

A STUDY OF PERCEPTIONS OF CUSTOMERS REGARDING  
SERVICES OF LOCAL COMMERCIAL  
FERTILIZER DEALERS

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## PREFACE

Farmers and ranchers are demanding more services within the agricultural fields, especially the farm suppliers and commercial fertilizer dealers. There must be emphasis placed on customer services in today's market. More aggressive dealers are obtaining technical knowledge in agriculture, so they may become of more service to their customers.

This broad expansion in agriculture can be a real challenge to the alert, aggressive local commercial fertilizer dealers in Oklahoma. This study was designed to provide the dealers with information on farmers and ranchers buying habits, services expected, and general information pertinent to the dealers' business.

I would like to express my appreciation to Dr. Robert Price, Head of the Department of Agricultural Education and Dr. James Key, Department of Agricultural Education and adviser for the assistance and guidance throughout my master's program of study.

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## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION . . . . .	1
Statement of the Problem . . . . .	2
Importance of the Study . . . . .	2
Objectives of the Study . . . . .	2
Theoretical Framework . . . . .	3
Limitations of the Study . . . . .	3
Operational Definitions . . . . .	4
II. REVIEW OF LITERATURE . . . . .	6
III. DESIGN AND METHODOLOGY . . . . .	10
Instrument Preparation . . . . .	10
Selection of the Population . . . . .	10
Methods of Collecting Data . . . . .	11
The Hypotheses . . . . .	11
Processing of Data . . . . .	12
IV. PRESENTATION OF DATA . . . . .	13
V. SUMMARY AND CONCLUSIONS . . . . .	33
Summarization of the Objectives and Specific Findings for Each . . . . .	33
Summary of the Hypotheses . . . . .	35
A SELECTED BIBLIOGRAPHY . . . . .	39
APPENDIX . . . . .	40

## LIST OF TABLES

Table	Page
I. Classification of Farmers and Ranchers by Age . . . . .	14
II. Labor Availability Reported by Different Age Groups of Consumers . . . . .	15
III. Classification of Consumers and Part Time or Full Time Operators . . . . .	16
IV. Classification of Farmers by Grade Level and Part Time or Full Time Operators . . . . .	17
V. Classification of Farmers Years of Experience and Full Time or Part Time Farmers . . . . .	18
VI. The Average Pounds of Commercial Fertilizer Applied Per Acre, Per Crop and Percentage of Each Ratio Per Crop . . . . .	20
VII. Tons of Lime Farmers Applied Per Acre on Cropland . . . . .	21
VIII. Tons of Lime Farmers Applied Per Acre on Pastureland . . . . .	21
IX. Sources of Information from Which Farmers Obtained Knowledge to Make Changes in Their Fertilization Practices . . . . .	22
X. Information Given to Customers by Local Dealer Pertaining to Commercial Fertilizer . . . . .	24
XI. Quality of Information Given to Customers by Local Dealer Pertaining to Commercial Fertilizer . . . . .	24
XII. Field Days or Educational Meetings Conducted by Various Agencies . . . . .	26
XIII. Cost of Spreading Commercial Fertilizers . . . . .	27
XIV. Average Number of Acres Involved in this Study . . . . .	28
XV. Percentage of Farmers Having Soils Tested by the Different Agents . . . . .	29

Table	Page
XVI. Percentage of Farmers Testing Soils According to Testing Interval . . . . .	29
XVII. Sources of Information . . . . .	31
XVIII. Items that Will Influence a Customer . . . . .	32

## CHAPTER I

### INTRODUCTION

In our rapidly expanding economy, some new merchandising techniques have had great impact on customer buying habits and retail prices. This change is being brought about by the rapidly advancing technological and scientific discoveries in all fields of endeavor. Customer services are a big thing with fertilizer companies these days. Everybody knows they are expensive items and highly important in building or protecting market share in local area. But nobody seems to be quite sure just how expensive or important customer services actually are. The wide offering of customer services is a merchandising tool in the plant food industry. Farmer behavior and motivations were probed using psychological techniques as well as direct questions.

This survey was designed to shed light on how customer services were being used in the fertilizer market, a market currently exposed to a high degree of competition, low market prices and various forms of customer services. Dealers and suppliers are currently faced with low prices. This has created an excess supply of fertilizer and a large number of outlets competing for a domestic market which has not grown rapidly enough.

The fact that basic fertilizer ingredients are fairly uniform intensifies competition. This leaves dealers with little else besides prices and customer services as a direct means of enticing farmers to



their firm. The results have been low prices and the development of a conglomeration of customer services.

### Statement of the Problem

The problem: What are the perceptions of customers regarding services of local commercial fertilizer dealers? This study was concerned with the customer services given by local commercial fertilizer dealers in Northeastern Oklahoma. Of particular concern is the belief that a more effective job can be accomplished if the characteristics of customer services are known.

### Importance of the Study

One of the reasons for this study was to determine the effects of the varied services a commercial fertilizer dealer can offer. Fertilizer sales, of course, are a significant portion of most farm suppliers overall income. Some do a superior job, other dealers often feel they should be doing more volume but do not exactly know the reason why they are not. The secret in many cases was how the farmer views the dealer and his services. Often without realizing it, the local dealer was just not giving the customer exactly what he wants. To show the type of customer demands that may be prevalent was the purpose of this study, taken from sixteen Northeastern Oklahoma counties.

### Objectives of the Study

The major objectives of the study are:

1. To determine the customer services that farmers demand in Northeastern Oklahoma.

2. Determine the major factors which may be associated with the demands of customer services.
3. To determine to what extent a dealer can justify these services.
4. To determine the source of information from which farmers receive new ideas on farming.
5. To determine the average cost of rendering such customer services.
6. To determine what a farmer looks for when dealing with a commercial fertilizer dealer.

#### Theoretical Framework

It can be recognized that within the boundaries of the geographical locations of the various commercial fertilizer dealers for this study there will be considerable variations.

These variations exist because of the difference in farming areas within the boundaries for this study. Also the general economy in certain areas of this study will differ greatly.

The educational level in certain areas of study will greatly effect the fertilizer consumption and the services rendered in comparison to areas that are more aggressive. These factors along with many others not mentioned can show the variations that will exist among commercial fertilizer dealers in Northeastern Oklahoma.

#### Limitations of the Study

It must be recognized that there are certain limitations to this study. These limiting factors are listed below:

1. The individual's understanding of each item answered on the

survey.

2. The items used in the survey include only selected factors which are related to the percepts of customer services. They are in the author's opinion, the major factors. To others who might wish to make a study, these factors might seem minor and not be included.

3. The data in this report was collected from sixteen Northeastern Oklahoma counties through the cooperation of twenty commercial fertilizer dealers and forty farmers and ranchers.

### Operational Definitions

Commercial Fertilizer Dealer: This term refers to all factors affecting and relating to one having to do with commerce, designed for profit or mass appeal, to sell or distribute commercial fertilizer.

Perceptions: As a function of non-conscious expectation derived from past experience and serving as a basis for or verified by further meaningful motivated action.

Customers: A regular or frequent buyer.

Cropland: Land devoted to the production of planted crops.

Pastureland: Land or a plot of land used for grazing.

Supplier: The act or process of filling a want or need and the quantities of goods or services offered for sale at a particular time or at one price.

Services: A duty performed for a customer at a given price or to attract customers with this performance.

Custom Application: The hiring of special equipment to apply a certain product for a customer.

Broadcast Spreader: A machine that is pulled by some source of

power and distribute a fertilizer material evenly over a given ground area with the aid of a spinner, attached to the rear portion to aid in distribution.

Blended Fertilizer: A fertilizer that isn't chemically processed into one pellet containing the appropriate plant food nutrients.

Homogenized Fertilizer: A fertilizer that is chemically processed into one pellet containing the appropriate plant food nutrients.

Ezy Flow: A machine that is pulled by some source of power and distribute fertilizer materials evenly through a predetermined opening by gravity flow from the bottom of machine.

## CHAPTER II

### REVIEW OF LITERATURE

There has been very little research conducted concerning the area of perceptions of customers regarding services of local commercial fertilizer dealers. In reviewing the literature on this subject, a minimal amount of material was found pertinent to the study.

Fertilizer sales, of course are a significant portion of most farm suppliers' overall income. Some do a superior job. Other dealers often feel they should be doing more volume but do not exactly know the reason why they are not. The secret in many cases is how the farmer views the dealer and his services. Often without realizing it, the local supplier is just not giving the customer exactly what he wants.

According to Dr. W. Downey (1), this study was carried out by the Department of Agricultural Economics, at Purdue University during the 1969 spring season. The survey was designed to shed light on how customers' services were being used in the fertilizer market, a market currently plagued with excessive competition, low prices and a vast array of customer services. The fertilizer industry in Indiana has gone through a rapid period of growth and change. From 1956 to 1966 the share of the market held by bagged fertilizer dropped from 89.3 percent to 31.6 percent, while the share held by bulk fertilizer increased from 7.5 percent to 40 percent. Liquid nitrogen went from 1.7 percent to 21.9 percent. During this same period, there was a considerable increase in the total

production of fertilizer.

Dealers have continually been faced with falling prices. This has resulted from large supplies of fertilizer and a large number of outlets competing for a domestic market which has not grown rapidly enough.

According to Dr. Downey (1), the fact that basic fertilizer ingredients are fairly uniform intensifies competition. This leaves dealers with little else besides prices and customer services as direct means of enticing farmers to their place of business. The results have been low prices and the development of a conglomeration of customer services.

Dr. Downey (1), in his recent study with the Department of Agricultural Economics at Purdue University, application, blending, soil testing and soil sampling are services dealers said they feel draw new customers. Application is rated very high for this function by all firms. These same four services will also keep customers coming back.

It is important to note that cooperatives, independents and chain operated firms also consider that credit and fertilizer delivery are good services to bring customers back, but they do not rate them very high as services to draw new customers. These six services were also ranked the more important customer services in relation to sales.

Many dealers are reluctant to admit their competitors had any influence on their business. But those that did, agreed that credit was often provided because competition offered it. The general response to credit seems to be that firms do not particularly like it, but is a necessary evil of doing business. Dealers consistently ranked this service among the top four in terms of sales promotion according to the Purdue University survey (1).

It appears that most fertilizer retailers do not feel that farm

planning, tissue testing, yield checks and field demonstrations are very effective services. These four services are offered by considerably fewer firms than other services studied. They are also ranked low as sales promoters.

In terms of drawing new customers, drawing customers back, or meeting competition, most dealers consider these four weak. The reason chains offer them more seems to result from a generally stronger promotion of customer services by chains.

One of the ways to recover the cost, or at least part of the cost of a customer service is to make separate charge for it. The four services that most often have "separate charges" are credit, blending, application and fertilizer delivery (1).

But there are a significant number of firms which do not have separate charge for any other service.

A few firms charge for soil testing, but many do say the charge does not cover the cost of the service. A large number of the firms which charge for credit and blending feel the charge does cover the cost of the service. But many of those charging for application and delivery indicate their charge is inadequate (1).

How, then, is the cost of these services covered? Sixty percent of the responding firms feel that larger sales volume and higher product prices cover the cost of services, with more emphasis on sales volume. It is interesting to note, though, that a considerable number admit they are not sure these costs are covered (1).

To reduce costs, dealers need better cost records on aspects ranging from product purchase to customer service cost. Combining sound cost information with what local farmers want in products and services,

it may be discovered that a firm's costs can be considerably reduced by concentrating sales efforts where costs are the lowest and customer demand the greatest. A dealer may be able to eliminate an expensive full-line service package and specialize in providing package and specialize in providing in few services having a high degree of quality.

According to Sims (2), 1965, the implication of structural changes in the economy of the commercial farm to farm supply firms are numerous. The farmer will become a more sophisticated purchasing agent and will demand and receive prices which will result in narrower margins for the supply firm. He will continue to concentrate his volume and to bargain more effectively. This will also bring pressure on present margin structures. The farmer will seek additional services which will help him solve his technical problems, his credit and capital problems, and he will expect to exploit the new developments of research carried on for him.



## CHAPTER III

### DESIGN AND METHODOLOGY OF THE STUDY

The purpose of this chapter is to describe the method by which the instrument was prepared, the determination of the population to be studied, methods of collecting the data, the Oklahoma area covered by this study, general information of selected area, the research hypothesis and the treatment and processing of data.

Since the objectives were to gather information about the perceptions of customers regarding services of local commercial fertilizer dealers in the given area, the first was to prepare an instrument that would most accurately provide the necessary information desired for this study.

#### Instrument Preparation

There are many factors affecting the perceptions of customer services regarding a commercial fertilizer dealer in Oklahoma today. After preparing a number of responses desired, the instrument was presented to Dr. James Key, of the Agricultural Education Department at Oklahoma State University for suggested changes and revisions. Upon completion of the instrument, it was presented to the group of respondents.

#### Selection of the Population

There were sixteen counties selected in the extreme Northeastern

area of Oklahoma. Twelve counties were represented with one dealer each and four counties were represented with two dealers each. A total of sixteen counties and twenty commercial fertilizer dealers. The commercial fertilizer dealers selected sold five hundred tons of commercial fertilizer or more annually. It was decided that two random samples would be taken from each dealer represented in this survey. A mailing list of farmers and ranchers was secured from each dealer and forty individuals were selected.

### Methods of Collecting Data

The author conferred with the managers of each business that participated, in regard to how the personal questionnaires were to be distributed and gathered. They all agreed to assist with the survey if requested by the author. It was the author's responsibility to distribute and conduct this personal interview.

### The Hypotheses

The following hypotheses were established for the study:

1. The larger percent of farmers will have a soil analysis run every three to four years.
2. Farmers will not apply fertilizers according to the soil analysis or the recommendations made by the local county extension department or the soil conservation department within their county.
3. Farmers and ranchers will obtain most of their ideas about changes made in their fertilization program from various articles in farm magazines.
4. A larger percent of the fertilizer will be applied by commer-

cial truck spreaders, a service offered by the local commercial fertilizer dealers.

5. Most of the farmers expect an increase in total consumption of nitrogen solutions being applied on agricultural products because of the compatibility with various pesticides.

6. Most farmers expect to pay commercial fertilizer dealers a premium for services they are now demanding.

### Processing of Data

The data obtained in this study represented almost one fourth of the area in Oklahoma serviced by the local commercial fertilizer dealers. The data was tabulated to be presented in this thesis.

## CHAPTER IV

### PRESENTATION OF DATA

This report is a summarization of the findings of forty survey schedules completed by farmers and ranchers from sixteen Northeastern Oklahoma counties. The counties are: Adair, Cherokee, Craig, Delaware, Mayes, McIntosh, Muskogee, Nowata, Okfuskee, Okmulgee, Ottawa, Rogers, Sequoyah, Tulsa, Washington, and Wagoner. The results being presented should give us valuable information regarding the percepts of customers regarding services of local commercial fertilizer dealers, thus enabling suppliers and dealers to better understand the needs of the customer.

Age is one of the main factors considered in this study. Data shown in Table I reveals the various age groups among farmers in Northeastern Oklahoma.

It can be readily seen from the findings presented in Table I that approximately 32.5 percent of the farmers are in the age group 41-50 years of age, and 25 percent in the age group 31-40 years, which is the second largest age group in the study. The age group 61 years and over represented 17.5 percent of population.

TABLE I  
CLASSIFICATION OF FARMERS AND RANCHERS BY AGE

Age	Number	Percentage
20-30 years	4	10.0
31-40 years	10	25.0
41-50 years	13	32.5
51-60 years	6	15.0
61 and over	7	17.5

An interesting aspect of the study indicated in Table II is the availability of farm labor to the 41-50 age group. It also indicated the labor supply is very critical to the 20-30 age group, with this farm labor supply increasing to the middle age group and then sharply decreasing as the age groups increase. This could be accounted for when one analyzes the situation and finds that the middle age group have more and better equipment available. Also with this group there will be more steady work available which would affect the average farm employee. The situation affecting the labor supply for the younger and older groups would be the lack of equipment, and steady employment for the entire year.

TABLE II

## LABOR AVAILABILITY REPORTED BY DIFFERENT AGE GROUPS OF CONSUMERS

Age	Number	Percent of Age Group Reporting Type of Labor Availability			
		Good	Fair	Poor	None
20-30 years	4	0.0	75.0	25.0	0.0
31-40 years	10	30.0	40.0	30.0	0.0
41-50 years	13	15.4	61.5	23.1	0.0
51-60 years	6	16.7	50.0	33.3	0.0
61 and over	7	14.3	42.9	28.6	14.3
TOTALS:	40	17.5	52.5	27.5	2.5

An interesting aspect of the study indicated by Table III is the fact that 100 percent of the farmers between the ages of 20-30 are only part time farmers. It also indicates that 60 percent of the farmers in the age group 31-40 are part time farmers. This could be accounted for when one analyzes the situation and finds that this group is attempting to accumulate working capital. Also it can be observed that the age group 41-50 had more adequate labor supply as indicated by Table II. Also 92.5 percent of this group are full time operators. Beyond the 41-50 age group this study did not reveal any part time farmers or ranchers.

TABLE III

## CLASSIFICATION OF CONSUMERS AND PART TIME OR FULL TIME OPERATORS

Age	Number	Total Percentage	Full Time		Part Time	
			N	%	N	%
20-30 years	4	10.0	-	--	4	10.0
31-40 years	10	25.0	4	10.0	6	15.0
41-50 years	13	32.5	12	30.0	1	2.5
51-60 years	6	15.0	6	15.0	-	--
60 and over	7	17.5	7	17.5	-	--
TOTALS:	40	100.0	29	72.5	11	27.5

An interesting aspect of the study indicated in Table IV is the average grade level for this group of farmers and ranchers. The average grade was 12.4 years. As indicated in Table IV, the 4-9 grade level shows 100 percent full time farmers and ranchers. This group is also in the 61 and over group found in Table I. The grade level 10-12 consists of 45 percent of the total farmers in this study and approximately 83.5 percent of this grade level are full time operators. The group that held a college degree was approximately 30 percent of the total farmers in the study. Approximately 50 percent of this group were part time farmers with off-the-farm employment.

TABLE IV  
CLASSIFICATION OF FARMERS BY GRADE LEVEL  
AND PART TIME OR FULL TIME OPERATORS

Grade Levels	Number	Percentage	Full Time	Part Time
4-6	2	5.0	5.0	--
7-9	5	12.5	12.5	--
10-12	18	45.0	37.5	7.5
1-2 College	2	5.0	2.5	2.5
3-4 College	1	2.5	--	2.5
Degree	12	30.0	15.0	15.0
TOTALS:	40	100.0	72.5	27.5

One of the major aspects of this study was to determine the years of experience and whether the farmer was full time or part time employed on the farm. Data compiled and presented in Table V gives a complete breakdown of the years experience and employment in Northeastern Oklahoma. Farmers with 5-10 years experience accounted for 15 percent of the total farmers in this study. Approximately eighty-three percent of this group were part time farmers.

Findings shown in Table V provide some interesting information that is closely related to data shown in Table III. These findings indicate that farmers with 36 years and over experience in farming are 100 percent full time farmers. From the findings shown in Table V the conclusion is apparent that approximately 72.5 percent of the farmers inter-



viewed in the survey are full time farmers and ranchers.

TABLE V  
CLASSIFICATION OF FARMERS YEARS OF EXPERIENCE  
AND FULL TIME OR PART TIME FARMERS

Years Experience	Number	Total Percentage	Full Time N	Full Time %	Part Time N	Part Time %
5-10 years	6	15.0	1	2.5	5	12.5
11-15 years	5	12.5	3	7.5	2	5.0
16-20 years	8	20.0	6	15.0	2	5.0
21-25 years	7	17.5	5	12.5	2	5.0
26-30 years	2	5.0	2	5.0	-	--
31-35 years	3	7.5	3	7.5	-	--
36 and over	9	22.5	9	22.5	-	--
TOTALS:	40	100.0	29	72.5	11	27.5

A very interesting aspect apparent on examination of data in Table VI is the high fertilizer usage on mainly three crops, small grains, milo and pastures, with the largest percentage of the 1-3-3 ratio being applied on milo, small grains and soybeans. The more common 12-12-12 or 13-13-13, a 1-1-1 ratio being utilized mainly on bermuda grass and fescue grass pastures. The commercial fertilizer dealer is finding that farmers are applying early in season on these crops and coming back later with one or two applications of nitrogen when the soil warms

up and the grass starts growing. The most common ratio is the 1-2-1, most commonly known as a 10-20-10 analysis. This ratio is also commonly used on pastures and small grains. In considering the plant food that is supplemented for the necessary growth in alfalfa production is usually a 0-1-1 ratio. In this study approximately 83 percent of the 0-1-1 ratio was used on alfalfa, this ratio is commonly known as 0-20-20, 0-25-25 or 0-26-26 analysis. Some of the other grades of fertilizer were used on alfalfa as a starter fertilizer at planting time.

Urea is a synthetic, 45 percent nitrogen fertilizer and was found in this study to be mostly used on bermuda grass pastures and milo. The most common dry nitrogen form is ammonium nitrate and in this survey was found to be used mainly on bermuda, milo and top dressing for small grains.

TABLE VI

THE AVERAGE POUNDS OF COMMERCIAL FERTILIZER APPLIED PER ACRE,  
PER CROP AND PERCENTAGE OF EACH RATIO PER CROP

Crop	1-3-3	%	1-1-1	%	1-2-1	%	0-1-1	%	Urea	%	Nitrate	%
Small Grains	160	15.9	300	6.6	200	25.9	---	--	100	7.4	130	21.0
Alfalfa	183	6.0	---	----	---	----	325	83.4	---	----	---	----
Corn	350	6.9	---	----	---	----	---	----	400	3.7	200	2.0
Milo	274	32.5	300	6.6	225	14.9	---	----	266	33.3	200	25.0
Soybean	111	15.8	---	----	150	7.4	250	16.6	300	3.7	---	----
Cotton	250	10.8	---	----	---	----	---	----	---	----	257	14.5
Peanut	67	1.4	---	----	---	----	---	----	---	----	---	----
Fescue Grass	34	2.2	240	33.4	100	3.8	---	----	300	3.7	150	8.3
Bermuda Grass	200	7.2	200	53.4	185	48.0	---	----	160	37.0	143	29.2
Silage	134	.6	---	----	---	----	---	----	300	11.2	---	----
AVERAGE:	176		206		172		287		260		180	

TABLE VII

TONS OF LIME FARMERS APPLIED PER ACRE ON CROPLAND

Years	Number of Farmers Applying Lime				Percent Liming
	1 Ton	2 Ton	3 Ton	4 Ton	
1965	1	16	1	3	52.5
1966	0	1	0	1	5.0
1967	0	4	0	1	12.5
1968	0	5	2	0	17.5
1969	1	5	3	2	27.5
1970	1	7	3	2	32.5
AVERAGE:					24.6

TABLE VIII

TONS OF LIME FARMERS APPLIED PER ACRE ON PASTURELAND

Years	Number of Farmers Applying Lime				Percent Liming
	1 Ton	2 Ton	3 Ton	4 Ton	
1965	0	3	1	0	10.0
1966	0	3	1	1	12.5
1967	0	4	2	2	20.0
1968	3	3	0	0	15.0
1969	1	5	1	2	22.5
1970	0	2	1	2	12.5
AVERAGE:					15.4

It is indicated in Table VII and VIII that liming has hardly been practiced on crop land and pastureland within the past six years. It has been estimated by various county extension officials that the average pH is approximately 5.6 in most of the Northeastern Oklahoma counties. Table VII shows that approximately 24.6 percent of the farmers applied lime to cropland in the past six years. Also it is interesting to observe in Table VIII that approximately 15.4 percent applied lime to pastureland within the past six years.

TABLE IX

SOURCES OF INFORMATION FROM WHICH FARMERS OBTAINED KNOWLEDGE  
TO MAKE CHANGES IN THEIR FERTILIZATION PRACTICES

Source of Information	Percent of Responses
Farm Magazines	33.7
Local Fertilizer Supplier	21.6
Neighbors	2.7
Fertilizer Representatives	14.9
Other Educational Meetings	1.4
OSU Extension Personnel	10.8
Radio	0.0
Television	0.0
Local Vocational Agriculture Department	14.9

The major source of information from which farmers obtained knowledge to make changes in their fertilizer practices was indicated by Table IX to be farm magazines. Approximately 21 percent of the farmers and ranchers indicated they try to depend upon the local fertilizer supplier to keep them abreast of new ideas and changes in the fertilization practices. It is inferred by Table IX and X that contrary to most thinking most local suppliers are not as sharp in keeping up with the many changes that are taking place in today's agriculture. Perhaps this is the reason why local fertilizer suppliers are given less credit as sources of information than farm magazines in Table IX. The local vocational agriculture department and the fertilizer representative share equally in their contribution for aiding the farmers with knowledge in making decisions to change the fertilizer practices. Oklahoma State University Extension personnel were indicated as a source of information slightly less than the local vocational agriculture department or the fertilizer representative. Other sources were not considered significant.

TABLE X

INFORMATION GIVEN TO CUSTOMERS BY LOCAL DEALER  
PERTAINING TO COMMERCIAL FERTILIZER

Time and Place of Information	Percentage
Each time customer was in dealer's business	10.0
Each time a supply of fertilizer was purchased	17.5
Not very often	40.0
Never unless customer asked for information	22.5
No response from dealer	10.0

TABLE XI

QUALITY OF INFORMATION GIVEN TO CUSTOMERS BY LOCAL DEALER  
PERTAINING TO COMMERCIAL FERTILIZER

Value of Dealer Information	Percentage
Excellent	40.0
Good	37.5
Fair	7.5
Poor	5.0
No response from dealer	10.0

One of the major aspects of this study was to determine the quality of information that a local fertilizer dealer shares with his customers. In Table X it can be seen that approximately 17.5 percent of the customers receive information pertaining to commercial fertilizer each time a supply was purchased. This will compare with approximately 40 percent of the customers to whom the dealer rarely gave any information. Approximately 22 percent of the customers never received any information from the dealer unless they asked for it. It can also be observed in Table X that approximately 10 percent of the customers received no response from the dealer. On the other hand, 10 percent of the customers received information about commercial fertilizer each time they were in the dealer's business. This aspect of the study should have real meaning to a dealer of commercial fertilizer and increase his desire for knowledge about his product line.

Table XI should be considered in relation to Table X when considering the quality of information a dealer shares with his customers. This study indicates to the author that approximately 75 percent of excellent and good information usually came from the more alert and aggressive commercial fertilizer dealers. Approximately 23 percent of the information shared with the dealers' customers had little or no value to the farmer or rancher.

An interesting aspect of Table XII, pertaining to the various sponsored field days that are conducted in Northeastern Oklahoma, was that of the six sponsors of special field days, company suppliers accounted for approximately 32 percent of the total meetings. The local commercial fertilizer dealer sponsored 23.5 percent of the field days. With most vocational agriculture departments and county extension direc-



tors working closely together, they shared the responsibility of sponsoring about 40 percent of the total field days conducted for various educational reasons.

TABLE XII

## FIELD DAYS OR EDUCATIONAL MEETINGS CONDUCTED BY VARIOUS AGENCIES

Agency	Percentage
Local Dealer	23.5
Local Vocational Agriculture Department	19.1
Commercial Applicator	2.1
County Extension Director	17.1
Company Suppliers	31.8
OSU Extension Personnel	6.4

Table XIII shows the average cost a dealer charges a customer for rental equipment. As indicated, the average cost of renting a broadcast spreader is about 33.5 cents per acre, and this equipment will spread about 21 percent of the total fertilizer. The average ezy flow charge is about 23.5 cents per acre and will account for about 1.5 percent of the total fertilizer spread. The customer owned equipment estimated cost per acre will average about 21.5 cents per acre, with such fertilizer attachments spreading approximately 36 percent of the total acres. The new trend in fertilizer application in the surveyed area is by

custom spreader trucks, at an average cost of about 74 cents per acre. This method of spreading will account for approximately 42 percent of the total commercial fertilizers spread.

TABLE XIII  
COST OF SPREADING COMMERCIAL FERTILIZERS

Equipment Used	Cost/Acre	Percent Fertilizer Spread
Broadcast spreaders	33.5¢	20.9
Ezy Flow spreader	23.3¢	1.4
Customer Fertilizer attachments	21.6¢	35.8
Commercial truck spreader	74.5¢	41.9

It is interesting to observe in Table XIV the number of acres that are involved in these farming operations. Substantial increase of leased land could be noted from 1965 to 1970. These farms averaged 368.3 acres in 1965 and 425.0 acres in 1970 per farmer surveyed in this study. This is approximately a 13.5 percent increase within a six year period. Within the same six year period the land owned only increased about 9 percent. Also, from 1965 to 1970 the cropland increased about 12 percent, and the pastureland increased about 18 percent. The total overall possession of land increased 12.3 percent within this six year period.

TABLE XIV  
AVERAGE NUMBER OF ACRES INVOLVED IN THIS STUDY

Acres	1965	1966	1967	1968	1969	1970
Acres leased	368.3	372.0	380.5	420.6	411.6	425.0
Acres owned	215.1	217.4	223.4	227.1	233.1	237.1
Cropland	316.8	322.4	330.4	336.8	353.5	361.5
Pastureland	209.2	207.3	208.6	230.0	242.0	254.1
Timberland	45.4	45.4	48.6	45.4	45.4	34.8
TOTAL ACRES:	571.4	575.1	587.6	612.2	640.9	650.4

According to Tables XV and XVI 90 percent of the farmers have had their soil tested within the past 10 years. It was indicated that nearly 45 percent of the soils tested were tested by the county extension directors and their staff. Company suppliers for the local dealers test approximately 17.5 percent. The OSU Soils Department and commercial testing companies account for approximately 12.1 percent each.

TABLE XV

## PERCENTAGE OF FARMERS HAVING SOILS TESTED BY THE DIFFERENT AGENTS

Agent Testing	Percentage Tested
County Extension	44.55
OSU Soils Department	12.15
Local Dealer	3.60
Commercial testing companies	12.15
Company suppliers for local dealer	17.55
Farmers not testing	10.00

TABLE XVI

## PERCENTAGE OF FARMERS TESTING SOILS ACCORDING TO TESTING INTERVAL

Time Interval Between Tests	Percentage Tested
1-2 years	14.85
3-4 years	37.80
5-6 years	19.80
7-8 years	10.35
9-10 years	7.20
No Soil Testing Program	10.00

According to Table XVI, most of the farmers have some kind of systematic soil testing program. It was found in this study that 37.80 percent of the farmers test soils every 3 to 4 years. This study revealed that approximately 20 percent choose to have their soils tested every 5 to 6 years. Looking at the 1 to 2 years testing program, it appears that 14.85 percent choose to have their soils tested in less than 3 years.

An interesting aspect of this study was that only 33.5 percent of the farmers applied fertilizer according to the soil recommendation. Approximately 52 percent stated they would apply fertilizer according to the recommendation only sometimes, with the 8.5 percent balance of farmers stating they never went according to the soil analysis.

This study also indicated that 61.8 percent of the fertilizer used was bulk, with the balance of 38.2 percent being bag material. Also 27.5 percent of the farmers indicated they would prefer the blended materials compared to 72.5 percent who preferred a homogeneous type of fertilizer.

According to Table XVII the farmers indicated that ammonium nitrate is approximately 45 percent of the nitrogen used in this area. Also the survey indicated an increasing demand for nitrogen solutions mainly because of their compatibility with most herbicides.

TABLE XVII  
SOURCES OF INFORMATION

Nitrogen Source	Percentage Used
Nitrogen solutions	23.0
Urea	28.0
Ammonium Nitrate	45.0
Anhydrous Ammonia	4.0

Approximately 23 percent indicated this as their preference. This leaves 28 percent preferring urea and 4 percent that prefer anhydrous ammonia as their source of nitrogen.

As indicated in Table XVIII, the customers expect commercial fertilizer dealers to always be able to get or have what supplies they need with the shortest possible notice. These items in Table XVIII are interesting to observe. It is indicated that approximately 52 percent of the customers will buy fertilizer on a quality basis only. Whereas 8 percent will buy on price, 100 percent of the time, the majority will buy on price only, part of the time. Eighty-two point five percent of the respondents indicated neighbors did not influence their buying of commercial fertilizers. Sixty-eight percent of the farmers indicated they would prefer buying from a dealer that had good product knowledge. Service has been discussed several times in this study. As indicated in Table XVIII 75 percent of the farmers buy from a dealer because of his quality services. There have been pros and cons concerning a dealer

credit program but only 25 percent of the farmers indicated this as their reason for buying from a dealer. Forty-two percent of the farmers indicated they would buy from a dealer in order to get a 2 percent cash discount. Most dealers are in a position that they are the only fertilizer dealers within a local community that will have bulk facilities and services. Fifty percent of the farmers indicated that this is the reason they buy from a particular dealer. According to this study 80 percent of the customers prefer to buy from a dealer that is reliable.

TABLE XVIII  
ITEMS THAT WILL INFLUENCE A CUSTOMER

Factors Affecting Customers	Yes	No	Sometimes
Quality fertilizers	52.0%	4.0%	44.0%
Buying on prices only	8.0%	50.0%	42.0%
Neighbors influence	5.0%	82.5%	12.5%
Dealer product knowledge	68.0%	15.0%	17.0%
Dealer customer services	75.0%	17.0%	8.0%
Dealer credit convenience	25.0%	37.0%	38.0%
Dealer offering cash discount	42.5%	25.0%	32.5%
Dealer has only facility in area	50.0%	40.0%	10.0%
Dealer reliability	80.0%	7.5%	12.5%

## CHAPTER V

### SUMMARY AND CONCLUSIONS

The central problem of this study was to add substantially to the knowledge about certain selected perceptions of customers regarding services of local commercial fertilizer dealers in Northeastern Oklahoma. A greater knowledge of customer services should be of considerable value to the managers of the commercial fertilizer facilities in planning their overall business.

This report consisted largely of a summarization of forty survey schedules completed by farmers and ranchers in the sixteen extreme Northeastern counties of Oklahoma.

The primary purpose of this study as stated in Chapter I was to determine the effects of the varied services a commercial fertilizer dealer can offer to his customers.

The emerging emphases on customer services regarding commercial fertilizer dealers in gaining new customers and retaining the customers already acquired is a most important aspect to his business.

The results of this study should prove of great value in the total management program of any commercial fertilizer dealer.

#### Summarization of the Objectives and Specific Findings for Each

The following specific findings had direct bearings on the objec-



tives of the study:

Objective Number 1: To determine the customer services that farmers demand in Northeastern Oklahoma.

1. About 68 percent of the dealers were expected to have good product knowledge.
2. Approximately 21 percent of fertilizers were spread with rental broadcast spreaders.
3. Approximately 42 percent of the fertilizer was applied by commercial spreader trucks.
4. Sixty-two percent of the dealers furnish bulk facilities.
5. Fifty-two percent of the customers expected dealers to furnish quality fertilizer.
6. Only 25 percent of the customers expected dealers to arrange for customer credit.
7. Eighty percent of the customers preferred dealers to be reliable before they would consider doing business with them.

Objective Number 2: Determine the major factors which may be associated with the demands of customer services.

There were two major factors affecting the services demanded by the customers: (1) customers are willing to pay for additional services and (2) availability of labor supply to the customer.

Objective Number 3: To determine to what extent a dealer can justify these services.

To justify a service for customers from a dealer's point of view, it must be profitable for a commercial fertilizer

dealer being offered to customers.

Objective Number 4: To determine the source of information from which farmers receive new ideas on farming.

It was found that the farm magazine contributed 34 percent of the information leading to change in farmers fertilization practices and the local fertilizer supplier 21 percent.

Objective Number 5: To determine what the average cost of rendering such customer services.

It was found that the average cost was 33.5 cents per acre using a dealer rental broadcast spreader and 74.5 cents per acre when commercial truck spreading was used.

Objective Number 6: To determine what a farmer looks for when dealing with a commercial fertilizer dealer.

It was found that 75 percent of the farmers were willing to pay for quality services and 80 percent indicated emphasis on dependability of the local fertilizer dealer before they would consider doing business with a dealer.

#### Summary of the Hypotheses

The hypotheses as stated in the chapter on methodology were supported or refuted by these specific findings:

Hypothesis Number 1 was supported by the findings since approximately 38 percent of the farmers, the largest single group had a 3-4 year interval between soil tests.

Hypothesis Number 2 was supported since only 33.5 percent of farmers were applying fertilizer according to recommendations made by county officials.

Hypothesis Number 3 was supported with approximately 34 percent of farmers, the largest single group, receiving information from various farm magazines pertaining to changes in their fertilization program. The second largest group, approximately 22 percent, received their information from local fertilizer suppliers.

Hypothesis Number 4 was supported since approximately 42 percent of the commercial fertilizer was reported spread by commercial truck spreaders, a service offered by most dealers.

Hypothesis Number 5 was refuted by the findings in this study. Only 23 percent of the nitrogen used by farmers was in solution form, with approximately 45 percent of the nitrogen being used as ammonium nitrate.

Hypothesis Number 6 was supported as 75 percent of the customers indicated a willingness to pay for services that were offered by local commercial fertilizer dealers.

The following additional conclusions emerged from the study as being of particular importance:

1. The average age of farmers interviewed in this study was 46 years of age with the 41-50 year age group containing 32 percent of all farmers and ranchers interviewed.
2. The average grade level of farmers interviewed in this study was 12.4, with the 10-12 grade level containing the largest percent of all farmers and ranchers.
3. The average years of experience for the farmers and ranchers interviewed in this study was 25.3 years with the largest group being in the 36 years and over group.
4. The part time farmers had the greatest number of farmers having

a college degree, under 40 years of age and 10 years or less of farming experience.

5. The 41-50 age group indicated more fair to good availability of labor when needed.

6. The average application of commercial fertilizer ranged from 176 to 287 pounds applied per acre, depending on the various grade involved.

7. The average percentage of farmers applying lime on cropland was 24.6 percent. The average percentage of farmers applying lime on pastureland was 15.4 percent. This was during a period from 1965 to 1970.

8. Seventy-seven percent of the information received from the commercial fertilizer dealer was rated by the customers as good to excellent for its value.

9. Commercial fertilizer dealers conducted 23.5 percent of the field days or educational meetings within the community. The local vocational agriculture department conducted 19 percent.

10. The local county extension department tested soils and made recommendations for approximately 45 percent of the farmers represented in the study.

11. Customers put great emphasis on services and reliability when buying from a local commercial fertilizer dealer.

Additional findings from this study which were of considerable concern to the author are as follows: (1) the older age group being in the minority; (2) the younger farmers having a more difficult time in securing additional labor; (3) 30 percent of the farmers and ranchers having a college degree; (4) high percentage of farmers and ranch-

ers not applying lime; and (5) the lack of communication with OSU extension personnel and the average farmer and rancher. This study may cause one to reevaluate some of the present methods and ideas that are being presented to the average dealer, farmer and rancher.

It is the opinion of the author that further studies must be initiated and planned so that those individuals working closer to the consumer can better advise and make the recommendations that are needed.

It is the suggestion of the author that further studies need to be conducted to determine how more efficient utilization of present services offered by commercial fertilizer dealers can better serve the customer.

Farmers and ranchers are aware that soils in Northeastern Oklahoma have a need for lime. The soil pH will range from 4.6 to 7.2 in this area of study. Farmers are not concerned with the importances of liming and the added profits from doing so. My recommendations for this problem is to educate the local dealer on how to read and make the necessary recommendations from a soil analysis. If the local dealer is convinced lime is necessary for a crop to produce a higher yield per acre, I think he can sell this idea to the farmers. Most of the more alert, aggressive dealers within a community are well respected and have a great deal more influence with the farmer and ranchers than most of the professional agricultural workers.

Working with the commercial fertilizer dealers and the customers gave the author further insight into some of the major factors such as customer services.

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## APPENDIX





Grade	Rate/A	Small Grains	Alfalfa	Corn	Milo	Soybeans	Cotton	Peanuts	Fescue Grass	Bermuda Grass	Silage Crops	Mixed Legume Pasture	Other Pastures
12-12-12	100	—	—	—	—	—	—	—	—	—	—	—	—
	200	—	—	—	—	—	—	—	—	—	—	—	—
	300	—	—	—	—	—	—	—	—	—	—	—	—
	400	—	—	—	—	—	—	—	—	—	—	—	—
	500	—	—	—	—	—	—	—	—	—	—	—	—
13-13-13	100	—	—	—	—	—	—	—	—	—	—	—	—
	200	—	—	—	—	—	—	—	—	—	—	—	—
	300	—	—	—	—	—	—	—	—	—	—	—	—
	400	—	—	—	—	—	—	—	—	—	—	—	—
	500	—	—	—	—	—	—	—	—	—	—	—	—
10-20-10	100	—	—	—	—	—	—	—	—	—	—	—	—
	200	—	—	—	—	—	—	—	—	—	—	—	—
	300	—	—	—	—	—	—	—	—	—	—	—	—
	400	—	—	—	—	—	—	—	—	—	—	—	—
	500	—	—	—	—	—	—	—	—	—	—	—	—
12-24-12	100	—	—	—	—	—	—	—	—	—	—	—	—
	200	—	—	—	—	—	—	—	—	—	—	—	—
	300	—	—	—	—	—	—	—	—	—	—	—	—
	400	—	—	—	—	—	—	—	—	—	—	—	—
	500	—	—	—	—	—	—	—	—	—	—	—	—

Grade	Rate/A	
14-28-14	100	Small Grains
		Alfalfa
		Corn
		Milo
		Soybeans
15-30-15	200	Cotton
		Peanuts
		Fescue Grass
		Bermuda Grass
		Silage Crops
18-46-0	300	Mixed Legume Pastures
		Other Pastures
0-25-25	400	
	500	

Grade	Rate/A	Small Grains	Alfalfa	Corn	Milo	Soybeans	Cotton	Peanuts	Fescue Grass	Bermuda Grass	Silage Crops	Mixed Legume Pastures	Other Pastures
45-0-0	100	—	—	—	—	—	—	—	—	—	—	—	—
	200	—	—	—	—	—	—	—	—	—	—	—	—
	300	—	—	—	—	—	—	—	—	—	—	—	—
	400	—	—	—	—	—	—	—	—	—	—	—	—
	500	—	—	—	—	—	—	—	—	—	—	—	—
33.5-0-0	100	—	—	—	—	—	—	—	—	—	—	—	—
	200	—	—	—	—	—	—	—	—	—	—	—	—
	300	—	—	—	—	—	—	—	—	—	—	—	—
	400	—	—	—	—	—	—	—	—	—	—	—	—
	500	—	—	—	—	—	—	—	—	—	—	—	—
Nitrogen Solution	100	—	—	—	—	—	—	—	—	—	—	—	—
	200	—	—	—	—	—	—	—	—	—	—	—	—
	300	—	—	—	—	—	—	—	—	—	—	—	—
	400	—	—	—	—	—	—	—	—	—	—	—	—
	500	—	—	—	—	—	—	—	—	—	—	—	—

2. Circle the tons of lime that you applied or plan to apply per year, per acre.

	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Cropland	1-2-3-4	1-2-3-4	1-2-3-4	1-2-3-4	1-2-3-4	1-2-3-4
Pasture	1-2-3-4	1-2-3-4	1-2-3-4	1-2-3-4	1-2-3-4	1-2-3-4

3. Have you made any changes in your fertilizer program within the past five years? Yes \_\_\_\_\_ No \_\_\_\_\_

4. If above answer is yes, from what source did you obtain your knowledge to make changes in your fertilizer practices

☐ Fertilizer company representatives  
☐ Local fertilizer supplier  
☐ Neighbors  
☐ Farm magazines  
☐ Educational meetings  
☐ OSU Extension  
☐ Radio  
☐ Television  
☐ Local Vocational Agriculture Department  
☐ Other

5. What percentage of increase do you anticipate in rates of fertilizer usage per acre within the next 10 years.

0-35% ☐ 36-65% ☐ 66-100% ☐ 101-200% ☐ 201-300% ☐  
 301%-400% ☐

6. Please indicate the number of acres in each operation by year.

	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Acres Leased	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Acres Owned	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total Acres	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cropland	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Pasture land	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Timber land	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total Acres	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

7. Do you receive any recommendations pertaining to the use of commercial fertilizers from your local dealer? Yes ☐ No ☐  
 Sometimes ☐

8. If you answered yes to the above, when do you receive this advice?
- \_\_\_\_\_ Each time you are in the dealer's place of business.
- \_\_\_\_\_ Each time you get a supply of fertilizer from this dealer.
- \_\_\_\_\_ Not very often.
- \_\_\_\_\_ Never, unless asked.
9. If dealer gives you his recommendations, of what value are they?
- \_\_\_\_\_ Excellent
- \_\_\_\_\_ Good
- \_\_\_\_\_ Fair
- \_\_\_\_\_ Poor
- \_\_\_\_\_ No Value
- \_\_\_\_\_ Other
10. Does your local fertilizer dealer conduct field days or other educational meetings that would pertain to fertilizer?
- Yes \_\_\_\_\_ No \_\_\_\_\_ Do not know \_\_\_\_\_
11. Are these meetings of any value to you?
- Yes \_\_\_\_\_ No \_\_\_\_\_ Do not attend \_\_\_\_\_
12. Who will normally sponsor these field days or educational meetings?
- \_\_\_\_\_ Local dealer
- \_\_\_\_\_ Vocational Agriculture Department
- \_\_\_\_\_ Commercial applicator
- \_\_\_\_\_ County Extension
- \_\_\_\_\_ Company Supplier
- \_\_\_\_\_ OSU Extension
- \_\_\_\_\_ Others
13. What methods of spreading commercial fertilizers do you use and percentage of each?

<u>Percentage</u>	<u>Cost Per Acre</u>	<u>Cost Per Ton</u>
<u>          </u> Dealer rental equipment	<u>                                </u>	<u>                                </u>
<u>          </u> Fertilizer attachment on drill	<u>                                </u>	<u>                                </u>
<u>          </u> Ezy Flow	<u>                                </u>	<u>                                </u>
<u>          </u> Broadcaster Spreaders	<u>                                </u>	<u>                                </u>
<u>          </u> Custom application by trucks	<u>                                </u>	<u>                                </u>
<u>          </u> Custom application by airplane	<u>                                </u>	<u>                                </u>

14. Do you have any soil tested? Yes            No           

15. If you answered the above question yes, by whom?

           County Extension

           OSU Soil Department

           Local Dealer

           Commercial Soil Testing companies

           Fertilizer suppliers for your local dealer

           Vocational Agriculture Department

           Others

16. How often do you have your soil tested?

1    2    3    4    5    6    7    8    9    10 years

17. Do you fertilize according to the recommendations that you get when you have your soil tested? Yes            No            Sometimes           

18. What percentage of the time will you follow these recommendations?

           25%               50%               75%               100%

19. Do you purchase your fertilizer needs according to the soil recommendations? Yes            No            Sometimes           

20. What percentage of your fertilizer purchases are:

           Bulk               Bag

21. Which would you prefer when buying fertilizer?

           Blended materials               Homogeneous materials

22. Which form of nitrogen do you prefer on most of your crops?  
       \_\_\_\_\_ Nitrogen solutions    \_\_\_\_\_ Urea    \_\_\_\_\_ Ammonium nitrate  
       \_\_\_\_\_  $\text{NH}_3$
23. To what extent do you buy brand name fertilizers?  
       \_\_\_\_\_ 100%    \_\_\_\_\_ 50%    \_\_\_\_\_ 25%
24. Do you buy fertilizers according to quality?  
       \_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes
25. Do you buy on fertilizer prices only?  
       \_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes
26. Do you buy fertilizer from a local dealer because of personal friendship?  
       \_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes
27. Do you buy from a dealer because he is knowledgeable of the product he sells?  
       \_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes
28. Do you buy fertilizer from a local dealer because of a neighbor's recommendation?  
       \_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes
29. Do you buy from a dealer because he has the only fertilizer in the area?  
       \_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes
30. Do you buy from a dealer because of the good service he can give to his customers?  
       \_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes
31. Do you buy from a dealer because his credit program keeps you from borrowing money from the bank to buy fertilizer?  
       \_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes
32. Would you pay for your fertilizer used within 30 days, if you could receive a 2% cash discount?  
       \_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes

33. Do you buy fertilizer from your local dealer because he is usually reliable?

\_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes

34. Will you pay a premium for fertilizers if the services you receive are more than adequate?

\_\_\_\_\_ Yes    \_\_\_\_\_ No    \_\_\_\_\_ Sometimes



VITA

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