

AN ASSESSMENT OF SELECTED ALFALFA PRODUCERS'
PERCEPTIONS OF MARKET ALTERNATIVES AND
FUTURE NEED FOR AN ALFALFA PROCESSING
INDUSTRY IN A FOUR-COUNTY AREA OF
SOUTH-CENTRAL OKLAHOMA

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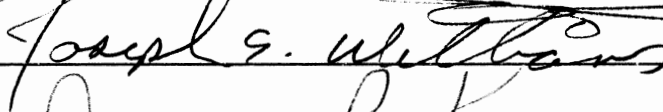
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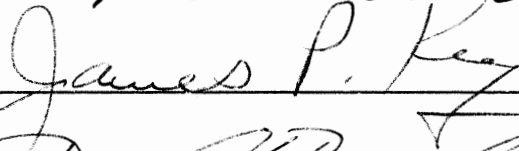
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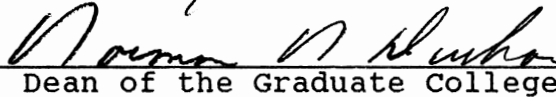
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TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
Rationale of the Study.	2
Statement of the Problem.	3
Purpose of the Study.	3
Objectives of the Study	3
Assumptions	4
Scope	4
Limitations	5
Definitions	6
II. REVIEW OF LITERATURE	7
Demographics of the Area.	7
Alfalfa Dehydration Plants.	8
Adding Value to Raw Agriculture Products. . .	10
Economic Development.	11
Summary	13
III. PROCEDURES	16
Determining the Region.	16
Determining the Population.	16
Development of the Instrument	18
Institutional Review Board (IRB) Approval . .	19
Collection of the Data.	19
Analysis of the Data.	20
IV. PRESENTATION AND ANALYSIS OF DATA.	22
Introduction.	22
Population.	22
Findings of the Study	23
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS. . . .	56
Summary of the Study.	56
Purpose of the Study	56
Objectives of the Study.	56
Rationale of the Study	57
Design and Procedures.	57
Major Findings of the Study.	59
Characteristics of the Respondents	59

Chapter	Page
Characteristics of Local Community	60
Characteristics of Farming Operation . . .	60
Perception as Alfalfa Producer	61
Method of Harvesting Alfalfa Crop.	61
Marketing Preference	61
Quality of Alfalfa Crop.	61
Community Resources to Attract New Agri-Industry.	62
Support for Alternative Markets.	63
Conclusions	67
Recommendations	71
Recommendations for Additional Research . . .	73
BIBLIOGRAPHY.	74
APPENDIX.	76

LIST OF TABLES

Table	Page
I. A Distribution of Study Respondents Completing Telephone Interviews By Participant Description.	24
II. A Distribution of Study Respondents By Gender	24
III. A Distribution of Study Respondents By Marital Status	26
IV. A Distribution of Study Respondents By Age . .	26
V. A Distribution of Study Respondents By Highest Level of Formal Education.	27
VI. A Distribution of Study Respondents By Years of Farming Experience.	27
VII. A Distribution of Study Respondents By Farming Status	29
VIII. A Distribution of Study Respondents By Type of Farming Operation.	29
IX. A Distribution of Study Respondents By Type of Farm Classification.	30
X. A Summary of Communities In Which Respondents Reside By Their Perception of Community Attitudes Toward Change.	32
XI. A Distribution of Respondents By Type of Community In Which They Reside On A Rural/Urban Continuum.	32
XII. A Summary of Respondents' Perceptions As To The Major Sources of Income Derived In Their Communities.	33
XIII. A Summary of Respondents' Perceptions By Perceived Major Source of Revenue To Support County Government.	33

Table	Page
XIV. A Distribution of Study Respondents By Total Number of Acres In Their Farming Operation.	35
XV. A Distribution of Study Respondents By Number of Acres Cultivated In Their Operations	36
XVI. A Distribution of Study Respondents By Major Cash Crop Produced On Their Farms. . .	37
XVII. A Distribution of Study Respondents By Acres of Major Crop Harvested.	39
XVIII. A Distribution of Study Respondents By Whether Or Not They Classified Themselves As Alfalfa Producers.	39
XIX. A Distribution of Study Respondents By Tonnage of Alfalfa Harvested Per Acre. . . .	40
XX. A Distribution of Study Respondents By Method of Harvesting Alfalfa	40
XXI. A Distribution of Study Respondents By Method of Marketing Alfalfa.	42
XXII. A Summary of Marketing Preferences Indicated By Alfalfa Producers	42
XXIII. A Summary of Study Respondents' Perceptions By Level of Importance of Alfalfa Crop Quality.	43
XXIV. A Summary of Respondents By Whether Or Not Producers Were Willing To Contract A Portion of Their Alfalfa Crop To An Alfalfa Processing Facility.	43
XXV. A Summary of Whether Or Not Respondents Perceived Benefits Accuring To Producers Resulting From The Establishment of An Alfalfa Processing Facility.	45
XXVI. A Summary of Whether Or Not Respondents Believed Their Local Communities Would Support An Alfalfa Processing Facility . . .	45

Table	Page
XXVII. A Summary of Respondents' Perceptions With Regard To Attracting New Agribusiness Industry By Method of Community Support. . .	46
XXVIII. A Summary of Respondents' Perceptions of New Agri-Business Industry Employees By Source of Skilled Work Force	46
XXIX. A Summary of Respondents' Perceptions of New Agri-Business Industry Employees By Source of Skilled Work Force	48
XXX. A Summary of Whether Or Not Respondent Producers Were Willing To Purchase Feed Products Processed From Their Own Alfalfa. .	48
XXXI. A Distribution of Study Participants By Number Acres of Alfalfa Produced	49
XXXII. A Distribution of Study Respondents By Possible Levels of Alfalfa Production Without Additional Markets	51
XXXIII. A Distribution of Study Respondents By Perceived Levels of Production With Additional Markets	52
XXXIV. A Distribution of Study Respondents By Percentage of Alfalfa Crop Sold.	52
XXXV. A Summary of Relationships Among Selected Paired Observations/Variables of Alfalfa Producer Operations By Category/Variable . .	54
XXXVI. A Summary of Producers' Perceptions of Whether Or Not They Perceive Grower Benefits, Cooperation, And Community Support As A Result of Attracting An Alfalfa Processing Industry To The Four-County Area	66

LIST OF FIGURES

Figures	Page
1. Geographical Location of Study Area.	17

CHAPTER I

INTRODUCTION

American farmers ability to feed the world is dependent, in part, upon profitability. A farmer's access to profitable markets is a necessity. If traditional crops and markets are less lucrative than alternatives, then the farmers may want to consider changes in the cropping and marketing operation. These economic changes should provide a simultaneous increase in farm profits, reduction in risk and improvement in the quality of rural living.

Would the addition of an alternative market in the alfalfa hay industry stimulate increased farm profits, a reduction in economic risk and improvement in the quality of rural living?

Artificial dehydration of hay and other forage crops began in the United States as early as 1909 in Missouri. As late as the 1950's, alfalfa processing facilities were located at Lindsay and Pauls Valley, in Garvin county, at Verdon, in Grady county, at El Reno, in Canadian county, and at Anadarko, in Caddo county. These plants were located along the rich bottom-lands of the Washita River. In all, twenty-three alfalfa processing facilities were located in Oklahoma as late as the 1950's.

According to Sawyer (17), the Oxford Alfalfa Processing Facility in Oxford, Kansas, has been in operation for over 44 years. The plant contracts approximately 3,000 acres of alfalfa each season. About 500 of the acres are owned by the plant. Once the crop is established by the land owner, Oxford alfalfa takes over as caretaker for the crop. All production cost and actual harvesting of the alfalfa is the responsibility of Oxford Alfalfa.

Rationale of the Study

The study was designed to assess selected alfalfa producers' perceptions of market alternatives and future need for an alfalfa processing industry in a four-county area of South-Central Oklahoma. The counties included were Garvin, Grady, McClain and Stephens.

The researcher proposed to determine if sufficient alfalfa supplies were available to support an alternative market. Also, to determine if farmers would break with traditional hay markets and contract with an unknown entity. Furthermore, determine if there were alternative markets available for value-added alfalfa products. And finally to determine if there was community support for alternative alfalfa markets.

Problem of the Study

The researcher attempted to measure producers perceptions regarding certain factors. First, would overhead costs, particularly equipment outlay, already employed in their alfalfa operation deter farmers from contracting with an alternative market? Would those factors impacting quality provide the incentive for producers to break from traditional markets? Also, would contracting of an alfalfa crop limit a producers ability to diversify if so desired? Finally, would the alfalfa producers favor shifting labor resources into alternative areas of production?

The Purpose of the Study

The purpose of this study was to assess selected alfalfa producers' perceptions of market alternatives and future need for an alfalfa processing industry in a four-county area of South-Central Oklahoma.

Objectives of the Study

In order to accomplish the purpose of the study the following objectives were set forth:

1. To determine the number of acres of alfalfa produced in the area.
2. To determine alfalfa marketing preferences as perceived by farmers in the area.

3. To determine if farmers/growers would be receptive to the idea of supporting alternative alfalfa markets.

4. To determine community support for alternative alfalfa markets as perceived by the respondents.

5. To compare levels of association/relationship among producer characteristics, production, and marketing factors.

Assumptions

Regarding this research, the following assumptions were made:

1. Alfalfa producers understood the advantages and disadvantages of traditional harvesting methods.

2. Alfalfa producers understood the advantages and disadvantages of traditional marketing opportunities.

3. Respondents understood the purpose and value of the questions asked.

4. Responses made by the producers were sincere and reliable.

Scope

The scope of the study included a possible response from 173 alfalfa producers included as part of their county hay growers association and alfalfa producers identified by county extension agents. A telephone survey was conducted

and each of the selected alfalfa producers in the population were contacted. Once the telephone survey was completed, it was determined that of the 173 possible respondents, 149 (86%) chose to complete the telephone survey while 24 (14%) chose not to participate. The study respondents reported harvesting approximately 28,000 acres of alfalfa during 1990. The 1989 Oklahoma Agricultural Statistics (12), reported that 66,500 acres of alfalfa were harvested in the survey area during 1989. If the 66,500 acres harvested in 1989, is consistent with total acres harvested in 1990, then the producers surveyed represented approximately 42 percent or 28,000 acres of the total alfalfa acreage in the survey area. The study included alfalfa growers in Garvin, Grady, McClain and Stephens counties.

Limitations

The following limitations were identified as unique to this study:

1. Because of the nature of the data collection process only a limited number of questions were asked.
2. The survey was conducted in only a four-county area of South-Central Oklahoma, and only a select group of individuals were surveyed.

Definitions

The following terms are defined to clarify how they were used in this study.

Four-County Area in South-Central Oklahoma - The area covered by Garvin, Grady, McClain, and Stephens counties in Oklahoma.

Alfalfa Processing Industry or Facility - A milling facility which processes the alfalfa plant into a processed pellet digestible by livestock.

Producer Characteristics - Traits perculiar to the selected alfalfa producers in this study.

Production Factors - Conditions which control the amount of production of the selected alfalfa producers.

Producers Perceptions - Those perceptions which selected alfalfa producers believe to be representative of the specified population in their communities.

CHAPTER II

REVIEW OF LITERATURE

There has been limited research completed concerning identification of factors involving producers' perceptions of alternative markets for alfalfa. As a result, a detailed review was conducted and summary developed to foster organization and clarity. The major areas included in the review were: (1) Demographics of the Area; (2) Alfalfa Dehydration Plants; (3) Adding Value to Raw Agriculture Products; and (4) Economic Development.

Demographics of the Area

According to the 1980 Census of Population in Oklahoma (4), the total population in the four-county area was 131,056. Of the population twenty-five years and older, fifty-seven percent were high school graduates. The 1987 Census of Agriculture (3), indicated that total number of farms in the area was 4,943. Farm operators comprised 3.8 percent of the population. The average age of the farm operator was 53.8 years and the average farm size was 323 acres.

County Business Patterns (5), pointed out that 37 agribusinesses existed in the area who reported having a payroll at that time.

The 1989 Oklahoma Agricultural Statistics (12), indicated that approximately 16 percent of the crop acres in the four-county area of Garvin, Grady, McClain and Stephens counties was in alfalfa during 1989. Also, the number of acres of all types of hay harvested in Oklahoma has increased by 16 percent since 1984. According to the 1987 Census of Agriculture (3), 1610 farms or 43 percent of the total farms harvested a hay crop in 1987. Furthermore, 743 farms or 20 percent harvested wheat that same year. In 1989 the top cash crop in the four-county area was wheat.

Alfalfa Dehydration Plants

Dombroski (8), found that the first dehydration plant in this country was erected in Louisiana in 1924. In 1909, alfalfa was dried in Missouri by machine, and in 1910, native Louisiana grasses were dehydrated as indicated by Oswalt (15). In addition, Oswalt stated:

In general the purpose of dehydration is to convert the raw material, at its best stage of growth, into the highest priced finished product and at the same time minimize the risk of crop loss at harvest time (p. 61).

Furthermore:

This artificial drying process helps retain the plant nutrients, a large number of the vitamins and in some forages, unknown nutrients that are important in the diets of animals. By dehydration, excellent forage in large quantities can be produced in some sections where climatic conditions may be a problem in hay making (p. 61).

Dombroski stated (8), "a reliable source of supply is the first requisite of a dehydration plant" (p. 17).

Oswalt (15), also found that dehydration is a process to retain the maximum food nutrients.

In 1948, twenty-three alfalfa processing plants were located in Oklahoma, according to Oswalt. In his studies, Oswalt also found of dehydrated versus sun dried hays, five of the studies showed superior feeding value in the product that was dehydrated as compared with that of the same hay field-cured in the sun. Furthermore, Oswalt found it is essential to locate dehydration units adjacent to a railroad and in an area where sufficient alfalfa is available. Approximately 1,000 to 1,600 acres are required for one dehydration plant.

Dombroski found that a busy plant will run about 75 percent of the time, day and night, during the season. Oswalt, (15), stated, "alfalfa hay for dehydration in Oklahoma is usually contracted for in the stand and the producer is paid on the dry weight basis" (p. 63). Also, Oswalt found "it is estimated that an average season for the dehydrating of alfalfa in Oklahoma would be approximately 120 to 200 days" (p. 34).

In the study by Oswalt, he discovered that plants may be owned and managed several different ways, which include: (1) Privately owned; (2) Farmers Cooperative; and (3) Milling Company. He also found that in 1948 an alfalfa dehydration plant was located in Lindsay and Pauls Valley, Oklahoma. The Lindsay facility was called the Lindsay Alfalfa Mill and the Pauls Valley facility was called the

Pecos Valley Alfalfa Milling Company.

Oswalt (15) warned:

Those that are considering the possibility of installing a dehydration plant should give careful consideration to the investment involved, capacity of such a plant, the amount of hay available, and the possibility of operating the plant a sufficiently long period to justify the high overhead involved (p.66).

According to Sawyer (17), the Oxford Alfalfa Dehydration Plant in Oxford, Kansas, pays farmers by weight of the finished product, a one quarter inch alfalfa pellet. In 1990, the price paid to farmers was thirty dollars per ton for the processed pellets.

Oxford Alfalfa's selling points to alfalfa producers are (1) a guaranteed market; (2) lower overhead cost; and (3) more free time for farmers to spend with family or other business ventures.

Adding-Value to Raw Agriculture Products

What will be the total regional impact on income and employment resulting from the establishment of a new industry? How much value will a new industry add to an existing product if established? These questions face local community leaders every day.

Barrett, Doeksen and Schreiner (2), OSU Economists, indicated that "an increase in value of a product to a community can be measured by a "Multiplier Effect" (p. 1). Barrett, Doeksen and Schreiner (2), stated:

This indicates the relationship between some observed change in the economy and the amount of

economic activity that this change creates throughout the economy. For example, suppose the region has an income multiplier of 2.8 and a new plant put \$1,000,000 worth of income into the hands of those operating and those employed by the firm. The multiplier effect indicates that this initial increase in income will swell to \$2,800,000 worth of income throughout the region's economy (p. 1).

Nelson (11), found that Oklahoma agricultural output accounts for only 4 percent of the total goods and services output of the state of Oklahoma. However, 13 percent of the state's output can be attributed to agriculture as a basic sector. So, because of economic flows which take place among agriculture and the service industries and households of the state, the proportion of Oklahoma's output attributable to agriculture is more than three times as large as the actual agricultural output of the state. Therefore, any increase in production of or the value of a commodity, such as through an alfalfa processing plant, could mean much to the overall economy of Oklahoma.

Economic Development

Useful sources of information to anyone interested in locating any type of new agribusiness are economic impact studies. One example would be a study completed by Doeksen, Frye, Hobbs and Robinson (6), who stated, "agribusiness facilities have a large impact on the community in which they are located" (p. 2). Also, the direct economic impact can be measured in number of people employed by the new agribusiness. Indirectly, other

businesses in the area will feel the impact. Employees will spend their earnings at local businesses. A similar study was completed on the economic impact of the livestock facility in Hugo, Oklahoma. Doeksen, Frye, Hobbs, Kleinholz and Montgomery (7), point out the direct economic impact of such a facility. Employment at the facility totaled 30 people. Two employees were full-time and 28 were part-time (10 hours per week). Annual payroll was \$72,000.

Sanders and Wood (15), stated "Oklahomans are extremely concerned with economic development alternatives and opportunities" (p. 1). Also, "many farm counties have yet to take advantage of developing associated agricultural industries" (p. 5).

As indicated by Greenwood and Jeffries (9), a nation, state, or community's effort to promote economic development will result in more jobs, a more stable tax base, and improve community quality of life.

Tweeten (19), stated "a large number of rural communities in the West rely on agriculture for much of their economic base" (p. 230). Tweeten further indicates that two important dimensions influence rural communities. One is farm size numbers, and population that determine community social activity tied to population. The second dimension is farm income and expenses that determine business activity tied to buying power.

A communities level of risk taking must be considered

when looking at a new agribusiness. Anderson and Ikerd (1), stated:

A decision maker must take the risks of loss. Profits are defined as the return to taking risks of loss using resources in risky ventures. The use of a farmer's land, labor, capital, and management in his farming operation is one such risky venture (p. I-1).

Risk taking may involve legal considerations. According to Tilley (18), legal considerations for any starting business should include:

1. Requirements for forming the organization;
2. Sales tax requirements;
3. Occupational licenses and permits;
4. Zoning and other local restrictions;
5. Considerations for businesses extending consumer credit.

If you decide to organize a business, you should consult an attorney who can help insure that you satisfy all the legal requirements for your particular business.

Summary

The review of literature presented information from four key areas related to the objectives of the study. Areas of emphasis were: Demographics of the area, alfalfa dehydration plants, adding value to raw agriculture products and economic development.

Demographics of an area must be considered when initiating a study of this magnitude. A statistical study of the population helps identify a communities economic

condition.

The percent of families living on the farm continues to decline. Economically speaking, families find more financial security in off-farm jobs. Larger farms continue to appear across the countryside. Solutions must be found to slow the movement of population from country to city life.

Alternative agricultural crops and markets offer some farmers the opportunities to diversify their businesses, spreading risk to a wider array of enterprise alternatives. The region in which they operate affects their ability to diversify. Production of alternative commodities feasible for an area can also help diversify and strengthen the agricultural economy of that area. If demand exists for a specific alternative commodity and the commodity can be produced efficiently, then it may have a place in the agriculture of the area. There may be potential for increased financial returns coupled with reduced risk.

An alternative market could add value to an existing crop in several ways. First, increased dollars would be felt in the pockets of the producer. Second, increased employment opportunities would secure jobs for several out of work citizens. Third, additional end products would be produced for sale to the public. This would allow for additional revenues to the business owner plus additional sales tax revenues for the municipal area. Fourth, the attitude of the community would improve as more people are

working and more dollars are put in circulation.

Economic development would be an off-shoot from additional dollars produced adding value to a raw agriculture product. The rural economy would become more diversified creating additional jobs and income to maintain and build stronger communities. Agriculture producers are challenged to find alternatives that would change national trends and bring back a strong rural economy.

In conclusion, the review of literature indicated there are possible alternatives to current production and marketing channels in agriculture that may be economically and socially feasible for not only the alfalfa producer in South-Central Oklahoma but for producers across America.

CHAPTER III

PROCEDURES

The purpose of this chapter was to describe the methods and procedures used to conduct this study. The intent of this study was to assess selected alfalfa producers' perceptions of market alternatives and future need for an alfalfa processing industry in a four-county area of South-Central Oklahoma.

In order to accomplish the purpose and objectives of this study, the major steps involved were determining the region and the population to be surveyed, development of the instrument, approval of the OSU Internal Review Board for studies which include human subjects, collection of the data, and determining the methods for data analysis.

Determining the Region

Since the largest portion of the alfalfa production in Oklahoma (12) is located along the Washita River, in South-Central Oklahoma, the four-county area of Garvin, Grady, McClain and Stephens counties were selected.

Population and Scope

The selected region included four Oklahoma counties. Therefore, for the purpose of this study 173 alfalfa

producers who were members of their respective county hay growers association and identified by the county extension agent as alfalfa producers were selected. One hundred forty-nine producers (86 percent) chose to participate in the study. In addition, the study respondents reported harvesting approximately 28,000 acres of alfalfa during 1990. The 1989 Oklahoma Agricultural Statistics (12), reported that 66,500 acres of alfalfa were harvested in the survey during 1989. If the 66,500 acres harvested in 1989, is consistent with total acres harvested in 1990, then the producers surveyed represented approximately 42 percent or 28,000 acres of the total alfalfa acreage in the survey area.

Development of The Instrument

It was determined early that a telephone survey would be the best method to gather data for the study. A questionnaire was developed with assistance of the authors graduate committee. The survey instrument was composed of three sections. The purpose of section one was to gather demographic information concerning the participants in the study. Section two, comprised current alfalfa harvesting methods as well as marketing opportunities. Section three, consisted of alternative marketing and processing methods. The three sections were composed of a total of 34 items. The statements consisted of open and forced response items on interval and "Likert-type" scales to ascertain the data.

The scales were designed to secure nominal, ordinal, and quantitative data as well as the participants personal comments.

Institutional Review Board (IRB) Approval

Federal regulations and Oklahoma State University policy require review and approval of all research studies that involve human subjects before investigators can begin their research. The Oklahoma State University Office of University Research services and the IRB conduct this review to protect the rights and welfare of human subjects involved in biomedical and behavioral research. In compliance with the aforementioned policy, this study received the proper surveillance and was granted permission to continue. This study was assigned the following research project number: AG-91-009.

Collection of the Data

The telephone survey was conducted during October and November of 1990. Follow-up calls were made ten days after all initial calls had been completed. No notable difference was found among selected characteristics between the initial respondents and the latter respondents. Some follow-up calls resulted from respondents not being available to answer the phone during the initial calling period.

Analysis of the Data

For each of the statements concerning producers perceptions, frequency counts, percentages, and means were calculated. The Spearman Rho(r_s) Correlation, Hoshmand (10), stated:

When we are interested in the degree of closeness of association between two ordinal variables - that is, the data are not available in numerical values but are only rank-order - we use a measure called "Spearman rank correlation coefficient, r_s ". In other words, r_s is a measure of the degree of correlation that exists between ranked data. The Spearman rank correlation coefficient equation is:

$$r_s = 1 - \frac{6\sum D^2}{n(n^2 - 1)}$$

where:

D = difference between the ranks for the paired observations.
 n = number of paired observations

The Spearman Rank-Correlation Coefficient ranges in value from -1.0 to +1.0. A value of -1.0 (perfect negative correlation) means that there exists a decreasing relationship between the two variables of interest in which a decrease in one variable is accompanied by an increase in the other variable. A value of +1.0 (perfect positive correlation) implies an increasing relationship between the two variables: that is, as one variable increases so does the other. An r_s value of zero indicates no correlation between the two rankings. A word of caution about the interpretation of the results from Spearman Rank-Correlations: they should not be interpreted as a measure of linear association between two variables, but rather as a measure of linear association between the ranks of the variables (p. 241).

The four point "Likert-type" scale was utilized in securing participants' perceptions concerning the importance of quality in their alfalfa producing

operations. Numerical values were assigned as follows:

"Very Important" = 3; "Important" = 2; "Somewhat Important" = 1; and "No Importance" = 0. Real limits were established at 2.5 and above were "Very Important"; 1.50 to 2.49 for "Important"; .50 to 1.49 for "Somewhat Important"; and 0 to .49 for "No Importance".

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

This chapter presents an analysis of the compiled data from the telephone survey. The intent of the study was to assess the perceptions of selected alfalfa producers concerning market alternatives and future need for an alfalfa processing industry in a four-county area of South-Central Oklahoma. The data for this study was collected during October and November of 1990 and involved a possible response from each of 173 selected alfalfa producers in a four-county area of South-Central Oklahoma, including Garvin, Grady, McClain and Stephens counties.

Population

Since the largest portion of the alfalfa production in Oklahoma (12) is located along the Washita River, in South-Central Oklahoma, the four-county area of Garvin, Grady, McClain and Stephens counties were selected.

The selected region included four Oklahoma counties. Therefore, for the purpose of this study alfalfa producers who were members of their respective county hay growers association and identified as producers by their respective

county extension office were selected.

It was determined early that a telephone survey would be the best method to gather data for the study. A questionnaire was developed with assistance of the author's graduate committee. The survey instrument was composed of three sections. The purpose of section one was to gather demographic information concerning the participants in the study. Section two, comprised current alfalfa harvesting methods, as well as available marketing opportunities. Section three, consisted of questions dealing with alternative marketing and processing methods. The three sections consisted of open and forced response items on interval and "Likert-type" scales to ascertain the data. The scales were designed to secure nominal, ordinal, and quantitative data as well as the participants' personal comments.

Findings of the Study

Data in Table I revealed a breakdown of study respondents from each of the four counties surveyed in South-Central Oklahoma, Garvin, Grady, McClain, and Stephens. Of the 149 responses, over 85 percent indicated they were farm owners, the remaining 14.1 percent were largely farm operator/manager types.

It was further shown in Table II that the respondents by gender were over 97 percent male, while the remaining 2.7 percent were female.

TABLE I
A DISTRIBUTION OF STUDY RESPONDENTS COMPLETING TELEPHONE
INTERVIEWS BY PARTICIPANT DESCRIPTION

Participant Description	Frequency N = 149	Percent (%)
Farm Op/Mgr	20	13.4
Farm Owner	128	85.9
Community Leader	1	0.7
Total	149	100.0

TABLE II
A DISTRIBUTION OF STUDY RESPONDENTS BY GENDER

Gender	Frequency	Percent (%)
Female	4	2.7
Male	145	97.3
Total	149	100.0

The data illustrated in Table III represented a distribution of respondents by marital status. Married individuals totalled over 97 percent, while single respondents made-up 2.7 percent of the study population.

It was indicated by the data in Table IV that the age of the respondents ranged from under 30 years to over 65 years of age. Only 2.7 percent were 30 years and under, while 23.7 percent were in the 31-45 year range, and those 46-55 years constituted 25 percent of the respondents group. The two older groups were those respondents in 56-65 age groups and the over 65 group. Twenty-nine percent were age 56-65, while 19.6 percent were over 65 years of age. It was noteworthy to point out that 73.6 percent of the population was 46 years and older. Even more-so is the fact that 48.6 percent of the total respondents were 56 to over 65 years of age.

The highest level of formal education as shown in Table V revealed that the largest part of the population was represented by high school graduates which made up 79.4 percent of the study population. Respondents with a B.S. degree represented 11.3 percent of the participants, while associate degrees accounted for 8.5 percent of respondents and the remainder were Vo-Tech graduates.

The data in Table VI illustrated the distribution of respondents by years of farming experience. Over 42 percent had been farming 31-50 years, while 23.6 percent had 11-20 years farming experience. Nearly 16 percent had

TABLE III

A DISTRIBUTION OF STUDY RESPONDENTS BY MARITAL STATUS

Marital Status	Frequency N = 148	Percent (%)
Married	144	97.3
Single	4	2.7
Total	148	100.0

TABLE IV

A DISTRIBUTION OF STUDY RESPONDENTS BY AGE

Age	Frequency N = 148	Percent (%)
30 and under	4	2.7
31 - 45	35	23.7
46 - 55	37	25.0
56 - 65	43	29.0
Over 65	29	19.6
Total	148	100.0

TABLE V
A DISTRIBUTION OF STUDY RESPONDENTS BY HIGHEST LEVEL OF
FORMAL EDUCATION

Highest Level of Education	Frequency N = 141	Percent (%)
High School	112	79.4
Vo-Tech	1	0.7
Associate Degree	12	8.5
B.S. Degree	16	11.4
Total	141	100.0

TABLE VI
A DISTRIBUTION OF STUDY RESPONDENTS BY YEARS OF
FARMING EXPERIENCE

Years of Farming Experience	Frequency N = 144	Percent (%)
2 - 10	8	5.6
11 - 20	34	23.6
21 - 30	23	15.9
31 - 50	61	42.4
Over 50	18	12.5
Total	144	100.0

over 50 years and only 5.6 percent had 2-10 years farming experience. It was noteworthy to emphasize that the data revealed in Table VI show that over 70 percent of the respondents in this study had 21 or more years of farming experience and further emphasized that over 54 percent of the producers participating in this study had 31 or more years of experience. Less than 6 percent of the respondents had 10 years experience and less.

The data in Table VII represented a distribution of respondents by farming status. Over 78 percent of respondents indicated they farm full-time, while over 21 percent indicated they were part-time farmers.

The data in Table VIII described the distribution of respondents by type of farming operation. Of the 148 responses 36.5 percent were owner/operator types, while 31.1 percent indicated owner/crop rent/lease type operations. Owners/cash rent/ lease type operations made up 22.3 percent of the study population and 6.1 percent indicated cash rent/lease types, while partnership type operations represented 4.1 percent of the respondents.

The data in Table IX, summarized the distribution of respondents by type of farm classification. Over 72 percent indicated they were field crop producers, while 26.5 percent indicated they were conducting livestock operations. Less than 1 percent of the respondents indicated that they were vegetable/small fruit producers.

TABLE VII
A DISTRIBUTION OF STUDY RESPONDENTS
BY FARMING STATUS

Farming Status	Frequency N = 147	Percent (%)
Full-time	115	78.2
Part-time	31	21.1
N/A	1	0.7
Total	147	100.0

TABLE VIII
A DISTRIBUTION OF STUDY RESPONDENTS
BY TYPE OF FARMING OPERATION

Type of Farming Operation	Frequency N = 148	Percent (%)
Owner/Operator	54	36.5
Cash Rent/Lease	9	6.1
Own/Cash Rent/Lease	33	22.2
Own/Crop Rent/Lease	46	31.1
Partnership	6	4.1
Total	148	100.0

TABLE IX
A DISTRIBUTION OF STUDY RESPONDENTS BY TYPE OF
FARM CLASSIFICATION

Type of Farm Classification	Frequency N = 147	Percent (%)
Field Crop	48	32.7
Vegetable/Small Fruit	1	0.7
Livestock	39	26.5
Forage Production	59	40.1
Total	147	100.0

The data in Table X provided a breakdown of respondents by their perception of their communities attitudes toward change. Over 67 percent of the study respondents believed their communities to be progressive, while 16.8 percent of the respondents indicated their communities were slow to change and 16.1 percent indicated their communities seemed to maintain the status-quo.

Responding to a rural-urban continuum, the respondents illustrated in Table XI that 59 percent perceived their communities to be almost completely rural, while 2 percent perceived their communities as being equally divided rural/urban and 1.3 percent mostly urban. However, over 37 percent saw their neighborhood communities as being nearly in a complete rural setting.

Data in Table XII illustrated over 72 percent of the respondents indicated that the largest portion of income in the community was derived from agriculture, while 25 percent of the study respondents perceived that the largest share of community income was derived from energy, and 2.7 percent of the respondents indicated that the majority of income in their communities was generated by small business.

The data in Table XIII showed that over 91 percent of the respondents perceived the major source of revenue to support county government was ad valorem tax, while the remaining 8.7 percent was largely as sales tax revenue.

TABLE X

A SUMMARY OF COMMUNITIES IN WHICH RESPONDENTS RESIDE BY
THEIR PERCEPTION OF COMMUNITY ATTITUDES TOWARD CHANGE

Perception of Community Attitude Toward Change	Frequency N = 149	Percent (%)
Progressive	100	67.1
Slow to Change	25	16.8
Status Quo	24	16.1
Total	149	100.0

TABLE XI

A DISTRIBUTION OF RESPONDENTS BY TYPE OF COMMUNITY IN
WHICH THEY RESIDE ON A RURAL/URBAN CONTINUUM

Your Community On A Rural/Urban Continuum	Frequency N = 149	Percent (%)
Almost Completely Rural	56	37.6
Mostly Rural	88	59.1
Divided Rural/Urban	3	2.0
Mostly Urban	2	1.3
Total	149	100.0

TABLE XII

A SUMMARY OF RESPONDENTS' PERCEPTIONS AS TO THE MAJOR
SOURCES OF INCOME DERIVED IN THEIR COMMUNITIES

Major Source Of Income In Community	Frequency N = 148	Percent (%)
Agriculture	107	72.3
Energy	37	25.0
Small Business	4	2.7
Total	148	100.0

TABLE XIII

A SUMMARY OF RESPONDENTS' PERCEPTIONS BY PERCEIVED MAJOR
SOURCE OF REVENUE TO SUPPORT COUNTY GOVERNMENT

Major Source Of Revenue To Support Co. Gov.	Frequency N = 127	Percent (%)
Ad Valorem Tax	116	91.3
Gross Prod. Tax	1	0.8
Sales Tax	10	7.9
Total	127	100.0

The data in Table XIV illustrated the distribution of respondents by number of acres in their farms. Over 39 percent of the respondents indicated that the total acres in their farms ranged from 641 to 1500. However, 19.8 percent indicated they had over 1500 total acres, while 22.6 percent farmed 321 to 640 acres. Thirteen percent of the respondents indicated total acres farmed ranged from 161 to 320, while less than 7 percent farmed 65 to 160 acres.

The data in Table XV provided a breakdown of respondents by number of acres cultivated. Over 30 percent were farming 0 to 160 cultivated acres, while more than 24 percent indicated that the total acres in cultivation ranged from 161 to 320. Over 11 percent indicated 321 to 500 acres, while 18.1 percent indicated they cultivated from 501 to 650 acres. Slightly over 16 percent indicated they cultivated 651 to 1000 acres, while 6 percent cultivated 1001 to 1500 acres.

The data summarized to Table XVI a distribution of respondents by major cash crop produced. Over 72 percent indicated alfalfa was the major cash crop produced, while 16.2 percent indicated cattle was the major commodity produced. Almost 5 percent indicated they produced wheat, while 2.7 percent produced cotton as their major cash crop. The remaining 4.1 percent of the respondents indicated that their production was largely soybeans.

TABLE XIV

A DISTRIBUTION OF STUDY RESPONDENTS BY TOTAL NUMBER OF
ACRES IN THEIR FARMING OPERATIONS

Number of Acres In Your Farm	Frequency N = 148	Percent (%)
65 - 160	9	6.2
161 - 320	19	13.0
321 - 500	17	11.6
501 - 640	16	11.0
641 - 1000	29	19.7
1001 - 1500	29	19.7
1501 - 2000	12	8.1
Over 2000	17	11.7
Total	148	100.0

TABLE XV

A DISTRIBUTION OF STUDY RESPONDENTS BY NUMBER OF ACRES
CULTIVATED IN THEIR OPERATIONS

Number of Acres Cultivated	Frequency N = 149	Percent (%)
0 - 160	45	30.2
161 - 320	37	24.8
321 - 500	17	11.4
501 - 650	12	8.1
651 - 1000	24	16.1
1001 - 1500	9	6.0
Over 1500	5	3.4
Total	149	100.0

TABLE XVI
A DISTRIBUTION OF STUDY RESPONDENTS BY MAJOR CASH
CROP PRODUCED ON THEIR FARMS

Major Cash Crop Produced	Frequency N = 148	Percent (%)
Alfalfa	107	72.3
Wheat	7	4.7
Vegetables/Small Fruit	1	0.7
Soybeans	3	2.0
Cotton	4	2.7
Grass Hay	1	0.7
Cattle	24	16.2
Peanuts	1	0.7
Total	148	100.0

Table XVII revealed a distribution of respondents by acres of major crop harvested. Sixty percent of the respondents indicated that they harvested from 20 to 160 acres of the major crop produced on their farm, while 17.6 percent harvested from 161 to 300 acres. Over 13 percent harvested from 301 to 500 acres and 8.8 percent of the respondents harvested over 500 acres of the major crop produced.

Table XVIII showed a distribution of respondents by whether or not they classified themselves as alfalfa producers. An overwhelming 87.9 percent classified themselves as alfalfa producers, while 12.1 percent indicated they did not consider themselves as alfalfa producers.

Table XIX illustrated the distribution of respondents by tonnage of alfalfa harvested per acre. Over 58 percent indicated they harvested from 5 to 6 tons, while 40 percent reported from 3 to 4 tons harvest. Almost 2 percent indicated they harvested from 7 to 8 tons of alfalfa per acre. It was interesting to note that two-thirds (66) of the producers produced from 5 to 8 tons of alfalfa per acre per year.

The data in Table XX described the distribution of respondents by method of harvesting their alfalfa crop. Over 97 percent indicated they harvested alfalfa for hay, while less than 1 percent harvested alfalfa for silage. Less than 1 percent harvested their alfalfa as greenchop.

TABLE XVII
A DISTRIBUTION OF STUDY RESPONDENTS BY ACRES OF
MAJOR CROP HARVESTED

Acres of Major Crop Harvested	Frequency N = 125	Percent (%)
20 - 160	75	60.0
161 - 300	22	17.6
301 - 500	17	13.6
Over 500	11	8.8
Total	125	100.0

TABLE XVIII
A DISTRIBUTION OF STUDY RESPONDENTS BY WHETHER OR NOT
THEY CLASSIFIED THEMSELVES AS ALFALFA PRODUCERS

Classification As An Alfalfa Producer	Frequency N = 149	Percent (%)
Yes	131	87.9
No	18	12.1
Total	149	100.0

TABLE XIX
A DISTRIBUTION OF STUDY RESPONDENTS BY TONNAGE
OF ALFALFA HARVESTED PER ACRE

Tonnage of Alfalfa Harvested Per Acre	Frequency N = 110	Percent (%)
3 - 4	44	40.0
5 - 6	64	58.2
7 - 8	2	1.8
Total	110	100.0

TABLE XX
A DISTRIBUTION OF STUDY RESPONDENTS BY METHOD OF
HARVESTING ALFALFA

Method of Alfalfa Harvest	Frequency N = 131	Percent (%)
Hay	128	97.6
Greenchop	1	0.8
Silage	1	0.8
Other	1	0.8
Total	131	100.0

Table XXI represented the distribution of study respondents by alfalfa marketing methods. Over 36 percent of the respondents market their alfalfa crop out of the barn as cured hay, while 36.2 percent market their hay through livestock and 27.6 percent sell their hay primarily off the meadow. It was interesting to note, however, that equal numbers (51) of respondents preferred to market alfalfa as cured hay and through their livestock enterprises.

The data in Table XXII illustrated that the respondents preferred method of marketing their alfalfa was in the form of hay. An overwhelming 99.3 percent indicated they preferred to market their alfalfa as hay, while less than 1 percent indicated they preferred to market their alfalfa crop as silage.

The data in Table XXIII described the respondents' perceptions of crop quality by level of importance. Almost 99 percent indicated that the quality of the alfalfa crop was "very important", while the remaining 1.4 percent indicated that the attribute of quality was in the "important" category.

The data in Table XXIV revealed the respondents' perceptions as to whether or not they (alfalfa producers) would be willing to contract any portion of their alfalfa crop to an alfalfa processing facility. While over 61 percent of the respondents indicated they would be willing to contract a portion of their crop to an alfalfa

TABLE XXI
A DISTRIBUTION OF STUDY RESPONDENTS BY METHOD OF
MARKETING ALFALFA

Method of Marketing Alfalfa	Frequency N = 141	Percent (%)
Sell Hay - Meadow	39	27.6
Sell Hay - Barn (Cured Hay)	51	36.2
Market - Livestock	51	36.2
Total	141	100.0

TABLE XXII
A SUMMARY OF MARKETING PREFERENCES INDICATED
BY ALFALFA PRODUCERS

Preferred Method To Market Alfalfa	Frequency N = 142	Percent (%)
As Hay	141	99.3
As Silage	1	0.7
Total	142	100.0

TABLE XXIII

A SUMMARY OF STUDY RESPONDENTS' PERCEPTIONS BY
LEVEL OF IMPORTANCE OF ALFALFA CROP QUALITY

Importance Of Alfalfa Crop Quality	Frequency N = 142	Percent (%)
"Very Important"	140	98.6
"Important"	2	1.4
Total	142	100.0

TABLE XXIV

A SUMMARY OF RESPONDENTS BY WHETHER OR NOT PRODUCERS WERE
WILLING TO CONTRACT A PORTION OF THEIR ALFALFA
CROP TO AN ALFALFA PROCESSING FACILITY

Willingness to Contract Alfalfa Crop to Dehydration Facility	Frequency N = 145	Percent (%)
Yes	89	61.4
No	56	38.6
Total	145	100.0

processing facility, 38.6 percent indicated they would not contract any portion of their alfalfa crop to a processing facility.

The data in Table XXV indicated whether or not respondents perceived benefits accruing to producers resulting from the establishment of alfalfa processing facilities. Over 69 percent of the respondents indicated they saw themselves benefitting from the establishment of an alfalfa processing plant, while 30.1 percent indicated producers would not accrue benefits.

The data in Table XXVI revealed whether or not respondents believed their local communities would support an alfalfa processing facility. Over 65 percent indicated their local communities would be supportive of an alfalfa processing facility, while 34.3 percent indicated their community would not support an industry such as this.

The data in Table XXVII indicated the respondents' perceptions of community support. Over 85 percent indicated community support could be derived from low interest loans, while almost 11 percent indicated there could be concessions on ad valorem taxes. The remaining 3.6 percent were largely in favor of an industrial park system, while one respondent favored support through venture capital.

Table XXVIII summarized respondents' perceptions as to the source of a skilled work force for the newly proposed agribusiness industry. Over 68 percent indicated the

TABLE XXV

A SUMMARY OF WHETHER OR NOT RESPONDENTS PERCEIVED BENEFITS
 ACCURING TO PRODUCERS RESULTING FROM THE ESTABLISHMENT
 OF AN ALFALFA PROCESSING FACILITY

Would Dehydration/Processing Benefit Alfalfa Producers In The Area	Frequency N = 143	Percent (%)
Yes	100	69.9
No	43	30.1
Total	143	100.0

TABLE XXVI

A SUMMARY OF WHETHER OR NOT RESPONDENTS BELIEVED
 THEIR LOCAL COMMUNITIES WOULD SUPPORT AN
 ALFALFA PROCESSING FACILITY

Would Community Support An Alfalfa Processing Industry	Frequency N = 143	Percent (%)
Yes	94	65.7
No	49	34.3
Total	143	100.0

TABLE XXVII

A SUMMARY OF RESPONDENTS' PERCEPTIONS WITH REGARD TO
ATTRACTING NEW AGRIBUSINESS INDUSTRY BY METHOD
OF COMMUNITY SUPPORT

Method of Community Support	Frequency N = 83	Percent (%)
Concessions on Ad Valorem Taxes	9	10.8
Industrial Park System	2	2.4
Venture Capital	1	1.2
Low Interest Loans	71	85.5
Total	83	100.0

TABLE XXVIII

A SUMMARY OF RESPONDENTS' PERCEPTIONS OF NEW AGRIBUSINESS
INDUSTRY EMPLOYEES BY SOURCE OF SKILLED WORK FORCE

Source Of Work Force	Frequency N = 80	Percent (%)
High School Graduates	15	18.7
Vo-Tech Grads	3	3.8
Industry Trained	2	2.5
Displaced Farmers	5	6.3
Combination of Sources	55	68.7
Total	80	100.0

source of a skilled work force would be derived from a combination of sources, while 18.7 percent of the respondents indicated high school graduates would be the major source. Slightly over 6 percent of the respondents indicated displaced farmers would be a source of employees, while 3.8 percent indicated that Vo-Tech graduates would be a major source. The remaining 2.5 percent indicated the major source of a skilled work force would be derived from industry trained personnel.

The data in Table XXIX indicated the respondents' perceptions of the preferred structure of an agribusiness industry. Over 49 percent favored individually owned (private) agribusiness, while 43 percent indicated they preferred the business to be organized as a cooperative. The remaining 7.4 percent were largely in favor of a corporate entity, with 2.2 percent of the respondents preferring some other organizational structure.

The data in Table XXX showed the respondents' willingness to purchase feed products processed from their own alfalfa. Over 60 percent indicated they would not purchase processed feed products from alfalfa produced in their area, while 39.9 percent indicated they would purchase processed feed products produced in their area.

The data in Table XXXI illustrated a distribution of respondents by number of acres of alfalfa produced. Over 16 percent indicated they produced from 10 to 50 acres of alfalfa, while 32.8 percent produced 51 to 100 acres. More

TABLE XXIX

A SUMMARY OF RESPONDENTS' PERCEPTIONS OF BUSINESS
ORGANIZATION BY PREFERRED ORGANIZATIONAL
STRUCTURE

Organizational Structure	Frequency N = 134	Percent (%)
Individual (Private) Ownership	67	49.6
Cooperative	58	43.0
Corporation	7	5.2
Other	3	2.2
Total	135	100.0

TABLE XXX

A SUMMARY OF WHETHER OR NOT RESPONDENT PRODUCERS WERE
WILLING TO PURCHASE FEED PRODUCTS PROCESSED
FROM THEIR OWN ALFALFA

Willingness To Purchase Feed Product	Frequency N = 143	Percent (%)
Yes	57	39.9
No	86	60.1
Total	143	100.0

TABLE XXXI
A DISTRIBUTION OF STUDY PARTICIPANTS BY
NUMBER ACRES OF ALFALFA PRODUCED

Number Acres Alfalfa Produced	Frequency N = 128	Percent (%)
10 - 50	21	16.4
51 - 100	42	32.8
101 - 200	31	24.2
201 - 500	26	20.4
Over 500	8	6.2
Total	128	100.0

than 24 percent indicated 101 to 200 acres, while over 20 percent indicated they produced between 201 and 500 acres of alfalfa. The remaining 6.2 percent indicated they produced over 500 acres of alfalfa.

As illustrated by the data in Table XXXII over 63 percent of respondents indicated they could produce 10 to 160 acres of alfalfa without an additional market, while 18.5 percent indicated they could produce 161 to 320 acres. More than 14 percent indicated production of 321 to 640 acres of alfalfa was a possibility without an additional market. Two percent of the respondents indicated production schemes of 960 acres, while 1.3 percent of the producers could possibly produce over 960 acres of alfalfa additional market.

The data in Table XXXIII illustrated that over 58 percent of respondents would be willing to produce 10 to 160 acres of alfalfa with an additional market, while 19.2 percent could produce 161 to 320 acres of alfalfa. Almost 18 percent could produce 321 to 640 acres of alfalfa with additional markets, while 2 percent of the respondents indicated they could produce from 641 to 960 acres and the remaining 2 percent of the respondents could produce over 960 acres of alfalfa if additional markets were available.

The data in Table XXXIV indicated that 27.5 percent of respondents sold 25 percent of their alfalfa crop, while 11.4 percent sold 26 to 50 percent of the crop. Still another 19.5 percent of the respondents indicated they sold

TABLE XXXII

A DISTRIBUTION OF STUDY RESPONDENTS BY POSSIBLE LEVELS
OF ALFALFA PRODUCTION WITHOUT ADDITIONAL MARKETS

Alfalfa Production w/o Additional Markets	Frequency N = 146	Percent (%)
10 - 160	93	63.7
161 - 320	27	18.5
321 - 640	21	14.4
641 - 960	3	2.1
961 and Over	2	1.3
Total	146	100.0

x = 194.86 acres

TABLE XXXIII

A DISTRIBUTION OF STUDY RESPONDENTS BY PERCEIVED LEVELS
OF PRODUCTION WITH ADDITIONAL MARKETS

Alfalfa Production With Additional Market	Frequency N = 146	Percent (%)
10 - 160	86	58.8
161 - 320	28	19.2
321 - 640	26	17.8
641 - 960	3	2.1
961 and Over	3	2.1
Total	146	100.0

x = 225.79 acres

TABLE XXXIV

A DISTRIBUTION OF STUDY RESPONDENTS BY PERCENTAGE
OF ALFALFA CROP SOLD

Percent Alfalfa Crop Sold	Frequency N = 149	Percent (%)
0 - 25	41	27.5
26 - 50	17	11.4
51 - 75	29	19.5
76 - 100	62	41.6
Total	149	100.0

51 to 75 percent of their crop. It was both interesting and noteworthy that 41.6 percent indicated they sold 76 to 100 percent of their alfalfa crop.

An overview of the data included in Table XXXV suggests that among the ten paired observations/independent variables only 12 r_s correlation coefficients out of the 90 possible, excluding the 10 paired against each other, indicated a strong to very high level of association. In addition, only five correlation coefficients pairs were identified as having a significant difference meaning that r_s was significantly different from zero ($P < .05$). The five pairs identified as being significantly different were the paired observations/variables of: (1) Number of Acres in Farm Operation/Years of Farming Experience ($r_s = .00634^*$); (2) Acres cultivated/Years of Farming Experience ($r_s = .01028^*$); (3) Tons of Alfalfa Produced/Years of Farming Experience ($r_s = -.01738^*$); (4) Current Production - % Total Crop Sold/Total Acres Operated ($r_s = -.01882^*$); and (5) Current Production - % Total Crop/Tons of Alfalfa Produced ($r_s = -.00344^*$). Only two Spearman coefficients in this group were positive and three had low to very low negative associations.

The 12 paired observations with strong to very high Spearman correlations were: (1) Age/Years of Farming Experience ($r_s = .79130$); (2) Acres Cultivated/Acres Cultivated ($r_s = .74007$); (3) Acres of Alfalfa Produced Last Year/Acres Cultivated ($r_s = .77494$); (4) Acres of

TABLE XXXV

A SUMMARY OF RELATIONSHIPS AMONG SELECTED PAIRED
OBSERVATIONS/VARIABLES OF ALFALFA PRODUCER
OPERATIONS BY CATEGORY/VARIABLE

Category/Variable	Relationship/Correlation Among Paired Observations									
	Age	Farming Experience	Acres Oper.	Acres Cult.	Acres Alfa. Prod.	Tons Alfa. Prod.	Cur. Acres in Prod.	Max Prod. w/o Add Mkt.	Potent. Ac. w/Alt. Mkt.	Cur. Prod. % Tot. Crop Sold
Age	1.000	.79130	-.11177	-.13949	-.18104	-.11516	-.21125	-.23894	-.27497	0.11247
Years of Farming Experience	.79130	1.000	.00634*	.01028*	-.10182	-.01738*	-.12649	-.011903	-.13284	-.04553
Number Acres in Farm Operation	-.11177	.00634*	1.000	.74007	.52842	.14944	.51488	0.53674	0.57032	-.01882*
Acres Cultivated	-.13949	.01028*	.74007	1.000	.77494	.11821	.74374	0.76355	0.79843	0.34125
Acres Alfalfa Produced Last Year	-.18104	-.10182	.52842	.77494	1.000	.15310	.97738	0.91134	0.87518	0.32881
Tons Alfalfa Produced	-.11516	-.01738*	.14944	.11821	.15310	1.000	.15221	0.14160	0.14600	-.00344*
Number Acres Alfalfa Currently in Production	-.21125	-.12649	.51488	.74374	.97738	.15221	1.000	0.83331	0.89321	0.45557
Max Acres You Would Produce w/o Add Mkt	-.23894	-.11903	.53674	.76355	.91134	.14160	.83331	1.000	0.93749	0.47224
Acres Could Produce With Alternative Market	-.27497	-.13284	.57032	.79843	.87518	.14600	.89321	0.93749	1.000	0.47105
Of Current Production % Total Crop Sold	-.11247	-.04553	-.01882*	.34125	.32881	-.00344*	.45557	0.47224	0.47105	1.000

NOTE: Spearman Rho Correlation Coefficient; $P < .05^*$.

Alfalfa Currently In Production/Acres Cultivated ($r_s = .74374$); (5) Maximum Acres You Would Produce Without Additional Markets/Acres Cultivated ($r_s = .75355$); (6) Acres You Could Produce With Alternative Markets/Acres Cultivated ($r_s = .79843$); (7) Number of Acres of Alfalfa Currently In Production/Acres of Alfalfa Produced ($r_s = .97738$); (8) Maximum Acres You Would Produce Without Additional Markets/Acres of Alfalfa Produced ($r_s = .91134$); (9) Acres You Could Produce With Alternative Markets/Acres of Alfalfa Produced ($r_s = .87518$); (10) Maximum Acres You Would Produce Without Additional Markets/Current Acres In Production ($r_s = .93331$); (11) Acres You Could Produce With Alternative Markets/Current Acres In Production ($r_s = .89321$); and (12) Acres You Could Produce With Alternative Markets/Potential Acreage Production With Additional Markets ($r_s = .93749$).

The strong to very high relationships displayed in Table XXXV could lead one to make a judgement that the respondents' perceptions expressed in this study indicated producers were already producing near their potential and may not be interested in expanding production even if it means new and additional market alternatives. Even though the calculated Spearman correlation indicates that two variables/observations have high levels of association does not necessarily mean a cause-and-effect relationship.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter was to present a summary of the study problem, methodology and major findings. Conclusions and recommendations were also presented based on the data that was gathered and analyzed.

Summary of the Study

Purpose of the Study

The purpose may be stated as follows: To assess selected alfalfa producers' perceptions of market alternatives and need for an alternative processing industry in a four-county area of South-Central Oklahoma.

Objectives of the Study

In order to accomplish the purpose of this study, the following objectives were established:

1. To determine the number of acres of alfalfa produced.
2. To determine the marketing preferences of farmers in the four-county area.
3. To determine if farmers/growers would be receptive to the idea of supporting alternative markets for alfalfa.

4. To determine community support for alternative alfalfa markets as perceived by the respondents.

5. To compare levels of association/relationship among producer characteristics, production, and marketing factors.

Rationale of the Study

The study was designed to assess selected alfalfa producers' perceptions of market alternatives and future need for an alfalfa processing industry in a four-county area of South-Central Oklahoma. The counties included Garvin, Grady, McClain, and Stephens.

The researcher proposed to determine if sufficient alfalfa supplies were available to support an alternative market. Also to determine if farmers would break with traditional hay markets and contract with an unknown entity. Furthermore, determine if there were alternative markets available for value-added alfalfa products. And finally, to determine if there was community support for alternative alfalfa markets.

Design and Procedure

The purpose of this section was to describe the design and procedures by which the data to be examine was gathered. The major tasks in the design of the study were: (1) determining the region to be surveyed, (2) determining the individuals to be surveyed, (3) determining the method

of instituting the survey, (4) determining the content of the survey, (5) gathering the data, and (6) determining the methods for data analysis.

The selected region included four South-Central Oklahoma counties. Therefore, for the purpose of this study alfalfa producers who were members of their respective county hay growers association and identified by county extension offices as alfalfa producers were selected.

It was determined early that a telephone survey would be the best method to gather data for the study. A questionnaire was developed with assistance of the authors graduate committee. The survey instrument was comprised of three sections. The purpose of section one was to gather demographic information concerning the participants in the study. Section two, comprised current alfalfa harvesting, as well as current marketing practices. Section three, consisted of alternative marketing and processing methods. The three sections were composed of a total of 34 items. The statements consisted of open and forced items on interval and "Likert-type" scales to ascertain the data. The scales were designed to secure nominal, ordinal, and quantitative data as well as the participants' personal comments.

A telephone survey was conducted during October and November of 1990. Follow-up calls were made ten days after all initial calls had been completed. There was no notable

difference between the characteristics of respondents and non-respondents.

For each of the statements concerning producers perceptions, frequency counts, percentages, and means were calculated. The four point "Likert-type" scale was utilized in securing participants perceptions concerning the importance of quality in their alfalfa producing operations. Numerical values were assigned to the importance of quality as follows: "Very Important" = 3; "Important" = 2; "Somewhat Important" = 1; and "No Importance" = 0. Real limits were established at 2.5 and above for "Very Important"; 1.50 to 2.49 for "Important"; .50 to 1.49 for "Somewhat Important"; and 0 to .49 for "No Importance".

Major Findings of the Study

The objectives of the study were used as basis for organization of the major findings. The following nine topic headings were derived from the objectives.

Characteristics of the Respondents

An overwhelming 85.9 percent of the respondents were farm owners, while 97.3 percent were male. Over 97 percent were married. More than 79 percent of respondents highest level of formal education was high school completion. About 49 percent of respondents indicated they were 56 years of age or over. Over 42 percent indicated their

years of farming experience ranged from 31 to 50 years. In addition 78.2 percent indicated they were full-time farmers and 36.5 percent indicated they were the owner/operators of their farming operations. More than 72 percent classified themselves as forage or field crop producers. The 149 study respondents harvested 28,000 acres of alfalfa during 1990, which is approximately 42 percent of the total alfalfa acres in the study area.

Characteristics of Local Community

Over 67 percent of the respondents indicated that they believed that their communities attitudes were progressive toward change. More than 59 percent indicated they perceived their communities as being mostly rural and 72.3 percent indicated that the major sources of income for the community was derived from agriculture. Over 91 percent of the respondents indicated the major source of income for county government was derived from ad valorem taxes.

Characteristics of Farming Operation

Slightly over 39.4 percent of the respondents indicated that they had from 641 to 1500 total acres in their operations. Furthermore, respondents farms with 0 to 320 acres of cultivated acres total 55 percent of the total. Over 72 percent of the respondents indicated their major cash crop was alfalfa, while 60 percent of the respondents indicated they harvest from 20 to 160 acres of

major crop produced on their farms. Over 58 percent of the respondents indicated they harvest from 5 to 6 tons of alfalfa per acre per year.

Perception as Alfalfa Producer

An overwhelming 87.9 percent of respondents classified themselves as alfalfa producers, while 12.1 percent indicated they did not consider themselves as an alfalfa producer.

Method of Harvesting Alfalfa Crop

Over 99 percent of the respondents indicated they were harvesting alfalfa as hay, while the remaining 2.4 percent of the producers responding were equally divided between greenchop, silage and other methods of harvesting alfalfa.

Marketing Preference

Slightly more than 36 percent of the respondents indicated they marketed their hay as cured hay out of the barn, while the exact same percentage (36.2) marketed alfalfa through livestock. The remaining 27.6 percent marketed their alfalfa hay off the meadow.

Quality of Alfalfa Crop

An overwhelming 98.6 percent of the respondents indicated that the quality of their alfalfa crop was "very important" to them, while the remaining 1.4 percent

indicated quality was "important".

Community Resources to Attract
New Agri-Industry

More than 61 percent of the respondents indicated they were willing to contract a portion of their alfalfa crop to an alfalfa processing facility, while less than 39 percent indicated they would not contract any portion of their crop.

Almost 70 percent (69.6%) of the respondents perceived that an alfalfa processing facility would benefit area producers, while 30.1 percent felt a facility would not appreciably benefit area producers. In addition, more than 65 percent of respondents indicated their community would willingly support an alfalfa processing facility, while 34.3 percent indicated they didn't believe their community would support such an effort.

Regarding support, over 85 percent of respondents indicated the form of concessions would be in the area of ad valorem taxes, while more than 2 percent indicated that an industrial park system would be appropriate and 1.2 percent believed the best approach was through venture capital.

With regard to a skilled work force, more than 68 percent of respondents indicated that a work force would be derived from a combination of sources, while 18.7 percent perceived the source would be high school graduates.

Slightly over 6 percent indicated displaced farmers could serve as the work force in this industry, while 3.8 percent indicated Vo-Tech graduates would be a valid source. The remaining 2.5 percent of the respondents perceived a skilled work force being derived from industry trained personnel.

Over 49 percent of respondents indicated the alfalfa processing agribusiness should be organized as an individually owned (private) entity, while another 43 percent indicated the organization should be a cooperative. Slightly more than 5 percent favored a corporate organization and the remaining 2.2 percent preferred some other method of organization.

A noteworthy finding included that over 60 percent of the respondents were not willing to purchase feed products processed from their own crops, while almost 40 percent (39.9%) were willing to purchase their own products as processed feeds.

Support For Alternative Markets

There seems to be a high level of producer support in that over 61 percent of the respondents indicated that they would be willing to contract a portion of their alfalfa crop to a processing facility as an alternative market to hay. However, when respondents were asked if they would be willing to purchase feed products processed from the alfalfa which they produced, over 60 percent stated they

would not be willing to purchase feed products processed from their own crop. On-the-other hand, almost 70 percent (69.9%) indicated that they perceived positive benefits resulting from the establishment of an alfalfa processing facility being located in the area. In addition, other indicators for support of alternative markets include: (1) over 85 percent of the respondents thought that low-interest loans should be made available for the development of a processing industry; (2) two-thirds (65.7%) of the respondents perceived their communities would be supportive in attempting to attract such an industry, (3) the respondents indicated that potential for production without additional markets as perceived by 63.7 percent of the growers could range from 10 to 160 acres, while 18.5 percent of the respondents perceived that production would range from 161 to 320 acres; and (4) a distribution of study respondents revealed that they perceived decreases in alfalfa production with additional markets particularly in the interval range of 10 to 160 acres of alfalfa. However, in the 161 to 320 acre range there was a slight increase with additional markets, while the largest increase with regard to additional markets occurred in the interval range of 321 to 640 acre group of producers (17.8). A critical analysis of the respondents' perceptions concerning possible alfalfa production without additional markets and production with additional markets revealed little notable difference.

Looking at a summary of alfalfa producers' perceptions concerning whether or not they perceived a need for an alfalfa processing industry to be located in the four-county area, the data in Table XXXVI illustrated producer attitudes toward such an endeavor. Over two-thirds (67.11 percent) of the study respondents indicated they believed that having an alternative market such as a dehydrating/processing facility would bring added benefits to them as alfalfa producers, while almost a third (28.86) disagreed. Six study respondents chose not to indicate a response.

The summary data included in Table XXXVI further revealed that almost 60 percent of the respondents indicated a willingness to cooperate and contract a portion of their alfalfa crop to justify the existence of an alternative market should an alfalfa processing facility be located in the area. However, over 37 percent indicated that they would not be willing to contract any portion of their crop for such an effort and four participants elected not to respond. In addition, it was indicated by the data that the respondents viewed community support for attracting a new agribusiness industry to the area as positive. To emphasize this finding, it was pointed out that over 63 percent of the respondents favorably perceived that support for this purpose would add economic value to the alfalfa produced and attract new industry to the area. On the other hand, almost 33 percent said "no" to the

TABLE XXXVI

A SUMMARY OF PRODUCERS' PERCEPTIONS OF WHETHER OR NOT
 THEY PERCEIVE GROWER BENEFITS, COOPERATION, AND
 COMMUNITY SUPPORT AS A RESULT OF ATTRACTING
 AN ALFALFA PROCESSING INDUSTRY TO THE
 FOUR-COUNTY AREA

Category Of Producer Perceptions	Frequency N = 149	Percent (%)
Benefits Accuring To Producers		
Yes	100	67.11
No	43	28.86
Non-Responses	6	4.03
Willingness To Cooperate/ Contract A Portion Of Crop		
Yes	89	59.73
No	56	37.58
Non-Responses	4	2.69
Community Support For Alternative Markets And New Alfalfa Processing Industry		
Yes	94	63.09
No	49	32.88
Non-Responses	6	4.03

question of whether or not they perceived favorable community support for new agribusiness industry to locate in the area. Six respondents out of the 149 total chose not to indicate whether or not they believed community support would be available.

Conclusions

The interpretations and major findings presented in this study provided a basis for the following conclusions:

1. The major findings of the study indicated that over 32 percent of the producer respondents had 31 to 50 years of farming experience. Therefore, with the average age of Oklahoma Farmers being slightly less than 58 years, it was concluded that the younger generation was not entering the farming business and specifically not producing alfalfa.

2. The major findings of the study indicated that about 90 percent of respondents were owner/operators or owner/renters. Therefore, it was concluded that as a whole, alfalfa producers own their own farming operations.

3. The major findings of this study indicated that over 72 percent of respondents classified themselves as either forage or field crop producers. However, over a third of the respondent growers market their alfalfa through feeding it to livestock. Therefore, it was concluded that a larger proportion of alfalfa producers raised additional crops instead of livestock.

4. The major findings of this study indicated that over 67 percent of respondents perceived their communities as progressive toward change. Therefore, it seemed that communities in the four-county area were open to new ideas and supportive of attracting new industry.

5. The major findings of this study indicated that over 72 percent of respondents perceived the major source of income in their community was derived from agriculture. However, it was concluded that agriculture was a major contributor to the economy of the four-county area, but not the major industry in the area.

6. The findings of the study indicated that most respondents perceived the major sources of revenue to support county government were derived from ad valorem taxes. Therefore, it was concluded in the absence of an increasing sales tax collection and gross production taxes from natural gas that ad valorem taxes were the major contributor to the support of county governments in the area.

7. The findings of this study indicated that less than 20 percent of respondents farm 320 acres or less. Therefore, it was concluded that there was a movement away from the "family size" farm among the ranks of alfalfa producers in the four-county area.

8. The findings indicated that over 97 percent of respondents were harvesting alfalfa as hay. Therefore, it was concluded that a large demand for alfalfa hay exist,

while at the same time hay producers have a considerable investment in both haying equipment and experience.

9. The findings indicated that over two-thirds of the alfalfa produced was sold. Therefore, it was concluded that alfalfa hay was a major source of income derived from the farming operations of the respondents.

10. The findings indicated that over 99 percent of the respondents preferred method to market their alfalfa was as hay. Therefore, it was concluded that the greatest demand for alfalfa was as hay, because of the availability of equipment, transportation, storage facilities, feeding facilities, convenience, and experience in handling hay.

11. The findings indicated that over 61 percent of the respondents were willing to contract a portion of their alfalfa crop to an alfalfa processing facility. Therefore, it was concluded that the supply of alfalfa may be conducive to the establishment of an alfalfa processing facility.

12. The findings indicated that about 70 percent of the respondents perceived area alfalfa producers would benefit from an alfalfa processing facility. Therefore, it was concluded that alfalfa producers in the four-county area have a positive perception toward the establishment of an alfalfa processing facility in the area.

13. The findings indicated that about two-thirds of the respondents believed their communities would be supportive of attracting an alfalfa processing facility to

their area. Therefore, it was concluded that the respondent producers were supportive of the idea to develop additional/alternative markets for their alfalfa and that support for such an effort would be forth coming from the communities in the area.

14. It was apparent from the findings that many alfalfa producers perceive that the availability of low interest loans would be attractive enough for a processing firm to locate in the area. Therefore, it was concluded that many communities would not make tax concessions to attract new agribusiness industry to their area.

15. The findings indicated that 60 percent of the respondents would not be willing to purchase feed products processed from their own crop. Therefore, it was concluded that alfalfa producers prefer feeding alfalfa hay instead of a processed alfalfa pellet because of existing feeding equipment and facilities.

16. Since quality alfalfa hay seems to be somewhat consistent with regard to demand, it was apparent that producers were not interested in investing in new equipment to enhance the development of alternative markets.

17. The findings of the study indicated it was rather apparent that growers were currently producing at the upper-level of their potential.

18. Overall, it was apparent that producers have a considerable investment in harvesting equipment and are comfortable with the concept of marketing their cash crop

as baled hay. However, the major barrier to aggressively pursuing a processing industry is not feasibility, but the absence of incentive to change.

Recommendations

The following recommendations were made from the conclusions drawn from the data analysis:

1. Based on the conclusion that few young people are entering the farming business, it was recommended that efforts made toward the establishment of an alfalfa processing industry be directed toward attracting personnel with an interest in agriculture from the area.

2. Based on the conclusion that the farming sector was well-experienced in number of years in farming, it was recommended that their experience be utilized if plans for attracting and developing a processing industry ever materialize.

3. Based on the conclusion that the geographic area surveyed had an absence of major industry, it was recommended that county government officials work closely with state agencies to provide a climate conducive for attracting an industry such as an alfalfa processor.

4. Based on the conclusion that the greatest demand for alfalfa was as hay, it was recommended that if and when an alfalfa processing industry is attracted to the area that emphasis on product quality be a primary consideration.

5. Based on the conclusion that alfalfa producers prefer selling hay, rather than marketing it through livestock, it was recommended that community business and industry leaders understand that the initial establishment of an alfalfa processing industry be considered to provide additional markets rather than a single alternative.

6. Based on the conclusion that the supply of alfalfa crop may be conducive to the establishment of an alfalfa processing industry it was recommended that limiting factors be considered and eliminated if possible.

7. Based on the conclusion that alfalfa producers perceive that their communities have a positive outlook toward the establishment of an alfalfa processing industry, it was recommended that communication between industry developers, the community, and producers be constantly encouraged.

8. Based on the conclusion that communities would not make economic concessions to attract new agribusiness industry, it was recommended that plans be developed to investigate alternatives for securing financing such as low interest loans or industrial park-type locations.

9. Based on the conclusion that alfalfa producers did not prefer to purchase a processed alfalfa product for their own use, it was recommended that incentives and promotional efforts be developed to encourage area livestock producers to adopt the use of locally processed alfalfa feed products.

Recommendations for Additional Research

The following were recommendations for further research based on my experience and knowledge gained from conducting this study.

1. A study should be conducted to determine the feasibility of establishing an alfalfa processing industry in South-Central Oklahoma.

2. A study should be conducted to determine more precisely the alfalfa acreage and production that would be committed to an alternative market source.

3. A more in-depth study should be considered to determine community and local government involvements relating to the establishment of an alfalfa processing industry in the area.

4. A study should be conducted to determine the profit-margin necessary for sustaining an alfalfa processing industry in South-Central Oklahoma.

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APPENDIX

Number

TELEPHONE INTERVIEW

county

date

time

group

phone

Hello, _____ my name is _____ and I am with Oklahoma State University. We are surveying Oklahoma farmers about alternative agricultural enterprises for Oklahoma. May we have a few minutes of your time to ask you a few questions?

YES _____ NO _____ If this is a poor time could we call you at a later time? (If so) when? _____ (if no) Thank you for your time. Good-bye.

1. Please indicate which definition best describes the person completing this survey (Please check only one response):

____ Farm Operator or Manager
____ Farm Owner
____ Spouse of Farmer
____ Agribusiness Operator/Dealer
____ Community Leader
____ Other (Please be specific) _____

2. Gender:

____ Female _____ Male

3. Marital Status:

____ Married _____ Single

4. Age: _____

5. Highest level of formal education attained:

____ High School
____ Technical School (Vo-Tech)
____ 2 yrs. College (Associate Degree)
____ Baccalaureate (B.S.) Degree
____ Master's Degree
____ Doctorate
____ Other (Please specify) _____

6. Years of Farming Experience _____
7. Farming Status:
- _____ Full Time
 - _____ Part Time
 - _____ N/A
8. Type of Farming Operation:
- _____ Owner/Operator
 - _____ Cash Rent/lease only
 - _____ Crop Rent/lease only
 - _____ Own and cash rent/lease
 - _____ Own and crop rent/lease
 - _____ Partnership
9. Type of Farm (Primary Purpose). (Please check one only response):
- _____ Field Crop
 - _____ Vegetables
 - _____ Fruit/Nut
 - _____ Livestock
 - _____ Forage Production
 - _____ Other (Please Be Specific) _____
10. In your opinion which statement best describes your community with regard to changes:
- _____ Progressive
 - _____ Slow to Change
 - _____ Maintains the status quo
11. Which statement best describes your community on a rural/urban continuum?
- _____ Almost completely rural
 - _____ Mostly rural, but some urban
 - _____ about evenly divided rural/urban
 - _____ Mostly urban, but some rural
 - _____ Almost completely urban
 - _____ Metropolitan
12. Major sources of income in your community are derived from: (Please check only one response):
- _____ Agriculture
 - _____ Energy (Oil & Gas)
 - _____ Small Business
 - _____ Agribusiness
 - _____ Tourism
 - _____ Government
 - _____ Other (Please Specify) _____

13. Major sources of revenue utilized to support the budget for county government in your county: (Please check only one response):

☐ Ad Valorem Tax
☐ Gross Production Tax
☐ Income Tax
☐ Personal Property Tax
☐ Sales Tax
☐ Fuel Tax
☐ User Tax
☐ Other (Please Specify) _____

14. How many acres in your farm? _____

15. How many acres on your farm are cultivated? _____

16. Major cash crop produced (Rank according to level of income generated: 1st, 2nd, 3rd, 4th, etc.).

<input type="checkbox"/> Alfalfa	<input type="checkbox"/> Soybeans
<input type="checkbox"/> Wheat	<input type="checkbox"/> Corn
<input type="checkbox"/> Vegetables	<input type="checkbox"/> Milo
<input type="checkbox"/> Melons	<input type="checkbox"/> Cotton
<input type="checkbox"/> Pecans	<input type="checkbox"/> Sorghum Hay
<input type="checkbox"/> Large Fruits	<input type="checkbox"/> Grass Hay
<input type="checkbox"/> Small Fruits	
<input type="checkbox"/> Other (Please Specify) _____	

17. Acres of Major cash crop harvested (Select the appropriate acreage response of the Primary Crop Produced) _____

18. Do you consider yourself an alfalfa producer: (If yes, proceed to question 1

☐ YES ☐ NO

☐ Number of acres produced

☐ Tons harvested last year

19. As an alfalfa producer, how do you primarily harvest your crop?
ONLY ALFALFA PRODUCERS ANSWERS THIS QUESTION.

<input type="checkbox"/> Hay	<input type="checkbox"/> Silage
<input type="checkbox"/> Greenchop	<input type="checkbox"/> Grazing
<input type="checkbox"/> Other (Please Specify) _____	

20. Primarily how do you presently market most of your alfalfa crop?
(Please check only one response).

☐ Sell hay off the meadow
☐ Sell stored and cured hay out of the barn
☐ Market alfalfa through livestock feeding
☐ Other (Please Specify) _____

21. How would you prefer to market your alfalfa crop?
- | | |
|---|--|
| <input type="checkbox"/> As Hay | <input type="checkbox"/> Greenchop |
| <input type="checkbox"/> Silage | <input type="checkbox"/> Dehydrated Meal |
| <input type="checkbox"/> Pellets | |
| <input type="checkbox"/> Other (Please Specify) _____ | |
22. How important to you as a producer, is the quality of the alfalfa crop produced on your farm?
- | | |
|---|--|
| <input type="checkbox"/> very Important | <input type="checkbox"/> Important |
| <input type="checkbox"/> Somewhat Important | <input type="checkbox"/> No Importance |
23. If you had the opportunity, would you be willing to contract your crop to a pelleting/meal plant?
- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|
- Why or Why not? _____
24. In your opinion, would an agribusiness such as alfalfa dehydration meal/pelleting plant be beneficial for producers in your area?
- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|
- If yes, explain how you feel it would be beneficial?
25. If the opportunity existed what portion of your crop would you be willing to contract to an alfalfa meal/pelleting plant. Please circle your response.
- 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
- 90 95 100
26. In your opinion, do you think your community would support a new industry such as an alfalfa dehydration meal/pelleting plant?
- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|
27. If yes, how do you think the community/public would be willing to support such an industry? (Rank all the possible responses 1,2,3, etc.)
- | |
|---|
| <input type="checkbox"/> Concessions on ad valorem taxes |
| <input type="checkbox"/> Development of an industrial park system |
| <input type="checkbox"/> Venture capital |
| <input type="checkbox"/> Sell bonds |
| <input type="checkbox"/> Providing a trained work force |
| <input type="checkbox"/> Low interest loans |
| <input type="checkbox"/> Long term "Lease" on land |
| <input type="checkbox"/> Concession on utilities |
| <input type="checkbox"/> Purchases of corporate stock |
| <input type="checkbox"/> Other (Please Specify) |

28. If a skilled work force were assured, from where would most potential employees accrue? (Please check only one response).

☐ High School Graduates
☐ Vo-Tech Graduates
☐ Industry Trained
☐ Displaced Farmers
☐ Recruit trained personnel from outside the community
☐ Other (Please Specify) _____

29. This agribusiness industry should be organized as a

☐ Company; individual ownership
☐ as a Cooperative
☐ as a Corporation
☐ Other (Please Specify) _____

30. As a producer would you be willing to purchase your own feed product from an alfalfa processor?

☐ Yes ☐ No

31. How many acres alfalfa do you currently have in production? _____

32. What would be the maximum acres you would produce without an additional market? _____

33. How many acres could you produce with an alternative market? _____

34. Of your current production, what percent of your total crop is sold _____ . What percent of your total crop is fed _____ .

VITA

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Candidate for the degree of
Master of Science

Thesis: AN ASSESSMENT OF SELECTED ALFALFA PRODUCERS'
PERCEPTIONS OF MARKET ALTERNATIVES AND FUTURE NEED
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