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RELATIONSHIPS BETWEEN TENNESSEE BEEF CATTLE PRODUCERS PERSONAL AND FARM OPERATION CHARACTERISTICS AND THEIR USE OF RECOMMENDED FEEDING MANAGEMENT PRACTICES

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ABSTRACT

The purpose of this study was to determine the relationship between Tennessee beef cattle producers personal and farm characteristics and their use of selected feeding management practices. One thousand one hundred eighteen beef producers were randomly selected from the study population and personal interviews were conducted by county Extension agents in the fall of 1985. Survey and interview schedules were developed by the University of Tennessee Beef Specialists and the Agricultural Extension Education Department. Information recorded included personal and farm characteristics of Tennessee beef producers and their use of selected recommended beef cattle feeding management practices.

The chi square (x^2) test were used to determine the relationships between selected dependent and independent variables. The .05 level of probability was accepted as being statistically significant.

Major findings included the following:

1. Only two of the eight selected recommended feeding management practices were being utilized by more than 40 percent of the beef producers in this study. The two practices being used by the higher percent of producers were stockpiling fescue and supplementing protein for the beef herd during the winter.

2. Almost 75 percent of the beef producers had 75 acres of more of permanent pasture and over 91 percent had some type of cattle handling facilities.

3. Slightly over 88 percent of the beef producers had some type of contact with the Agricultural Extension Service.

4. Only 6 percent of the beef producers were utilizing the recommended practice of forage testing.

5. Full-time beef producers were more likely than part-time beef producers to use five of the eight recommended feeding management practices.

6. Beef cattle producers that had 75 acres or more of permanent pasture were more likely than producers with less acreage to use four of the recommended feeding management practices.

7. Beef cattle producers with 41 cows or more were more likely than producers with 40 cows or less to use five of the recommended feeding management practices.

8. Beef cattle producers with cattle handling facilities were more likely than producers with no cattle handling facilities to use six of the eight recommended feeding management practices.

9. Beef cattle producers that had contact with Extension were more likely than producers with no contacts with Extension to use seven of the eight recommended feeding management practices.

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CHAPTER I

THE PROBLEM AND ITS SETTING

I. INTRODUCTION

Beef cattle production is a very important part of Tennessee agriculture since approximately 20 percent of the state's total agricultural income was derived from the sale of cattle in 1985 (11).*

Tennessee beef cattle numbers have increased tremendously over the past 25 years. In 1960, beef cattle numbers in Tennessee were slightly over 1.8 million (12). By January 1, 1985 beef cattle numbers had increased to over 2.5 million head (11). In 1985 Tennessee ranked fourteenth in the nation in all cattle and calves and tenth in total number of beef cows (8).

There are presently 2.6 million acres of pasture land in Tennessee. This is about 20 percent of the states 12.6 million acres of farm land area. Hay production is also a very important part of Tennessee agriculture with 1.6 million acres produced in 1985 (12). Pasture and hay production is the main contributing factor that makes Tennessee a big cattle producing state.

The University of Tennessee Agricultural Extension Service plays an important role in the education of Tennessee agricultural producers.

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*Numbers in parentheses refer to alphabetically numbered references in the Bibliography.

It provides producers useful and practical information and encourages the application of this information (6). Agriculture Extension programs stress the importance of implementing recommended beef cattle management practices. These management practices can help beef producers obtain increased returns from their beef cattle program. Tennessee cow-calf producers have made great achievements in the past few years by implementing recommended management practices. However, there is still a need for more efficient use of these management practices and applications of new or more innovative beef management practices. As Tennessee cattle producers become more efficient through the application of recommended management practices their end result will be more profitable. The goal of the Agricultural Extension Service, as it relates to the beef cattle industry, is to improve the efficiency of beef production in Tennessee.

This study was concerned with determining the relationship of Tennessee beef cattle producers personal and farm characteristics to the producers application of recommended beef cattle feeding management practices. A well managed feeding management program is the basis for a sound and efficient beef cattle herd. By looking at the acceptance of several recommended feeding management practices we hope to be able to determine which characteristics influenced Tennessee beef cattle producers to adopt these practices.

II. NEED FOR THE STUDY

Under provisions of the Smith-Lever Act, the cooperative Extension Service exists to diffuse among the people of the United States useful and practical information or subjects relating to agriculture and home economics, and to encourage the application of the same (3). Extension agents work to improve and evaluate their programs so the needs of the beef producer can be met. It was believed that this study would be helpful in meeting some of these needs. The results from this study should help Extension personnel to do a better job of planning educational programs for beef cattle producers.

The 1985 Tennessee Beef Cow-Calf Producer Survey data were used in this study. The data from this survey were analyzed to determine to what extent producers were following specific recommended feeding management practices. The survey data were also used to determine what characteristics were related to producers use of specific recommended feeding management practices.

III. PURPOSE OF THE STUDY

The objective of the Agriculture Extension Service is to educate producers on the use of recommended feeding management practices to assist them in being more efficient and productive. The purpose of this study was to evaluate certain personal and farm operation characteristics and determine the relationship between these characteristics and beef producers use of specific feeding management practices.

The specific objectives were:

1. To describe Tennessee beef cattle producers as to their personal and farm operation characteristics.

2. To determine the extent of use of specific recommended feeding management practices by Tennessee beef producers.

3. To determine the relationships between selected personal characteristics of Tennessee beef producers and their use of specific recommended feeding management practices.

4. To determine the relationship between Extension contacts and the use of recommended feeding management practices.

5. To determine the relationships between selected farm operation characteristics of Tennessee beef producers and their use of specific recommended feeding management practices.

IV. LIMITATIONS OF THE STUDY

This study was limited to the analysis of the data available from the 1985 Beef Cow-Calf Producer Survey. The data were obtained by Extension agents through personal interviews with beef producers having 25 or more breeding age cows. The number of interviews varied from county to county based on the number of beef producers in each county. Eighty-four of the 95 counties in Tennessee were surveyed and included 1,813 producers.

V. METHODS AND PROCEDURES

Population

The population of this study included 1,813 beef cow-calf producers in 84 Tennessee counties who had 25 or more breeding age cows.

Selection of Sample

Extension agents used their county list of beef producers to obtain the sample. The "Nth" number technique was used to identify producers to be surveyed. Alternate producers were selected to replace those who for good reason could not be interviewed.

Development of Survey Instrument

The 1985 Tennessee Beef Cow-Calf Producers Survey was developed by the University of Tennessee Agricultural Extension Service Specialists staff in the Animal Science and Extension Education departments.

Conducting the Survey

The survey was conducted by Extension agents in the 84 counties through personal interviews. The Extension agents scheduled interviews with producers and completed the survey on the farm or at the County Extension office.

Methods of Analysis

Following the completion of surveys by the agents, the data were coded and processed for computer analysis. Computations were made by the University of Tennessee Computing Center. The chi square (x^2)

test was used to determine the strength of the relationships between dependent and independent variables. The .05 probability level was the point at which a relationship was considered significant.

VI. DEFINITION OF TERMS

The following terms are defined to give the writer and reader a common understanding of the terms of this study.

1. Cow-Calf Producer. A beef producer who maintains a herd of brood cows for the purpose of producing calves which are primarily marketed as feeder calves or as yearlings. Producing calves is the cow-calf producers main phase of beef production.

2. Extension contact. One of the various methods, such as a farm visit, by which Extension agents provide agricultural information to producers on subject matters of interest to the producer.

3. Feeding management. A researched based program of feeding livestock. It is a method of achieving maximum feed efficiency by implementing recommended feed practices.

4. Recommended practices. A research verified and commonly accepted procedure that, if performed correctly and on a scheduled basis, will increase the incidence of a desired outcome or return.

CHAPTER II

REVIEW OF RELATED STUDIES

The purpose of this chapter is to review findings from other studies involving related research. There are several survey type studies that have been done on beef production. Most of these were evaluating specific county or area situations. This study looked at Tennessee beef production characteristics and how they relate to the use of specific recommended beef production practices.

Review of related studies in this chapter will be reported under the following headings: (1) characteristics of Tennessee beef producers and their farm operation, (2) producer use of recommended beef cattle production practices, and (3) relationships between the use of recommended practices and Extension contacts.

I. CHARACTERISTICS OF TENNESSEE BEEF PRODUCERS AND THEIR FARM OPERATION

Rutter (11) in 1982 involved 1,047 beef producers in a statewide survey to obtain data on producer characteristics. Rutter found that 53 percent were full-time farmers, approximately 57 percent of the producers were 50 years old or older, and 72 percent of their farms had 100 acres or less of pasture.

In a 1985 study Lumpkin (5), involving 1,047 beef producers in a statewide survey, discovered the following characteristics about Tennessee beef producers. Fifty-four percent were full-time

producers, 52 percent were 51 years and older, 50 percent of the farms had 95 acres or less, 50 percent of the producers had 35 cows or less, and 35 percent of the farms had no cattle handling facilities.

Beeler's (2) study of Tennessee beef producers in 1986 revealed the following characteristics. Over 51 percent of the producers were full-time farmers, 53 percent of the producers had 49 cows or less, and 47 percent of the cattle herds were crossbred.

In a 1979 statewide study involving 955 beef producers Mohamad (8) determined the following characteristics. There were 48 cows in an average beef herd at the time this study was done. It was determined that the average age of the beef producer was 50 years old. The average farm had 129 acres.

Headrick's (4) study of 1,799 Tennessee beef producers revealed the following characteristics. Fifty-one percent of the beef producers were full-time farmers and the average herd size was 79 cows.

In a 1972 beef survey of 40 beef producers in Marshall County, Brewer (3) reported the following characteristics. Fifty-eight percent were full-time farmers, the average beef herd had 38 cows, and the average farm size in this study was 140 acres. Producers average age was 55.

In a 1971 study, Barnes (1) surveyed 38 beef producers in Claiborne County. His findings showed that 60 percent of the producers were full-time and that the average beef herd had 25 cows.

Ivy's (5) statewide study in 1985, involving 1,813 beef producers, obtained the following characteristics about Tennessee beef producers. Fifty-eight percent of the respondents were full-time farmers, 49 percent had a herd size of 40 head or less, 42 percent were under the age of 50, and 9 percent had no cattle handling facilities.

II. PRODUCERS USE OF RECOMMENDED BEEF PRODUCTION PRACTICES

Beeler (2) in a 1986 statewide Tennessee study found that 36 percent of these beef producers fed cows by weight and stage of production, 6 percent of the beef producers forage tested, 52 percent of the producers had at least 30 percent legumes in their pastures, 6 percent of the herds were enrolled in a performance testing program, and 31 percent of the producers used performance tested bulls.

In 1985 Lumpkin's (6) statewide study of Tennessee beef producers found that 41 percent of the cattle were fed by age and production, 47 percent of producers fed crop residues, 67 percent of producers stockpiled fescue, 44 percent of the herds were fed supplemental protein, 29 percent of the herds used performance tested bulls, and 6 percent of the herds were enrolled in performance testing.

Rutter (11) in a 1982 statewide study of Tennessee beef producers found that 66 percent of the producers stockpiled fescue, 41 percent of the producers fed by age and stage of production, and 55 percent fed supplemental protein.

In a 1979 statewide study of Tennessee beef producers, Mohamad (8) compared large and small beef producers and their relationships in following recommended practices. It was determined that more large producers followed recommended practices than did smaller producers.

III. RELATIONSHIPS BETWEEN THE USE OF RECOMMENDED PRACTICES AND EXTENSION CONTACTS

Beeler (2) in a 1986 statewide study of 1,736 Tennessee beef producers found that 91 percent (1,632) were exposed to some type of Extension contacts. Of the 22 selected recommended beef management practices that were studied, 43 percent were followed by producers that were exposed to some type of Extension contacts. This is 8 percent higher acceptance of recommended practices than those producers that had no exposure to Extension contacts. According to these findings producers who had one or more contacts with Extension had a definite increase in the use of recommended management practices.

In a 1982 statewide study of 1,047 Tennessee beef producers, Rutter (11) found that 79 percent (827) had some type of contact with Extension. Of those having contact with Extension there was an average of 17 contacts for each producer during the previous year. There were 9 percent more contacts with full-time farmers than part-time farmers. Of the 13 recommended management practices that were evaluated in this study it was found that increased use in each practice resulted when there was some type of contact with Extension.

Perry (10) in a 1980 study of Tennessee swine producers evaluated the use of 18 recommended production practices. The practices being used by the majority of the producers were reported to be highly related to the number of Extension contacts.

Walker (15) in his 1985 statewide study of 1,813 beef cattle producers reported that producers who made one or more contacts with Extension were more likely than those who did not make any contacts to use the 11 recommended health management practices.

CHAPTER III

CHARACTERISTICS OF THE TENNESSEE BEEF CATTLE PRODUCERS AND THEIR FARM OPERATION AND THEIR USE OF SELECTED FEEDING MANAGEMENT PRACTICES

The purpose of this chapter is to characterize Tennessee beef cattle producers, their farm operation and their use of selected feeding management practices.

The findings presented in this chapter are organized into two sections. Section I presents data regarding the characteristics of Tennessee beef producers and their farm operation. Section II presents data regarding the producers use of specific Extension recommended beef cattle feed management practices.

I. CHARACTERISTICS OF TENNESSEE BEEF CATTLE PRODUCERS AND THEIR FARM OPERATIONS

Section I presents findings regarding characteristics of Tennessee beef producers and their farm operation. The areas discussed under producer characteristics are producers age, farming status and Extension contacts. The farm operation characteristics are acres of permanent pasture, cattle handling facilities, herd size, and herd type (straightbred or crossbred).

Producer Characteristics

Selected producer characteristics reported in Table I include age, farming status and Extension contacts.

Producers age. Approximately 42 percent of the producers surveyed in a 1985 Tennessee beef cow-calf survey were under 50 years of age. Fifty-eight percent were 50 years or older.

Farming status. Fifty-eight percent of the producers in this study were full-time farmers while 42 percent were part-time farmers.

Extension contacts. Eighty-eight percent of the producers surveyed had previous contact with the Agricultural Extension Service compared to approximately 12 percent who had never had contact with the Agricultural Extension Service.

Farm Operation Characteristics

The variables included in this subsection are: (1) acres of permanent pasture, (2) had cattle handling facilities, (3) herd size, and (4) herd type.

Acres of permanent pasture. Approximately 26 percent of the producers in this study had less than 75 acres of permanent pasture. Seventy-four percent had 75 acres or more of permanent pasture.

Had cattle handling facilities. Ninety-one percent of the producers in this study utilized cattle handling facilities while only 9 percent of the producers had no cattle handling facilities.

Table I. Characteristics of the Tennessee Beef Cattle Producers and Their Farm Operation

Characteristics	Number of Producers	Valid Percent of Producers
PRODUCER CHARACTERISTICS		
Producers Age		
49 or less	754	41.6
50 or over	1,059	58.4
TOTAL	1,813	100.0
Farming Status		
Full-time	1,050	57.9
Part-time	763	42.1
TOTAL	1,813	100.0
Extension Contacts		
No	213	11.7
Yes	1,600	88.3
TOTAL	1,813	100.0
FARM OPERATION CHARACTERISTICS		
Acres of Permanent Pasture		
74 or less	465	25.6
75 or more	1,348	74.4
Total	1,813	100.0
Had Cattle Handling Facilities		
No	159	8.8
Yes	1,654	91.2
TOTAL	1,813	100.0
Herd Size		
40 or less	894	49.3
41 or more	919	50.7
TOTAL	1,813	100.0
Herd Type		
Crossbred	1,188	65.5
Straightbred	625	34.5
TOTAL	1,813	100.0

Herd size. Forty-nine percent of the producers maintained a herd size of 40 head or less of breeding age cows while approximately 51 percent of the producers maintained 41 or more breeding age cows.

Herd type. Sixty-five percent of the producers raised cross-bred cattle while 35 percent of the producers raised straightbred cattle.

II. TENNESSEE BEEF CATTLE PRODUCERS USE OF SELECTED RECOMMENDED BEEF CATTLE FEEDING MANAGEMENT PRACTICES

Table II presents data regarding the number and percent of producers using recommended beef cattle feeding management practices.

Feeding Management Practices

The recommended feeding management practices included in Table II are: (1) group feeding by age and production, (2) dry cows fed low quality feed, (3) crop residue fed last winter, (4) fescue stock-piled, (5) supplemental protein fed during winter, (6) forage testing, (7) temporary winter and summer pasture used, and (8) percent of pasture having at least 30 percent legumes.

Group feeding by age and production. Sixty-three percent of producers did not use group feeding by age while approximately 37 percent did use this practice.

Table II. Number and Percent of Tennessee Beef Cattle Producers Using Recommended Feeding Management Practices

Recommended Feeding Management Practices	Number of Producers	Valid Percent of Producers
Group Feeding by Age and Production		
No	1,148	63.3
Yes	665	36.7
TOTAL	1,813	100.0
Dry Cows Fed Low Quality Feed		
No	1,122	61.9
Yes	691	38.1
TOTAL	1,813	100.0
Crop Residues Fed Last Winter		
No	1,222	67.4
Yes	591	32.6
TOTAL	1,813	100.0
Fescue Stockpiled		
No	580	32.0
Yes	1,233	68.0
TOTAL	1,813	100.0
Supplemental Protein Fed During Winter		
No	406	22.4
Yes	1,407	77.6
TOTAL	1,813	100.0
Forage Testing		
No	1,701	93.8
Yes	112	6.2
TOTAL	1,813	100.0
Temporary Winter or Summer Pasture Used		
No	1,318	72.7
Yes	495	27.3
TOTAL	1,813	100.0
Percent of Pasture Having at Least 30 Percent Legume		
Under 50 percent	1,137	62.7
51 percent to 100 percent	676	37.3
TOTAL	1,813	100.0

Dry cows fed low quality feed. Sixty-two percent of the producers did not feed dry cows low quality feed while 38 percent did feed low quality feed to dry cows.

Crop residue fed last winter. Sixty-seven percent of the beef producers in this study did not feed crop residues the previous winter as compared to 33 percent of the producers who did feed crop residues the previous winter.

Fescue stockpiled. Thirty-two percent of the beef producers in this study did not utilize the method of stockpiling fescue compared to 68 percent of the producers that did use stockpiling in their beef operation.

Supplemental protein fed during winter. Twenty-two percent of the producers did not utilize the use of supplemental protein feeding during winter in their beef operation compared to 78 percent of the producers who did use some type of supplemental protein feeding during the winter.

Forage testing. Ninety-four percent of the beef producers in this study did not forage test compared to only 6 percent of these producers who did use forage testing.

Temporary winter or summer pasture used. Approximately 73 percent of the producers did not use temporary winter or summer pasture programs in their farming operation while 27 percent indicated that they did use this practice.

Percent of pasture having at least 30 percent legumes. Sixty-three percent of the farms had less than half of their pastures consisting of 30 percent or more legumes. Thirty-seven percent of the farms in this study had over half of their pastures consisting of 30 percent or more legumes.

III. CHAPTER SUMMARY

Fifty-eight percent (1,059) of the producers in this study were over 50 years of age. Almost 58 percent (1,050) were full-time farmers and over 88 percent (1,600) had some type of previous contact with the Agricultural Extension Service.

Almost 26 percent of the producers had farms with 74 acres or less of permanent pasture while 74 percent (1,348) had farms with 75 acres and over. Ninety-one percent (1,654) of the producers had some type of cattle handling facilities. Approximately half of the producers had a herd size of 40 cows or less with the other half having 41 cows or more. The crossbred herds made up 65.5 percent (1,188) of the beef herds in this study while straightbred herds made up the remaining 34.5 percent.

Eight recommended feeding management practices were used in this study. The following were the percent of beef producers using each of these practices: 36.7 percent group fed by age and production, (2) 38.1 percent fed dry cows low quality feed, (3) 32.6 percent fed crop residues last winter, (4) 68 percent stockpiled fescue, (5)

77.6 percent fed supplement protein during the winter, (6) 6.2 percent used forage testing, (7) 27.3 percent used temporary winter or summer pasture, and (8) 37.3 percent had half of their pastures having at least 30 percent legumes.

CHAPTER IV

RELATIONSHIPS BETWEEN THE PERSONAL CHARACTERISTICS OF TENNESSEE BEEF CATTLE PRODUCERS AND THEIR USE OF SELECTED RECOMMENDED FEEDING MANAGEMENT PRACTICES

This chapter presents findings regarding the relationships between the personal characteristics of the Tennessee beef cattle producers and their use of eight selected recommended feeding management practices. The characteristics of the Tennessee beef producers used in this study were: (1) producers age, (2) farming status, and (3) Extension contacts. The selected recommended feeding practices were: (1) group feeding by age and production, (2) dry cows fed low quality hay, (3) crop residue fed last winter, (4) fescue stockpiled, (5) supplemental protein fed last winter, (6) forage testing, (7) temporary winter and summer pastures used, and (8) 30 percent legumes in permanent pasture. Analysis was done by the use of the chi square test to determine the strength of relationships between dependent and independent variables. Data were summarized in three tables with each table constituting a section.

Section I presents findings regarding relationships between the age of Tennessee beef producers and their use of recommended feeding management practices.

Section II presents findings regarding relationships between the farming status of Tennessee beef producers and their use of recommended feeding management practices.

Section III presents findings regarding relationships between the number of Extension contacts and Tennessee beef producers use of recommended feeding management practices.

I. RELATIONSHIPS BETWEEN TENNESSEE BEEF PRODUCERS AGE AND THEIR USE OF RECOMMENDED BEEF FEEDING MANAGEMENT PRACTICES

Section I presents findings regarding relationships between the age of beef producers and their use of selected recommended feeding practices. These findings are summarized in Table III. Producers are divided in two groups: (1) producers under the age of 50, and (2) producers 50 and over. Each recommended feeding management practice was analyzed individually to see if age was related to the producers use of each practice.

Farmers Age and Group Feeding by Age and Production

Data in Table III show that 38 percent of the farmers who were under 50 years of age fed their cattle by age and production as compared to 36 percent of the farmers who were 50 years old or older. The chi square test indicated no significant relationship between the producers age and their use of this practice. Producers who were

Table III. Relationship Between Tennessee Beef Producers Age and Their Use of Recommended Beef Feeding Management Practices

Management Practices	Producers Age: Under 50 — Number of Respondents*	Under 50 — Percent Respondents	50 and Over — Number of Respondents*	50 and Over — Percent Respondents
Group Feeding by Age and Production				
No	466	62.0	679	64.3
Yes	286	38.0	377	35.7
TOTAL	752	100.0	1,056	100.0
Statistic $x^2 = 0.930$; $p = 0.335$				
Dry Cows Fed Low Quality Feed				
No	466	62.0	653	61.9
Yes	286	38.0	402	38.1
TOTAL	752	100.0	1,055	100.0
Statistic $x^2 = 0.000$; $p = 1.000$				
Crop Residues Fed Last Winter				
No	487	64.7	728	69.3
Yes	266	35.3	322	30.7
TOTAL	753	100.0	1,050	100.0
Statistic $x^2 = 4.121$; $p = 0.042$				
Fescue Stockpiled				
No	251	33.3	327	31.0
Yes	502	66.7	729	69.0
TOTAL	753	100.0	1,056	100.0
Statistic $x^2 = 1.027$; $p = 0.311$				
Supplemental Protein Fed During Winter				
No	166	22.0	239	22.7
Yes	587	78.0	816	77.3
TOTAL	753	100.0	1,055	100.0
Statistic $x^2 = 0.062$; $p = 0.802$				
Forage Testing				
No	702	93.1	995	94.3
Yes	52	6.9	60	5.7
TOTAL	754	100.0	1,055	100.0
Statistic $x^2 = 0.062$; $p = 0.803$				
Temporary Winter or Summer Pasture Used				
No	524	70.0	789	74.6
Yes	225	30.0	269	25.4
TOTAL	794	100.0	1,058	100.0
Statistic $x^2 = 4.472$; $p = 0.034$				
Percent of Pasture Having at Least 30 Percent Legumes				
Under 50 percent	486	67.1	705	68.9
51 Percent to 100 percent	238	32.9	318	31.1
TOTAL	724	100.0	1,023	100.0
Statistic $x^2 = 0.545$; $p = 0.460$				

*Totals differ due to nonresponses.

under 50 years of age were no more likely to group feed their cattle by age and production than producers over 50 years of age.

Farmers Age and Dry Cows Fed Low Quality Feed

Of the beef producers under the age of 50, 38 percent fed low quality feeds to dry cows compared to just over 38 percent of those producers 50 years and older. Although the data did show a slight tendency for the older producers to feed dry cows low quality feed the relationship was not significant when tested by the chi square test. Therefore, beef producers who were under 50 years of age were no more likely to feed low quality feeds to dry cows than producers 50 years of age and over.

Farmers Age and Crop Residue Fed Last Winter

Of the beef producers under the age of 50, over 35 percent fed crop residues last winter compared to less than 31 percent of the producers who were 50 years or older. The younger beef producers tended to utilize this practice more than the older producers. The chi square test indicated a significant relationship between producers age and their use of this practice. Producers who were under 50 years of age were more likely to feed crop residue to their cattle than producers 50 years of age and over.

Farmers Age and Fescue Stockpiled

Almost 67 percent of the beef producers under 50 years of age utilized the recommended feeding management practice of fescue stockpiling compared to 69 percent of the producers who were 50 years and

older. Findings indicate a slight tendency for older beef producers to stockpile fescue. However the differences in producers age and their use of fescue stockpiling were not significant as tested by the chi square test.

Farmers Age and Supplemental Protein Fed During Winter

Seventy-eight percent of the beef producers under 50 years of age fed supplemental protein to their cattle during the winter as compared to 77 percent of those farmers 50 years and older. Findings indicate that these two age groups of farmers utilize the practice of feeding supplemental protein during the winter at about the same rate. Differences in the use of this practice among producers under 50 and producers 50 and over were not significant as tested by the chi square test.

Farmers Age and Forage Testing

Of the beef producers who were under 50 years of age only 7 percent utilized the recommended feeding practice of forage testing compared to 6 percent of the producers 50 years of age and over. These differences were not significant as tested by the chi square test. Younger producers (under 50) were no more likely than older producers to have their forage tested.

Farmers Age and Temporary Winter and Summer Pasture Used

Thirty percent of the beef producers under 50 years of age used temporary winter or summer pastures as compared to only 25 percent of the producers that were 50 years old or older. This difference was significant as tested by the chi square test. Producers under 50 years of age were more likely to utilize temporary winter and summer pastures than producers 50 years old and over.

Farmers Age and 30 Percent Legumes in Permanent Pasture

About 33 percent of the beef producers under 50 years of age had over half their pasture containing at least 30 percent legumes. Only 31 percent of the beef producers who were 50 years or older had over half their pastures containing at least 30 percent legumes. These differences in percent legumes in permanent pastures were not significant as tested by the chi square test. Producers under 50 years of age were no more likely than those 50 and over to have 30 percent legumes in their permanent pasture.

II. RELATIONSHIPS BETWEEN THE FARMING STATUS OF TENNESSEE BEEF PRODUCERS AND THEIR USE OF RECOMMENDED FEEDING MANAGEMENT PRACTICES

Section II presents findings regarding relationships between producers farming status and their use of selected recommended feeding

practices. These findings are summarized in Table IV. Producers are divided into two groups: (1) full-time farmers, and (2) part-time farmers. Each recommended feeding management practice was analyzed to see if there was any relationship between beef producers farming status and the producers use of selected recommended feeding management practice.

Farming Status and Group Feeding by Age and Production

Findings presented in Table IV indicate that 39 percent of the full-time beef producers were group feeding their beef herds by age and production as compared to only 33 percent who were part-time farmers. Differences in the use of the practice among part-time and full-time beef producers were significant as tested by the chi square test. Therefore, there was a significant relationship between farming status and the use of the practice of group feeding by age and production. Full-time producers were more likely to group feed by age and production than were part-time farmers.

Farming Status and Dry Cows Fed Low Quality Feed

Nearly 41 percent of the full-time beef producers fed low quality feed to dry cows as compared to 35 percent who were part-time beef producers. Differences in the use of the practice among part-time and full-time farmers were significant as tested by the chi square test. Therefore, there was a significant relationship between farming

Table IV. Relationship Between Tennessee Beef Producers Farming Status and the Use of Recommended Beef Feeding Management Practices

Management Practice	Farming Status: Full-time Number of Respondents*	Full-time Percent Respondents	Part-time Number of Respondents*	Part-time Percent Respondents
Group Feeding By Age and Production				
No	624	60.8	504	67.3
Yes	403	39.2	245	32.7
TOTAL	1,027	100.0	749	100.0
Statistic $x^2 = 7.691$; $p = 0.005$				
Dry Cows Fed Low Quality Feed				
No	609	59.3	489	65.4
Yes	418	40.7	259	34.6
TOTAL	1,027	100.0	748	100.0
Statistic $x^2 = 6.515$; $p = 0.011$				
Crop Residues Fed Last Winter				
No	644	63.0	550	73.4
Yes	378	37.0	199	26.6
TOTAL	1,022	100.0	749	100.0
Statistic $x^2 = 20.883$; $p = 0.000$				
Fescue Stockpiled				
No	317	30.9	247	32.9
Yes	710	69.1	503	67.1
TOTAL	1,027	100.0	750	100.0
Statistic $x^2 = 0.762$; $p = 0.383$				
Supplemental Protein Fed During Winter				
No	236	23.0	165	22.0
Yes	790	77.0	585	78.0
TOTAL	1,026	100.0	750	100.0
Statistic $x^2 = 0.195$; $p = 0.659$				
Forage Testing				
No	951	92.6	715	95.3
Yes	76	7.4	35	4.7
TOTAL	1,027	100.0	750	100.0
Statistic $x^2 = 5.074$; $p = 0.024$				
Temporary Winter or Summer Pasture Used				
No	722	70.3	561	75.1
Yes	305	29.7	186	24.9
TOTAL	1,027	100.0	747	100.0
Statistic $x^2 = 4.738$; $p = 0.029$				
Percent of Pasture Having at Least 30 Percent Legumes				
Under 50 percent	667	67.6	499	68.4
51 percent to 100 percent	319	32.4	230	31.6
TOTAL	986	100.0	729	100.0
Statistic $x^2 = 0.090$; $p = 0.764$				

*Totals differ due to nonresponses.

status and producers use of the practice of feeding dry cows low quality feed. Full-time farmers were more likely to feed low quality feed to dry cows than were part-time farmers.

Farming Status and Crop Residues Fed Last Winter

Thirty-seven percent of the full-time farmers fed crop residues last winter as compared to only 27 percent who were part-time farmers. The differences in the use of the practice among part-time and full-time farmers were significant as tested by the chi square test. Therefore, there was a significant relationship between farming status and the feeding of crop residues last year. Full-time farmers were more likely to feed crop residues last winter than were par-time farmers.

Farming Status and Fescue Stockpile

Over 69 percent of the full-time beef producers in Tennessee stockpile fescue as compared to 67 percent of the part-time beef producers. Differences in the use of the practice among part-time and full-time beef producers were not significant as tested by the chi square test. Therefore, there was not a significant relationship between farming status and fescue stockpiling. Full-time beef producers were no more likely than part-time producers to stockpile fescue.

Farming Status and Supplemental Protein Fed During Winter

Seventy-seven percent of the full-time Tennessee beef producers fed supplemental protein during the winter as compared to 78 percent

of the part-time beef producers. Differences in the use of the practice among part-time and full-time beef producers were not significant as tested by the chi square test. Therefore, there was not a significant relationship between farming status and the use of supplemental protein feeding during the winter. Full-time producers were no more likely than part-time producers to feed supplement protein during the winter.

Farming Status and Forage Testing

Slightly over 7 percent of the full-time beef producers were forage testing as compared to 5 percent of the part-time beef producers. Differences in the use of the practice among part-time and full-time beef producers were significant as tested by the chi square test. Therefore, there was a significant relationship between farming status and the use of forage testing. Full-time beef producers were more likely than part-time producers to forage test.

Farming Status and Temporary Winter or Summer Pasture Used

Almost 30 percent of the full-time beef producers were using temporary winter or summer pastures as compared to 25 percent of the part-time beef producers. Differences in the use of the practice among part-time beef producers and full-time beef producers were significant as tested by the chi square test. Therefore, there was a significant relationship between farming status and the use of temporary winter

or summer pasture. Full-time beef producers were more likely than part-time producers to utilize temporary winter or summer pastures.

Farming Status and Percent of Pasture Having at Least 30 Percent Legumes

Just over 32 percent of the full-time beef producers had over half of their pastures containing at least 30 percent legumes as compared to slightly less than 32 percent of the part-time beef producers. Differences in the use of the practice among part-time and full-time beef producers were not significant as tested by the chi square test. Full-time producers were no more likely than part-time producers to have over half of their pastures containing at least 30 percent legumes.

III. RELATIONSHIPS BETWEEN EXTENSION CONTACTS AND TENNESSEE BEEF PRODUCERS USE OF RECOMMENDED BEEF FEEDING MANAGEMENT PRACTICES

Section III presents findings regarding relationships between producers contact with the Tennessee Agricultural Extension Service and their use of selected recommended feeding practices. These findings are summarized in Table V. Beef producers were divided in two groups: (1) beef producers with no Extension contacts, and (2) beef producers with Extension contacts. Each recommended feeding management practice was analyzed individually to see if there was a relationship between producers contact with Extension and their use of selected recommended feeding management practices.

Table V. Relationships Between Extension Contacts and Tennessee Beef Producers Use of Recommended Beef Feeding Management Practices

Management Practice	Extension Contacts: No — Number of Respondents*	No — Percent Respondents	Yes — Number of Respondents*	Yes — Percent Respondents
Group Feeding By Age and Production				
No	160	76.2	984	61.7
Yes	50	23.8	612	38.3
TOTAL	210	100.0	1,596	100.0
Statistic $x^2 = 16.268$; $p = 0.000$				
Dry Cows Fed Low Quality Feed				
No	162	77.5	955	59.8
Yes	47	22.5	641	40.2
TOTAL	209	100.0	1,596	100.0
Statistic $x^2 = 23.732$; $p = 0.000$				
Crop Residues Fed Last Winter				
No	168	80.4	1,046	65.7
Yes	41	19.6	546	34.3
TOTAL	209	100.0	1,592	100.0
Statistic $x^2 = 17.458$; $p = 0.000$				
Fescue Stockpiled				
No	78	37.1	500	31.3
Yes	132	62.9	1,097	68.7
TOTAL	210	100.0	1,597	100.0
Statistic $x^2 = 2.642$; $p = 0.104$				
Supplemental Protein Fed During Winter				
No	70	33.5	333	20.9
Yes	139	66.5	1,264	79.1
TOTAL	209	100.0	1,597	100.0
Statistic $x^2 = 16.315$; $p = 0.000$				
Forage Testing				
No	207	99.0	1,488	93.1
Yes	2	1.0	110	6.9
TOTAL	209	100.0	1,598	100.0
Statistic $x^2 = 10.170$; $p = 0.001$				
Temporary Winter or Summer Pasture Used				
No	181	85.8	1,130	70.9
Yes	30	14.2	464	29.1
TOTAL	211	100.0	1,594	100.0
Statistic $x^2 = 20.044$; $p = 0.000$				
Percent of Pasture Having at Least 30 Percent Legumes				
Under 50 percent	157	75.5	1,033	67.2
51 percent to 100 percent	51	24.5	504	32.8
TOTAL	208	100.0	1,537	100.0
Statistic $x^2 = 5.040$; $p = 0.020$				

*Totals differ due to nonresponses.

Extension Contacts and Group Feeding by Age and Production

Findings presented in Table V indicate that 38 percent of the beef producers who had contact with Extension utilized group feeding by age and production compared to only 24 percent of those with no Extension contact. These differences were significant at the .05 level. Therefore, there was a significant relationship between producers contact with Extension and their use of this practice. Beef producers having contact with Extension were more likely to group feed by age and production than producers with no contact with Extension.

Extension Contacts and Dry Cows Fed Low Quality Feed

Almost 23 percent of the beef producers that had no contact with Extension fed low quality feed to dry cows as compared to over 40 percent of the beef producers with Extension contacts. These differences in Extension contacts and the feeding of low quality feeds to dry cows were significant as tested by the chi square test. Therefore, there was a significant relationship between producers contact with Extension and their use of this practice. Beef producers that had contact with Extension were more likely to feed low quality feeds to dry cows than beef producers that had no Extension contact.

Extension Contacts and Crop Residues Fed Last Winter

Findings presented in Table V indicate that 20 percent of the beef producers that had no contact with Extension fed crop residue

last winter as compared to over 34 percent of the beef producers with Extension contacts. These differences in Extension contacts and the feeding of crop residues last winter were significant as tested by the chi square test. Therefore, there was a significant relationship between Extension contacts and the producers use of this practice. Beef producers with Extension contacts were more likely to feed crop residues last winter than beef producers having no Extension contacts.

Extension Contacts and Fescue Stockpiled

Almost 63 percent of the beef producers with no Extension contacts used the recommended practice of stockpiling fescue as compared to nearly 69 percent of those with Extension contacts. The differences in Extension contacts and producers use of fescue stockpiling were not significant as tested by the chi square test. Therefore, there was not a significant relationship between Extension contacts and producers use of fescue stockpiling. Beef producers with Extension contacts were no more likely than producers with no contact with Extension to stockpile fescue.

Extension Contacts and Supplemental Protein Fed During Winter

Slightly over 66 percent of the producers with no Extension contacts fed supplemental protein feed during the winter as compared to 79 percent of the producers with Extension contacts. The differences in Extension contacts and the producers use of feeding supplemental

protein were significant as tested by the chi square test. Therefore, there was a significant relationship between producers with Extension contacts and their use of this practice. Beef producers with Extension contacts were more likely to feed supplemental protein during the winter than beef producers having no Extension contacts.

Extension Contacts and Forage Testing

Only 1 percent of the producers that had no contact with Extension forage tested as compared to almost 7 percent that had contact with Extension. Differences in Extension contacts and the producers use of forage testing were significant as tested by the chi square test. Therefore, there was a significant relationship between Extension contacts and the producers use of forage testing. Beef producers with Extension contacts were more likely to forage test than beef producers having no Extension contacts.

Extension Contacts and Use of Temporary Winter and Summer Pasture

Fourteen percent of the beef producers that had no contact with Extension utilized temporary winter or summer pastures as compared to over 29 percent of the producers that had Extension contacts. Differences in Extension contacts and producers use of temporary winter and summer pastures were significant as tested by the chi square test. Therefore, there was a significant relationship between Extension contacts and their use of temporary winter and summer pastures.

Producers that had contacts with Extension were more likely than those who did not to use temporary winter and summer pastures.

Extension Contacts and 30 Percent Legumes in Permanent Pasture

Slightly over 24 percent of the beef producers that did not have any Extension contacts had over half their pastures containing 30 percent legumes as compared to almost 33 percent of those who had contact with Extension. Differences in the use of this practice and Extension contacts were significant as tested by the chi square test. Therefore, there was a significant relationship between Extension contacts and having at least 30 percent legumes in over half of the pastures. Producers with Extension contacts were more likely to have at least half their pastures containing over 30 percent legumes than those with no contacts.

IV. CHAPTER SUMMARY

In this chapter three characteristics of beef producers (producers age, producers farming status, and producers Extension contacts) were compared to eight selected recommended feeding practices.

Younger beef producers (under 50) were more likely than older producers (50 and over) to (1) feed crop residues in the winter, and (2) have over half of their pastures containing at least 30 percent legumes.

Full-time producers were more likely than part-time producers to use five of the eight selected feeding management practices.

Full-time producers were more likely to: (1) group feed by age and production, (2) feed dry cows low quality feed, (3) feed crop residues in winter, (4) forage test, and (5) use temporary winter or summer pastures.

Beef producers having contact with Extension were more likely than producers not having contact with Extension to use seven of the eight feeding management practices. Beef producers having contact with Extension were more likely to: (1) group feed by age and production, (2) feed dry cows low quality feed, (3) feed crop residues in the winter, (4) feed protein supplement during the winter, (5) forage test, (6) use temporary winter or summer pasture, and (7) have over half of their pastures containing at least 30 percent legumes.

CHAPTER V

RELATIONSHIPS BETWEEN TENNESSEE BEEF CATTLE PRODUCERS FARM OPERATION CHARACTERISTICS AND THEIR USE OF SELECTED RECOMMENDED BEEF FEEDING MANAGEMENT PRACTICES

This chapter presents findings summarizing the relationship between beef cattle producers farm operation characteristics and their use of eight selected recommended feeding management practices. The farming operation characteristics used in this study were: (1) acres of permanent pasture, (2) having cattle handling facilities, (3) herd size, and (4) herd type. The selected recommended feeding practices were: (1) group feeding, (2) dry cows fed low quality feed, (3) crop residue fed last winter, (4) fescue stockpiled, (5) supplemental protein fed last winter, (6) forage testing, (7) temporary winter and summer pasture, and (8) 30 percent legumes in permanent pasture. The chi square test was used to determine the strength of the relationship between the dependent and independent variables. Findings are reported in four tables with each table constituting a section.

Section I presents findings regarding relationship between the acres of permanent pasture and producers use of recommended feeding management practices.

Section II presents findings regarding the relationship between Tennessee beef producers having cattle handling facilities and their use of recommended feeding management practices.

Section III presents findings regarding the relationship between herd size and producers use of recommended feeding management practices.

Section IV presents findings regarding relationship between herd type and producers use of recommended feeding management practices.

I. RELATIONSHIPS BETWEEN THE ACRES OF PERMANENT PASTURE AND TENNESSEE BEEF CATTLE PRODUCERS USE OF RECOMMENDED BEEF FEEDING MANAGEMENT PRACTICES

Section I presents findings regarding the relationships between the number of acres of permanent pasture and producers use of selected recommended feeding practices. These findings are summarized in Table VI. The amount of permanent pasture on farms in this study were divided into two groups: (1) 74 acres or less, and (2) 75 acres or more. Each recommended feeding management practice was analyzed individually to see if acres of permanent pasture was related to the producers use of each recommended feeding management practice.

Acres of Permanent Pasture and Use of Group Feeding by Age and Production

Findings presented in Table VI indicate that 24 percent of the producers with 74 acres or less of permanent pasture utilized group feeding by age and production as compared to 41 percent of the producers that had 75 acres or more. Differences in the use of group feeding by age and production among those that had 75 acres or more pasture land and those that had less than 74 acres or less was significant

Table VI. Relationships Between Acres of Permanent Pasture and Tennessee Beef Cattle Producers Use of Recommended Beef Feeding Management Practices

Management Practice	Acres of Permanent Pasture			
	74 or Less		75 or More	
	Number of Respondents*	Percent Respondents	Number of Respondents*	Percent Respondents
Group Feeding by Age and Production				
No	352	76.0	793	59.0
Yes	111	24.0	552	41.0
TOTAL	463	100.0	1,345	100.0
Statistic $x^2 = 42.468$; $p = 0.000$				
Dry Cows Fed Low Quality Feed				
No	316	68.1	803	59.8
Yes	148	31.9	540	40.2
TOTAL	464	100.0	1,343	100.0
Statistic $x^2 = 9.755$; $p = 0.002$				
Crop Residues Fed Last Winter				
No	317	68.3	898	67.1
Yes	147	31.7	441	32.9
TOTAL	464	100.0	1,339	100.0
Statistic $x^2 = 0.193$; $p = 0.661$				
Fescue Stockpiled				
No	205	44.2	373	27.7
Yes	259	55.8	972	72.3
TOTAL	464	100.0	1,345	100.0
Statistic $x^2 = 42.176$; $p = 0.000$				
Supplemental Protein Fed During Winter				
No	115	24.8	290	21.6
Yes	349	75.2	1,054	78.4
TOTAL	464	100.0	1,344	100.0
Statistic $x^2 = 1.861$; $p = 0.173$				
Forage Testing				
No	444	95.9	1,253	93.1
Yes	19	4.1	93	6.9
TOTAL	463	100.0	1,346	100.0
Statistic $x^2 = 4.199$; $p = 0.041$				
Temporary Winter or Summer Pasture Used				
No	337	72.9	976	72.6
Yes	125	27.1	369	27.4
TOTAL	462	100.0	1,345	100.0
Statistic $x^2 = 0.009$; $p = 0.923$				
Percent of Pasture Having at Least 30 Percent Legumes				
Under 50 percent	307	66.0	884	69.0
51 percent to 100 percent	158	34.0	398	31.0
TOTAL	465	100.0	1,282	100.0
Statistic $x^2 = 1.221$; $p = 0.269$				

*Totals differ due to nonresponses.

as tested by the chi square test. Therefore, there was a significant relationship between pasture size and the practice of group feeding by age and production. Producers with 75 acres or more were more likely than those with fewer acres to group feed by age and production.

Acres of Permanent Pasture and Dry Cows Fed Low Quality Feed

Almost 32 percent of the producers that had 74 acres or less of permanent pasture fed dry cows low quality feed as compared to 40 percent of the producers that had 75 acres or more. Differences in the use of this recommended practice among the producers with 74 acres or less of permanent pasture and producers with 75 acres or more of permanent pasture were significant as tested by the chi square test. Therefore, there was a significant relationship between the number of acres of permanent pasture and feeding dry cows low quality feed. Producers with 75 acres or more were more likely than those with fewer acres of permanent pasture to feed dry cows low quality feed.

Acres of Permanent Pasture and Crop Residues Fed Last Winter

Nearly 32 percent of the producers with 74 acres or less of permanent pasture fed crop residues last winter as compared to almost 33 percent of those producers having 75 acres or more. The differences in the application of this practice were not significant as tested by the chi square test. Therefore, there was no significant relationship

between the number of acres of permanent pasture and feeding crop residues in late winter. Producers who had 75 acres or more of permanent pasture were no more likely than those with fewer acres of permanent pasture to feed crop residues last winter.

Acres of Permanent Pasture and Stockpiled Fescue

About 56 percent of the producers with 74 acres or less of permanent pasture stockpiled fescue compared to over 72 percent of the producers with 75 acres or more. These differences were significant as tested by the chi square test. Therefore, there was a significant relationship between the number of acres of permanent pasture and the use of the recommended practice of stockpiling fescue. Producers who had 75 acres or more were more likely than those with fewer acres of permanent pasture to stockpile fescue.

Acres of Permanent Pasture and Supplemental Protein Fed Last Winter

Seventy-five percent of the producers with 74 acres or less of permanent pasture fed supplemental protein feed to the beef cattle during the winter. Over 78 percent of the producers with 75 acres or more also used this practice. According to the chi square test there was no significant relationship between the number of acres of permanent pasture and the producers use of supplemental protein fed during the winter. Producers with 75 acres of permanent pasture or more were no more likely than producers with less acreage to feed supplemental protein during the winter.

Acres of Permanent Pasture and Forage Testing

Just over 4 percent of the producers who have 74 acres or less of permanent pasture forage tested compared to 7 percent of the producers who had 75 acres or more. According to the chi square test there was a significant relationship between the number of acres of permanent pasture and the use of forage testing. Producers with 75 acres or more were more likely than those with fewer acres of permanent pasture to test their forage.

Acres of Permanent Pasture and Temporary Winter and Summer Pasture Used

Data from Table VI indicate that 27 percent of the producers with 74 acres or less of permanent pasture used temporary winter and summer pastures compared to just over 27 percent of the producers with 75 acres or more. When tested by the chi square test there was not a significant relationship between the number of acres of permanent pasture and producers use of this practice. Producers who had 75 acres or more were no more likely than those with fewer acres of permanent pasture to use temporary winter and summer pastures.

Acres of Permanent Pasture and 30 Percent Legumes in Permanent Pasture

Thirty-four percent of the producers with 74 acres or less had over half their pastures containing at least 30 percent legumes compared to only 31 percent on farms that had 75 acres or more of permanent pasture. When tested by the chi square test there was not

a significant relationship between the number of acres of permanent pasture and the percent of legumes in permanent pastures. Producers who had 75 acres or more were no more likely than those with fewer acres of permanent pasture to have over half of their permanent pasture containing 30 percent legumes.

II. RELATIONSHIP BETWEEN TENNESSEE BEEF CATTLE PRODUCERS HAVING CATTLE HANDLING FACILITIES AND THEIR USE OF RECOMMENDED BEEF FEEDING MANAGEMENT PRACTICES

Section II presents findings regarding relationships between Tennessee beef cattle producers that had access to cattle handling facilities and their use of selected recommended feeding management practices. These findings are summarized in Table VII. Producers are divided into two groups: (1) those having cattle handling facilities, and (2) those that do not have cattle handling facilities. Each recommended feeding management practice was analyzed individually to see if having cattle handling facilities was related to the producers use of each recommended practice.

Having Cattle Handling Facilities and Group Feeding by Age and Production

Almost 16 percent of the producers that did not have cattle handling facilities were group feeding by age and production as compared to over 38 percent that had cattle handling facilities. Differences in the use of this practice among producers that had cattle handling

Table VII. Relationships Between Tennessee Beef Cattle Producers Having Cattle Handling Facilities and Their Use of Recommended Beef Feeding Management Practices

Management Practices	Have Cattle Handling Facilities: No — Number of Respondents*	No — Percent Respondents	Yes — Number of Respondents*	Yes — Percent Respondents
Group Feeding by Age and Production				
No	133	84.2	1,012	61.3
Yes	25	15.8	638	38.7
TOTAL	158	100.0	1,650	100.0
Statistic x^2 = 31.425; p = 0.000				
Dry Cows Fed Low Quality Feed				
No	116	73.4	1,003	60.8
Yes	42	26.6	646	39.2
TOTAL	158	100.0	1,649	100.0
Statistic x^2 = 9.171; p = 0.003				
Crop Residues Fed Last Winter				
No	111	70.3	1,104	67.1
Yes	47	29.7	541	32.9
TOTAL	158	100.0	1,645	100.0
Statistic x^2 = 0.512; p = 0.474				
Fescue Stockpiled				
No	72	45.6	506	30.6
Yes	86	54.4	1,145	69.4
TOTAL	158	100.0	1,651	100.0
Statistic x^2 = 14.088; p = 0.000				
Supplemental Protein Fed During Winter				
No	57	36.3	348	21.1
Yes	100	63.7	1,303	78.9
TOTAL	157	100.0	1,651	100.0
Statistic x^2 = 18.259; p = 0.000				
Forage Testing				
No	156	98.7	1,541	93.3
Yes	2	1.3	110	6.7
TOTAL	158	100.0	1,651	100.0
Statistic x^2 = 6.332; p = 0.012				
Temporary Winter or Summer Pasture Used				
No	125	78.6	1,188	72.1
Yes	34	21.4	460	27.9
TOTAL	159	100.0	1,648	100.0
Statistic x^2 = 2.792; p = 0.0947				
Percent of Pasture Having at Least 30 Percent Legumes				
Under 50 percent	121	78.1	1,070	67.2
51 percent to 100 percent	34	21.9	522	32.8
TOTAL	155	100.0	1,592	100.0
Statistic x^2 = 7.177; p = .0074				

*Totals differ due to nonresponses.

facilities and those who did not were significant as tested by the chi square test. Therefore, there was a significant relationship between cattle handling facilities and producers use of group feeding by age and production. Producers with cattle handling facilities were more likely than those with no facilities to group feed by age and production.

Having Cattle Handling Facilities and Dry Cows Fed Low Quality Feed

Twenty-seven percent of the producers that did not have cattle handling facilities fed their dry cows low quality feed compared with over 39 percent of the producers who had cattle handling facilities. According to the chi square test there was a significant relationship between cattle handling facilities and producers use of feeding dry cows low quality feed. Producers with cattle handling facilities were more likely than those with no facilities to feed dry cows low quality hay.

Cattle Handling Facilities and Crop Residues Fed Last Winter

Almost 30 percent of the producers that did not have cattle handling facilities fed crop residues in the winter as compared to over 32 percent that did have cattle handling facilities. The use of this practice was about the same whether the producer had or did not have cattle handling facilities. When tested by the chi square test there was no significance between having cattle handling facilities

and the feeding of crop residues in late winter. Producers with cattle handling facilities were no more likely than those with no facilities to feed crop residues.

Having Cattle Handling Facilities and Fescue Stockpiled

Slightly over 54 percent of the producers without cattle handling facilities implemented the use of stockpiling fescue as compared to 69 percent with cattle handling facilities. Differences in the use of this practice among producers with cattle handling facilities and those that did not were significant as tested by the chi square test. Therefore, there was a significant relationship between cattle handling facilities and producers use of stockpiling fescue. Producers with cattle handling facilities were more likely than those with no facilities to stockpile fescue.

Having Cattle Handling Facilities and Supplemental Protein Fed Last Winter

Almost 64 percent of the producers that did not have cattle handling facilities fed supplemental protein last winter as compared to 79 percent that had cattle handling facilities. When tested by the chi square test there was a significant relationship between producers having cattle handling facilities and their use of feeding supplemental protein last winter. Producers with cattle handling facilities were more likely than those with no facilities to feed supplemental protein in the winter.

Having Cattle Handling Facilities and Forage Testing

Slightly over 1 percent of the producers that do not have cattle handling facilities were forage testing compared to almost 7 percent of those that had cattle handling facilities. When tested by the chi square test there was a significant relationship between cattle handling facilities and the use of forage testing. Producers with cattle handling facilities were more likely than those with no facilities to test forage.

Having Cattle Handling Facilities and Temporary Winter or Summer Pastures Used

Twenty-one percent of the producers that did not have cattle handling facilities used temporary winter and summer pastures as compared to 28 percent of those that had cattle handling facilities. When tested by the chi square test there was not a significant relationship between cattle handling facilities and the use of temporary winter and summer pastures. Producers with cattle handling facilities were no more likely than those without facilities to use temporary winter and summer pastures.

Having Cattle Handling Facilities and 30 Percent Legumes in Permanet Pasture

Almost 22 percent of the producers that did not have cattle handling facilities had over half their pastures containing at least 30 percent legumes. Over 32 percent of the producers that did have

cattle handling facilities had over half their pastures containing at least 30 percent legumes. Differences in the use of this practice among producers with cattle handling facilities and those that did not were significant as tested by the chi square test. Therefore, there was a significant relationship between cattle handling facilities and producers use of at least 30 percent legumes in over half of their permanent pasture. Producers with cattle handling facilities were more likely than those without facilities to have at least 30 percent legumes in over half of their permanent pasture than those without.

III. RELATIONSHIPS BETWEEN HERD SIZE AND TENNESSEE BEEF CATTLE PRODUCERS USE OF RECOMMENDED BEEF FEEDING MANAGEMENT PRACTICES

Section III presents findings regarding the relationships between beef producers use of selected recommended feeding practices and herd size. These findings are summarized in Table VIII. Herd size on farms in this study were divided into two groups: (1) 40 cows or less, and (2) 41 cows or over. Each recommended feeding management practice was analyzed individually to see if herd size was related to the producers use of each recommended practice.

Herd Size and Use of Group Feeding by Age and Production

Over 27 percent of the producers with beef herds of 40 cows or less group fed their cows by age and production as compared to 46

Table VIII. Relationships Between Herd Size and Tennessee Beef Cattle Producers Use of Recommended Beef Feeding Management Practices

Management Practice	Herd Size: 40 Cows or Less — Number of Respondents*	40 Cows or Less — Percent Respondents	41 Cows or Over — Number of Respondents*	41 Cows or Over — Percent Respondents
Group Feeding by Age and Production				
No	648	72.9	494	54.0
Yes	241	27.1	421	46.0
TOTAL	889	100.0	915	100.0
Statistic x^2 = 68.583; p = 0.000				
Dry Cows Fed Low Quality Feed				
No	591	66.4	525	57.5
Yes	299	33.6	388	42.5
TOTAL	890	100.0	913	100.0
Statistic x^2 = 14.767; p = 0.000				
Crop Residues Fed During Winter				
No	617	69.6	594	65.1
Yes	270	30.4	318	34.9
TOTAL	887	100.0	912	100.0
Statistic x^2 = 3.810; p = 0.051				
Fescue Stockpiled				
No	322	36.2	254	27.8
Yes	568	63.8	660	72.2
TOTAL	890	100.0	914	100.0
Statistic x^2 = 14.220; p = 0.000				
Supplemental Protein Fed During Winter				
No	208	23.4	197	21.6
Yes	681	76.6	717	78.4
TOTAL	889	100.0	914	100.0
Statistic x^2 = 0.777; p = 0.378				
Forage Testing				
No	848	95.4	844	92.2
Yes	41	4.6	71	7.8
TOTAL	889	100.0	915	100.0
Statistic x^2 = 7.141; p = 0.008				
Temporary Winter or Summer Pasture Used				
No	660	74.3	648	71.0
Yes	228	25.7	265	29.0
TOTAL	888	100.0	913	100.0
Statistic x^2 = 2.375; p = 0.123				
Percent of Pasture Having at Least 30 Percent Legumes				
Under 50 percent	611	69.4	578	67.1
51 percent to 100 percent	270	30.6	283	32.9
TOTAL	881	100.0	861	100.0
Statistic x^2 = 0.892; p = 0.345				

*Totals differ due to nonresponses.

percent of the producers with herds of 41 cows or more. Differences in the use of this practice among producers who had 40 cows or less and those who had 41 cows or over were significant as tested by the chi square test. Therefore, there was a significant relationship between herd size and the use of group feeding by age and production. Producers that had 41 cows or more were more likely than those with fewer cows to feed cattle by age and production.

Herd Size and Dry Cows Fed Low Quality Hay

Thirty-four percent of the beef producers with 40 cows or less fed their dry cows low quality feed compared to over 42 percent of those with 41 cows or more. Differences in the use of this practice among producers who had 40 cows or less and those who had 41 cows or more were significant as tested by the chi square test. Therefore, there was a significant relationship between herd size and feeding dry cows low quality feeds. Producers that had 41 cows or more were more likely than those with fewer cows to feed dry cows low quality feed.

Herd Size and Crop Residue Fed Last Spring

Slightly over 30 percent of the producers with herds of 40 cows or less fed crop residues last winter as compared to nearly 35 percent that had 41 cows or more. Differences in the use of this practice among producers who had 40 cows or less and those who had 41 cows or over were significant as tested by the chi square test. Therefore, there was a significant relationship between herd size and feeding

crop residues last winter. Producers that had 41 cows or over were more likely than those with fewer cows to feed crop residues.

Herd Size and Fescue Stockpiled

Sixty-four percent of the producers with herds of 40 cows or less utilized fescue stockpiling as compared to over 72 percent that had 41 cows or over. Differences in the use of this practice among producers who had 40 cows or less and those who had 41 cows or over were significant as tested by the chi square test. Therefore, there was a significance between herd size and stockpiling fescue. Producers that had 41 cows or over were more likely than those with fewer cows to stockpile fescue.

Herd Size and Supplemental Protein Fed During Winter

Almost 77 percent of the producers with beef herds of 40 cows or less utilized feeding supplemental protein during the winter as compared to over 78 percent that had 41 cows or over. Differences in the use of this practice among producers who had 40 cows or less and those who had 41 cows or over were not significant as tested by the chi square test. Therefore, there was not a significant relationship between herd size and providing supplemental protein during the winter. Producers with 41 cows or more were no more likely than those with fewer cows to feed supplemental protein during the winter.

Herd Size and Forage Testing

Slightly over 4 percent of the producers with herds of 40 cows or less utilized forage testing as compared to almost 8 percent that had 41 cows or over. Differences in the use of this practice among producers who had 40 cows or less and those who had 41 cows or over were significant when tested by the chi square test. Therefore, there was a significant relationship between herd size and the use of forage testing. Producers with 41 cows or over were more likely than those with fewer cows to use forage testing.

Herd Size and Temporary Winter or Summer Pastures

Almost 26 percent of the producers with herds of 40 cows or less utilized temporary winter and summer pastures compared to 29 percent that had 41 cows or over. Differences in the use of this practice among producers who had 40 cows or less and those who had 41 cows or over were not significant as tested by the chi square test. Therefore, there was not a significant relationship between herd size and the use of temporary winter or summer pastures. Producers with 41 cows or more were no more likely than those with fewer cows to use temporary winter or summer pastures.

Herd Size and 30 Percent Legumes in Permanent Pasture

Thirty-one percent of the producers with 40 cows or less had over half of their pastures consisting of at least 30 percent legumes compared

to 33 percent of those producers with 41 acres or over. Differences in the use of this practice among producers who had 40 cows or less and those who had 41 cows or over were not significant when tested by the chi square test. Therefore, there was not a significant relationship between herd size and the use of legumes in permanent pastures. Producers with 41 cows or more were no more likely than those with fewer cows to have at least 30 percent legumes in over half their permanent pastures.

IV. RELATIONSHIPS BETWEEN HERD TYPE AND TENNESSEE BEEF CATTLE PRODUCERS USE OF RECOMMENDED BEEF FEEDING MANAGEMENT PRACTICES

Section IV presents findings regarding the relationship between the use of recommended feeding management practices and the herd type. These findings are summarized in Table IX. Herd type in this study are divided into two groups: (1) straightbred, and (2) crossbred. Each recommended feeding management practice was analyzed individually to see if herd type was related to the producers use of each recommended practice.

Herd Type and Use of Group Feeding by Age and Production

Over 43 percent of the producers with straightbred beef herds utilized group feeding by age and production as compared to only 33 percent of the producers with crossbred herds. Differences in the use of this practice among straightbred cattle producers and crossbred

Table IX. Relationships Between Herd Type and Tennessee Beef Cattle Producers Use of Recommended Beef Feeding Management Practices

Management Practice	Herd Type: Straightbred Number of Respondents*	Straightbred Percent Respondents	Crossbred Number of Respondents*	Crossbred Percent Respondents
Group Feeding by Age and Production				
No	355	56.9	790	66.7
Yes	269	43.1	394	33.3
TOTAL	624	100.0	1,184	100.0
Statistic $x^2 = 16.589$; $p = 0.000$				
Dry Cows Fed Low Quality Feed				
No	356	57.1	763	64.5
Yes	268	42.9	420	35.5
TOTAL	624	100.0	1,183	100.0
Statistic $x^2 = 9.292$; $p = 0.002$				
Crop Residues Fed Last Winter				
No	432	69.7	783	66.2
Yes	188	30.3	400	33.8
TOTAL	620	100.0	1,183	100.0
Statistic $x^2 = 2.098$; $p = 0.147$				
Fescue Stockpiled				
No	212	33.9	366	30.9
Yes	413	66.1	817	69.1
TOTAL	625	100.0	1,183	100.0
Statistic $x^2 = 1.537$; $p = 0.215$				
Supplemental Protein Fed During Winter				
No	133	21.3	272	23.0
Yes	491	78.7	911	77.0
TOTAL	624	100.0	1,183	100.0
Statistic $x^2 = 0.569$; $p = 0.451$				
Forage Testing				
No	578	92.5	1,118	94.5
Yes	47	7.5	65	5.5
TOTAL	625	100.0	1,183	100.0
Statistic $x^2 = 2.549$; $p = 0.110$				
Temporary Winter or Summer Pasture Used				
No	445	71.4	866	73.3
Yes	178	28.6	315	26.7
TOTAL	623	100.0	1,181	100.0
Statistic $x^2 = 0.648$; $p = 0.421$				
Percent of Pasture Having at Least 30 Percent Legumes				
Under 50 percent	396	65.2	793	69.7
51 percent to 100 percent	211	34.8	345	30.3
TOTAL	607	100.0	1,138	100.0
Statistic $x^2 = 3.400$; $p = 0.652$				

*Totals differ due to nonresponses.

cattle producers were significant as tested by the chi square test. Therefore, there was a significant relationship between herd type and the use of group feeding by age and production. Producers with straightbred herds were more likely than those with crossbred herds to use group feeding of cattle by age and production.

Herd Type and Dry Cows Fed Low Quality Feed

Forty-three percent of the beef producers with straightbred beef herds fed dry cows low quality feed as compared to 33 percent of the producers with crossbred herds. Differences in the use of this practice among producers with straightbred herds and producers with crossbred herds were significant as tested by the chi square test. Therefore, there was a significant relationship between herd type and feeding dry cows low quality feeds. Producers with straightbred herds were more likely than those with crossbred cattle to feed dry cows low quality feeds.

Herd Type and Crop Residues Fed Last Winter

Over 30 percent of the beef producers with straightbred herds fed crop residue during the winter as compared to almost 34 percent of the producers with crossbred herds. Differences in the use of this practice among producers with straightbred herds and crossbred herds were not significant when tested by the chi square test. Therefore, there was not a significant relationship between herd type and the feeding of crop residues in the winter. Producers with straightbred herds were no more likely than those with crossbred cattle to feed crop residues in the winter.

Herd Type and Fescue Stockpiled

Sixty-six percent of beef producers with straightbred herds stockpiled fescue as compared to 69 percent of the beef producers with crossbred herds. Differences in the use of this practice among producers with straightbred herds and crossbred herds were not significant when tested by the chi square test. Therefore, there was not a relationship between herd type and the use of stockpiling fescue. Producers with straightbred herds were no more likely than those with crossbred cattle to stockpile fescue.

Herd Type and Supplemental Protein Fed During Winter

Almost 79 percent of the beef producers with straightbred herds fed supplemental protein during the winter as compared to 77 percent of the beef producers with crossbred herds. Differences in the use of this practice among producers with straightbred herds and crossbred herds were not significant when tested by the chi square test. Therefore, there was not a significant relationship between herd type and feeding protein supplement during the winter. Producers with straightbred herds were no more likely than those with crossbred cattle to feed supplemental protein during the winter.

Herd Type and Forage Testing

Over 7 percent of the beef producers with straightbred herds used the practice of forage testing compared to over 5 percent of the beef producers with crossbred herds. Differences in the use of this practice

among producers with straightbred herds and crossbred herds were not significant when tested by the chi square test. Therefore, there was not a significant relationship between herd type and forage testing. Producers with straightbred herds were no more likely than those with crossbred cattle to forage test.

Herd Type and Temporary Winter or Summer Pasture Used

Almost 29 percent of the beef producers with straightbred herds used temporary winter and summer pastures compared to almost 28 percent of the beef producers with crossbred herds. Differences between the use of this practice among producers with straightbred herds and crossbred herds were not significant when tested by the chi square test. Therefore, there was not a significant relationship between herd type and the use of temporary winter or summer pastures. Producers with straightbred cattle were more likely than those with crossbred herds to use temporary winter or summer pastures.

Herd Type and 30 Percent Legumes in Permanent Pasture

Thirty-five percent of the producers with straightbred beef herds had over half of their pastures containing at least 30 percent legumes as compared to slightly over 30 percent of the producers with crossbred herds. Differences in the use of this practice among producers who had straightbred herds or crossbred herds were not significant as tested by the chi square test. Therefore, there was not a

significant relationship between herd type and the use of 30 percent legumes in permanent pastures. Producers with straightbred herds were no more likely than those with crossbred herds to use 30 percent legumes or more in over half of their pasture.

V. CHAPTER SUMMARY

In Chapter V, four farm characteristics (acres of permanent pasture, having cattle handling facilities, herd size, and herd type) were compared to eight selected recommended feeding practices.

Pasture was divided into two categories: (1) 74 acres or less, and (2) 75 acres or more. The relationship between acres of permanent pasture and the use of eight selected recommended feeding management practices were evaluated in Section I. Producers with 75 acres or more were more likely than producers with less acreage to follow four of the eight recommended feeding management practices. The management practices that producers with 75 acres or more were more likely to use are: (1) group feeding by age and production, (2) feed dry cows low quality hay, (3) stockpile fescue, and (4) forage test.

Producers having cattle handling facilities and those that did not were compared to the producers use of recommended feeding management practices in Section II. Producers with cattle handling facilities were more likely than producers that do not have cattle handling facilities to use six of the eight feeding management practices. The practices that producers with cattle handling facilities were more likely to use were: (1) group feeding by age and production,

(2) feed dry cows low quality feed, (3) stockpile fescue, (4) feed supplemental protein during the winter, (5) forage test, and (6) having over half of these pastures containing at least 30 percent legumes.

Farm herd size was divided into two categories: (1) 40 cows or less, and (2) 41 cows or over. The relationship between herd size and the use of producers use of selected recommended feeding management practices were compared in Section III. Producers with 41 cows or over were more likely than producers with 40 cows or less to use five of the eight recommended feeding management practices. The five feeding management practices that producers with 41 cows or over were more likely to use were: (1) group feed by age and production, (2) feed dry cows low quality feed, (3) stockpile fescue, (4) forage test, and (5) feed crop residues during the winter.

Farm herd type was divided into two categories: (1) straightbred, and (2) crossbred. The relationship of herd type and the producers use of eight selected recommended feeding management practices were compared in Section IV. Producers with straightbred cattle were more likely than producers with crossbred cattle to use two of the eight feeding management practices. Producers with straightbred cattle were more likely to (1) group feed by age and production, and (2) feed dry cows low quality feed.

CHAPTER VI

SUMMARY OF MAJOR FINDINGS

This chapter presents a summary of the major findings of this study. The chapter was divided into five sections relating to the purpose and objectives, method of investigation, major findings, implications and recommendations, and recommendations for further study.

I. PURPOSE AND SPECIFIC OBJECTIVES

Purpose

The purpose of this study was to evaluate characteristics of the Tennessee beef producer and their farm operation and to determine the interrelationship of these characteristics on the use of selected recommended beef cattle feeding management practices.

Specific Objectives

1. To describe Tennessee beef cattle producers as to their personal and farm operation characteristics.

2. To determine the extent of use of specific recommended feeding management practices by Tennessee beef producers.

3. To determine the relationship between selected personal characteristics of Tennessee beef producers and their use of specific recommended feeding management practices.

4. To determine the relationship between Extension contacts and the use of recommended feeding management practices.

5. To determine the relationship between selected farm operation characteristics of Tennessee beef producers and their use of specific recommended feeding management practices.

II. METHOD OF INVESTIGATION

The data from this study were taken from the 1985 Tennessee beef cow-calf producers survey. Data were collected through personal interviews by county Extension agents who returned the completed surveys to the Agriculture Extension Education Office.

The population of this study was beef cow-calf producers in 85 counties in Tennessee who had 25 or more breeding age cows in their herd during the year previous to the study. The number of producers surveyed ranged from 15 to 30 depending on the number of producers in the county. The total number of producers surveyed was 1,813.

Extension agents used their county list of beef producers to identify individuals to be surveyed using producers to the "n^{th}" number technique.

The 1985 Tennessee Beef Cow-Calf Producer Interview Schedule was developed by the University of Tennessee, Agricultural Extension Service specialist staff in the Animal Science and Extension Education department.

Extension agents in each of the 85 counties conducted the survey through personal interviews. The completed surveys were then returned to the Agricultural Extension Education office for analysis.

Method of Analysis

The University of Tennessee Computing Center facilities were used to analyze the data. The chi square test was used to determine strengths of the relationship between dependent and independent variables. Chi square values which achieved the .05 probability level was chosen as being statistically significant.

III. MAJOR FINDINGS

Major findings were classified and presented under headings related to the objectives of the study. Table X presents summary findings regarding relationships of producer characteristics and farm characteristics and their relationship to producers use of selected recommended beef management practices.

Characteristics of the Tennessee Beef Producer and Their Farm Operations

Fifty-eight percent of the 1,816 beef producers surveyed were 50 years old or older. Forty-two percent were part-time farmers and over 88 percent had some type of contact with the Agricultural Extension Service.

Over 74 percent of the beef producers surveyed had over 75 acres of permanent pasture and 91 percent had some type of cattle handling facilities. Half of the producers had beef herds with 41 cows or more and 65 percent of the producers had beef herds of crossbred cattle.

Only two of the eight recommended feeding management practices were followed by more than 50 percent of the producers in this study.

Table X. Summary of Relationships Between Beef Producers and Farm Characteristics and the Use of Select Recommended Feeding Management Practices

Independent Variables (Producer and Farm Characteristics)	Table III	Table IV	Table V	Table VI	Table VII	Table VIII	Table IX
	Beef Producer Characteristics			Farm Characteristics			
Dependent Variables (Feed Management Practices)*	Producers Age	Farming Status	Extension Contacts	Acres of Permanent Pasture	Had Cattle Handling Facilities	Herd Size	Herd Type
Group Feeding by Age and Production	p = .335	p = .005	p = .000	p = .000	p = .000	p = .000	p = .000
Dry Cows Fed Low Quality Feed	p = 1.0	p = .011	p = .000	p = .002	p = .003	p = .000	p = .002
Crop Residue Fed Last Winter	p = .042	p = .000	p = .000	p = .661	p = .474	p = .051	p = .147
Fescue Stockpiled	p = .311	p = .383	p = .104	p = .000	p = .000	p = .000	p = .215
Supplemental Protein Fed During Winter	p = .803	p = .659	p = .000	p = .173	p = .000	p = .378	p = .451
Forage Test	p = .340	p = .024	p = .001	p = .041	p = .012	p = .008	p = .110
Temporary Winter or Summer Pasture Used	p = .034	p = .029	p = .000	p = .923	p = .095	p = .123	p = .421
Percent of Pasture Having at Least 30 Percent Legumes	p = .460	p = .764	p = .020	p = .269	p = .007	p = .345	p = .065

*The chi square (x^2) test was used to determine the strength of the relationship between the dependent and independent variables. The .05 (or less) probability level was the point at which a relationship is considered significant.

The two feeding management practices followed by more than half of the beef producers were: (1) stockpiling fescue, and (2) supplemental protein fed during the winter. Two out of the eight recommended practices were followed by less than 30 percent of the beef producers surveyed. They were: (1) forage testing, and (2) use of temporary winter or summer pastures.

Relationships Between the Personal Characteristics of Tennessee Beef Cattle Producers, Their Extension Contacts and Their Use of Selected Recommended Feeding Management Practiaces

Producers age was significantly related to producers use of two of the eight recommended feeding management practices. Producers under 50 were more likely than producers 50 and over to (1) feed crop residues in the winter, and (2) use temporary winter and summer pastures.

Producers farming status was significantly related to producers use of five of the eight recommended feeding management practices. Producers that were full-time farmers were more likely than part-time farmers to: (1) group feed by age and production, (2) feed dry cows low quality hay, (3) feed crop residues in the winter, (4) forage test, and (5) use temporary winter and summer pastures.

Extension contact was significantly related to producers use of seven of the eight recommended feeding management practices. Producers with Extension contacts were more likely than those with no Extension contacts to: (1) group feed by age and production, (2) feed dry cows low quality feed, (3) feed crop residues in the winter, (4) feed

supplement protein in the winter, (5) forage test, (6) use temporary winter or summer pasture, and (7) have at least 30 percent legumes in their pastures.

Relationships Between Tennessee Beef Cattle Producers Farm Operation Characteristics and Their Use of Selected Recommended Feeding Management Practices

The number of acres of permanent pasture was significantly related to the producers use of four of the eight feeding management practices. Producers with 75 or more acres of permanent pastures were more likely than producers with 74 acres or less of permanent pasture to: (1) group feed by age and production, (2) feed dry cows low quality hay, (3) stockpile fescue, and (4) forage test.

Having cattle handling facilities was significantly related to producers use of six of the eight feeding management practices. Producers with cattle handling facilities were more likely than producers that did not have cattle handling facilities to: (1) group feed by age and production, (2) dry cows fed low quality feed, (3) stockpile fescue, (4) feed protein supplement during the winter, (5) forage test, and (6) have at least 30 percent legumes in pastures.

Producers herd size was significantly related to the producers use of five of the eight recommended feeding management practices. Producers with 41 cows or more were more likely than producers with 40 cows or less to (1) group feed by age and production, (2) feed dry cows low quality feed, (3) feed crop residues during the winter, (4) stockpile fescue, and (5) forage test.

Herd type was significantly related to producers use of two of the eight recommended feeding management practices. Producers with straightbred herds were more likely than producers with crossbred herds to (1) group feed by age and production, and (2) feed dry cows low quality feed.

IV. IMPLICATIONS AND RECOMMENDATIONS

Based upon the findings of this study, the implications and recommendations that are drawn are:

1. Six of the eight selected feeding management practices were used by less than half of the beef producers in this study. Seven of the eight feeding management practices show an increased use when Extension contact was made (see Table V, page 31). Therefore, continued effort should be made to increase the producers use of each of these feeding management practices through Extension educational programs.

2. Forty-nine percent (894 producers) of the beef producers that were surveyed had less than 40 cows. Forty-two percent (763 producers) were part-time producers and almost 42 percent were less than 50 years of age. There is a large number of young part-time beef producers that need Extension educational programs. Many of these part-time producers work off the farm and will need to be reached by different approaches than those presently used with full-time producers. More night meetings and weekend field days may need to be used to reach these part-time clientele. More informational newsletters should also be used to encourage producers use of recommended beef cattle feeding management practices.

3. Two of the eight selected feeding management practices were used by less than 30 percent of the producers. They were: (1) forage testing (being used by only 6.2 percent of the producers), and (2) use of temporary winter or summer pastures (being used by only 27 percent of these beef producers). Extension should increase its educational emphasis on these two very important feeding management practices.

V. RECOMMENDATIONS FOR FUTURE STUDY

1. Similar studies should routinely be conducted in all Extension work areas to determine points needing special emphasis by Extension educational programs.

2. Efforts need to be made to continue to improve survey instruments and procedures and provide instruction for Extension staff gathering survey data.

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APPENDIX

AEE INFO-20 TENNESSEE AGRICULTURAL EXTENSION SERVICE

1985 TENNESSEE BEEF COW-CALF PRODUCER SURVEY
(Interview producers with herds of 25 or more breeding age cows)
(See Instructions on Last Page)

Card No. 1 (1)

County Name _____

Respondent No. 0 0 (2) (3)

Co. TEMIS No. (4) (5) (6)

PART I: GENERAL BEEF CATTLE SITUATION

For your most recently weaned calf crop give the:

(7-9) ___ ___ ___ a. NUMBER OF COWS AND HEIFERS EXPOSED TO BULL(s)?

(10-11) ___ ___ b. NUMBER OF CALVES LOST AT BIRTH OR DIED WITHIN TWO DAYS AFTER BIRTH?

(12-14) ___ ___ ___ c. NUMBER OF CALVES WEANED?

(15) ___ d. NUMBER OF BULLS USED?

PART II: MANAGEMENT SITUATION AND PRACTICES

Note: Use the most recently weaned calf crop in reference to questions in Part II.

A. Calving Management*

(16-19) ___ ___/___ ___ (Mo. / Year) 1. MONTH AND YEAR FIRST CALF BORN? (e.g. 0 1/8 4 = Jan. 1984; 9999 = don't know)

(20-23) ___ ___/___ ___ (Mo. / Year) 2. MONTH AND YEAR LAST CALF BORN? (e.g. 0 9/8 4 = Sept. 1984; 9999 = don't know)

(24-26) ___ ___ ___ 3. NUMBER OF CALVES BORN WITHIN 45 DAYS AFTER BIRTH OF THE FIRST CALF? (9999 = don't know)

B. Breeding Management

(27) ___ 1. FEMALES AND BULL(S) ARE OF THE SAME OR OF DIFFERENT BREEDS? (1 = same; 2 = different)

(28) ___ 2. FEMALES ARE CROSSBRED OR STRAIGHTBRED? (1 = crossbred; 2 = straightbred; 3 = both)

(29) ___ 3. WERE BULLS EVALUATED FOR BREEDING SOUNDNESS 30-45 DAYS BEFORE BREEDING SEASON BEGAN? (1 = no; 2 = yes; 9 = DNA)

(30) ___ 4. WERE PERFORMANCE TESTED BULLS USED? (1 = no; 2 = yes)

(31) ___ 5. WERE COWS AND HEIFERS PREGNANCY CHECKED? (1 = none; 2 = part; 3 = all)

(32) ___ 6. WERE OPEN FEMALES CULLED FROM HERD? (1 = none; 2 = part; 3 = all)

(33-34) ___ ___ 7. AVERAGE AGE OF REPLACEMENT HEIFERS WHEN BRED? (in months)

(35-37) ___ ___ ___ 8. AVERAGE WEIGHT OF REPLACEMENT HEIFERS WHEN BRED?

(38) ___ 9. HERD ENROLLED IN TBCIP OR A SIMILAR BREED PERFORMANCE TESTING PROGRAM? (1 = no; 2 = yes)

(39-41) ___ ___ ___ 10. NUMBER OF COWS AND HEIFERS BRED BY ARTIFICIAL INSEMINATION? (0 0 0 0 = not any)

*Coding Instructions:
1. All entries are right justified.
2. A zero (0) = none or not any.
3. A nine (9) in each column = does not apply or don't know.

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C. Feeding Management

(42) ____ 1. KIND(S) OF HARVESTED FORAGES FED LAST WINTER? (1 = hay; 2 = silage; 3 = both hay and silage)

(43) ____ 2. HERD GROUPED LAST WINTER BY AGE AND STAGE OF PRODUCTION AND FED SEPARATELY? (1 = no; 2 = yes)

(44) ____ 3. DRY PREGNANT COWS FED LOWER QUALITY FORAGES EARLY IN WINTERING PERIOD? (1 = no; 2 = yes)

(45) ____ 4. KINDS OF CROP RESIDUE FED LAST WINTER? (1 = none fed; 2 = corn; 3 = soybeans; 4 = both corn and soybeans; 5 = other)

(46) ____ 5. FESCUE STOCKPILED FOR LATE FALL AND WINTER GRAZING? (1 = no; 2 = yes)

(47) ____ 6. HAY AND/OR SILAGE "FORAGE TESTED" BEFORE WINTER FEEDING? (1 = no; 2 = yes)

(48) ____ 7. KIND(S) OF SUPPLEMENTAL PROTEIN FED EACH DAY DURING WINTERING PERIOD? (1 = none fed; 2 = cottonseed or soybean meal; 3 = block or cubes; 4 = liquid)

D. Health Management (during past 12-months)

1. Vaccination

(49) ____ a. COWS AND REPLACEMENT HEIFERS VACCINATED FOR LEPTOSPIROSIS? (1 = no; 2 = yes)

(50) ____ b. COWS VACCINATED FOR IBR, BVD AND PI3? (1 = no; 2 = yes, part; 3 = yes, all)

(51) ____ c. CALVES VACCINATED FOR IBR, BVD AND PI3? (1 = no; 2 = yes, part; 3 = yes, all)

(52) ____ d. CALVES VACCINATED FOR BLACKLEG? (1 = no; 2 = yes, part; 3 = yes, all)

(53) ____ e. REPLACEMENT HEIFERS VACCINATED FOR BRUCELLOSIS? (1 = no; 2 = yes, part; 3 = yes, all; 9 = no replacement heifers)

(54) ____ f. NUMBER OF TIMES CALVES IMPLANTED? (0 = not any)

2. Deworming (during past 12-months)

(55) ____ a. SEASON WHEN COWS AND BULLS DEWORMED? (1 = not dewormed; 2 = Fall only; 3 = Spring only; 4 = both Fall and Spring; 5 = other)

(56) ____ b. CALVES DEWORMED? (Most recent calf crop) (1 = no; 2 = yes)

3. Fly Control

(57) ____ a. PRIMARY METHOD USED TO CONTROL HORN AND FACE FLIES? (1 = none used; 2 = Backrubbers and/or oilers; 3 = Dustbags; 4 = Backrubbers with flaps; 5 = Oral larvacides; 6 = ear tags)

(58-59) ____ ____ b. MONTH BEGAN TREATMENT FOR HORN AND FACE FLIES? (e.g. 0 4 = April)

4. Grub and Lice Control (past 12-months)

(60) ____ a. MONTH CATTLE TREATED FOR LICE? (1 = did not treat; 2 = by Nov. 1; 3 = by Nov. 1 and again in Feb.; 4 = did not treat until after Nov. 1 and lice build-up was present)

(61) ____ b. CATTLE TREATED FOR GRUBS BEFORE NOV. 1? (1 = not treated 2 = yes, treated before Nov.1; 3 = yes, treated but not before Nov. 1)

Card No. 2 (1)

Respondent No. 0 0 (2) (3)

County No. ___ ___ ___ (4) (5) (6)

PART III: FORAGE PRODUCTION

(7-10) ___ ___ ___ ___ 1. ACRES OF PERMANENT PASTURE LAND?

(11-14) ___ ___ ___ ___ 2. ACRES OF FESCUE PASTURE?

(15-17) ___ ___ ___ 3. ACRES OF TEMPORARY WINTER AND/OR SUMMER PASTURE?

(18-20) ___ ___ ___ 4. ESTIMATED PERCENT OF PERMANENT PASTURE LAND THAT HAD 30 PERCENT OR MORE LEGUME IN 1985?

PART IV: CATTLE HANDLING FACILITIES

(21) ___ 1. CATTLE HANDLING FACILITIES AVAILABLE FOR WORKING CATTLE? (1 = headgate only; 2 = headgate and holding chute; 3 = headgate, holding chute and working chute; 4 = headgate, holding chute, working chute and crowding pen; 5 = headgate, holding chute, working chute, crowding pens and holding pens; 9 = none of the above)

(22-23) ___ ___ 2. WIDTH OF WORKING CHUTE? (inches) (99 = no working chute)

(24-25) ___ ___ 3. YEAR CATTLE HANDLING FACILITIES CONSTRUCTED? (e.g. 8 3 = 1983; 99 = do not have handling facilities)

(26) ___ 4. DID YOU OBTAIN THE PLANS FOR CONSTRUCTING HANDELING FACILITIES FROM THE EXTENSION SERVICE ONLY, FROM THE EXTENSION SERVICE AND OTHER SOURCES OR FROM OTHER SOURCES ONLY? (1 = Extension service only; 2 = Extension service and other sources; 3 = other sources only; 9 = no plans were used or none constructed)

PART V: MARKETING

(27-29) ___ ___ ___ 1. NUMBER OF FEEDER CALVES SOLD AT WEANING? (1985 calf crop; 0 0 0 0 = not any)

(30-32) ___ ___ ___ 2. AVERAGE WEIGHT OF FEEDER CALVES SOLD AT WEANING? (1985 calf crop; 999 = none sold)

(33-35) ___ ___ ___ 3. NUMBER OF CALVES SOLD LAST SPRING (1984 calf crop) AS BACK-GROUNDED SHORT YEARLINGS? (0 0 0 = not any)

(36-38) ___ ___ ___ 4. NUMBER OF CALVES SOLD SUMMER OR FALL (1985) AS BACKGROUNDED LONG YEARLINGS? (0 0 0 = not any)

(39-40) ___ ___ 5. NUMBER CALVES FROM 1984 CALF CROP FINISHED AND SOLD AS SLAUGHTER CATTLE? (0 0 0 = not any)

(41) ___ 6. METHOD USED TO MARKET THE MAJORITY OF THE MOST RECENTLY SOLD FEEDER CALF CROP? (1 = weekly auction; 2 = organized feeder calf sale; 3 = local trader; 4 = direct to backgrounder or feeder)

(42) ___ 7. REASON FOR SELECTING THE MARKETING METHOD USED? (i.e. question 6) (1 = better price; 2 = cattle are not graded; 3 = habit; 4 = lower cost; 5 = frequency of sales; 6 = other)

PART VI : EXTENSION CONTACTS

(Note: Agent and/or producer should estimate the number of contacts the producer had with Extension Agents over the past 12-months)

(43) ___ 1. BEEF CATTLE MEETINGS ATTENDED?

(44-45) ___ ___ 2. OFFICE VISITS MADE? (regarding beef cattle)

(46-47) ___ ___ 3. TELEPHONE CALLS MADE? (regarding beef cattle)

(48-49) ___ ___ 4. FARM VISITS RECEIVED? (total number)

(50-51) ___ ___ 5. EXTENSION CIRCULAR OR NEWSLETTERS RECEIVED?

PART VII: RESPONDENT AND FARM SITUATION

(52) ___ 1. FARMING STATUS? (1 = full-time farm; 2 = part-time farm; 3 = retired)

(53-54) ___ ___ 2. ESTIMATED AGE OF FARM OPERATOR?

(55) ___ 3. MAJOR SOURCE OF FARM INCOME? (1 = feeder calves; 2 = slaughter cattle; 3 = row crop sales; 4 = other)

PART VIII: APPLICATION OF INFORMATION

What practices have you adopted the past four (4) years that have helped you improve your beef operation? (Note: Agent briefly list practices below; e.g. crossbreeding, implanting)

_____

_____

_____

_____

GENERAL SURVEY INSTRUCTIONS

Date Due: December 1985.

Disposition: Mail completed survey forms to your Associate District Supervisor.

Population to be Surveyed: Beef Cow-Calf producers who have 25 or more breeding age cows.

Counties to be Surveyed: All counties.

Number of producers to be Surveyed:

a. Counties having 15 to 50 producers survey 15

b. Counties having 51 to 100 producers survey 20

c. Counties having 101 to 300 producers survey 25

d. Counties having over 300 producers survey 30.

Sampling Procedures:

a. Use an up-to-date listing.
b. Apply the Nth number technique to identify producers to be interviewed. Select a few alternates to replace those who for good reasons cannot be interviewed.

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COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
The University of Tennessee Institute of Agriculture, U.S. Department of
Agriculture, and county governments cooperating in furtherance
of Acts of May 8 and June 30, 1914.
Agricultural Extension Service
M. Lloyd Downen, Dean

VITA

John Wesley Myers was born February 15, 1954 in Gallatin, Tennessee. He began his formal education at West Sparta Elementary then attended East Side Junior High and then graduated from White County High School in 1972.

He attended Tennessee Technological University and completed the requirements for a Bachelor of Science Degree in Animal Science in 1978.

He was employed as an Assistant Extension Agent in Sumner County in February, 1979.

He is married to the former Janette Mullins of Sparta, Tennessee.

He is a member of the Tennessee Agricultural Agents Associations and Specialists and as well a member of the Tennessee Eplison Sigma Phy Extension Agents Association.