

COMPARISON OF OKLAHOMA AGRIBUSINESSMEN'S
ATTITUDES TOWARD FUTURE CAREERS
IN AGRICULTURE

By

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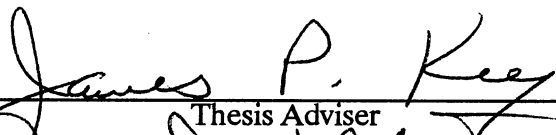
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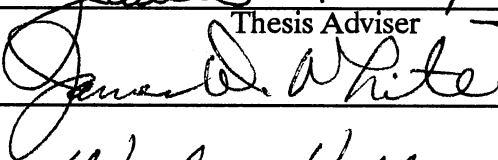
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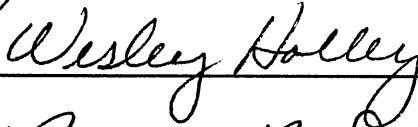
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CHAPTER I

INTRODUCTION

Background of the Problem

A growing concern to the state of Oklahoma is the problem of economic development within the agricultural sector and what can be developed to enhance career opportunities for agricultural workers. The complexity of agriculture and the occupational opportunities it offers has not been understood by most people.

No longer can agriculture be just farming or ranching in terms of production. Specialized processes have placed agriculture in a more sophisticated role of technological advancement. The competitive nature of occupational opportunities has caused a greater influx of creative development that brings greater diversification to career opportunities in agriculture. Agricultural production occupations have less than eight percent of the available career opportunities in agriculture through 1990 (5). Technological specialists and service oriented careers continue to increase their percentage of agricultural careers.

Research from a previous study (12) indicated that emphasis in agribusiness organizations should be placed heavily on agricultural finance and agricultural supplies and services. A recent study (5) determined that managers and financial specialists make up fourteen percent of the occupational distribution; whereas marketing, merchandising and sales leads the overall distribution with thirty-two percent (5). Nearly twenty years ago, agricultural businessmen recognized the importance in these

areas of occupations. Now, in the 1980's, attention is rapidly moving towards the technical expertise of scientists, engineers and related specialists.

Higher levels of training continue to become the norm for survival in the job market. Since 1971, the integration of the agricultural industry with other segments of the national economy has continued to rise significantly, creating greater demand for off-farm agricultural occupations (20). Parallel to that demand comes a revitalization of education, communications and information specialists. Within this framework, however, emphasis as to the type of education and communication used is changing. The opportunities available are shifting to more adult educational programs (6).

The overall approach to occupational development tends to lean toward a greater diversification of agriculturally related careers.

Statement of the Problem

Because of the change in Oklahoma's economy, job opportunities are less available within the established or traditional career roles in agriculture. There has been a significant migration from production agriculture to technical and service oriented careers. Adult educational programs are increasing rapidly due to insolvencies of farms and agricultural related businesses.

The significant problems were the lack of knowledge of what future careers will be available in the agricultural sector and how the differences in age of the work force will affect their ability to acquire these careers. Educational requirements tend to be a limiting factor to the older work force.

Purpose of the Study

The intent of this study was to determine what prospective agricultural career

opportunities will become important. A further purpose of this study was to determine the experience and education required, as well as the likely age for entry-level employment into the agricultural careers selected.

Objectives of the Study

This study was intended to provide information to all age groups within the agricultural work force as to what career opportunities are most likely to be available and what requirements are deemed necessary as determined by agribusinessmen representing small, medium and large agribusinesses in Oklahoma. Specifically the study was designed for agribusinessmen to:

1. Select and rank the 10 "best" agricultural career opportunities in the next decade.
2. Determine the entry-level employment opportunities for the top ten agricultural careers selected.
3. Determine the minimum entry-level educational requirements for the top ten agricultural careers selected.
4. Determine the importance of secondary vocational agricultural education for success in the top ten agricultural careers selected.
5. Determine the entry-level job experience requirements for the top ten agricultural careers selected.
6. Determine the likely age at entry into the top ten agricultural careers selected.
7. Determine the entry-level salary range for the top ten agricultural careers selected.

Scope of the Study

The scope of this study was a list of 1510 agribusinesses which was compiled from advertisement indexes of agricultural publications, agricultural businesses' mailing lists, and lists available through the Oklahoma Department of Agriculture. This list was obtained from Dr. David Park, OSU Agricultural Economics Professor (14).

Assumptions and Limitations of the Study

Assumptions

The basic assumptions accepted by the investigator included:

1. The agribusinesses selected for the study were considered to be a representative sample of small, medium, and large agribusinesses in Oklahoma.
2. Survey participants provided sincere and reliable responses.
3. Respondents were able to identify the competencies and educational level needed for successful job performance.
4. The questionnaire would supply valid information.

Limitations

1. The data was obtained exclusively from Oklahoma agribusiness firms.
2. The study was limited since there was no official source from which to secure a reliable list of firms.

Definition of Terms

Agribusiness - As used in this study refers to the total of all activities involved in supplying agricultural production inputs, production of food and fiber, and service, processing and distribution of raw materials and consumer products.

Small Agribusiness - As used in this study refers to an agribusiness with \$200,000 or less in gross income.

Medium Agribusiness - As used in this study refers to an agribusiness with \$200,001 to \$500,000 in gross income.

Large Agribusiness - As used in this study refers to an agribusiness with \$500,001 or more in gross income.

Organizational Cluster - As used in this study refers to a broad base of all jobs or occupations within one primary agency, business or industry. Primarily, this refers to a grouping of occupations with common elements.

Agricultural Career - As used in this study refers to a career in which prospective agricultural employees need competencies/skills in one or more of the primary areas of organizational clusters.

Learned Knowledge - As used in this study refers to any agricultural worker who, through experience, has acquired ability and know-how to perform assign tasks.

CHAPTER II

REVIEW OF LITERATURE

The next decade for agricultural career opportunities could well be called the "challenge to change". Agriculture is undertaking the greatest face-lift in history, due to the new problems in marketing procedures, competition and lack of net income. No one understands the problem more than those who are involved in the everyday happenings of the agricultural industry.

Rasmussen (16) emphasized what had been said in the 1961 forward to the Yearbook of Agriculture, Farmer's World, by pointing out:

At no time in thirty centuries has world agriculture faced greater opportunities. And at no time has American Agriculture been so closely connected as now with world agriculture. (p.2)

This statement brings to mind the word "challenge" which could indicate opportunity ahead as changes occur. These changes bring with it new and challenging career development. Greater connection to world agriculture would create a greater emphasis on the extension of careers into the international setting.

People in agricultural employment are faced with this challenge as production agriculture expands to larger farms. The increasing size of farms has created distances between smaller operations that caused tremendous competition. This competition has overflowed into the marketing and service oriented businesses which have increased losses and unemployment. Reliance on local businesses to supply the needs is no

longer needed due to the success of larger operations. Unemployment rises; bankruptcy increases; and agricultural occupations shift.

In studying these career transitions, a lot can be learned from one's own inner strength. Peterson (15) suggested that when changing one's career his sense of achievement will be determined by his personal adjustment, level of involvement, happiness, stress, attitude and sense of prosperity.

The adjustment to a new career will take much soul searching in developing a plan to re-enter the job market. Guidelines have been established to increase the awareness of future careers and of the requirements to qualify for a career.

Future Career Opportunities

There is strong evidence to support the suggestion that agricultural careers are changing. When outlining the evidence, production agriculture is the source of the developing problem. According to Bonnett (3), bankruptcies are nearly 20 times the rate experienced in the late 1970's. Farmers and ranchers are abandoning their operations at a rate of three or four times the normal. With farm foreclosures at seven times the normal rate, loan delinquencies are the highest rate ever experienced by major agricultural lenders. Small business liquidations have continued to increase at an alarming rate.

Government forecasters have determined the primary areas where career development must go. These vast changes within the social and economic fabric of society were a result of several important factors. As explained by Bentley and O'Connell (2):

There is a supply and demand imbalance in U.S. agriculture, causing a pinch on profitability. Rate of technology adoption in other agricultural countries of the world has increased significantly in recent years, creating more competition for U.S. farmers. There are continuing concerns about agricultural and forestry production

practices and the environment. The knowledge of molecular genetics and cellular biology is increasing rapidly, creating and expanding opportunities in improving agriculture worldwide. There is increased public awareness of the relationship between personal well-being and diet. (p.379)

Through further study, Bentley (1) concluded that the U.S. does possess unique strengths that allow for strong national commitment. They are:

- (1) A strong commitment to the role of science in our national well-being, and
- (2) An entrepreneurial spirit - freedom of economic opportunity to explore new markets. (p.2)

The Joint Council of the National Agricultural Research and Extension Users Advisory Board concluded that the top five priorities of special emphasis would be:

1. Agricultural profitability issues.
2. Water quality and management.
3. Biotechnology research on plants, animals and microbes.
4. Scientific and professional human capital development.
5. Human nutrition and diet and health relationships. (1, p.7)

By using these guidelines, the development of special occupational clusters have been emphasized to create interest within the agricultural work force. The opportunities have broadened far beyond production agriculture toward a total concept of global enterprise.

The multiplicity of careers that arise from the concept can be developed from nine basic occupational clusters. Stansbury and Coulter (18) determined nine clusters that are important areas of career development. They are:

1. Manufacturing,
2. Communications and information,
3. Finance,
4. Sales and service,
5. Food and fiber producers,
6. Transportation,

7. Processing,
8. Market,
9. Merchandising.

A study financed by the U.S. Department of Agriculture (USDA) in 1986 (6) concluded that of the 49,000 annual employment opportunities for college graduates in the food and agricultural sciences, 32 percent are in marketing, merchandising and sales. Within this category are careers such as landscape contractors, marketing specialists and sales representatives. Research and development openings for scientists, engineers and technicians account for 28 percent of the openings, while 14 percent of the projected positions are for managers and financial specialists.

The USDA study concluded that the annual average demand for college graduates in the food and agricultural sciences will exceed the available supply by 10 percent through 1990.

Other research conducted on occupational clusters concluded six basic clusters for employment opportunities for college graduates. A study by Coulter, Stanton and Goecker (5) placed career opportunity within the following parameters:

1. Scientists, engineers and related specialists,
2. Managers and financial specialists,
3. Marketing, merchandising and sale representatives,
4. Education, communication and information specialists,
5. Social services professionals,
6. Agricultural production specialists.

International Opportunity

International agricultural career opportunity is rapidly developing. Involvement of U.S. colleges of agriculture has increasingly developed training and

know-how for foreign countries. Kundel (9) stated:

The internationalization of agriculture has taken an increasing share of agricultural graduates abroad at some time in their careers. (p.317)

The new opportunities in science require trained people. Many agricultural scientists received their formal education 20 to 30 years ago and are reaching retirement age. Areas of importance are molecular biology, systems analysis and international marketing.

Bentley (1) expressed two major elements of a national research strategy for the U.S. which are:

1. Education,
2. Mechanisms for bringing scientific discoveries from the laboratory to the marketplace.

An international career may well demand a more comprehensive education than does a domestic career.

Agribusiness and industry, national-multinational companies are dominant factors in agricultural careers abroad. Food science and technology and related areas, such as food economics, marketing, horticulture and biotechnology, are definite career areas for international opportunity. Banks who finance international trade and multinational agribusiness employ agricultural economists with knowledge of international business.

Assessment of Career Needs

There is evidence of more technical know-how in the marketplace. Dr. Elizabeth Sloan, editor-in-chief of McCall's magazine, discussed what major companies were looking for in future employees (7). She stated that:

Major companies are looking for people to bridge the communications and scientific gap. There's a growing need for people with technical knowledge and practical communications skills. (p.311)

It is apparent that production agriculture has become a small resource to career opportunity. Fewer farmers are not critical. The number of young reaching working age on farms greatly exceeds the number needed for farming replacements (13).

Reliance on marketing seems in the prospect during the next fifteen years. This would reduce the incentive for high production and open more market opportunities. Paarlberg's conclusions indicated a probable need for marketing expertise which would include agricultural economics, education and communications as well as related areas.

According to Sims, general sales manager of the Foreign Agricultural Service (FAS), the greatest need would be in communications, education and promotion (17).

Sims stated that:

Agriculture should be funded by government and private individuals. We need cooperative development programs to help expand agricultural areas in other countries to increase sales of U.S. products. (p.39)

It can be concluded that efforts in career development must come from areas that provide the employment. Research, conducted by Castellucis (4), surveyed business firms about their willingness to assist community colleges or technical schools in establishing training programs. Of the respondents, 51 percent indicated some interest in providing training assistance; 32 percent had no interest; and only 17 percent had a great interest in such a program.

Whereas adult education had a significant rise in career opportunities in Coulter, Stanton and Goecker's study (5), in Castellucis' research, 84 percent had little or no interest in providing assistance programs in training. Interesting to note was that

smaller businesses indicated a greater degree or willingness to provide training assistance than larger businesses.

To meet the occupational needs, Castellucis concluded that encouragement for business involvement must provide three basic principles. They are to:

1. Allocate funds for training assistance.
2. Assist employees with time off and reimbursements of expenses.
3. Provide as much training as possible through in-house formal training; would utilize outside schools if required.

Summarizing this research, it was concluded that there is a definite need to train employees, and Oklahoma businesses have plans to fill the training needs of their workers. Definite programs have been initiated and will be carried out in-house by the companies themselves. It is the general consensus of the businesses surveyed that they would offer little assistance to the educational community for the purpose of establishing training programs for their employees.

Recommendations for Career Direction

Directing the work force in their career transition revolves around personal planning in implementing their career goals. Feinburg (8) said that proper channeling of career direction should include five steps. These included:

1. Defining goals,
2. Psychological testing,
3. Current and prospective job trends,
4. Additional alternatives, and
5. Planning the steps.

Feinburg described goal defining as a "non-directive technique to probe the desires of the prospective worker." (p.108) He said that the worker must have a need

to achieve. He must set economic objectives and social status requirements. Further, he stated that self-esteem and social approval and status needs should enter into the plan for personal development.

Constructive step planning was emphasized by Feinburg in his article. Six steps described were:

1. Initiation of a long-range timetable.
2. Developmental program of preparation, study and training.
3. Establishment of individual qualifications.
4. Exploration of entry-level placement.
5. Counselling for start-up of the job.
6. Program for continuing personal growth.

Peterson's recommendations from his research (15) concluded three principles or guidelines that should be followed by an individual who is seeking new career direction. His recommendations included:

1. Self assessment - what's happening, what has happened.
2. Policies to encourage personal and professional development.
3. Experience in other areas - learn from other opportunities.

From an educational standpoint, Miller and Yoder (11) presented a similar opinion of student planning for goal development. Viewing it from their Cooperative Extension expertise, they said that "students' career goals and objectives are incorporated into their cooperative education placement site." (p.13)

To get the most from the worker, incorporating his needs into his work tended to produce a stronger, dedicated employee who has a greater desire to learn.

Problem solving techniques should be utilized by the teacher from encounters that the student has had at his training station. This creates greater realization and understanding in discovering the answers to the existing problems.

Summary

It was concluded through the review of research that definite opinions concerning training and education are prevalent. Most data gathered indicated that businesses preferred self-help programs in which definite training procedures can take place.

Through the review of literature, it was concluded that educational training would best be supported by the business industry in satisfying the objectives or plans of the businesses if inhouse training programs were developed. However, when additional education is required, then it should be provided by the means deemed necessary.

Career opportunities reflect a shifting of occupational emphasis into a more technical, scientific approach. From these new discoveries, the occupational clusters are extended into greater diversification of career opportunities.

CHAPTER III

METHODOLOGY

The problem, purpose and objectives of the study influenced the design of the study. In order to collect and analyze data pertaining to the purpose and objectives, it was necessary to accomplish the following tasks:

1. Determine the population for the study.
2. Develop the instrument and the procedure for data collection.
3. Determine the methods of data analysis.

The Study Population

This investigation was conducted on the premise that the most suitable means of obtaining information about agricultural career occupations in the next ten years would be to survey agribusinessmen in Oklahoma whose agribusinesses had gross incomes that represented small (\$200,000 or less), medium (\$200,001 to \$500,000), and large (\$500,001 or more) operations.

A list was obtained from Dr. David Park, OSU Agricultural Economics Professor, which contained 1510 Oklahoma agribusinesses. This list was compiled from advertisement indexes of agricultural publications, agribusinesses' mailing lists, and lists available through the Oklahoma Department of Agriculture. The population of the study was 100 percent of the total agribusinesses on the list which was decided by Dr. Richard Makin, head of the research department at the State Department of

Vocational-Technical Education, who financed this study (10).

Instrument and Procedure for Data Collection

Because of time and simplicity, a survey was developed that would determine the attitudes of the owners or owner/managers of the agribusinesses on what they perceived to be the 10 "best" agricultural career opportunities within the next decade.

The survey design was established to elicit selected general characteristics of the agribusinesses such as: (1) type of business; (2) number of employees; and (3) estimated gross income in 1987. Confidentiality was established by a number system in order to insure a response from the agribusinesses.

Specific information about occupations was obtained, including: (1) select and rank by preference the 10 "best" agricultural career opportunities in the next decade; (2) determine the entry-level employment opportunities for the top ten agricultural careers selected; (3) determine the minimum entry-level educational requirements for the top ten agricultural careers selected; (4) determine the importance of secondary vocational agricultural education for success in the top ten agricultural careers selected; (5) determine the entry-level job experience requirements for the top ten agricultural careers selected; (6) determine at what age will individuals be likely to enter the top ten agricultural careers selected; and (7) determine the entry-level salary range for the top ten agricultural careers selected.

Because of the wide range of agricultural careers, a list of 116 agricultural careers was sent with the survey and each one was coded with a number beside it. Additional numbers were added to the list which would allow the agribusinessmen to add any career that was not listed. The survey was all-in-one piece which contained the cover letter on page one, the questions on page two and three, and return address on page four.

A sample copy of the questionnaire used to obtain the data is shown in Appendix A. A committee of three were selected to sort through the possible agricultural careers which were available from lists received from the State Department of Vocational-Technical Education, Oklahoma Department of Agriculture, and United States Department of Agriculture. The committee was asked to condense the lists down so that similar jobs were grouped into one heading. The committee consisted of LaMecia Stiles from the career center of the State Vo-Tech Department; Joe Rauniker, the Northeast District Advisor of the Oklahoma FFA; and Merrideth Allenbach, a farmer who had been the agricultural loan representative for the Metropolitan Life Insurance Company.

The first 1510 questionnaires were sent to Oklahoma agribusinessmen in late spring; only 54 were returned. Fifty agribusinessmen were randomly selected to telephone and inquire as to why surveys were not being returned. Results indicated that the time of the year was inappropriate because of busy schedules. Also, some were having problems answering the survey because of a different format than is normally used.

In the fall of that year, surveys were sent again to those who had not returned the previous mailing. There were 124 returned which brought the total to 178. This represented 12 percent of the total population.

Methods of Data Analysis

The information gathered included the opinions of agribusinessmen from small, medium and large agribusinesses who were asked to 1) select and rank the 10 "best" agricultural career opportunities in the next decade, 2) determine the entry-level employment opportunities of the top ten agricultural careers selected, 3) determine the minimum entry-level educational requirements for the top ten agricultural careers

selected, 4) determine the importance of secondary vocational agricultural education in the success for the top ten agricultural careers selected, 5) determine the entry-level job experience requirements for the top ten agricultural careers selected, 6) determine at what age will individuals be likely to enter the top ten agricultural careers selected, and 7) determine the entry-level salary range for the top ten agricultural careers selected.

The rank order was determined by a points system as shown in Table I. Each time a career was selected as number one, ten points were assigned, number two received nine points, number three received eight points, number four received seven points, number five received six points, number six received five points, number seven received four points, number eight received three points, number nine received two points, and number ten received one point.

The data collected from the survey were treated by utilizing descriptive statistics which included frequency distribution (n) and percentages (%) which were determined for each question asked, and total number (N), mean response (M), and rank by mean were also determined in each appropriate table.

TABLE I
SYSTEM BY WHICH POINTS ARE APPLIED
TO EACH AGRICULTURAL CAREER SELECTED.

CAREERS SELECTED IN ORDER OF CHOICE	POINTS APPLIED TO EACH CAREER CHOSEN
Career Number 1	10 points
Career Number 2	9 points
Career Number 3	8 points
Career Number 4	7 points
Career Number 5	6 points
Career Number 6	5 points
Career Number 7	4 points
Career Number 8	3 points
Career Number 9	2 points
Career Number 10	1 point

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The major purpose of this study was to determine and analyze the top ten prospective agricultural career opportunities in the next decade as perceived by agribusinessmen in Oklahoma. In addition to ranking the selected careers, the agribusinessmen were asked to determine the entry-level employment opportunities, entry-level educational requirements, whether vocational agriculture influenced the success of the career, entry-level job experience, age at entry into the careers and the entry-level salary range of the careers.

Data collected involved the responses of the agribusinessmen in Oklahoma. Although the major purpose of this study was to analyze the 10 "best" agricultural career opportunities as perceived by agribusinessmen, the investigator deemed it to be appropriate to share with the reader the top forty (40) in rank order. Refer to Appendix B. The purpose of this chapter is to present factual information revealed by the analysis of data compiled. A secondary purpose of this chapter is to cluster the top forty agricultural careers into clusters that were referred to in Chapter II and assign a percentage from the number represented in each cluster in relationship to the total number of forty.

Population

The population of this study included a list of 1510 Oklahoma agribusinessmen which was compiled from advertisement indexes of agricultural publications, agricultural businesses' mailing lists, and lists available through the Oklahoma Department of Agriculture. There were 178 questionnaires returned which represented 12 percent of the population surveyed.

A copy of the instrument used to secure these data is included in Appendix A. The frequency and percentage of response in each category was determined and means obtained for the appropriate responses.

Findings of the Study

The purpose of this section is to present and analyze data collected relative to the perceptions of Oklahoma agribusinessmen participating in this study. Findings of the study are presented under seven specific areas relating to the selected agricultural careers. Data collected for each question gives rank by points of each selected career number (n), percentage (%), total number (N) and mean (M) , when appropriate to the response.

Selection and Ranking of Selected Careers

Data in Table II provides the 10 "best" prospective agricultural career opportunities in the next 10 years as selected by agribusinessmen according to the ranking and points attributed to each career, and the number who chose the career in any top ten position. Inspection of the data revealed that the point difference ranged from a low of 252 to a high of 384. This was a difference of 132 points from the

number one ranked career to the the number ten ranked career.

Agribusinessmen selected professional manager as the number one ranked career with 384 points followed by computer analyst (369 points), environmental engineer (317 points), business manager (289 points), marketing manager (277 points), grain merchandiser (275 points), accountant (272 points), agricultural chemist (260 points), water engineer (258 points) and computer operator (252 points).

TABLE II
THE TOP TEN AGRICULTURAL CAREERS SELECTED AND RANKED
BY AGRIBUSINESSMEN ACCORDING TO COMPUTED POINTS

TOP TEN CAREERS	RANK	N	POINTS
Professional manager	1	55	384
Computer analyst	2	51	369
Environmental engineer	3	44	317
Business manager	4	49	289
Marketing manager	5	42	277
Grain merchandiser	6	32	275
Accountant	7	53	272
Agricultural chemist	8	40	260
Water engineer	9	36	258
Computer operator	10	46	252

Entry-Level Employment Opportunities

Table III summarizes agribusinessmen's responses to entry-level employment opportunities for the top ten agricultural careers selected. In referring to the mean responses in Table III, the following scale was used to assign the real limits for each response category.

<u>Range</u>	<u>Response</u>
3.5-4.0	Many

2.5-3.49	Some
1.5-2.49	Few
.5-1.49	None

Data in Table III revealed that of the top ten agricultural careers ranked, computer operator had the highest rank by mean with a mean response of 3.58. Computer operator was perceived by agribusinessmen to have many employment opportunities for entry-level employment.

Professional manager, computer analyst, environmental engineer, marketing manager, grain merchandiser, accountant, agricultural chemist and water engineer were perceived to have some employment opportunities for entry-level employment with mean responses ranging from 2.76 to 3.37.

Business manager, however, was perceived by agribusinessmen to have only a few opportunities for entry-level employment with a mean response of 2.10.

Those agricultural careers related to management, except business manager, were perceived by agribusinessmen to have some employment opportunities. Technical or scientific careers were perceived to have some opportunities. However, agricultural careers involving computers and working with numbers tended to have some or many entry-level employment opportunities with mean responses of 3.27, 3.37 and 3.58.

Entry-Level Educational Requirements

Table IV summarizes agribusinessmen's responses to minimum entry-level educational requirements for the top ten agricultural careers selected.

Data in Table IV revealed that all of the agribusinessmen agreed that a high school diploma or more were required for minimum entry-level educational requirements for the top ten agricultural careers selected.

TABLE III
 AGRIBUSINESSMEN'S RESPONSES TO ENTRY-LEVEL EMPLOYMENT
 OPPORTUNITIES FOR THE TOP TEN AGRICULTURAL
 CAREERS SELECTED

Top 10 Careers	<u>Employment Opportunities</u>								<u>Mean Response</u>		Rank by Mean
	<u>None</u>		<u>Few</u>		<u>Some</u>		<u>Many</u>		N	M	
	n	%	n	%	n	%	n	%			
Professional manager	5	9.09	15	27.27	20	36.36	15	27.27	55	2.82	7
Computer analyst	0	0.00	8	15.69	16	31.37	27	52.94	51	3.37	2
Environmental engineer	0	0.00	15	34.09	17	38.64	12	27.27	44	2.93	5
Business manager	2	4.08	17	34.69	17	34.69	13	26.53	49	2.10	10
Marketing manager	1	2.44	12	29.27	14	34.15	14	34.15	41	3.00	4
Grain merchandiser	2	6.25	9	28.13	14	43.75	7	21.88	32	2.81	8
Accountant	1	1.92	5	13.70	25	48.08	21	40.38	52	3.27	3
Agricultural chemist	1	2.50	12	30.00	18	45.00	9	22.50	40	2.87	6
Water engineer	0	0.00	16	47.06	10	29.41	8	23.53	34	2.76	9
Computer operator	0	0.00	3	6.67	13	28.89	29	64.44	45	3.58	1

TABLE IV

AGRIBUSINESSMEN'S RESPONSES TO MINIMUM ENTRY-LEVEL EDUCATIONAL REQUIREMENTS FOR THE TOP TEN AGRICULTURAL CAREERS SELECTED

Top 10 Careers	Less Than H. S.		High School		Education Required H.S. and Vo-Tech		2-Year Tech Asso. Degree		Undergrad. Degree		Graduate Degree		N
	n	%	n	%	n	%	n	%	n	%	n	%	
Professional manager	0	0.00	1	1.82	3	5.45	3	5.45	31	56.36	17	30.91	55
Computer analyst	0	0.00	0	0.00	2	3.92	7	13.73	28	54.90	14	27.45	51
Environmental engineer	0	0.00	0	0.00	0	0.00	1	2.27	18	40.91	25	56.82	44
Business manager	0	0.00	1	2.04	2	4.08	5	10.20	35	71.43	6	12.24	49
Marketing manager	0	0.00	0	0.00	1	2.44	3	7.32	32	78.05	5	12.20	41
Grain merchandiser	0	0.00	0	0.00	2	6.25	9	28.13	17	53.13	4	12.50	32
Accountant	0	0.00	0	0.00	1	1.89	1	1.89	35	66.04	16	30.19	53
Agricultural chemist	0	0.00	0	0.00	0	0.00	0	0.00	15	38.46	24	61.54	39
Water engineer	0	0.00	0	0.00	1	2.94	1	2.94	15	44.12	17	50.00	34
Computer operator	0	0.00	4	8.70	6	13.04	25	54.35	6	13.04	5	10.87	46

For computer operator, the majority of the respondents selected the 2-year tech/associate degree category as the minimum entry-level educational requirement. The other nine agricultural careers selected required a minimum entry-level educational requirement of an undergraduate degree or higher with environmental engineer and agricultural chemist perceived to require a graduate degree.

However, management careers were selected heavily within the undergraduate degree category. Professional manager was strongly selected by 30.91 percent of the respondents within the graduate degree category, but was selected by 56.36 percent of the respondents in the undergraduate degree category. The scientific or technical careers were selected more frequently within the graduate degree category by the agribusinessmen than the other eight agricultural careers.

All of the top ten agricultural careers had some responses within the undergraduate and graduate degree categories for minimum entry-level educational requirements. However, the other four educational categories did not all have a response for all of the top ten agricultural careers selected.

Vocational Agriculture's Importance to Success in Careers Selected

Table V provides agribusinessmen's responses to the importance of secondary vocational agricultural education for success in the top ten agricultural careers selected.

Agribusinessmen's responses revealed a relatively even opinion of whether secondary vocational agricultural education is important or not important for success in the top ten agricultural careers.

There was a strong indication that secondary vocational agricultural education was important for the success of an agricultural chemist. However, there were strong indications that secondary vocational agricultural education was not important for the success of a computer analyst, an environmental engineer, an accountant or a computer

operator.

TABLE V
 AGRIBUSINESSMEN'S RESPONSES TO THE IMPORTANCE OF SECONDARY VOCATIONAL
 AGRICULTURAL EDUCATION FOR SUCCESS IN THE TOP TEN
 AGRICULTURAL CAREERS SELECTED

Top 10 Careers	Yes		No		Total
	n	%	n	%	N
Professional manager	27	56.25	21	43.75	48
Computer analyst	17	36.96	29	63.04	46
Environmental engineer	16	39.02	25	60.98	41
Business manager	24	52.17	22	47.83	46
Marketing manager	17	45.95	20	54.05	37
Grain merchandiser	15	53.57	13	46.43	28
Accountant	12	23.08	40	76.92	52
Agricultural chemist	25	67.57	12	32.43	37
Water engineer	15	45.45	18	54.55	33
Computer operator	15	35.71	27	64.29	42

Entry-Level Job Experience Requirements

Table VI summarizes agribusinessmen's responses to entry-level job experience requirements for the top ten agricultural careers selected. In referring to the mean response in Table VI, the following scale was used to assign the real limits for each response category.

<u>Range</u>	<u>Response</u>
3.5-4.0	Much Experience
2.5-3.49	Some Experience
1.5-2.49	Little Experience
.5-1.49	No Experience

Data in Table VI revealed that agribusinessmen perceived management careers of having some job experience for entry-level requirements with mean responses ranging from 3.13 to 3.40. However, management careers were strongly perceived to need much experience.

Agribusinessmen strongly perceived computer analyst, environmental engineer, grain merchandiser and accountant job experience requirements of having some experience, whereas, accountant had several responses within the little experience category.

The respondents perceived agricultural chemist and water engineer job experience requirements within the some experience category, and computer operator within the little experience category.

Likely Entry-Level Age

Table VII summarizes agribusinessmen's responses as to the likely age for entry into the top ten agricultural careers selected.

The likely age for entry-level employment into the management careers was perceived by agribusinessmen to be 26-35.

Computer operator was strongly perceived by agribusinessmen to have a likely entry-level age 22-25. This was the only career to have a large frequency within the 18-21 category with 36.96 percent.

The other agricultural careers selected by agribusinessmen were perceived to have a likely entry-level age of 22-25.

TABLE VI
 AGRIBUSINESSMEN'S RESPONSES TO ENTRY-LEVEL JOB EXPERIENCE
 REQUIREMENTS FOR THE TOP TEN AGRICULTURAL
 CAREERS SELECTED

Top 10 Careers	<u>Job Experience</u>								<u>Mean Response</u>		Rank by Mean
	<u>No Experience</u>		<u>Little Experience</u>		<u>Some Experience</u>		<u>Much Experience</u>		N	M	
	n	%	n	%	n	%	n	%			
Professional manager	0	0.00	3	5.56	28	51.85	23	42.59	54	3.40	1
Computer analyst	7	14.00	8	16.00	26	52.00	9	18.00	50	2.74	5
Environmental engineer	6	13.64	11	25.00	18	40.91	9	20.45	44	2.68	8
Business manager	2	4.26	8	17.02	19	40.43	18	38.30	47	3.13	3
Marketing manager	2	5.00	4	10.00	20	50.00	14	35.00	40	3.15	2
Grain merchandiser	0	0.00	5	16.13	22	70.97	4	12.90	31	2.97	4
Accountant	7	13.21	13	24.53	22	41.51	11	20.75	53	2.70	7
Agricultural chemist	4	10.00	12	30.00	15	37.50	9	22.50	40	2.72	6
Water engineer	4	16.67	12	34.29	14	40.00	5	14.29	35	2.57	9
Computer operator	8	17.39	20	43.48	14	30.43	4	8.70	46	2.30	10

TABLE VII

AGRIBUSINESSMEN'S RESPONSES AS TO THE LIKELY AGE FOR ENTRY
INTO THE TOP TEN AGRICULTURAL CAREERS SELECTED

Top 10 Careers	Age At Entry												N
	18-21		22-25		26-35		36-45		46 +		Any Age		
	n	%	n	%	n	%	n	%	n	%	n	%	
Professional manager	3	5.45	9	16.36	30	54.55	10	18.18	1	1.82	2	3.64	55
Computer analyst	3	5.88	32	62.75	12	23.53	0	0.00	0	0.00	4	7.84	51
Environmental engineer	1	2.27	28	63.64	13	29.55	0	0.00	1	2.27	1	2.27	44
Business manager	3	6.12	16	32.65	22	44.90	4	8.16	2	4.08	2	4.08	49
Marketing manager	3	7.14	17	40.48	19	45.24	1	2.38	1	2.38	1	2.38	42
Grain merchandiser	1	3.13	18	56.25	10	31.25	1	3.13	0	0.00	2	6.25	32
Accountant	4	7.69	32	61.54	12	23.08	2	3.85	0	0.00	2	3.85	50
Agricultural chemist	1	2.50	23	57.50	14	35.00	1	2.50	0	0.00	1	2.50	40
Water engineer	4	11.11	22	61.11	8	22.22	1	2.78	0	0.00	1	2.78	36
Computer operator	17	36.96	23	50.00	3	6.52	1	2.17	0	0.00	2	1.90	46

Entry-Level Salary Range

Table VIII summarizes agribusinessmen's responses to entry-level salary range for the top ten agricultural careers selected.

Agribusinessmen perceived professional manager to have the largest entry-level salary range of the top ten agricultural careers selected, having a relatively even response of 38.46 percent within the \$25,001-\$35,000 and 36.54 percent within the \$35,001 plus categories.

Environmental engineer, business manager, marketing manager and agricultural chemist were perceived by agribusinessmen to have an entry-level salary range of \$25,001-\$35,000.

Computer analyst, grain merchandiser, accountant and water engineer were perceived to have an entry-level salary ranges of \$20,001-\$25,000. Computer operator, however, had the lowest perceived entry-salary range of \$15,001-\$20,000.

Selected Characteristics of the Respondents

Data from Table IX, Part A, summarizes the number of agribusiness types represented in the selection of each of the top ten prospective agricultural career opportunities at any one position of first through the tenth.

The larger responses to the agricultural career selections were from the finance (61), sales and service (76), food and fiber (90), transportation (67), merchandising (78) and marketing (195) agribusiness types.

Data from Part B summarizes the annual gross income of the agribusinesses represented in the selection of each of the top ten prospective agricultural career opportunities at any one position of first through the tenth.

The largest number of responses was in the \$500,001 or more category with a

TABLE VIII

AGRIBUSINESSMEN'S RESPONSES TO ENTRY-LEVEL SALARY RANGE
FOR THE TOP TEN AGRICULTURAL CAREERS SELECTED

Top 10 Careers	Salary Range												N
	Less		\$10,000		\$15,001		\$20,001		\$25,001		\$35,001		
	<u>\$10,000</u>		<u>\$15,000</u>		<u>\$20,000</u>		<u>\$25,000</u>		<u>\$35,000</u>		<u>plus</u>		
	n	%	n	%	n	%	n	%	n	%	n	%	
Professional manager	0	0.00	1	1.92	6	11.54	6	11.54	20	38.46	19	36.54	52
Computer analyst	0	0.00	1	1.96	9	17.65	18	35.29	16	31.37	7	13.73	51
Environmental engineer	0	0.00	0	0.00	10	22.73	12	27.27	13	29.55	9	20.45	44
Business manager	0	0.00	2	4.17	11	22.92	9	18.75	16	33.33	10	20.83	48
Marketing manager	1	2.38	0	0.00	5	11.90	11	26.19	21	50.00	4	9.52	42
Grain merchandiser	0	0.00	3	10.00	7	23.33	12	40.00	5	16.67	3	10.00	30
Accountant	0	0.00	3	6.00	10	20.00	21	42.00	10	20.00	6	12.00	50
Agricultural chemist	0	0.00	0	0.00	6	15.38	12	30.77	13	33.33	8	20.51	39
Water engineer	1	2.78	1	2.78	9	25.00	14	38.89	8	22.22	3	8.33	36
Computer operator	1	2.27	11	25.00	23	52.27	8	18.18	1	2.27	0	0.00	44

total number of 242. There were 48 total responses of any one agricultural career selected in the \$50,000 or less category, 30 total responses in the \$100,001 to \$200,000 category, 23 total responses in the \$50,001 to \$100,000 category, and 21 total responses in the \$400,001 to \$500,000 category.

The greatest total number of responses to any one agricultural career of first through the tenth was from the marketing type of agribusiness and \$500,001 or more annual gross income.

A casual observation of the surveys revealed that farmers' cooperatives returned a greater number of the surveys than any other kind of agribusiness surveyed.

TABLE IX

NUMBER OF RESPONSES AS TO THE SELECTION OF EACH OF THE TOP TEN PROSPECTIVE AGRICULTURAL CAREER OPPORTUNITIES ACCORDING TO THE AGRIBUSINESSES' TYPES AND ANNUAL GROSS INCOMES

TOP 10 CAREERS SELECTED

		Professional Manager	Computer Analyst	Environmental Engineer	Business Manager	Marketing Manager	Grain Merchandising	Accountant	Agricultural Chemist	Water Engineer	Computer Operator	N
TYPE OF BUSINESS PART A	Manufacturing	1	1	2	0	2	1	0	0	0	1	8
	Finance	8	6	5	10	9	3	7	5	5	3	61
	Sales and Service	7	7	12	10	6	3	12	4	8	7	76
	Food and Fiber	14	9	9	5	7	7	16	10	5	8	90
	Transportation	13	7	2	9	9	3	12	4	5	3	67
	Processing	4	1	1	1	3	4	3	0	1	1	19
	Merchandising	11	12	4	3	9	8	11	4	6	10	78
	Marketing	26	23	24	14	17	18	21	23	16	23	195
	Communication	2	2	1	3	1	1	2	2	1	4	19
	Other	1	1	1	0	0	0	0	0	0	0	3
ANNUAL GROSS INCOME PART B	\$50,000 or less	3	5	9	4	2	0	4	6	6	9	48
	\$50,001 to \$100,000	3	3	1	3	2	2	4	1	3	1	23
	\$100,001 to \$200,000	2	3	6	4	4	0	2	3	4	2	30
	\$200,001 to \$300,000	0	2	2	2	0	0	2	3	1	1	13
	\$300,001 to \$400,000	0	1	1	2	2	3	2	3	1	2	17
	\$400,001 to \$500,000	2	3	1	1	1	1	4	2	2	4	21
	\$500,001 or more	39	25	18	27	24	22	30	19	16	22	242

The types of their agribusinesses were reflected in marketing, merchandising, food and fiber, and sales and service by observation of the surveys by this investigator. Also, annual gross incomes of the cooperatives were reflected in the \$500,001 or more category.

Cluster Analysis of the Top Forty

Based on the review of literature, the following clusters are represented by the top forty agricultural careers selected:

1. Scientists, engineers and related specialists,
2. Managers and financial specialists,
3. Marketing, merchandising and sale representatives,
4. Education, communication and information specialists,
5. Social services professionals,
6. Agricultural production specialists.

Figure 1 illustrates the clusters and distribution of employment opportunities for graduates through 1990 (5, p.4). The pie chart, illustrated in Figure 2, gives the percentage of each cluster represented by the top forty agricultural careers selected by the agribusinessmen.

Appendix B displays summaries of the frequencies, percentages and mean responses, from each question that applies, of the top forty agricultural careers selected.

The clustering of the top forty agricultural careers was determined by previous research discussed in Chapter II (5). Lists of agricultural careers were noted under each cluster in that study.

To establish the lists of agricultural careers in the USDA research, the USDA study utilized employment data gathered from the Department of Labor, Bureau of

Labor Statistics, Division of Occupational Outlook, and 1982 Industry/Occupation Matrix which was based on a survey of all U.S. business establishments (5, p.19).

This investigator's study gathered data by surveying Oklahoma agribusinessmen as to their perceptions toward prospective agricultural career opportunities. This research was not based on employment data, but rather on current agricultural industry perceptions of employment opportunities.

When comparing Figure 1 (the distribution of employment opportunities for graduates through 1990 referred to in Chapter II) and Figure 2, the pie charts have somewhat different results as to total percentages of career opportunities within each cluster. The scientific and technical opportunities represent a larger percentage of the total pie in this study than the USDA study, 47.5% versus 29%. The management and financial opportunities were similar between the two studies, 17.5% versus 14%. However, there is a substantial difference within the marketing, merchandising and sales opportunities, 12.5% versus 32%.

The educational and communications opportunities represent a greater need to the agribusinessmen surveyed in this study than the data bases indicated in the USDA study. The USDA study revealed that only 6% of the employment opportunities would come from this cluster; however, Oklahoma agribusinessmen indicated that twice as many (12.5%) employment opportunities within this cluster would exist in the next ten years.

Social services career opportunities will greatly decrease within the next few years according to the agribusinessmen who responded to this study. They indicated that 5% of the employment opportunities will be within the social services area versus 11% in the USDA study.

Agricultural production represented a decrease in employment opportunities as compared to the USDA study. Oklahoma agribusinessmen said that only 5% of the employment opportunities will come from the agricultural production area, whereas

the USDA study indicated that 8% of the employment opportunities will be related to agricultural production.

Appendix Summaries

The summaries in Appendix B indicate the agribusinessmen's perceptions of what will be the forty "best" agricultural career opportunities within the next decade. As indicated in the top forty agricultural career summary, several of the careers were selected by a large percentage of the respondents to be good opportunities. Most of the entry-level employment opportunities are within the same category. Those that are within the few and many categories had relatively equal responses.

Agribusinessmen indicated that the minimum entry-level educational requirement for the top forty agricultural careers would be within the undergraduate degree category. However, the minimum entry-level requirement for computer operator was perceived to be within the 2-year tech/associate degree category, and four careers were perceived to be within the high school category.

Agribusinessmen perceived 28 of the top forty agricultural careers selected to require some entry-level job experience. Ten of the top forty selected were perceived to require little experience. One career had equal responses within the little and some categories.

As to the likely age of entry into the top forty agricultural careers selected, agribusinessmen perceived that 28 careers would be within the 22-25 category, while 8 would be within the 26-35 category. Two careers were perceived to be within the 18-21 category and 2 careers had equal responses within the 22-25 and 26-35 categories.

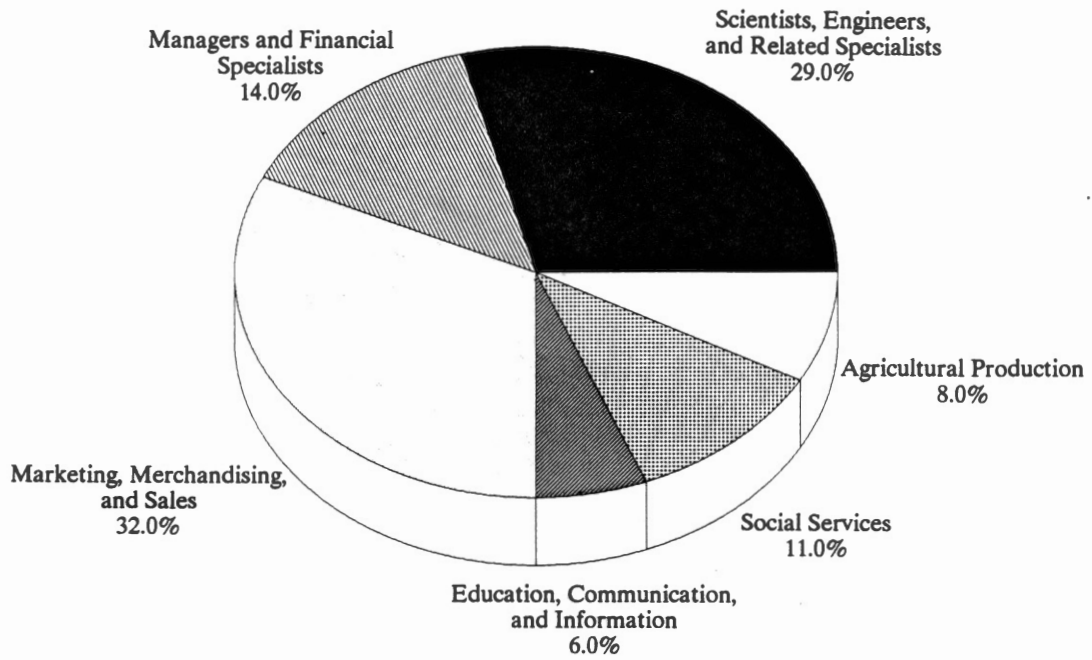


Figure 1. Distribution of employment opportunities for graduates through 1990.

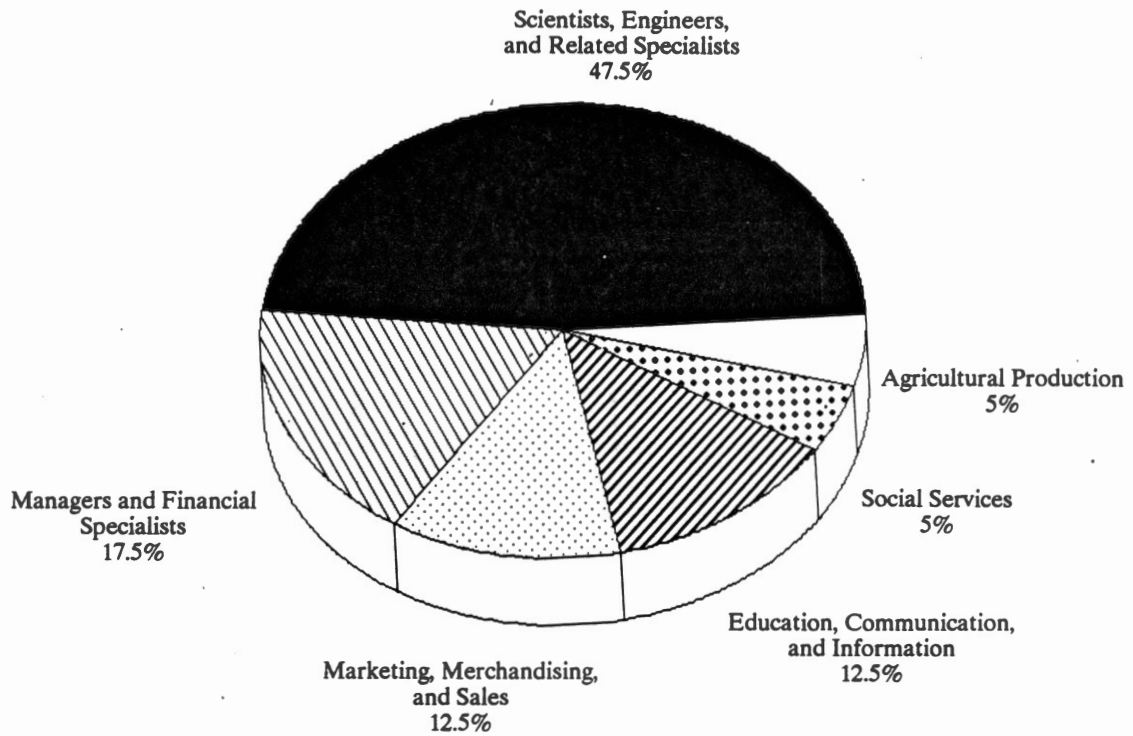


Figure 2. Distribution of cluster percentages of agricultural careers selected by agribusinessmen.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter is to summarize the study procedures and findings related to the purpose and objectives. Also presented are conclusions and recommendations which are based upon the analysis of data collected and observations made by the author in the conduct of this study.

Summary of the Study

Purpose

The purpose of this study was to determine what prospective agricultural career opportunities will become important. A further purpose of this study was to determine the experience and education required, as well as the likely age for entry-level employment into the agricultural careers selected.

Objectives

The following objectives were set forth to accomplish the primary purpose of the study:

1. Select and rank the 10 "best" agricultural career opportunities in the next decade.

2. Determine the entry-level employment opportunities for the top ten agricultural careers selected.
3. Determine the minimum entry-level educational requirements for the top ten agricultural careers selected.
4. Determine the importance of secondary vocational agricultural education for success in the top ten agricultural careers selected.
5. Determine the entry-level job experience requirements for the top ten agricultural careers selected.
6. Determine the likely age at entry into the top ten agricultural careers selected.
7. Determine the entry-level salary range for the top ten agricultural careers selected.

Rationale

Because of the change in Oklahoma's economy, job opportunities are less available within the established or traditional career roles in agriculture. There is a need to gather information about the best prospective agricultural careers in the next decade. To accomplish this task, data concerning these agricultural careers and the requirements needed for entry-level was obtained. It was hoped that information gained would be valuable for the agricultural work force.

Procedures

Following a review of literature and research pertaining to the study, the following tasks were involved in the collection and analysis of data to satisfy the purpose and objectives of the study:

1. Determine the study population,
2. Develop the instrument for data collection,
3. Collect the data, and
4. Analyze the findings.

Mailed questionnaires were utilized to collect data for the study. The first 1510 questionnaires were sent to Oklahoma agribusinessmen in late spring; only 54 were returned. Fifty agribusinessmen were selected randomly to telephone and inquire as to why surveys were not being returned. Results indicated that the time of the year was inappropriate because of busy schedules. Also, some were having problems answering the survey because of a different format than is normally used.

In the fall of that year, surveys were sent again to those who had not returned the previous mailing. There were 124 returned which brought the total to 178. This represented 12 percent of the total population.

Findings

The major focus of the research was to assess agribusinessmen's perceptions of the 10 "best" agricultural career opportunities in the next decade. The research findings, in summary form, are presented for each of the seven questions.

Table X was developed to provide a concise summary of agribusinessmen's responses to entry-level employment opportunities, minimum entry-level educational requirements and the importance of vocational agricultural education to the success of the top ten agricultural careers selected.

In summarizing Table X, each career is ranked, by the selection process established in Chapter III, according to the agribusinessmen's responses.

The agribusinessmen perceived there will be some entry-level employment opportunities for eight of the top ten agricultural careers selected. However, the

agribusinessmen perceived few opportunities for business management and many opportunities for a computer operator.

The minimum entry-level educational requirements perceived by the agribusinessmen indicated that an environmental engineer and an agricultural chemist would require a graduate degree. A computer operator would require a 2-year tech/associate degree, and the other seven agricultural careers selected would require an undergraduate degree.

As to the importance of secondary vocational agricultural education to job success, agribusinessmen perceived that four of the top ten agricultural careers would be enhanced by vocational agricultural education, whereas six would not be.

Table XI was developed to provide a concise summary of agribusinessmen's responses to entry-level job experience required, age most likely needed at entry-level and salary range requirements for the top ten agricultural careers selected.

Agribusinessmen perceived the minimum job experience requirements for entry into the agricultural careers selected some. However, agribusinessmen perceived that a career as a computer operator would require little experience for entry-level.

Likely age at entry into the top ten agricultural careers was perceived by agribusinessmen to be 22-25 for seven of the top ten agricultural careers selected. Those with a likely entry-level age range of 26-35 were perceived to be those careers within the management area.

Those agricultural careers selected by agribusinessmen within the management and technical and scientific areas were perceived to have a salary range of \$25,001-\$35,000. Agricultural careers within the analytical, merchandising and accounting areas were perceived to have a salary range of \$20,001-\$25,000 for entry into the career. Computer operator was perceived to be the smallest entry-level salary range of \$15,001-\$20,000.

TABLE X

SUMMARY OF AGRIBUSINESSMEN'S RESPONSES TO ENTRY-LEVEL EMPLOYMENT OPPORTUNITIES, MINIMUM ENTRY-LEVEL EDUCATIONAL REQUIREMENTS AND NUMBER OF RESPONSES TO IMPORTANCE OF SECONDARY VOCATIONAL AGRICULTURAL EDUCATION TO CAREER SUCCESS

Top 10 Careers	Rank According To Points	Employment Opportunitites			Minimum Educational Requirements According To Majority			Vocational Agricultural Education Required	
		Mean Level of Competence	Category	Rank By Mean	n	Category	%	n	%
Professional manager	1	2.82	some	7	31	undergraduate	56.36	27	56.25
Computer analyst	2	3.37	some	2	28	undergraduate	54.90	29	36.96
Environmental engineer	3	2.93	some	5	25	graduate	56.82	25	39.02
Business manager	4	2.10	few	10	35	undergraduate	71.43	24	52.17
Marketing manager	5	3.00	some	4	31	undergraduate	78.05	17	45.95
Grain merchandiser	6	2.81	some	8	17	undergraduate	53.13	15	53.57
Accountant	7	3.27	some	3	35	undergraduate	66.04	12	23.08
Agricultural chemist	8	2.87	some	6	24	graduate	61.54	25	67.57
Water engineer	9	2.76	some	9	15	undergraduate	44.12	15	45.45
Computer operator	10	3.58	many	1	25	2-year/assoc.	54.35	15	35.71

TABLE XI

SUMMARY OF AGRIBUSINESSMEN'S RESPONSES TO ENTRY-LEVEL JOB EXPERIENCE,
AGE AND SALARY RANGE FOR THE TOP TEN
AGRICULTURAL CAREERS SELECTED

Top 10 Careers	Job Experience				Age At Entry			Salary Range		
	Rank By Points	Mean Level of Competence	Category	Rank By Mean	n	Category	%	n	Category	%
Professional manager	1	3.40	some	1	30	26-35	54.55	20	\$25,001-\$35,000	38.46
Computer analyst	2	2.74	some	5	32	22-25	62.75	18	\$20,001-\$25,000	35.29
Environmental engineer	3	2.68	some	8	28	22-25	63.64	13	\$25,001-\$35,000	29.55
Business manager	4	3.13	some	3	22	26-35	44.90	16	\$25,001-\$35,000	33.33
Marketing manager	5	3.15	some	2	19	26-35	45.24	21	\$25,001-\$35,000	50.00
Grain merchandiser	6	2.97	some	4	18	22-25	56.25	12	\$20,001-\$25,000	40.00
Accountant	7	2.70	some	7	32	22-25	61.54	21	\$20,001-\$25,000	42.00
Agricultural chemist	8	2.72	some	6	23	22-25	57.50	13	\$25,001-\$35,000	33.33
Water engineer	9	2.57	some	9	22	22-25	61.11	14	\$20,001-\$25,000	38.89
Computer operator	10	2.30	little	10	23	22-25	50.00	23	\$15,001-\$20,000	52.27

Overall Summary

The top ten agricultural careers that were selected by the agribusinessmen are representative of four of the six career clusters which were previously established in Chapter II. They include managers and financial specialists; scientists, engineers, and related specialists; marketing, merchandising and sales; and education, communication and information specialists.

Most of the top ten agricultural careers selected will have some opportunity for entry into the career, and will mostly require an undergraduate degree to fulfill the entry-level educational requirements as perceived by the respondents.

Entry-level job experience requirements as perceived by the respondents are within the same category for all but one of the top ten agricultural careers selected. The most likely age for entry into the majority of the top ten agricultural careers selected is 22 to 25 years of age with salary ranges of \$20,001 to \$35,000.

Conclusions

Interpretation of the findings of the study prompted the formulation of the following conclusions:

1. Prospective agricultural career opportunities as perceived by agribusinessmen in the next decade include a substantial increase in scientists, engineers and related specialists; education, communication and information; and a significant increase for managers and financial specialists.

2. Employment opportunities in agricultural careers will be many in the computer areas. Some of the careers in management, engineering, environmental, marketing, accounting and merchandising areas will have some opportunities, while business management will have few.

3. Achievement in career placement as perceived by Oklahoma agribusinessmen will require advanced degrees which indicates that education is of great importance to the agribusiness industry.

4. Agribusinessmen perceived secondary vocational agricultural education as of some importance. However, opinions of agribusinessmen indicated very little significance as to its value to the success of the agricultural careers that were selected.

5. Some experience for entry-level into the selected agricultural careers is needed as perceived by Oklahoma agribusinessmen. Careers in computers will require less experience.

6. Likely entry-level age into the selected agricultural careers (22-25) is representative of normal college graduate age. Management careers will likely have older entry-level ages of 26-35.

7. Salary ranges were generally perceived to be within \$20,001-\$25,000. Management and technical and scientific careers, which were perceived to require advanced educational degrees, were perceived to have salary ranges of \$25,001-\$35,000. Computer careers, which were perceived to have many opportunities with lower educational requirements for entry-level, will have a lower entry-level salary range of \$15,001-\$20,000.

Recommendations

As a result of analysis of the data and major findings of the research, it is recommended:

1. That career awareness programs be increased so that prospective employees will have a better understanding of future career opportunities and of the educational and experience requirements of those careers.

2. That careers within the six clusters established in this study be explored by

educators so that further planning of educational programs will ultimately achieve success for prospective employees.

3. That educational personnel who teach students toward an advanced degree become aware of the importance of education to the agribusiness industry. Career awareness programs must aggressively promote higher education as the important requirement to obtaining career success.

4. That department heads, faculty, staff and field or classroom personnel become more aware of agricultural education needs and the development of solutions which will enhance secondary vocational agricultural education by increasing curriculum in business management, computer usage, marketing and sales, environmental awareness and accounting.

5. That prospective employees be educated about the entry-level experience requirements for agricultural careers, and especially those opportunities that require little experience.

6. That prospective employees be made aware that entry-level ages of most agricultural careers are at 22 to 25 years of age, which is the normal college graduate age.

7. That career awareness programs emphasize that salary parameters increase according to educational levels acquired.

Recommendations for Additional Research

The following recommendations are made by the author in regard to additional research. The recommendations are judgments based on the findings and suggestions from the study. It is recommended that:

1. Research be conducted to determine specific needs for education in developing expertise in these top agricultural careers.

2. Research be conducted to determine the perceptions of agricultural educators as to the educational needs in the development of prospective employees for agricultural careers.

3. Research be conducted over a wider area than just Oklahoma in order that opinions of other agricultural areas could be expressed.

4. Research in international agricultural careers be conducted to provide information for expansion in agricultural careers.

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APPENDIX A

SAMPLE OF QUESTIONNAIRE



Dear Agricultural Friend,

Several weeks ago we sent you a questionnaire regarding agricultural career opportunities of the future. As of today, we have not yet received your completed questionnaire. We are sending you this replacement questionnaire because of the significance of each agribusiness in this study. Your response is very important in piecing together the overall picture.

Our purpose is to obtain important information needed to assess future agricultural career opportunities. Your ideas about these opportunities will benefit persons in agriculture who are displaced or under stress of the current economic situation throughout Oklahoma.

Please complete and return this questionnaire by September 11, 1988. In doing so, it is important that you (1) select no less than 10 career opportunities and (2) provide responses to all categories of information for each of your choices. The time needed to complete the questionnaire is minimized by the check (✓) response format.

Your help is very important and greatly appreciated. Thank you in advance for your participation.

Sincerely,

A handwritten signature in cursive script that reads "Tom Diel".

Tom Diel
Agricultural Information Services
Oklahoma State University

SECTION I

Directions: The purpose of this study is to determine agricultural career opportunities of the future as seen by people in agribusiness. The choices you make represent your opinions. Remember that there are no right or wrong answers. When completing the survey, please follow the seven-part procedure outlined below.

Part A. Agricultural Career Selection

Using the criteria of economic reward, stability, advancement, and professional growth, select and rank the 10 "best" agricultural career opportunities in the next decade. Please use the list of agricultural careers found in this survey to make your selections. Add any agricultural careers that you feel are important which are not found in the list. Write the agricultural careers you have selected in the spaces numbered 1-10 in column A. NOTE: The agricultural careers must be listed in column A in order to complete the remainder of the survey.

Part B. Entry-Level Employment Opportunities

What will be the opportunities for entry-level employment in the agricultural careers that you have listed? Check (✓) one response for each career.

Part C. Entry-Level Educational Requirement

What will be the minimum entry-level educational requirement in the agricultural careers that you have listed? Check (✓) one response for each career.

Part D. Vocational Agricultural Education

Will secondary vocational agricultural education be important to success in the agricultural careers that you have listed? Check (✓) either YES or NO for each career.

Part E. Entry-Level Job Experience

What will be the entry-level job experience requirements for the agricultural career opportunities that you have listed? Check (✓) one response for each career.

Part F. Age at Entry

At what age will individuals be likely to enter the agricultural careers that you have listed? Check (✓) one response for each career.

Part G. Entry-Level Salary Range

What will be the annual salary range (estimated) of individuals entering the agricultural careers that you have listed? Check (✓) one response for each career.

SECTION II

Directions: Please provide the requested background information regarding your agribusiness.

1. Which of the following categories best describes your agribusiness?

- | | | |
|---|---|--|
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Finance | <input type="checkbox"/> Sales and Service |
| <input type="checkbox"/> Food and Fiber | <input type="checkbox"/> Transportation | <input type="checkbox"/> Processing |
| <input type="checkbox"/> Merchandising | <input type="checkbox"/> Marketing | <input type="checkbox"/> Communications |
| <input type="checkbox"/> Other _____(specify) | | |

2A. How many people are employed full-time in your agribusiness? _____

2B. How many people are employed part-time in your agribusiness? _____

3. What is the range of your annual agribusiness gross income?

- | | |
|--|--|
| <input type="checkbox"/> \$50,000 or less | <input type="checkbox"/> \$300,001 - \$400,000 |
| <input type="checkbox"/> \$50,001 - \$100,000 | <input type="checkbox"/> \$400,001 - \$500,000 |
| <input type="checkbox"/> \$100,001 - \$200,000 | <input type="checkbox"/> \$500,001 or more |
| <input type="checkbox"/> \$200,001 - \$300,000 | |

APPENDIX B

SUMMARY REFERENCES TO THE TOP FORTY

AGRICULTURAL CAREERS

SUMMARY:

THE TOP FORTY AGRICULTURAL CAREERS SELECTED AND RANKED
BY AGRIBUSINESSMEN ACCORDING TO COMPUTED POINTS.

TOP 40 CAREERS	RANK	N	POINTS
Professional manager	1	55	384
Computer analyst	2	51	369
Environmental engineer	3	44	317
Business manager	4	49	289
Marketing manager	5	42	277
Grain merchandiser	6	32	275
Accountant	7	53	272
Agricultural chemist	8	40	260
Water engineer	9	36	258
Computer operator	10	46	252
Agricultural engineer	11	32	248
Geneticist	12	40	244
Credit analyst	13	31	206
Veterinarian	14	36	200
Sales	15	40	192
Microbiologist	16	25	183
Soil conservationist	17	32	181
Lawyer	18	29	178
Plant scientist	19	25	174
Farmer	20	40	174
Horticulturist	21	35	172
Commodity broker	22	33	166
Agronomist	23	33	153
Market analyst	24	31	145
Finance	25	35	142
Biochemist	26	26	141
Information analyst	27	17	119
Technical service	28	16	118
Electrical engineer	29	17	116
Entomologist	30	22	110
Aquatic biologist	31	18	109
Soil scientist	32	25	106
Food engineer	33	13	104
Programmer	34	24	104
Animal scientist	35	19	97
Rancher	36	23	97
Nutritionist	37	24	96
Food & Drug inspector	38	16	95
Grain elevator worker	39	18	92
Communicator/international	40	12	90

SUMMARY:

AGRIBUSINESSMEN'S RESPONSES TO ENTRY-LEVEL EMPLOYMENT
OPPORTUNITIES FOR THE TOP FORTY AGRICULTURAL
CAREERS SELECTED

Top 40 Careers	<u>None</u>		<u>Few</u>		<u>Some</u>		<u>Many</u>		<u>Mean Response</u>		Rank By Mean
	n	%	n	%	n	%	n	%	N	M	
Professional manager	5	9.09	15	27.27	20	36.36	15	27.27	55	2.82	28
Computer analyst	0	0.00	8	15.69	16	31.37	27	52.94	51	3.37	3
Environmental engineer	0	0.00	15	34.09	17	38.64	12	27.27	44	2.93	21
Business manager	2	4.08	17	34.69	17	34.69	13	26.53	49	2.10	40
Marketing manager	1	2.44	12	29.27	14	34.15	14	34.15	41	3.00	14
Grain merchandiser	2	6.25	9	28.13	14	43.75	7	21.88	32	2.81	30
Accountant	1	1.92	5	13.70	25	48.08	21	40.38	52	3.27	6
Agricultural chemist	1	2.50	12	30.00	18	45.00	9	22.50	40	2.87	25
Water engineer	0	0.00	16	47.06	10	29.41	8	23.53	34	2.76	34
Computer operator	0	0.00	3	6.67	13	28.89	29	64.44	45	3.58	1
Agricultural engineer	0	0.00	10	32.26	13	41.94	8	25.81	31	2.90	22
Geneticist	1	2.50	17	42.50	16	40.00	6	15.00	40	2.65	38
Credit analyst	1	3.23	11	35.48	17	54.84	2	6.45	31	2.65	39
Veterinarian	0	0.00	9	26.47	17	50.00	8	23.53	34	2.97	20
Sales	0	0.00	3	7.50	14	35.00	23	57.50	40	3.50	2
Microbiologist	1	4.00	7	28.00	11	44.00	6	24.00	25	2.88	24
Soil conservationist	1	3.23	9	29.03	16	51.61	5	16.13	31	2.80	31
Lawyer	1	3.45	11	37.93	10	34.48	7	24.14	29	2.79	32
Plant scientist	0	0.00	8	32.00	9	36.00	8	32.00	25	3.00	15
Farmer	1	2.56	14	35.90	15	38.46	9	23.08	39	2.82	29

SUMMARY CONTINUED

Top 40 Careers	None		Few		Some		Many		Mean Response		Rank By Mean
	n	%	n	%	n	%	n	%	N	M	
Horticulturist	0	0.00	6	17.65	17	50.00	11	32.35	34	3.15	9
Commodity broker	1	3.13	7	21.88	15	46.88	9	28.13	32	3.00	16
Agronomist	0	0.00	5	15.15	23	69.70	5	15.15	33	3.00	17
Market analyst	0	0.00	8	25.81	15	48.39	8	25.81	31	3.00	18
Finance	0	0.00	6	17.65	18	52.94	10	29.41	34	3.12	10
Biochemist	1	3.85	8	30.77	11	42.31	6	23.08	26	2.85	26
Information analyst	0	0.00	4	23.53	7	41.18	6	35.29	17	3.12	11
Technical service	0	0.00	3	18.75	9	56.25	4	25.00	16	3.06	13
Electrical engineer	0	0.00	3	18.75	6	37.50	7	43.75	16	3.25	7
Entomologist	0	0.00	8	35.36	11	50.00	3	13.64	22	2.77	35
Aquatic biologist	0	0.00	5	27.78	10	55.56	3	16.67	18	2.89	23
Soil scientist	0	0.00	10	41.67	10	41.67	4	16.67	24	2.75	37
Food engineer	0	0.00	1	7.69	8	61.54	4	30.77	13	3.20	8
Programmer	0	0.00	3	12.50	11	45.83	10	41.67	24	3.29	4
Animal scientist	0	0.00	7	38.89	7	38.89	4	22.22	18	2.83	27
Rancher	0	0.00	10	45.45	7	31.82	5	22.73	22	2.77	36
Nutritionist	0	0.00	7	29.17	10	41.67	7	29.17	24	3.00	19
Food and Drug inspector	0	0.00	4	28.57	9	64.29	1	7.14	14	2.78	33
Grain elevator worker	0	0.00	1	5.56	11	61.11	6	33.33	18	3.28	5
Communicator/international	0	0.00	3	25.00	5	41.67	4	33.33	12	3.08	12

SUMMARY:

AGRIBUSINESSMEN'S RESPONSES TO MINIMUM ENTRY-LEVEL EDUCATIONAL
REQUIREMENT OF AGRICULTURAL CAREERS SELECTED

Top 40 Careers	Less Than H. S.		High School		H.S. and Vo-Tech		2-Year Tech Asso. Degree		Undergrad. Degree		Graduate Degree		N
	n	%	n	%	n	%	n	%	n	%	n	%	
Professional manager	0	0.00	1	1.82	3	5.45	3	5.45	31	56.36	17	30.91	55
Computer analyst	0	0.00	0	0.00	2	3.92	7	13.73	28	54.90	14	27.45	51
Environmental engineer	0	0.00	0	0.00	0	0.00	1	2.27	18	40.91	25	56.82	44
Business manager	0	0.00	1	2.04	2	4.08	5	10.20	35	71.43	6	12.24	49
Marketing manager	0	0.00	0	0.00	1	2.44	3	7.32	32	78.05	5	12.20	41
Grain merchandiser	0	0.00	0	0.00	2	6.25	9	28.13	17	53.13	4	12.50	32
Accountant	0	0.00	0	0.00	1	1.89	1	1.89	35	66.04	16	30.19	53
Agricultural chemist	0	0.00	0	0.00	0	0.00	0	0.00	15	38.46	24	61.54	39
Water engineer	0	0.00	0	0.00	1	2.94	1	2.94	15	44.12	17	50.00	34
Computer operator	0	0.00	4	8.70	6	13.04	25	54.35	6	13.04	5	10.87	46
Agricultural engineer	0	0.00	0	0.00	2	6.25	1	3.13	17	53.13	12	37.50	32
Geneticist	0	0.00	0	0.00	0	0.00	2	5.13	5	16.90	32	82.05	39
Credit analyst	0	0.00	0	0.00	3	9.68	6	19.35	17	54.84	5	16.13	31
Veterinarian	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	34	100.00	34
Sales	1	2.56	13	33.33	4	10.26	7	17.95	12	30.77	2	5.13	39
Microbiologist	0	0.00	0	0.00	0	0.00	1	4.00	10	40.00	14	56.00	25
Soil conservationist	0	0.00	0	0.00	1	3.23	6	19.35	16	51.61	8	25.81	31
Lawyer	0	0.00	0	0.00	0	0.00	0	0.00	2	6.90	27	93.10	29
Plant scientist	0	0.00	0	0.00	1	4.00	0	0.00	4	16.00	20	80.00	25

SUMMARY CONTINUED

Top 40 Careers	Less Than H. S.		High School		H.S. and Vo-Tech		2-Year Tech Asso. Degree		Undergrad. Degree		Graduate Degree		N
	n	%	n	%	n	%	n	%	n	%	n	%	
Farmer	1	15.00	9	22.50	7	17.50	4	10.00	11	27.50	3	7.50	40
Horticulturist	0	0.00	0	0.00	2	5.71	7	20.00	20	57.14	6	17.14	35
Commodity broker	0	0.00	1	3.03	2	6.06	3	9.09	22	66.67	5	15.15	33
Agronomist	0	0.00	0	0.00	0	0.00	2	6.06	15	45.45	16	48.48	33
Market analyst	0	0.00	0	0.00	0	0.00	1	3.23	17	54.84	13	41.94	31
Finance	0	0.00	1	2.86	0	0.00	1	2.86	22	62.86	11	31.43	35
Biochemist	0	0.00	0	0.00	0	0.00	1	3.85	8	30.77	17	65.38	26
Information analyst	0	0.00	0	0.00	1	5.88	0	0.00	10	58.82	6	35.29	17
Technical service	0	0.00	0	0.00	2	12.50	4	25.00	9	56.25	1	6.25	16
Electrical engineer	0	0.00	0	0.00	1	5.88	2	11.76	7	41.18	7	41.18	17
Entomologist	0	0.00	0	0.00	1	4.55	0	0.00	6	27.27	15	68.18	22
Aquatic biologist	0	0.00	0	0.00	0	0.00	1	5.56	8	44.44	9	50.00	18
Soil scientist	0	0.00	0	0.00	1	4.17	0	0.00	10	41.67	13	54.17	24
Food engineer	0	0.00	0	0.00	0	0.00	0	0.00	6	46.15	7	53.85	13
Programmer	0	0.00	0	0.00	1	4.17	6	25.00	12	50.00	5	20.83	24
Animal scientist	0	0.00	0	0.00	0	0.00	1	5.26	6	31.58	12	63.16	19
Rancher	3	13.64	6	27.27	3	13.64	2	9.09	7	31.82	1	4.55	22
Nutritionist	0	0.00	0	0.00	1	4.17	1	4.17	7	29.17	15	62.50	24
Food and Drug inspector	1	6.25	2	12.50	1	6.25	0	0.00	5	31.25	7	43.75	16
Grain elevator worker	2	11.11	12	66.67	3	16.67	1	5.56	0	0.00	0	0.00	18
Communicator/international	0	0.00	0	0.00	0	0.00	0	0.00	6	50.00	6	50.00	12

SUMMARY:

**AGRIBUSINESSMEN'S RESPONSES TO THE IMPORTANCE OF SECONDARY VOCATIONAL
AGRICULTURAL EDUCATION FOR SUCCESS IN THE
SELECTED AGRICULTURAL CAREERS**

	<u>Yes</u>		<u>No</u>		<u>Total</u>
	n	%	n	%	N
Top 40 Careers					
Professional manager	27	56.25	21	43.75	48
Computer analyst	17	36.96	29	63.04	46
Environmental engineer	16	39.02	25	60.98	41
Business manager	24	52.17	22	47.83	46
Marketing manager	17	45.95	20	54.05	37
Grain merchandiser	15	53.57	13	46.43	28
Accountant	12	23.08	40	76.92	52
Agricultural chemist	25	67.57	12	32.43	37
Water engineer	15	45.45	18	54.55	33
Computer operator	15	35.71	27	64.29	42
Agricultural engineer	23	79.31	6	20.69	29
Geneticist	21	56.76	16	43.24	37
Credit analyst	10	38.46	16	61.54	26
Veterinarian	21	63.64	12	36.36	33
Sales	19	51.35	18	48.65	37
Microbiologist	12	50.00	12	50.00	24
Soil conservationist	19	65.52	10	34.48	29
Lawyer	6	22.22	21	77.78	27
Plant scientist	14	70.00	6	30.00	20
Farmer	31	86.11	5	13.89	36
Horticulturist	24	85.71	4	14.29	28
Commodity broker	16	53.33	14	46.67	30
Agronomist	21	72.41	8	27.59	29
Market analyst	13	44.83	16	55.17	29
Finance	12	41.38	17	58.62	29
Biochemist	9	42.86	12	57.14	21
Information analyst	5	35.71	9	64.29	14
Technical service	9	69.23	4	30.77	13
Electrical engineer	5	29.41	12	70.59	17
Entomologist	13	72.22	5	27.78	18
Aquatic biologist	6	35.29	11	64.71	17
Soil scientist	15	62.50	9	37.50	24
Food engineer	5	41.67	7	58.33	12
Programmer	7	31.82	15	68.18	22
Animal scientist	13	72.22	5	27.78	18
Rancher	15	78.95	4	21.05	19
Nutritionist	11	50.00	11	50.00	22
Food and Drug inspector	8	61.54	5	38.46	13
Grain elevator worker	12	75.00	4	25.00	16
Communicator/international	7	63.64	4	36.36	11

SUMMARY:

AGRIBUSINESSMEN RESPONSES TO ENTRY-LEVEL JOB EXPERIENCE
REQUIREMENTS FOR THE TOP FORTY AGRICULTURAL
CAREERS SELECTED

Top 40 Careers	No		Little		Some		Much		Mean		Rank By Mean
	<u>Experience</u>		<u>Experience</u>		<u>Experience</u>		<u>Experience</u>		<u>Response</u>		
	n	%	n	%	n	%	n	%	N	M	
Professional manager	0	0.00	3	5.56	28	51.85	23	42.59	54	3.40	1
Computer analyst	7	14.00	8	16.00	26	52.00	9	18.00	50	2.74	18
Environmental engineer	6	13.64	11	25.00	18	40.91	9	20.45	44	2.68	22
Business manager	2	4.26	8	17.02	19	40.43	18	38.30	47	3.13	4
Marketing manager	2	5.00	4	10.00	20	50.00	14	35.00	40	3.15	3
Grain merchandiser	0	0.00	5	16.13	22	70.97	4	12.90	31	2.97	7
Accountant	7	13.21	13	24.53	22	41.51	11	20.75	53	2.70	21
Agricultural chemist	4	10.00	12	30.00	15	37.50	9	22.50	40	2.72	19
Water engineer	4	16.67	12	34.29	14	40.00	5	14.29	35	2.57	26
Computer engineer	8	17.39	20	43.48	14	30.43	4	8.70	46	2.30	38
Agricultural engineer	3	10.00	12	40.00	11	36.67	4	13.33	30	2.53	27
Geneticist	7	17.95	8	20.51	13	33.33	11	28.21	39	2.72	20
Credit analyst	3	10.34	6	20.69	14	48.28	6	20.69	29	2.79	16
Veterinarian	2	8.33	7	19.44	14	38.89	13	36.11	36	3.05	5
Sales	4	10.00	18	45.00	16	40.00	2	5.00	40	2.40	35
Microbiologist	5	20.00	8	32.00	7	28.00	5	20.00	25	2.48	28
Soil conservationist	5	15.63	7	21.88	16	50.00	4	12.50	32	2.59	25
Lawyer	8	27.59	10	34.48	5	17.24	6	20.69	29	2.31	37
Plant scientist	4	16.67	8	33.33	9	37.50	3	12.50	24	2.46	29

SUMMARY CONTINUED

Top 40 Careers	No		Little		Some		Much		Mean		Rank By Mean
	<u>Experience</u>		<u>Experience</u>		<u>Experience</u>		<u>Experience</u>		<u>Response</u>		
	n	%	n	%	n	%	n	%	N	M	
Farmer	4	10.26	6	15.38	22	56.41	7	17.95	39	2.82	13
Horticulturist	2	5.71	9	25.71	18	51.43	6	17.14	35	2.80	14
Commodity broker	2	6.06	8	24.24	13	39.39	10	30.30	33	2.94	8
Agronomist	1	3.33	7	23.33	18	60.00	4	13.33	30	2.83	12
Market analyst	2	6.67	4	13.33	19	63.33	5	16.67	30	2.90	10
Finance	1	2.86	10	28.57	15	42.86	9	25.71	35	2.91	9
Biochemist	5	19.23	10	38.46	6	23.08	5	19.23	26	2.42	33
Information analyst	2	13.33	3	20.00	8	53.33	2	13.33	15	2.66	23
Technical service	1	6.67	5	33.33	5	33.33	4	26.67	15	2.80	15
Electrical engineer	4	23.53	7	41.18	3	17.65	3	17.65	17	2.29	39
Entomologist	2	9.09	9	40.91	11	50.00	0	0.00	22	2.41	34
Aquatic biologist	3	17.65	3	17.65	8	47.06	3	17.65	17	2.65	24
Soil scientist	3	12.00	4	16.00	12	48.00	6	24.00	25	2.84	11
Food engineer	0	0.00	8	61.54	4	30.77	1	7.69	13	2.46	30
Programmer	3	13.04	10	43.48	9	39.13	1	4.35	23	2.35	36
Animal scientist	1	5.26	6	31.58	8	42.11	4	21.05	19	2.79	17
Rancher	2	8.70	2	8.70	13	56.52	6	26.09	23	3.00	6
Nutritionist	2	8.33	11	45.83	9	37.50	2	8.33	24	2.46	31
Food and Drug inspector	4	24.00	4	25.00	5	31.25	3	18.75	16	2.44	32
Grain elevator worker	9	50.00	6	33.33	3	16.67	0	0.00	18	1.66	40
Communicator/international	0	0.00	0	0.00	8	66.67	4	33.33	12	3.33	2

SUMMARY:

AGRIBUSINESSMEN'S RESPONSES AS TO THE LIKELY AGE FOR ENTRY
INTO THE TOP FORTY AGRICULTURAL CAREERS SELECTED

Top 40 Careers	18-21		22-25		26-35		36-45		46 +		Any Age		N
	n	%	n	%	n	%	n	%	n	%	n	%	
Professional manager	3	5.45	9	16.36	30	54.55	10	18.18	1	1.82	2	3.64	55
Computer analyst	3	5.88	32	62.75	12	23.53	0	0.00	0	0.00	4	7.84	51
Environmental engineer	1	2.27	28	63.64	13	29.55	0	0.00	1	2.27	1	2.27	44
Business manager	3	6.12	16	32.65	22	44.90	4	8.16	2	4.08	2	4.08	49
Marketing manager	3	7.14	17	40.48	19	45.24	1	2.38	1	2.38	1	2.38	42
Grain merchandiser	1	3.13	18	56.25	10	31.25	1	3.13	0	0.00	2	6.25	32
Accountant	4	7.69	32	61.54	12	23.08	2	3.85	0	0.00	2	3.85	52
Agricultural chemist	1	2.50	23	57.50	14	35.00	1	2.50	0	0.00	1	2.50	40
Water engineer	4	11.11	22	61.11	8	22.22	1	2.78	0	0.00	1	2.78	36
Computer operator	17	36.96	23	50.00	3	6.52	1	2.17	0	0.00	2	1.90	46
Agricultural engineer	4	12.50	16	50.00	10	31.25	0	0.00	0	0.00	2	6.25	32
Geneticist	1	2.50	20	50.00	16	40.00	1	2.50	0	0.00	2	5.00	40
Credit analyst	1	3.23	16	51.61	12	38.71	1	3.23	0	0.00	1	3.23	31
Veterinarian	0	0.00	12	33.33	22	61.11	1	2.78	0	0.00	1	2.78	36
Sales	10	25.64	20	51.28	1	2.56	2	5.13	0	0.00	6	15.38	39
Microbiologist	1	4.00	17	68.00	6	24.00	0	0.00	1	4.00	0	0.00	25
Soil conservationist	4	12.50	19	59.38	5	15.63	1	3.13	0	0.00	3	9.38	32
Lawyer	0	0.00	9	31.03	19	65.52	0	0.00	0	0.00	1	3.45	29
Plant scientist	1	4.00	14	56.00	7	28.00	1	4.00	0	0.00	2	8.00	25

SUMMARY CONTINUED

Top 40 Careers	18-21		22-25		26-35		36-45		46 +		Any Age		N
	n	%	n	%	n	%	n	%	n	%	n	%	
Farmer	16	40.00	15	37.50	4	10.00	0	0.00	0	0.00	5	12.50	40
Horticulturist	8	22.86	18	51.43	7	20.00	0	0.00	0	0.00	2	5.71	35
Commodity broker	1	3.03	17	51.52	12	36.36	1	3.03	0	0.00	2	6.06	33
Agronomist	3	9.09	20	60.61	8	24.24	0	0.00	1	3.03	1	3.03	33
Market analyst	1	3.23	16	51.61	9	29.03	3	9.68	0	0.00	2	6.45	31
Finance	2	5.71	14	40.00	16	45.71	0	0.00	1	2.86	2	5.71	35
Biochemist	0	0.00	14	56.00	8	32.00	1	4.00	0	0.00	2	8.00	25
Information analyst	1	5.88	8	47.06	7	41.18	1	5.88	0	0.00	0	0.00	17
Technical service	2	12.50	7	43.75	7	43.75	0	0.00	0	0.00	0	0.00	16
Electrical engineer	1	5.88	11	64.71	2	11.76	1	5.88	0	0.00	2	11.76	17
Entomologist	2	9.09	9	40.91	7	31.82	1	4.55	0	0.00	3	13.64	22
Aquatic biologist	1	5.56	10	55.56	7	38.89	0	0.00	0	0.00	0	0.00	18
Soil scientist	4	16.00	9	36.00	9	36.00	1	4.00	0	0.00	2	8.00	25
Food engineer	0	0.00	7	53.85	3	23.08	1	7.69	0	0.00	2	15.38	13
Programmer	3	12.50	17	70.83	3	12.50	0	0.00	0	0.00	1	4.17	24
Animal scientist	0	0.00	8	42.11	9	47.37	0	0.00	0	0.00	2	10.53	19
Rancher	6	26.09	9	39.13	4	17.39	0	0.00	0	0.00	4	17.39	23
Nutritionist	4	16.67	11	45.83	5	20.83	2	8.33	0	0.00	2	8.33	24
Food and Drug inspector	1	5.88	10	62.50	4	25.00	1	6.25	0	0.00	0	0.00	16
Grain elevator worker	13	72.22	3	16.67	1	5.56	0	0.00	0	0.00	1	5.56	18
Communicator/international	0	0.00	3	25.00	7	58.33	1	8.33	1	8.33	0	0.00	12

SUMMARY:

AGRIBUSINESSMEN'S RESPONSES TO ENTRY-LEVEL SALARY RANGE
FOR THE TOP FORTY AGRICULTURAL CAREERS SELECTED

Top 40 Careers	Less \$10,000		\$10,000 \$15,000		\$15,001 \$20,000		\$20,001 \$25,000		\$25,001 \$35,000		\$35,001 plus		N
	n	%	n	%	n	%	n	%	n	%	n	%	
Professional manager	0	0.00	1	1.92	6	11.54	6	11.54	20	38.46	19	36.54	52
Computer analyst	0	0.00	1	1.96	9	17.65	18	35.29	16	31.37	7	13.73	51
Environmental engineer	0	0.00	0	0.00	10	22.73	12	27.27	13	29.55	9	20.45	44
Business manager	0	0.00	2	4.17	11	22.92	9	18.75	16	33.33	10	20.83	48
Marketing manager	1	2.38	0	0.00	5	11.90	11	26.19	21	50.00	4	9.52	42
Grain merchandiser	0	0.00	3	10.00	7	23.33	12	40.00	5	16.67	3	10.00	30
Accountant	0	0.00	3	6.00	10	20.00	21	42.00	10	20.00	6	12.00	50
Agricultural chemist	0	0.00	0	0.00	6	15.38	12	30.77	13	33.33	8	20.51	39
Water engineer	1	2.78	1	2.78	9	25.00	14	38.89	8	22.22	3	8.33	36
Computer operator	1	2.27	11	25.00	23	52.27	8	18.18	1	2.27	0	0.00	44
Agricultural engineer	1	3.13	2	6.25	5	15.63	9	28.13	9	28.13	6	18.75	32
Geneticist	0	0.00	1	2.63	5	13.16	9	23.68	11	28.95	12	31.58	38
Credit analyst	0	0.00	1	3.23	12	38.71	14	45.16	3	9.68	1	3.23	31
Veterinarian	0	0.00	0	0.00	3	8.33	5	13.89	11	30.56	17	47.22	36
Sales	2	5.26	4	10.53	13	34.21	12	31.58	3	7.89	4	10.53	38
Microbiologist	0	0.00	0	0.00	5	20.00	7	28.00	5	20.00	8	32.00	25
Soil conservationist	1	3.33	4	13.33	7	23.33	12	40.00	5	16.67	1	3.33	30
Lawyer	1	3.45	0	0.00	1	3.45	5	17.24	7	24.14	15	51.72	29
Plant scientist	0	0.00	0	0.00	5	20.83	4	16.67	13	54.17	2	8.33	24

SUMMARY CONTINUED

Top 40 Careers	Less		\$10,000		\$15,001		\$20,001		\$25,001		\$35,001		N
	<u>\$10,000</u>		<u>\$15,000</u>		<u>\$20,000</u>		<u>\$25,000</u>		<u>\$35,000</u>		<u>plus</u>		
	n	%	n	%	n	%	n	%	n	%	n	%	
Farmer	2	5.56	5	13.89	9	25.00	9	25.00	6	16.67	5	13.89	36
Horticulturist	0	0.00	6	17.65	13	38.24	9	26.47	4	11.76	2	5.88	34
Commodity broker	0	0.00	1	3.13	7	21.88	11	34.38	5	15.63	8	25.00	32
Agronomist	0	0.00	0	0.00	8	25.81	10	32.26	6	19.35	7	22.58	31
Market analyst	0	0.00	1	3.33	7	23.33	12	40.00	8	26.67	2	6.67	30
Finance	0	0.00	2	5.88	8	23.53	8	23.53	10	29.41	6	17.65	34
Biochemist	0	0.00	0	0.00	2	8.00	11	44.00	4	16.00	8	32.00	25
Information analyst	0	0.00	1	6.25	6	37.50	4	25.00	2	12.50	3	18.75	16
Technical service	0	0.00	0	0.00	7	46.67	3	20.00	3	20.00	2	13.33	15
Electrical engineer	0	0.00	0	0.00	1	6.67	4	26.67	7	46.67	3	20.00	15
Entomologist	0	0.00	0	0.00	5	25.00	4	20.00	7	35.00	4	20.00	20
Aquatic biologist	0	0.00	0	0.00	3	16.67	5	27.78	4	22.22	6	33.33	18
Soil scientist	0	0.00	1	4.17	6	25.00	8	33.33	5	20.83	4	16.67	24
Food engineer	0	0.00	0	0.00	3	23.08	3	23.08	5	38.46	2	15.38	13
Programmer	0	0.00	2	8.70	5	21.74	13	56.52	3	13.04	0	0.00	23
Animal scientist	0	0.00	0	0.00	5	27.78	7	38.89	6	33.33	0	0.00	18
Rancher	1	5.00	0	0.00	4	20.00	5	25.00	5	25.00	5	25.00	20
Nutritionist	0	0.00	2	8.70	2	8.70	10	43.48	6	26.09	3	13.04	23
Food & Drug inspector	0	0.00	1	6.25	6	37.50	3	18.75	4	25.00	2	12.50	16
Grain elevator worker	2	11.76	5	29.41	9	52.94	1	5.88	0	0.00	0	0.00	17
Communicator/international	0	0.00	0	0.00	1	8.33	2	16.67	4	33.33	5	41.67	12

VITA²

Tommy D. Diel

Candidate for the Degree of

Master of Science

Thesis: COMPARISON OF OKLAHOMA AGRIBUSINESSMEN'S ATTITUDES
TOWARD FUTURE CAREERS IN AGRICULTURE

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