

IMPACT OF THE PITTSBURG COUNTY HAY SHOW
AS PERCEIVED BY BEEF PRODUCERS IN
PITTSBURG COUNTY

By

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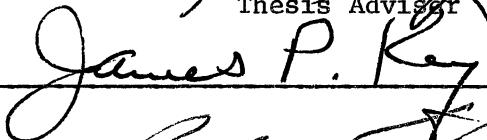


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Thesis Approved:



Thesis Adviser







Dean of Graduate College

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TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
Statement of the Problem	6
Purpose	6
Objectives	6
Scope of the Study	7
Assumptions of the Study	7
Definitions of Terms	8
II. REVIEW OF LITERATURE	9
Introduction	9
Factors Determining Quality Hay	9
Factors Determining Supplementation	15
Factors (Criteria) Used in Judging Hays	17
Summary	19
III. DESIGN AND PROCEDURES	21
The Study Population	22
The Instrument	22
Data Collection	22
Analysis of Data	23
IV. PRESENTATION AND ANALYSIS OF DATA	25
Introduction	25
Population	25
Selected Characteristics of the Producers Participating in the Study	26
Findings of the Show	28
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	48
Summary of the Study	48
Conclusion	51
Recommendations	51
A SELECTED BIBLIOGRAPHY	53
APPENDIX A - PRODUCERS QUESTIONNAIRE	55

APPENDIX B - CORRESPONDENCE 60



DR. J. M. S. ...
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LIST OF TABLES

Table	Page
I. Effects of Stages of Growth on Crude Protein	11
II. Effect of Nitrogen Fertilization on Crude Protein Content of Bermudagrass Hay	13
III. Physical Scorecard	18
IV. Chemical (Crude Protein) Scorecard	20
V. Employment Status of Respondents	26
VI. Hay Usage	27
VII. Distribution of Type of Hay Produced	27
VIII. Hay Harvest/Storage Methods	28
IX. Hay Crude Protein Level Desired by Producers	29
X. Percent of Increased Production Resulting from Knowledge Gained from Hay Show	30
XI. Producers' First Knowledge of Hay Show	31
XII. Summary of Sources of Information Which Producers Use to Make Feeding Decisions	32
XIII. Reasons for Entering Hay Show	33
XIV. Summary of Advantages of Hay Show	34
XV. Reasons for Not Participating in Hay Show	35
XVI. Hay Quality Improvements as Perceived by Producers Entering the Hay Show	36
XVII. Producers' Perception of Value of Feeding Recommendation	37
XVIII. Producers' Perceived Willingness to Use Feeding Recommendations	37

Table	Page
XIX. Producers' Utilization of Feeding Recommendations	38
XX. Economic Benefit Received from Entering the Hay Show	38
XXI. Relative Benefits from Hay Show	39
XXII. Producers' Future Intentions to Participate	39
XXIII. Producers' Perceptions of Factors Determining Quality Hay	40
XXIV. Producers' Perception of Factors Affecting Hay Quality	41
XXV. Producers' Perceptions of Feed Value of Crude Protein . .	41
XXVI. Problems Facing Producers in Hay Production	42
XXVII. Changes in Average Crude Protein Levels of Hays	42

LIST OF FIGURES

Figure	Page
1. All Cattle and Calves, Oklahoma, January 1, 1984	3
2. Beef Cows, Oklahoma, January 1, 1985	4
3. All Hay Production, Oklahoma, 1984	4
4. Crude Protein Levels of Bermudagrass Hays Entered in the Pittsburg County Hay Show from 1976 Through 1984 . .	43
5. Crude Protein Levels of Bermuda/Combination Hays Entered in the Pittsburg County Hay Show from 1976 Through 1984	44
6. Crude Protein Levels of Native Grasses Entered in the Pittsburg County Hay Show from 1976 Through 1984 . .	45
7. Crude Protein Levels for Sorghum Sudan Hays Entered in the Pittsburg County Hay Show from 1976 Through 1984	46
8. Crude Protein Levels for Fescue Entered in the Pittsburg County Hay Show from 1976 Through 1984	47

CHAPTER I

INTRODUCTION

Making hay from harvested forages undoubtedly is a very ancient agriculture practice. Since biblical times, hay has played an important part of developing countries. "For the waters of Nimrim shall be desolate; for the hay is withered away the grass faileth, there is no green thing" (Isaiah 15:6) page 178. But the conversion of green forage into cured hay capable of being stored and used efficiently was believed to have a more important part in the changing world than most realized.

Hay quality is a key factor in any successful cattle feeding operation. But determining hay quality is not an easy task. True quality can be expressed only as feeding value (Dorset, 1983). Factors affecting quality or feeding value are species, fertilization, stage of maturity, and curing and harvesting practices. Certain chemical and physical characteristics are also associated with and can be reliable indicators of hay quality.

Many factors influence the composition of forage plants and digestibility of their nutrients.

Hughes (1966) stated:

One of the greatest factors contributing to successful beef production today is our knowledge of chemical and physical characteristics of forages and the factors which influence those values (p.641).

Fertilization and the stage of growth at which hay is harvested

are the two factors which most influence hay quality. Most hay fields need heavy fertilization to reach their top production level because most soils lack sufficient nitrogen, phosphorus and potassium. High rates of fertilization will improve the growth and protein content of forages (Novasad, 1978).

Howard Burger, a Hartshrone, Oklahoma producer stated in 1983:

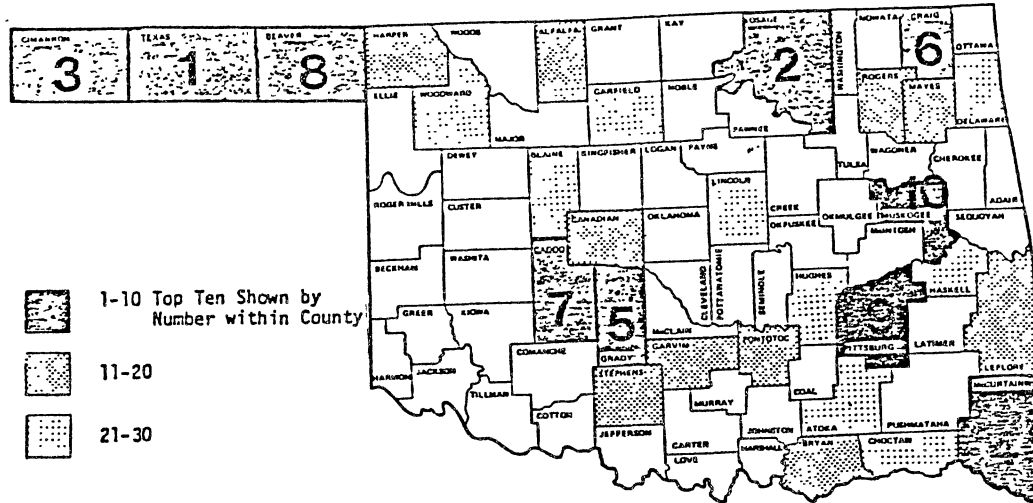
My neighbors didn't have any problems believing my 25-acre fescue field yielded 52 tons on the first cutting with an average crude protein of 10½ percent. They were even more skeptical later in the season when I had a second cutting that yielded 22 tons with a 12 percent crude protein.

But according to Burger, the only secret was using fertilizer and legumes.

Cattle producers are in a constant squeeze to improve production efficiently, and to accomplish this they must make decisions concerning expense that will provide the greatest return. In an effort to increase production efficiently, producers commonly try to shorten calving seasons and improve weaning weights and daily gains, but sometimes encounter a shortage of hay or grass because of failure to plan an adequate forage program. An important point to remember in our cattle industry in Oklahoma, especially in Pittsburg County, is the dependence on forages. Generally, attempts to improve forages to reduce the reliance on more expensive protein and energy sources will be cost effective. However, forage production, a basic requirement of our cattle industry, probably has as much room for improvement as any other phase of the cattle industry (Woods, 1984).

Figures 1, 2, and 3 present a geographic description of Pittsburg County as it relates to hay production of beef cattle numbers

reported by the Oklahoma Department of Agriculture (1984).



County Standings Ranked by Inventory Numbers

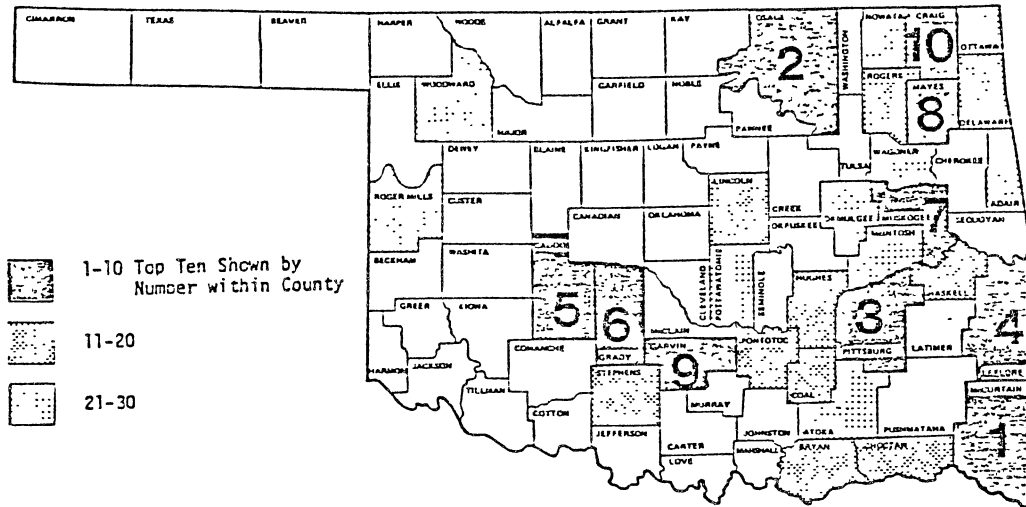
Source: Oklahoma Department of Agriculture (1984)

Figure 1. All Cattle and Calves, Oklahoma, January 1, 1984

Many Pittsburg County ranchers still look at a ton of hay as thirty bales and nothing more. Each year cost of their inputs such as seed, fertilizer, baling equipment, etc., continue to rise, but their knowledge of the feeding value of their hay lags far behind. Myths have long been around that additional protein supplementing must accompany all hays.

Another Pittsburg County hay producer, George Carman told the author in 1984:

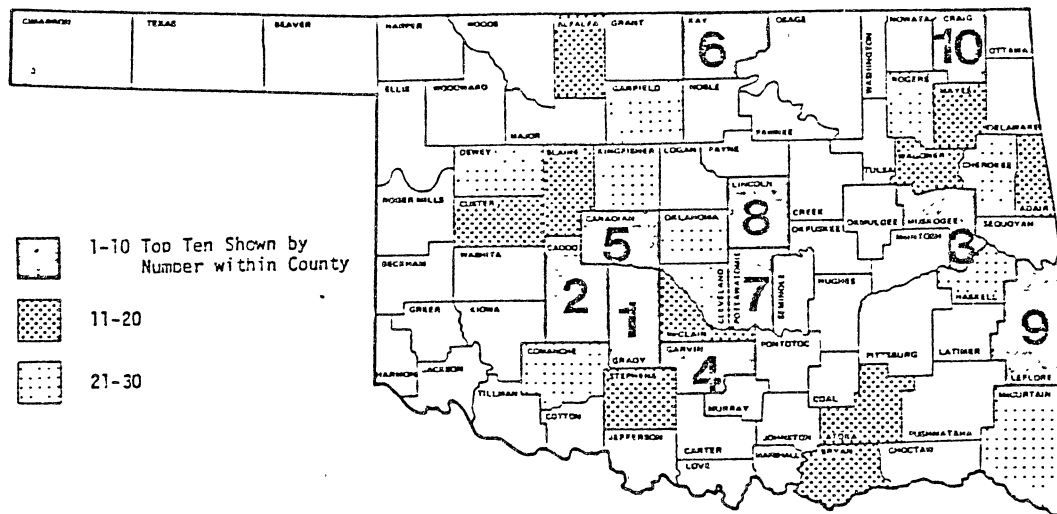
I have found that my cow herd and stockers can get all their protein supplement from forage, not out of a sack. It hasn't been so rosy, however, it has been 15 years since I bought a sack of feed.



County Standings Ranked by Inventory Numbers

Source: Oklahoma Department of Agriculture (1984)

Figure 2. Beef Cows, Oklahoma, January 1, 1985



County Standings Ranked by Inventory Numbers

Source: Oklahoma Department of Agriculture (1984)

Figure 3. All Hay Production, Oklahoma, 1984

Most cattle producers rely on hay during part of the year and need to be familiar with factors that determine hay quality in order to produce or purchase hay which will best fit their cattle enterprise. An understanding of hay forage species, weeds, fertility and maturity affect hay quality would be helpful.

Hay shows began to be popular in Oklahoma in the mid 1970's as more and more ranchers came to realize that the level of animal performance was directly related to the quality of forage available (Novasad, 1978). Yet many producers are still hesitant to enter the hay show because of the possibility of being embarrassed by their hay testing low in protein, or not even placing in competition. Some will say that their hay isn't good enough to enter in the hay show.

Most local and statewide industry groups co-sponsor hay shows because these groups recognize the economic importance of high quality hay and because hay shows can be educational opportunities for both hay producers and users. It has been proven that you can save at least \$25.00 per head on a winter's feed bill by following factors encouraged by the hay show (Smith, 1984).

Some Pittsburg County producers, by adjusting cutting schedules, along with using improved fertility and weed control practices, have increased protein content levels in their hays to a point that allows them to eliminate purchasing any protein supplement for winter feeding. Hay containing 10 percent or higher crude protein would be sufficient to meet the needs of both wet and dry cows, but this is no place to depend on guess work (Winder, 1982). Producers have become aware of the need to have their hay tested to determine the exact protein content, which will allow a sound winter feeding program

(Woods, 1984).

Statement of the Problem

Pittsburg County ranks third in total beef cow numbers in Oklahoma and ninth in total cattle and calves (Oklahoma Department of Agriculture, 1984). But in terms of hay production, Pittsburg County doesn't place in the top 20 counties (Oklahoma Department of Agriculture, 1984). Hay production and quality is consistently behind the feeding needs of the cattle. A hay show has been held annually in Pittsburg County since 1976 to encourage producers to produce higher quality forage.

The problem of this study was the lack of information as to if the county hay show has had an affect upon hay quality in Pittsburg County.

Purpose

The major purpose of this study was to determine the impact of the county hay show on county hay production and to trace the changes of crude protein levels of the hay samples exhibited in the Pittsburg County Hay Show.

Objectives

The specific objectives of the study were:

1. To determine the perceptions of hay show participants as to the impact of the Pittsburg County Show as an event.
2. To determine the perceptions of hay show participants as to what constitutes hay quality.

3. To trace the changes in crude protein levels of the hay samples exhibited in the hay show from 1976 through 1984.

Scope of the Study

The population of this study was limited to 215 beef producers in Pittsburg County who had exhibited hay in the Pittsburg County Hay Show from 1976 through 1984.

A questionnaire was developed with recommendations and field tested with assistance of OSU Area Extension Agents and County Extension personnel. After minor revisions, the survey was mailed to the exhibitors of the hay show.

Analysis for crude protein on a dry matter basis was obtained from 771 samples analyzed at OSU from 1976 through 1984.

Assumptions of the Study

The following assumptions were made with regard to this study:

1. The responses made by the exhibitors were accurate and sincere.
2. The participating producers were representative of beef producers in Pittsburg County.
3. The exhibitors would indicate their perceptions of the hay show as an event.
4. Exhibitors in various parts of the county may not possess the same level of awareness of factors which contribute to quality hay.
5. The responses of the questionnaire were given in a manner which the researcher intended.

Definitions of Terms

For better understanding of the study presented, the following definitions seemed relevant:

1. Hay: Feed produced by dehydrating green forage to a moisture of 15 percent or less.
2. Perception: The term meaning aware of objectives or conditions around us; some degree of understanding and recognition.
3. Crude Protein: The total protein content of a feed.
4. Digestible Protein: Crude protein that is digested.
5. Dry Matter Basis: Moisture excluded.
6. Forages: Vegetable feed for domestic animals.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The purpose of this chapter was to present an overview of related research on why hay quality is important. The presentation of this review was partitioned into three major areas and a summary to facilitate organization and clarity. The areas were factors determining hay quality, factors determining supplementation and factors (criteria) used in judging hay.

Few studies have been done to determine the effectiveness of hay shows. However, several authors have looked at what factors determine hay quality.

Factors Determining Quality Hay

Winder (1982) found that the production of high-quality hay involved (1) growing highly productive, adapted forages, (2) harvesting the forage at the time of highest quality, (3) maintaining productivity and high-yield through the use of proper fertilization, and (4) controlling undesirable plants.

There are many forage species and varieties which are suitable for producing high quality hay. Forages to be grown should be genetically capable of producing high yields. They must be adapted to the climate and soils of the region under the management system that they will be

grown. Forages must be highly palatable and readily accepted by the various classes of livestock to which they will be fed (Hughes, 1966).

Apple (1977) found that the stage of growth at which forage plants are harvested can be critical to producing quality hay. As plants grow older, the quality, as measured by both protein and digestibility, declines rapidly. Approximately 40-60 percent of the differences found between high and low quality hay is due to the stage of maturity at which it was harvested.

According to Dorset (1983):

The basic principle behind good, high quality hay production is to cut the plant at a stage of growth and when it is high in protein and high in digestibility. Forages should be harvested when they are physiologically immature. Protein content and digestibility of all forages decrease rapidly after maturity is reached and seedhead appears (p. 10).

Apple (1977) shows in Table I that high quality hay is made from forage cut at an immature stage.

Winder (1982) found that grasses should be harvested when they reach "boot" stage or before seedheads appear. Bermudagrass should be harvested about every 28 to 30 days of growth to maintain high quality. Forage legumes should be baled from early to mid-bloom. When harvesting mixed grasses or grass legume mixtures, bale when the predominant species is at the correct stage of growth.

Amino acids are the building blocks of protein. Thousands of amino acids join together in a specific order to form a specific protein. There are twenty amino acids found universally in protein. These amino acids all have several things in common. Each amino acid contains carbon, hydrogen, and oxygen. These elements are readily obtainable through the process of photosynthesis. A few amino acids

contain sulphur. Every amino acid contains the element nitrogen. Nitrogen is not obtained through photosynthesis, but must be absorbed from the soil through the root system (Rommann, 1976).

TABLE I
EFFECTS OF STAGES OF GROWTH ON CRUDE PROTEIN

FORAGE CROP	STAGE OF MATURITY	EST. CRUDE PROTEIN %
Legume Hay Crop	Very early bloom (Late bud)	16-20
	Full Bloom	14-17
Bermuda (100 lbs N)	4-5 week growth (Few heads)	10-12
	8-10 week growth (fullhead)	4-7
Fescue (50 lbs N Spring)	May (few head)	8-10
	Late June (fully headed)	4-6
Sudan (50 lbs N at seeding and after each cutting)	Pre-boot stage	10-14
	Full boot stage	6-8

Source: Kenneth L. Apple, Spring Cattle Talk. Stillwater: Miscellaneous Publications, April, 1977.

Without nitrogen, no amino acid can be formed. If no amino acids are formed, no protein can be formed. Without adequate proteins reduced growth results because of reduced enzyme activity and inadequate protein for plant or body components. In the case of forages, the end result is low yield of a poor quality forage (Rommann, 1976).

Properly timed nitrogen applications, for the purpose of increasing the digestible protein content of bermudagrass, fescue and sudan

hays, is an alternative to purchasing commercial protein supplements. The rate of nitrogen applications will depend on desired protein levels, cost of fertilizer and projected costs of purchased protein supplements in winter. Remember, if you don't utilize it, don't fertilize it (Apple, 1977).

The value of fertilizer and, specifically, nitrogen in the production of quality grass hay is to promote rapid growth resulting in sufficient forage to justify harvesting while the grass is still immature (Woods, 1984).

Fertility management should be based on sound recommendation from a reliable soil test available through Oklahoma State University's soil testing laboratory. This report will eliminate the guess work and insure optimum production if followed. This is the only way to determine the amount of phosphorus and potassium that should be applied annually. Table II indicates the effects of nitrogen fertilization on bermudagrass hay. Nitrogen requirement for improved grasses such as bermudagrass, fescue and old world bluestems will be determined by your yield (Woods, 1984).

Yield goals may vary due to difference in rain fall, soil types and species, but in Pittsburg County it would be reasonable to expect four tons per acre for bermudagrass, old world bluestems and weeping lovegrass and three tons per acre from fescue. These yield goals are in fact conservative, and in many situations could increase another one ton per acre except in the driest of years. Nitrogen required for each of the yield goals given, would be 200 pounds per acre on bermudagrass, 160 pounds per acre on old world bluestems and weeping lovegrass, and 180 pounds per acre on fescue. Nitrogen applications

should be timed to correspond with initiation of optimum growth and to take advantage of expected moisture. Appropriate dates for hay production would be in January or February for fescue hay, March 15 for weeping lovegrass, April 15 for old world bluestems and May 1 for bermudagrass (Woods, 1984).

TABLE II
EFFECTS OF NITROGEN FERTILIZATION OF CRUDE
PROTEIN CONTENT OF BERMUDAGRASS HAY

POUNDS NITROGEN PER ACRE	HARVESTING SCHEDULE (WEEKS)	ESTIMATED % CRUDE PROTEIN (DRY MATTER BASIS)
0	4	7
	6	6
	8	5
50 (May)	4	9
	6	7
	8	5
100 (May)	4	12
	6	9
	8	7

Source: Robert L. Woods. Quality Hay Production and Economics.
OK Cattle Conference G-1 through G-6 (1984)

In order to maximize production efficiency from fertilizer it is important to challenge improved grasses to produce according to their potential. By fertilizing for higher yields per acre, some producers could provide their hay needs from fewer acres and actually save

equipment costs by covering fewer acres and money spent in unneeded phosphorus or potassium fertilizer. When yield goals are increased only the nitrogen requirement increases, phosphorus and potassium recommendations remain the same.

Forage protein contains about 16 percent nitrogen regardless of forage species, plant maturity or soil fertility. One ton of a forage testing 12.5 percent crude protein contains 40 pounds of actual nitrogen ($0.125 \text{ crude protein} \times 0.16 \text{ nitrogen} \times 2,000 \text{ pounds} = 40 \text{ pounds nitrogen}$) (Tucker, 1977).

The tremendous importance of fertilizer and its effect on quality, especially protein, is reflected in hay show results. Some county shows in Texas obtain the fertilizer history of hay samples exhibited. A study in "Matagora County, Texas" showed that for a two year period the fertilized hay samples average 9.6 percent crude protein and those receiving no fertilizer averaged 5.8 percent (Novasad, 1978).

What is a weed? Perhaps the best definition that could be used states that a weed is a plant in which its virtue have not been discovered (anonymous).

Many pasture plants, could be considered weeds if they grow where you do not want them. Many kinds of annual and perennial weeds and weed grasses reduce pasture production (Chessmore, 1979).

Weeds in pastures and hay meadows may cause up to a 50 percent loss in forage production. Weeds compete with desirable forages for water, nutrients, light and space. Many broadleaf weeds and weeds grasses are unpalatable to livestock and some are toxic or injurious. Chemical weed control is the preferred method in most cases. Grazing

management practices such as pasture rotation and other practices have resulted in controlling some weeds. Mowing for weed control usually provides only short-term benefits, but in some instances can be very effective, especially in combination with good grazing management and fertilization practices (Chessmore, 1979).

Carmen (1984) stated:

For grass to take care of a rancher, the rancher must take care of the grass. One important part of our operation is we never spray the pastures, this helps to protect the clover. Our weed control is a mower used regularly.

Factors Determining Supplementation

The amount of hay which a beef animal eats each day is closely linked to the protein level. As the protein content increases, cattle will generally eat the hay more readily, leaving less waste. Likewise, as protein content decreases, cattle will eat less. At some point, the animal will not eat enough low quality forage to meet its requirements. When this occurs, the animal will lose condition, milk production and reproduction performance may be hampered (Winder, 1982).

The knowledge of the nutrient composition of hay is essential if it will be fed correctly. Balancing the value of the hay with the requirements of the cowherd prevents overfeeding or underfeeding. Knowledge of the nutrient content of the hay can be used to plan how much, if any, processed supplement will be needed.

According to Horne (1984):

Cost of winter supplements normally represent the greatest out of pocket expenses in cow herds. The rising cost of other inputs dictate that cattle producers maximize the unique ability of cattle to utilize forage supplies (dry,

grass or hay) for the majority of their nutritional needs.

There are three steps in deciding the type and amount of supplement needed: (1) knowing what the animal requires, (2) testing (or estimating) what is available from the forage and (3) providing nutrients that will fill the difference between these and still make maximum use of your forage.

Robert Milligan, (McDonald, 1983) analyzed a 120 cow dairy feeding five different qualities of hay. Half the dry matter was corn silage and the other half was baled hay. Everything was held constant except for the hay quality.

Milligan (McDonald, 1983) stated:

The increase in purchased feed costs as hay quality declined was startling. But as dramatic as the results are, they underestimated the value of quality for two reasons (p. 10).

First, the increased quality almost certainly would result in increased production and greater return. Second, since most farms have adequate inventories of forage, the increased use would come from inventories rather than purchase (p. 10).

Milligan (McDonald, 1983) says the value of improved quality has two sources:

- increased nutrient qualities result in fewer overall nutrients purchases.
- increased quality allows more forage feeding and fewer concentrate purchases (p. 10).

The optimum supplementation program for any given herd depends on the type of animal fed, forage quality, palatability, climate and the prevailing costs of oil seed meals, grain and forage. There are, however, some fundamental principles of protein and energy utilization that can be used to predict the efficiency with which a given supplement will be utilized. Some supplements (protein) will make cattle eat more forage and increase the performance of cattle on a given

forage.

Horne (1984) stated the only supplemental feeds which will consistently improve both intake of the forage and it's digestibility are high protein concentrates to cows on dry grass or low quality hay will likely cause an increase in forage intake (2-10 pounds per day) and improve dry matter digestibility up to 15 percent. Therefore, the feeding of a high protein concentrate to cattle with adequate quantities of dry roughage is usually the least expensive method of supplementing cattle in the winter in Oklahoma.

Smith (Enis, 1984) stated:

Feed according to the nutritional requirements of your cattle; no more, no less.

- a. Determine those nutritional needs by using published tables.
- b. Separate cattle into production and age groups.

Factors (Criteria) Used in Judging Hays

Certain chemical and physical characteristics can be associated with determining hay quality. When judging hay, certain characteristics unique to different hay species must be considered. Each sample is judged in comparison with standards for an ideal sample of a particular species (Dorset, 1983).

Physical characteristics of hay are indicators of intake and digestibility as well as other factors affecting animal performance that are not reflected in chemical score. The physical score is determined by the opening of the bale and examining a representative sample from the center of the bale. Physical factors as shown in Table III are used to consider stages of maturity, texture, leafiness

foreign material and color (Dorset, 1983).

TABLE III
PHYSICAL SCORECARD

FACTORS	GRASS HAY	LEGUME HAY
Maturity	40	20
Texture	20	15
Leafiness	10	35
Freedom from foreign material	20	20
Color	10	10

Source: Donald J. Dorset. Hay Judging Guidelines. College Station: Texas Agricultural Extension Service, D-1079, 1983.

Dorset (1983) determined that the maturity at which hay is harvested is one of the most important factors influencing quality. This factor has a value of 40 points for grass and 20 points for legume hay. Values differ because legume plants do not lose quality as rapidly with age as grasses do. In determining the maturity score, look for bloom or seedheads and examine the length of stems. Grass hays with 1 percent or more seed stem should score more than 15 points. Hays harvested at younger stages should receive higher scores while more mature plants have lower maturity scores. In the absence of seedhead or blooms, use length and coarseness of stems

as an indicator of maturity (small, pliable stem indicate immaturity, while long, coarse, fibrous stem indicates excess maturity).

Texture pertains to stem size and pliability. It indicates to some extent the palatability acceptance by animals. Some stems which are pliable and flexible have greater digestibility. Texture accounts for 20 points when judging grass hays and 15 points when judging legume hays. Texture is best determined by running the hand along the cut edge of the bale or by pressing a sample between the hands to determine pliability (Dorset, 1983).

Color indicates carotene content and vitamin A potential. A bright green color also indicates good harvesting conditions. Although color is the most visible characteristic of hay, it alone is not a reliable indicator of quality. Color accounts for 10 points when judging both grasses and legume (Dorset, 1983).

The analysis used to determine the chemical score is the crude protein content of the hay. Protein is a major nutrient requirement of livestock and reliable laboratory analysis are available for determining nutrients. Other analysis beneficial for determining hay quality are available, however, many of these are laborious and often not readily available. The various hay plants have different protein level potentials. The chemical score card as shown in Table IV of each type is based on protein level considered attainable under practical management (Dorset, 1983).

Summary

This review of literature has shown why quality forage is important and why hay is an intergal factor in beef cattle performance.

Production of hay, quality hay involves essentially four steps.

1. Adapted forages should be utilized.
2. Proper harvesting time is a necessity if high quality hay is to be harvested. Grasses should be cut by the "boot" stage and legumes should be cut by "mid-bloom".
3. Fertilization is needed if high yields and long term production are to be realized.
4. Weeds may decrease pasture productivity by as much as 50 percent.

TABLE IV
CHEMICAL (CRUDE PROTEIN) SCORECARD

TYPE OF HAY	FACTOR FOR EACH PERCENT CRUDE PROTEIN	PERCENT CRUDE PROTEIN FOR 100 POINTS
Grasses, including perennials such as bermudagrass, blue-stems, etc. and annuals, such as sorghum sudangrass hybrids	8.33	12.0
Grass-legume mixtures and other legumes	6.25	16.0
Alfalfa	<u>5.00</u>	<u>20.0</u>
POSSIBLE CHEMICAL SCORE	100	

Source: Donald J. Dorset. Hay Judging Guidelines. College Station: Texas Agricultural Extension Service, D-1029, 1983.

CHAPTER III

DESIGN AND PROCEDURES

The purpose of this chapter was to describe the methods and procedure used in conducting the study. These were dictated by the primary purpose of the study, which was to determine the impact of the county hay show as an event and to trace the changes of the crude protein levels of the hay samples exhibited in the Pittsburg County Hay Show. Specific objectives were formulated to provide guidance for the design and conduct of the investigation. The specific objectives were:

1. To determine the perceptions of hay show participants as to the impact of the Pittsburg County Hay Show as an event.
2. To determine the perceptions of hay show participants as to what constitutes hay quality.
3. To trace the changes in crude protein levels of the hay samples exhibited in the hay show from 1976 through 1984.

In order to collect and analyze data pertaining to the purpose and objectives of the study it was necessary to accomplish the following tasks:

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

The Study Population

The population of this study was comprised of beef producers in Pittsburg County, who had entered one or more hay samples in the Pittsburg County Hay Show from 1976 - 1984. This provided a total population for the study of 215 producers, comprised mainly of cow-calf operations in Pittsburg County who used hay as a winter supplement.

The Instrument

The survey instrument was restricted to a "mail questionnaire". The items included on the questionnaire were developed with the aid of area specialized agents and the local sponsor of the hay show. The final instrument contained 34 items.

The format of the questionnaire contained multiple choice, multiple response and ranking questions. The questions were arranged where demographic data was obtained first followed by producer perception of the hay show as an event.

Members of the thesis committee and a panel of selected Extension personnel were instrumental in refining the instrument prior to distribution. A cover letter (Appendix B) accompanied the "mail questionnaire" along with a stamped, self addressed return envelope to encourage a prompt response.

Data Collection

A questionnaire was mailed to each of the 215 exhibitors in the hay show, on January 4, 1985 (Appendix A). A cover letter was enclosed to explain the importance and value of the study.

Each exhibitor was assigned a numerical number which was placed inside the envelope in an inconspicuous manner. This allowed a system of who had returned the questionnaire. Of the 215 questionnaires mailed, 60 producers responded. A follow-up phone call was made to non-respondents which collected an additional 8 questionnaires.

Analysis of Data

Question with "yes" or "no" and ranking type responses were described according to frequency and percentage of producers making a particular response. In addition, point values were assigned to ranking questions, and averaged to determine overall ranking.

Short, optional type essay questions were asked to ascertain information that would enlighten the investigator concerning responses and data that will be discussed regarding conclusion and recommendations. However, these were not statistically treated.

For all multiple response questions, percentages were based upon a new frequency number.

Since sampling was not involved and the attempt was made to survey all of the producers, descriptive statistics were utilized to describe the data.

Although responses were not received for all 215 producers, it was determined that statistical analysis which described the data in terms of frequency percentages, were more correct than sampling a small group.

Hay analysis was obtained from all 771 entries into the hay show from 1976 through 1984. The analysis was obtained through the Soil, Forage, and Water Testing Service, Oklahoma State University,

Stillwater, Oklahoma. Information obtained on each sample involved percent moisture, crude protein on an "as fed basis" and on a "dry matter" basis. Also, obtained was digestible protein on an "as fed basis" and digestible protein on a "dry matter basis".

The data obtained was formatted to enter the SAS (Statistical Analysis System) package into a Radio Shack 80 model 16 computer. The SAS was utilized in deriving statistical calculations used to describe the data collected.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The major purpose of this study was to determine the perceptions of 215 beef producers of the Pittsburg County Hay Show as an event, and to determine their perceptions of what factors constitutes quality hay.

The data for the study was collected in the spring of 1985, and involved the responses of 215 cow/calf producers in Pittsburg County who had entered the Pittsburg County Hay Show from 1976 through 1984. Data was also obtained from 771 hay samples analyzed for crude protein (dry matter basis) from 1976 through 1984. The purpose of this chapter was to present reliable information revealed by the analysis of data compiled.

Population

The study population included 215 cow/calf producers who had entered the Pittsburg County Hay Show once during 1976 through 1984. Each of the 215 producers were mailed a survey instrument and a self addressed, stamped envelope. A follow-up phone call was made to non-respondents. The mail questionnaire was selected as the data gathering instrument because it offered the most practical and feasible

method of collecting the data, even though a low percentage response and relatively incomplete response might be expected.

Sixty-eight usable questionnaires were returned, which represented a 30 percent response.

Selected Characteristics of the Producers

Participating in the Study

Data in Table V provide a breakdown of respondents by amount of full and part-time farm work. Forty-seven (69.1 percent) respondents surveyed indicated they farmed part-time while 20 (29.4 percent) revealed they farmed full time.

TABLE V
EMPLOYMENT STATUS OF PRODUCER RESPONDENTS

EMPLOYMENT	\bar{N}	%	RANK
Part time	47	69.1	1
Full time	20	29.4	2
No Response	1	1.5	3
TOTAL	68	100	

The data in Table VI reveal the primary use of hay produced. The use with the greatest number of respondents was for feed with 62 (91.1 percent) while only three (4.45 percent) produced hay for sale.

TABLE VI
HAY USAGE

USAGE	\bar{N}	%	RANK
Feed	62	91.1	1
Sale	3	4.45	2
No Response	3	4.45	3
TOTAL	68	100	

In analyzing the type of hay produced, data in Table VII show that 57 producers (45.96 percent) were producing bermudagrass; 29 (23.38 percent) native grass; 20 (16.13 percent) fescue; 6 (4.84 percent) sorghum sudan and 2 (1.61 percent) alfalfa.

TABLE VII
DISTRIBUTION OF TYPE OF HAY PRODUCED

TYPE OF FORAGE*	\bar{N}	%	RANK
Bermudagrass	57	45.97	1
Native	29	23.38	2
Fescue	20	16.13	3
Others	10	8.06	4
Sorghum Sudan	6	4.84	5
Alfalfa	2	1.62	6
TOTAL	124	100	

*Multiple responses. Therefore number will be greater than 68.

Data in Table VIII reveal that 28 of the respondents produced a combination of round and square bales. While only 16 (23.5 percent) utilized the round bale as the primary storage method.

TABLE VIII
HAY HARVEST/STORAGE METHODS

TYPE OF BALE	\bar{N}	%	RANK
Combination	28	41.2	1
Square	23	33.8	2
Round	16	23.5	3
No Response	1	1.5	4
TOTAL	68	100	

The responses presented in Table IX show that a total of 40 (58.9 percent) would like to produce hay over 10 percent crude protein.

Findings of the Study

The purpose of this section was to present and analyze data collected relative to the perceptions of producers toward the hay show as an event.

Data in Tables X through XXII provide a summary of producers responses concerning their perceptions of the hay show.

Fifty-nine (92 percent) of the producers indicated they had increased hay production during the years surveyed. Data in Table X

reveal that 21 respondents (31 percent) perceived that at least 50 percent of their production increase was due to knowledge gained during the hay shows. However 40 (58.8 percent) respondents perceived that less than 50 percent of their production increase could be credited to knowledge gained at the hay shows.

TABLE IX
HAY CRUDE PROTEIN LEVEL DESIRED BY PRODUCERS

LEVEL OF PROTEIN	\bar{N}	%	RANK
11-15%	35	51.5	1
6-10%	17	25.0	2
16-20%	5	7.4	3
5%	4	5.9	4
No Response	4	5.9	4
Don't Know	3	4.3	5
TOTAL	68	100	

The data in Table XI show that the County Extension Agent was still greatly involved in notifying producers of the hay show. The Vo-Ag Instructors were also very important in helping producers become aware of the show. This may have been due largely to Vo-Ag Instructors accompanying the agent while actually collecting the hay samples and also using the Young Farmer Groups to bring in samples. Respondents did not identify mass media as a means whereby they first

learned about the hay show.

TABLE X
PERCENT OF INCREASED PRODUCTION RESULTING FROM
KNOWLEDGE GAINED FROM HAY SHOW

PERCENT OF PRODUCTION INCREASE	\bar{N}	%	RANK
0-25%	25	36.7	1
50-74%	18	26.5	2
26-49%	15	22.0	3
No Response	7	10.3	4
75-100%	3	4.5	5
TOTAL	68	100	

Summary of data in Table XII reveal that 22 respondents utilized the Extension Service as a primary means of obtaining information necessary for making feeding decisions. Farm magazines were ranked second as a source of information with 21 respondents while 18 respondents (19.4 percent) indicated that Vo-Ag instructors were their source of information.

Examination of data in Table XIII indicates that 34 respondents ranked "increase quality of hay" as reason for entering the hay show. "Free protein test" was the reason ranking second with 25 responses. "Farmer/Neighbor influence" was the reason ranked last with 9 responses.

TABLE XI
PRODUCERS' FIRST KNOWLEDGE OF HAY SHOW

"FIRST LEARN" OF HAY SHOW	\bar{N}	%	RANK
County Extension Agent	40	59.0	1
Vo-Ag Instructors	14	20.3	2
Other Farmers	6	8.9	3
Newspaper	5	7.3	4
Magazines	1	1.5	5
Radio	1	1.5	5
No Response	1	1.5	5
TV	0	0	
Farm Supply Dealer	0	0	
TOTAL	68	100	

Table XIV contain data which show that 55 (50.9 percent) respondents perceived that the "free protein test" was the greatest advantage of the hay show. "Feeding recommendations supplied" ranked second with 32 responses. "Competition" was not perceived as an advantage of the hay show with only 4 (.04 percent) responses.

Respondents no longer participating in the county hay show were asked to indicate their reasons. As shown by data in Table XV respondents indicated that "don't have time" and "forgot entry deadline" were the main reasons for not entering. Of the 68 respondents, 50 (73.2 percent) are still actively participating in the county hay show.

A summary of data in Table XVI reveal that respondents ranked

"crude protein improved" as the biggest improvement made in their hay quality as a result of participating in the hay show. "Improve efficiency of supplement" and "better weed control" ranked second and third respectively. Only 8 respondents (8.9 percent) perceived that they had "no change" in their hay quality after participating in the hay show.

TABLE XII
SUMMARY OF SOURCES OF INFORMATION WHICH PRODUCERS
USE TO MAKE FEEDING DECISIONS

INFORMATION SOURCES*	\bar{N}	%	RANK
Extension Service	22	23.7	1
Farm Magazines	21	22.6	2
Vo-Ag Instructors	18	19.4	3
Feed Stores	13	13.9	4
Tradition	9	9.7	5
Soil Conservation Service	4	4.4	6
Neighbor	2	2.1	7
Radio	2	2.1	7
Newspaper	2	2.1	7
TOTAL	93	100	

*Multiple responses. Therefore number will be greater than 68.

Examination of data in Table XVII show producers perceptions of information received from the hay show regarding the feed

recommendations on hay samples. Forty-five (66.1 percent) of the respondents considered it "of great value" while 22 (32.4 percent) considered it "of some value". It should be noted that zero respondents perceived that the feed recommendations to be "of no value".

TABLE XIII
REASONS FOR ENTERING HAY SHOW

REASONS FOR ENTERING*	\bar{N}	%	RANK
Increase quality of hay	34	32.69	1
Test was free	25	24.05	2
Decrease feeding cost	19	18.27	3
Increase profit	14	13.46	4
Farmer/Neighbor	9	8.65	5
Other	6	2.88	6
TOTAL	104	100	

*Multiple responses. Therefore number will be greater than 68.

According to the data in Table XVIII, 57 (84 percent) respondents followed the recommendations made while only 5 (7.1 percent) indicated they did not use the information.

Data in Table XIX provide a summary of how producers utilized feeding recommendations. "Reducing amount of protein supplement fed" was ranked as the primary obligation of these recommendations.

Data in Table XX indicate 28 (41.2 percent) respondents felt they

saved at least \$10.00 per head, while 21 (30.9 percent) respondents saved 21-40 dollars per head. There was one producer that indicated he had saved more than \$50.00 per head by using the hay show information.

TABLE XIV
SUMMARY OF ADVANTAGES OF HAY SHOW

ADVANTAGES*	\bar{N}	%	RANK
Protein test supplied	55	50.9	1
Feeding recommendations supplied	32	29.6	2
Opportunity to view other hay	17	15.74	3
Competition offered	4	3.7	4
TOTAL	108	100	

*Multiple responses. Therefore number will be greater than 68.

Data in Tables XXI and XXII show that out of the 68 respondents, 64 (94.1 percent) perceived they had benefited from the hay show. Sixty-one (89.7 percent) want to continue to participate in the show. Only one respondent (1.5 percent) indicated that he did not benefit from the hay show.

Tables XXIII through XXV display responses concerning producers perceptions as to what factors constitutes hay quality.

Data in Table XXIII include respondents perception of what factors constitutes quality hay. "Crude protein" content was ranked

the number one factor with 62 responses. "Palatability" and "free from foreign matter" ranked second and third respectively.

TABLE XV
REASONS FOR PARTICIPATING IN HAY SHOW

REASONS	\bar{N}	%	RANK
No responses	50	73.2	1
Don't have time	6	9.0	2
Forgot entry deadline	5	7.3	3
Other	4	6.0	4
Lost interest	0	0	
I'm not using the information	0	0	
TOTAL	68	100	

To permit a more accurate description and analysis of the data, numerical values were assigned to each response in Table XXIV. First place received one point, second place - two points, third place - three points, fourth place - four points and fifth place - five points. Total points were added and divided by total number of responses.

Data in Table XXIV show that producers perceived that "Fertilization" was the factor that most determined quality hay. Followed by "stage of maturity", "Harvesting and curing practices", "weeds", and "species".

Data in Table XXV indicate that 52 (76.4 percent) respondents

felt that crude protein played a very important role in the determination of hay feed value to their cow herd. Ten (14.6 percent) respondents felt it had "some importance" in their feed operation.

TABLE XVI
HAY QUALITY IMPROVEMENTS AS PERCEIVED
BY PRODUCERS ENTERING THE HAY SHOW

IMPROVEMENTS MADE*	\bar{N}	%	RANK
Crude protein improved	33	36.2	1
Improve efficiency of supplement	27	29.6	2
Better weed control	13	14.6	3
No change	8	8.9	4
Change to better type of forage	6	6.6	5
Improve storage practice	4	4.4	6
TOTAL	91	100	

*Multiple responses. Therefore number will be greater than 68.

Data in Table XXVI indicate that 48 (46.2 percent) respondents felt climate played a key role in affecting hay production. While 16 (15.4 percent) indicated fertilization was the problem. Harvesting and weed problem were tied with 14 respondents (13.4 percent).

It can be noted by the data in Table XXVII that the mean crude protein level of all hays except fescue had increased when comparing the first hay show held in 1976 to the 1984 show.

After viewing the data entered on these samples the reason for

increase in crude protein could be related to earlier cutting dates and fertility. This information is obtained on entry of hay in the show.

TABLE XVII
PRODUCERS' PERCEPTIONS OF VALUE
OF FEEDING RECOMMENDATION

VALUE OF INFORMATION	\bar{N}	%	RANK
Of great value	45	66.1	1
Of some value	22	32.1	2
No response	1	1.5	3
Of no value	0	0	
TOTAL	68	100	

TABLE XVIII
PRODUCERS' PERCEIVED WILLINGNESS TO
USE FEEDING RECOMMENDATIONS

FOLLOW RECOMMENDATIONS	\bar{N}	%	RANK
Yes	57	84.0	1
No	5	7.1	2
No response	4	5.9	3
Some	2	3.0	4
TOTAL	68	100	

TABLE XIX
 PRODUCERS' UTILIZATION OF FEEDING RECOMMENDATION

HOW UTILIZED*	\bar{N}	%	RANK
Reducing amount of protein supplement	43	52.4	1
Using proper type of supplement	28	34.2	2
Reducing amount of hay fed	11	13.4	3
TOTAL	82	100	

*Multiple responses. Therefore number will be greater than 68.

TABLE XX
 ECONOMIC BENEFIT RECEIVED FROM ENTERING THE HAY SHOW

DOLLARS SAVED PER HEAD	\bar{N}	%	RANK
0 - 10	28	41.2	1
21 - 40	21	30.9	2
No response	9	13.1	3
11 - 20	5	7.4	4
41 - 50	4	5.9	5
More	1	1.5	6
TOTAL	68	100	

Figures 4 through 8 depict what occurred from 1976 through 1984 in regards to crude protein levels and standard development of bermudagrass, bermuda/combination, native, sorghum sudan and fescue.

TABLE XXI
 RELATIVE BENEFITS PRODUCERS
 REPORT FROM HAY SHOW

HAVE YOU BENEFITED FROM HAY SHOW	\bar{N}	%	RANK
Yes	64	94.1	1
No response	3	4.4	2
No	1	1.5	3
TOTAL	68	100	

TABLE XXII
 PRODUCERS' FUTURE INTENTIONS TO PARTICIPATE

PARTICIPATION	\bar{N}	%	RANK
Yes	61	89.7	1
No response	6	8.8	2
No	1	1.5	3
TOTAL	68	100	

Data in Figures 5, 6, 7, and 8 show a dramatic drop in crude protein level in 1980. This drop can be attributed to the very dry and hot conditions existing in early spring and summer of 1980 in Pittsburg County.

The major forage produced in Pittsburg County was bermudagrass and native as indicated by Table VI. Since data in Table VII had

indicated that 45 percent of respondents produced bermudagrass hay and 23 percent produced native hay, data in Figures 4 and 6 were selected to trace crude protein levels from 1976 through 1984. The information depicted in Figure 4 does not show a dramatic increase in crude protein over the nine year period, but does indicate a slow upward trend in protein. The number of entries in bermudagrass have increased from nine in 1976 to 58 in 1984 for a 84 percent increase. Yet the standard deviation in 1976 was 2.4 compared to 2.2 in 1984.

TABLE XXIII
 PRODUCERS' PERCEPTIONS OF FACTORS
 DETERMINING QUALITY HAY

FACTORS*	\bar{N}	%	RANK
Crude protein	62	38.5	1
Palatability	38	23.6	2
Free from foreign matter	20	12.4	3
Texture	15	9.3	4
Type of forage	15	9.3	4
Color	8	5.0	5
Bale Type	3	1.9	6
TOTAL	161	100	

*Multiple responses. Therefore number will be greater than 68.

Native grass numbers have increased from 7 in 1976 to 13 in 1984 for a 46 percent increase. What increase in protein was seen could be

attributed to earlier cutting dates.

TABLE XXIV
PRODUCERS' PERCEPTIONS OF FACTORS
AFFECTING HAY QUALITY

FACTORS	\bar{N}	%	RANK
Fertilization	60	83	1
Stage of maturity	54	115	2
Harvesting and curing	45	146	3
Weeds	42	145	4
Species	37	150	5

TABLE XXV
PRODUCERS' PERCEPTIONS OF FEED
VALUE OF CRUDE PROTEIN

IMPORTANCE OF CRUDE PROTIEN	\bar{N}	%	RANK
Great importance	52	76.4	1
Some importance	10	14.6	2
No response	6	9.0	3
No importance	0	0	
TOTAL	68	100	

TABLE XXVI
 PROBLEMS FACING PRODUCERS
 IN HAY PRODUCTION

FACTORS AFFECTING HAY PRODUCTION*	\bar{N}	%	RANK
Climate	48	46.2	1
Fertilization	16	15.4	2
Harvesting problem	14	13.4	3
Weed problem	14	13.4	3
Labor	6	5.7	4
Equipment	3	3.1	5
Terrain	2	1.9	6
Rocks	1	.9	7
TOTAL	104	100	

*Multiple responses. Therefore number will be greater than 68.

TABLE XXVII
 CHANGES IN AVERAGE CRUDE PROTEIN
 LEVELS OF HAYS

TYPE OF HAY	1976			1984			PERCENT INCREASE
	N	X	SD	N	X	SD	
Bermudagrass	9	8.46	2.4	58	8.99	2.2	5.8
Bermuda/Combination	14	9.28	1.9	20	10.68	2.32	13.1
Native	7	5.31	.64	13	5.52	1.09	3.8
Sorghum Sudan	3	5.66	1.79	7	9.06	1.44	37.5
Fescue	5	12.44	3.57	10	9.16	2.49	-26.3

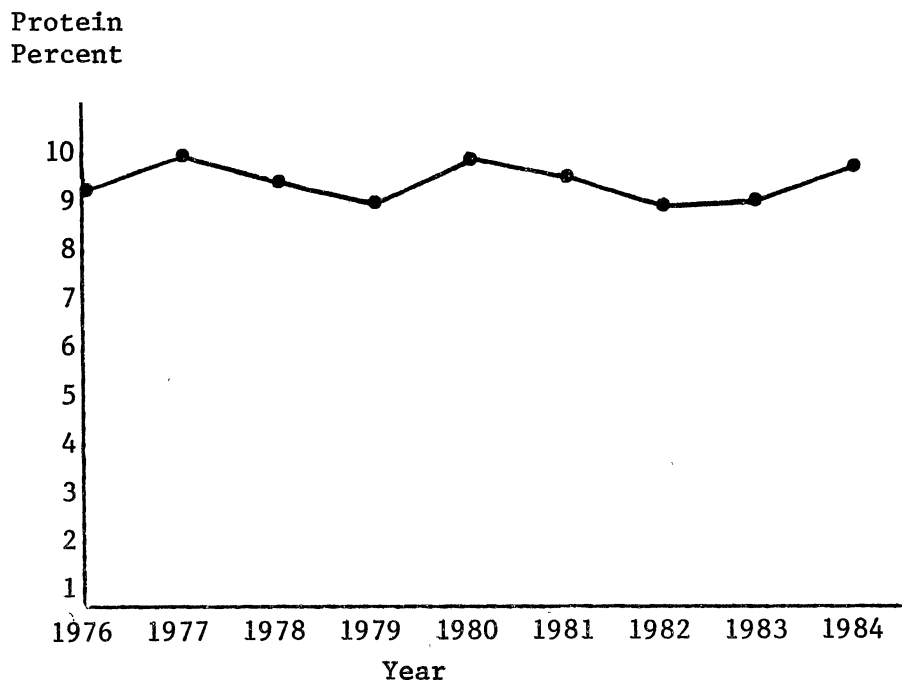


Figure 4. Crude Protein Levels of Bermudagrass Hays Entered in the Pittsburg County Hay Show from 1976 Through 1984

Figure 5 indicates some erratic levels of crude protein. Examination of producers data shows many producers were trying to adjust their cutting dates due to added clovers. Some were trying to utilize their clovers more than bermudagrass.

Figure 6 shows an upward trend which indicates the producers were recognizing cutting dates as indication of increasing crude protein.

Figure 7 again shows an upward trend in crude protein levels, but with erratic years. There were no entries in 1980 due to very dry conditions which allow very little planting.

Data in Figure 8 show a continuous drop in crude protein from 1976 to 1984. This is caused by producers not aware of early cutting

indicated a need to let fescue go to seed, thus lowering crude protein.

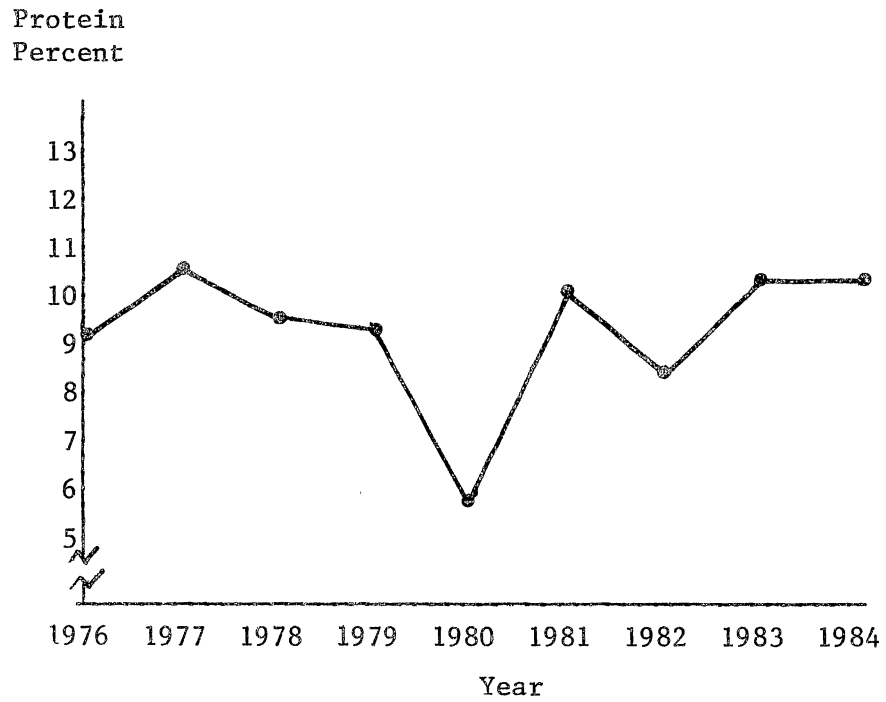


Figure 5. Crude Protein Levels of Bermuda/Combination Hays Entered in the Pittsburg County Hay Show from 1976 Through 1984

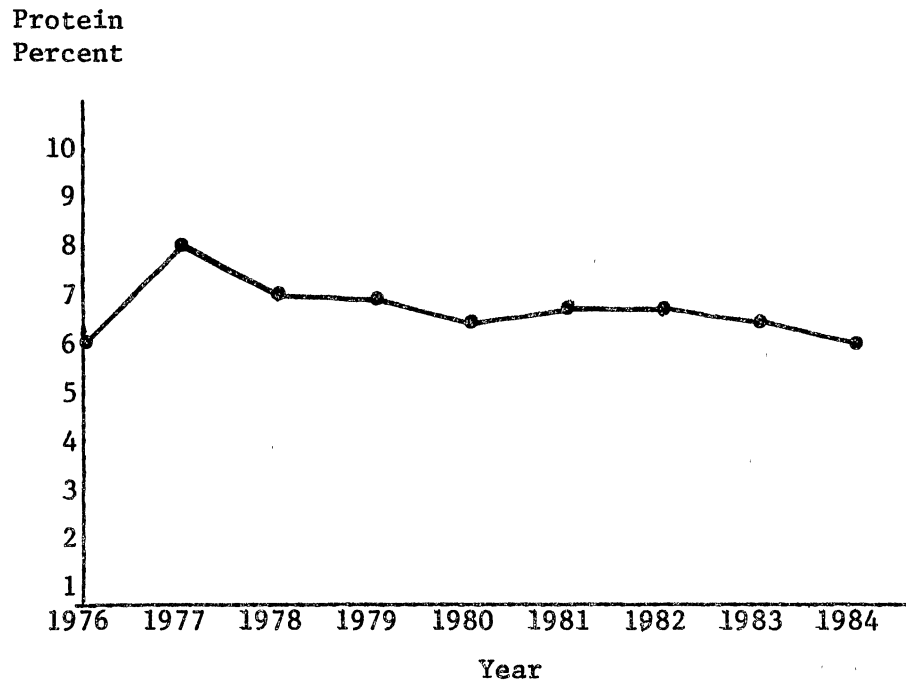
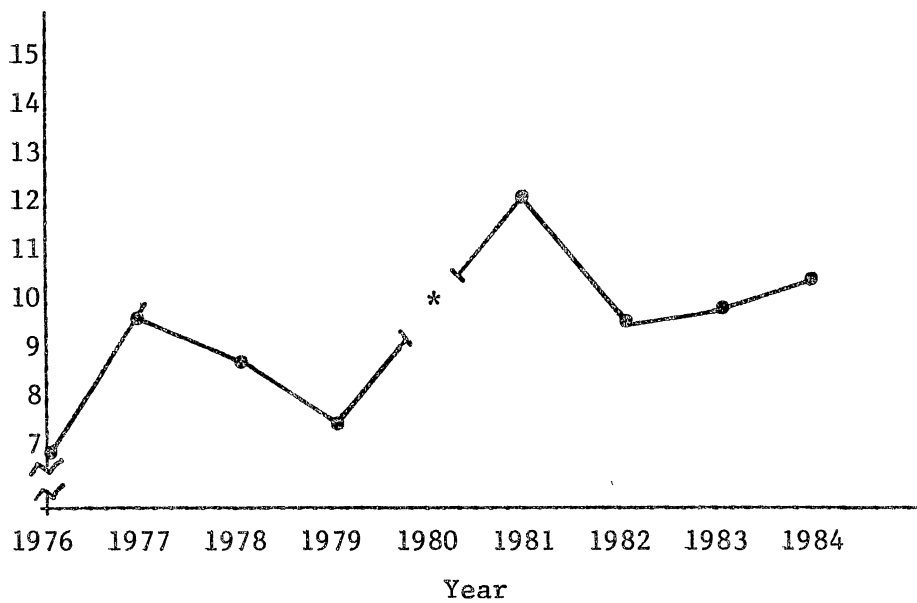


Figure 6. Crude Protein Levels of Native Grasses
Entered in the Pittsburg County Hay
Show from 1976 Through 1984

Protein
Percent



*No Samples for 1980

Figure 7. Crude Protein Levels for Sorghum Sudan
Entered in the Pittsburg County Hay
Show from 1976 Through 1984

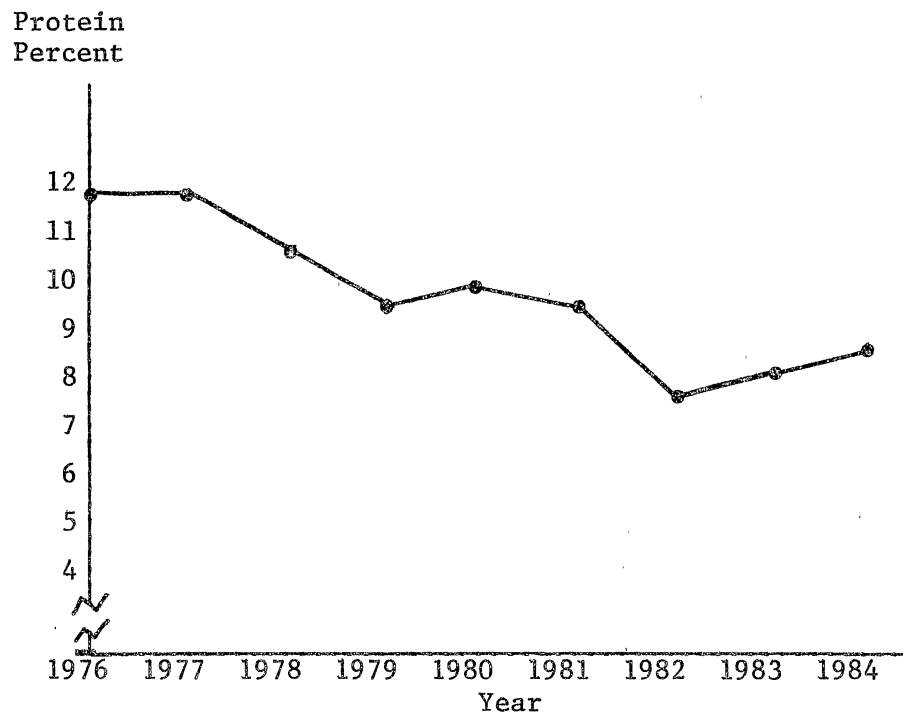


Figure 8. Crude Protein Levels for Fescue Entered in the Pittsburgh County Hay Show from 1976 Through 1984

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter is to present a summary of the study problem, methodology, and major findings. Conclusions and recommendations were presented based upon summarization and analysis of data collected and interpretation resulting from the design and procedures utilized to conduct the study.

Summary of the Study

Purpose of the Study

The purpose of this study was to determine the perception of beef producers in Pittsburg County toward the hay show as an event and to trace the changes in crude protein of hay entered in the show.

The population of this study consisted of 215 beef producers who had entered the Pittsburg County Hay Show from 1976 through 1984.

Specific Objectives of the Study

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

1. To determine the perceptions of hay show participants as to the impact of the Pittsburg County Hay Show as an event.
2. To determine the perceptions of hay show participants as to

what constitutes hay quality.

3. To trace the changes in crude protein levels of the hay samples exhibited in the Pittsburg County Hay Show from 1976 through 1984.

Rational for the Study

Reduction of losses has been the major alternative forced on our cow/calf producers faced with soaring production expenses and low markets. While cattlemen have culled their herds down, curtailed expenses and deferred capital expenditures, they may yet be overlooking the value of quality hay programs that could further reduce their winter feed bills. Quality hay doesn't just happen, it requires good planning, adequate fertilization based on soil samples, and correct timing of harvest if it is to replace part or all of the purchased winter supplements.

Results of the study should provide assistance in determining direction, balance and future program needs. Quality hay requires fertilization, supervision, analysis and utilization.

Design and Procedure

Following a review of literature related to the problem and determination of need, the major tasks in the design of the study included: (1) the determination of a study population, (2) development of a survey instrument, (3) collection of the data, and (4) analysis of the data.

The population of the study consisted of 215 beef producers in Pittsburg County. "Mail questionnaires" were utilized during the

early spring of 1985 to secure data. Approximately 30 percent of the producers who received questionnaires returned usable surveys. Also from 771 hay samples analyzed for crude protein were used to determine average crude protein for various types of forages.

Survey items and areas of concern were determined through a review of related literature and needs expressed by Area Extension Specialists, County Agricultural Agents and sponsors of the hay show.

Upon collection of the data, descriptive statistics were utilized to analyze and describe the information. Chapter IV presents the findings and discussion of the data shown in the tables.

Major Findings of the Study

The focus of this study was to ascertain perceptions of beef producers regarding the Pittsburg County Hay Show. Objectives of the study were utilized as a basis for organization of the major findings. These major findings were presented as follows.

Specific results show increases in crude protein from 1976 through 1984 in bermudagrass, native and sorghum sudan hays which makes up the forages entered by respondents. Respondents indicated that increased hay quality was the number one reason for entering the hay show. The way in which the respondents first heard of the hay show was by personal contact, with the respondents indicating they would continue to participate in future hay shows.

Respondents reported they saved up to \$40.00 per head on their winter feeding bill as a result of their participating in the hay show. The respondents perceived feeding recommendations of value in their feeding program.

Numerous factors such as climate, harvesting problems and weed control influence hay quality tremendously throughout the production year. The respondents are aware that fertilization and stage of maturity are indeed the top two factors influencing hay quality.

Conclusions

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

1. Producers become more involved in the Pittsburg County Hay Show as a direct result of personal contact.
2. Feeding recommendations supplied on each forage sample was of great value to producers in their feeding program.
3. Improvements in hay quality has been made by participants.
4. Participants have benefited and will continue to participate in future hay shows.
5. Producers thought that fertilization and stage of maturity greatly affected crude protein.
6. Average crude protein of bermudagrass, bermuda/combination, native and sorghum sudan increased from 1976 to 1984.
7. Most of the participants were part-time producers.
8. Most of the hay produced was bermudagrass, native and fescue.

Recommendations

As a result of the major findings and conclusions the following recommendations are made.

General

1. Develop a public relations program designed to communicate importance of forage quality to beef producers.
2. Develop "interdisciplinary" programs among Extension and other USDA Agencies and Vocational Agriculture Instructors to meet the needs of producers in forage quality.
3. To increase personal contact by utilizing more forage probes in Vo-Ag chapters and key hay producers.
4. Emphasize that the hay show be continued and additional emphasis be placed on reaching new clientele.
5. Recommend that the local sponsor continue support of the "free" protein test.

It should also be pointed out that conclusions and recommendations in this study are based on data secured from Pittsburg County, Oklahoma hay producers as to their perceptions of the value and impact of the Pittsburg County Hay Show. Generalizations, therefore, should not be made to other hay shows and related educational activities.

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APPENDIX A

PRODUCERS QUESTIONNAIRE

Dear Beef Producer:

We would like for you to evaluate the impact the Hay Show has had on quality hay production. Your answers to the following questions, when added to those of other county hay show participants, will give us this information.

Do you farm part-time or full-time? part-time full-time

Do you produce primarily for feed or sale? feed sale

How many acres of hay meadow do you have? _____ acres

What type of hay do you produce?

Bermuda

Native

Sorghum-Sudan

Alfalfa

Other (Specify) _____

Do you produce square or round bales?

Square Round Combination of round/square

What level of crude protein do you try to get?

5%

6 - 10%

11 - 15%

16 - 20%

Don't know

Was 1984 a good, average, or poor year for growing hay?

How many total tons of hay did you produce this year? _____ tons per acre.

Was this an increase or decrease from past years?

Increase Decrease Same

Have you had an increase in production over the years, except for the poor years?

Yes No

Of this change in total production, what percentage do you attribute to the knowledge you've gained from the Pittsburg County Hay Show?

0 - 25%

26 - 49%

50 - 74%

75 - 100%

How did you "first" learn of the Pittsburg County Hay Show?

- County Extension Agent
 Vocational Agriculture Instructor
 Farm Supply Dealer
 Other Farmers
 Magazines
 Newspaper
 Radio
 Television
 Other (Specify) _____

Why did you decide to enter the Pittsburg County Hay Show?

- Decrease feeding cost
 Increase profit or production per acre
 Farmer/Neighbor influence
 Test was free
 Increase quality of hay
 Other (Specify) _____

How long have you been entering the Pittsburg County Hay Show?
You can mark more than one.

- | | | |
|----------------------------------|----------------------------------|----------------------------------|
| <input type="checkbox"/> 1 year | <input type="checkbox"/> 4 years | <input type="checkbox"/> 7 years |
| <input type="checkbox"/> 2 years | <input type="checkbox"/> 5 years | <input type="checkbox"/> 8 years |
| <input type="checkbox"/> 3 years | <input type="checkbox"/> 6 years | <input type="checkbox"/> 9 years |

What are the primary "advantages" of the Pittsburg County Hay Show?

- Feeding recommendations supplied
 Protein test supplied
 Competition offered
 Opportunity to view others hay

If you are no longer participating in the Pittsburg County Hay Show, what are the reasons? You can mark more than one.

- Don't have time
 Forgot entry deadline
 Lost interest
 I'm not using the information
 Other (Specify) _____

After entering the Hay Show, what factors do you feel most affect quality hay production? (Please rank from 1st to 5th)

- Fertilization
 Stage of maturity at harvest
 Weed control
 Species of plant
 Harvesting and curing practices
 Other (Specify) _____

Do you feel that you will continue to participate in future hay shows?

Yes

No

APPENDIX B

CORRESPONDENCE

COOPERATIVE EXTENSION SERVICE

OKLAHOMA STATE UNIVERSITY



UNIVERSITY EXTENSION

McAlester, Oklahoma 74501
January 4, 1985



EVALUATION OF THE IMPACT
THE PITTSBURG COUNTY HAY SHOW
HAS HAD ON QUALITY HAY PRODUCTION

Dear Producer:

It's either feast or famine for hay production in Pittsburg County. Some years production is great and some years not so great. Quality of hay (Crude Protein) also varies from year to year. With cost of production going up each year, cattlemen are always looking to cut cost without cutting production. The Pittsburg County Hay Show is one such program trying to accomplish such a task.

Since you have participated in past shows, the information you give will help each of us to begin to meet this problem. Please help me by taking a moment out of your busy schedule to share your ideas.

The questionnaire is designed to take as little time as possible and still allow you to express your feelings and concern as to the relative values of such practices. Also, please feel free to make any comments and/or suggestions which you feel might prove helpful.

Please return the questionnaire to me in the self-addressed envelope which is included for your convenience by February 1.

Sincerely,

Ted L. Evicks

Ted L. Evicks
County Extension Agriculture Agent
3rd Floor Courthouse
McAlester, Oklahoma 74501

gk

enclosures

Oklahoma State University Cooperative Extension Service does not discriminate because of race, color, sex or national origin in its programs and activities

WORK IN AGRICULTURE, HOME ECONOMICS AND RELATED FIELDS

USDA - OSU AND COUNTY COMMISSIONERS COOPERATING

VITA 2

Teddy Leon Evicks

Candidate for the Degree of

Master of Science

Thesis: IMPACT OF THE PITTSBURG COUNTY HAY SHOW AS PERCEIVED BY BEEF PRODUCERS IN PITTSBURG COUNTY

Major Field: Agricultural Education

Biographical:

Personal Data: Born in McAlester, Oklahoma, April 19, 1952, the son of Adam and Irene Evicks.

Education: Graduated from Wilburton High School, Wilburton, Oklahoma, 1970; received the Bachelor of Science degree in Agriculture degree from Oklahoma State University in May, 1974, completed requirements for the Master of Science degree at Oklahoma State University in December, 1985.

Professional Experience: Farm background; County Extension Agent, Haskell County, May, 1974 to August, 1978; County Extension Agriculture Agent, Pittsburg County, August, 1978 to November, 1984; County Extension Agriculture Agent and County Extension Director, November, 1984 to present.

Professional Organizations: Oklahoma Association of County Extension Agents; National Association of County Agents.