

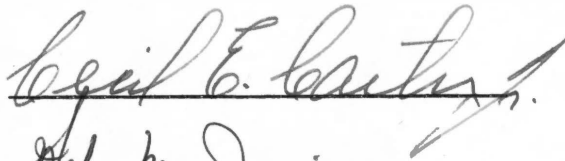
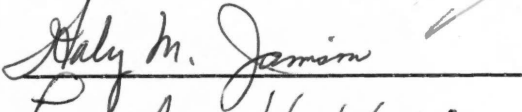
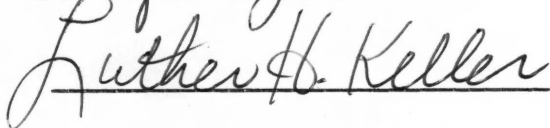
May 6, 1968

To the Graduate Council:

I am submitting herewith three related problems in lieu of thesis written by James Thomas Matthews entitled: "Problem A: Characteristics of Lawrence County Beef Producers and Their Farms; Problem B: Management Practices of Lawrence County Beef Producers; Problem C: Factors Influencing Beef Management Practice Adoption by Lawrence County Beef Producers." I recommend that they be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Extension.


Major Professor

We have read these problems and
recommend their acceptance:

Accepted for the Council:

Vice President for
Graduate Studies and Research

PROBLEM A: CHARACTERISTICS OF LAWRENCE COUNTY BEEF PRODUCERS AND
THEIR FARMS

PROBLEM B: MANAGEMENT PRACTICES OF LAWRENCE COUNTY BEEF PRODUCERS

PROBLEM C: FACTORS INFLUENCING BEEF MANAGEMENT PRACTICE ADOPTION
BY LAWRENCE COUNTY BEEF PRODUCERS

Three Related Special Problems in Lieu of Thesis

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
James Thomas Matthews

June 1968

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J. T. M.

ABSTRACT

PROBLEM A: CHARACTERISTICS OF LAWRENCE COUNTY BEEF PRODUCERS AND THEIR FARMS

This survey-type study was one of three related problems regarding beef production in Lawrence County, Tennessee. It was conducted for the purpose of determining the characteristics of beef producers in the county. The beef producers were interviewed and then classified in high, medium and low production groups according to the pounds of beef sold in 1966 per cow bred. Main comparisons were between high and low categories.

Major findings disclosed that, on the average, the cattlemen interviewed in Lawrence County in 1967 had the following characteristics: (1) were considered friendly toward the survey; (2) had completed 9 years of school; (3) were 55 years of age; (4) reported a gross family income of \$8,689; (5) were farm owners with an average farm size of 179 acres, of which 116 acres were cropland; (6) kept 18 beef cows, and (7) kept one beef bull.

When the average high and low producers were compared it was found that the average high producer: (1) had a slightly higher educational level; (2) had \$2,840 more gross family income in 1966; (3) was more often a farm owner; (4) had 32 more acres of cropland; (5) kept 11 more beef cows; (6) kept 6 more cows per bull, and (7) had replacement heifers that averaged 72 pounds heavier.

Implications were drawn from the findings concerning their relevance for the Lawrence County Agricultural Extension Program.

PROBLEM B: MANAGEMENT PRACTICES OF LAWRENCE COUNTY

BEEF PRODUCERS

The purpose of this Lawrence County, Tennessee study was to determine which recommended management practices were being used by cattlemen in the county. Seventy-four randomly selected beef producers were interviewed and comparative analyses were made in terms of pounds of beef sold in 1966 per cow bred.

Ratings were given each cattleman on each of 31 management practices. Average ratings for all practices were computed as a basis for further comparison.

Findings revealed that most beef producers were using the following practices: (1) keeping cows on good permanent pasture until late fall and early winter to reduce winter feed costs, and (2) checking cattle for possible trouble at least 3 times per week throughout the year. In addition most interviewees had tried the following practices: (1) three of four practices related to calving and calf identification; (2) waiting until replacement heifers were at least 15 months old and weighed at least 650 pounds before breeding; (3) using a systematic rotational grazing program; (4) using recommended fly control practices, and (5) using recommended procedures in castration and dehorning.

A comparison of high and low producers showed that high producers (1) operated at higher management levels; (2) had higher ratings on 23 of 31 practices studied; (3) kept more females of breeding age; (4) bred 8 more cows per bull; (5) had a 14 percent higher calving percentage; (6) had an 8 percent higher weaning percentage; (7) sold calves weighing 206 pounds more; (8) received 1.4 cents more per pound of calf sold; (9) grew larger acreages of various pasture and hay crops, and (10) were more inclined to fertilize pastures.

Suggestions for further study and educational use of the data were included.

PROBLEM C: FACTORS INFLUENCING BEEF MANAGEMENT PRACTICE

ADOPTION BY LAWRENCE COUNTY BEEF PRODUCERS

This study was designed to identify factors influencing Lawrence County beef producers to adopt recommended management practices. Seventy-four randomly selected beef producers were interviewed and divided into high, medium and low production groups according to pounds of beef sold in 1966 per cow bred.

Of the 31 practices studied, interviewees planned to use an average of nearly 2 practices more than they were using. The reasons reported most often by interviewees for not having plans for improving management of their herds were: (1) too old; (2) satisfied with present operation, and (3) beef only a sideline enterprise. Reasons reported most often by the producers why cattlemen do not adopt more

recommended practices were: (1) lack of time and labor; (2) too small a margin of profit, and (3) lack of technical knowledge.

Of the things liked most, all interviewees reported the following: (1) like to work with cattle; (2) best use of rough land, and (3) more time for other jobs. Major dislikes reported by all interviewees were: (1) problems in breeding, calving, etc.; (2) low returns per head, and (3) caring for cattle in cold weather.

Both high and low producers reported obtaining helpful advice most frequently from neighbors and local veterinarians. However, in the third most important source reported, high producers named Extension personnel and low producers named feed dealers.

Other top information sources of importance reported by all producers were farm magazines, radio, university publications, television, and newsletters.

It was suggested that findings be used as a basis for helping plan an educational beef program for cattlemen in Lawrence County, Tennessee.

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PROBLEM A :

CHARACTERISTICS OF LAWRENCE COUNTY BEEF PRODUCERS
AND THEIR FARMS

CHAPTER I

INTRODUCTION

I. THE SITUATION AND NEED FOR THE STUDY

Lawrence County, located on the southern portion of the Highland Rim, ranks seventh in size of Tennessee counties with a land area of 405,760 acres. Major soil types in the county are Bodine and Mountview, which make up 38 percent and 24 percent of the soils respectively. Approximately 59 percent of the county area is in farms that average 111 acres per farm. An average of 60 acres per farm is occupied by pasture and crops. (2:4)*

Beef cattle ranks second only to cotton in gross income to Lawrence County farm operators, with an estimated value of \$1,100,000 in 1964 (2:3). Cattle numbers have increased rapidly from 19,818 in 1954 to 26,840 in 1964 (2:2). As a result, beef cattle must claim a place of priority in Lawrence County's Agricultural Extension program.

The Smith-Lever Act designated the function of the Cooperative Extension Service to be that of diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same. ((1:3)

*Numbers in parentheses refer to numbered references in the bibliography; those after the colon are page numbers.

In order to perform this function, it is necessary to join with the local people in helping them identify their needs, problems, and opportunities.

(1:4)

Since the county is the basic unit of work for the Extension Service, it is natural to consider from the outset how to establish a sound, well-balanced rural program in every county. (4:138)

While Extension agents in Lawrence County were generally aware of some problems facing the cattlemen, no formal attempts had been made to gather specific data on beef producers for use in program planning. Since this type of information was not available, it was concluded that information describing the characteristics of beef producers and their farms would be helpful in program planning.

II. THE PURPOSE OF THE STUDY

The specific purpose of the study was to determine the characteristics of Lawrence County beef producers. The producers were divided into high, medium and low categories in terms of pounds of beef sold in 1966 per cow bred.

III. REVIEW OF LITERATURE

Prior to the present study, only a few such studies have been conducted in Tennessee counties.

In a 1964 survey of livestock numbers and practices in the Elk River Watershed, Ranney found that the average beef producer operating under the cow-calf system was 52.8 years of age and had completed the

ninth grade (9:22). The average farm size was 158 acres and an average of nineteen brood cows per farm was reported (9:25). Fifty-seven percent of the brood cows were Hereford, 15 percent Angus, 2 percent Shorthorn, and 26 percent of mixed breeds (including dairy breeding). Herd sires were 70 percent Hereford, 24 percent Angus, 4 percent Shorthorn and 2 percent mixed breeding. (9:26)

Keyes found in a 1966 survey of 36 Campbell County beef producers that their average age was 52 years and that the average educational level was 10.5 grades (5:18). The median number of total farm acres per farmer was found to be 142 (5:22), with an average of 113 acres of cropland (5:26). Average beef herd size was 29, and 72 percent of the cows were Hereford (5:26).

A Macon County study of beef producers conducted by Luck in 1966 showed that the average age of the operator was 51 years and the average educational grade attainment was 9.7 years. The median number of total farm acres per farmer was 187, with an average of 126 acres of cropland. Eighty-nine percent of all producers were classified as owner-operator farms (7:17).

IV. METHODS

As a basis for selecting the survey sample, a list of all livestock producers in Lawrence County was obtained from the Tennessee Department of Agriculture. A letter was mailed to all 433 persons on this list, requesting that an enclosed card be returned indicating the numbers of

hogs, beef, and dairy animals currently on their farm. Second and third follow-up letters were mailed at ten day intervals to non-respondents. A total of 172 out of the 331 persons replying had beef cattle. Seventy-five were randomly selected for study.

A survey interview schedule (see Appendix) consisting of 50 questions, many containing numerous subparts, was completed by personal interview of the farmers.

A series of six opinion questions was completed by the interviewer on each person surveyed. Questions on this form were concerned with the interviewer's opinion about the beef producer's rate of practice adoption, interest in management improvement, attitude toward survey, attention to beef herd management and how well the interviewer knew the producer.

For the purposes of study, the producers were divided into 3 groups based on pounds of beef sold per cow bred (Table I). One of the original 75 persons interviewed had not sold any cattle during the past year and was therefore excluded from the analysis. The 74 producers were grouped with 25 in the high and low production categories and 24 in the medium group. Main comparisons were between high and low production groups in an effort to view greatest differences. The term "cow-calf system" was interpreted to include herds selling calves from 6-15 months of age. The sample included all types of Lawrence County beef producers regardless of the method of marketing.

TABLE I

NUMBER OF LAWRENCE COUNTY CATTLEMEN USING THE COW-CALF SYSTEM
ACCORDING TO RANGES IN POUNDS OF BEEF SOLD IN
1966 PER COW BRED

Beef Production Group	Number of Producers in County	Range of Beef Sold per Cow Bred Within each Group (Pounds)
Low	25	104-397
Medium	24	398-476
High	25	479-904
Total	74	104-904

CHAPTER II.

FINDINGS

I. RESPONDENT'S ATTITUDE TOWARD THE SURVEY

In conducting this study, the interviewer found the farmers to be very receptive and cooperative, as shown in Table II. Ninety-two percent of all farmers surveyed were considered to be either "friendly" or "somewhat friendly." It is interesting that 21 percent of the medium producers were considered "indifferent," while none in the high and low producer categories were classified as "indifferent." One low producer displayed a rather antagonistic attitude toward the survey.

II. MAJOR OCCUPATIONS OF CATTLEMEN

While all persons involved in this study were labeled as cattlemen and farmers, there was considerable diversity of major occupations (Table III). Retired persons made up the highest percentage (30) of all interviewees. High and low producer categories each contained 28 percent that reported "retired" as their major occupation. High producers had a higher percentage of wage earners at 36 percent than low or medium producers with 24 and 25 percent, respectively. Full-time farmers made up 27 percent of all cattlemen. Fewer of the high producers were full-time farmers (24 percent), while the largest proportion of the low producers were full-time farmers (32 percent).

TABLE II

INTERVIEWER'S ESTIMATE OF THE ATTITUDES OF ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS
TOWARD THE SURVEY BY PERCENTS*

Attitude Toward the Survey	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Friendly	66	76	50	72
Somewhat friendly	26	24	29	24
Indifferent	7	0	21	0
Antagonistic	1	0	0	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE III

MAJOR OCCUPATIONS OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED,
HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Major Occupation	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Retired	30	28	34	28
Wage earner	28	36	25	24
Full-time farmer	27	24	25	32
Business	5	4	8	4
Professional	4	0	8	4
Part-time farmer	3	4	0	4
Widow or housewife	3	4	0	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

III. MAJOR SOURCES OF INCOME

Although cattle is a primary source of agricultural income in Lawrence County, only 8 percent of the cattlemen interviewed considered "Beef" as their major source of income (Table IV). Twenty percent of the high producers considered beef a major source of income, while none of the medium and only 4 percent of the low producers considered it as such.

The top three income sources of all cattlemen were wage earner, crops, and retirement income, with 31, 24, and 20 percent reported, respectively. Forty percent of the high producers reported wages as the major source of income, as compared to 29 and 24 percent for the medium and low producer groups, respectively. Twenty percent of the high producers, 25 percent of the medium and 28 percent of the low producers named crops as their major source of income. Sixteen percent of the high producers, 21 percent of the medium producers and 24 percent of the low producers reported retirement income as a major source of income. Medium and low producers also reported other livestock and the professions as other major sources of income.

IV. EDUCATIONAL LEVELS

The average educational grade level completed by all Lawrence County cattlemen was 8.9 grades, as shown in Table V. High producers averaged 9.2 grades completed, while low producers completed 8.6 grades.

TABLE IV

MAJOR SOURCES OF INCOME OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED,
HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Major Sources of Income	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Wage earner	31	40	29	24
Crops	24	20	25	28
Retirement income	20	16	21	24
Beef	8	20	0	4
Business	7	4	8	8
Other livestock	6	0	9	8
Professional	4	0	8	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE V

EDUCATIONAL LEVELS OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED,
HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS* AND
AVERAGE EDUCATIONAL GRADE LEVELS

Educational Grade Level	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
1-4 (Elementary)	4	0	8	4
5-7	10	4	8	20
8	45	48	46	40
9-11	22	28	17	20
12	15	20	13	12
B. S. Degree	1	0	4	0
M. S. Degree	3	0	4	4
Total	100	100	100	100
Actual average educational level	8.9	9.2	8.8	8.6

*Percents are rounded to the nearest whole number.

Fifty-nine percent of all cattlemen interviewed had less than a ninth grade education. Fifty-two percent of the high producers and 64 percent of the low producers did not complete the ninth grade. Only 4 percent of all producers interviewed had formal education beyond the twelfth grade.

V. AGE GROUPS

The average age for cattlemen interviewed was 55.2 years, the range being from 25 to 75 years of age (see Table VI). While the average ages for high (54.8 years) and low (54.0 years) producers were similar, there were higher percentages of the low producers under 45 and 65 or over (28 in each category) than was true for high producers (16 percent in each category.)

VI. TENURE STATUS

Ninety percent of the beef producers interviewed were farm owners (Table VII). Ninety-six percent of the high producers were owners of their farms, compared with 88 percent of the low producers.

More low producers were tenants (8 percent) and partner (4 percent) than was true for high producers (4 percent and none, respectively). Thirteen percent of the medium producers and tenants.

VII. GROSS FAMILY INCOME LEVEL

A wide range of gross income levels from all sources was in evidence as shown in Table VIII. Twenty-one percent of all cattlemen

TABLE VI

AGE GROUPS OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS BY PERCENTS* AND AVERAGE AGES

Age Category	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
25-34	3	0	0	8
35-44	16	16	12	20
45-54	33	36	38	24
55-64	24	32	21	20
65-74	24	16	29	28
Total	100	100	100	100
Average age	55.2	54.8	59.2	54.0

*Percents are rounded to the nearest whole number.

TABLE VII
PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED,
HIGH, MEDIUM, AND LOW PRODUCERS, ACCORDING TO
TENURE STATUS OF RESPONDENTS

Tenure Status	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Owner	90	96	87	88
Tenant	9	4	13	8
Partner at home	1	0	0	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE VIII

TOTAL 1966 GROSS FAMILY INCOMES OF ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY
PERCENTS* AND AVERAGE INCOME

Total Gross Family Income Category in Dollars	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
0-3,999	21	12	20	28
4,000-7,999	35	32	29	44
8,000-11,999	23	28	34	8
12,000-15,999	10	12	4	16
16,000-19,999	8	8	13	4
24,000-25,999	3	8	0	0
Total	100	100	100	100
Average	8,689	10,120	8,667	7,280

*Percents are rounded to the nearest whole number.

interviewed has incomes of less than \$4,000. On the other hand, only 3 percent of all interviewees had incomes of \$24,000 or more. The most frequently mentioned income range for all cattlemen was the \$4,000-\$7,999 interval (35 percent).

The average income level of all beef producers was \$8,689. A definite association can be seen between production level and income level. Income levels were \$10,120 for high producers, \$8,667 for medium producers and \$7,280 for low producers.

VIII. TOTAL FARM ACREAGE CATEGORIES

The average farm size of all Lawrence County beef producers interviewed was 178.8 acres as shown in Table IX. Low producers had a larger average farm size (183.8 acres) than did high producers (173.3 acres).

The most frequently occurring farm size (44 percent) of all beef producers' farms was in the range of 100-199 acres. This range was mentioned most frequently by both high (44 percent) and low (56 percent) producers. One to 99 acres was the size most often found in the medium producing group (32 percent).

IX. CROPLAND ACREAGE CATEGORIES

The amount of cropland found on the beef producers' farms can be seen in Table X. Cropland acreage ranged from none to 399 acres. Forty-eight percent of all interviewees had 100-199 acres of cropland, which was the most frequently occurring size.

TABLE IX

TOTAL FARM ACREAGE CATEGORIES OF ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS
BY PERCENTS AND AVERAGE FARM ACRES

Total Farm- Acreage Interval	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
1-99	23	20	32	16
100-199	44	44	30	56
200-299	20	24	21	16
300-499	8	12	13	4
500-599	5	0	4	8
Total	100	100	100	100
Acreage Average Acres	178.8	173.3	179.3	183.8

*Percents are rounded to the nearest whole number.

TABLE X

TOTAL CROPLAND ACREAGE CATEGORIES OF ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY
PERCENTS* AND AVERAGE FARM ACRES

Total Cropland Acreage Interval	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	1	4	0	0
1-99	39	28	50	40
100-199	48	48	38	56
200-299	9	16	12	0
300-399	3	4	0	4
Total	100	100	100	100
Actual average of those having cropland	116.0	137.4	106.2	104.9

*Percents are rounded to the nearest whole number.

The average number of cropland acres on all the beef farms was 116. High producers tended to have more cropland (average of 137 acres) than did low producers (average of 105 acres). Medium producers averaged 106 acres of cropland.

X. COWS KEPT

Number

As shown in Table XI, most beef cow herds included in the study were rather small, with an average of 18.3 cows per producer and a total of 1350 cows in all herds studied. High producers reported an average of 25.2 cows; while low producers had herds averaging 14.4 cows. The total number of cows kept in all high producer herds was 630 and for low producers was 360--a difference of 270 cows.

Fifty-one percent of the beef farmers had cow herds that ranged in size from 1-14 cows, which was the most frequently reported range for all groups, excepting high producers, who more frequently reported from 15-25 cows. While nearly one-third of the high producers (32 percent) had 25 or more beef cows, only 12 percent of the medium and low groups had so many. Five percent, all of them high producers, were in the 55 to 64 cow range.

Registered Cows

Sixty-six percent of all interviewees did not have registered cows in their herds, as indicated in Table XII. Forty-eight percent of the

TABLE XI

TOTALS AND AVERAGE NUMBERS OF BEEF COWS BELONGING TO ALL LAWRENCE
COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW
PRODUCERS BY PERCENTS*

Number of Beef Cows	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
1-14	51	32	54	68
15-24	31	36	34	20
25-34	5	8	4	4
35-44	5	4	8	4
45-54	3	4	0	4
55-64	5	16	0	0
Total	100	100	100	100
Average number beef cows per producer	18.3	25.2	15.0	14.4
Total number of cows	1350	630	360	360

*Percents are rounded to the nearest whole number.

TABLE XII

NUMBERS AND AVERAGE NUMBERS OF REGISTERED BEEF COWS KEPT BY ALL
LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND
LOW PRODUCERS BY PERCENTS*

Number of Registered Beef Cows	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	66	48	79	72
1-20	26	32	17	28
21-40	6	12	4	0
41-60	1	4	0	0
61-80	1	4	0	0
Total	100	100	100	100
Average number of registered cows kept by those keep- ing registered cows	15.5	21.3	12.8	6.7
Total number of registered cows	388	277	64	47
Percent of cows registered	28.7	44.0	17.8	13.1

*Percents are rounded to the nearest whole number.

high producers and 72 percent of the low producers kept no registered cows. High producers keeping registered cows kept an average of 21.3 registered cows, medium producers 12.8, and low producers 6.7. Nearly 29 percent of the cows belonging to all interviewees were registered. High producers' herds had a higher percentage (44 percent) of registered cows than did low producers (13.1 percent). Total number of registered cows kept were 277 for all high producer herds and only 47 for all low producer herds.

Breeds of Registered Cows

Angus cows were in the majority on interviewees' farms that kept registered cows (Table XIII). Hereford and Shorthorn breeds ranked second and third, with 11 and 4 percent, respectively.

Twenty-eight percent of the high producers favored registered Angus breeding for brood cows, while low producers had more cows of the registered Hereford breed (16 percent).

Grade Cows

Fifty-four percent of all beef producers kept from 1-14 grade cows in their herd, as shown in Table XIV. The average number of grade cows kept by all interviewees was 14.3. Nine percent of all interviewees kept no grade cattle. Sixteen percent of the high producers, 8 percent of the medium producers and 4 percent of the low producers did not keep any grade cows.

TABLE XIII

BREEDS OF REGISTERED COWS IN HERDS BELONGING TO ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Breeds of Registered Cows	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	68	44	83	76
Angus	16	28	13	8
Hereford	11	12	4	16
Shorthorn	4	12	0	0
Hereford and Charolais	1	4	0	0
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE XIV

NUMBERS OF GRADE COWS BELONGING TO ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Number of Grade Cows	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	9	16	8	4
1-14	54	36	60	68
15-24	25	32	24	16
25-34	7	4	8	8
35-44	4	8	0	4
45-54	1	4	0	0
Total	100	100	100	100
Average number kept by those having grade cows	14.3	16.9	13.0	13.0

*Percents are rounded to the nearest whole number.

High producers keeping grade cows had larger numbers (16.9) than either medium or low producers (13 each).

Breeds of Grade Cows

Since a variety of breeds and their crosses were reported in the make-up of the grade cows kept, the largest single breeding make-up (54 percent) was classified as "mixed" (see Table XV). The "mixed" breed was found more frequently on low producers' farms (72 percent) than on high producers' farms (32 percent). Angus breeding was reported more often by high producers (16 percent) than low producers (4 percent).

XI. BEEF BULLS KEPT

Number

Seventy-seven percent of all interviewees kept only one beef bull in their herd (Table XVI). Thirty-two percent of the high producers kept two or more beef bulls, while only 16 percent of the low producers kept two or more beef bulls.

All interviewees kept an average of one beef bull for every 14 cows in their herd. High producers made more efficient use of bulls (18 cows to 1 bull) than did low producers (12 cows to 1 bull).

All beef producers interviewed that kept registered bulls had an average of 2.4 bulls (Table XVII). High producers (80 percent) were more inclined to own one or more registered bulls than low producers (60 percent). Also, high producers kept on the average more registered bulls per farm (2.7) than did low producers (1.6).

TABLE XV

PREDOMINANT BREEDS OF GRADE COWS IN HERDS BELONGING TO ALL LAWRENCE
COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW
PRODUCERS BY PERCENTS*

Predominant Breed of Grade Cow	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	12	24	8	4
Mixed	54	32	59	72
Hereford	17	16	21	16
Angus	10	16	8	4
Shorthorn	4	8	4	0
Hereford and Angus	3	4	0	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE XVI

TOTAL NUMBER OF BEEF BULLS KEPT BY ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Number of Beef Bulls	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
1	77	68	79	84
2	20	28	21	12
3	3	4	0	4
Total	100	100	100	100
Average for those having beef bulls	1.3	1.4	1.2	1.2
Ratio of cows kept per bull	14:1	18:1	13:1	12:1

*Percents are rounded to the nearest whole number.

TABLE XVII

NUMBERS OF REGISTERED BULLS BELONGING TO ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS IN 1966
BY PERCENTS* AND AVERAGE NUMBERS

Number of Bulls Used	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	35	20	46	40
1	39	44	33	40
2	11	12	8	12
3	3	4	0	4
4 and over	12	20	13	4
Total	100	100	100	100
Average number kept by those having registered bulls	2.4	2.7	2.8	1.6

*Percents are rounded to the nearest whole number.

Breeds of Registered Bulls

Table XVIII shows that 30 percent of all interviewees kept Hereford bulls, 28 percent kept Angus and 5 percent kept Shorthorn. Four percent of all interviewees had registered bulls of two different breeds.

More high and medium producers kept registered Angus sires with 36 and 29 percent, respectively, than did low producers (20 percent). Forty percent of the low producers kept the registered Hereford sire.

Breeds of Grade Bulls

It is interesting to note in Table XIX that 50 percent of all cattlemen interviewed kept no grade bulls. Fewer high producers kept grade bulls (64 percent keeping none), than low producers (40 percent keeping none).

Grade bulls of "mixed" breeding were the most frequently kept grade bulls by all interviewees (26 percent). Twenty-eight percent of the low producers and 16 percent of the high producers kept bulls of the "mixed" breed. Hereford was the second most prominent breed of grade bull kept by all interviewees, with twice as many low producers (24 percent) keeping Herefords as high producers (12 percent).

XII. REPLACEMENT HEIFERS KEPT

Number

Twenty-six percent of all interviewees kept no replacement heifers (Table XX). A frequent comment by those not keeping replacement heifers was that they had experienced calving trouble with first-year heifers.

TABLE XVIII

BREEDS OF REGISTERED BULLS BELONGING TO ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Breed of Registered Bulls	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	33	20	46	32
Hereford	30	32	17	40
Angus	28	36	29	20
Shorthorn	5	8	8	0
Angus and Hereford	3	0	0	8
Hereford and Charolais	1	4	0	0
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE XIX

PREDOMINANT BREEDS OF GRADE BULLS BELONGING TO ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Predominant Breed of Grade Bulls	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	50	64	46	40
Mixed	26	16	33	28
Hereford	17	12	17	24
Angus	5	4	0	8
Shorthorn	1	4	0	0
Shorthorn and Charolais	1	0	4	0
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE XX

TOTAL NUMBERS OF REPLACEMENT HEIFERS KEPT BY ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND
LOW PRODUCERS BY PERCENTS*

Number of Replacement Heifers Kept	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	26	28	17	32
1-5	47	40	58	44
6-10	23	28	21	20
11-15	1	0	4	0
15 or more	3	4	0	4
Total	100	100	100	100
Actual average	5.3	6.3	4.5	5.2

*Percents are rounded to nearest whole number.

A few more high producers (72 percent) kept replacement heifers than low producers (68 percent). High producers also kept a larger average number of replacement heifers (6.3) than did low producers (5.2).

Breeds of Registered Replacement Heifers

As shown in Table XXI, Angus replacement heifers were kept more often than any other breed by all interviewees (12 percent). Hereford (8 per cent) was the second most popular breed of registered replacement heifers belonging to all interviewees. High producers (40 percent) reported keeping more registered replacement heifers than did low producers (16 percent).

Weights of Replacement Heifers

The estimated weights of replacement heifers (Table XXII) were considerably higher on the average than the average weight of calves sold (Table XXXVI, page 79). The reason for so much variation between calves born in the same year is that calves were sold in the fall of 1966 or early 1967, while the estimated weights for heifers were obtained during July and August of 1967. Therefore, the heifers' weights include an additional 4-6 months growth.

A wide variation of weights for replacement heifers kept, which ranged from 150-299 pound groups to 900-1049 pound groups, is shown in Table XXII.

All interviewees keeping replacement heifers reported weights that averaged 620 pounds per heifer. Replacement heifers kept by high

TABLE XXI

BREEDS OF REGISTERED HEIFERS BELONGING TO ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM,
AND LOW PRODUCERS BY PERCENTS*

Breeds of Registered Heifers	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	78	60	87	84
Angus	12	16	13	8
Hereford	8	16	0	8
Shorthorn	1	4	0	0
Hereford and Charolais	1	4	0	0
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE XXII

ESTIMATED WEIGHTS OF REPLACEMENT HEIFERS KEPT BY ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW
PRODUCERS BY PERCENTS*

Weight per Heifer Kept (Pounds)	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None kept	26	28	17	32
150-299	1	0	0	4
300-449	4	0	4	8
450-599	15	12	21	12
600-749	43	40	54	36
750-899	10	16	4	8
900-1049	1	4	0	0
Total	100	100	100	100
Actual average weight of heifers kept	620	664	625	592

*Percents are rounded to nearest whole number.

producers were larger (664 pounds) than those kept by either medium (625 pounds) or low producers (592 pounds).

XIII. CHANGES IN SIZE OF BEEF CATTLE HERDS

Fifty-two percent of all interviewees had larger herds in 1967 than in the previous year (Table XXIII). Forty percent had fewer cattle, and 8 percent had no change in herd size.

More high producers (56 percent) had larger herds in 1967 than in 1966, than was true for low producers (44 percent). Fifty-two percent of the low producers had fewer cattle in 1967 than 1966 compared to 32 percent for high producers.

Numbers of Beef Cattle Added and Reasons For Adding in 1967

Numbers. Of all interviewees adding cattle, 38 percent added 1 or 2 animals; 9 percent added 3 or 4 animals, and 5 percent added 5 or 6 animals. There was little or no variation between high and low producers in the number of cattle added, except that slightly more high producers kept 3 or 4 animals (12 percent) than did low producers (4 percent).

Reasons. The reasons reported for having more beef cattle in 1967 were not very specific or objective. The most common reply by all interviewees (26 percent) was the natural increase of the herd (Table XXIV). The purchase of replacement cows or heifers was the second most frequently reported reason by all interviewers (19 percent).

TABLE XXIII

CHANGES IN THE NUMBERS OF BEEF CATTLE KEPT IN 1967 OVER THE
1966 TOTAL BY ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED,
HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Change in 1967 Herd Size Over the 1966 Total	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
More	52	56	58	44
Same	8	12	5	4
Fewer	40	32	37	52
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE XXIV

REASONS FOR HAVING MORE BEEF CATTLE IN 1967 THAN IN 1966 REPORTED BY
ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM,
AND LOW PRODUCERS BY PERCENTS*

Reason Reported For Having More Cows	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Same number or less cows	48	44	42	56
Natural increase of the herd	26	36	25	16
Replacement heifers or cows	19	20	33	4
Plenty of feed	5	0	0	16
Have not culled	1	0	0	4
Changing from beef to dairy	1	0	0	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

Thirty-six percent of the high producers compared to only 16 percent of the low producers gave the reason "the natural increase of the herd." Similarly, 20 percent of the high producers and only 4 percent of the low producers reported the purchase of replacement heifers or cows. Sixteen percent of the low producers and no high producers reported an over abundance of feed as a reason for adding animals.

Cattlemen Purchasing Cows and Prices Paid

Cattlemen buying cows. Twenty-six percent of all interviewees purchased cows in 1966. Both high and low producers reported cows purchased to the same extent (24 percent for each).

Prices paid. All cattlemen interviewed averaged paying about \$139 per head for cows bought. High producers paid slightly more (\$135) than low producers (\$124). Medium producers paid more than all other production groups (\$154 per head).

Size of Decrease in Herds That Were Smaller

Forty percent of all interviewees, 32 percent of the high producers and 52 percent of the low producers had fewer cattle in 1967 than in 1966 (Table XXV). Fifteen percent of the cattlemen's herds were reduced less than 5 head. Eight percent of the high producers and 20 percent of the low producers that had fewer cattle were reduced less than 5 head. Low producers (16 percent) sold more cows in the range of 10-14 than did high producers (4 percent).

TABLE XXV

HOW MANY FEWER CATTLE BELONGED TO ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS
IN 1967 THAN IN 1966 BY PERCENTS*

How Many Fewer Cattle	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	60	68	63	48
Less 5	15	8	21	20
5-9	10	16	0	12
10-14	10	4	8	16
15-19	1	0	0	4
20-24	1	0	4	0
25 or more	3	4	4	0
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

Cattlemen Selling Cows--Numbers Sold and Prices Received

Cattlemen selling cows. Sixty-five percent of all interviewers sold cows in 1966. Fewer high producers (64 percent) sold cows than low producers (72 percent). Medium producers sold fewer than either of the other two production categories at 58 percent.

Number sold. All cattlemen interviewed sold an average of 4.8 cows in 1966. High producers averaged selling more cows in 1966 (7.6) than did low producers (3.9).

Prices received. The average price cow sold by all cattlemen interviewed was about \$157 (Table XXVI). High producers (\$173) received more per cow than either medium (\$154) or low producers (\$145). Low producers (48 percent) sold more cows in the range of \$101-\$150 than did high producers (28 percent). Other differences between production groups were none to slight.

Mature Bulls Purchased and Prices Paid

Cattlemen buying bulls. Twenty-nine percent of all cattlemen interviewed purchased bulls in 1966. Twenty-seven percent of the total purchased only 1 bull in 1966. Fewer high producers bought bulls (28 percent) than did low producers (32 percent).

Prices paid. A rather unexpected pattern occurred in the average price paid for bulls bought, with low producers paying about \$265, while

TABLE XXVI

ACTUAL APPROXIMATE SALE PRICE PER COW SOLD LAST YEAR BY ALL LAWRENCE
COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW
PRODUCERS BY PERCENTS*

Approximate Sale Price Per Cow (Dollars)	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None sold	36	36	42	28
51-100	1	4	0	0
101-150	37	28	33	48
151-200	24	24	25	20
201-250	1	4	0	0
251-400	1	4	0	4
Total	100	100	100	100
Average sale price per cow for those selling cows	\$157.13	\$173.44	\$153.71	\$145.28

*Percents are rounded to the nearest whole number.

high producers paid only \$211. Medium producers pushed the total average up to \$250 per bull by paying \$274.

CHAPTER III

SUMMARY

This study was conducted in an attempt to relate some of the characteristics of beef producers, their farms and herds in Lawrence County, Tennessee, to their production in sales of beef per cow bred in 1966. Beef cattle ranked second only to cotton as a source of gross income to Lawrence County farm operators in 1964. Cattle numbers in Lawrence County increased about 26 percent from 1954 to 1964.

The results reported in the present study were obtained from personal interviews with 74 randomly selected beef producers. Data were comparatively analyzed in terms of high, medium and low production.

I. REVIEW OF FINDINGS

The pounds of beef produced per cow bred ranged from a low of 104 pounds to a high of 904 pounds. Findings were discussed in most cases on a comparative basis between the low and high production categories. It was found that:

1. Ninety-two percent of all farmers surveyed were considered to be either "Friendly" or "Somewhat friendly" in their attitudes toward the survey.

2. The major occupation most frequently mentioned for all cattlemen interviewed was that of being retired, with 30 percent falling in

this category. Also, 36 percent of the high producers and 24 percent of the low producers were wage earners. An additional 24 percent of the high producers and 32 percent of the low producers were full-time farmers.

3. The top three sources of income for all interviewees were wages earned (31 percent), crops (24 percent) and retirement income (20 percent). More high producers reported wages (40 percent) and beef (20 percent) as major sources than did low producers (24 percent) and 4 percent, respectively.

4. All interviewees on the average, had completed 8.9 grades of school; high producers having completed 9.2 grades and low producers 8.6 grades.

5. All cattlemen interviewed had an average age of 55.2 years. High and low producers showed less than a year's difference in average age.

6. Ninety percent of all interviewees were owners of their farms. Ninety-six percent of the high producers and 88 percent of the low producers were owners of their farms.

7. Income levels showed a corresponding relation to production category. High producers had a gross income of \$10,120; while medium producers averaged \$8,667 and low producers had \$7,280.

8. The average farm size of all cattlemen interviewed was 179 acres. Low producers operated larger farms, averaging 184 acres, than high producers who operated 173 acre farms.

11. All interviewees averaged having 116 acres of cropland. High producers had more cropland (137 acres) than low producers (105 acres of cropland).

12. All producers interviewed had an average cow herd size of 18.3 cows. High producers operated on a larger scale (25.2 cows) than low producers (14.4 cows).

13. Thirty-four percent of all cattlemen had one or more registered cows in their herds. Fifty-two percent of the high producers and 28 percent of the low producers kept registered cows.

14. Sixteen percent of all producers having registered cows had the Angus breed. More high producers (28 percent) kept cows of the Angus breed than low producers (8 percent). Low producers favored the Hereford breed.

15. Registered bulls were kept by 65 percent of all cattlemen. Eighty percent of the high producers and 60 percent of the low producers had one or more registered bulls.

16. Of all producers keeping registered bulls, 30 percent were Hereford, 28 percent Angus and 5 percent Shorthorn. Thirty-six percent of the high producers had registered Angus sires. Low producers preferred the registered Hereford sire with 40 percent keeping this breed of bull.

17. Seventy-four percent of all cattlemen kept replacement heifers. Seventy-two percent of the high producers and 68 percent of the low producers kept replacement heifers.

18. Replacement heifers kept by all cattlemen averaged 620 pounds. Replacement heifers kept by high producers averaged 664 pounds, and those kept by low producers weighed an average of 592 pounds each.

Fifty-six percent of the high producers and 44 percent of the low producers had larger herds in 1967 than in 1966. The price paid for cows purchased averaged about \$139 per head, with little difference shown in prices paid by high and low producers.

II. IMPLICATIONS

Some of the implications that might be drawn from the findings of this study are:

1. That most cattlemen would be receptive (92 percent in this study) to listening and talking about their farming operation as it relates to the production of beef cattle. This appeared to be true in a very high percentage of cases, even where the producers were not acquainted with the interviewer. Therefore, a good Extension program on beef production in Lawrence County (including on-the-farm agent contact with producers) should be reasonably well received by cattlemen.

2. That while differences between the characteristics of high and low producers and their farms are not pronounced in some instances, the frequency with which they occurred was quite high. These characteristic differences between high and low producers should receive due consideration in the formulating and conducting of an effective educational program for both groups.

3. That the motivation of a high percentage of the cattlemen in Lawrence County to improve their beef herd management would be a challenging, if not difficult task. This is supported by the facts that: (1) 30 percent of all cattlemen were retired; (2) the top three sources of income

for all cattlemen were wages earned, crops and retirement income; (3) the average educational level of all producers was 8.9 grades, and (4) the average age was 55.2 years.

4. That since this study shows characteristic variations between production groups, further efforts should be made to determine whether or not differences exists between management levels of high and low producers.

PROBLEM B :

MANAGEMENT PRACTICES OF LAWRENCE COUNTY BEEF PRODUCERS

CHAPTER I

INTRODUCTION

Beef has long been an important agricultural enterprise in Lawrence County. During the 10 years prior to the present study, beef cattle numbers and income received have steadily increased. This was due in part to many farmers changing from full-time to part-time farming. Because of inadequate time and labor, such farmers have found it convenient to substitute beef cattle for other enterprises demanding more labor.

Lawrence County Extension personnel estimated that the annual county income from beef cattle, if properly managed, could be at least doubled (i.e., increased from 1 to 2 million dollars from 1966 to 1971). (2:3)*. Careful observation by Extension staff members had shown wide variation to exist between producers in pounds of beef produced and amounts of income realized per beef cow unit. If beef producers in Lawrence County were to reach an estimated potential of 2 million dollars per year set as a goal by 1971 in the 1966-71 Extension 5-year plan, it was clear that efforts would have to be made to discover some of the important reasons for variations in production and income.

Previous Extension research (5,7) had established that the adoption of certain recommended production practices could make considerable

*Numbers in parenthesis refer to numbered references in the Bibliography; those after the colon are page numbers.

differences in the amount of county income realized from the beef cattle enterprise. However, such data were not available for Lawrence County. Likewise, information concerning differences between management levels of high and low producers was lacking. The present study was designed to fill these needs of data for use in planning Extension educational programs.

I. THE PURPOSE OF THE STUDY

The purpose of this study was to determine which recommended practices Lawrence County cattlemen were using. The producers were divided into high, medium and low groups in terms of pounds of beef sold in 1966 per cow bred.

II. REVIEW OF LITERATURE

Fast-growing calves each year from every cow in the herd with acceptable quality is the desire of every man in the cow business. There is no other management goal that will increase income faster on most Tennessee farms. (12:1A)

Extension recommendations suggest that a definite time for breeding and calving helps cattlemen increase their income from cattle. The breeding season recommended for most Tennessee farms is from April 1 to July 1, which sets the calving season from January 9 to April 9. (13:21)

Cows should be pregnancy-checked by a veterinarian sometime during the months of September, October or November if the breeding

season is from July 1 to August 1. This practice helps to determine: (1) which cows are bred and which are not; (2) the approximate month of calving, and (3) a herd-wide sterility problem. (12:3c)

Tyrrell suggests that attentive management at calving time may determine whether there will be an extra calf or two to sell later. As cows approach calving, a little extra attention will insure the saving of more calves. Cows should be checked twice daily and should be moved to a well-sodded, clean pasture lot. (13:27)

Tyrrell has reported that dehorned calves have returned from \$2 to \$3 per hundred pounds more than horned calves, and castrated calves from \$3 to \$5 per hundred more than calves not castrated. Calves should be castrated at an age of 30 days or less. (13:28)

Tyrrell also states that it often pays to creep feed calves if: (1) the season is hot and dry; (2) the dam's milk supply is short; (3) buyers do not discriminate against excessive finish; (4) low quality, nondescript calves are produced; (5) a fall calving program is followed, and (6) feed grain is available and cheap. (13:33)

For winter feeding cows, Tyrrell suggests turning cows on permanent pasture sods in November to reduce feed costs and mud. Thin cows should gain weight. They should be given extra grain and silage if necessary. Three to 6 pounds of concentrates, including 1 pound of protein supplement, is suggested for thin cows and first calf heifers. (14:13)

Jamison states that performance records, when used in a selection program, will increase growth rate of your calves and improve their

conformation, both of which are traits of economic importance. Performance testing was designed to: (1) determine maximum production of each individual breeding cow; (2) base selection of replacement heifers on average daily gain and quality records, both during weaning and post weaning periods; (3) cull poor-producing cows; (4) measure bull productivity; (5) increase financial returns of the herd by improving growth rate and quality of calves; (6) increase the calving percentage; (7) determine post-weaning performance of prospective herd sire and foundation females by means of actual feeding tests; (8) improve pasture, feeding and general management of the beef cattle enterprise, and (9) provide additional performance information to potential buyers. (3:3)

Stanley et al. states that external parasites cause itching, swelling, and general irritation to the animal. Consequently, weight gains are reduced and hides are severely damaged. It has been estimated that these blood-sucking insects rob Tennessee farmers of nearly 15 million dollars each year. (11:1)

Keyes, in a study of Campbell County beef producers, found that on the average all producers were operating at a management level of 2.10 on a practice diffusion or management scale. The rating scale ranged from 0 for no use to 5 for full usage. Campbell County high producers operated at an average management level of 2.33, while low producers operated at a level of 2.01. (5:56)

Luck, in a study of Macon County cattlemen and also using the five point rating scale, found that all beef producers taken together had an average management level rating of 3.87. High producers operated

at a management level of 4.03, while low producers averaged 3.55. (7:106)

Ranney conducted an interview-type survey with beef producers in the Elk River area in 1964. Some 13 approved practices were included in the interview schedule. When herds of those following over 75 percent of the practices studied were compared with herds of those following less than 25 percent of the practices, the average difference in beef sales per cow in favor of those using more practices was more than \$50. It was estimated that if farmers in the Elk River area followed most of the recommended practices, the extra gross income from beef cattle would amount to over 3 million dollars per year. (9:31)

III. METHODS

In reply to a letter mailed to 433 persons having livestock in Lawrence County, 331 answered by indicating on a card the number of hogs, dairy and beef animals currently on their farm. Seventy-five farms were randomly selected to be interviewed from the 172 persons having 10 or more beef cattle.

These 75 farmers were personally interviewed, using a schedule containing 50 questions (see Appendix). Several of these questions and their subparts were designed to give information about specific and general beef production practices being used by the cattlemen. Producers were divided into production thirds, according to pounds of beef sold per cow bred. The high and low producing categories each contained 25 farmers. The medium group contained only 24, since 1 farmer in the

sample was found not to have sold any cattle in the previous year.

Rating Explanation

Thirty-one beef production practices generally recommended by the University of Tennessee Agricultural Extension Service were included in the schedule in an effort to determine the practice adoption levels of producers in total, high, medium and low production categories.

The following rating system was used to classify individuals on each of the 31 practices: (1) no points were given if the person interviewed had not read or heard of the specific practice; (2) one point was given if the person had only heard of the practice; (3) two points were given if the person was only interested in the practice; (4) three points were given if the person had not tried it, but planned to do so; (5) four points were given if the person had tried the practice but were not using it at the time of the interview, and (6) five points were given if the person had tried the practice and was still using it.

Average practice diffusion ratings of the production groups are compared in this report. For this purpose, the practice diffusion process is considered in the following stages: "unaware," 0.00-0.49 points; "aware," 0.50-1.49 points; "interested in the practice," 1.50-2.49 points; "planning to try," 2.50-3.49 points; "tried," 3.50-4.49 points, and "using," 4.50-5.00 points.

An average practice diffusion rating was determined for each producer by adding up his total score on the production practices in the schedule and dividing by the number of practices applicable to that farm. Then, group total average practice diffusion ratings were completed for the purpose of comparing those in the three production groups on each practice and for all practices.

Other data reported are in percents, and averages are given where appropriate. Main comparisons were between high and low producers in order to try to identify major differences between the extremes.

CHAPTER II

FINDINGS

I. MANAGEMENT LEVELS OF BEEF PRODUCERS

Average Management Level Ratings

The average management level ratings are shown in Table XXVII.

All cattlemen interviewed had a total average rating of 2.75. High producers were found to be better managers, with an average rating of 2.97, than were low producers, with an average rating of 2.62.

Management Practice Diffusion Ratings

A wide variation in beef management practice diffusion ratings is evident in Table XXVIII. The lowest rating for all Lawrence County producers interviewed was 0.07, which dealt with a performance tested bull's record and its meeting of the minimum requirements of the breeders sale. There was only one such bull in the survey. The highest rating found for all interviewees was 5.00 for keeping cows on good permanent pasture in late fall and winter to reduce food costs.

Breeding practices. The first 7 practices listed in Table XXVIII relate in some way to breeding management or care of the cow after breeding. Of these 7 practices, cattlemen came closest to following the practice of breeding replacement heifers at a minimum of 15 months of age or 650 pounds in weight (the average diffusion rating for all farmers being 4.13). Least known to cattlemen were the practices

TABLE XXVII

PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH
MEDIUM, AND LOW PRODUCERS, BY AVERAGE MANAGEMENT
LEVEL RATINGS AND TOTAL AVERAGES

Management Level Rating Interval**	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
1.32-1.99	13	8	13	20
2.00-2.49	22	16	25	24
2.50-2.99	28	28	33	24
3.00-3.49	27	36	25	20
3.50-3.99	7	8	0	12
4.00-4.23	3	4	4	0
Total	100	100	100	100
Total Average Rating	2.75	2.97	2.66	2.62

*Percents are rounded to the nearest whole number.

**In the rating scale used: 0 = unaware; 1 = aware of the 31 recommended practices; 2 = interested in the practices; 3 = planning to try the practices; 4 = tried the practices, but not using; and 5 = using the practices.

TABLE XXVIII

AVERAGE BEEF MANAGEMENT PRACTICE DIFFUSION RATINGS AND TOTAL AVERAGE RATINGS FOR ALL
LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS*

Beef Management Practice	All Interviewees Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
1. Waiting until replacement heifers were at least 15 months old and had attained a minimum weight of 650 pounds before breeding	4.13	4.36	4.04	4.00
2. Using a system for identifying each breeding female in the herd	2.20	2.80	1.75	2.04
3. Using a pasture area for bull(s) during off-breeding season	2.17	2.64	2.00	1.88
4. Checking of herd cows at least twice a day during breeding season	2.17	2.20	2.13	2.17
5. Using one or more performance tested bulls	0.85	1.08	0.63	0.84
6. Checking all herd cows for pregnancy last year	0.82	1.08	0.71	0.68

TABLE XXVIII (CONTINUED)

Beef Management Practice	All Interviewees Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
7. Bulls records met minimum requirements of the breeders performance tested bull sale	0.07	0.20	0.00	0.00
8. Arranging to have competent help available when calving difficulties occur	4.36	4.80	4.21	4.08
9. Checking of older cows at least once a day during calving season	4.26	4.64	4.38	3.76
10. Checking of first-calf heifer at least 2 or 3 times daily during calving season	4.11	4.14	3.87	4.33
11. Using a system of permanently identifying calves	2.06	2.72	1.67	1.80
12. Feeding more or better quality feed to thin cows and cows recently calved than to others	3.36	3.16	3.50	3.42
13. Keeping replacement heifers separate from rest of breeding herd during winter	3.20	3.71	3.30	2.58

TABLE XXVIII (CONTINUED)

Beef Management Practice	All Interviewees Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
14. Providing access to a recommended mineral mixture for all cattle	2.74	2.96	2.54	2.72
15. Feeding brood cows at least 1.5 pounds of 32-44% protein supplement daily when feeding low quality roughage	2.63	2.76	2.08	3.04
16. Feeding bulls a concentrate during breeding season while on pasture	1.82	1.96	1.63	1.88
17. Keeping cows on good permanent pasture until late fall and early winter to reduce winter feed costs	5.00	5.00	5.00	5.00
18. Following a systematic rotational grazing program	3.85	4.08	3.88	3.60
19. Providing extra supplementary grazing for the herd during July, August and September	2.75	2.16	3.17	2.92
20. Following recommended fly control practices	3.71	4.40	3.42	3.32

TABLE XXVIII (CONTINUED)

Beef Management Practice	All Interviewees Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
21. Following lice control practices	3.14	3.36	3.33	2.72
22. Using recommended materials in the control of internal parasites	2.58	2.68	2.54	2.52
23. Using recommended grub control	2.09	1.96	2.33	2.00
24. Vaccinating all calves for blackleg and malignant edema during nursing period	3.38	3.92	3.21	3.00
25. Vaccinating all brood cows and replacement heifers for leptospirosis	0.66	0.84	0.67	0.48
26. Checking cattle for possible trouble at least 3 times per week throughout the year	4.70	5.00	4.46	4.64
27. Following recommended procedures in castration	4.06	3.88	4.13	4.16
28. Following recommended procedures in dehorning	3.74	4.33	3.35	3.53

TABLE XXVIII (CONTINUED)

Beef Management Practice	All Interviewees Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
29. Using appropriately and maintaining an adequate system of working pens, lots and restraining equipment	2.42	3.00	2.42	1.84
30. Getting the advice of professionals in the area of beef production and marketing	1.36	1.40	1.29	1.40
31. Enrolling of herd in the Tennessee Beef Cattle Improvement Program	0.81	1.00	0.71	0.72
Total Average Rating	2.75	2.97	2.66	2.62

*In the rating scale used: 0 = unaware; 1 = aware of the recommended practice; 2 = interested in the practice; 3 = planning to try the practice; 4 = tried the practice, but not using; and 5 = using the practice.

relating to: (1) the use of performance tested bulls (an average rating of 0.85); (2) minimum requirements of breeders sale for performance tested bulls (a rating of 0.07), and (3) pregnancy checking of cows (a rating of 0.82).

While the margin was small in some practices, high producers, without exception, received higher diffusion ratings on all 7 practices than low producers. Medium producers were not consistently above low producers in ratings.

Calving season practices and calf identification. Practices 8 through 11 in Table XXVIII are related to calving and identification. Providing competent help for calving difficulties was a practice receiving a rating above 4.00 in all categories. However, high producers (4.80) were on the average in the "using" categories; while low producers (4.08) were in the "tried" stage. All interviewees also received a practice diffusion rating above 4.00 on the two practices relating to the checking of cows and heifers during the calving season. On the average high producers (4.64) were in the "using" category; while low producers (3.76) were in the "tried" stage.

Cattlemen as a whole (2.06) were not using a system to permanently identify calves. High producers rated higher (2.72) than low producers (1.80).

Feeding practices. Diffusion ratings for practices relating to feeding are shown in Table XXVIII, numbers 12 through 16. All interviewees (3.36) rated highest on the practice of "feeding more or better

quality feed to thin cows and cows recently calved than to others." Also, high producers (3.71) more often separated replacement heifers from the rest of the breeding herd during the winter than did low producers (2.58). High producers averaged in the "tried" stage and low producers in the "plan to try" stage.

Low producers rated slightly higher on two feeding practices (numbers 12 and 15) than did high producers though both groups were in the "planning to try" stage in each instance. With regard to practice 12, apparently high producers were more likely to have cows in good rather than thin condition, and this led many to respond negatively. Concerning practice number 15, high producers interviewed rarely had low quality roughage, thus somewhat negating the relevance of the practice.

Pasturing and grazing practices. Practices 17 through 19 in Table XXVIII relating to pastures and grazing systems, showed some unexpected diffusion ratings. Low producers (2.92) outrated high producers (2.16) in providing extra supplementary grazing for the herd during July, August, and September (practice 19). Producers not providing supplementary summer grazing frequently commented that their permanent pastures were adequate and that summer grazing from sorghum-sudan hybrids was an expensive way to provide pasture. Cattlemen in all production groups received a rating of 5.0 on number 17, which is the practice of keeping cows on good permanent pasture until late fall and early winter to reduce winter feed costs. It is highly probable

that the proper connotation was not given the word "good" when the interviews were conducted.

Parasite control practices. Management practices 20 through 23 in Table XXVIII relate to the control of internal and external parasites. Generally, high producers were above low producers in diffusion ratings for parasite control practices. High producers (4.40) were in the "tried" stage and low producers (3.32) were in the "plan to try" stage on the practice of following recommended fly control measures. Similarly, high producers (3.36) rated higher on lice control practices than did low producers (2.72).

Vaccinating practices. There was a considerable difference between high and low producers' diffusion ratings on practice 24 (vaccinating for blackleg and malignant edema) in Table XXVIII. All cattlemen interviewed had a rating of 3.38 on vaccinating calves for blackleg and malignant edema. High producers (3.92) were in the "tried" stage, while low producers (3.00) were in the "plan to try" stage. All producers (0.66) were in the low "awareness" stage on the practice of vaccinating cows and heifers for leptospirosis.

Other practices. Practices 26 through 31 (Table XXVIII) do not readily lend themselves to grouping or classification. With the exception of practices 28 and 29, there appeared to be little difference between production groups. High producers (4.33) were in the "tried" stage on practice 28 (dehorning), whereas, low producers (3.53) were

in the "plan to try" stage. Also, high producers (3.00) rated higher than low producers (1.84) on the practice of using and maintaining adequate working pens, lots, and restraining equipment.

II. BREEDING MANAGEMENT PRACTICES

Tables XXIX through XXXI presents data related to breeding management practices used by Lawrence County cattlemen. The purpose of this section was to analyze the breeding management practices by producer groups.

Females of Breeding Age in Herd

Thirty-six percent of the high producers and 64 percent of the low producers had from 1-15 females of breeding age, which was the most frequently reported size (Table XXIX). The average number of females of breeding age on all interviewees' farms was 22.1, with high producers keeping 29.4 and low producers 17.5. Twenty percent of the high producers kept 46 or more females of breeding age compared to 8 percent for low producers.

Cows Bred to Calve

By comparing the average number of cows bred to calve (Table XXX) with the number of cows of breeding age (Table XXIX, page 68), it is easy to determine the number not bred. Table XXX shows that all interviewees had 20.9 cows bred to calve out of 22.1 cows of breeding age (Table XXIX, page 68); thus, 1.2 cows did not breed.

TABLE XXIX

ACTUAL NUMBER OF FEMALES OF BREEDING AGE IN BEEF HERDS IN 1966
 BELONGING TO ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED,
 HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Number of Females of Breeding Age	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
1-15	49	36	46	64
16-30	35	32	46	28
31-45	7	12	8	0
46-60	5	8	0	8
61-75	3	8	0	0
76-90	1	4	0	0
Total	100	100	100	100
Actual Number of Fe- males of Breeding Age	22.1	29.4	19.3	17.5

*Percents are rounded to the nearest whole number.

TABLE XXX

ACTUAL NUMBERS OF FEMALES THAT WERE BRED TO CALVE IN 1966 BELONGING TO
ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM,
AND LOW PRODUCERS, BY PERCENTS*

Number of Females Bred to Calve	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
1-15	57	40	50	80
16-30	28	28	46	12
31-45	8	12	4	8
46-60	3	8	0	0
61-75	3	8	0	0
76-90	1	4	0	0
Total	100	100	100	100
Average Number Females Bred to Calve Per Producer	20.9	29.2	17.9	15.4

*Percents are rounded to the nearest whole number.

High producers did much better with 29.2 cows bred out of 29.4 (0.2 of a cow not bred) than did low producers with 15.4 bred out of 17.5 (2.1 cows not bred).

Number of Bulls Used

The average number of bulls used by all interviewees during the breeding season was 1.3 (Table XXXI). There was little difference between high and low producers as to the average number of bulls used. A major difference noted was in the number of females bred per bull by high producers (20.9) and low producers (12.8).

Heifers Kept and Methods Used to Breed

Nineteen percent of all producers interviewed kept no heifers in 1966. Twenty-four percent of the high producers kept no heifers compared to 17 percent of the medium and 16 percent of the low producers, respectively.

Of the high and medium producers who kept heifers, 95 percent of each bred them naturally. One person in each of the groups (high and medium) bred some heifers artificially. All of the low producers who kept heifers bred them naturally.

Types and Numbers of Bulls Used in Breeding Heifers

Beef bulls were used exclusively in breeding heifers in all groups. Most of the cattlemen in all groups who kept and bred heifers used only one bull. Sixty percent of the high producers and 72 percent of the low producers used only one bull to breed all their heifers. Two

TABLE XXXI

NUMBERS OF BULLS USED ON FEMALES DURING THE BREEDING SEASON BY ALL
LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND
LOW PRODUCERS, BY PERCENTS*

Number of Bulls Used During Breeding	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
1	77	68	80	84
2	20	28	20	12
3	3	4	0	4
Total	100	100	100	100
Average Number Bulls Used Per Producers	1.3	1.4	1.2	1.2
Average Number of Fe- males Bred Per Bull Used	16.1	20.9	14.9	12.8

*Percents are rounded to the nearest whole number.

or 3 bulls were used on heifers kept by 4 of the high producers, 2 of the medium and 3 of the low producers. The average number of bulls used to breed heifers belonging to all producers interviewed was 1.2. Little difference was noted between production groups in numbers of bulls used to breed heifers.

III. CALF MANAGEMENT PRACTICES

Number of Calves Born

When the actual number of females of breeding age (Table XXIX, page 68) is compared to the average number of calves born (Table XXXII), calving percentages may be calculated. All interviewees reported a 91 percent calf crop. Also, there was a noticeable spread between high and low producers with calving percentages of 97 and 83 percent, respectively.

Number of Calves Weaned

By comparing the number of calves born (Table XXXII, page 73) with the number of calves weaned (Table XXXIII), the weaning percentage may be calculated. From birth until weaning age, all interviewees reported 95 percent of the calves weaned. The weaning percentage was higher for high producers (97) than for low producers (89).

All interviewees weaned an average of 19.1 calves with high, medium and low producers weaning 27.6, 16.8, and 12.8 calves, respectively.

TABLE XXXII

CALVING PERCENTAGES AND TOTAL NUMBERS OF CALVES BORN LAST YEAR TO ALL
LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND
LOW PRODUCERS, BY PERCENTS*

Number of Calves Born Last Year	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
3-13	42	24	42	60
14-24	35	36	37	32
25-35	11	16	17	0
36-47	5	4	4	8
48-68	4	12	0	0
69-89	3	8	0	0
Total	100	100	100	100
Average Number of Calves Born	20.2	28.6	17.6	14.4
Calving Percentages	91	97	91	83

*Percents are rounded to the nearest whole number.

TABLE XXXIII

NUMBERS, AVERAGES AND PERCENTS OF CALVES RAISED TO WEANING AGE BY ALL
LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS, BY PERCENTS*

Number of Calves Raised to Weaning Age	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
1-9	27	16	25	40
10-19	45	40	46	48
20-29	13	16	21	4
30-39	4	4	8	0
40-59	7	12	0	8
60-79	3	8	0	0
80-99	1	4	0	0
Total	100	100	100	100
Actual Total Average Number	19.1	27.6	16.8	12.8
Percent Weaned from Birth	95	97	95	89

*Percents are rounded to the nearest whole number.

Number of Calves Marketed

All interviewees sold an average of 13.1 calves (Table XXXIV). High producers sold 19 calves, and low producers sold 8 calves. By adding the number of replacement heifers kept to calves marketed and dividing the total by the average number of females of breeding age (Table XXIX, page 68) the percentage of calves sold and kept may be calculated. It is highly probable that such a figure would be a better indication of management efficiency than calving or weaning percentage. Assuming this to be true, all interviewees sold and kept 83 percent of the increase from all females of breeding age (Table XXXIV). High producers (87 percent) sold and kept a higher percentage than did low producers (75 percent).

Stockyards were the most frequently used market (Table XXXV). Sixty-nine percent of all interviewees reported stockyards as their only market for calves. A combination of stockyard and farm sales counted for another 10 percent of cattlemen's market place. Stockyards and organized feeder sales were where 7 percent of all interviewees sold their calves. Twelve percent of the cattlemen reported all their calves sold at the farm.

There were slight differences in the markets used by high and low producers. More low producers (20 percent) sold all their calves at the farm, than did the high producers (12 percent). Sixteen percent of the high producers used a combination of farm sales and stockyards as a market place for calves, while none of the low producers used this particular market combination.

TABLE XXXIV

ACTUAL TOTAL NUMBERS OF CALVES MARKETED DURING LAST YEAR BY ALL
LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM,
AND LOW PRODUCERS, BY PERCENTS*

Number of Calves Marketed Last Year	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
1-9	47	24	50	68
10-19	31	40	25	28
20-29	14	12	25	4
30-39	1	4	0	0
40-49	7	20	0	0
Total	100	100	100	100
Average Number of Calves Marketed	13.1	19.2	11.9	8.0
Average Number of Replacement Heifers Kept	5.3	6.3	4.5	5.2
Total Number Sold and Kept	18.4	25.5	16.4	13.2
Percent of Calves Sold and Kept of Total Number of Females of Breeding Age	83	87	85	75

*Percents are rounded to the nearest whole number.

TABLE XXXV

DIFFERENT PLACES WHERE CALVES WERE SOLD BY ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS, BY PERCENTS*

Place of Sale	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
Stockyard	69	60	83	64
At the farm	12	12	4	20
Farm and stockyard	10	16	13	0
Stockyard and organized feeder sales	7	8	0	12
Organized feeder sales	1	4	0	0
Stockyard special stock sale	1	0	0	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

Average Weight of Calves Sold

Table XXXVI shows that 70 percent of all calves sold by cattlemen weighed between 400-599 pounds. High producers did not sell any calves weighing less than 500 pounds, while 96 percent of the low producers sold calves weighing less than 500 pounds.

Calves sold by all cattlemen surveyed averaged 468 pounds. High producers' calves were considerably heavier (570 pounds) than either medium (470 pounds) or low producers' calves (364 pounds).

Price Received Per Pound of Calf Sold

Fifty-four percent of all interviewees, 44 percent of the high producers and 60 percent of the low producers received less than 24 cents per pound for calves sold (Table XXXVII).

The average price per pound received by all producers was 23.3 cents. High producers received about 1.4 cents more per pound (23.8 cents) than did low producers (22.4 cents).

IV. FEEDING MANAGEMENT PRACTICES

Creep Feeding

Creep feeding calves is not a common practice among Lawrence County beef producers interviewed. Only 16 percent of all cattlemen interviewed creep fed calves. This practice was somewhat more popular among high producers (24 percent creep fed) than among medium or low producers (12 percent of each creep fed).

TABLE XXXVI

AVERAGE WEIGHTS PER CALF SOLD BY ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS,
BY PERCENTS*

Average Weight Sold	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
200-299	8	0	0	24
300-399	10	0	0	28
400-499	35	0	63	44
500-599	35	68	33	4
600-699	8	20	4	0
700-799	3	8	0	0
800-960	1	4	0	0
Total	100	100	100	100
Actual Average	468.0	570.0	470.0	364.0

*Percents are rounded to the nearest whole number.

TABLE XXXVII

PRICES PER POUND RECEIVED FOR CALVES SOLD BY ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS,
BY PERCENTS*

Price Per Pound Received	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
16-19	12	12	4	20
20-23	42	32	55	40
24-27	36	44	33	32
28-36	10	12	8	8
Total	100	100	100	100
Actual Average of Those Selling Calves	23.3	23.8	23.7	22.4

*Percents are rounded to the nearest whole number.

Creep Ration Used

The ration used most often by cattlemen who creep fed calves was cottonseed meal and crushed corn (8 percent in all categories). A close second was crushed ear corn with molasses (6 percent). The only noticeable difference between rations used by producer groups was that 12 percent of the high producers and no low producers used crushed corn with molasses.

Kinds of Purchased Concentrates Fed

Fifty-seven percent of all producers fed some kind of purchased concentrate (Table XXXVIII). A sizeable difference was observed between high and low producers in that 52 percent of the high producers and 72 percent of the low producers bought concentrates.

Cottonseed meal was the choice of 52 percent of all interviewees, 44 percent of the high producers and 64 percent of the low producers buying concentrates. Other differences between groups were negligible.

Amounts of Concentrates Fed

Of all cattlemen interviewed that fed concentrates, more of them fed from 2000-4999 pounds (20 percent) than any other range of amounts. Sixteen percent (Table XXXIX) of the high producers and 24 percent of the low producers fed this amount (2000-4999). Twelve percent of the low producers fed concentrates in the range of 500-999 pounds while none of the high producers fed in this range.

TABLE XXXVIII

KINDS OF CONCENTRATES PURCHASED AND FED LAST YEAR BY ALL LAWRENCE
COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS,
BY PERCENTS*

Kinds of Concentrates Purchased and Fed Last Year	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
None purchased	43	48	54	28
Cotton seed meal	52	44	46	64
Other	3	4	0	4
Cotton seed meal and other	1	0	0	4
Soybean meal and other	1	4	0	0
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE XXXIX

ACTUAL AMOUNTS OF CONCENTRATES FED IN 1966 BY ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS,
BY PERCENTS*

Amounts of Concen- trate Fed Last Year	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
None fed	43	48	55	28
100-499	4	4	4	4
500-999	7	0	8	12
1000-1999	19	24	8	24
2000-4999	20	16	21	24
5000-9999	7	8	4	8
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

Tons of Legume Hay Grown

Sixty-eight percent of all interviewees grew some legume hay (Table XL). Sixty-four percent of the high producers and 72 percent of the low producers grew legume hay. All interviewees, high producers and low producers grew their legume hay on an average acreage of 38.2, 51.4 and 35.3 acres, respectively. The most frequently grown acreage fell between 1-25 acres, with 28 percent of the high producers and 40 percent of the low producers growing in this range.

Twenty-four percent of all interviewees purchased some legume hay. Twenty-percent of the high producers and 28 percent of the low producers purchased legume hay.

All producers that bought legume hay purchased an average of 7.8 tons. High producers purchased fewer tons (6.0) than did low producers (10.3 tons).

Tons of Grass Hay Grown

Table XLI shows that 33 percent of the cattlemen grew grass hay for their beef herd. Thirty-two percent of the high producers grew grass hay for their beef herd compared to 28 percent for low producers.

All producers grew an average of 26.3 acres of grass hay for their beef herd. Twenty-four acres were grown by high producers compared to 18.9 acres for low producers.

Tons of Legume-Grass Hay Grown

Nineteen percent of all cattlemen grew grass-legume hay. More high producers (24 percent) grew grass-legume hay than did low producers (16 percent).

TABLE XL

ACTUAL TONS OF LEGUME HAY GROWN FOR BEEF HERDS BY ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS,
BY PERCENTS*

Actual Tons of Legume Grown	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
Not grown	32	36	34	28
1-25	32	28	29	40
26-50	25	20	29	24
51-100	8	8	8	8
101-200	3	8	0	0
Total	100	100	100	100
Average Number of Acres for Those Answering	38.2	51.4	30.1	35.3

*Percents are rounded to the nearest whole number.

TABLE XII

ACTUAL TONS OF GRASS HAY GROWN FOR BEEF HERDS BY ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS,
BY PERCENTS*

Actual Tons of Grass Grown	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
Not grown	67	68	63	72
1-49	27	28	29	24
50-99	5	4	4	4
100-189	1	0	4	0
Total	100	100	100	100
Average Number of Acres for Those Answering	26.3	24.0	36.0	18.9

*Percents are rounded to the nearest whole number.

The average number of acres of grass-legume grown by all cattlemen was 23.9 acres. High producers grew 36.7 acres while medium and low producers grew 18.3 and 10.3 acres, respectively.

V. PASTURE MANAGEMENT PRACTICES

Orchardgrass-White Clover Pastures

Total acreage. Orchardgrass-white clover pastures were grown by only 24 percent of the interviewees. More high producers (32 percent) grew orchardgrass-white clover pastures than did low producers (20 percent).

The average acreage grown by all producers was 30.7. High producers grew 36.1 acres compared to 13.8 acres grown by low producers.

Fertilization. Of the producers growing orchardgrass-white clover pastures (24 percent), only 1 percent of the producers indicated no fertilization. Thirty-two percent of the high producers and 16 percent of the low producers fertilized orchardgrass-white clover pastures.

Fescue-White Clover Pastures

Acreage. Fifty-three percent of all cattlemen had fescue-white clover pastures, with 64 percent of the high producers and 46 percent of the low producers growing this combination (Table XLII).

The average number of acres of fescue-white clover pastures was 57.3. High producers grew larger acreages (70.6 acres) than did medium

TABLE XLII

TOTAL ACREAGE OF FESCUE-WHITE CLOVER FOR PASTURE PRODUCTION FOR BEEF HERDS OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS, BY PERCENTS*

Average Acreage Used for Fescue- White Clover Pasture	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
Not grown	47	36	50	56
4-33	27	24	30	24
34-67	9	8	4	16
68-100	8	16	4	4
101-133	4	8	4	0
134-167	1	4	0	0
168-200	3	0	8	0
201 or more	1	4	0	0
Total	100	100	100	100
Average Number of Acres for Those Answering	57.3	70.6	62.8	32.1

*Percents are rounded to the nearest whole number.

(62.8 acres) or low producers (32.1 acres). Thirty-two percent of the high producers grew 68 or more acres compared to 4 percent for low producers.

Fertilization. Forty-six percent of the producers growing fescue-white clover pastures fertilized them. Sixty percent of the high producers, 42 percent of the medium producers and 32 percent of the low producers fertilized fescue-white clover pastures.

Fescue-Lespedeza Pastures

Acreage. Fifty-four percent of all interviewees grew the fescue-lespedeza combination for pastures, as shown in Table XLIII. This combination was grown less by high producers (48 percent) than by low producers (60 percent).

The average acreage of fescue-lespedeza pastures grown by Lawrence County cattlemen was 52.3 acres. High producers grew a few more acres (50.4) than did low producers (40.8 acres).

Fertilization. Of the 54 percent of all interviewees growing fescue-lespedeza, 42 percent made a practice of fertilizing these pastures. Eight percent of the high producers and 16 percent of the low producers did not fertilize fescue-lespedeza pastures.

Lespedeza Pastures

Acreage. Lespedeza was grown by 62 percent of all cattlemen for pasture as shown in Table XLIV. There was little difference

TABLE XLIII

TOTAL ACREAGE OF FESCUE-LESPEDEZA FOR PASTURE PRODUCTION FOR BEEF
HERDS BY ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED,
HIGH, MEDIUM, AND LOW PRODUCERS, BY PERCENTS*

Average Acreage Used for Fescue- Lespedeza Pasture	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
Not grown	46	52	46	40
5-20	11	8	13	12
21-40	15	12	8	24
41-60	14	12	13	16
61-80	4	8	4	0
81-100	5	4	4	8
101-120	4	4	8	0
121-210	1	0	4	0
Total	100	100	100	100
Average Number of Acres for Those Answering	52.3	50.4	67.3	40.8

*Percents are rounded to the nearest whole number.

TABLE XLIV

TOTAL ACREAGE OF LESPEDEZA FOR PASTURE PRODUCTION FOR BEEF HERDS
BY ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS, BY PERCENTS*

Average Acreage Used for Lespedeza Pasture	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
Not grown	38	36	46	32
5-26	45	40	42	56
27-47	11	12	8	12
48-68	5	8	4	0
69-89	1	4	0	0
Total	100	100	100	100
Average Number of Acres for Those Answering	20.5	23.8	21.2	17.3

*Percents are rounded to the nearest whole number.

between high producers (64 percent) and low producers (68 percent) as to the percentage growing lespedeza for pasture.

The average acreage grown by all cattlemen was 20.5 acres. High producers grew 23.8 acres, medium producers 21.2 acres and low producers 17.3 acres.

Fertilization. Cattlemen growing lespedeza were equally divided with 31 percent fertilizing and 31 percent not fertilizing. Only a slight difference was noted between high producers (32 percent) that did not fertilize and low producers (36 percent) that did not fertilize.

VI. USE AND MANAGEMENT OF EQUIPMENT AND FACILITIES

Restraining Equipment

A surprisingly large number of cattlemen (23 percent) had no restraining equipment as shown in Table XLV. Interestingly enough, twice as many low producers (32 percent) had no restraining equipment as high producers (16 percent).

The loading chute seemed most essential to cattlemen, with 49 percent reporting this as the only item of restraining equipment. Forty percent of the high producers and 52 percent of the low producers indicated that the loading chute was their only item of restraining equipment.

Fifteen percent of the cattlemen had a loading chute, corral and headgate in workable condition. Twenty-eight percent of the high

TABLE XLV

TYPES OF RESTRAINING EQUIPMENT IN WORKABLE CONDITION USED BY ALL
LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS, BY PERCENTS*

Types of Restraining Equipment	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
None	23	16	21	32
Loading chute	49	40	54	52
Loading chute, cor- ral, and headgate	15	28	13	4
Loading chute and headgate	12	16	8	12
Loading chute and corral	1	0	4	0
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

producers and 4 percent of the low producers had these pieces of restraining equipment.

Twelve percent of the producers had a loading chute and headgate in working condition. There was only a slight difference between high (16 percent) and low producers (12 percent) having both a loading chute and headgate.

Silos

Few producers had silos for their beef cattle operation. Only 12 percent of all interviewees had silos of any kind. Twenty percent of the high, 16 percent of the medium and no low producers had silos.

Overall, trench silos (5 percent) were only slightly more popular than upright silos (4 percent) of all interviewees having one kind. Three percent of the cattlemen interviewed had both trench and upright silos.

Nature of Shelter Provided

Shelter of some type was provided on 95 percent of the interviewees' farms. Fifty-eight percent of the cattlemen provided year-round shelter and 37 percent provided shelter in the winter season only.

All high producers provided shelter for their cattle, with 60 percent providing year-round shelter and 40 percent providing winter shelter. Ninety-six percent of the low producers provided shelter for their cattle, with 68 percent providing year-round shelter and 28 percent providing winter shelter.

Other Types of Equipment and Facilities

Used backrubbers. Twenty-three percent of all interviewees had and used backrubbers to assist in insect control. Forty-four percent of the high producers used backrubbers, while only 16 percent of the low producers used them.

Sources of water. The supply of water for beef herds on all interviewees' farms came from several sources. It is shown in Table XLVI that 38 percent of all interviewees had both ponds and streams to supply water. Twenty-one percent had ponds only. Sixteen percent of all interviewed had water in the barn in addition to one or more other sources.

High producers (32 percent) more often had ponds than did low producers (12 percent). High producers (20 percent) had water in the barn more often than did low producers (12 percent). On the other hand, low producers (32 percent) more frequently had water sources just outside the barn than did high producers (8 percent).

VII. INTERVIEWER'S OPINION OF THE STAGES OF THE ADOPTION PROCESS INTO WHICH ALL CATTLEMEN WOULD FALL

At the beginning of this chapter (Table XXVII, page 58), management level ratings were reported according to the average score made on production practices found in the interview schedule. This rating was as follows: all cattlemen, 2.75; high producers, 2.97; and low producers, 2.62.

TABLE XLVI

PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM,
AND LOW PRODUCERS, ACCORDING TO SOURCES OF WATER FOR THE HERDS

Sources of Water for Herd	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
Pond and stream	38	36	41	36
Pond	21	32	21	12
Water in barn and one or more other	16	20	17	12
Water outside barn and one or more other	14	8	0	32
Stream	11	4	21	8
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

Table XLVII shows the interviewer's opinion of stages of the adoption process represented by Lawrence County cattlemen. This judgement was made after the farmer interview had been completed. By applying the same rating system on these judgements, as was used on the practice check-list, comparable averages were obtained. In the interviewer's opinion (Table XLVII) all Lawrence County cattlemen had an average rating of 2.5. High producers rated an average of 2.9 while medium and low producers were lower with a rating of 2.3.

TABLE XLVII

INTERVIEWER'S OPINIONS OF STAGES OF THE ADOPTION PROCESS REPRESENTED
 BY ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM,
 AND LOW PRODUCERS, IN TERMS OF CERTAIN RECOMMENDED
 BEEF PRACTICES BY PERCENTS AND AVERAGE RATINGS

Stage in Adoption of New Beef Manage- ment Practices	All Interviewees Percent (N=74)	High Producers Percent (N=25)	Medium Producers Percent (N=24)	Low Producers Percent (N=25)
Among the last few (1 point)	21	12	29	20
A little later than most (2 points)	28	20	21	44
Sooner than average (3 points)	34	40	37	24
Sooner after the first few (4 points)	14	20	13	12
Among the first few (5 points)	3	8	0	0
Total	100	100	100	100
Average Rating	2.5	2.9	2.3	2.3

*Percents are rounded to the nearest whole number.

CHAPTER III

SUMMARY

Since beef cattle have long been an important livestock enterprise in Lawrence County, and since little specific or detailed data was available on management practices of beef producers, an interview schedule was completed and analyzed on 74 randomly selected cattlemen. This was done in an attempt to determine the extent to which recommended production practices were being used by high, medium, and low producers.

Cattlemen were specifically questioned concerning 31 recommended beef management practices. Management practice diffusion ratings were given that ranged from 0, "unaware," to 5, "using." Average practice diffusion ratings were established for each producer, for all cattlemen, and for each production level.

Management practice diffusion scores were used to compare producers on: (1) management levels; (2) breeding practices; (3) calving practices; (4) feeding practices; (5) pasturing and grazing practices; (6) parasite control practices; (7) vaccinating practices, and (8) other practices.

Additional management information was obtained from the interview that related to breeding, feeding, calf management, marketing, pastures, hays, equipment and facilities.

The interviewer's opinion of practice adoption among Lawrence County cattlemen was compared with the score derived from the practice check list.

I. REVIEW OF FINDINGS

Reported below are the major differences found to exist between high and low producers as far as the use of certain recommended and recognized management practices are concerned:

1. High producers had a higher management level rating (2.97) than did low producers (2.62).

2. High producers, without exception, had higher practice diffusion ratings on 7 management practices related to breeding. Diffusion ratings were markedly larger for high producers on the breeding management practices of: (1) using a system for identifying each breeding female (high producers, 2.80 and low producers, 2.04), and (2) using a pasture area for bulls during off-breeding season (high producers, 2.64 and low producers, 1.88).

3. High producers rated higher in 3 out of 4 practices related to calving and identification. Diffusion ratings in favor of high over low producers in all three practices were pronounced. They were as follows: (1) arranging to have competent help available when calving difficulties occur (high producers, 4.80 and low producers, 4.08); (2) checking of older cows at least once a day during calving season (high producers, 4.64 and low producers, 3.76), and (3) using a

system of permanently identifying calves (high producers, 2.72 and low producers, 1.80).

4. On management practices related to feeding, high producers rated above low producers in 3 out of 5 practices. A marked difference in the diffusion ratings was noted on the practice of keeping replacement heifers separate from the rest of the breeding herd during winter. High producers (3.71) had a larger average rating than did low producers (2.58).

5. High producers (an average rating of 4.08) were slightly more inclined to follow a systematic rotational grazing program than did low producers (an average rating of 3.60). Low producers (rating of 2.92) were somewhat ahead of high producers (rating of 2.16) in providing supplementary grazing during the summer months.

6. On practices relating to the control of internal and external parasites, high producers had higher diffusion ratings in 3 out of 4 recommended practices. The two practices showing the widest spread in diffusion ratings were: (1) following recommended fly control practices (high producers, 4.40 and low producers, 3.32) and (2) following lice control practices (high producers, 3.36 and low producers, 2.72).

7. High producers (3.92) rated better on vaccinating calves for blackleg and malignant edema than did low producers (3.00). While all interviewees rated very low on vaccinating cows and heifers for leptospirosis, high producers (0.84) only slightly were more aware that such a disease existed than were low producers (0.48).

8. Six practices were grouped as other recommended practices.

High producers rated better in 4 out of 6 of these. Practices showing the greatest spread in diffusion ratings were: (1) following recommended practices in dehorning (high producers, 4.33 and low producers, 3.53) and (2) using and appropriately maintaining an adequate system of working pens, lots and restraining equipment (high producers, 3.00 and low producers, 1.84).

9. High producers kept a larger number of females of breeding age (29.4) than did low producers (17.5). High producers reported all cows bred to calve, whereas, low producers average 2 cows not bred.

10. High producers more often did not keep heifers than was true for low producers.

11. High producers reported .8 of a calf lost from a comparison of the number of females of breeding age to the number of calves born. Low producers showed a loss of 3.1 calves on the same basis. Expressed as a calving percentage, high producers reported 97 percent and low producers 83 percent.

13. High producers lost one calf from birth to weaning, whereas low producers lost 1.6 calves from birth to weaning. These losses reported positively would mean a weaning percentage of 97 percent and 89 percent, respectively for high producers and low producers.

13. Calf losses reported in number 11 and 12 become even more significant when they are combined. High producers lost 1.8 calves from the potential number of females of breeding age to the actual

number of calves weaned. Low producers' losses in the same time period were 4.7 calves.

14. High producers reported a larger total number: (1) females of breeding age; (2) females bred to calve; (3) calves born; (4) calves raised to weaning; (5) calves marketed; (6) tons of legume hay grown; (7) tons of grass hay grown; (8) tons of grass-legume hay grown, and (9) acres of all kinds of pasture grown.

15. Low producers were more inclined to sell calves at the farm than were high producers. High producers used the combination of the stockyard and farm sales more than low producers.

16. High producers sold calves that weighed an average of 206 pounds more than low producers' calves.

17. High producers received an average of 1.4 cents per pound more than low producers for all calves sold.

18. Twice as many high producers were creep feeding calves as low producers.

19. Twenty percent more low producers were buying concentrates than were high producers.

20. High producers bought less legume hay (6.0 tons) than did low producers (10.3 tons).

21. High producers were more inclined to fertilize all kinds of pastures than were low producers.

22. Restraining equipment was found on high producers' farms more often than on low producers' farms.

23. Backrubbers were found on 28 percent more high producers' farms than low producers' farms.

24. The interviewer's opinion of the management level of high and low producers was fairly consistent with the total average rating calculated on 31 practices in the interview schedule.

II. IMPLICATIONS

The findings of this study appear to provide a basis for the following statements:

1. A definite relationship existed between high production and the stage of adoption of recommended practices studied. Therefore, different educational plans should be made to teach high and low producers, perhaps separately.

2. Data from this study would tend to indicate that any Lawrence County educational program designed for the low producers should include information and instruction on practices that would: (1) cut down on calf losses due to non-breeding, insufficient care at calving and insufficient care from birth to weaning; (2) increase selling weights of calves; (3) increase quality of calves; (4) increase use of better markets; (5) increase use of fertilizer on pasture and hay crops; (6) increase size of cattle operation, and (7) encourage the construction and use of better equipment and facilities.

3. Lawrence County cattlemen were generally aware of recommended practices, however additional educational efforts are needed to increase practice adoption.

4. An additional analysis of data available should be made to determine why recommended practices have not been adopted by a larger number of producers in all production groups.

PROBLEM C:

FACTORS INFLUENCING BEEF MANAGEMENT PRACTICE ADOPTION

BY LAWRENCE COUNTY BEEF PRODUCERS

CHAPTER I

INTRODUCTION

The agricultural trends of Lawrence County have in general followed patterns similar to those of other counties in Tennessee. The number of farms has decreased from 3200 in 1954 to 2142 in 1964 (2:2).* Farm size has tended to increase. During the past several years, many farmers have found employment in industry, and a considerable number of these people have continued to farm "part-time."

Beef cattle has played an increasingly important role in the changing farm situation. In the 5-year period from 1959 to 1964, cattle numbers in Lawrence County increased from 16,495 to 26,840 (15:352-53). In 1964 beef cattle accounted for 13.5 percent of the total gross agricultural income (2:3).

With the beef enterprise increasing in size and importance, it has been necessary to re-evaluate the amount of time apportioned by County Extension personnel to educational activities related to this enterprise. Primary emphasis in the past to the beef enterprise has been centered in youth work, registered breed sales and feeder calf sales. With the exception of youth work, educational activities directed strictly toward the beef cattle area have been of minor importance. As a result, no formal attempts have been made to determine

*Numbers in parenthesis refer to numbered references in the Bibliography; those after the colon are page numbers.

what recommended practices have been used by beef cattle producers or what the reasons might have been that influenced them to adopt or not adopt recommended practices.

I. THE PURPOSE OF THE STUDY

The purpose of this study was to find out what factors influenced Lawrence County beef producers to adopt or not to adopt certain recommended management and production practices.

II. REVIEW OF LITERATURE

Rogers defines the adoption process as a mental process through which an individual passes from first hearing about an idea to final adoption. (10:401).

Leuthold states that 5 stages are widely used and recognized in the adoption process. These are: (1) awareness--the initial cognition of an idea; (2) interest--developing an interest in and seeking additional information about the innovation; (3) evaluation--the assessment of the innovation as applied to the farmer's own situation; (4) trial--the initial application of the innovation on a limited or probationary basis; and (5) adoption--the continued and full use of the innovation. (6:3)

According to Rogers, 7 characteristics of the farm practice influence its rate of adoption. These are: (1) cost--a practice that is high in cost generally tends to be adopted more slowly; (2) complexity--new ideas that are simple to understand and use will be

accepted more quickly; (3) visibility--a new practice that is visible and showy will generally be adopted more quickly; (4) divisibility--practices that can be tried on a small scale will be adopted more rapidly; (5) compatibility--a farmer's attitudes and values toward a new idea are likely to affect the rate of adoption of that practice; (6) utility--the new practice must be viewed as an improvement over existing methods; and (7) group action--some new ideas require group adoption. (10:403-5)

Past research findings indicate that mass media sources are most important at creating awareness of a new idea. Personal influence from friends, family and neighbors is most important at the evaluation stage. Extension workers and other government agency employees are generally most important at the interest and evaluation stages. Commercial salesmen and dealers are generally influential at the trial stage in the adoption process. (10:406-7)

Adoption leaders are more likely to: (1) make greater use of impersonal and more technically accurate sources of information; (2) read more farm magazines; (3) be more technologically competent; (4) have a greater degree of social participation; (5) live on larger farms; (6) have above average farm incomes; and (7) have more formal education. (10:416)

III. METHODS

An interview schedule (see Appendix) was completed with 75 farmers randomly selected from a list of 172 beef producers. This

producer list was compiled from the results of a letter survey mailed to 433 persons having livestock in Lawrence County. The interview schedule was completed in most cases on the farm of the person being interviewed. Several questions were designed to secure information that would give some indication of why producers were or were not using recommended production practices.

Producers were divided into the production categories of high, medium and low, according to the pounds of beef sold per cow bred. The high and low groups each consisted of 25 interview schedules. The medium group consisted of 24, since one farmer interviewed had not sold any cattle in the past year.

Results of this study are reported in percents and averages are given where appropriate.

CHAPTER II

FINDINGS

I. PLANS FOR FUTURE HERD MANAGEMENT

Each producer was asked what plans he had for the future management of his beef herd, including 31 specific practices outlined in the interview schedule (see Appendix). Table XLVIII shows the percent of producers who planned to use one or more of the 31 management practices that they were not presently using.

To prevent a distorted picture of the producers, it should be pointed out that the category of "no plans" could mean that they were already using a high percentage of the practices in question.

As shown in Table XLVIII, 23 percent of the producers planned to use at least one of the recommended practices. It was a little surprising to see that 32 percent of the low producers and 24 percent of the high producers planned to use at least one practice.

Twenty-two percent of all interviewees planned to use at least two practices. Twice as many high producers (24 percent) planned to use two practices as low producers (12 percent).

Fifteen percent of all interviewees planned to use at least 5 or more practices. Here again, low producers (16 percent) out-ranked high producers (8 percent) in planning to use 5 or more recommended practices.

All producers planned to use an average of 1.72 recommended management practices. Low producers planned to use an average of 1.92

TABLE XLVIII

PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS, ACCORDING TO PLANS FOR
MAKING USE OF MANAGEMENT PRACTICES

Number of Practices Producers Plan To Use	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
No plans for using practices	37	40	38	32
Plans to use at least one practice	23	24	13	32
Plans to use at least two practices	22	24	29	12
Plans to use at least three practices	2	4	0	4
Plans to use at least four practices	1	0	0	4
Plans to use at least five or more practices	15	8	20	16
Total	100	100	100	100
Actual average	1.72	1.32	1.91	1.92

*Percents are rounded to the nearest whole number.

practices, and high producers planned to use an average of 1.32 practices.

II. REASONS FOR NOT HAVING MANAGEMENT PLANS

Producers, who had no plans for the future management of his herd, were asked to give reasons why they had no plans. Listed in Table XLIX are the reasons given by those not having plans.

The 3 most frequently given reasons were: (1) handicapped by age; (2) satisfied with present operation; and (3) beef only a side-line enterprise. Sixty-nine percent of all cattlemen had some type of plans for future herd management.

Twelve percent of the low producers were satisfied with their present operation, while none of the high producers gave this as a reason for not having management plans. Eight percent of the high producers listed lack of time and desire as a reason for no future plans.

III. REASONS FOR NOT USING RECOMMENDED

BEEF PRODUCTION PRACTICES

Included in the interview schedule was one question which asked of the farmers, reasons for not using recommended beef production practices. Shown in Table L are a variety of reasons given by the farmers for not using recommended practices.

The three major reasons given by all interviewees were lack of time and labor (18 percent), small margin of profit (16 percent) and lack of technical knowledge (15 percent). Twelve percent did not think

TABLE XLIX

PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM,
AND LOW PRODUCERS, MENTIONING REASONS FOR NOT HAVING
ANY MANAGEMENT PLANS

Reason For Not Having Any Plans	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Not answered (had plans)	69	80	50	76
Getting old and age is a handicap	8	0	21	4
Satisfied with present operation	5	0	4	12
Beef is a sideline to the other family enterprise	5	0	13	4
Lack of time and desire	4	8	4	0
Getting out of business	3	4	4	0
Physically unable	3	4	4	0
Lack of workers	3	4	0	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE L

REASONS FOR NOT USING RECOMMENDED BEEF PRODUCTION PRACTICES ACCORDING
TO ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS, BY PERCENTS*

Reason For Not Using Recommended Practices	All Interviewees- Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None given	1	4	0	0
Lack of time and/or labor	18	16	8	28
Small margin profit	16	12	4	32
Lack of technical knowledge	15	28	8	8
Do not think recommended practices are necessary	12	8	21	12
Limited capital and/or land	11	8	17	8
Lack of interest	11	4	25	4
Neglect	7	4	13	4
Lack of adequate facilities	6	12	4	0
More rewarding activities claim owner's time and money	3	4	0	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

the use of recommended practices were necessary.

The lack of time and labor was the reason given by 16 percent of the high producers and 28 percent of the low producers. A small margin of profit was the reason given by 12 percent of the high producers and 32 percent of the low producers. The lack of technical knowledge was given by 28 percent of the high producers and 8 percent of the low producers. Twelve percent of the low producers compared to 8 percent of the high producers thought the use of recommended practices unnecessary. Twelve percent of the high producers thought the lack of adequate facilities was a major reason for not using recommended practices.

IV. THINGS LIKED MOST ABOUT BEEF PRODUCTION

Producers were asked what they liked most about being in the beef cattle business. Table II shows that 50 percent of all producers liked the low labor requirement. Other important "likes" in order of frequency mentioned were: (1) like to work with cattle (17 percent); (2) can utilize rough pasture (12 percent); and (3) more time for other jobs (8 percent).

Differences in high and low producers were apparent in three or four items. The "like" of requiring less labor was named by 64 percent of the high producers and 36 percent of the low producers. Twenty percent of the low producers mentioned that beef cattle could utilize rough pasture, while only 8 percent of the high producers named this

TABLE LI

PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS, MENTIONING THINGS THEY LIKE
MOST ABOUT BEEF CATTLE PRODUCTION SYSTEMS

Things Liked Most About Beef Production	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Require less labor	50	64	51	36
Like working with cattle	17	16	21	16
Can utilize rough pasture	12	8	4	20
More time for other jobs	8	8	8	8
No milking	6	0	0	16
Income from cattle	4	0	8	4
Beef utilize soil building crops	1	0	4	0
Cost less	1	4	0	0
Other	1	0	4	0
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

as a favorite "like." Low producers (16 percent) liked the fact that no milking was required with beef cattle.

V. THINGS DISLIKED ABOUT BEEF PRODUCTION

Also, producers were asked to express their major dislike with producing beef cattle. Shown in Table LII are the numerous dislikes expressed by Lawrence County producers. The most common dislike voiced can be covered by "management problems" (32 percent), which includes breeding, calving, diseases, etc. Low income was a dislike mentioned by 20 percent of all interviewees. Sixteen percent of all interviewees had no dislikes and were happy with beef cattle as an enterprise. Caring for cattle in cold weather was named by 16 percent of the producers as a major dislike.

Eight percent more of the low producers expressed the "dislike" of management problems than did high producers. High producers (20 percent) were more inclined not to have dislikes and be happy with beef cattle than were low producers (12 percent). More high producers (24 percent) disliked caring for cattle in cold weather more than did low producers (12 percent). High producers (12 percent) expressed displeasure with watching fences more often than did low producers (4 percent).

VI. ADVICE SOUGHT

In reply to the question of whether or not producers had talked to anyone concerning their beef cattle operation, it is shown in Table

TABLE LII

PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS, MENTIONING THINGS THEY DISLIKED
MOST ABOUT BEEF CATTLE PRODUCTION SYSTEMS

Things Disliked Most About Beef Production	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Management Problems (breeding, calving, etc.)	32	20	46	28
Low income per head	20	24	8	28
Happy with it- no dislikes	16	20	17	12
Caring for cattle in cold weather	16	24	13	12
Watching fences	8	12	8	4
Others (lack of time, too confining, too old)	4	0	0	12
Income only once a year	4	0	8	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

LIII that 96 percent replied in the affirmative. It was somewhat unusual to find that 4 percent had not talked to anyone. Also, it was surprising to find that more of the high producers (8 percent) had not talked to anyone than low producers (4 percent).

VII. INDIVIDUAL SOURCES OF MANAGEMENT ADVICE

Producers were asked to reply as to whether or not they had talked with certain individuals about beef production. The replies are shown in Table LIV. The persons from whom advice was most often sought were neighbors or friends (94 percent), local veterinarian (76 percent), cattle buyer (49 percent), feed dealer (46 percent), Extension personnel (34 percent) and banker or P. C. A. representative (15 percent).

Differences were observed between high and low producers as to individual sources of information. Low producers more often talked with cattle buyers, feed dealers and lending agency representatives. High producers (60 percent) were more likely to talk with Extension employees than were low producers (24 percent).

All producers averaged talking with 3.4 individuals about their beef cattle operation. There was little difference between any of the production categories in the number of individuals from whom advice was sought.

VIII. DEGREE TO WHICH INTERVIEWER KNEW CATTLEMEN

Forty-six percent of all cattlemen interviewed were known at least to some degree by the interviewer (Table LV). Only 27 percent

TABLE LIII

PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS, ACCORDING TO WHETHER THEY
TALKED TO ANYONE ABOUT BEEF CATTLE OPERATION,
PRODUCTION AND MARKETING

Talked to Anyone or Not	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	High Producers Percent (N = 25)
Yes	96	92	100	96
No	4	8	0	4
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

TABLE LIV

PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH,
MEDIUM, AND LOW PRODUCERS, BY FREQUENCY WITH WHICH THEY
REPORTED HAVING SOUGHT ADVICE CONCERNING BEEF
PRODUCTION OF CERTAIN INDIVIDUALS**

Persons From Whom Advice Was Sought	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	4	8	0	4
Neighbor or friend (cattlemen)	94	92	100	92
Local veterinarian	76	68	96	64
Cattle buyer	49	40	50	56
Feed dealer or salesman	46	32	15	60
Extension personnel	34	60	17	24
Banker or PCA representative	15	8	17	20
Artificial breeding technician	8	4	13	8
Vo-Ag teacher	8	8	13	4
Equipment dealer	6	4	13	0
Breed Association Fieldman	3	4	4	0
Average number of individuals giving advice	3.4	3.2	3.7	3.3

*Percents are rounded to the nearest whole number.

**Percents add up to more than totals since some cattlemen reported two or more sources.

TABLE LV

DEGREES TO WHICH INTERVIEWER KNEW ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS*

Degree to Which Interviewer Knew Respondent	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Very well	15	20	4	20
Fairly well	12	24	4	8
Not very well	19	16	25	16
Not at all	54	40	67	56
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

were considered as being known "fairly well" or very well." Sixty percent of the high producers were known at least to some degree, while only 44 percent of the low producers were known at all. Forty-four percent of the high producers and 28 percent of the low producers were known at least "fairly well."

IX. OTHER SOURCES OF BEEF MANAGEMENT INFORMATION

A number of other information sources were used by cattlemen in addition to individuals. Table LVI shows that producers used farm magazines, radio, university publications, television, commercial feed bulletins, newsletters, and newspapers in that order for additional management information.

Major differences between high and low producers as to other information sources used were apparent. High producers were more likely to use university bulletins, commercial feed bulletins, newsletters, farm meetings and field days or tours than were low producers. Low producers used more often the sources of radio and daily newspaper than did high producers.

All interviewees used an average of 3.2 additional sources of information. High producers (3.8) used a slightly larger number of additional information sources than did low producers (3.1).

X. INTEREST IN MANAGEMENT IMPROVEMENT

Table LVII shows that in the interviewer's opinion 67 percent of all interviewees showed some interest in improving the management

TABLE LVI

PERCENTS* OF ALL LAWRENCE COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS, BY FREQUENCY WITH WHICH THEY REPORTED RECEIVING INFORMATION USEFUL IN MANAGEMENT OF THEIR BEEF HERDS FROM DIFFERENT SOURCES DURING THE PAST YEAR**

Sources of Useful Information	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
None	5	8	4	8
Farm magazine	77	80	70	84
Radio	58	48	65	64
University bulletins and publications	32	48	21	28
Television	31	32	30	32
Commercial (feed company) bulletins	30	40	25	24
Newsletter	27	44	4	20
Daily newspaper	22	16	21	28
Weekly newspaper	22	24	17	24
Farm meetings	11	16	13	4
Field days and tours	11	24	8	0
Actual number of information sources used	3.2	3.8	2.8	3.1

*Percents are rounded to the nearest whole number.

**Percents add up to more than totals since some cattlemen reported two or more sources.

TABLE LVII

INTERVIEWER'S JUDGEMENT OF THE INTEREST OF ALL LAWRENCE COUNTY
CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS, IN
IMPROVING THE MANAGEMENT OF BEEF HERDS, BY PERCENTS*

Degree of Interest	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Very interested	12	16	8	12
Somewhat interested	50	60	43	48
Indifferent	18	12	20	20
Not interested	20	12	29	20
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

of beef herds. The remaining were either indifferent (18 percent) or not interested (20 percent).

Seventy-six percent of the high producers and 60 percent of the low producers showed some interest in beef management improvement. The remaining high producers were evenly divided between indifferent (12 percent) and not interested (12 percent), as were the low producers (20 percent indifferent and 20 percent not interested).

XI. NEED FOR ADDITIONAL ATTENTION TO BEEF HERD MANAGEMENT

One of the judgement questions completed by the interviewer was "should the respondent pay more attention to the management of his beef herd"? It is shown in Table LVIII that, in the interviewer's judgement, 100 percent of all cattlemen could benefit by paying more attention to the management details of beef production.

TABLE LVIII

INTERVIEWER'S OPINION OF WHETHER OR NOT ALL LAWRENCE COUNTY CATTLEMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS, SHOULD PAY MORE
ATTENTION TO THE MANAGEMENT OF BEEF HERDS
BY PERCENTS*

Should More Attention Be Given to Beef Herd Management	All Interviewees Percent (N = 74)	High Producers Percent (N = 25)	Medium Producers Percent (N = 24)	Low Producers Percent (N = 25)
Yes	100	100	100	100
No	0	0	0	0
Total	100	100	100	100

*Percents are rounded to the nearest whole number.

CHAPTER III

SUMMARY

Lawrence County beef production patterns have changed as have many other areas of agriculture. As the number of part-time farmers have increased, so have beef cattle numbers. Beef cattle numbers in Lawrence County increased by 63 percent from 1959 to 1964.

With increased numbers of beef cattle, increased educational emphasis on beef management by County Extension personnel was indicated. With this thought in mind, this study was conducted in an attempt to determine what factors influence beef producers to adopt or not to adopt recommended beef production practices. An interview schedule was completed and analyzed on 74 randomly selected beef producers. Information was sought which would: (1) indicate plans for future adoption of recommended practices; (2) give reasons for not having management plans; (3) tell why recommended practices were not used; (4) specify their likes and dislikes with beef cattle; and (5) indicate sources of management information or advice.

I. REVIEW OF FINDINGS

The statements which follow summarize briefly the results of an effort made to determine what factors influence, high, medium, and low producers to adopt or not to adopt certain recommended practices:

1. Of 31 recommended practices, about which producers were questioned, low producers (1.9) had plans to adopt slightly more

practices not being used than did high producers (1.3).

2. The reasons mentioned most often by all interviewees for not having management plans were handicapped by age, satisfied with present operation and beef production is just a sideline. There were no high producers that gave "satisfied with present operation" as a reason. Twelve percent of the low producers named this reason. Lack of time and desire was mentioned by 8 percent of the high producers.

3. High and low producers differed somewhat in the major reasons given for not using recommended practices. Sixteen percent of the high producers named lack of time and labor, while 28 percent of the low producers gave this reason. A small margin of profit was named by 12 percent of the high producers and 32 percent of the low producers. High producers (28 percent) were more aware of the lack of technical knowledge than were low producers (8 percent).

4. Recognizable differences were apparent between high and low producers as to the things they liked most about beef production. Sixty-four percent of the high producers and 36 percent of the low producers named the item of less labor. Low producers (20 percent) liked beef cattle because they could utilize rough pasture, while only 8 percent of the high producer named this item. Sixteen percent of the low producers named "no milking" as the thing liked most.

5. Low producers (28 percent) disliked management problems more than high producers (20 percent). More high producers (20 percent) were happier with beef cattle than were low producers (12 percent). More high producers (24 percent) disliked caring for cattle in cold weather

to a greater extent than did low producers (12 percent). More high producers expressed displeasure with watching fences than did low producers.

6. As to individuals from whom information and advice was sought, low producers favored cattle buyers, feed dealers and lending agency representatives. High producers were more inclined to seek advice from County Extension agents and other Extension employees.

7. Sources of additional management information most often used by all cattlemen were, in order of importance, farm magazines, radio, university publications, television, commercial feed bulletins, newsletters and newspapers. High producers used university publications, commercial feed bulletins, newsletters, farm meeting and field days or tours more than did low producers. Low producers used, more often than high producers, the radio and daily newspaper.

II. IMPLICATIONS

The findings of this study seem to support the following implications:

1. Any educational effort to improve management practices, particularly of low producers, would need to: (1) "shock" them out of the lethargic condition of being satisfied with their present operation; (2) make them aware that they need to acquire some additional technical knowledge, and (3) show that there is a connection between the use of recommended management practices and higher income.

2. With management problems heading the list of dislikes (32 percent of all cattlemen), educational programs should be geared to deal with these problems first.

3. Since low producers often seek information from cattle buyers, feed dealers and lending agency representatives, Extension programs should exhaust all available means to keep these people correctly and adequately informed as to approved production practices.

4. Farm magazines were the most often used source of additional management information. This being the case, Extension specialists should seek and use every opportunity to provide timely and informative articles for farm magazines.

5. Radio and newspapers rated very high among all producers as a source of information. Low producers used these sources more than high producers. Therefore, Lawrence County Extension personnel should consider this information when preparing releases for these two news media. Also, timely and pertinent articles written by specialists should be appropriately used at the county level.

6. Information gained from this and two related studies should be used as a guide in preparing plans for teaching beef production management principles and practices to cattlemen in Lawrence County.

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THE AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE
Knoxville, Tennessee

TENNESSEE BEEF CATTLE PRODUCTION SURVEY

INTRODUCTION: I am working on a survey to assist the County Extension Staff in making plans to give more help to beef cattle producers in production and management practices. The answers you give will be confidential and will be added to those given by other beef cattlemen who are being interviewed in this county. We hope to get an over-all picture of the beef production situation last year. Could I have a small portion of your time to go over these questions?

1. Total acres in farm _____ Cropland acres _____
2. Major occupation of the respondent
 - a. Full-time farmer _____
 - b. Part-time farmer _____
 - c. Business (specify) _____
 - d. Professional (specify) _____
 - e. Wage earner _____
 - f. Housewife or widow _____
 - g. Retired _____
 - h. Other (specify) _____
3. Is beef production your major source of income?
 - a. Yes _____
 - b. No _____
4. If your answer to question 3 above is NO, what is your major source of income? _____
5. Would you please complete this sentence? (Hand respondent card)

"The thing I like most about beef production is _____

TO THE INTERVIEWER: If the respondent mentions more than one thing, write down all of them, and ask him "which is most important?" Then underscore it.

6. Would you please complete this sentence? (Hand respondent card)

"The thing I dislike most about beef production is _____

TO THE INTERVIEWER: If the respondent mentions more than one thing, write down all of them, and ask him "which is most important?" Then underscore it.

7. How many females of breeding age were in your beef herd last year?
_____ (number)
8. How many of the females were bred to calve last year? _____
(number)
9. How many bulls did you use during the breeding season? _____
(number)
10. How many calves were raised to weaning age in your herd last year?
_____ (number)
11. How many beef cattle in each of the following classifications did you have last year?

	<u>Total</u>	<u>Registered</u>	<u>Grade</u>
a. Beef cows bred	_____	_____	_____
b. Beef heifers over 1 year of age	_____	_____	_____
c. Beef heifers under 1 year of age	_____	_____	_____
d. Beef bulls	_____	_____	_____

12. How many beef cattle in each of the classifications did you have in the following breeds? (Check with question 11 to see totals are the same)

<u>Breed</u>	<u>No. of Cows</u>		<u>No. of Heifers</u>		<u>No. of Bulls</u>	
	<u>Regis.</u>	<u>Grade</u>	<u>Regis.</u>	<u>Grade</u>	<u>Regis.</u>	<u>Grade</u>
a. Angus	_____	_____	_____	_____	_____	_____
b. Hereford (Horned)	_____	_____	_____	_____	_____	_____
c. Hereford (Polled)	_____	_____	_____	_____	_____	_____
d. Shorthorn	_____	_____	_____	_____	_____	_____
e. Other (please specify)	_____	_____	_____	_____	_____	_____

13. Do you now have more, the same or fewer beef cattle than you did last year?

- | | | |
|----------------|---------------------------------|-----------------------|
| a. More _____ | i. If so, how many more? _____ | ii. If so, why? _____ |
| b. Same _____ | i. If so, why? _____ | _____ |
| c. Fewer _____ | i. If so, how many fewer? _____ | ii. If so, why? _____ |

14. How were your heifers bred last year?

- a. Artificially _____ (____no.) b. Naturally _____ (____no.)

	Read or Heard Of		Inter- ested		Plans To Try		Has Tried		Is Using	
	Yes (a)	No (b)	Yes (c)	No (d)	Yes (e)	No (f)	Yes (g)	No (h)	Yes (i)	No (j)
(3) Had herd enrolled in the Tennessee Beef Cattle Improvement Program										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(4) Used separate pasture area for bull(s) during off-breeding season (August through March)										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(5) Waited until replacement heifers were at least 15 months of age and had attained a minimum weight of 650 lbs. before breeding										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(6) Had all herd cows pregnancy checked last year										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(7) Checked herd cows at least twice a day during the breeding season										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										

	Read or Heard Of		Inter- ested		Plans To Try		Has Tried		Is Using	
	Yes (a)	No (b)	Yes (c)	No (d)	Yes (e)	No (f)	Yes (g)	No (h)	Yes (i)	No (j)
(8) Had and used a system for identifying each breeding female in the herd										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(9) Checked first-calf heifers at least 2 or 3 times daily during calving season										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(10) Checked older cows at least once a day during calving season										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(11) Arranged to have competent help available when calving difficulties occurred										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(12) Had and used a system for permanently identifying calves										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(13) Followed recommended procedures in castration										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										

	Read or Heard Of		Inter- ested		Plans To Try		Has Tried		Is Using	
	Yes (a)	No (b)	Yes (c)	No (d)	Yes (e)	No (f)	Yes (g)	No (h)	Yes (i)	No (j)
(14) Followed recommended procedures in dehorning										
(i) Reasons for <u>never trying</u> practice or <u>not using</u> after trying										
(15) Provided access to a recommended mineral mixture for all cattle										
(i) Reasons for <u>never trying</u> practice or <u>not using</u> after trying										
(16) Followed a systematic rotational grazing program										
(i) Reasons for <u>never trying</u> practice or <u>not using</u> after trying										
(17) Provided extra or supplementary grazing for the herd during July, August and September										
(i) Reasons for <u>never trying</u> practice or <u>not using</u> after trying										
(18) Kept cows on good permanent pasture sod until late fall and early winter to reduce winter feed costs										
(i) Reasons for <u>never trying</u> practice or <u>not using</u> after trying										
(19) Kept replacement heifers separate from rest of breeding herd during winter										
(i) Reasons for <u>never trying</u> practice or <u>not using</u> after trying										

	Read or		Inter-		Plans		Has		Is	
	Heard Of		ested		To Try		Tried		Using	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
(20) Fed more or better quality feed to thin cows and cows recently calved than to others										

(i) Reasons for never trying practice or not using after trying _____

(21) Fed brood cows at least 1.5 lbs. of 32-44% protein supplement daily when feeding low quality roughages such as hulls, straw and poor quality grass hay										
---	--	--	--	--	--	--	--	--	--	--

(i) Reasons for never trying practice or not using after trying _____

(22) Fed bulls a concentrate during breeding season while on pasture										
--	--	--	--	--	--	--	--	--	--	--

(i) Reasons for never trying practice or not using after trying _____

(23) Followed recommended fly control practices										
---	--	--	--	--	--	--	--	--	--	--

(i) Reasons for never trying practice or not using after trying _____

(24) Followed recommended lice control practices										
--	--	--	--	--	--	--	--	--	--	--

(i) Reasons for never trying practice or not using after trying _____

(25) Used recommended grub control practices										
--	--	--	--	--	--	--	--	--	--	--

(i) Reasons for never trying practice or not using after trying _____

	Read or Heard Of		Inter- ested		Plans To Try		Has Tried		Is Using	
	Yes (a)	No (b)	Yes (c)	No (d)	Yes (e)	No (f)	Yes (g)	No (h)	Yes (i)	No (j)
(26) Used recommended materials in the control of internal parasites										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(27) Vaccinated all brood cows and replacement heifers for leptospirosis										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(28) Vaccinated all calves for blackleg and malignant edema during nursing period										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(29) Checked cattle for possible trouble at least 3 times per week throughout the year										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										
(30) Had, used appropriately and maintained an adequate system of working pens, lots and restraining equipment										
(i) Reasons for <u>never</u> <u>trying</u> practice or <u>not</u> <u>using</u> after trying										

- (31) Got the advice of professionals in the area of beef production and marketing

Read or Heard Of		Inter- ested		Plans To Try		Has Tried		Is Using	
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)

- (i) Reasons for never trying practice or not using after trying _____

18. During the past year have you talked to anyone about your beef cattle operation (production and marketing)?
a. Yes _____ b. No _____

TO THE INTERVIEWER: If No, skip to question 20. If Yes, ask question 19 first.

19. With whom have you talked? (Check one or more of the following.) If respondent gives names, write them at the side and check list later.)

- | | |
|---|---|
| a. County Agent _____ | g. Cattle buyer _____ |
| b. Assistant or special agent _____ | h. Feed dealer or salesman _____ |
| c. Extension animal husbandman _____ | i. Banker or PCA representative _____ |
| d. Local veterinarian _____ | j. Neighbor of friend (cattleman) _____ |
| e. Artificial breeding technician _____ | k. Equipment dealer _____ |
| f. Vo-Ag teacher _____ | l. Other (specify) _____ |

20. From which of the following other sources did you receive information useful in the management of your beef herd during the past year?

- | | |
|---|-------------------------------|
| a. Univ. bulletins and publications _____ | f. Radio _____ |
| b. Commercial (feed co.) bulletins _____ | g. Television _____ |
| c. Farm magazines _____ | h. Farm meetings _____ |
| d. Daily newspapers _____ | i. Field days and tours _____ |
| e. Weekly newspapers _____ | j. Newsletters _____ |

21. What was the highest grade level that you completed? (Circle one)

0	1 2 3 4 5 6 7 8	9,10,11,12	1 2 3 4	Bachelor's
None	Grade School	H. S.	Col. Underg.	Degree
	Master's	Doctor's		
	Degree	Degree		

22. Age of respondent?

- | | |
|-------------------|---------------------|
| a. Under 25 _____ | d. 45-54 _____ |
| b. 25-34 _____ | e. 55-64 _____ |
| c. 35-44 _____ | f. 65-74 _____ |
| | g. 75 or more _____ |

23. What plans do you have for the future management of your beef herd? (Including 31 practices listed earlier plus any others mentioned.) _____

24. (If respondent says he has no plans in question 23, ask why not.) _____

25. Did you buy any cows last year? a. Yes _____ b. No _____

26. If Yes to question 25, how many? _____ Approximate price per cow?
\$ _____

27. Did you sell any cows last year? a. Yes _____ b. No _____

28. If Yes to question 27, how many? _____ Approximate price per cow?
\$ _____

29. Did you buy any mature bulls last year? a. Yes _____ b. No _____

30. If Yes to question 29, how many? _____ Approximate price per bull?
\$ _____

31. Did you sell any mature bulls last year? a. Yes _____ b. No _____

32. If Yes to question 31, how many? _____ Approximate price per bull?
\$ _____

33. How many heifer calves were dropped last year? _____ (number)

34. How many were kept as replacement heifers? _____ (number)
_____ (Av. weight per heifer)

35. How many total calves were dropped last year? _____ (number)

36. How many total calves were sold last year? _____ (number)
_____ (total weight sold) _____ (average weight per calf sold)
_____ (average price received per pound)

37. Where and about how many calves did you market last year?

- a. At the farm _____ (number) d. Special stock sale _____ (number)
b. Stockyards _____ (number)
c. Organized feeder sales _____ (number) e. Other _____ (number)

38. What kinds and amounts of pasture did you have? Did you fertilize?

- a. Orchardgrass-white or Ladino clover _____ (acres)
(i) Fertilized _____ (ii) Did not fertilize _____
- b. Fescue-white or Ladino clover _____ (acres)
(i) Fertilized _____ (ii) Did not fertilize _____
- c. Orchardgrass alone _____ (acres)
(i) Fertilized _____ (ii) Did not fertilize _____
- d. Fescue alone _____ (acres)
(i) Fertilized _____ (ii) Did not fertilize _____
- e. Fescue-Lespedeza _____ (acres)
(i) Fertilized _____ (ii) Did not fertilize _____
- f. Lespedeza _____ (acres)
(i) Fertilized _____ (ii) Did not fertilize _____
- g. Woodland _____ (acres)
- h. Other (specify) _____ (acres)
_____ (acres)
(i) Fertilized _____ (ii) Did not fertilize _____
- i. Total (check to see others add to total) _____ acres

39. What kinds and amounts of hay did you grow or purchase for your cow herd?

- a. Legume _____ (tons grown) _____ (tons purchased)
b. Grass _____ (tons grown) _____ (tons purchased)
c. Legume-grass _____ (tons grown) _____ (tons purchased)

40. What kinds and amounts of silage did you grow or purchase for your cow herd? Was it fed?

- a. Corn (tons grown) (tons purchased) (tons fed)
b. Grass (tons grown) (tons purchased) (tons fed)
c. Other (kind) (tons grown) (tons purchased)
(tons fed)

41. What sources of water do you have for your herd?
 a. Water in barn____ b. Water outside barn____ c. Pond____
 d. Stream____ e. Other (specify____)____
42. What kinds and amounts of concentrates did you purchase and feed last year?
 a. C.S.M.____(lbs.)
 b. S.B.O.M.____(lbs.)
 c. Other (specify____)____(lbs.)
43. Did you creep feed calves last year? a. Yes____ b. No____
44. If yes to question 43 above, what was your creep ration? (grains used)_____
45. Did you use feed additives last year? a. Yes____ b. No____
46. If yes to question 45 above, what kind and amount?
 a. Kind_____ b. Amount_____
47. Which of the following items do you have in workable condition?
 a. Upright silo____ d. Chutes and corrals____ g. Scales____
 b. Trench silo____ e. Heat gate____ h. Backrubber____
 c. Other silo____ f. Squeeze chute____ i. Shelter for herd____
48. For how much of the year do you provide shelter for your herd?
 a. Year-round____ b. Winter only____ c. None____
49. Cattlemen very often are known not to use recommended beef production practices. Why do you believe they do not use better practices? (Circle most important reason.)

50. (OPTIONAL) Above what was your total gross family income last year? (Hand card to respondent and ask him to select a category.)
- | | | | |
|------------------|-------|------------------|-------|
| a. 0-1999 | _____ | i. 16,000-17,999 | _____ |
| b. 2,000-3,999 | _____ | j. 18,000-19,999 | _____ |
| c. 4,000-5,999 | _____ | k. 20,000-21,999 | _____ |
| d. 6,000-7,999 | _____ | l. 22,000-23,999 | _____ |
| e. 8,000-9,999 | _____ | m. 24,000-25,999 | _____ |
| f. 10,000-11,999 | _____ | n. 26,000-29,999 | _____ |
| g. 12,000-13,999 | _____ | o. 30,000-49,999 | _____ |
| h. 14,000-15,999 | _____ | p. 50,000-99,999 | _____ |

Name of Respondent_____ Addresss_____ County_____
 Date_____ Number_____ Tenure Status_____

VITA

BORN: November 1, 1937 to Duncan B. and Annie Bell Matthews, a son, James T. Matthews at Columbia, Tennessee.

ELEMENTARY AND HIGH SCHOOL EDUCATION: Attended Mynders at McCains, Tennessee; Whitthorne, Junior High, and Central High School at Columbia, Tennessee.

UNDERGRADUATE STUDY: Attended two years at The University of Tennessee Martin Branch. Granted B. S. degree in Agriculture with a major in Agricultural Education from The University of Tennessee, Knoxville, in 1959.

GRADUATE STUDY: Attended East Tennessee State University at Johnson City, Tennessee and The University of Tennessee, Knoxville, Tennessee.

EXPERIENCE: The University of Tennessee Ag Club, Collegiate F. F. A., AZ, and Farm House. Taught vocational agriculture, sold life insurance, Director of a Vocational-Technical School and Assistant County Agricultural Agent.