Labor management	39	42	42	37	39	38	43
14.	Marketing practices	38	37	39	30	34	35	46
15.	Agricultural Policy	37	33	33	30	32	34	39
16.	Farm power and machinery	51	47	50	52	54	55	44
17.	Farm buildings and conveniences	43	38	41	37	43	44	43
18.	Rural electrification and processing	35	40	41	40	38	39	44
19.	Soil structures (ditches, ponds, etc.)	40	47	45	37	40	42	36
20.	Farm construction and maintenance	43	42	42	41	43	42	43
21.	Communications	47	49	45	46	47	47	48
22.	Receiving, marking, shipping	39	42	44	40	41	40	48
23.	Window and store display	26	31	30	25	26	25	32
24.	Salesmanship and customer relations	41	42	40	50	48	47	43
25.	Business mathematics	42	47	46	50	47	50	47
26.	Bookkeeping, office machines	37	42	40	41	39	36	44
27.	Employee relations with supervisor	50	42	44	50	50	51	52
28.	Employee relations with fellow workers	52	41	42	48	49	49	52
29.	Buying and merchandising	37	43	39	42	38	40	39
30.	Inventory, stock control, warehousing	46	41	41	41	42	41	44
31.	Internal business organizations	46	44	40	44	43	45	48
32.	Capital management, financing	35	38	35	34	31	36	34
33.	Accounting, taxes	35	37	35	36	34	36	35
34.	Trade relationships, promotion	40	36	36	34	35	38	40
35.	Government regulations	39	37	36	41	35	37	44
36.	Building maintenance	100	83	80	71	67	73	73
37.	Masonry	39	100	75	59	53	55	50
38.	Carpentry and cabinetmaking	46	89	100	71	66	67	55
39.	Sheet metal, tinsmith, coppersmith	39	68	69	100	67	60	54
40.	Painting and finishing	48	79	83	86	100	76	64
41.	Plumbing	52	81	82	76	75	100	64
42.	Heating, ventilation, refrigeration	45	64	59	59	55	56	100
43.	Engines, repair and maintenance	48	62	60	63	65	64	52
44.	Machinist	32	45	43	58	47	45	35
45.	Welding	34	47	50	60	56	52	38
46.	Drafting (design, building, elevations)	28	40	37	44	38	38	31
47.	Hydraulics and pneumatics	23	34	32	50	43	37	31
48.	Industrial chemistry	22	34	29	35	32	30	29
49.	Quality control	40	40	35	44	40	39	52
50.	Electrical wiring	39	59	59	62	59	56	47
51.	Electrical power and distribution	27	41	42	46	42	39	38
52.	Electronics	18	30	28	31	25	25	27
53.	Appliance repair	29	42	45	42	41	40	39
54.	Blueprint reading	33	49	46	50	44	47	36
55.	Technical and ser. manuals, handbooks	55	60	57	62	63	62	56

TABLE A-9--Continued

Ident. No.	Identification number of Competency:	43	44	45
	<u>Competencies</u>			
1.	Plant propagation, seed production	29	33	26
2.	Plant growth, fertilization	30	34	29
3.	Control of insects, diseases, weeds	32	35	31
4.	Soil and water management	33	38	31
5.	Performing production practices	35	37	32
6.	Animal breeding, selection	16	19	15
7.	Animal growth, feeding	19	20	17
8.	Health and sanitation	18	19	16
9.	Housing and equipment	19	19	18
10.	Performing production practices	16	18	17
11.	Budgeting, records and analysis	30	28	26
12.	Farm financing (credit, taxes, etc.)	26	27	23
13.	Labor management	36	36	34
14.	Marketing practices	31	30	27
15.	Agricultural policy	30	35	30
16.	Farm power and machinery	65	65	61
17.	Farm buildings and conveniences	37	41	35
18.	Rural electrification and processing	26	31	26
19.	Soil structures (ditches, ponds, etc.)	35	34	29
20.	Farm construction and maintenance	31	35	33
21.	Communications	47	44	46
22.	Receiving, marking, shipping	36	35	29
23.	Window and store display	23	23	19
24.	Salesmanship and customer relations	49	44	46
25.	Business mathematics	39	39	36
26.	Bookkeeping, office machines	32	30	29
27.	Employee relations with supervisor	53	51	55
28.	Employee relations with fellow workers	54	50	53
29.	Buying and merchandising	34	31	32
30.	Inventory, stock control, warehousing	38	31	36
31.	Internal business organizations	38	34	30
32.	Capital management, financing	27	28	26
33.	Accounting, taxes	26	29	24
34.	Trade relationships, promotion	33	30	28
35.	Government regulations	30	30	28
36.	Building maintenance	38	43	37
37.	Masonry	23	29	25
38.	Carpentry and cabinetmaking	27	33	31
39.	Sheet metal, tinsmith, coppersmith	28	44	36
40.	Painting and finishing	37	46	43
41.	Plumbing	36	43	40
42.	Heating, ventilation, refrigeration	25	29	25
43.	Engines, repair and maintenance	100	84	80
44.	Machinist	49	100	66
45.	Welding	58	83	100
46.	Drafting (design, building, elevations)	29	37	30
47.	Hydraulics and pneumatics	39	52	46
48.	Industrial chemistry	22	30	26
49.	Quality control	37	41	37
50.	Electrical wiring	39	44	44
51.	Electrical power and distribution	29	38	36
52.	Electronics	17	25	20
53.	Appliance repair	25	32	26
54.	Blueprint reading	34	44	37
55.	Technical and ser. manuals, handbooks	59	62	60

TABLE A-9--Continued

Ident. No.	Identification number of Competency: <u>Competencies</u>	46	47	48	49
1.	Plant propagation, seed production	42	31	54	32
2.	Plant growth, fertilization	39	27	52	33
3.	Control of insects, diseases, weeds	39	29	54	38
4.	Soil and water management	47	35	52	33
5.	Performing production practices	43	31	55	34
6.	Animal breeding, selection	25	16	29	19
7.	Animal growth, feeding	27	18	29	23
8.	Health and sanitation	28	20	31	26
9.	Housing and equipment	30	21	30	21
10.	Performing production practices	26	20	30	23
11.	Budgeting, records and analysis	40	31	44	45
12.	Farm financing (credit, taxes, etc.)	36	28	33	35
13.	Labor management	41	35	45	42
14.	Marketing practices	37	31	47	41
15.	Agricultural policy	42	33	48	40
16.	Farm power and machinery	57	60	50	45
17.	Farm buildings and conveniences	45	39	42	34
18.	Rural electrification and processing	37	34	37	28
19.	Soil structures (ditches, ponds, etc.)	48	37	48	33
20.	Farm construction and maintenance	37	36	39	29
21.	Communications	45	44	53	58
22.	Receiving, marking, shipping	33	36	41	43
23.	Window and store display	30	27	30	27
24.	Salesmanship and customer	44	46	44	53
25.	Business mathematics	48	44	48	48
26.	Bookkeeping, office machines	45	35	45	39
27.	Employee relations with supervisor	48	54	52	66
28.	Employee relations with fellow workers	50	52	54	65
29.	Buying and merchandising	46	40	45	44
30.	Inventory, stock control, warehousing	45	38	49	57
31.	Internal business organizations	49	37	51	53
32.	Capital management, financing	35	30	40	35
33.	Accounting, taxes	36	32	36	31
34.	Trade relationships, promotion	43	39	51	40
35.	Government regulations	45	36	46	47
36.	Building maintenance	49	33	46	42
37.	Masonry	33	24	34	20
38.	Carpentry and cabinetmaking	37	26	36	21
39.	Sheet metal, tinsmith, coppersmith	42	40	42	25
40.	Painting and finishing	47	44	48	29
41.	Plumbing	46	37	46	28
42.	Heating, ventilation, refrigeration	33	27	38	33
43.	Engines, repair and maintenance	63	71	58	49
44.	Machinist	47	55	47	31
45.	Welding	47	61	51	36
46.	Drafting (design, building, elevations)	100	51	57	33
47.	Hydraulics and pneumatics	62	100	57	35
48.	Industrial chemistry	46	38	100	33
49.	Quality control	55	48	68	100
50.	Electrical wiring	46	48	48	31
51.	Electrical power and distribution	42	44	47	28
52.	Electronics	33	32	34	16
53.	Appliance repair	35	29	39	23
54.	Blueprinting reading	72	50	52	37
55.	Technical and ser. manuals, handbooks	64	65	64	65

TABLE A-9--Continued

Ident. No.	Competencies	Identification number of Competency:					
		50	51	52	53	54	55
1.	Plant propagation, seed production	31	37	41	41	35	27
2.	Plant growth, fertilization	29	35	39	40	37	29
3.	Control of insects, diseases, weeds	30	39	40	42	37	31
4.	Soil and water management	32	40	41	45	41	30
5.	Performing production practices	32	42	43	45	38	30
6.	Animal breeding, selection	19	21	27	23	20	15
7.	Animal growth, feeding	22	24	27	26	21	18
8.	Health and sanitation	23	27	29	29	21	19
9.	Housing and equipment	23	26	26	27	22	18
10.	Performing production practices	19	24	26	24	21	16
11.	Budgeting, records and analysis	34	37	35	33	39	37
12.	Farm financing (credit, taxes, etc.)	29	31	32	30	35	28
13.	Labor management	37	42	40	39	41	33
14.	Marketing practices	35	35	33	38	34	33
15.	Agricultural policy	30	35	35	34	37	31
16.	Farm power and machinery	55	57	55	55	59	51
17.	Farm buildings and conveniences	46	48	47	43	38	29
18.	Rural electrification and processing	39	45	50	38	35	22
19.	Soil structures (ditches, ponds, etc.)	39	44	48	47	43	31
20.	Farm construction and maintenance	40	45	46	43	37	28
21.	Communications	46	44	48	41	46	54
22.	Receiving, marking, shipping	40	43	42	42	37	37
23.	Window and store display	26	27	35	29	26	22
24.	Salesmanship and customer relations	44	45	43	36	47	54
25.	Business mathematics	43	44	47	41	47	43
26.	Bookkeeping, office machines	34	37	40	40	41	32
27.	Employee relations with supervisor	47	47	48	41	54	64
28.	Employee relations with fellow workers	45	45	47	42	54	64
29.	Buying and merchandising	39	40	43	36	42	41
30.	Inventory, stock control, warehousing	44	47	38	41	42	46
31.	Internal business organizations	42	45	40	38	44	41
32.	Capital management, financing	34	34	45	38	35	31
33.	Accounting, taxes	31	34	46	41	36	26
34.	Trade relationships, promotion	38	42	43	45	39	38
35.	Government regulations	35	40	45	45	42	37
36.	Building maintenance	58	53	60	61	42	35
37.	Masonry	43	39	48	43	30	19
38.	Carpentry and cabinetmaking	51	48	53	55	33	21
39.	Sheet metal, tinsmith, coppersmith	51	51	57	49	36	22
40.	Painting and finishing	64	60	59	63	40	29
41.	Plumbing	59	55	58	60	42	28
42.	Heating, ventilation, refrigeration	43	46	55	50	28	22
43.	Engines, repair and maintenance	73	73	72	68	55	48
44.	Machinist	48	57	60	50	41	30
45.	Welding	61	66	63	51	44	36
46.	Drafting, (design, building, elevation)	40	48	64	43	53	24
47.	Hydraulics and pneumatics	50	62	74	43	44	29
48.	Industrial chemistry	34	44	54	39	31	19
49.	Quality control	46	53	52	47	46	41
50.	Electrical wiring	100	85	76	68	39	28
51.	Electrical power and distribution	64	100	81	59	35	22
52.	Electronics	34	48	100	42	24	13
53.	Appliance repair	48	56	67	100	29	19
54.	Blueprint reading	46	55	63	49	100	39
55.	Technical and ser. manuals, handbooks	65	68	66	64	76	100

B-1

APPENDIX-B

Instruments

Form 1 General Information

Form 2 Specific Job Title Information

Date of Interview _____ Interviewer _____

EMPLOYMENT OPPORTUNITIES AND NEEDED COMPETENCIES
IN AGRICULTURAL OCCUPATIONS OTHER THAN FARMING

FORM 1

I. Business or Service -- Standard Industrial Code _____

A. Name of business or service _____

Address _____ County _____

B. Person interviewed _____

Position _____ Telephone No. _____

C. Year this business or service was established in this locality _____

D. Estimated per cent gross income that is agriculturally oriented _____

E. Major agricultural products and/or functions of this business or service

II. Employees in this business or service -- Total number _____

For employees needing competencies in agriculture, complete the following:

A. Existing Job Titles*	Number of Employees	
	Full-time	Part-time
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
B. Anticipated Job Titles*		
1. _____	_____	_____
2. _____	_____	_____

*Fill out a separate form 2 for each job title listed above including anticipated job titles.

Interviewer _____

Date of Interview _____

EMPLOYMENT OPPORTUNITIES AND NEEDED COMPETENCIES
IN AGRICULTURAL OCCUPATIONS OTHER THAN FARMING

FORM 2

I. Identification of Business or Service and Job Title

A. Name of business or service _____

Address _____ County _____

B. Job title from Form 1 _____

II. Information about Employees in this Job Title

A. Number of employees and years of tenure

Employment Status	No. of Employees		Employees to be * hired during next 5 years		Average years an employee stays in this job title
	Actual this year	Expected 5 years from now	Number	Age	
Full-time	_____	_____	_____	_____	_____
Part-time	_____	_____	_____	_____	_____

B. Wage or salary information for this job title

Employment status	Average hours paid per week	Average weeks paid per week	Wages or Salary by Pay Periods (hour, week, month or year)			
			Beginning		Highest	
			Pay period	Amount	Pay period	Amount
Full-time	_____	_____	_____	_____	_____	_____
Part-time	_____	_____	_____	_____	_____	_____

C. Activities and duties of persons with this job title

*To replace present employee or employees in this job title and for anticipated increase.

III. Characteristics desired in those who enter this Job Title

A. Educational level (check one only)

- | | |
|---|---|
| <input type="checkbox"/> 1. Less than high school graduation | <input type="checkbox"/> 5. Associated or junior college degree |
| <input type="checkbox"/> 2. High school graduation | <input type="checkbox"/> 6. Baccalaureat degree |
| <input type="checkbox"/> 3. Post high school technical education | <input type="checkbox"/> 7. Master's degree |
| <input type="checkbox"/> 4. Some college education (not a degree) | <input type="checkbox"/> 8. Doctor's degree |

B. Residential and experience background (check one only)

- | | | |
|---|---|-----------------------------------|
| <input type="checkbox"/> 1. Farm | <input type="checkbox"/> 2. Rural, non-farm | <input type="checkbox"/> 3. Urban |
| <input type="checkbox"/> 4. No preference | | |

C. Experience desired to enter this Job Title _____

IV. Limitations on entering this Job Title

- A. Licensing or certification (professional, industrial, Civil Service, etc.)
- B. Labor law restrictions
- C. Labor union restrictions
- D. Physical - age, strength, etc.
- E. Other (specify)

V. Education desired to advance in this Job Title or to a related position

A. Technical short course or other training provided by:

- 1. A short course by your business or the industry as a whole
- 2. On-the-job training in your business
- 3. A public school (adult educ.)
- 4. An agricultural college or technical institute

B. Other types of education desired _____

VI. Competencies Associated with this Job Title

A. Agricultural Competencies

	Check degree of competency needed					
	To <u>enter</u> this job as a beginning employee			To <u>advance</u> in this job title or to a related position		
	Unnec- essary	Desir- able	Essen- tial	Unnec- essary	Desir- able	Essen- tial
1. Plant Science						
Plant propagation, seed production.						
Plant growth, fertilization						
Control of insects, diseases, weeds						
Soil and Water Management						
Performing production practices						
2. Animal Science						
Animal breeding, selection.						
Animal growth, feeding.						
Health and sanitation						
Housing and equipment						
Performing production practices						
3. Agricultural Business Management & Marketing (farming and agribusiness)						
Budgeting, records and analysis						
Farm financing (credit, taxes, etc)						
Labor management.						
Marketing practices						
Agricultural Policy						
4. Agricultural Mechanics and Automation						
Farm power and machinery						
Farm buildings and conveniences						
Rural electrification and process.						
Soil structures (ditches, ponds,)						
Farm construction and maintenance						

List other agricultural competencies that are needed for this job title.

B. Business and distributive competencies

	Check degree of competency needed					
	To enter this job as a beginning employee			To advance in this job title or to a related position		
	Unnec- essary	Desir- able	Essen- tial	Unnec- essary	Desir- able	Essen- tial
1. Duties of employees						
Communications.						
Receiving, marking, shipping.						
Window and store display.						
Salesmanship and customer relat.. . . .						
Business mathematics.						
Bookkeeping, office machines.						
2. Business Organization and Supervision						
Employee relations with supervisor.						
Employee relations with fellow workers.						
Buying and merchandising.						
Inventory, stock control, warehousing.						
Internal business organizations						
3. Management and Economics of Business						
Capital management, financing						
Accounting, taxes						
Trade relationships, promotion advertising.						
Government regulations (ICC, PUC, FICA)						

List other business and distributive competencies needed for this job title.

C. Trade and Industrial competencies

	Check degree of competency needed					
	To enter this job as a beginning employee			To advance in this job title or to a related position		
	Unnec- essary	Desir- able	Essen- tial	Unnec- essary	Desir- able	Essen- tial
1. Construction Trades						
Building maintenance						
Masonry						
Carpentry and cabinetmaking						
Sheet metal, tinsmith, coppersmith.						
Painting and finishing						
Plumbing						
Heating, ventilation, refri. and air condition.						
2. Metal Trades						
Engines, repair and maintenance						
Machinist						
Welding						
3. Technicians						
Drafting (design, building, elevations).						
Hydraulics and pneumatics						
Industrial chemistry						
Quality control						
4. Electrical Trades						
Electrical wiring						
Electrical power and distribution						
Electronics						
Appliance repair.						
5. Related Subjects						
Blueprint reading						
Technical and service manuals and handbooks, etc.						

List other trade and industrial competencies that are needed for this job title.