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Problem A: Characteristics of Knox County Beef Producers and Their Farms; Problem B: Management Practices of Knox County Beef Producers; Problem C: Factors Influencing Beef Management Practice Adoption by Knox County Beef Producers

Clyde N. Taylor
University of Tennessee, Knoxville

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To the Graduate Council:

I am submitting herewith a thesis written by Clyde N. Taylor entitled "Problem A: Characteristics of Knox County Beef Producers and Their Farms; Problem B: Management Practices of Knox County Beef Producers; Problem C: Factors Influencing Beef Management Practice Adoption by Knox County Beef Producers." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agriculture and Extension Education.

Robert S. Dotson, Major Professor

We have read this thesis and recommend its acceptance:

Cecil E. Carter, Haley Jamison

Accepted for the Council:
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

147

November 20, 1972

To the Graduate Council:

I am submitting herewith three related problems in lieu of thesis written by Clyde N. Taylor entitled: "Problem A: Characteristics of Knox County Beef Producers and Their Farms; Problem B: Management Practices of Knox County Beef Producers; Problem C: Factors Influencing Beef Management Practice Adoption by Knox 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.

Robert L. Dotson
Major Professor

We have read these problems and recommend their acceptance:

Accepted for the Council:

Vice Chancellor for
Graduate Studies and Research

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

PROBLEM B: MANAGEMENT PRACTICES OF KNOX COUNTY BEEF PRODUCERS

PRLBMEN C: FACTORS INFLUENCING BEEF MANAGEMENT PRACTICE ADOPTION BY KNOX COUNTY BEEF PRODUCERS

Three Related Special Problems in Lieu of Thesis

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

---

by

Clyde N. Taylor

December 1972

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C. N. T.

1075133

ABSTRACT

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

This study was conducted in Knox County, Tennessee for the purpose of determining selected characteristics of beef producers and their farms. The study was based on a survey-type interview and reflects information for developing a county plan of action. The producers were interviewed and then classified in low, medium and high groups, depending on the number of pounds of beef sold per cow in 1970. Main comparisons were between high and low categories.

Major findings indicated that cattlemen interviewed in Knox County had the following characteristics: (1) 71 percent were considered friendly toward the survey; (2) 52 percent were part-time farmers; (3) only 11 percent gave beef as their major source of income; (4) average educational level was 13.5 years; (5) over 65 percent of Knox County beef producers were over 55 years of age; (6) farms averaged 214.2 acres with 141.3 acres cropland; (7) the average number of cows kept was 47.8; and (8) 60 percent of all farmers had some registered cows.

When comparing the average high and low producers it was found the high producer: (1) had a slightly higher educational level; (2) had fewer cows; (3) had a smaller farm, and (4) more frequently was a part-time farmer.

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

PROBLEM B: MANAGEMENT PRACTICES OF KNOX COUNTY BEEF PRODUCERS

The purpose of this portion of the Knox County survey was to determine which recommended beef production practices were being used by cattlemen in the county. Thirty-five beef producers were interviewed at random and comparative analysis made in reference to pounds of beef sold in 1970 per cow bred.

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

Findings reveal the following regarding management practices: (1) the management level averaged by the high producers was considerably above that of the low producer; and (2) high producers rated higher on 25 of the 31 practices. All producers were "using" other recommended practices, including: (1) waiting until replacement heifers were at least 15 months of age and had attained a minimum weight of 650 pounds before breeding; (2) checking older cows at least once a day during calving season; (3) arranging to have competent help available when calving difficulties occurred; (4) following recommended practices in dehorning and castration; (5) keeping cows on good permanent pasture sod until late fall and early winter to reduce winter feed costs; (6) following recommended fly control practices; and (7) getting the advice of professionals in the area of beef production and marketing. In addition, the high producers were "using" the following practices: (1) providing access to a recommended mineral mixture for all cattle;

(2) keeping replacement heifers separate from rest of breeding herd during winter; (3) following recommended lice control practices; and (4) checking cattle for possible trouble at least three times per week throughout the year.

Other comparisons showed that high producers were doing a better job than low in: (1) keeping bulls whose records met minimum requirements of the breeder's performance tested bull sale; (2) using one or more performance tested bulls; (3) checking herd cows at least once a day during breeding season; (4) identifying each breeding female; (5) checking first calf heifers at least two or three times daily during calving season; (6) identifying calves; (7) feeding thin cows and those that have calved better than others; (8) feeding supplement to brood cows; (9) using recommended grub control; and (10) maintaining an adequate system of working pens, lots and restraining equipment.

The high producers reported a calving percentage of 91.3 compared to 82.3 for the low producers. Only 14 percent of all producers (26 percent of the high and none of the low) had sold any calves in organized feeder sales. The stockyard was mentioned most often as the market place. Fifty percent of the low producers sold calves at the farm. The high producers sold heavier calves at a higher price per pound.

Other implications from the study were drawn and educational use of the data recommended.

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

This study was designed to identify some factors influencing beef

producers of Knox County to adopt recommended practices. The thirty-five randomly selected beef producers were interviewed and divided into high, medium and low production groups according to pounds of beef sold in 1970 per cow bred.

Of the things most liked about beef cattle production, the "joy of raising cattle" and "efficient utilization of pastures" were most often mentioned. Other reasons given were: (1) "less labor requirements"; (2) "challenge to produce better animals"; (3) and "supplemental income." The most often mentioned dislike was the problems relating to animal health.

Of all persons from who advice was sought, neighbors or friends, county agents, local veternarians, and cattle buyers were most used. Ninety-one percent of the high producers listed county agents as their main source of information, as compared to 86 percent of the low producers. Sources of additional information included farm magazines and University of Tennessee bulletins or publications.

These findings, together with those from the two prior related studies, indicate a basis for development of a useful educational plan for cow-calf producers in Knox County, Tennessee.

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PROBLEM A:

CHARACTERISTICS OF KNOX COUNTY BEEF PRODUCERS AND THEIR FARMS

CHAPTER I

INTRODUCTION

I. THE STUDY AREA

Knox County consists of 325,120 acres of land, of which total 39.2 percent was in farms in 1969. The average size farm was 72.6 acres (14: 77).* The value of farm products sold in 1969 was $7,106,075. The value of livestock, dairy, and poultry products amounted to approximately two-thirds of the total compared to one-third for the value of crops sold. Beef cattle provided about $1,113,161 and accounted for 29 percent of the income from livestock. No farm product held a large advantage in percentage of the total.

Under provisions of the Smith-Lever Act, the Cooperative Extension Service exists to diffuse among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same (2:3). To accomplish this mission, The University of Tennessee Agriculture Extension Service in Knox County has made an attempt to identify the needs, problems, and potential solutions relative to beef production. Extension workers have the responsibility of diffusing verified research and practical information on subjects relating to agriculture and home economics and encouraging adoption and application of the same.

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*Numbers in parentheses refer to similarly numbered items in the Bibliography; those after the colon are page numbers.

II. IMPORTANCE OF BEEF PRODUCTION

There were no data on the exact dollar value of beef cattle in Knox County in 1971. The latest (1969) census report indicated a trend toward fewer farms, with little change in farm size. There were more cattle and calves reported with a noticeable decrease (39 percent) in the number of milk cows. It could be assumed that a future result would be more beef cattle. The census listed 28,495 cattle and calves in 1969. There was no further breakdown in the beef category.

III. THE PURPOSE OF THE STUDY

The purpose of this study, then was to determine the characteristics of Knox County beef producers and their farms.

IV. REVIEW OF RELATED LITERATURE

This is the first survey-type study made in Knox County on beef production practices.

An earlier study by Brewer in 1971 of 40 Marshall County, Tennessee beef producers disclosed that the average age of cattlemen in that county was 55 years, and that the average educational level was 12.0 grades (1:11). A study in Campbell County, Tennessee revealed an average age of 52 years and a 10.5 grade level (5:18). Another Tennessee survey made by Ranney in 1964 revealed an average age of 52.8 and 9 years of formal education (9:26). Mathews in 1969 found that the beef producers in Lawrence County, Tennessee were on the average 55.2 years of age (8:12). A study in Macon County, Tennessee revealed the average age of beef producers was 51 years and 9.7 grade level (7:17).

V. METHODS

A beef cattle producers' list was obtained from Knox County and a random sample fo 35 was drawn for personal interview. An interview schedule relative to the characteristics of beef production was adopted from earlier studies prior to making the survey. Questions were designed to give the interviewer an insight into the nature, degree of efficiency, levels of production, and other information concerning the farmers' methods of operation. A copy of the interview schedule is included in the Appendix.

The sample was divided into high producers, medium producers, and low producers, depending on pounds of beef sold per cow bred in 1970. The range of beef sold was from 365 pounds to 600 pounds (see Table I). No distinction was made between methods of marketing at the time the survey was made. However, marketing methods were included in the survey and will be discussed later in this document.

It will be noted in Table I that 67 percent of the farmers marketed their calves between 410 and 600 pounds. These preliminary figures suggest an educational program is needed in the Knox County area for more net profit. Because of the weight of data available from the survey, main comparisons will be made between high and low producers to focus on any major differences which may exist.

TABLE I

NUMBERS OF SELECTED KNOX COUNTY BEEF PRODUCER COOPERATORS USING COW-CALF SYSTEM ACCORDING TO RANGES IN POUNDS OF BEEF SOLD IN 1970 PER COW BRED

Beef Production Group	Number of Producers In County	Range of Beef Sold Within Each Group (Pounds)
Low	14	365-400
Medium	10	410-457
High	11	475-600
Total	35	365-600

CHAPTER II

FINDINGS

I. RESPONDENT'S ATTITUDE TOWARD THE SURVEY

The purpose of the survey was explained by letter and further discussed with the respondent by the interviewer (Extension Agent). Some were reluctant at first, but most farmers were friendly toward the survey; none were indifferent. Study of data in Table II indicates that 71 percent of all interviewees (91 percent of the high and 64 percent of the low producers) were "friendly toward the survey." An additional 29 percent of all (9 percent of the high and 36 percent of the low) producers were "somewhat friendly."

II. MAJOR OCCUPATIONS OF CATTLEMEN

It is important to note in Table III that over one-half of the cattlemen were part-time farmers (52 percent). Thirty-six of the low and 73 percent of the high producers were part-time farmers. Only 14 percent of all Knox County beef cattlemen were full-time farmers.

III. MAJOR SOURCES OF INCOME

Only 11 percent of all farmers interviewed stated that beef production was the major source of income. As seen in Table IV, 9 percent of the high and 21 percent of the low producers listed beef as the major source of income.

TABLE II

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

Attitude Toward Survey	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Friendly	71	91	60	64
Somewhat friendly	29	9	40	36
Total	100	100	100	100

TABLE III

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

Major Occupation	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Full-time farmer	14	9	10	21
Part-time farmer	52	73	50	36
Business	20	18	10	29
Professional	3	0	0	7
Retirement	11	0	30	7
Total	100	100	100	100

TABLE IV

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

Major Source of Income	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Not answered	17	45	0	7
Beef	11	9	0	21
Wage earner	20	27	20	14
Business	38	19	50	44
Professional	3	0	0	7
Retirement	11	0	30	7
Total	100	100	100	100

It is interesting to note that 17 percent of the cattlemen (45 percent of the high and 7 percent of the low) did not give their major source of income. It also can be pointed out that 38 percent of beef cattlemen listed business interests as their major source of income (19 percent of the high and 44 percent of the low).

IV. EDUCATIONAL LEVELS

The educational level of beef producers is reflected in Table V. The study reveals that the high producers, on the average, had .6 years more education than the low producers which small amount may not be considered of consequence. However, it is interesting to note that 47 percent of the low producers compared to 64 percent of the high producers had some college level work. The educational level for all producers was 13.5 years.

V. AGE GROUPS

As seen in Table VI, 43 percent of all producers were in the 55-64 year age interval. The study reveals that 54 percent of Knox County beef producers are over 55 years of age (36 percent of the high producers and 43 percent of the low). Knox County had 14 percent more producers over 55 than the Marshall County study by Brewer (1:9). A very interesting figure was that only 6 percent of all producers were 25 to 34 years of age. Eleven percent were retirement age.

VI. TOTAL FARM ACREAGE CATEGORIES

The average farm size for respondents in Knox County was found to

TABLE V

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

Educational Level	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Grades 1 - 8	3	0	10	0
Grades 9 - 12	46	36	50	50
1 - 4 Years College	11	18	10	7
B.S. Degree	37	46	30	36
Ph.D. Degree	3	0	0	7
Total	100	100	100	100
Average Educational Level	13.5	14.1	12.6	13.5

TABLE VI

AGE GROUPS OF ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Age of Respondent	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
25 - 34	6	9	0	7
35 - 44	20	27	0	29
45 - 54	20	27	10	21
55 - 64	43	27	70	36
65 - 74	11	9	20	7
Total	100	100	100	100

be 214.2 acres for all producers interviewed (Table VII). Then, the average farm size of producers agrees fairly closely with Brewer (1:13). However, the Knox County high producers had 43 acres smaller farms than the average with no farm over 500 acres. Whereas, 21 percent of the low producers' farms were over 500 acres. Therefore, it appears that business and professional interests hold larger parcels of land with less emphasis on production.

VII. CROPLAND ACREAGE CATEGORIES

Table VIII reflects the cropland acreage categories, and the most frequently mentioned interval was 100-199 acres for high producers. Thirty-seven percent of the high producers and 21 percent of the low producers were in this category. The average for all producers was 141.3 acres, for high producers was 118.8 and for low producers was 176 acres.

VIII. COWS KEPT

Number

Table IX reflects the numbers of beef cows kept by all Knox County cattlemen interviewed. These were broken down into high, medium and low producers. The average number of cows per farm surveyed was 47.8. The total number in the high producer category was 461 compared to 817 in the low producer category. It will be noted that the high producers averaged 41.9 cows per herd while the low producers had 58.3 cows per herd. This may be attributed to the larger farms owned by the low producers.

TABLE VII

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

Total Farm Acreage	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
20 - 99	46	36	60	44
100 - 299	31	46	30	21
300 - 499	11	18	0	14
500 - 699	6	0	10	7
700 - 899	3	0	0	7
900 - 1400	3	0	0	7
Total	100	100	100	100
Average Farm Acreage	214.2	171.0	143.4	298.9

TABLE VIII

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

Total Cropland Acreage	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
15 - 49	34	27	30	44
50 - 99	20	18	40	7
100 - 199	26	37	20	21
200 - 299	11	18	0	14
300 - 499	3	0	10	0
500 - 800	6	0	0	14
Total	100	100	100	100
Average Cropland Acreage	141.3	118.8	117.6	176.0

TABLE IX

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

Number of Beef Cows	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
1 - 14	11	9	0	21
15 - 24	20	27	20	14
25 - 49	46	37	60	44
50 - 99	11	18	10	7
100 - 199	9	9	10	7
200 - 340	3	0	0	7
Total	100	100	100	100
Average Number of Beef Cows	47.8	41.9	39.6	58.3
Total Number Beef Cows	1,674	461	396	817

Registered Cows

Study of Table X indicates that 60 percent of all farmers interviewed had at least some registered cows in the herd. For the purpose of comparison, a study in Marshall County found only 25 percent of the farmers had some registered cows (1:17). Of the 57 percent of low producers who owned registered cows, 7 percent were in the 15-24 category and 14 percent in the 25-55 category. There was very little difference in total number of registered cows between low and high producers (115 for high and 122 for low); but the 63 percent of high producers had a higher percentage of registered cows (24.9 vs. 14.9, respectively) due to larger herds among low producers. Thus, a higher percent of high producers had more registered cows than the low.

Breeds of Registered Cows

Table XI shows that the greatest number of herds with registered cows kept the Polled Hereford breed, 22 percent, compared to 20 percent for Angus, 9 percent for Herefords, 3 percent for Shorthorns, 3 percent for Charolais, and 3 percent for Herefords and Polled Herefords. Thus, one-fourth had at least some polled Herefords. Twenty-one percent of the low producers had cows of the Angus breed compared to 18 percent of the high producers. The percentages were the same for Polled Herefords when compared to Angus for both high and low producers. When all the percentages with Herefords were added, 36 percent of both the high and low producers had Herefords. There would seem to be no consequential differences between high and low producers in Angus or Hereford breeds. Nine percent of the Charolais owners were high producers; while none were low producers.

TABLE X

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

Number of Registered Cows	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Did not have registered cows	40	36	40	43
1 - 14	31	36	20	36
15 - 24	18	19	30	7
25 - 55	11	9	10	14
Total	100	100	100	100
Average number of registered cows kept by those having registered cows	16.8	16.4	19.1	15.2
Total number of registered cows	352	115	115	122
Percent of cows registered	21.0	24.9	29.0	14.9

TABLE XI

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

Breed of Registered Cows	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Did not have registered cows	40	37	40	43
Angus	20	18	20	21
Hereford	9	9	0	15
Polled Hereford	22	18	30	21
Shorthorn	3	9	0	0
Charolais	3	9	0	0
Hereford (Horned and Polled)	3	9	0	0
Total	100	100	100	100

Grade Cows

An analysis of data in Table XII indicates that high producers having grade cows had an average of 28.3 grade cows compared to 66.0 for low producers. The medium producers had an average of only 22.0 grade cows per farm. Eighteen percent of the high producers, 20 percent of the medium producers, and 36 percent of the low producers did not keep any grade cows. Therefore, more low producers tended to have more grade cows than others.

Breeds of Grade Cows

Twenty-nine percent of all producers listed Angus as their predominant breed of grade cows (see Table XIII). This was more than twice as many as for any other breed except the mixed breed. Herefords and Polled Herefords were mentioned as the next most predominant breeds. Forty-three percent of the low producers mentioned Angus as being predominant, compared to 28 percent of the high producers.

IX. BEEF BULLS KEPT

Number

As seen in Table XIV, only 6 percent of the total producers kept no bull with the herd. Therefore, it is apparent that 94 percent of Knox County beef producers were keeping beef bulls. The average number of bulls kept each for high, medium, and low producers was 2.4, 1.8 and 3.9, respectively. One hundred percent of the high producers, 90 percent of the medium producers, and 93 percent of the low producers had at least one beef bull. More high producers kept fewer beef bulls than the low.

TABLE XII

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

Number of Grade Cows	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	26	18	20	36
1 - 14	23	37	20	14
15 - 24	16	18	30	7
25 - 49	20	9	20	29
50 - 99	9	18	10	0
100 - 300	6	0	0	14
Total	100	100	100	100
Average number kept by those having grade cows	39.4	28.3	22.0	66.0
Total number grade cows	1,025	255	176	594

TABLE XIII

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

Predominant Breed of Grade Cows	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Did not have grade cows	26	18	20	36
Angus	29	28	10	43
Hereford	11	18	10	7
Polled Hereford	11	18	20	0
Mixed breed	20	18	30	14
Charolais (Crossbred)	3	0	10	0
Total	10	100	100	100

TABLE XIV

TOTAL NUMBERS OF BEEF BULLS KEPT BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Number of Beef Bulls Kept	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	6	0	10	7
One	36	36	60	21
Two	20	36	10	15
Three	11	9	10	15
Four	9	0	0	21
Five	6	9	10	0
Six	6	9	0	7
Eight	3	0	0	7
Twelve	3	0	0	7
Total	100	100	100	100
Average number for those having beef bulls	2.8	2.4	1.8	3.9

This would be expected with their smaller herds.

Breeds of Registered Bulls

Table XV shows that 17 percent of the total producers did not have registered beef bulls. Eighteen percent of the high and 15 percent of the low producers did not have registered bulls. The high producers accounted for 20 registered bulls, while medium producers had 9 and low had 46. Forty percent of all producers said they had registered Angus bulls (see Table XVI). A higher percentage of low producers had Angus bulls. The next most popular breed mentioned was Polled Herefords.

Breeds of Grade Bulls

Table XVII compares high, medium, and low producers or breeds of grade bulls kept. It will be noted that 73 percent of the high producers, 90 percent of the medium and 100 percent of the low producers kept no grade bull.

X. REPLACEMENT HEIFERS KEPT

Number

As seen in Table XVIII, 29 percent of all farmers interviewed reportedly kept no replacement heifers. Forty-five percent of the high producers, 20 percent of the medium producers, and 21 percent of the low producers kept no replacement heifers. Thus, a higher percentage of high producers kept no replacement heifers this particular year.

Breeds of Registered Replacement Heifers

There was no great difference between the production levels

TABLE XV

NUMBERS OF REGISTERED BULLS BELONGING TO ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS AND AVERAGE NUMBERS

Number of Registered Bulls	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	17	18	20	15
One	40	36	70	21
Two	20	28	10	21
Three	3	0	0	7
Four	8	9	0	15
Six	6	9	0	7
Eight	3	0	0	7
Twelve	3	0	0	7
Total	100	100	100	100
Average number kept by those having registered bulls	2.6	2.2	1.1	3.8
Total number registered beef bulls	75	20	9	46

TABLE XVI

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

Breed of Registered Bulls	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	17	18	20	15
Angus	40	37	30	50
Polled Hereford	17	9	30	14
Hereford	14	18	20	7
Angus and Polled Hereford	6	0	0	14
Shorthorn	3	9	0	0
Charolais	3	9	0	0
Total	100	100	100	100

TABLE XVII

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

Predominant Breed of Grade Bulls	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Did not own grade bulls	88	73	90	100
Angus	3	9	0	0
Charolais	6	9	10	0
Angus/Shorthorn	3	9	0	0
Total	100	100	100	100

TABLE XVIII

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

Number of Replacement Heifers Kept	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	29	45	20	21
1 - 4	29	18	20	43
5 - 9	37	37	60	21
10 - 20	5	0	0	15
Total	100	100	100	100

relative to the percent not owning registered heifers (see Table XIX). Also, there was little difference in breeds relative to high and low producers among those owning registered heifers.

Weights of Replacement Heifers

Apparently 9 percent had no records. Twenty-eight percent of the high producers retained heifer calves in the herd weighing 450-600 pounds. Table XX has data showing 21 percent of the low producers kept calves in the 450-500 pound category. A higher percent of the low producers had no records.

XI. CHANGES IN SIZE OF BEEF CATTLE HERDS

Table XXI indicates that 43 percent of the total producers in Knox County had neither increased nor decreased their size of herd over the previous year. However, 55 percent of the high producers had increased the size of their herd compared to 50 percent of low producers. However, only 10 percent of medium producers increased their herd. Seventeen percent of the total producers decreased their herds in 1971 compared to 1970. There was no large difference in numbers of producers that decreased their herds when high producers were compared to low producers.

Numbers of Beef Cattle Added and Reasons for Adding in 1971

Numbers. Forty percent of all producers interviewed did increase herd size.

TABLE XIX

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

Breeds of Registered Heifers	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Did not own registered heifers	51	55	50	50
Polled Hereford	23	18	30	21
Angus	20	18	20	21
Shorthorn	3	9	0	0
Hereford	3	0	0	8
Total	100	100	100	100

TABLE XX

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

Weight Per Heifer Kept (Pounds)	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
No replacement heifers kept	28	45	20	21
No records kept	9	9	0	15
350 - 399	9	9	10	7
400 - 449	34	9	60	36
450 - 500	20	28	10	21
Total	100	100	100	100

TABLE XXI

CHANGES IN NUMBERS OF BEEF CATTLE KEPT IN 1971 OVER THE 1970 TOTAL BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Change in 1971 Herd Size Over the 1970 Total	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
More	40	55	10	50
Same	43	27	80	29
Fewer	17	18	10	21
Total	100	100	100	100

Reasons. Table XXII shows that 60 percent of all Knox County producers did not increase size of cow herds. Of those that did increase, 37 percent of the high producers and 21 percent of the low producers said they had increased because they had more carrying capacity than the previous year. Seventeen percent listed the saving of replacement heifers as a reason for more cattle, and they had not yet culled the cows.

Number of Additional Cattle Kept by Knox County Producers

Table XXIII shows that 14 percent of the producers increased from 5 to 10 head. Only 6 percent of the producers increased more than 20. Eleven percent showed an increase of 1 to 4 head. Ninety percent of the medium producers showed no change.

Knox County Beef Producers Decreasing Number

Number. Table XXIV shows that 82 percent of Knox County producers did not decrease their herds from 1970 to 1971. Nine percent decreased more than 10, 6 percent 1 to 4, and 3 percent 5 to 9 head. Of the total number of beef producers interviewed, 18 percent decreased their herd size; while 40 percent had increased their herds.

Reasons. Six percent of the producers stated that their reason for decreasing was necessary culling of cows. It is significant to note that 14 percent of the low producers listed changing type or breed as their reason for the decrease (Table XXV).

Numbers of Cows Sold and Prices Received

Table XXVI shows 40 percent of Knox producers did not sell cows

TABLE XXII

REASONS FOR HAVING MORE BEEF CATTLE IN 1971 THAN IN 1970 REPORTED BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY PERCENTS

Reason Reported For Having More Cows	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Did not increase size of herd	60	45	90	50
More carying capacity	20	37	0	21
Saved for replacement	17	18	10	21
Increasing size of operation	3	0	0	8
Total	100	100	100	100

TABLE XXIII

NUMBERS OF ADDITIONAL CATTLE KEPT BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN 1971 OVER 1970 BY PERCENTS

How Many More Cattle	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Not answered	3	9	0	0
Did not increase size of herd	60	46	90	50
1 - 4	11	18	10	7
5 - 9	14	18	0	21
10 - 19	6	0	0	15
20 - 40	6	9	0	7
Total	100	100	100	100

TABLE XXIV

NUMBERS OF FEWER CATTLE KEPT BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN 1971 THAN IN 1970 BY PERCENTS

Number of Fewer Cattle Kept	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Did not decrease size of herd	82	82	90	79
1 - 4	6	9	10	0
5 - 9	3	0	0	7
10 - 31	9	9	0	14
Total	100	100	100	100

TABLE XXV

REASONS FOR HAVING FEWER BEEF CATTLE IN 1971 THAN IN 1970 REPORTED BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Reason Reported For Having Fewer Cattle	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Did not decrease size of herd	82	82	90	79
Culled cows	6	9	10	0
Changing to purebred Charolais	3	9	0	0
Sold 2, 2 killed by lighting	3	0	0	0
Changing to Polled Hereford	3	0	0	7
Changing to modern type	3	0	0	7
Total	100	100	100	100

TABLE XXVI

APPROXIMATE SALE PRICE PER COW SOLD IN 1971 BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Approximate Sale Price Per Cow (Dollars)	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Not answered	3	0	10	0
Did not sell cows	40	18	50	50
$140-199	28	28	30	29
$200-299	18	45	0	7
$300-425	11	9	10	14
Total	100	100	100	100

in 1971. Eighteen percent of the high and 50 percent of the low producers did not sell cows. Of those that sold in 1971, 28 percent of the high and 29 percent of the low producers reported prices ranging from $140 to $200 per cow. Forty-five percent of the high and 7 percent of the low producers reported cow sale prices ranging from $200 to $300.

CHAPTER III

SUMMARY

An attempt was made to determine the characteristics of Knox County beef producers and their farms as it relates to their production in pounds of beef sold in 1971 per cow bred. Thirty-five cow-calf system producers were randomly selected and interviewed and the resulting data analyzed. Production ranged from 365 to 600 pounds per cow in 1971.

I. REVIEW OF FINDINGS

Comparisons were made between 11 high, 10 medium, and 14 low producers based on pounds of beef sold per cow bred. The findings include those listed below.

1. Sixty-seven percent of the farmers interviewed sold calves in the 410 to 600 pound range. Thirty-three percent sold calves below 400 pounds in weight.

2. Ninety-one percent of the high producers and 64 percent of the low producers were "friendly" and enjoyed receiving the interviewer.

3. Fifty-two percent of the farmers interviewed were part-time farmers; while only 14 percent were full-time farmers. Seventy-three percent of the high producers and 36 percent of the low were part-time farmers.

4. Only 11 percent of all farmers interviewed listed beef as their major source of income. Thirty-eight percent listed business interests as their major source of income. One-fifth of the high producers and 44 percent of the low were businessmen.

5. The average educational level of the high producers was 14.1 years of formal education, compared to 13.5 years for the low producers.

6. Fifty-four percent of all Knox County beef producers were over 55 years of age. Only 6 percent of all producers were 25 to 34 years of age.

7. Average acreage for those interviewed was 214.2 acres. The high producers (171 acre average) had smaller farms than the low producers (299 acres). The low producers also had more cropland (176 acres) than the high producers (119 acres).

8. High producers had an average of 41.9 cows per herd, while medium had 39.6, and low producers had 58.3.

9. The high producer had a higher percentage of registered cows (24.9) than the low producers (14.9).

10. Registered Angus and Polled Herefords were about equal in numbers kept for both high and low producers.

11. High producers had an average of 28.3 grade cows compared to 66 for low producers.

12. Of the total farmers interviewed, 29 percent kept Angus grade cows which accounted for more than twice as many as any other breed. Twenty-eight percent of the high producers kept grade Angus compared to 43 percent for the low producers. More of the former kept Herefords and Polled Herefords.

13. Only 6 percent of the total producers kept no bull. All high producers and 93 percent of the low had at least one bull. The high producers kept an average of 2.4 bulls compared to 3.9 for low producers.

14. Seventeen percent of the Knox County beef producers did not

have a registered beef bull. Forty percent of the farmers owned registered Angus bulls. The low producers had a higher percent of registered Angus bulls (50 percent) than the high (37 percent).

15. Twenty-nine percent of all producers interviewed kept no replacement heifers. Twenty-eight percent of the high producers retained calves in the herd weighing 450-600 pounds compared to 21 percent of the low producers. A higher percent of the low producers had no records.

16. Forty-three percent of the producers did not change size of their herd in 1971 over 1970. Forty percent increased the size of their herd. Seventeen percent of the producers decreased the size of their herd.

17. The most frequent reason mentioned for increasing cow herd size was "more carrying capacity" available.

18. The most frequent reason mentioned for reducing cow herd was "changing type of beef cattle."

19. Forty percent of all producers did not sell cows in 1971. Twenty-eight percent sold cows at reported price range from $140 to $200 per cow. Fifty-four percent of the high and 21 percent of the low producers sold cows in a price range from $200 to $425 per cow.

II. IMPLICATIONS

1. The friendly attitude and cooperation of the producers indicate that educational programs would be well-received.

2. Educational programs should be held at times other than normal business hours due to the large number of part-time beef producers.

3. More attention should be given to management and efficiency of operation, especially among the larger beef producers.

PROBLEM B:

MANAGEMENT PRACTICES OF KNOX COUNTY BEEF PRODUCERS

CHAPTER I

INTRODUCTION

I. THE PURPOSE OF THE STUDY

The purpose of this study was to determine which recommended practices Knox County cattlemen were using. The producers were divided into high, medium, and low production categories according to pounds of calf sold in 1970.

II. REVIEW OF LITERATURE

The objective of beef cattlemen should be to produce the heaviest calf with the most quality in the shortest length of time with the least cost. Practice use for primary achievement has been studied. Tyrrell suggests that cows should be bred from April 1 to July 1. This would give a calving program from January 9 to April 9 the following year (13: 21). This would allow the cow to carry the calf during the winter months, but would allow the calf to be large to take advantage of the grass season and extra milk the cow may have with additional grass. Another recommended practice is to have the cows pregnancy checked. This should be done in September, October, or November if the breeding schedule above is followed.

Tyrrell suggests cows should be checked twice daily during calving and moved to a clean, well-sodded lot (13:27).

Calves should be dehorned and castrated at 30 days of age to increase selling value. Tyrrell states that dehorned and castrated calves

will bring $3 to $5 per hundred weight over calves not dehorned or castrated (13:28).

Under high management levels creep feeding may not be considered to pay. Tyrrell recommends creep feeding under certain consitions, namely when: (1) feed grain is available and cheap; (2) the dam's milk is short; (3) the season is hot and dry; (4) a fall calving program is followed, and (5) low quality, slow growing calves are produced (13:33). He also recommends that cows stay on permanent pasture in late fall and early winter to reduce feed costs. Cows that are thin should be separated from the rest of the herd and given 3 to 6 pounds of concentrates, one pound of protein supplement.

More emphasis should be given to cow performance and bull selection based on performance records. Jamison suggests performance testing to: (1) measure maximum production of each individual cow; (2) base selection of replacement heifers on average daily gain and quality records; (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 interprise; and (9) provide additional performance information to potential buyers (4:3).

Brewer, in a study of Marshall County beef producers, found that on the average all producers were operating at a management level of 3.73, "tried," on a practice diffusion or management scale. The levels of management were determined by a diffusion rating scale. The scale

ranges from 0 for "unaware" to 5 for "full usage" of a practice. Marshall County high producers operated at an average management level of 3.91, while the low producers operated at a level of 3.30 (1:51).

A similar study by Keys in Campbell County found that all producers had an average management level rating of 2.10. He found that high producers operated at 2.33, compared to 2.01 for low producers (5:56).

Another such study, by Luck, in Macon County found that all producers had an average management level rating of 3.87. Luck found that high producers operated at 4.03 compared to 3.5 for low producers (7:106).

Still another interview-type survey with beef producers in the Elk River Area in 1964 reflected a consequented difference in terms of dollars received and recommended practices used. A comparison was made between cattlemen using 75 percent of recommended practices and those using 25 percent of the recommended practices. It was found that higher adoption producers using 75 percent of the recommended practices had a return of $50 per cow more than the low adopters. It was further estimated that if all farmers in the area had followed the recommended practices, the extra gross income from beef would have amounted to over three million dollars per year (9:31).

III. METHODS

From the list of about 300 beef producers in the County Extension Office, 35 farmers were selected at random. Those included in the sample were interviewed.

A summary of data from the interviewees was based on: (1) number

of full-time and part-time operators; (2) percent increase following various recommended production practices; (3) number or percent of full-time and part-time operators marketing calves through organized feeder sales; (4) number of breeders in the Tennessee Beef Cattle Improvement Program; (5) number of breeders participating in one or more of the performance tested bull sales; (6) number of commercial herds in county using performance tested bulls of approved merit; (7) number of cattlemen following post-weaning, grazing, and growing or backpounding programs; (8) number of cattle feeding establishments; and (9) number of commercial operators with fall dropped calves.

The farmers were personally interviewed, using a schedule of 50 questions (see Appendix). The producers were then divided into high, medium, and low categories, depending on the pounds of beef sold per cow bred.

Rating Explanation

In an effort to determine the practice adoption levels of producers in total, high, medium, and low production categories, 31 recommended practices were included in the schedule. 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 was 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.

The average practice diffusion raging for individuals and groups was determined as follows: "unaware," .00-0.49 points; "aware," .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.

By adding up each producer's total score on the production practices and dividing by the number of practices, an average diffusion rating was determined for each producer. Also, group total average diffusion ratings were completed to compare the three production levels on each practice and all practices.

CHAPTER II

FINDINGS

I. MANAGEMENT LEVELS OF BEEF PRODUCTION

Average Management Level Rating

Table XXVII shows the degrees or levels of management. It is observed that high producers had a total average rating of 3.88 compared to 3.44 for the low producers, a difference of .44. For comparison, Brewer found in Marshall County a difference of .61 between high and low producers (1:46).

Management Practice Diffusion Rating

The survey showed a wide range in practice diffusion ratings. As stated above, the total average rating ranged from 3.88 for high producers to 3.44 for low producers (see also Table XXVIII).

Breeding Practices. The first two beef management practices were concerned with the bull's record and performance tested bulls (see Table XXVIII). There was not a wide range of diffusion ratings when comparing the high and low producers in these two categories. We can note that the low producers were given a rating of 3.07, compared to 3.45 for high producers on practice 2, regarding the bull's record. There was not as much difference on practice 1, regarding use of performance tested bulls, 3.45 for high producers and 3.14 for low producers.

Although the overall rating for practice 3 (herds enrolled in the Tennessee Beef Cattle Improvement Program) was low, the high producers

TABLE XXVII

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

Management Level Rating Interval	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
2.10 - 2.49	3	0	0	7
2.50 - 2.99	17	9	10	29
3.00 - 3.49	17	18	20	15
3.50 - 3.99	23	9	40	21
4.00 - 4.49	34	55	30	21
4.50 - 5.00	6	9	0	7
Total	100	100	100	100
Total Average Rating	3.68	3.88	3.75	3.44

TABLE XXVIII

AVERAGE BEEF MANAGEMENT PRACTICE DIFFUSION RATINGS AND TOTAL AVERAGE RATINGS FOR ALL KNOX 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. Used one or more performance tested bulls.	3.23	3.45	3.10	3.14
2. Bull's records met minimum requirements of the breeders' performance tested bull sale.	3.21	3.45	3.10	3.07
3. Had herd enrolled in the Tennessee Beef Cattle Improvement Program.	1.43	1.55	1.30	1.43
4. Used separate pasture area for bull(s) during off-breeding season (August through March)	3.58	3.00	4.10	3.64
5. Waited until replacement heifers were at least 15 months of age and had attained a minimum weight of 650 lbs. before breeding.	5.00	5.00	5.00	5.00
6. Had all herd cows pregnancy checked last year.	1.32	1.27	1.20	1.50

TABLE XXVIII (Continued)

Beef Management Practice	All Interviewees Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
7. Checked herd cows at least twice a day during the breeding season.	3.95	4.18	4.60	3.07
8. Had and used a system for identifying each breeding female in the herd.	3.80	3.90	4.30	3.21
9. Checked first-calf heifers at least 2 or 3 times daily during calving season.	4.58	4.45	5.00	4.29
10. Checked older cows at least once a day during calving season.	4.83	5.00	5.00	4.50
11. Arranged to have competent help available when calving difficulties occurred.	5.00	5.00	5.00	5.00
12. Had and used a system for permanently identifying calves.	3.34	3.82	3.20	3.00
13. Followed recommended procedures in castration.	4.64	4.73	4.70	4.50
14. Followed recommended procedures in dehorning.	4.78	4.64	4.70	5.00
15. Provided access to a recommended mineral mixture for all cattle.	4.55	5.00	4.60	4.07

TABLE XXVIII (Continued)

Beef Management Practice	All Interviewees Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
16. Followed a systematic rotational grazing program.	4.16	4.72	3.70	4.07
17. Provided extra or supplementary grazing for the herd.	1.44	1.18	1.70	1.43
18. Kept cows on good permanent pasture sod until late fall and early winter to reduce winter feed costs.	4.90	5.00	5.00	4.71
19. Kept replacement heifers separate from rest of breeding herd during winter.	4.41	5.00	4.60	3.64
20. Fed more or better quality feed to thin cows and cows recently calved than to others.	2.91	3.55	2.60	2.57
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.	2.32	3.00	1.40	2.57
22. Fed bulls a concentrate during breeding season while on pasture.	1.69	1.27	2.10	1.71

TABLE XXVIII (Continued)

Beef Management Practice	All Interviewees Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
23. Followed recommended fly control practices.	4.64	5.00	5.00	3.93
25. Used recommended grub control practices.	3.53	3.91	3.60	2.79
26. Used recommended materials in the control of internal parasites.	3.02	3.09	3.40	2.57
27. Vaccinated all brood cows and replacement heifers for leptospirosis.	1.73	2.82	1.30	1.07
28. Vaccinated all calves for blackleg and malignant edema during nursing period.	4.39	4.18	4.70	4.29
29. Checked cattle for possible trouble at least 3 times per week throughout the year.	4.71	5.00	5.00	4.14
30. Had, used appropriately and maintained an adequate system of working pens, lots and restraining equipment.	3.55	4.00	3.30	3.36
31. Got the advice of professionals in the area of beef production and marketing.	4.93	5.00	5.00	4.79

TABLE XXVIII (Continued)

Beef Management Practice	All Interviewees Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
Total Average Rating	3.69	3.88	3.75	3.44

*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.

rated 1.55, "interested in the practice," while the low producers rated 1.43, "aware" of it.

Practices 4, 5, 6, and 7 also are breeding practices (see Table XXVIII). Practice 6 was relatively low for all production groups. There was no consequential difference between high and low producers. All producers waited until heifers were at least 15 months of age before breeding. More high producers apparently checked cows more often during the breeding session (Practice 7) as shown by a 4.18 rating compared to 3.07 for low producers.

Calving Season Practices and Calfhood Identification. An analysis of practices in Table XXVIII indicates that practices 8, 9, 10, 11 and 12 related to the calving season and calfhood identification. In every case, the high producer received a higher rating than did the low producer, excepting for practice 11 where all respondents reported having competent help available when calving difficulties occurred.

Feeding, Pasturing, and Grazing Practices. Table XXVIII shows that on practice 15, providing access to a recommended mineral mixture for all cattle, the high producers received a rating of 5.00, "using," compared to 4.07 "tried" for the low producers. Also, there was a noticeable difference in the practice diffusion rating relative to practice 19, kept replacement heifers separate from rest of breeding herd during winter. The high producers received a rating of 5.00 "using" and the low producers rated 3.64 "tried." There was no major difference between low and high producers on practice 18, kept cows on good permanent pasture sod until late fall to reduce feed costs.

Table XXVIII shows a slight difference between high 3.00 and low 2.57 producers on practice 21, feeding protein supplement to brood cows. Nearly a full practice diffusion rating (.9) difference existed between high and low producers on practice 20, fed thin and recently calved cows better. This must have been a critical practice.

Parasite Control Practices. Practices 23 through 26 were related to parasite control, both internal and external. Table XXVIII reveals that in every practice relative to parasites, the high and medium producers received higher ratings than the low group of producers. There was a greater difference on practice 25, grub control, than any other parasite control practice, 3.91 "tried" for the high and 2.79, "planning to try," for the low producer, suggesting the importence of this practice.

Vaccinating Practices. Study of practices 27 and 28 in Table XXVIII reveals that Knox County beef producers were not practicing leptospirosis vaccination, though many did vaccinate for blackleg and malignant edema. The high producer had a diffusion rating of 2.82 "planning to try" compared to 1.07 "award" for low producers on practice 27, vaccinated for leptospirosis.

Miscellaneous Practices. Practices 30 and 31 are two unrelated, but important, management practices. Practice 30 is of special interest in that the high producer (4.00) was better equipped, and tended to use a more adequate system of working pens, lots, and restraining equipment, than the low producer (3.36). Practice 31 data (Table XXVIII) show that producers were getting and using the advice of professionals. However,

the high producers rated higher (5.00) than the low producer (4.79).

A close study, then, of Table XXVIII reveals a considerable number of differences between high and low producers in use of 31 major management practices. The total average rating was 3.88 for the high producer, 3.75 for the medium producer, and 3.44 for the low producer. This suggests that high and medium producers had "tried" most practices, while the low were still "planning to try" them.

II. BREEDING MANAGEMENT PRACTICES

Tables XXIX through XXXI present further information relative to the breeding practices used by the Knox County beef producers.

Females of Breeding Age in Herd

Cattlemen with fewer than 5 mature cows were not included in the study. Table XXIX indicates the number of beef females of breeding age, the range being from 5 to 300. The most frequently mentioned grouping was 5 to 24 females of breeding age for all production categories. There was little difference to be noted between high and low producers. It is interesting to note that all the low producing herds in the 100 to 300 cow range fell into the low producing category. The high producing herds averaged 34.6 breeding females compared to 53.0 for low producing herds.

Cows Bred to Calve

In Table XXX, it was revealed that the average number of females bred to calve in 1971 by the high producers was 33.5 compared to 52.4 for the low producer.

TABLE XXIX

NUMBERS OF FEMALES OF BREEDING AGE IN BEEF HERDS IN 1971 OF ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Number of Females of Breeding Age	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
5 - 24	48	45	60	43
25 - 49	31	37	20	36
50 - 74	9	9	10	7
75 - 99	6	9	10	0
100 - 300	6	0	0	14
Total	100	100	100	100
Average number of females of breeding age	40.3	34.6	28.9	53.0

TABLE XXX

NUMBERS OF FEMALES BRED TO CALVE IN 1971 OF ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Number of Females Bred to Calve	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
4 - 24	54	45	80	43
25 - 49	26	37	0	36
50 - 74	8	9	10	7
75 - 99	6	9	10	0
100 - 300	6	0	0	14
Total	100	100	100	100
Average number of females bred to calve	39.8	33.5	28.9	52.4

TABLE XXXI

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

Number of Bulls Used During Breeding	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
One	63	55	80	57
Two	20	27	10	22
Three	14	18	10	14
Seven	3	0	0	7
Total	100	100	100	100
Average number bulls per producer	1.7	1.6	1.3	1.9
Average number of females bred per bull used	24.0	20.5	22.2	27.2

Number of Bulls Used

Table XXXI indicates there was no great difference in the number of bulls used per producer. The low producer having 1.9 to 1.6 bulls per producer advantage. The low producer, however, bred 27.2 females per bull compared to only 20.5 for the high producer. This might be expected to have some influence on calving percent.

III. CALF MANAGEMENT PRACTICES

Number of Calves Weaned

Table XXXII presents the numbers and average numbers of calves born, and average calving percentages for all Knox County cattlemen interviewed. Data in the table show that all producers interviewed reportedly had a 86.8 average calving percent, high producers having 91.3 percent and low producers only 82.3 calving percent.

Number of Calves Marketed

Study of Table XXXIII indicates that 49 percent of all producers interviewed sold fewer than 15 calves. Fifty-five percent of the high producers and 50 percent of the low producers sold more than 15 calves. The average number of calves marketed by high producers was 19.5 compared to 28.7 for low producers interviewed.

Places Calves Were Sold

Table XXIV reveals a low number of producers marketing calves through organized feeder sales, 14 percent for all Knox County producers interviewed. The table further indicates that 27 percent of the high producers compared to none of the low producers marketed their calves

TABLE XXXII

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

Number of Calves Born Previous Year	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
4 - 24	57	55	70	50
25 - 49	28	27	20	36
50 - 74	6	9	10	0
75 - 99	3	9	0	0
100 - 210	6	0	0	14
Total	100	100	100	100
Average number of calves born	34.5	30.6	26.7	43.1
Average calving percent	86.8	91.3	92.4	82.3

TABLE XXXIII

ACTUAL TOTAL NUMBERS OF CALVES MARKETED DURING 1971 BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Number of Calves Marketed Last Year	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	6	0	0	14
1 - 14	43	45	50	36
15 - 29	28	37	30	22
30 - 44	14	9	20	14
45 - 99	6	9	0	7
100 - 150	3	0	0	7
Total	100	100	100	100
Average number of calves marketed	22.9	19.5	18.6	28.7

TABLE XXXIV

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

Place of Sale	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Not answered	9	9	10	7
Did not sell calves	6	0	0	14
Stockyards	34	27	50	29
Farm	17	19	0	29
Farm and stockyards	17	9	20	21
Organized feeder sales	14	27	20	0
Farm and organized feeder sales	3	9	0	0
Total	100	100	100	100

through organized feeder sales. An added 9 percent of the high marketed some calves through organized sales. The most frequent place mentioned for marketing calves among all levels of producers, possibly excepting the high, was the stockyards. One conclusion might be that most producers in Knox County were not receiving the high dollar for their calf production. This would suggest the need for an educational program.

Prices Received Per Pound of Calf Sold

Regarding calf sales, data in Table XXXV reveal that 31 cents per pound was the average price received by 48 percent of the Knox County producers interviewed. Fifty percent of the low producers reported receiving only 31 cents per pound. Thirty-six percent of the high producers interviewed, those selling through organized sales, reported receiving an average of 36 cents per pound compared to only 7 percent of the low producers. It would appear that market place has an important influence on prices received since 50 percent of the low producers sold their calves on the farm and none through organized sales.

Average Weight of Calves Sold

Table XXXVI reveals an obvious major difference in high and low producers in weight of beef calves sold since this was the sort variable. Sixty-four percent of high producers interviewed reported selling calves 500 to 600 pounds, whereas, no medium or low producer reported selling calves in this weight category. Fifty-four percent of all producers reporting sold calves under 450 pounds average. Eighty-six percent of the low and 70 percent of the medium producers reported selling calves under 450 pounds. No high producer interviewed reported selling

TABLE XXXV

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

Price Received Per Pound	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Not answered	6	9	0	7
Did not sell calves	6	0	0	15
$ .27 - .29	26	36	20	21
.30 - .32	48	19	80	50
.33 - .40	14	36	0	7
Total	100	100	100	100

TABLE XXXVI

AVERAGE WEIGHTS PER CALF SOLD BY ALL KNOX COUNTY CATTLEMEN RECEIVED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Average Weight Sold	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Did not sell calves	6	0	0	14
365 - 399 pounds	14	0	0	36
400 - 449 pounds	40	0	70	50
450 - 499 pounds	20	36	30	0
500 - 600 pounds	20	64	0	0
Total	100	100	100	100

calves under 450 pounds. With the continuing high cow maintenance costs, there are perhaps opportunities for educational work in this area.

IV. FEEDING MANAGEMENT PRACTICES

Kinds of Concentrates Purchased and Fed

Fifty-four percent of all producers did not feed concentrates. Analysis of Table XXXVII indicates very little difference between the high and low producers in the feeding of concentrates, 54 percent and 57 percent so reporting, respectively. However, 80 percent of the medium producers interviewed fed no concentrates at all.

Tons of Legume and Grass Hay Grown

Data in Table XXXVIII show that 88 percent of all producers interviewed grew no grass hay. Nine percent of the high and 28 percent of the low producers grew some grass hay. When Table XXXIX is compared to Table XXXVIII, there is no consequential difference noted in percents of all producers growing legume as compared to producers growing grass hay, totals of 12 and 15 percent, respectively.

Tons of Combination Legume-Grass Hay Grown

Eighty percent of Knox County beef producers interviewed reported growing legume-grass hay as shown in Table XL. Nine percent of the high and 43 percent of the low producers reported growing no grass-legume hay. The most frequent amount mentioned was 20 to 49 tons. Thirty-seven percent of the high producers and 29 percent of the low producers reported production in this category. All of the medium level producers grew

TABLE XXXVII

KINDS OF CONCENTRATES PURCHASED AND FED PREVIOUS YEAR BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Kind of Concentrates Purchased and Fed Previous Year	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	54	46	80	43
C.S.M.	14	18	0	21
C.S.M. and other	3	0	0	7
Other	29	36	20	29
Total	100	100	100	100

TABLE XXXVIII

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

Actual Tons of Legume Hay Grown	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	88	100	80	86
8 - 10	6	0	20	0
45 - 75	6	0	0	14
Total	100	100	100	100

TABLE XXXIX

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

Actual Tons of Grass Hay Grown	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	85	91	100	72
12 - 45	6	0	0	14
60 - 80	6	0	0	14
100	3	9	0	0
Total	100	100	100	100

TABLE XL

ACTUAL TONS OF COMBINATION LEGUME-GRASS HAY GROWN FOR BEEF HERDS BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Tons of Legume-Grass Hay Grown	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	20	9	0	43
1 - 19	14	9	20	14
20 - 49	31	37	30	29
50 - 99	20	18	40	7
100 - 199	11	27	0	7
200 - over	3	0	10	0
Total	100	100	100	100

some grass-legume hay. Forty-five percent of the high and only 14 percent of the low grew 50 or more tons.

V. PASTURE MANAGEMENT PRACTICES

Orchardgrass - White or Ladino Clover for Pasture

Table XLI discloses that 69 percent of the Knox County beef producers interviewed reported one acre or more of orchardgrass-white clover pasture. Seventy-three percent of the high producers and 57 percent of the low reported some orchardgrass-white or ladino clover pasture. The most frequent amount mentioned was 20 to 49 acres by 46 percent of the high producers and 22 percent of the low producers. However, 11 percent of the producers interviewed had 200 acres or more.

Fescue - White or Ladino Clover for Pasture Acreage

Table XLII reveals no difference in percentage of Knox County had producers in the high and low production levels prodcing fescue-white clover pasture. However, all medium producers had some fescue-white clover pasture. Twenty-six percent of the producers interviewed had none.

Orchardgrass for Pasture Acreage

Table XLIII discloses that 94 percent of the beef producers interviewed had no straight orchardgrass pasture.

Fescue for Pasture Production

Eighty-five percent of the beef producers interviewed had no straight fescue for pasture as reported in Table XLIV. However, more

TABLE XLI

TOTAL ACRES OF ORCHARDGRASS-WHITE OR LADINO CLOVER USED FOR PASTURE PRODUCTION FOR BEEF HERDS OF ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Acres of Orchardgrass-White or Ladino Clover Used for Pasture	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	31	27	20	43
1 - 19	9	0	10	14
20 - 49	37	46	50	22
50 - 99	6	0	10	7
100 - 200	16	18	0	0
200 - over	11	9	10	14
Total	100	100	100	100

TABLE XLII

TOTAL ACRES OF FESCUE-WHITE OR LADINO CLOVER USED FOR PASTURE PRODUCTION FOR BEEF HERDS OF ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Acres of Fescue-White or Ladino Clover Used for Pasture	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	26	36	0	36
1 - 19	9	9	10	7
20 - 49	36	46	50	21
50 - 99	14	0	20	21
100 - 199	6	9	10	0
200 - over	9	0	10	15
Total	100	100	100	100

TABLE XLIII

TOTAL ACRES OF ORCHARDGRASS USED FOR PASTURE PRODUCTION FOR BEEF HERDS BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Acres of Orchardgrass Used for Pasture	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	94	100	90	93
18	3	0	10	0
20	3	0	0	7
Total	100	100	100	100

TABLE XLIV

TOTAL ACRES OF FESCUE USED FOR PASTURE PRODUCTION FOR BEEF HERDS BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Acres of Fescue Used For Pasture	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	85	73	100	86
20	6	9	0	7
30	3	9	0	0
140	3	9	0	0
540	3	0	0	7
Total	100	100	100	100

high (27 percent) than low (14 percent) producers had fescue pasture.

Woodland for Pasture Production

Table XLV discloses that 94 percent of the beef producers in Knox County used no woodland for pasture. Only low producers had any.

VI. USE AND MANAGEMENT OF EQUIPMENT AND FACILITIES

Restraining Equipment

Fifty percent or more of beef producers interviewed had headgates, chutes and corrals. However, in each case, the high producers had the advantage of a higher percentage with restraining equipment. Twenty-seven percent of the high producers had upright silos compared to 29 percent of low producers interviewed. One hundred percent of the high producers compared to 57 percent of the low producers had back rubbers (see Table XLVI). This would suggest a critical practice.

Sources of Water

There was no large difference between high and low producers relative to availability of water (see Table XLVII).

Shelter Provided for Beef Cattle

Table XLVIII discloses that about half of the Knox County beef producers provide no shelter. There was essentially no difference in production groups.

TABLE XLV

TOTAL ACRES OF WOODLAND USED AS PASTURE BY ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Acres of Woodland Used for Pasture	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
None	94	100	100	86
30	3	0	0	7
190	3	0	0	7
Total	100	100	100	100

TABLE XLVI

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

Types of Restraining Equipment	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Not answered	3	0	0	7
Upright silo	23	27	10	29
Trench silo	3	0	0	7
Chutes and corrals	66	82	50	64
Headgates	57	64	50	57
Squeeze chutes	23	18	20	29
Scales	6	9	0	7
Back rubber	80	100	90	57
Shelter for herd	83	82	100	71

*Percents will not add to 100 because cattlemen reported more than one item in workable condition.

TABLE XLVII

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

Source of Water For Herds	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Not answered	5	0	0	14
Water in barn	3	9	0	0
Water outside barn	5	0	0	15
Pond	3	0	10	0
Stream	9	18	10	0
Water outside barn and pond	9	18	0	7
Water outside barn and stream	31	28	60	15
Water outside barn, pond and stream	9	9	10	7
Pond and stream	9	9	10	7
All sources	17	9	0	35
Total	100	100	100	100

TABLE XLVIII

NUMBERS OF ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS PROVIDING DIFFERENT TYPES OF SHELTER FOR HERDS, BY PERCENTS

Type of Shelter Provided	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Not answered	6	0	0	14
None	49	46	50	50
Year round	14	18	10	14
Winter only	31	36	40	22
Total	100	100	100	100

CHAPTER III

SUMMARY

The purpose of this survey-type problem was to determine which recommended beef production practices were being used by Knox County producers. Data were collected by personal interview, analyzed by production level, ratings computed, and interpretations given. Major findings related to management practices of Knox County beef producers are listed as follows:

1. The high producers had a higher total average rating (3.88) "tried" when compared with 3.44, "plan to try," for the low producers. Ninety-one percent of the high producers rated above 3.00 on the rating scale, while only 64 percent of the low producers rated above 3.00.

2. High producers rated higher in 25 of the 31 practices.

3. High producers received a higher diffusion rating than low producers on the first three breeding practices. However, none were above the "plan to try" stage.

4. All producers waited until heifers were at least 15 months of age before breeding. The high producers checked cows and heifers more often during breeding season than did low producers.

5. All producers were checking their cows at least once a day during calving season and arranged competent help when difficulties occurred.

6. High producers rated higher (3.82) "tried" than low producers (3.00) "planning to try" on calf identification.

7. Both high and low producers were, in the main, "using" the practices of castrating and dehorning.

8. The high producers received a rating of (5.00) "using" compared to low producers' 4.07 "tried" for the practice of feeding mineral.

9. On the practice of separating replacement heifers from the rest of herd in the winter, the high producers rated 5.00 "using" compared to only 3.64 "tried" for low producers.

10. None of the producers were using the practice of providing supplementary pasture or feeding the bull while on pasture during the breeding season.

11. The high producers rated higher on the practice of feeding better quality feed to their thin cows and cows recently calved.

12. Regarding the practice concerned with providing brood cows, at least 1.5 pounds of 32-44 percent protein supplement daily when feeding low quality roughage, the high producers rated higher.

13. In every practice relating to parasite control, the high and medium producers rated higher than the low producers.

14. In vaccinating for leptospirosis, the high producers rated higher than the low producers. There was little difference between high and low groups on vaccination for blackleg and malignant edema.

15. Regarding the use of adequate working pens, lots, and restraining equipment, there was a pronounced difference between high, "tried," and low, "plan to try," producers in favor of the former.

16. Both high and low producers were seeking the advice of professionals.

17. The larger herds tended to be the lower producing herds. The average number of females bred to calve by the high producers was 33.5 compared to 52.4 for the low producers.

18. The high producer bred 20.5 females per bull compared to 27.2 for the low producer.

19. The high producers reported a calving percentage of 91.3 compared to 82.3 for the low producers.

20. The average number of calves marketed for high producers was 19.5 compared to 28.7 for low producers.

21. Only 14 percent of all producers sold calves in organized feeder sales. None of the low producers sold calves in organized feeder sales. The stockyard was mentioned most often as the market place. Fifty percent of the low producers sold calves at the farm.

22. Fifty percent of the low producers received only an average of 31 cents per pound compared to 36 percent of the high producers receiving 36 cents per pound.

23. Sixty-four percent of the high producers reported selling calves 500 to 600 pounds compared to no low producer selling calves in this weight category. Fifty-four percent of all producers reported selling some calves under 450 pounds.

24. Fifty-four percent of all producers fed no protein concentrates.

25. Eighty percent of Knox County beef producers, mostly high and medium producers, reported growing legume-grass hay.

26. Sixty-nine percent of all producers, mostly in high and medium categories, had orchardgrass and white clover pasture.

27. Seventy-four percent of all producers had fescue and white clover pasture.

28. Ninety-four percent of the producers reported no straight orchardgrass pasture and 85 percent reported no straight fescue pasture.

29. Fourteen percent of the low producers and none of the others used woodland pastures.

I. IMPLICATIONS

1. An educational program should be initiated relative to the use of performance tested bulls, and herd enrollment in the Tennessee Beef Cattle Improvement Program (TBCIP).

2. An educational program is needed for adjustment of calving season looking toward marketing heavier calves.

3. Much information and guidance should be given in the area of marketing.

4. An educational effort should be initiated relative to construction and use of working pens and restraining equipment.

5. In view of the fact that the average practice diffusion ratings on the 31 practices was below the "using" rating, all management practices for all production groups should be reviewed with special attention to weaker practice areas.

PROBLEM C:

FACTORS INFLUENCING BEEF MANAGEMENT PRACTICE ADOPTION BY KNOX COUNTY BEEF PRODUCERS

CHAPTER I

INTRODUCTION

The general trend of Knox County agriculture over the years has been fewer farms with little change in farm size but increase in cattle numbers and larger agriculture income. The general trends of all farms in Tennessee is to become larger, but fewer. The 1969 Census reported the average size of farms in Tennessee to be 124 acres as compared to 114.4 acres in 1964 (14:7). Beef brood cow numbers increased 27 percent during the period 1964 to 1969 in Tennessee. At the same time, there was a corresponding decrease of 26 percent for dairy cows. These trends also were true for Knox County. The 1969 Census reported 28,495 cattle and calves in Knox County.

I. THE PURPOSE OF THE STUDY

The purpose of this study was to determine some of the factors influencing Knox County cattlemen to adopt certain recommended beef management and production practices.

II. REVIEW OF LITERATURE

Typically, practice adoption leaders are known to be the larger and more commercial farmers in their areas. They usually have direct contacts with agricultural agencies and are frequently the leaders in farm organizations. They tend to have a higher level of education and read more bulletins, magazines and newspapers than the average. They

participate more than the majority in formal organizations and have wider social contacts (3:9).

Leuthold states that 5 stages are widely used and recognized in the adoption process: (1) awareness--the initial introduction of an idea; (2) interest--a frame of mind that causes one to seek more information; (3) evaluation--the assessment as applied to the farmers own situation; (4) trial--the decision to try the innovation on a limited basis; and (5) adoption--the continued and full use of the idea (6:3).

III. METHODS

Interviews were scheduled and conducted with 35 cattlemen randomly selected from the mailing list of more than 300 beef producers in the Knox County Extension Service files. The farmers were interviewed according to a predetermined group of questions relative to beef production practices (see Appendix).

Producers were divided into production categories of high, medium, and low, according to pounds of beef marketed per cow bred.

Results of this study are given mainly in terms of percentages and averages.

CHAPTER II

FINDINGS

I. ADOPTION OF RECOMMENDED BEEF PRACTICES

Perusal of data in Table XLIX indicates that the high producers in this study were mostly fairly early to adopt recommended beef production practices. The interviewer placed 36 percent (in the considered opinion of the interviewer's judgment opinion following each interview) of the high producers among the first few to adopt practices; whereas, none of the low producers were classified in this category. It is interesting to note that 36 percent of the low producers interviewed were described as being a little later than most to adopt recommended practices. An additional 14 percent of the low producers were among the very last few.

II. THINGS LIKED ABOUT BEEF PRODUCTION

Table L data disclose that Knox County cattlemen interviewed "enjoyed raising cattle," 37 percent so reporting. Two other most frequently mentioned advantages were: "efficient utilization of pastures" (22 percent) and "low labor requirements" (20 percent). There is some evidence that the low producers "enjoyed cattle raising" less than high producers (22 percent and 37 percent, respectively). It is somewhat surprising that only 3 percent (high producers) mentioned "supplemental income" as a reason for interest in cattle business. "Challenge" and "flexibility" also had 3 percent each.

TABLE XLIX

INTERVIEWER'S OPINION OF ALL KNOX COUNTY BEEF PRODUCER'S ADOPTION OF RECOMMENDED BEEF PRODUCTION AND MARKETING PRACTICES, HIGH, MEDIUM AND LOW PRODUCERS BY PERCENTS

Stage of Adoption of Practice	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Among the first few	14	36	10	0
Soon after the first few	17	36	10	7
Sooner than average	43	19	70	43
A litter later than most	20	9	10	36
Among last few	6	0	0	14
Total	100	100	100	100

TABLE L

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

Thing Liked Most About Beef Cattle Production	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Now answered	9	9	10	7
Enjoy raising cattle	37	37	60	22
Efficient utilization of pastures	22	18	20	29
Low labor requirements	20	18	0	35
Challenge to produce better animals	3	9	0	0
Supplemental income	3	9	0	0
Flexibility	3	0	0	7
Nothing	3	0	10	0
Total	100	100	100	100

III. THINGS DISLIKED ABOUT BEEF PRODUCTION

Study of data in Table LI indicates that 54 percent of all producers interviewed had "no dislikes" for cattle production. The dislike listed first was relating to "health problems" (17 percent) among all producers. "High investment and low return" (14 percent) was the second most frequent mentioned dislike. Seven percent of the low producers listed "marketing problems" as a major dislike; whereas, none of the high and medium producers listed marketing as a dislike.

IV. INDIVIDUAL SOURCES OF INFORMATION

One question on the interview list dealt with individual sources of information. According to Table LII, a relatively large percent of the total producers listed county agents (89 percent) as a main source. Ninety-three percent of the low producers listed a neighbor or friend as a source of information compared to only 19 percent for high producers. The local veterinarian also was listed very high as a source of information, 91 percent of the high producers and 79 percent of the low producers reporting. A comparatively large percent of all producers (54 percent) and high producers (82 percent) consulted Extension specialists. Forth-five percent of the high, 60 percent of medium, and 56 percent of the low talked to cattle buyers concerning beef production. Forty percent of all Knox County beef producers interviewed received advice from feed dealers or salesmen.

TABLE LI

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

Thing Disliked Most About Beef Cattle Production	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Not answered	6	9	10	0
No dislikes	54	55	60	50
Health problems	17	18	10	22
Feeding and fencing	6	9	0	7
High investment and low return	14	9	20	14
Marketing problems	3	0	0	7
Total	100	100	100	100

TABLE LII

PERCENTS OF ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS, WHO SOUGHT ADVICE FROM CERTAIN INDIVIDUALS CONCERNING BEEF CATTLE PRODUCTION*

Persons From Whom Advice Was Sought	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Neighbor or Friend	91	19	100	93
County Agent	89	91	90	86
Local Veterinarian	86	91	90	79
Extension Animal Husbandman	54	82	40	43
Cattle Buyer	54	45	60	56
Feed Dealer or Salesman	40	45	30	43
Assistant or Special Agent	31	27	40	29
Equipment Dealer	20	27	10	21
Banker or PCS Representative	20	18	10	28
Artificial Breeding Technician	3	0	0	7
Vocational Agriculture Teacher	3	9	0	0
ASC Representative	3	9	0	0

*Percents add up to more than 100 since most cattlemen reported more than one source.

V. SOURCES OF MANAGEMENT ADVICE

The most frequently mentioned source of information for all producers was farm magazines. University bulletins and publications ranked second as the most important source of information (80 percent). It will be observed in Table LIII that all producers ranged from the first source with 97 percent reporting down to television with only 14 percent mentioning. Sixty-three percent of all producers listed newsletters as the third major source. Ninety-one percent of the high producers used University publications as compared to only 79 percent of the low producers. The high producers also attended more Extension field days and tours (54 versus 35 percent) and used radio more, 45 versus 21 percent) than the low producers interviewed.

VI. DEGREE TO WHICH INTERVIEWER KNEW CATTLEMEN

Of the total producers interviewed in Knox County, 88 percent were either "fairly well" or "very well" known. However, it is interesting to note that 100 percent of the high producers were at least "fairly well" known as compared to 86 percent of the low. Also, 14 percent of the low producers were "not very well" or "not at all" known by the interviewer as disclosed in Table LIV.

VII. INTERESTED IN IMPROVING HERD MANAGEMENT

Table LV shows that, as seen by the interviewer, most cattlemen in Knox County were interested in improving the management level of their herds. Eighty-two percent of the high producers were "very interested"

TABLE LIII

PERCENTS OF ALL KNOX COUNTY CATTLEMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS, WHO RECEIVED USEFUL INFORMATION FROM OTHER SOURCES ON BEEF CATTLE MANAGEMENT*

Source of Useful Information	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Farm magazines	97	91	100	93
University bulletins and publications	80	91	70	79
Newsletters	63	54	50	79
Farm meetings	51	54	40	56
Weekly newspapers	43	54	30	43
Field days and tours	43	54	40	35
Commercial bulletins	31	45	30	21
Radio	26	45	10	21
Daily newspapers	26	36	20	21
Television	14	9	20	14

TABLE LIV

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

Degree to Which Interviewer Knew Respondent	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Very well	43	36	50	43
Fairly well	45	64	30	43
Not very well	6	0	10	7
Not at all	6	0	10	7
Total	100	100	100	100

TABLE LV

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

Degree of Interest	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Very interested	43	82	40	14
Somewhat interested	54	18	60	79
Indifferent	3	0	0	7
Total	100	100	100	100

and 18 percent were "somewhat interested" in improvement. Seven percent of the low producers were "indifferent" as compared to none among high and medium producers. Of the low producers, 79 percent were only "somewhat interested" and 14 percent were "very interested" in improving management. Many farmers felt they did not have sufficient labor to improve their management.

VIII. NEED FOR ADDITIONAL ATTENTION TO BEEF HERD MANAGEMENT

In Table LVI, based on the interviewer's opinion, 97 percent of all beef producers should have paid more attention to herd management. Nine percent of the high producers appeared to have reached an adequate level of management efficiency. In the opinion of the interviewer, 100 percent of the low and medium producers should have given more time and attention to herd management.

TABLE LVI

INTERVIEWER'S OPINION OF WHETHER OR NOT ALL KNOX COUNTY BEEF PRODUCERS INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS SHOULD HAVE PAID MORE ATTENTION TO THE MANAGEMENT OF BEEF HERDS BY PERCENTS

Respondent Should Have Paid More Attention to Management	Total Producers (N=35) Percent	High Producers (N=11) Percent	Medium Producers (N=10) Percent	Low Producers (N=14) Percent
Yes	97	91	100	100
No	3	9	0	0
Total	100	100	100	100

CHAPTER III

SUMMARY AND IMPLICATIONS

According to the 1969 Census, livestock, dairy, poultry and products produced an income of $3,798,975 in Knox County. Beef producers received a noticeably large share, 29 percent, of the total income compared to 35 percent for dairy. The census indicated that beef cattle had increased by 13 percent during the previous five years, and dollar income reached $1,113,161 in 1969.

Fifty-two percent of the beef producers in this survey were part-time farmers. Beef production seemed especially well-suited to meet the needs and interests of this group. Extension needed to design a program that would provide education for this segment of the economy as well as the others.

This study was made in an effort to determine some of the factors influencing Knox County beef producers to adopt practices. Personal interviews were completed with 35 farmers selected at random from the Extension mailing list of 300 cattlemen on the cow-calf system.

I. REVIEW OF FINDINGS

With reference to the characteristics of the beef producers in Knox County, listed below are some of the major findings.

1. The high producers tended to be early to adopt recommended practices. The low producers tended to be a little later than most.

2. The survey showed that Knox County beef producers enjoyed the

cattle business. There was some evidence that low producers enjoyed the beef business less than high producers.

3. Fifty-four percent of all those interviewed had no major dislike for beef production. The most frequent dislike mentioned by others was "health problems." The second ranking dislike was "high investment and low return."

4. When seeking personal advice on matters of beef production, the high producers mentioned county agents most frequently as a source of information. Low producers mentioned neighbors and friends in first place. Local veterinarians, Extension specialists and cattle buyers also were used frequently.

5. Farm magazines and University bulletins were the main sources of related reading material consulted by beef producers. Newsletters and radio also were listed as important sources of useful information.

6. The interviewer was "fairly well" acquainted with 88 percent of those interviewed. More low producers were "not very well" known.

7. The study showed that 82 percent of the high producers were "very interested" in improving the management of their herds compared to only 14 percent of the low producers.

8. According to the interviewer's opinion, 97 percent of all producers should have paid more attention to the management of their herds.

II. IMPLICATIONS

1. Since there is ample evidence that Knox County farmers interviewed did "like" the beef business and wanted to "improve," beef farmers

should be receptive for information and educational programs to help them improve management and efficiency.

2. Extension efforts concerning beef management should be aimed at local veterinarians, cattle buyers, feed dealers and salesmen and key leaders, since cattlemen seek information from these groups. Efforts also should be made to more effectively use the mass media which were found to be most effective through the present study.

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BIBLIOGRAPHY

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APPENDIX

APPENDIX

THE ABRICULTURAL 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_____ e. Wage earner _____

   b. Part-time farmer_____ f. Housewife or widow _____

   c. Business (specify) _____ g. Retired _____

   d. Professional (specify) _____ h. Other (specify) _____

3. Is beef production your major source of income?

   a. Yes _____ b. No _____

4. If your answer to question #3 is NO, what is your major source of income? _____

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

   "The thing I like <u>most</u> about beef production is_____

   _____

TO THE INTERVIEWED: 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 <u>dislike</u> 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?

	Total	Registered	Grade
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.)

Breed	Number of Cows		Number of Heifers		Number of Bulls	
	Regis.	Grade	Regis.	Grade	Regis.	Grade
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. Artifically_____(__no.) b. Naturally_____(__no.)

15. What type of bull did you use on your heifers?

a. Beef_____(___no.) b. Mixed_____(___no.) c. Dairy_____(___no.)

16. How were your cows bred last year?

a. Artifically_____(___no.) b. Naturally_____(___no.)

TO THE INTERVIEWER: The purpose of the next question is to find out if the respondent --

(1) is aware of certain recommended practices

(2) is interested in using them

(3) plans to try them

(4) has tried them

(5) is using them, or will use them when the need arises

(6) and his reason for never trying the practices, or for not using them after trying them.

INTERVIEWER hand each card to respondent separately after saying: "I have here a set of cards. On each card is a beef production practice. Would you read each card and tell me whether or not you have tried that practice?" (Check Yes or No in the "Has Tried" column below.)

In his reply, the respondent may also answer the other four points. If not, INTERVIEWER WILL ASK APPROPRIATE QUESTIONS TO OBTAIN THE ANSWERS. Check in appropriate columns below.

17. Beef Production Practices	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)
(1) Used one or more performance tested bulls										
(i) Reasons for never trying practice OR not using after trying _____										
(2) Bull's records met minimum requirements of the breeders' performance tested bull sale										

	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										
(4) Used separate pasture area for bull(s) during off-breeding season (August through March)										
(5) Waited until replacement heifers were at least 15 months of age and had attained a minimum weight of 650 lbs. before breeding										
(6) Had all herd cows pregnancy checked last year										

(i) Reasons for never trying practice OR not using after trying

_____

(i) Reasons for never trying practice OR not using after trying

_____

(i) Reasons for never trying practice OR not using after trying

_____

(i) Reasons for never trying practice OR not using after trying

_____

(i) Reasons for never trying practice OR not using after trying

_____

	Read of 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)
(7) Checked herd cows at least twice a day during the breeding season										

(i) Reasons for never trying practice OR not using after trying

_____

(8) Had and used a system for identifying each breeding female in the herd										

(i) Reasons for never trying practice OR not using after trying

_____

(9) Checked first-calf heifers at least 2 or 3 times daily during calving season										

(i) Reasons for never trying practice OR not using after trying

_____

(10) Checked older cows at least once a day during calving season										

(i) Reasons for never trying practice OR not using after trying

_____

(11) Arranged to have competent help available when calving difficulties occurred										

	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)
(12) Had and used a system for permanently identifying calves										
(13) Followed recommended procedures in castration										
(14) Followed recommended procedures in dehorning										
(15) Provided access to a recommended mineral mixture for all cattle										
(16) Followed a systematic rotational grazing program										

(i) Reasons for never trying practice OR not using after trying

_____

(i) Reasons for never trying practice OR not using after trying

_____

(i) Reasons for never trying practice OR not using after trying

_____

(i) Reasons for never trying practice OR not using after trying

_____

(i) Reasons for never trying practice OR not using after trying

_____

(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)
(17) Provided extra or supplementary grazing for the herd during July, August and September										

(i) Reasons for never trying practice OR not using after trying

_____

(18) Kept cows on good permanent pasture sod until late fall and early winter to reduce winter feed costs										

(i) Reasons for never trying practice OR not using after trying

_____

(19) Kept replacement heifers separate from rest of breeding herd during winter										

(i) Reasons for never trying practice OR not using after trying

_____

(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

_____

	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)
(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 never trying practice OR not using after trying

_____

(27) Vaccinated all brood cows and replacement heifers for leptosipirosis										

(i) Reasons for never trying practice OR not using after trying

_____

(28) Vaccinated all calves for blackleg and malignant edema during nursing period										

(i) Reasons for never trying practice OR not using after trying

_____

(29) Checked cattle for possible trouble at least 3 times per week throughout the year										

(i) Reasons for never trying practice OR not using after trying

_____

(30) Had, used appropriately and maintained system of working pens, lots and restraining equipment										

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

(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_____
b. Assist. or special agent____
c. Exten. animal husbandman____
d. Local veterinarian_____
e. Artifical breeding tech.____
f. Vo-Ag teacher_____
g. Cattle buyer_____
h. Feed dealer or salesman_____
i. Banker or P.C.A. representative____
j. Neighbor or friend(cattleman)_____
k. Equipment dealer_____
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_____
b. Commercial (feed co.) bulletins _____
c. Farm magazines_____
d. Daily newspapers_____
e. Weekly newspapers_____
f. Radio_____
g. Television_____
h. Farm meetings_____
i. Field days and tours_____
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	Master's	Doctor's
None	Grade School	H.S.	Col. Underg.	Degree	Degree	Degree

22. Age of Respondent?

a. Under 25_____
b. 25 - 34 _____
c. 35 - 44 _____
d. 45 - 54 _____
e. 55 - 64 _____
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 #21, 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)
b. Stockyards_____(number)
c. Organized feeder sales_____(number)
d. Special stock sale_____(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 & corrals_____ g. Scales_____
b. Trench silo_____ e. Head gate_____ h. Back rubber_____
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) About what was your total gross family income last year? (Hand card to respondent and ask him to select a category.)

a. 0-1999_____
b. 2,000-3,999_____
c. 4,000-5,999_____
d. 6,000-7,999_____
e. 8,000-9,999_____
f. 10,000-11,999_____
g. 12,000-13,999_____
h. 14,000-15,999_____
i. 16,000-17,999_____
j. 18,000-19,999_____
k. 20,000-21,999_____
l. 22,000-23,999_____
m. 24,000-25,999_____
n. 26,000-29,999_____
o. 30,000-49,999_____
p. 50,000-99,999_____

Name of Respondent_____ Address_____ County_____

Date_____ Number_____ Tenure Status_____

QUESTIONS FOR THE INTERVIEWER TO ANSWER (Not in Interview)

Name of Respondent_____

Address_____ County_____

46. Pounds of beef sold last year per cow bred_____

47. All people do not adopt practices at the same time. About where would you place the respondent with respect to adopting new recommended beef practices?

a. Among the first few_____ d. A little later than most_____
b. Soon after the first few____ e. Among the last few_____
c. Sooner than the average_____

48. Interest of respondent in improving his beef management (In interviewer's jusgment)

a. Very interested_____ c. Indifferent_____
b. Somewhat interested_____ d. Not interested_____

49. Respondent's attitude toward survey (In interviewer's judgment)

a. Friendly_____ c. Indifferent_____
b. Somewhat friendly_____ d. Antagonistic_____

50. Should the respondent pay more attention to management of his beef herd in light of his situation?

a. Yes_____ b. No_____ c. Uncertain_____

51. How well do you know the respondent?

a. Very well_____ c. Not very well_____
b. Fairly well_____ d. Not at all_____

52. How familiar are you with the respondent's beef situation?

a. Very familiar_____ c. Not very familiar_____
b. Fairly familiar_____ d. Not familiar_____

53. If very or fairly familiar with their beef situation, how would you rate the present condition and value of his dairy herd?

a. Excellent_____ c. Fair_____
b. Good_____ d. Poor_____

VITA

BORN: Clyde N. Taylor was born on August 17, 1920, to Mr. and Mrs. Gene N. Taylor, Route 6, Nashville, Tennessee.

ELEMENTARY AND HIGH SCHOOL EDUCATION: Attended Wade Elementary School and four years at Cumberland High School, Davidson County, Tennessee.

UNDERGRADUATE STUDY: Attended four years at the University of Tennessee, Knoxville, Tennessee. Granted B.S. degree in Agriculture with a major in Agriculture Education from the University of Tennessee, Knoxville.

GRADUATE STUDY: Attended the University of Tennessee short course for four years, Knoxville, Tennessee.

EXPERIENCE: The University of Tennessee Ag Club, taught vocational agriculture, Assistant County Agricultural Agent, and Extension Agent.