A STUDY OF EMPLOYMENT OPPORTUNITIES AND TRAINING NEEDS IN OFF-FARM AGRICULTURAL OCCUPATIONS IN OKLAHOMA

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PREFACE

Vocational education in agriculture came into existence because of a need for increased education and practice for those engaged in or preparing to engage in farming. Vocational agriculture has served its purpose well. Through this and other programs the farmer has met the challenge of an ever increasing population and a decreasing supply of land available for food and fiber production. Vocational education in agriculture now faces the dual responsibility of continued preparation for production agriculture and training for employment in businesses and industry related to agriculture.

This broadening of responsibility means new programs of instruction, new supervised training experiences, and new student selection criteria. Those guiding this expansion and redirection of vocational agriculture will need new information upon which to base judgments concerning the program. This study is designed to provide information on the employment opportunities and training needs which supervisors, teachers, and teacher trainers may use in making decisions related to this new phase of the program of vocational education in agriculture.

I would like to express my appreciation to Dr. Robert R. Price, Head of the Department of Agricultural Education and chairman of my committee; to Dr. Everett D. Edington, director of the project; and to Dr. Loris Parcher, Dr. Robert Totusek, and Dr. Daniel Selakovich, members of my doctoral committee.

Indebtedness is also expressed to the Advisory Committee for the study. The members of this committee are Dr. James Tarver, Sociology Department; Dr. Robert R. Price, Agricultural Education; Dr. James Plaxico, Agricultural Economics; Mr. George Abshier, Agricultural Extension Service; Mr. J. B. Morton, State Department of Vocational Education; Dr. Randall Jones, Dean of Resident Instruction, College of Agriculture; and Dr. Robert Morrison, Statistics Laboratory.

This study was financed cooperatively by the State Board for Vocational Education and Oklahoma State University. The interest and assistance of the representatives of these two institutions are greatly appreciated.

Most especially I wish to recognize the contributions of the teachers of vocational agriculture who arranged the appointments with the businesses interviewed and the managers of the businesses who gave so generously of their time and knowledge to the study.

Special help was given by Dr. Glenn Stevens, Pennsylvania State University, and Dr. Robert Taylor, Ohio State University, in the analysis of the data.

I am especially grateful to my wife, Nelle, and my daughter, Shannon, for their constant encouragement and help during the time this study was made and this report written.

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CHAPTER I

INTRODUCTION

As farmers in Oklahoma and the nation become more highly trained and more efficient in adapting new technological knowledge to their farming operations, farms increase in size and the number of workers required to produce the nation's food and fiber decreases. A concomitant yet opposite change occurs in those businesses which perform services for farmers or which market, process, and distribute the farmer's product. Farmers are demanding more and more skilled assistance from businesses off the farm in the operation of their highly complex production business. On the other hand, consumers are demanding a product which requires processing and distribution services which must be performed off the farm. Thus we have developing in this country a vast network of enterprises to perform these services for the farmer and the consumer. The term, "off-farm agricultural business," has become generally accepted as the designation for these companies. The people employed in these businesses are said to be working in off-farm agricultural occupations.

These changes in agriculture are reflected in the laws governing the teaching of vocational agriculture. In 1917, when 27 percent of our population was engaged in farming and ranching, the Smith-Hughes Law provided federal monies for the training of persons "who have entered upon or who are preparing to enter upon the work of the farm." The schools began to train some of the youth of our country to go into jobs

or professions immediately upon graduation from high school. Vocational agriculture turned out by the thousands, young men well trained in farming and well fitted to lead in their local community.

Little change has been made in the original intent of the laws governing vocational agriculture since that early bill in 1917 until recently. Vocational education has been broadened and expanded into many other areas over the years but vocational agriculture has been aimed primarily at training for proficiency in farming. Now a major change has been made in the law relating to the objective of vocational agriculture. The Vocational Education Act of 1963 (P. L. 88-210) has designated the job of vocational agriculture as training in "any occupation involving knowledge and skills in agricultural subjects."

Statement of the Problem

In the light of this new legislation, it appears that vocational agriculture will change. If this change is to be properly directed and controlled, a great deal of knowledge about off-farm agricultural occupations is needed. It was a growing awareness of this urgent need for more information on the requirements of these occupations which prompted this study which is designed to identify the employment opportunities and training needs which exist in these particular types of businesses. The central problem which faced the investigator in this study was the lack of reliable knowledge of where off-farm agricultural jobs existed and the training necessary to prepare young men for entry into these occupations.

Objectives of the Study

In recognition of the need for information which could give direction to changes in programs of vocational agriculture, this study was designed to achieve the following basic objectives:

1. To identify present and emerging off-farm agricultural occupations, other than farming and ranching, for which vocational, technical, or higher education should be available.
2. To determine present numbers of employees in these occupations and to identify those occupational job titles which employers say require agricultural competencies.
3. To estimate the annual turnover and entry opportunities in these occupations and job titles.
4. To determine competencies needed for entry and advancement in these occupations.
5. To determine other characteristics of these occupations such as beginning and maximum salary, minimum age for job entry, required formal education and experience, and residential background preferred.

Scope and Limitations of the Study

The types of agricultural businesses and industries used in the study were selected by the Advisory Committee because, in their opinion, they were of the most agricultural importance to Oklahoma and showed the greatest likelihood of employing people with agricultural competencies. There are, undoubtedly, other businesses which employ people needing agricultural competencies. The businesses included in the study represent only what was considered to be the major agricultural businesses

and should not be interpreted as including all the potential employers of agriculturally trained people. Further studies of other types of enterprises would very likely identify other employment opportunities and training needs.

The data for this project were collected from 719 different agricultural businesses in Oklahoma. This represents 38 percent of the total of these types of businesses now in operation in the state. When forestry is not considered, this amounts to 42 percent of the businesses. Only the major forestry businesses were interviewed because it was found that the small individual operations offered very limited employment opportunities for those with agricultural training. Interviews were made in each county of the state to obtain the data.

Another phase of the study was the determination of the estimated number of professional agricultural workers which will be needed by private, state, and federal agencies serving agriculture. This information should be of assistance to agricultural colleges and universities in planning programs and anticipating needs.

It is not the intent of this researcher to develop a program for any local community, but to supply information to planners on the state and local level in order to assist them in developing a program of instruction. This study will, of necessity, be rather general in nature, and there will be a need for further study of each type of agricultural business in order to determine more specific training needs. Some such studies are now in progress.

It was felt that the farming and ranching phase of agriculture should not be studied in this project since that area has been taught as a part of vocational agriculture since its beginning.

Definitions of Terms

The language used in describing this new area of instruction related to vocational agriculture is constantly changing. The terms used in this thesis reflect the latest thinking at the national level as it has emerged from numerous meetings and conferences. Efforts have been made to maintain close contact with others working in this field and to establish terms which will be meaningful throughout the nation.

The term, "off-farm agricultural business," refers to those businesses which perform services for farmers; sell agricultural input materials to farmers; or buy, process, and distribute the farmer's product.

The term, "off-farm agricultural occupation," designates those jobs within a business which require an employee with some agricultural competencies.

The term, "agricultural competencies," is defined as knowledge, skill, or ability in one or more of the primary areas of plant science, soil science, animal science, agricultural business management, and agricultural mechanization.

CHAPTER II

REVIEW OF RELATED RESEARCH

If vocational agriculture is to continue to be effective as a segment of our educational system, it must adjust to the rapid economic progress in agriculture which has drastically changed the amount and quality of human resources employed in farming. The educational needs of farm youth have changed as the structure of our economy has changed. As stated in the report of the Panel of Consultants on Vocational Education:

> One of the major aspects of economic progress in agriculture is the increased specialization of farms and the transfer of tasks formerly performed on farms to nonfarm firms. During periods of technological change and economic progress, therefore, the agri-business sector expands and provides employment for part of the labor released from farms.[1]

The report continues:

> The demand for marketing and processing services, however, grows at a much more rapid rate than the demand for farm products. Likewise, as agriculture becomes more specialized, farmers turn to the nonfarm sectors of the economy for chemicals, equipment, and other supplies.

The Panel of Consultants, while realizing that some additional workers will be needed, gives us very little information on the number needed or the types of training that would best suit students for employment.

> In many farm related industries some knowledge of technical agricultural subjects and general

> understanding of the process of agricultural development are highly desirable. The types of training and experience needed, however, are not necessarily the same as that needed in farm employment.[2]

A report of the United States Department of Agriculture[3] illustrates the importance of these agricultural businesses to our national economy. This 1963 report shows that farmers spend $27 to $28 billion a year for goods and services to produce crops and livestock. Each year the farmers' purchases include:

> $2.8 billion in new farm tractors, machinery, and equipment.
>
> $3.2 billion for fuel, lubricants, and maintenance of machinery.
>
> $1.5 billion for fertilizer and lime.

The report continues with the following information concerning employment:

> Four out of every ten jobs in private employment are related to agriculture.
>
> Ten million people have jobs storing, transporting, processing, and merchandising the products of agriculture.
>
> Six million people have jobs providing the supplies that farmers use.

A report of the Oklahoma Extension Service[4] shows that:

> Fourteen thousand workers are needed to keep farmers supplied with production items, for which they spend $350 million.
>
> Twenty-five thousand people work at processing Oklahoma-grown products.

No information is given in this report as to the agricultural competencies needed by employees in these agriculturally related businesses.

Bryan[5] stresses the need for additional research in the opportunities and needs for placement in agricultural occupations. Hoover[6]

emphasizes the fact that youth need the help of guidance counselors and teachers of agriculture who are fully aware that agriculture is not only farming but a vast, complex industry employing many persons off the farm at semi-skilled, skilled, technical, and professional levels.

In 1957, Sutherland and Thompson[7] conducted a study in California to determine avenues to employment for persons trained in vocational agriculture. Some of their most important findings are as follows:

1. The most common types of businesses employing agriculturally trained persons were those engaged in sales and service of agricultural supplies. The next major group was purchasing and sales of agricultural products.
2. Approximately one out of every five persons employed in agricultural businesses needed agricultural training.
3. For minimum levels of training, high school agriculture seemed most appropriate for the skilled and semi-skilled persons, junior college or a four-year college for sales persons, and a four-year college for consulting and supervisory-managerial workers.
4. Opportunities for the agriculturally trained person in businesses associated with agriculture have been largely overlooked by vocational agriculture people. The annual demand for agriculturally trained persons in business would be roughly comparable to the demand for trained persons in farming.

Richardson[8], in 1962, found that in Oklahoma in the feed, seed, and fertilizer; nursery; and farm machinery businesses there was a need for employees with training in vocational agriculture and that there were certain areas where the employer felt that the instruction would be very

beneficial to new employees in their business.

The most relevant research dealing with off-farm agricultural occupations is the predominately interview-type surveys of employment needs conducted in 1964 by twenty-six states. While there was considerable difference in the methodology and procedure used within the states, there is enough commonality that certain generalizations can be drawn from the reports. A team of researchers gathered at Ohio State University has drawn the following conclusions from a summarization of the states' reports.[9]

1. Almost half the people employed in off-farm agricultural businesses need education or training in agriculture.
2. Employers expect about a 20 percent 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 the 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. Beginning salaries and wages for service workers are relatively low when compared to those of similar workers in other types of businesses. Effective training programs should make it possible for new employees to earn higher incomes by eliminating a long, non-productive training period on the job.
9. To continue in a vocational-technical education program beyond the twelfth grade is appropriate for many persons, since most employers consider twenty years to be a minimum entry age.
10. Trainees with a farm background or farm experience have a definite advantage when seeking employment in off-farm agricultural businesses.

Interviews were made with representatives of agricultural businesses and agencies in Alabama.[10] The study used a modified random sample from twenty counties. There were 16,983 persons employed in the 474 payroll firms contacted. Of the total employees, 4,204 or 24.7 percent were employed in an agricultural occupation. In addition to the 4,204 agricultural workers located by the local business interviews, state and federal government agencies reported 2,481 persons employed in agricultural services.

Interviews were made in Colorado[11] in 1964 with employers of businesses, agencies, and organizations whose personnel use agricultural abilities in performance of their duties. The study used a 6.2 percent state-wide sample. An increase of 13 percent in workers needing agricultural competencies during the next five years was anticipated. The largest increase was expected in ornamental horticulture.

In Kansas[12] interviews were conducted with representatives of the selected businesses which were agriculturally oriented. The study used a 17 percent random sample of the state which was stratified into four population groups. From the employers interviewed, it was estimated that 6,787 persons had been employed during the past five years. It was also estimated that 2,823 additional employees would be needed in the State of Kansas in the next five years due solely to the growth in agricultural off-farm business. This figure is in addition to those needed for the normal turnover of employees. Employers were asked to identify those areas, strictly agricultural, with which employees in the various jobs should be familiar. The following are the most frequently selected subject matter areas in order of importance given them by the employers.

a. General agricultural knowledge

b. Salesmanship

c. Tractor, power units, and mechanics

d. Soils and crops

e. Agricultural chemicals, insect and pest control.

Interviews were conducted with representatives of businesses and agencies engaged in handling farm products or providing agricultural services in Louisiana.[13] The study sampled seven metropolitan areas of the state. The total number of employees in the businesses interviewed was 30,300; the total number of employees needing agricultural competencies in current employment was 9,087; and the total number of employees needing agricultural competencies for employment in five years was 9,836.

Interviews were conducted in Massachusetts[14] with selected employers of workers in agricultural businesses. The study used a 10 percent statewide sample. Over one-half of the firms interviewed listed sales as the

main function of the firm. Over 60 percent of the employers stated they would be willing to hire high school students as trainees in their firms. There were 25,494 full-time and 6,460 part-time workers employed in agricultural businesses, compared with 17,000 persons engaged in production on farms in the state. Sixty-three percent of the workers in the businesses needed agricultural competencies.

In Mississippi[15] interviews were conducted with representatives of businesses, industries, and agencies whose employees use agricultural knowledge in their work. The study used a survey of three counties in the Mississippi Delta area. The total expected increase of workers needing agricultural competencies during the next five years was 2.5 percent of current employment numbers. Largest expected increases were in the areas of farm supplies and equipment and livestock and poultry.

Interviews were conducted with agriculturally related businesses in Missouri[16] which employed personnel where a knowledge of agriculture was beneficial in their job performance. The study was conducted in the communities of 220 school districts in the state. Almost one-half of the firms surveyed were classified under the occupational group of farm supplies. No professional, federal, or state agencies were included in this report. A majority of the firms had been in business over fifteen years. Almost 70 percent of the firms would be willing to cooperate in a program of hiring high school students as trainees.

Interviews were made with 161 randomly selected businesses in ten communities of Montana[17] who have employees needing agricultural knowledge, skills, and abilities. The study used a 14.4 percent sample of the ten communities. The firms surveyed employed 3,122 persons. Of these, 1,762 or 56.4 percent needed agricultural competencies. The

businesses planned to hire 1,199 employees needing agricultural competencies in the next five years.

Names of nonfarm business firms and government agencies classified in seven major occupational groups of economic importance in Nevada[18] were obtained from telephone directories, state license lists, and from county agents and vocational agriculture teachers. The data for numbers of employees were for interviews with 363 of a total of 450 firms and for thirty-nine agencies in the state. Employee characteristics by job titles were reported for 310 firms. In eight government agencies in agricultural mechanics, animal industry, plant industry, and agricultural business, 80 percent of 141 employees needed an agricultural background. Of 2,421 workers in fourteen ornamental horticulture related agencies, only 3.7 percent needed agricultural knowledge. There were seventeen educational, research, land and forest management, and wildlife and recreation agencies with 588 of 1,063 employees needing agricultural backgrounds. In Nevada 9,362 of 163,262 total persons employed are engaged in agricultural production and 1,493 are in off-farm business occupations needing an agricultural background.

Interviews were conducted by teachers of agriculture in eighteen school districts with representatives of businesses and services which have employees needing agricultural competencies. The data were expanded to estimates for the 260 school districts offering instruction in agriculture in New York.[19] Based on employers' estimates, workers in the 213 off-farm agricultural occupations spend an average of 83 percent of their work time on tasks requiring agricultural competencies. The proportion of time thus spent varied from 15 percent for some job titles to 100 percent for others. In addition to the estimated 28,685 full-time

employees needing agricultural competencies, it was further estimated that an additional 16,841 persons were employed part-time.

In Ohio[20] mail questionnaires were sent to 6,750 businesses, firms, and agencies who employed any workers except farmers, 975 manufacturing firms, and to local governmental agencies, colleges and universities, for a total of 7,874. The study used a 10 percent sample of the state. In addition to persons actively engaged in farming, 5.3 percent of the workers in the state of Ohio need agricultural competencies. There will be 15,000 new off-farm employees having agricultural competencies needed for the next year (includes replacements).

Interviews were conducted in Pennsylvania[21] with representatives of businesses having employees needing agricultural competencies. The study used a random sample of seventeen counties. Thirty-five job titles account for 85 percent of the <u>increase</u> in numbers of workers expected in the next five years. Seventy-five job titles account for 85 percent of all workers expected to be hired in the next five years. Twelve service titles, mostly in horticulture, represent over 50 percent of the <u>turnover</u>, not increase. In the largest occupational groups, salesmen, mill workers, mechanics, and delivery men account for most of the increase expected in full-time workers. Factor analysis of competencies and of occupational titles by type of business is being done using profiles of competency ratings for classified job titles. Courses to be taught to high school students and to employed adults in off-farm agricultural businesses may be established on the basis of concentrations of degrees of need.

Interviews were made with managers of businesses associated with agriculture in Washington.[22] The study used a 17 percent stratified

random sample of the state. Findings from these interviews were:

1. The 241 businesses used in the study indicated that 1,836 or 13.6 percent of 13,494 present employees needed training in agriculture.
2. When projecting future employment needs, three businesses expected a decrease, 112 expected to remain about the same, and 126 or 52.4 percent will hire some 550 agriculturally trained persons within the next five years.
3. It was estimated from the current agriculturally trained persons in the 241 associated businesses that approximately 3,300 additional employees will be required in the state of Washington in the near future.

In West Virginia[23] interviews were conducted with representatives of a state-wide sampling of businesses with off-farm agricultural employees. Of the 385,150 persons in the total labor force, 3.6 percent were in off-farm agricultural occupations and 5.4 percent in farming. For every two off-farm agricultural workers, there were three workers in production agriculture. Eighty-four percent of the employing agencies employed less than ten agricultural workers. An eight percent increase in off-farm agricultural employment was anticipated in the next five years.

[1]"Education for a Changing World of Work," Report of the Panel of Consultants on Vocational Education, Office of Education, U. S. Department of Health, Education, and Welfare, Appendix II, Manpower in Farming and Related Occupations.

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[21]N. K. Hoover, D. R. McClay, and G. Z. Stevens, Technical Education Needs of Persons Engaged in Agricultural Occupations Joint Study--Division of Agricultural Education, Pennsylvania State Department of Public Instruction, and Department of Agricultural Education (The Pennsylvania State University, 1965).

[22]B. L. Brown, Training Requirements of Workers in Business Associated with Agriculture State Board for Vocational Education (Olympia, Washington, 1959).

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CHAPTER III

DESIGN AND METHODOLOGY OF THE STUDY

The purpose of this chapter is to describe the method by which the population for the study was determined, the sampling procedure used, and the method of data collection and analysis. Since the objectives were to gather information about off-farm agricultural businesses, the first step was to determine which businesses in the state would be most likely to employ people needing training or competencies in agriculture. It was also necessary to select those local, state, and federal agencies which employed the greatest number of professional agriculturalists.

Selection of the Population

There are many businesses in the state of Oklahoma that might appropriately be included in a study of this type. The problem was to select those types of businesses which the Advisory Committee thought to be of the most economic importance to Oklahoma and those which the Committee felt offered the greatest employment opportunities for agriculturally trained people. This advisory committee gave advice on the types of businesses which should be studied and many other questions which arose during the course of the investigation. Members of this committee were:

Dr. Robert R. Price - Agricultural Education

Dr. James Plaxico - Agricultural Economics

Mr. George Abshier - Agricultural Extension Service

Mr. J. B. Morton - State Department of Vocational Education

Dr. Randall Jones - Dean of Resident Instruction, College of Agriculture.

The businesses studied included the following:

Horticulture - nurseries and greenhouses

Cotton products - oil mills and cotton gins

Agricultural supplies - feed, seed, and fertilizer manufacturers, wholesale dealers, and retail dealers

Dairy processing plants

Meat processing - packinghouses and slaughterhouses

Agricultural machinery sales and service dealers

Wood industries - sawmills and planing mills

Grain storage - grain elevators.

Selection of the Sample

A list of all of the above types of businesses operating in the state was obtained from the State Board of Agriculture or from the state dealers' association. A random sample of each of these types of businesses determined the portion which would be interviewed. The sample percentage varied from 40 to 66 percent, depending upon the number of businesses and the variation found in the activities performed by personnel in the business. Data were obtained at the state level from agricultural agencies and services which employ the majority of the professional agricultural workers in the state.

Procedure

The information was secured by personal interview with the owner or

manager or other responsible person of the selected businesses. Interview forms were approved by the Advisory Committee and were tested on a limited number of businesses before the actual interviews started. Form I covered a general review of the business, its functions, its number of years in operation, and its relation to agriculture. Employees were divided into the various job titles with the number of full-time and part-time employees needing agricultural competencies in each job title recorded. Form II was used to get information on each job title found in the business. The employer was asked to rate the importance of various competencies needed to enter and advance in the job title. These competencies were divided into agricultural competencies, business and distributive competencies, and trade and industrial competencies.

Collection and Analysis of Data

Information on employment opportunities and training needs in these selected off-farm agricultural businesses was collected by personal interview with some responsible person in each of the businesses. In many instances several individuals were involved in the interview in order to get all the data needed. The vocational agriculture teacher in the local community was asked to make the appointment for the meeting and was encouraged to accompany the researcher to at least one business if possible. Seven hundred nineteen businesses completed interview schedules resulting in approximately two thousand job title interviews which identified over two hundred different job titles in the businesses. Businessmen were very cooperative and exhibited great interest in the study. Instances in which a businessman was contacted and a schedule was not completed were extremely rare.

The Oklahoma State University computer center was used to make the original analysis of the data. This consisted of frequency counts of the various categories and tabulation of total responses to the alternative possible answers. This made it possible to determine answers to such questions as numbers presently employed, anticipated needs, and employee characteristics desired. The mass of data collected in connection with competencies required for employment presented a unique and challenging problem. The Oklahoma data were taken to The Center for Vocational Technical Education, Ohio State University, where, after conference with Dr. Robert Taylor of the Center staff and Dr. Glenn Stevens of Pennsylvania State University, it was decided that factor analysis held promise of combining the data into useable form.

A deck of IBM cards was prepared with the (degree of) competency key punched in the columns on a separate card for each job title. Likewise, a deck was made with the same information punched in the columns representing the job titles on cards for each competency. At this point the computer service of The Ohio State University Research Center was engaged. The factor analysis program with varimax rotation has a maximum capacity of two hundred items in a correlation matrix. "Factors" which emerge are groupings of competencies (or job titles) with high "factor loadings." The loadings are correlations. This treatment resulted in groupings of competencies and job titles which will make curriculum planning and course construction possible. Similar treatments of data from Illinois, Pennsylvania, and Indiana have given significantly comparable results.[1]

[1]From unpublished findings developed by Dr. Glenn Z. Stevens, Pennsylvania State University, and William Stevenson, Oklahoma State University, at The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, 1965.

CHAPTER IV

PRESENTATION OF DATA

This report is a summarization of the findings in over seven hundred personal interviews with owners or managers of several types of businesses serving farmers' needs or processing and distributing farm products. Interviews were made in every county in Oklahoma and in almost every town. Businesses are concentrated in the larger population areas of the state; however, many of the firms were found in the more sparsely populated sections.

The report is divided into five sections. The first discloses the number of businesses in the population and the sample, number of persons employed, and the number needing agricultural competencies. The second section shows the number of agriculturally trained people that will be needed in the five-year period, 1964-1969. Section three explains the competencies needed by persons in the different occupational titles in the businesses. The fourth section deals with characteristics of workers such as age, education, background, and salary. Section five is a summary of the findings related to professional workers in private, state, and federal agencies.

The types of agricultural businesses and industries used in the study were selected because of their agricultural importance to Oklahoma in the opinion of the Advisory Committee. There are, undoubtedly, other businesses which employ people needing agricultural competencies. The

list of businesses interviewed presented in Table I represents only the major agricultural businesses and should not be interpreted as including all the potential employers of agriculturally trained people. Further studies of other types of enterprises would very likely identify other employment opportunities and training needs.

The data for this thesis were collected from 719 different agricultural businesses in Oklahoma by personal interview. This represents 38 percent of the total of these types of businesses now in operation in the state. The figures presented in the following tables have been expanded to present the entire population of the represented businesses in the state.

In the course of the investigation, it was found that the term, "agricultural supplies business," is more appropriate than "feed, seed, and fertilizer" and that "ornamental horticulture" should be used rather than "greenhouse and nursery." These more acceptable terms will be used in the body of this thesis to refer to the businesses mentioned.

TABLE I

TOTAL NUMBER OF SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA, NUMBER INTERVIEWED, AND PERCENT OF TOTAL

Type of Agricultural Business	Total Number in Population	Number in Sample	Percent of Total
Meat Packing & Processing	255	102	40
Dairy Processing	38	21	55
Cotton Gins & Mills	159	74	47
Grain Storage	104	47	45
Agricultural Supplies (Feed, Seed, & Fertilizer)	390	156	40
Ornamental Horticulture (Greenhouse & Nursery)	317	127	40
Applicators	69	31	45
Forestry	192	10	--
Agricultural Machinery	320	128	40
Poultry Processing, Meat, & Eggs	35	23	66
Totals	1879	719	38

Employment in Off-Farm Agricultural Businesses

Tables II, III, and IV show current employment in off-farm agricultural businesses in Oklahoma. Consideration is also given to the number of employees who need agricultural competencies in order to be successful in their particular job. This was determined by asking the employer to designate those job titles which require agricultural competencies. It will be noted that 38 percent of all of the employees in these types of businesses need these competencies. Those businesses which have the largest percentages of workers possessing agricultural skills and knowledge are agricultural machinery, ornamental horticulture, and agricultural supplies. These businesses are also the ones having the greatest number of employees falling in this category.

Considering these businesses according to their distribution of full-time, part-time, and male and female employees with agricultural competencies (Table III), it will be found that ornamental horticulture hires a considerable number of part-time workers and female workers. Other businesses which use a large proportionate share of part-time workers are the cotton industry and the applicator business. A considerable number of part-time and female workers is also found in the agricultural supplies business but their percentage of the total is relatively small.

Table IV reveals the number of workers needing agricultural competencies by level of employment. The service areas including skilled and semi-skilled workers show the greatest concentration of agriculturally trained people. The levels of management, sales, and supervision indicate the next areas of greatest numbers of agriculturally competent

employees. It must be kept in mind that these tables do not include the professional workers in agricultural agencies of the federal and state governments. This information is presented elsewhere in this report.

TABLE II

TOTAL PERSONS EMPLOYED AND NUMBER NEEDING AGRICULTURAL COMPETENCIES IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA

Type of Agricultural Business	Total Number Employed	Number Needing Agricultural Competencies	Percent Needing Agricultural Competencies
Meat Packing & Processing	6,688	1,140	17
Dairy Processing	3,282	447	14
Cotton Gins & Mills	1,674	447	25
Grain Storage	1,528	455	30
Agricultural Supplies	3,712	2,205	59
Ornamental Horticulture	3,285	2,100	64
Applicators	1,098	544	50
Forestry	368	127	35
Agricultural Machinery	2,550	1,962	77
Poultry Processing, Meat, & Eggs	929	72	6
Totals	25,114	9,499	38

TABLE IV

NUMBER OF WORKERS IN JOBS THAT REQUIRE AGRICULTURAL COMPETENCIES IN OKLAHOMA BY LEVEL OF EMPLOYMENT

Level of Employment	Meat Proc.	Dairy Proc.	Cotton Gins & Mills	Grain Storage	Agri. Supplies	Orn. Hort.	Appli-cators	Fores-try	Agri. Mach.	Poultry Processing, Meat & Eggs	Total
Professional	2	18				27		48			95
Technical		21	8	19	87	11	46	58	5	6	261
Managerial	292	76	164	174	623	389	90	6	416	27	2257
Supervisory	82	77	25	125	192	180	46		72	6	805
Clerical	9	2	38	18	164	20	22	4	77	3	357
Sales	120	103	20	28	412	133	6		182	4	1008
Skilled	519	150	162	89	573	689	179	9	917	26	3313
Semi-Skilled	116		30	2	154	651	155	2	293		1403
Totals	1140	447	447	455	2205	2100	544	127	1962	72	9499

Employment Opportunities

One of the major objectives of this study was to determine the employment opportunities in off-farm agricultural business and industry. The owners and managers of the businesses with their many years of experience were considered by the Advisory Committee to be the best source of this information. Tables V, VI, VII, and VIII give the employers' estimates of their needs of agriculturally competent employees over the five-year period, 1964-1969. Employers, on the basis of past experience, estimated a 34 percent increase in the number of employees possessing agricultural competencies in that five-year period. All businesses represented expected an increase in the number of these employees. Businesses which anticipate the greatest increase in number of these workers are ornamental horticulture, agricultural machinery, and agricultural supplies. Training programs in Oklahoma should probably concentrate in these areas with some attention given to training for those businesses which show more modest increases.

Table VI considers both increase in employees and estimated replacement needs in the several businesses. Again the greatest employment opportunities are found in the businesses dealing with horticulture, machinery, and supplies. Meat processing, dairy processing, grain storage, and applicators will also be needing agriculturally trained employees in numbers which justify training programs in these areas.

Considering employment opportunities by level of employment (Table VII), it is found that the service areas of skilled and semi-skilled offer the greatest potential for agriculturally trained personnel. Managers, supervisors, and salesmen also offer considerable opportunity for

placement in these off-farm agricultural businesses. The more detailed Table VIII, A-J, shows the distribution of additional workers which managers estimated they will need in the various job titles connected with their businesses.

TABLE V

NUMBER OF EMPLOYEES NEEDING AGRICULTURAL COMPETENCIES WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA IN 1964, ESTIMATED NUMBER IN 1969, AND PERCENT INCREASE

Type of Agricultural Business	Number Persons Needing Agricultural Competencies		Percent Increase
	1964	1969	
Meat Packing & Processing	1140	1510	32
Dairy Processing	447	629	40
Cotton Gins & Mills	447	498	11
Grain Storage	455	595	31
Agricultural Supplies	2205	2775	26
Ornamental Horticulture	2100	3063	46
Applicators	544	671	23
Forestry	127	143	12
Agricultural Machinery	1962	2780	42
Poultry Processing, Meat, & Eggs	72	104	44
Totals	9,499	12,768	34

TABLE VI

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED BY 1969
IN SELECTED AGRICULTURAL BUSINESSES IN OKLAHOMA

Type of Agricultural Business	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Meat Packing & Processing	205	15	312	12	544	17	2	13	7	39
Dairy Processing	109		165		274					
Cotton Gins & Mills	43		26		69	54	2	27		83
Grain Storage	94		115		209	19		22		41
Agricultural Supplies	456	9	450	11	926	110		102		212
Ornamental Horticulture	598	6	601	11	1216	493	17	323	12	845
Applicators	165		91		256	99	9	55		163
Forestry	21		16		37	50				50
Agricultural Machinery	349		780	9	1138	30		39		69
Poultry Processing	14		25	2	41	2				2
Totals	2054	30	2581	45	4710	874	30	581	19	1504

TABLE VII

NUMBER OF NEW WORKERS WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 BY TYPE OF BUSINESS AND LEVEL OF EMPLOYMENT

Level of Employment	Meat Proc.	Dairy Proc.	Cotton Gins & Mills	Grain Storage	Agri. Supplies	Orn. Hort.	Appli-cators	Fores-try	Agri. Mach.	Poultry Processing, Meat & Eggs	Total
Professional	2	7				10		58			77
Technical		5	10	28	74	7	62	6	2	5	199
Managerial	42	39	26	69	156	75	13	2	51	10	483
Supervisory	43	18	8	67	86	287	20		22	4	555
Clerical			10		24	2	11		19	2	68
Sales	83	55	8	26	283	105			167	2	729
Skilled	323	150	74	60	421	1333	109	17	630	20	3137
Semi-Skilled	90	___	16	___	94	242	204	4	316	___	966
Totals	583	274	152	250	1138	2061	419	87	1207	43	6214

TABLE VIII-A

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN THE MEAT PROCESSING INDUSTRY BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Professional										
Quality Control	2				2					
Managerial										
Manager	10		20		30					
Assistant Manager			2		2					
Plant Manager	8		2		10					
Supervisory										
Production Manager			5		5					
Manuf. Supervisor	10		15		25					
Foreman	8		5		13					
Sales										
Salesman	35		48		83					
Skilled										
Buyer	28		10		38					
Machine Operator			12		12					
Butcher	80	15	130	5	230	2	2	8	2	14
Processman	2		25	2	29					
Semi-Skilled										
Delivery	2		8		10					
Butcher's Helper	20		30	5	55	15		5	5	25

TABLE VIII-B

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN THE DAIRY PROCESSING INDUSTRY BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Professional										
Quality Control	2		5		7					
Technical										
Fieldman			5		5					
Managerial										
Manager	15		15		30					
Plant Manager	4		5		9					
Supervisory										
Foreman	5		7		12					
Production Supt.	2		4		6					
Sales										
Sales Supervisor			4		4					
Salesman	15		36		51					
Skilled										
Manuf. Supervisor			9		9					
Foreman			5		5					
Machine Operator	42		7		49					
Processman	24		45		69					
Manuf. Operator			18		18					

TABLE VIII-C

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN COTTON GINS & MILLS BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Technical										
Fieldman	2				2	6		2		8
Managerial										
Manager	16		6		22	2				2
Assistant Manager	2				2					
Supervisory										
Foreman			2		2					
Elevator Superintendent			2		2					
Plant Manager	4				4					
Clerical										
Bookkeeper	2				2	4	2	2		8
Sales										
Salesman	2		6		8					
Skilled										
Ginner	11		2		13	32		19		51
Pressman			6		6	4				4
Semi-Skilled										
Mill Worker	2		2		4	6		4		10
Deliveryman	2				2					

TABLE VIII-D

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN GRAIN STORAGE BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Technical										
Fieldman			4		4	11		11		22
Formulator	2				2					
Managerial										
Manager	18		13		31					
Assistant Manager	9		2		11					
Storage Manager	11		16		27					
Supervisory										
Manuf. Supervisor	11				11					
Sales Supervisor	4		4		8					
Foreman	4		4		8					
Elevator Superintendent	16		20		36	4				4
Sales										
Salesman	4		16		20	4		2		6
Skilled										
Mill Worker	4		29		33			9		9
Buyer	4		7		11					
Ginner	7				7					

TABLE VIII-E

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN AGRICULTURAL SUPPLIES BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Technical										
Fieldman	7		10		17	15		35		50
Processman	5		2		7					
Managerial										
Manager	65		37		102					
Assistant Manager	15		28		43					
Office Manager	2			2	4					
Plant Manager	2		5		7					
Supervisory										
Warehouse Manager	2				2					
Sales Supervisor	7		15		22					
Foreman	30		25		55					
Elevator Superintendent	5		2		7					
Clerical										
Bookkeeper	10	7	5	2	24					
Sales										
Salesman	95	2	162	7	266	10		7		17
Skilled										
Maintenance Foreman	2		7		9					
Mill Worker	175		107		282	80		50		130
Semi-Skilled										
Delivery	22		25		47	5		5		10
Loader	7		15		22			5		5
Machine Operator	5		5		10					

TABLE VIII-F

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN ORNAMENTAL HORTICULTURE BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Professional										
Landscape Architect			5		5	5				5
Technical										
Pest Control Supervisor			5		5					
Process Superintendent	2				2					
Managerial										
Manager	27		32		59	2		5	5	12
Assistant Manager		2	2		4					
Supervisory										
Shipping Manager	10		2		12	10		15		25
Plant Manager			2		2					
Farm Supervisor	7		5		12					
Sales Supervisor	2		15	2	19					
Foreman	45		20		65					
Fieldman	50		40		90	25		37		62
Clerical										
Bookkeeper				2	2					
Sales										
Salesman	37		30	2	69	12	12	10	2	36

TABLE VIII-F (CONTINUED)

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Skilled										
Head Grower	17				17					
Grower	85		127		212	45		37		82
Grader	7		40		47	175		25		200
Machine Operator	37		12		49					
Transplanter			2		2	25		25		50
Landscape Gardener	190		157		347	172		155		327
Semi-Skilled										
Assistant Grower	82	2	100		184	10		2		12
Asst. Landscape Gardener		2	5	5	12	12	5	12	5	34

TABLE VIII-G

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN THE APPLICATOR BUSINESS BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Technical										
Fieldman	13		16		29	24		9		33
Managerial										
Manager	4		9		13					
Supervisory										
Crew Chief	2		16		18			2		2
Clerical										
Office Manager	2		2		4	7				7
Skilled										
Machine Operator	9				9					
Pilot	24		24		48	11		15		26
Chemical Man			2		2	15		9		24
Semi-Skilled										
Flagman	111		22		133	42	9	20		71

TABLE VIII-H

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN FORESTRY BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Professional										
Forester	5		3		8	50				50
Technical										
Timber Technician	6				6					
Managerial										
Manager	2				2					
Skilled										
Mechanic	1		1		2					
Carpenter	5		10		15					
Semi-Skilled										
Delivery	2		2		4					

TABLE VIII-I

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN AGRICULTURAL MACHINERY BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Technical										
Fieldman			2		2					
Managerial										
Manager	27		20	2	49					
Assistant Manager			2		2					
Supervisory										
Shop Foreman	5		17		22					
Clerical										
Bookkeeper	5		7	7	19					
Sales										
Salesman	25		142		167					
Skilled										
Manuf. Supervisor			2		2					
Mechanic	135		315		450			2		2
Parts Man	35		82		117	5		2		7
Welder	25		27		52					
Semi-Skilled										
Delivery	10		35		45					
Mechanic's Helper	30		82		112			5		5
Set-up Man	52		47		99	25		30		55

TABLE VIII-J

NUMBER OF NEW EMPLOYEES WITH AGRICULTURAL COMPETENCIES NEEDED IN OKLAHOMA BY 1969 IN POULTRY PROCESSING BY JOB TITLE

Job Title	Full-Time					Part-Time				
	Replacements		Additions		Total	Replacements		Additions		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Technical										
Fieldman			3		3					
Quality Control	2				2					
Managerial										
Manager	2		4		6					
Production Manager			4		4					
Supervisory										
Shipping Manager	2				2					
Plant Manager			2		2					
Clerical										
Bookkeeper	2				2					
Sales										
Sales Supervisor	2				2					
Skilled										
Warehouse Manager			2		2					
Delivery			4		4					
Grader	4		4	2	10	2				2
Processman			2		2					

Grouping of Competencies and Job Titles

At the time each employer interviewed furnished the information about numbers of present and future employees in each job title in the business, a checklist of competencies (knowledge, skills, and abilities) was filled out separately for each job title. For each item on the checklist (a total of sixty-three items), the employer marked the degree of competency required, from none to high, on a three-point scale.

A representative profile of the degree of competency needed in each knowledge or job activity was made for each occupation by calculating the mean to the nearest whole number value. A factor analysis program with varimax rotation was used to determine correlations between competencies as well as between job titles. "Factors" which emerge, as illustrated on the following pages, are groupings of competencies or job titles with high "factor loadings."

The groupings of the job titles divided the workers both by type of business and by field of activity. The type of business groups were further divided into one cluster which included sales and management and another which indicated service workers. The mean ratings in Table IX were calculated for each competency group in relation to the job title groups.

In general, it was found that the management category had higher competency requirements than the service group. One significant exception to this rule is in the competency area of agricultural machinery and power where the needs of service workers exceed those of management. In reading down the list of the fields of activity in Table X, it may be seen that the competency ratings drop in most instances.

Tables IX and X may be used in the development of courses of instruction for an off-farm agricultural occupations training program. The degree of competency needed (3-high, 2-some, 1-none) in each of the competency groups should determine the amount of instruction given in that subject for a particular field of activity within a type of business. Use of these tables in curriculum construction should result in a training program specifically designed to develop the level of competency in the employee which the employers have indicated is necessary.

Competency Factor Groups[1]

Employee Traits--Human Relations

Inventory, stock control, warehousing
Worker welfare (insurance, retirement, etc.)
Job opportunities and trends
Job applications, interviews
Buying and merchandising
Receiving, marking, shipping
Internal business organizations
Capital management, financing
Accounting, taxes
Experience in management decisions and problem solving
Employee-supervisor relations
Supervision
Employee relations with fellow employees

Salesmanship

Salesmanship
Customer relations
Public speech
Window and store display
Mathematics
Bookkeeping, business mathematics
Buying and merchandising

Business Management

Legal relations in business management
Government regulations (ICC, FICA, etc.)
Writing
Agricultural policy
Legal requirements of the job
Surveying
Trade relationships, promotion, advertising
Experience in management decisions and problem solving
Time study
Public speech
Accounting, taxes

Agricultural Business Management

Agricultural budgeting, records, and analysis
Farm financing (credit, taxes, etc.)
Accounting, taxes

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[1]From factor analysis of 60 competencies, 100 job titles, interviews with 700 businesses.

Agricultural Business Management (Cont.)

Bookkeeping, business mathematics
Capital management, financing
Agricultural labor management

Plant and Soil Science

Physical characteristics of soil
Chemical characteristics of soil
Additional plant production practices
Plant growth, fertilization
Soil conservation
Plant propagation, seed production

Animal Science

Animal growth, feeding
Animal breeding, selection
Animal housing and equipment
Animal health and sanitation
Agricultural marketing practices

Agricultural Machinery and Power

Safety skills
Sheet metal skills
Farm power and machinery
Welding skills
Manuals, technical and service, use of
Engines, repair and maintenance

Building Construction Technology

Carpentry and cabinet working
Plumbing
Blueprint reading
Heating and ventilation
Electricity
Masonry
Drafting and design
Farm buildings and conveniences
Farm construction and maintenance
Sheet metal skills
Rural electrification and processing
Soil structures (ditches, ponds, etc.)
Agricultural labor management
Tool and die making
Trade relationships
Electronics
Industrial chemistry

TABLE IX

AVERAGE COMPETENCY RATING FOR EMPLOYEES IN TWO FIELDS OF ACTIVITY IN FOUR KINDS OF AGRICULTURAL BUSINESSES

Type of Business and Field of Activity	Competency Group (Subject Matter) Average Ratings*							
	Employee Traits, Human Relations	Sales-manship	Business Mgt.	Agri. Business Mgt.	Plant and Soil Science	Animal Science	Agri. Machinery & Power	Building Constr. Technology
Agricultural Supplies:								
Management and Sales	2.0	2.2	1.9	1.9	2.2	2.1	1.3	1.2
Service	1.8	2.1	1.6	1.5	2.0	1.3	1.6	1.2
Agricultural Machinery:								
Management and Sales	2.4	2.5	2.1	1.8	2.1	1.4	1.8	1.4
Service	1.7	1.9	1.6	1.3	1.6	1.4	2.3	1.2
Ornamental Horticulture:								
Management and Sales	2.3	2.2	2.0	1.6	2.9	1.3	1.5	1.2
Service	2.0	2.1	1.8	1.3	2.5	1.1	1.6	1.2
Meat, Dairy, & Poultry Proc:								
Management and Sales	2.0	2.1	2.0	1.7	1.0	2.1	1.3	1.2
Service	1.4	1.5	1.4	1.1	1.0	1.6	1.5	1.1

Competency Rating Scale: High-3, Some-2, None-1

*See pages 48 and 49 for competencies within listed competency groups.

TABLE X

AVERAGE COMPETENCY RATING FOR EMPLOYEES BY FIELD OF ACTIVITY

Competency Group* (Subject Matter)	Field of Activity Average Ratings				
	Manager, Field Man	Assistant Manager	Salesman	Book-keeper	Service Worker
Employee Traits, Human Relations	2.0	2.4	1.8	1.7	1.4
Salesmanship	2.2	2.2	2.6	2.3	1.7
Business Management	1.9	2.1	2.2	1.9	1.4
Agricultural Business Management	1.7	2.0	1.5	2.1	1.1
Plant and Soil Science	2.1	2.0	1.8	1.8	1.2
Animal Science	2.1	1.3	1.2	1.4	1.5
Agricultural Machinery and Power	1.6	1.6	1.6	1.3	1.4
Building Construction Technology	1.3	1.3	1.1	1.1	1.1

Competency Rating Scale: High-3, Some-2, None-1
*See pages 48 and 49 for competencies within listed competency groups.

Characteristics of Employees

This section of the thesis deals with the employers' evaluation of some of the characteristics which those designing the study thought might be important to those training for occupations in off-farm agricultural businesses. These characteristics include beginning and maximum salary, educational level requirements, minimum and maximum entry ages, and residential background preferences for the various job titles in the different agricultural businesses. The breadth and depth of these interviews gives us a comprehensive view of the characteristics which most employers look for in a prospective employee in the types of businesses interviewed.

Beginning and Maximum Salaries and Wages

The salaries received by workers in off-farm agricultural businesses vary widely within each of the businesses. As a matter of fact, the variation is much wider within the businesses than between businesses as we can see in Tables XI and XII. Generally, professional and managerial fields of activity command the highest beginning salary with technical, supervisory, and sales levels receiving wages in the middle category and skilled, clerical, and semi-skilled workers getting relatively low starting incomes. The professional, technical, managerial, and supervisory positions eventually reach higher wage levels than do those in sales and skilled occupations. Average salary level within a particular business is probably a better indication of the job's salary potential than averages between businesses. Table XIII, A-L, gives a more detailed breakdown on the salaries which are being paid in the various job titles in off-farm agricultural businesses.

TABLE XI

AVERAGE BEGINNING MONTHLY SALARY IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY LEVEL OF EMPLOYMENT

Level of Employment	Meat Proc.	Dairy Proc.	Cotton Gins & Mills	Grain Storage	Agri. Supplies	Orn. Hort.	Appli-cators	Fores-try	Agri. Mach.	Poultry Processing, Meat & Eggs	Total Avg.
Professional	$275	$500				$430		$400			$401
Technical		500	$450	$550	$379	351	$298	208	$350	$350	382
Managerial	420	500	446	350	420	388	400	400	436	408	417
Supervisory	383	496	307	364	278	317	410		475	300	370
Clerical	250	250	250	265	250	240	400	224	300	308	274
Sales	400	354	340	320	300	250			400	600	370
Skilled	343	301	257	378	302	262	508	280	320	254	320
Semi-Skilled	285		219	200	273	168	325	200	233		238

TABLE XII

AVERAGE MAXIMUM MONTHLY SALARY IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY LEVEL OF EMPLOYMENT

Level of Employment	Meat Proc.	Dairy Proc.	Cotton Gins & Mills	Grain Storage	Agri. Supplies	Orn. Hort.	Appli-cators	Fores-try	Agri. Mach.	Poultry Processing, Meat & Eggs	Total Avg.
Professional	$420	$600				$640		$625			$571
Technical		600	$600	$675	$475	453	$413	265	$625	$797	545
Managerial	542	665	550	508	537	475	534	425	578	469	528
Supervisory	500	588	365	430	370	409	615		842	610	525
Clerical	370	275	285	315	300	320	500	240	350	375	333
Sales	500	588	438	340	400	350			600	700	490
Skilled	466	359	306	475	409	342	625	360	427	288	406
Semi-Skilled	325		273	240	347	190	400	240	315		291

TABLE XIII-A

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

MEAT PROCESSING

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Professional				
Quality Control	$275	$275	$420	$350-700
Managerial				
Manager	400	192-833	525	300-1000
Assistant Manager	360	200-560	500	200-700
Plant Manager	500	320-600	600	500-600
Supervisory				
Production Manager	300	300	400	400
Manuf. Supervisor	450	450	600	600
Foreman	400	320-500	500	360-800
Clerical				
Office Manager	200	200	400	400
Bookkeeper	300	200-400	340	200-500
Sales				
Salesman	400	125-500	500	200-833
Skilled				
Farm Supervisor	380	260-500	460	320-600
Buyer	417	300-700	600	400-1250
Grader	400	400	600	600
Machine Operator	360	360	540	540
Butcher	300	160-400	340	200-600
Processman	200	184-320	256	200-400
Semi-Skilled				
Delivery	370	240-500	410	280-540
Butcher's Helper	200	160-300	240	200-340

TABLE XIII-B

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

DAIRY PROCESSING

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Professional				
Quality Control	$500	$400-600	$600	$500-750
Technical				
Fieldman	500	300-542	600	400-750
Managerial				
Manager	500	280-833	750	320-1666
Assistant Manager	500	500	525	400-650
Plant Manager	500	360-700	720	500-1000
Supervisory				
Foreman	450	320-500	600	440-833
Production Supt.	542	328-600	575	400-750
Clerical				
Bookkeeper	250	250	275	275
Sales				
Sales Supervisor	408	400-667	715	500-1000
Retail Sales	300	160-375	460	260-600
Skilled				
Manuf. Supervisor	256	256	312	312
Machine Operator	400	400	460	460
Processman	325	200-450	400	350-550
Manuf. Operator	224	224	264	264

TABLE XIII-C

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

COTTON GINS

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Technical				
Fieldman	$450	$300-500	$600	$400-833
Managerial				
Manager	400	125-583	500	212-833
Assistant Manager	400	280-500	500	360-833
Supervisory				
Foreman	200	200	217	217
Elevator Superintendent	400	400	500	500
Clerical				
Bookkeeper	250	200-340	285	200-400
Sales				
Salesman	300	250-333	400	300-500
Skilled				
Ginner	300	200-417	383	240-600
Pressman	270	200-340	320	240-400
Semi-Skilled				
Mill Worker	200	200	240	240
Delivery	136	136	240	240
Maintenance	320	320	340	340

TABLE XIII-D

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

COTTON MILLS

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Managerial				
Manager	$583	$450-600	$700	$650-800
Assistant Manager	400	400	500	500
Supervisory				
Plant Manager	320	216-425	378	232-525
Sales				
Salesman	380	300-458	475	450-500
Skilled				
Mill Worker	200	200	216	216

TABLE XIII-E

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

GRAIN STORAGE

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Technical				
Fieldman	$600	$600	$750	$500-1000
Formulator	500	500	600	600
Managerial				
Manager	425	288-833	600	300-1000
Assistant Manager	350	200-550	400	240-600
Storage Manager	275	250-300	525	450-600
Supervisory				
Warehouse Manager	320	320	400	400
Manuf. Supervisor	400	400	500	500
Sales Supervisor	400	400	450	450
Foreman	340	320-450	400	360-500
Elevator Superintendent	360	200-500	400	240-850
Clerical				
Office Manager	240	240	280	280
Bookkeeper	290	250-400	350	300-500
Sales				
Salesman	320	216-500	340	240-833
Skilled				
Mill Worker	260	180-375	300	240-525
Mechanic	400	400	450	450
Buyer	450	400-500	750	500-1000
Ginner	400	400	400	400
Semi-Skilled				
Mechanic's Helper	200	200	240	240

TABLE XIII-F

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

AGRICULTURAL SUPPLIES

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Technical				
Fieldman	$417	$350-500	$550	$500-750
Processman	340	340	400	400
Managerial				
Manager	350	200-1250	600	240-2500
Assistant Manager	400	200-833	500	232-1000
Office Manager	400	275-642	500	400-750
Shipping Manager	450	450	500	500
Plant Manager	500	380-667	583	440-1000
Supervisory				
Warehouse Manager	300	200-400	320	240-450
Sales Supervisor	240	200-625	320	240-1000
Foreman	270	192-500	390	200-833
Elevator Superintendent	300	200-450	450	240-720
Clerical				
Bookkeeper	250	152-500	300	200-600
Sales				
Salesman	300	120-500	400	200-1000
Skilled				
Farm Supervisor	230	200-260	320	300-340
Maintenance Foreman	360	360	400	400
Mill Worker	260	160-367	290	200-450
Buyer	500	500	833	833
Egg Grader	160	160	200	200
Semi-Skilled				
Delivery	240	200-380	350	200-400
Loader	280	200-375	330	240-417
Machine Operator	300	300	360	320-400

TABLE XIII-G

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

ORNAMENTAL HORTICULTURE

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Professional				
Landscape Architect	$430	$374-600	$640	$450-800
Technical				
Pest Control Supvr.	317	317	333	333
Process Superintendent	437	437	625	625
Transplant Supt.	300	300	400	400
Managerial				
Manager	400	120-1000	500	200-2000
Assistant Manager	375	300-500	450	320-1000
Supervisory				
Production Manager	475	250-700	700	400-1000
Shipping Manager	350	200-600	433	433
Plant Manager	275	250-300	345	292-400
Farm Supervisor	350	300-400	375	300-450
Sales Supervisor	300	240-400	400	300-450
Foreman	240	200-360	310	200-800
Fieldman	232	232	300	200-400
Clerical				
Bookkeeper	240	140-400	320	200-500
Sales				
Salesman	250	160-500	350	240-1233
Skilled				
Maintenance Foreman	400	400	475	400-542
Head Grower	320	200-417	435	320-517
Grower	340	160-500	500	200-667
Grader	150	144-160	200	200
Machinery Operator	160	160	200	200
Landscape Gardener	200	160-250	240	200-400
Semi-Skilled				
Assistant Grower	176	100-300	200	160-400
Asst. Landscape Gardener	160	120-200	180	160-300

TABLE XIII-H

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

APPLICATOR BUSINESS

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Technical				
Fieldman	$300	$300	$400	$400
Mixer	296	292-400	425	400-450
Managerial				
Manager	500	250-833	667	400-1250
Assistant Manager	300	300	400	400
Supervisory				
Crew Chief	410	320-500	615	400-833
Clerical				
Office Manager	400	400	500	500
Skilled				
Pilot	615	400-833	800	400-1250
Chemical Man	400	400	450	450
Semi-Skilled				
Flagman	325	325	400	400

TABLE XIII-I

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

FORESTRY

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Professional				
Forester	$400	$400	$625	$600-650
Technical				
Timber Technician	208	200-217	265	250-280
Managerial				
Manager	400	250-600	425	333-800
Clerical				
Bookkeeper	224	224	240	240
Skilled				
Mechanic	300	300	360	360
Carpenter	260	240-280	360	320-400
Semi-Skilled				
Delivery	200	200	240	240

TABLE XIII-J

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

AGRICULTURAL MACHINERY

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Technical				
Fieldman	$350	$300-400	$625	$600-650
Managerial				
Manager	408	200-1000	600	300-1250
Assistant Manager	400	200-450	550	340-600
Plant Manager	500	500	583	583
Supervisory				
Sales Supervisor	875	500-1250	1667	1667
Shipping Manager	250	250	333	333
Shop Foreman	300	200-500	525	450-725
Clerical				
Bookkeeper	300	150-400	350	200-500
Sales				
Salesman	400	200-700	600	200-1000
Skilled				
Manuf. Supervisor	500	500	600	600
Mechanic	280	200-500	400	240-700
Parts Man	300	160-500	420	280-600
Welder	200	160-340	288	240-400
Semi-Skilled				
Delivery	240	140-260	287	240-340
Mechanic's Helper	200	140-300	340	180-500
Set-up Man	240	192-350	300	192-600
Machine Operator	250	250	333	333

TABLE XIII-K

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

POULTRY PROCESSING - EGGS

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Technical				
Fieldman	$300	$200-400	$440	$440
Quality Control	400	400	700	700
Managerial				
Manager	400	240-700	500	300-800
Assistant Manager	375	375	450	450
Production Manager	450	400-500	525	500-550
Supervisory				
Shipping Manager	320	320	700	700
Plant Manager	280	280	520	340-700
Clerical				
Bookkeeper	308	216-400	375	250-500
Sales				
Sales Supervisor	600	600	700	700
Skilled				
Warehouse Manager	400	400	500	500
Delivery	216	216	240	240
Egg Grader	200	200	240	200-240
Processman	200	200	200	200

TABLE XIII-L

MEDIAN AND RANGE OF BEGINNING AND MAXIMUM SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

POULTRY PROCESSING - MEAT

Level of Employment Job Title	Monthly Full-Time			
	Beginning		Maximum	
	Median	Range	Median	Range
Technical				
Fieldman	$500	$500	$1250	$1250
Managerial				
Manager	370	340-400	400	350-450
Skilled				
Grader	200	200	260	260

Education Needed in Off-Farm Agricultural Occupations

Information supplied by the 719 employers interviewed as indicated in Table XIV shows that 50 percent of the jobs available in off-farm agricultural businesses may be filled by persons with a high school education. Forty-eight percent of the employees need education above the high school level. It is interesting to note the very low percent of the jobs which require less than a high school education. Those businesses which indicate the greater percentage of workers with beyond high school education are dairy processing, grain storage, and agricultural machinery. Meat processing, cotton processing, and agricultural supplies were businesses which required relatively lower percentage of employees with training above the high school level. Post high school technical training is indicated for surprisingly few of the employees. However, when we consider that this type of employee simply has not been available, we can understand why more employers do not require training at this level. Table XV, A-K, gives a more detailed report of the educational requirements of the job titles in off-farm agricultural business. As would be expected, the amount of education necessary to be employed decreases as the table goes downward by levels of employment.

It is known that the prospect of large numbers of high school graduates who will be seeking employment without further training will be faced for the immediate future. This challenges those giving training and education at the high school level to strive to assure preparation which will meet job entry requirements.

TABLE XIV

EDUCATION NEEDED IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY LEVEL OF EMPLOYMENT

Level of Employment	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Professional			7	13	80	15
Technical		18	18	34	30	55
Managerial		32	11	32	25	735
Supervisory		63	20	10	7	164
Clerical		70	12	16	2	115
Sales	2	51	6	35	6	178
Skilled	4	64	22	7	3	516
Semi-Skilled	14	78	6	2		162
Percent of Total	2	50	14	21	13	1940

TABLE XV-A

EDUCATION NEEDED IN THE MEAT PROCESSING INDUSTRY IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Professional						
Quality Control					100	1
Managerial						
Manager		45	9	30	16	74
Assistant Manager		100				4
Plant Manager		50	17	17	16	6
Supervisory						
Production Manager		100				1
Manuf. Supervisor				100		1
Foreman		72		14	14	7
Clerical						
Office Manager			100			1
Bookkeeper		100				3
Sales						
Salesman		50		50		18
Skilled						
Farm Supervisor		100				2
Buyer		39		44	17	23
Grader				100		1
Machine Operator		100				1
Butcher	12	83	5			41
Processman	11	89				9
Semi-Skilled						
Delivery		100				3
Butcher's Helper	33	67				24

TABLE XV-B

EDUCATION NEEDED IN THE DAIRY PROCESSING INDUSTRY IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Professional						
Quality Control				14	86	7
Technical						
Fieldman				14	86	7
Managerial						
Manager			9	46	45	11
Assistant Manager					100	1
Plant Manager		7	8	8	77	13
Supervisory						
Foreman		17	17	33	33	6
Production Supt.					100	3
Clerical						
Bookkeeper		100				1
Sales						
Sales Supervisor				75	25	4
Retail Sales		80	20			5
Skilled						
Manuf. Supervisor		100				1
Machine Operator		100				4
Processman		75		25		4
Manufacture Operator		100				1

TABLE XV-C

EDUCATION NEEDED IN COTTON GINS IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Technical						
Fieldman			40	40	20	5
Managerial						
Manager		56	10	27	7	59
Assistant Manager		40	20	20	20	5
Supervisory						
Foreman		100				2
Elevator Superintendent		100				1
Clerical						
Bookkeeper		63	12	25		16
Sales						
Salesman		67	33			3
Skilled						
Ginner	5	82	10	3		38
Pressman	12	88				8
Semi-Skilled						
Mill Worker		100				2
Delivery		100				1
Maintenance		100				1

TABLE XV-D

EDUCATION NEEDED IN COTTON MILLS IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Managerial						
Manager			34	33	33	3
Assistant Manager			100			1
Supervisory						
Plant Manager		100				2
Sales						
Salesman				100		2
Skilled						
Mill Worker		100				1

TABLE XV-E

EDUCATION NEEDED IN GRAIN STORAGE IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Technical						
Fieldman		34		33	33	3
Formulator					100	1
Managerial						
Manager		17	14	43	26	35
Assistant Manager		56	11	33		9
Storage Manager		50		50		2
Supervisory						
Warehouse Manager				100		1
Production Supervisor				100		1
Sales Supervisor		100				1
Foreman		67		33		3
Elevator Superintendent		64	22	14		14
Clerical						
Office Manager				100		1
Bookkeeper		71		29		7
Sales						
Salesman		29	14	57		7
Skilled						
Mill Worker	10	70			20	10
Mechanic			100			1
Buyer				50	50	2
Ginner		100				1
Semi-Skilled						
Mechanic's Helper		100				1

TABLE XV-F

EDUCATION NEEDED IN AGRICULTURAL SUPPLIES IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Technical						
Fieldman		17	8	42	33	12
Managerial						
Manager		35	5	42	18	158
Assistant Manager		41	3	31	25	32
Office Manager		13	12	25	50	8
Shipping Manager			100			1
Plant Manager		43	29		28	7
Supervisory						
Warehouse Manager		100				3
Sales Supervisor		78	11		11	9
Foreman		72	14	11	3	35
Elevator Superintendent		86	7	7		15
Clerical						
Bookkeeper		67	17	12	4	51
Sales						
Salesman		65	4	28	3	71
Skilled						
Farm Supervisor		100				3
Maintenance Foreman			100			2
Mill Worker	8	90	2			61
Mechanic		50	50			2
Buyer					100	1
Egg Grader		100				1
Semi-Skilled						
Delivery	14	81		5		21
Loader		88	12			8
Machine Operator		100				2

TABLE XV-G

EDUCATION NEEDED IN ORNAMENTAL HORTICULTURE IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Professional						
Landscape Architect			25	25	50	4
Technical						
Pest Control Supvr.		50		50		2
Process Superintendent				100		1
Transplant Supt.		17	33	33	17	6
Managerial						
Manager		26	13	25	36	112
Assistant Manager		38	12	38	12	8
Supervisory						
Production Manager		50			50	2
Shipping Manager		100				1
Plant Manager		100				2
Farm Supervisor		100				3
Sales Supervisor		50	50			4
Foreman		75	17	8		12
Fieldman		67	33			3
Clerical						
Bookkeeper		100				4
Sales						
Salesman	11	67		17	5	18

TABLE XV-G (CONTINUED)

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Skilled						
Maintenance Foreman		67	33			3
Head Grower		66	17	17		6
Grower		48	16	26	10	50
Grader		100				2
Machinery Operator		50	50			2
Transplanter		50		50		2
Landscape Gardener	28	67		5		21
Semi-Skilled						
Assistant Grower	13	70	4	13		23
Asst. Landscape Gardener		63	37			8

TABLE XV-H

EDUCATION NEEDED IN THE APPLICATOR BUSINESS IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Technical						
Fieldman		12	12	76		8
Mixer			100			2
Managerial						
Manager		18	11	32	39	28
Assistant Manager		100				1
Supervisory						
Crew Chief		100				5
Clerical						
Office Manager		67		33		3
Sales						
Salesman		100				1
Skilled						
Machine Operator		100				1
Pilot		42	42	16		12
Chemical Man	20	80				5
Semi-Skilled						
Flagman	29	71				7

TABLE XV-I

EDUCATION NEEDED IN FORESTRY IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Professional						
Forester					100	3
Technical						
Timber Technician		100				2
Managerial						
Manager		40		20	40	5
Clerical						
Bookkeeper		100				1
Skilled						
Mechanic			100			1
Carpenter		50	50			2
Semi-Skilled						
Delivery		100				1

TABLE XV-J

EDUCATION NEEDED IN AGRICULTURAL MACHINERY IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Technical						
Fieldman		50	50			2
Managerial						
Manager		21	16	38	25	127
Assistant Manager		29	43	28		7
Plant Manager					100	1
Supervisory						
Sales Supervisor			50		50	2
Shipping Manager		100				1
Shop Foreman		24	71	5		21
Clerical						
Bookkeeper		80	8	12		25
Sales						
Salesman		30	10	47	13	47
Skilled						
Production Supervisor		100				1
Mechanic		42	57	1		97
Parts Man		59	40	1		77
Welder		67	33			3
Semi-Skilled						
Delivery		86	14			7
Mechanic's Helper	7	87	6			15
Set-up Man	14	78	8			37
Machine Operator		100				1

TABLE XV-K

EDUCATION NEEDED IN THE POULTRY PROCESSING INDUSTRY IN OKLAHOMA BY JOB TITLE

Level of Employment Job Title	Less Than High School Percent	High School Percent	Post High School Technical Percent	Some College Percent	College Degree Percent	Total Number Interviews
Technical						
Fieldman		34	33		33	3
Quality Control					100	1
Managerial						
Manager		38	8	23	31	13
Assistant Manager			100			1
Production Manager			50	50		2
Plant Manager					100	1
Supervisory						
Shipping Manager				100		1
Plant Manager			50		50	2
Clerical						
Bookkeeper		50		50		2
Sales						
Sales Supervisor		50			50	2
Skilled						
Warehouse Manager		100				1
Delivery		100				1
Grader		100				7
Processman		100				4

Minimum Age to Enter Off-Farm Agricultural Occupations

Another worker characteristic closely tied to educational requirements is age of employability. Table XVI shows the average minimum age at which employers indicated they would be willing to hire employees.

As would be expected, Table XVI shows that entry age advances as the training and responsibility associated with the job increase. Entry into the service (skilled and semi-skilled), clerical, sales, and technical positions ranges from twenty to twenty-three years of age. Positions at the managerial and supervisory level may be entered at the average age of twenty-six, while the minimum age for professional people is thirty-one. Considering these averages, there appears to be a two-year gap between the lowest minimum entry age of twenty and the normal age of high school graduation. There are, however, certain job titles for which the minimum age limit is less than the median given in Table XVII, A-L. Many employers have indicated that age is only an indication of more important characteristics which they desire in employees and that if these attributes can be found in younger people, age is not a factor in selection. Mental and emotional stability, willingness to accept responsibility, willingness to work hard, and honesty and accuracy are more important than chronological age to many of those doing the hiring in off-farm agricultural businesses.

If teachers of vocational agriculture and others cooperating in the training of employees in off-farm agriculture can develop these worker characteristics so important to the employer, this gap between age of high school graduation and minimum age for employment may be narrowed. Education beyond the high school level should, of course, be the aim of those who can benefit from it and for whom it is possible.

TABLE XVI

AVERAGE MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY LEVEL OF EMPLOYMENT

Level of Employment	Average Minimum Age
Professional	31
Technical	22
Managerial	26
Supervisory	26
Clerical	22
Sales	22
Skilled	23
Semi-Skilled	20

TABLE XVII-A

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

MEAT PROCESSING

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Professional		
Quality Control	25	25
Managerial		
Manager	27	18-35
Assistant Manager	22	20-35
Plant Manager	32.5	30-35
Supervisory		
Production Manager	25	25
Manuf. Supervisor	24	24
Foreman	30	25-35
Clerical		
Office Manager	25	25
Bookkeeper	20	18-30
Sales		
Salesman	21	18-27
Skilled		
Farm Supervisor	21.5	18-25
Foreman	30	30
Buyer	25	18-35
Grader	22	22
Machine Operator	18	18
Butcher	20	16-30
Processman	22	20-30
Semi-Skilled		
Delivery	22	18-30
Butcher's Helper	20	16-30

TABLE XVII-B

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

DAIRY PROCESSING

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Professional		
Quality Control	30	30
Technical		
Fieldman	22	21-26
Managerial		
Manager	30	22-35
Assistant Manager	25	22-30
Plant Manager	23	21-30
Supervisory		
Foreman	25	25-30
Production Superintendent	30	25-30
Clerical		
Bookkeeper	20	20
Sales		
Sales Supervisor	28	25-30
Retail Sales	23	18-25
Skilled		
Manuf. Supervisor	18	18
Foreman	25	21-30
Machine Operator	21	21
Processman	21	18-25
Manuf. Operator	18	18

TABLE XVII-C

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

COTTON GINS

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Technical		
Fieldman	27.5	22-30
Managerial		
Manager	26	19-35
Assistant Manager	25	21-35
Supervisory		
Foreman	25	25
Elevator Superintendent	24	24
Clerical		
Bookkeeper	20	18-25
Sales		
Salesman	21	20-24
Skilled		
Ginner	25	18-40
Pressman	26	18-30
Semi-Skilled		
Mill Worker	21	18-25
Delivery	20	20
Maintenance	20	20

TABLE XVII-D

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

COTTON MILLS

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Managerial		
Manager	30	23-30
Assistant Manager	22	22
Supervisory		
Plant Manager	24	20-28
Sales		
Salesman	20	18-22
Skilled		
Mill Worker	30	30

TABLE XVII-E

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

GRAIN STORAGE

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Technical		
Fieldman	24	24
Mixer	21	21
Managerial		
Manager	25	20-35
Assistant Manager	23.5	20-30
Storage Manager	25	22-30
Supervisory		
Warehouse Manager	30	30
Manuf. Supervisor	26	26
Sales Supervisor	30	30
Foreman	27	24-30
Elevator Superintendent	25	20-30
Clerical		
Office Manager	27	27
Bookkeeper	25	20-30
Sales		
Salesman	22	20-26
Skilled		
Mill Worker	22	17-24
Mechanic	24	24
Buyer	25	24-26
Ginner	30	30
Semi-Skilled		
Mechanic's Helper	25	25

TABLE XVII-F

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

AGRICULTURAL SUPPLIES

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Technical		
Fieldman	22	19-30
Processman	20	20
Managerial		
Manager	25	18-35
Assistant Manager	22	20-35
Office Manager	25	22-30
Shipping Manager	30	30
Plant Manager	32.5	30-35
Supervisory		
Warehouse Manager	25	25
Sales Supervisor	27.5	25-30
Foreman	25	20-35
Elevator Superintendent	25	18-30
Clerical		
Bookkeeper	21	16-30
Sales		
Salesman	22	16-40
Skilled		
Farm Supervisor	23	21-25
Maintenance Foreman	30	30
Mill Worker	18	16-30
Mechanic	21	20-22
Buyer	30	30
Egg Grader	20	20
Semi-Skilled		
Delivery	20	18-30
Loader	19	18-25
Machine Operator	25	21-30

TABLE XVII-G

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

ORNAMENTAL HORTICULTURE

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Professional		
Landscape Architect	22	21-30
Technical		
Pest Control Supervisor	22	22
Process Superintendent	22	22
Transplant Superintendent	24	24
Managerial		
Manager	25	20-40
Assistant Manager	22	18-25
Supervisory		
Production Manager	26	26
Shipping Manager	21.5	18-25
Plant Manager	22.5	21-24
Farm Supervisor	27.5	25-30
Sales Supervisor	24	18-26
Foreman	22.5	20-26
Fieldman	20	20
Clerical		
Bookkeeper	20	18-22
Sales		
Salesman	21	18-30
Skilled		
Maintenance Foreman	24	18-25
Head Grower	26	18-30
Grower	23	16-45
Grader	18	18
Machinery Operator	22	22
Transplanter	20	20
Landscape Gardener	17	16-20
Semi-Skilled		
Assistant Grower	20	18-24
Assistant Landscape Gardener	18.5	17-21

TABLE XVII-H

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

APPLICATOR BUSINESS

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Technical		
Fieldman	19	18-21
Formulator	20	18-24
Managerial		
Manager	25	20-35
Assistant Manager	22	22
Supervisory		
Crew Chief	24	21-30
Clerical		
Office Manager	21	20-22
Sales		
Salesman	21	21
Skilled		
Machine Operator	18	18
Pilot	23	20-30
Chemical Man	21.5	18-24
Semi-Skilled		
Flagman	17	16-18

TABLE XVII-I

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

FORESTRY

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Professional		
Forester	25	25-30
Technical		
Timber Technician	22.5	21-24
Managerial		
Manager	30	25-40
Clerical		
Bookkeeper	21	21
Skilled		
Mechanic	30	30
Carpenter	24	24
Semi-Skilled		
Delivery	20	20

TABLE XVII-J

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

AGRICULTURAL MACHINERY

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Technical		
Fieldman	23	21-25
Managerial		
Manager	28	20-35
Assistant Manager	25	21-35
Plant Manager	30	30
Supervisory		
Sales Supervisor	35	35
Shipping Manager	30	30
Shop Foreman	28	20-35
Clerical		
Bookkeeper	21	18-26
Sales		
Salesman	25	18-32
Skilled		
Manuf. Supervisor	20	20
Mechanic	21	16-30
Parts Man	20	18-30
Welder	18	18
Semi-Skilled		
Delivery	19	18-20
Mechanic's Helper	18	18-25
Set-up Man	18	16-30
Machine Operator	18	18

TABLE XVII-K

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

POULTRY PROCESSING - EGGS

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Technical		
Fieldman	26.5	25-28
Quality Control	21	21
Managerial		
Manager	25	18-30
Assistant Manager	21	21
Production Manager	25.5	25-26
Supervisory		
Shipping Manager	25	25
Plant Manager	30	30
Clerical		
Bookkeeper	26	26
Sales		
Sales Supervisor	23	20-26
Skilled		
Warehouse Manager	21	21
Delivery	24	24
Egg Grader	20	20
Processman	20	20

TABLE XVII-L

MEDIAN AND RANGE OF MINIMUM AGE TO ENTER EMPLOYMENT IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

POULTRY PROCESSING - MEAT

Level of Employment Job Title	Minimum Age to Enter	
	Median	Range
Technical		
Fieldman	25	25
Managerial		
Manager	30	30
Plant Manager	30	30
Skilled		
Grader	20	20

Residential Background Preferred for Persons Working in Off-Farm Agriculture

Farm experience is considered to be an important asset and a definite advantage to beginning workers seeking employment in most jobs in off-farm agricultural businesses. As shown in Table XVIII, employers prefer a farm background in 78 percent of the positions considered. Four percent specified a rural, non-farm background, while 18 percent had no preference. An urban background was not preferred by any of the managers interviewed. Businesses which show the greatest percent of employees in which a farm background was desirable were grain storage, cotton, agricultural machinery, applicators, and agricultural supplies--those businesses dealing directly with farmers in sales or service.

Several reasons were given by employers for their preference for young men with a farm background. Managers interviewed stated that farm youth has a store of knowledge which saves valuable training time. In the opinion of the interviewees, the farm youth is more willing to work hard. Through experience, business managers have learned that rural youth are punctual, have orderly work habits, and accept responsibility. Young men with a farm background know how to talk the farmer's language. They respect farmers and are sympathetic to farm problems. For these reasons the owners and managers of businesses which deal with farmers and farm products are looking for men with a farm background. Table XIX, A-L, shows the residential background preference indicated by the managers in the individual job titles in the businesses studied.

TABLE XVIII

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA

Type of Business	Farm Percent	Rural Non-Farm Percent	No Preference Percent
Meat Processing	68	2	30
Dairy Processing	64	3	33
Cotton Processing	87	7	6
Grain Storage	92	3	5
Agricultural Supplies	82	7	11
Ornamental Horticulture	60	3	37
Applicators	84	0	16
Forestry	80	0	20
Agricultural Machinery	85	3	12
Poultry Processing	63	12	25
Average Percent	78	4	18

TABLE XIX-A

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

MEAT PROCESSING

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Professional				
Quality Control			100	2
Managerial				
Manager	61	1	38	74
Assistant Manager	25		75	4
Plant Manager	67		33	6
Supervisory				
Production Manager	100			1
Manuf. Supervisor	100			1
Foreman	72	14	14	7
Clerical				
Office Manager	100			1
Bookkeeper	33		67	3
Sales				
Salesman	67	5	28	18
Skilled				
Farm Supervisor	50		50	2
Buyer	87		13	23
Grader	100			1
Machine Operator	100			1
Butcher	71	2	27	41
Processman	56		44	9
Semi-Skilled				
Delivery	67		33	3
Butcher's Helper	58	4	38	24

TABLE XIX-B

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

DAIRY PROCESSING

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Professional				
Quality Control	71		29	7
Technical				
Fieldman	86		14	7
Managerial				
Manager	50	8	42	12
Assistant Manager	50		50	2
Plant Manager	46	8	46	13
Supervisory				
Foreman	83		17	6
Production Superintendent	80		20	5
Clerical				
Bookkeeper	100			1
Sales				
Sales Supervisor	25		75	4
Retail Sales	40		60	5
Skilled				
Manuf. Superintendent	100			1
Foreman	83		17	6
Machine Operator	100			4
Processman	75		25	4
Manuf. Operator	100			1

TABLE XIX-C

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

COTTON GINS

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Technical				
Fieldman	100			5
Managerial				
Manager	90	5	5	59
Assistant Manager	60		40	5
Supervisory				
Foreman	100			1
Elevator Superintendent	100			1
Clerical				
Bookkeeper	75	6	19	16
Sales				
Salesman	67	33		3
Skilled				
Ginner	89	3	8	38
Pressman	100			8
Semi-Skilled				
Mill Worker	100			2
Delivery	100			1
Maintenance	100			1

TABLE XIX-D

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

COTTON MILLS

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Managerial				
Manager	67	33		3
Assistant Manager		100		1
Supervisory				
Plant Manager		100		2
Sales				
Salesman	100			2
Skilled				
Mill Worker		100		1

TABLE XIX-E

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

GRAIN STORAGE

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Technical				
Fieldman	100			3
Mixer	100			2
Managerial				
Manager	86	8	6	35
Assistant Manager	78	11	11	9
Storage Manager	100			2
Supervisory				
Warehouse Manager	100			1
Manuf. Supervisor	100			3
Sales Supervisor	100			1
Foreman	100			32
Elevator Superintendent	79		21	14
Clerical				
Office Manager	100			1
Bookkeeper	72	14	14	7
Sales				
Salesman	100			7
Skilled				
Mill Worker	100			10
Mechanic	100			1
Buyer	50		50	2
Ginner	100			1
Semi-Skilled				
Mechanic's Helper	100			1

TABLE XIX-F

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

AGRICULTURAL SUPPLIES

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Technical				
Fieldman	100			12
Managerial				
Manager	86	6	8	158
Assistant Manager	81	6	13	32
Office Manager	75	25		8
Shipping Manager	100			1
Plant Manager	57	14	29	7
Supervisory				
Warehouse Manager	67		33	3
Sales Supervisor	67	22	11	9
Foreman	77	14	9	35
Elevator Superintendent	87	7	6	15
Clerical				
Bookkeeper	73	4	23	51
Sales				
Salesman	85	7	8	71
Skilled				
Farm Supervisor	100			3
Maintenance Foreman	100			1
Mill Worker	89	6	5	61
Mechanic	100			2
Buyer			100	1
Egg Grader	100			1
Semi-Skilled				
Delivery	76		24	21
Loader	75		25	8
Machine Operator	100			2

TABLE XIX-G

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

ORNAMENTAL HORTICULTURE

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Professional				
Landscape Architect	50		50	6
Technical				
Pest Control Supervisor	100			2
Process Superintendent			100	1
Transplant Supt.	100			1
Managerial				
Manager	51	6	43	112
Assistant Manager	38		62	8
Supervisory				
Production Manager	100			2
Shipping Manager	71		29	7
Plant Manager	100			2
Farm Supervisor	100			3
Sales Supervisor	100			4
Foreman	75		25	12
Fieldman	100			3
Clerical				
Bookkeeper	50		50	4
Sales				
Salesman	67		33	18
Skilled				
Maintenance Foreman	50		50	4
Head Grower	50		50	6
Grower	72	4	24	50
Grader	100			2
Machine Operator	100			1
Transplanter	100			2
Landscape Gardener	71		29	21
Semi-Skilled				
Assistant Grower	65		35	23
Asst. Landscape Gardener			100	15

TABLE XIX-H

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

APPLICATOR BUSINESS

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Technical				
Fieldman	75		25	8
Managerial				
Manager	82		18	28
Assistant Manager	100			1
Supervisory				
Crew Chief	100			5
Clerical				
Office Manager	100			4
Sales				
Salesman	100			1
Skilled				
Machine Operator	100			3
Pilot	75		25	12
Chemical Man	80		20	5
Semi-Skilled				
Flagman	86		14	7

TABLE XIX-I

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

FORESTRY

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Professional				
Forester	67		33	3
Technical				
Timber Technician	100			2
Managerial				
Manager	80		20	5
Clerical				
Bookkeeper			100	1
Skilled				
Mechanic	100			1
Carpenter	100			2
Semi-Skilled				
Delivery	100			1

TABLE XIX-J

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

AGRICULTURAL MACHINERY

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Technical				
Fieldman	50	50		2
Managerial				
Manager	87	2	11	127
Assistant Manager	86		14	7
Plant Manager	100			1
Supervisory				
Sales Supervisor	100			2
Shipping Manager	100			1
Shop Foreman	86		14	21
Clerical				
Bookkeeper	64	12	24	25
Sales				
Salesman	89	7	4	47
Skilled				
Manuf. Superintendent	100			1
Mechanic	77	2	21	97
Parts Man	90	2	8	77
Welder	100			3
Semi-Skilled				
Delivery	86	14		7
Mechanic's Helper	93		7	15
Set-up Man	95		5	37
Machine Operator	100			5

TABLE XIX-K

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

POULTRY PROCESSING - EGGS

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Technical				
Fieldman	100			2
Quality Control			100	1
Managerial				
Manager	82	9	9	11
Assistant Manager	100			1
Production Manager	50		50	2
Supervisory				
Shipping Manager	100			1
Plant Manager	50		50	2
Clerical				
Bookkeeper		50	50	2
Sales				
Sales Supervisor	50		50	2
Skilled				
Warehouse Manager			100	1
Delivery	100			1
Egg Grader	67	33		6
Processman	34	33	33	3

TABLE XIX-L

RESIDENTIAL BACKGROUND PREFERRED FOR PERSONS WORKING IN SELECTED OFF-FARM AGRICULTURAL BUSINESSES IN OKLAHOMA BY JOB TITLE

POULTRY PROCESSING - MEAT

Level of Employment Job Title	Farm Percent	Rural Non-Farm Percent	No Preference Percent	Number Interviews
Technical				
Fieldman			100	1
Managerial				
Manager	100			2
Plant Manager			100	1
Skilled				
Grader	100			1

Professional Agricultural Employees in Public and Private Service Agencies

An attempt was made in this study to obtain information concerning professional agricultural workers in private and public organizations serving agriculture. Information obtained from interviews with the state head or some other responsible representative of the following agencies is contained in this part of the thesis.

Federal Land Bank
Veterinarians
State Land Commission
State Board of Health
Murray State College
Noble Foundation
State Board of Agriculture
OSU College of Agriculture
OSU Experiment Station
Agriculture Extension Service
State Soil Conservation Service
Farmers Home Administration--State
Vocational Agriculture
Federal Crop Insurance
Agriculture Stabilization and Conservation

Number of Persons Employed and Anticipated Needs

There are 1,943 full-time and 73 part-time professional agriculture employees in the above mentioned services. It is estimated that 1,027 new employees will be needed by 1969 as replacements and new personnel. Since practically all of these employees will be college degree people and considering that the businesses discussed in the preceding sections will need about eight hundred college trained personnel, this indicates an annual demand of approximately four hundred college graduates in agriculture in the businesses and organizations covered in this study.

Number Currently Employed		Number Needed by 1969			
		Replacements		Additions	
Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
1,943	73	759	100	161	7

Minimum and Maximum Entry Age

The minimum average age at which a person may enter these professional agricultural occupations is twenty-six with the range being from twenty-two to thirty. Some training positions are available which have a minimum entry age of eighteen years. The average maximum age for job entry with the organizations interviewed is forty-six years and a range of forty to fifty years was reported.

Education Required

The vast majority of these jobs (90 percent) require a baccalaureate degree or above for job entry and advancement. Ten percent of these professional jobs require only some college but the trend is toward more education rather than less as an employment requirement. The following chart illustrates the level of education required in this category of employment.

Educational Level Required	Percent of Jobs Requiring This Level
Some College	10
College Degree	60
College Degree Plus 18 Hours	2
Master's Degree	14
Doctor's Degree	14

Beginning and Maximum Salaries

Salaries in these professional agricultural occupations vary somewhat depending upon the level at which the individual is working and the

administrative duties connected with the job. The following table shows the range of beginning and maximum salaries at these various levels.

Area of Work	Beginning Range	Maximum Range
Trainee	$4,000 - 5,000	
Fieldman	3,720 - 5,280	$ 5,880 - 7,800
Local (Public)	5,600 - 7,200	7,500 - 11,400
Local (Private)	7,200	12,300
County	5,000 - 7,200	11,000 - 11,700
District	6,000 - 11,400	11,300 - 14,170
State (Employee)	5,000 - 8,400	7,000 - 15,000
State (Administration)	7,200 - 12,000	10,200 - 20,000

CHAPTER V

SUMMARY AND CONCLUSIONS

The central problem of this study was the lack of reliable knowledge of where off-farm agricultural jobs existed and the training necessary to prepare young men for entry into these occupations. This thesis is a summarization of the findings in over seven hundred personal interviews with owners or managers of several types of businesses serving farmers' needs or processing and distributing farm products. Interviews were made in every county in Oklahoma and in almost every town. Businesses are concentrated in the larger population areas of the state; however, many of the firms were found in the more sparsely populated sections.

Studies of employment opportunities and training needs in off-farm agricultural occupations have been conducted in twenty-six states. Results of this study in Oklahoma and the studies in other states should give direction to local and state departments of vocational agriculture in planning new courses or in redesigning present courses. The training needs of agriculture--both production and business--have clearly become the responsibility of vocational agriculture and these studies which have been made should be valuable aids in curriculum planning and course construction.

The following conclusions emerge from the study as being of particular importance.

1. In the opinion of employers, 38 percent of the workers in off-farm agricultural businesses need agricultural competencies in order to successfully perform their duties in the business.
2. The greatest number of employees is found in the service (skilled and semi-skilled) phase of the businesses.
3. Based on the employers' experience over the past five-to-ten year period, managers and owners of the off-farm agricultural businesses expect to have a 34 percent increase in the number of agriculturally competent employees by 1969.
4. The greatest increase in number of employees with agricultural training is expected in the ornamental horticulture, agricultural machinery, and agricultural supplies businesses.
5. Competency in human relations and salesmanship are generally needed by all employees, but in varying degrees.
6. In the opinion of employers, specific agricultural competencies needed are largely determined by type of business and product handled.
7. Salaries and wages in some service types of employment in off-farm agricultural businesses are relatively low when compared to the Oklahoma Employment Security Commission's figures[1] for similar jobs in non-agricultural types of businesses. An effective training program for workers at this level might well be expected to raise this beginning wage by providing employees who would be productive immediately upon starting on the job.

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[1]"Occupational Wage Survey," Tulsa Metropolitan Area, March, 1965; "Advance Release of Occupational Wage Survey," Tulsa Metropolitan Area, March, 1966; and "Occupational Wage Survey," Oklahoma City Metropolitan Area, June, 1965, Oklahoma Employment Security Commission.

8. Approximately 50 percent of the employees in off-farm agricultural businesses need education beyond the high school level while for the other half a high school education is sufficient.
9. The average minimum age for employment in agricultural businesses is twenty years of age. While age requirements for some of the jobs available are below this, consideration should be given to a program of continuing education for many of our students.
10. Managers interviewed indicated that in 82 percent of the cases they would prefer employees with a farm or rural background. The remaining 18 percent had no preference as to background.
11. The annual need for professional college trained agricultural workers in the businesses and in service agencies interviewed was estimated to be about four hundred per year.

More precise information is still needed to guide supervisors and teachers in program planning. Further research is indicated in the following areas:

1. A procedure for keeping informed on the needs and opportunities in production agriculture and agricultural business.
2. Determination of the most efficient method or combination of methods of training for employment in off-farm agriculture.
3. Detailed descriptions of the more important job titles in off-farm agricultural businesses.
4. Study of other businesses which may offer employment opportunities to people trained in agriculture.
5. A clear definition of what should be taught at the various

levels of our educational system--high school, post high school, and college.

6. A re-definition of what is meant by agricultural competencies which includes agricultural business competencies as well as production competencies.

In retrospect, the author of this thesis has some feelings and thoughts which he feels compelled to express. The period spent interviewing the managers of the businesses covered a year and involved twenty thousand miles of travel across the state of Oklahoma. The interview process with this many individuals proved to be a practical, liberal education within itself. The enthusiasm for their work of the men and women interviewed, their honest efforts to give true and meaningful answers, their interest in assisting with an educational and training program, and their complete faith in the future of agriculture are lasting impressions which this author will carry into any future endeavor.

An expanded program of training for off-farm agricultural occupations can only ameliorate vocational agriculture without vitiation of the traditional program of training for farming and ranching. The sincere desire of many young men who have their roots deep in agriculture to remain close to their natural background can be met by preparing them for these types of occupations. The contiguity of the two professions, farming and ranching and off-farm agricultural occupations, should make the training program discussed in this thesis an effective solution to the exigency which exists due to our decreasing farm population. The malaise which many teachers of vocational agriculture teachers feel will rapidly disappear as they begin to see their trainees filling useful jobs for which they are well suited both through background and education.

The author cannot conclude without mentioning his impression of the high regard with which the communities view the teacher and program of vocational agriculture. Admitting the possibility of bias, it is the impression of this author that no group of men is more respected for its efforts with youth and more highly regarded for its contribution to the development of a well-trained, productive citizenry.

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APPENDIX A

INTERVIEW FORM I

The Oklahoma State University
Department of Agricultural Education
Stillwater, Oklahoma

EMPLOYMENT OPPORTUNITIES AND NEEDED
COMPETENCIES IN AGRICULTURAL OCCUPATIONS

Date_____
Name of
interviewer_____

FORM I

Type of Agricultural Business_____

1. Company (firm, organization, agency or service)

   A. Name of company_____

   B. Address_____County_____

   C. Name of person interviewed_____

   D. Telephone number of person interviewed_____

   E. Position of person interviewed_____

   F. Describe the agricultural functions of business or services_____

   _____

   _____

   G. Main agricultural function(s) of company (check one or more)

   _____1. Sales
   _____2. Services
   _____3. Purchasing
   _____4. Manufacturing
   _____5. Marketing
   _____6. Processing
   _____7. Government (federal, state, local)
   _____8. Other

   H. Years company has been in business_____

   I. Per cent of gross income that is agricultural orientated_____

II. Employees in this Business or Service

A. Total number of employees_____

B. Employees needing competencies in agriculture

	Level of Employment*	Job Title**	Number of Employees Full-time	Part-time
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
		TOTAL		

* Classify according to this list

Professional	Clerical
Technical	Sales
Managers	Skilled
Supervisors	Semi-skilled

** Fill out a separate Form II for each job title for which the employee needs competencies in agriculture

APPENDIX B

INTERVIEW FORM II

Interviewer_____

Date of Interview_____

EMPLOYMENT OPPORTUNITIES AND NEEDED COMPETENCIES
IN AGRICULTURAL OCCUPATIONS OTHER THAN FARMING

FORM II

Type of Agricultural Business_____

I. Identification of Business or Service, Level of Employment and Job Title

A. Name of business or service_____

Address_____ County_____

B. Level of employment from Form I, page 2_____

C. Job title from Form I, page 2_____

II. Employees in This Job Title

A.

Employment Status	Number of Persons Presently Employed		Additional Number Expected to be Employed in Next Five Years			
			To Replace Present Workers		In Addition to Present Workers	
	Male	Female	Male	Female	Male	Female
Full-time	_____	_____	_____	_____	_____	_____
Part-time	_____	_____	_____	_____	_____	_____

B.

Employment Status	Average Weeks Paid Per Year	Beginning Wage or Salary		Highest Wage or Salary	
		Per Hour	Per Week	Per Hour	Per Week
Full-time	_____	_____	_____	_____	_____
Part-time	_____	_____	_____	_____	_____

C. Activities and duties of persons with this job title

_____

_____

_____

_____

_____

III. Competencies associated with this job title

A. Agricultural Competencies

	Check degree of competency necessary					
	To enter this job as a beginning employee			To advance in this job title or to a related position		
	None	Some	High	None	Some	High
1. Plant Science						
Plant propagation, seed production. . .	____	____	____	____	____	____
Plant growth, fertilization	____	____	____	____	____	____
Controlling insects, diseases, weeds. .	____	____	____	____	____	____
Additional production practices						
2. Soil Science						
Physical characteristics of soil. . . .	____	____	____	____	____	____
Chemical characteristics of soil. . . .	____	____	____	____	____	____
Soil Conservation						
3. Animal Science						
Animal breeding, selection.	____	____	____	____	____	____
Animal growth, feeding.	____	____	____	____	____	____
Health and sanitation	____	____	____	____	____	____
Housing and equipment	____	____	____	____	____	____
Additional production practices						
4. Agricultural Business Management and Marketing						
Budgeting, records and analysis	____	____	____	____	____	____
Farm financing (credit, taxes, etc.). .	____	____	____	____	____	____
Labor management.	____	____	____	____	____	____
Marketing practices	____	____	____	____	____	____
Agricultural policy						
5. Agricultural Mechanics and Automation						
Farm power and machinery.	____	____	____	____	____	____
Farm buildings and conveniences	____	____	____	____	____	____
Rural electrification and processing. .	____	____	____	____	____	____
Soil structures (ditches, ponds, etc.).	____	____	____	____	____	____
Farm construction and maintenance . . .						

List other agricultural compentencies that are needed for this job title

_____

_____

III. Competencies associated with this job title.

B. Business and Distributive Competencies

	Check degree of competency necessary: To enter this job as a beginning employee			To advance in this job title or to a related position		
	None	Some	High	None	Some	High
1. Occupational Information and Regulations						
Job opportunities and trends						
Job applications, interviews						
Worker welfare (insurance, retirement, etc.)						
Legal requirements of the job						
2. Duties of Employees						
Receiving, marking, shipping						
Window and store display						
Salesmanship						
Customer relations						
Bookkeeping, business mathematics						
3. Business Organization and Supervision						
Employee-supervisor relations						
Employee relations with fellow workers						
Buying and merchandising						
Inventory, stock control, warehousing						
Internal business organizations						
4. Management and Economics of Business						
Experience in management decisions and problem solving						
Capital management, financing						
Accounting, taxes						
Trade relationships, promotion, advertising						
Legal relationships						
Government regulations (ICC, FICA, etc.)						

III. Competencies associated with this job title.

C. Trade and Industrial Competencies

	Check degree of competency necessary					
	To enter this job as a beginning employee			To advance in this job title or to a related position		
	None	Some	High	None	Some	High
1. Building Trades						
Masonry	____	____	____	____	____	____
Carpentry and cabinet work	____	____	____	____	____	____
Blueprint reading	____	____	____	____	____	____
Plumbing	____	____	____	____	____	____
Heating and ventilation	____	____	____	____	____	____
2. Machine Tool Trades						
Drafting and design	____	____	____	____	____	____
Tool and die making	____	____	____	____	____	____
Engines, repair and maintenance	____	____	____	____	____	____
Manuals, technical and service	____	____	____	____	____	____
Mathematics	____	____	____	____	____	____
3. Technicians						
Electronics	____	____	____	____	____	____
Electricity	____	____	____	____	____	____
Industrial chemistry	____	____	____	____	____	____
Quality control	____	____	____	____	____	____
Time Study	____	____	____	____	____	____
4. Skills and Other Trades						
Welding	____	____	____	____	____	____
Sheet Metal	____	____	____	____	____	____
Surveying	____	____	____	____	____	____
Supervision	____	____	____	____	____	____
Safety	____	____	____	____	____	____
D. Communications Competencies						
1. Public Speech	____	____	____	____	____	____
2. Writing	____	____	____	____	____	____

IV. Characteristics desired in those who enter this job title.

A. Age: Minimum_____Maximum_____

B. Educational level (check one only)

_____ 1. Less than high school graduation

_____ 2. High school graduation

_____ 3. Post high school technical education

_____ 4. Some college education but less than a baccalaureate degree

_____ 5. College baccalaureate degree

C. Residential background

_____ 1. Farm background

_____ 2. Rural, non-farm background

_____ 3. Urban background

_____ 4. No preference

D. Experience required to enter this job title: Yes _____No_____

V. Limitations on entering this job title'

A. Labor union restrictions

B. Labor law restrictions

C. Licensing or certification

D. Other (specify)

VI. Education required to advance in this job title.

A. Technical short course or training provided by:

_____ 1. Your business or the industry as a whole

_____ 2. On-the-job training

_____ 3. A public school

_____ 4. An agricultural college

B. Other types of education required_____

VITA

William W. Stevenson

Candidate for the Degree of

Doctor of Education

Thesis: A STUDY OF EMPLOYMENT OPPORTUNITIES AND TRAINING NEEDS IN OFF-FARM AGRICULTURAL OCCUPATIONS IN OKLAHOMA

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