

February 28, 1966

To the Graduate Council:

I am submitting herewith three related problems in lieu of thesis written by Arnold Fay Hunter entitled: "Grade A Milk Producers in Greene County, Tennessee: Problem A: Characteristics of Greene County Grade A Milk Producers and Their Farms; Problem B: Management Practices of Greene County Grade A Milk Producers; Problem C: Factors Influencing Dairy Management Practice Adoption by Greene County Grade A Milk 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. Jotson
Major Professor

We have read these problems and
recommend their acceptance:

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Accepted for the Council:

Dean of the Graduate School

GRADE A MILK PRODUCERS IN GREENE COUNTY, TENNESSEE:

PROBLEM A: CHARACTERISTICS OF GREENE COUNTY GRADE A MILK PRODUCERS AND
THEIR FARMS

PROBLEM B: MANAGEMENT PRACTICES OF GREENE COUNTY GRADE A MILK PRODUCERS

PROBLEM C: FACTORS INFLUENCING DAIRY MANAGEMENT PRACTICE ADOPTION BY
GREENE COUNTY GRADE A MILK PRODUCERS

Three Related Special Problems in Lieu of Thesis

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

by
Arnold Fay Hunter

March 1966

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PROBLEM A:

CHARACTERISTICS OF GREENE COUNTY GRADE A MILK PRODUCERS AND THEIR FARMS

A Special Problem in Lieu of Thesis

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of the Requirements for the Degree
Master of Science

by

Arnold Fay Hunter

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CHAPTER I

INTRODUCTION

I. THE SITUATION AND NEED FOR THE STUDY

Dairying traditionally ranks about fourth in importance as a source of agricultural income in Tennessee (15:1).^{*} Annual receipts averaged about 85 million dollars for the five-year period 1959-63. There were about 476,000 dairy cows in Tennessee in 1963. Average milk production per Tennessee cow that year was 4,700 pounds, while the average production in the United States was 7,545 pounds per cow. Research has suggested that production per cow of less than 6,000 pounds is unprofitable and that cows producing below that amount ought to be culled and replaced.

Greene County is located in the northeast section of the Eastern division of Tennessee. It is bordered by Washington County to the east, which is also a large dairy county. However, in the other four bordering counties (Cocke, Hamblen, Hawkins and Sullivan), dairying does not rank so high in the total agricultural income of the county. The agriculture of the county is chiefly tobacco and dairying. Dairying usually ranks second in importance and is exceeded only in dollar

^{*}Numbers in parentheses refer to numbered references in the Bibliography; those after the colon are page numbers.

value by the sale of tobacco. The sale of milk accounted for 26 percent of the agricultural income in 1963, which amounted to slightly more than three million dollars that year (4:216).

The number of Grade A dairies in Greene County has remained constant for the past five years (1959-63). At the time of the study there were 125 Grade A dairies in the county (8). Two nearby markets, Southeast Milk Sales at Bristol, Virginia, and Knoxville Milk Producers Association at Knoxville, Tennessee, were receiving all of the Grade A milk produced in Greene County.

The 1959 Census Report showed a total of 566 dairy farms in Greene County. This was about 12 percent of the number of total farms. However, 3,000 farms (60 percent of the total farms) reported selling milk (4:178). Out of the 566 dairy farms, 441 of these sold manufacturing milk in 1963. Traditionally in Greene County as Grade A dairy-men have left the dairy industry for various reasons, a number of the more efficient manufacturing milk producers have always been ready to take their place on the market.

Greene County leads the state in the sale of dairy products. Also, the number of milk cows in the county far surpasses any other county in the state. Rutherford County, which ranks second in number of milk cows, has 17,000 cows, which is 10,000 or 37 percent, less than Greene. However, income from sale of milk in Rutherford County was only ten percent less than that of Greene County (4:202).

Two large manufacturing milk plants are located in Greeneville. The county is well covered with milk routes, making a market available

to anyone wishing to sell milk. This accounts for the large number of farmers selling milk. The plants seldom operate at full capacity. In fact, the managers of both plants said that they could handle much more milk than they were getting and continue to pay the present price (19).

Some statewide milk production problems identified in 1964 included (3:16): (1) there was a lack of an adequate supply of quality feed (especially hay and silage); (2) too few dairymen were using artificial breeding; (3) most dairymen in Tennessee were not keeping adequate records; (4) many housing and milking facilities were inadequate and/or inefficient; (5) mastitis continued to be a common disease in dairy herds throughout the state, and (6) the use of too much or too little insecticides in the control of flies and other insect pests posed problems of high bacterial count and/or contamination.

The basis for the identification of the above problems was mainly that of observation by county and state Extension staff members. It was noted that further research needed to be done in selected counties to learn more concerning milk producers and to try to ascertain which recommended production and management practices they were and were not using, and why they were or were not using them. Greene County was one of several Tennessee counties participating in a statewide project under the guidance of the Agricultural Extension Training and Studies Department and the Dairy Department of the University of Tennessee.

Based on findings of this and companion studies, plans could be developed for use in teaching Grade A milk producers to do a better job

in the management of their herds. Increased net returns per cow and per herd should be the result.

II. THE PURPOSE OF THE STUDY

This specific study, then, was guided by the following purpose: to determine the characteristics of Greene County dairymen, including those who annually produce in high, middle, and low thirds in terms of pounds of butterfat per cow.

III. REVIEW OF LITERATURE

The University of Tennessee has conducted limited research to determine the characteristics of Grade A dairy producers in Tennessee. From the small number of articles found in the Agricultural Library, it seemed that the same situation might exist in most other states.

Givan (6:8) noted that the average Tennessee producer who responded to a mail questionnaire in 1963 was 47 years of age, operated a farm consisting of 250 acres of land, and had a herd of 41 mature cows, with each cow producing 7,157 pounds of milk annually. All 125 Greene County Grade A dairymen were included in Givan's earlier (1963) study which consisted of 3,097 producers throughout Tennessee selling milk under Federal orders.

In a Virginia study of Grade A milk producers in 1958, it was found that the average dairyman was between 40 and 50 years of age, had 9 years of formal education, milked 40 cows in a stanchion-type barn, used some artificial breeding and expected to increase the size

of his herd (11:4).

O'Neal (13:25) found by studying 20 Grade A milk producers in Anderson County that the level of milk production was related to the dairyman's managerial ability.

IV. METHODS

For the purposes of this study, 75 Grade A dairymen were selected from the total population of 125. A table of random numbers from Dixon and Massey, Introduction to Statistical Analysis, was used in selecting the 60 percent sample.

The dairymen were divided into three groups of 25 each according to their average butterfat production per cow. Table I shows the groups and the range of butterfat production within each group.

A comprehensive survey schedule (see Appendix) consisting of 45 main questions, some of them containing many sub-parts was completed by personal interview with each of the 75 dairymen who produced Grade A milk during all of 1963. In addition, information was obtained from the various milk companies concerning pounds of milk, butterfat test and average bacterial count of milk sold by each of these producers during the calendar year of 1963.

Also, the interviewer completed eight other judgement questions concerning the respondent after each interview was terminated. These questions gave the interviewer's impression of the respondent's interest, attitude, attention to management details, how well the

TABLE I

NUMBERS OF GREENE COUNTY GRADE A DAIRYMEN IN THE BUTTERFAT PRODUCTION
GROUPS ACCORDING TO RANGES IN BUTTERFAT PRODUCTION PER
COW BASED ON 1963 FIGURES

Average Per Cow Butterfat Production Group	Number of Producers Interviewed	Range of Butterfat Production Per Cow Within Groups (Pounds)
Low	25	130 lb. - 239 lb.
Medium	25	290 lb. - 349 lb.
High	25	350 lb. - 470 lb.
Total	75	130 lb. - 470 lb.

interviewer knew the respondent, and gave a rating concerning the value and condition of the herds in those cases where the interviewer was familiar enough to make such judgements.

CHAPTER II

FINDINGS

I. DEGREE TO WHICH INTERVIEWER KNEW GRADE A MILK PRODUCERS

Table II shows that 41 percent of the dairymen were known very well or fairly well by the interviewer, while 59 percent were not very well known. It appeared that the more progressive farmers kept in closer touch with the County Agent's Office than others since 60 percent of the high producers were known very well or fairly well. In contrast, the interviewer knew 40 percent of the medium producers and only 24 percent of the low producers.

II. RESPONDENT'S ATTITUDE TOWARD THE SURVEY

Table III gives the interviewer's opinion of the respondent's attitude toward the survey. There are no significant differences to be noted in this table. However, it is interesting to note that all 75, or 100 percent of those interviewed, had a friendly attitude toward the survey.

III. EDUCATIONAL LEVELS

The average grade level for all dairymen was 10.1 grades, which is revealed in Table IV. The high producers (10.6 average) were more than one grade level above the low producers (9.4 average).

TABLE II

DEGREES TO WHICH INTERVIEWER KNEW ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS BY NUMBERS AND PERCENTS*

Degree to Which Interviewer Knew Respondent	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Very Well	13	17	8	32	4	16	1	4
Fairly Well	18	24	7	28	6	24	5	20
Not Very Well	26	35	6	24	11	44	9	36
Not At All	18	24	4	16	4	16	10	40
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE III

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

Attitdue Toward the Survey	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No..	%	No.	%	No.	%
Friendly	75	100	25	100	25	100	25	100
Somewhat Friendly	0	0	0	0	0	0	0	0
Indifferent	0	0	0	0	0	0	0	0
Antagonistic	0	0	0	0	0	0	0	0
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE IV

EDUCATIONAL LEVELS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS BY NUMBERS AND PERCENTS,
AND AVERAGE EDUCATIONAL GRADE LEVELS*

Educational Grade Level	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
1-4 (Elementary)	3	4	0	0	0	0	3	12
5-7	7	9	1	4	3	12	3	12
8	12	16	5	20	5	20	2	8
9-11	22	30	7	28	6	24	9	36
12	26	35	10	40	9	36	7	28
1-3 (college)	4	5	2	8	2	8	0	0
Bachelor's	1	1	0	0	0	0	1	4
Total	75	100	25	100	25	100	25	100
Average Educational Levels	10.1 grades		10.6 grades		10.2 grades		9.4 grades	

*Percents are rounded to the nearest whole number.

IV. AGE GROUPS

Table V shows that the average age of all producers interviewed was 49 years. Nine producers were under 35 years of age and only one was in the high producer group. Six dairymen were over 65 and none were high producers.

V. GROSS FAMILY INCOME

Gross family income was an optional question on the interview, though only seven dairymen did not respond. The average gross family income was \$18,779 for all dairymen as pointed out in Table VI.

Incomes of high producers (\$20,818) and medium (\$19,400) did not differ greatly. However, the low group (\$15,905) had a considerably lower income. None of the medium producers had incomes below \$10,000.

VI. SEX GROUPS

The total number of respondents interviewed were males. However, the interviewer found that both husband and wife were very much interested in the dairy operation. In most cases where the operator did the milking, he was assisted by his wife.

VII. STAGE IN THE ADOPTION PROCESS

The interviewer was asked to rate each respondent with respect to adopting recommended dairy practices. The results of this rating

TABLE V

AGE GROUPS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH,
MEDIUM AND LOW PRODUCERS BY NUMBERS AND PERCENTS,
AND AVERAGE AGES*

Age Category In Years	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Under 25	1	1	0	0	0	0	1	4
25 - 34	8	11	1	4	3	12	4	16
35 - 44	21	28	7	28	6	24	8	32
45 - 54	22	29	12	48	7	28	3	12
55 - 64	17	23	5	20	6	24	6	24
65 or more	6	8	0	0	3	12	3	12
Total	75	100	25	100	25	100	25	100
Average Age	49 years		48 years		50 years		47 years	

*Percents are rounded to the nearest whole number.

TABLE VI

TOTAL 1963 GROSS FAMILY INCOMES OF ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY NUMBERS
AND PERCENTS, AND AVERAGE INCOMES*

Total Gross Family Income Category in Dollars	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not Answered	7	9	3	12	0	0	4	16
2000-3999	1	1	1	4	0	0	0	0
4000-5999	1	1	0	0	0	0	1	4
6000-7999	2	3	1	4	0	0	1	4
8000-9999	6	8	0	0	0	0	6	24
10,000-11,999	3	4	1	4	2	8	0	0
12,000-13,999	5	7	0	0	3	12	2	8
14,000-15,999	8	11	2	8	5	20	1	4
16,000-17,999	10	13	4	16	4	16	2	8
18,000-19,999	5	7	1	4	3	12	1	4
20,000-21,999	9	12	3	12	2	8	4	16
22,000-23,999	5	7	3	12	1	4	1	4
24,000-25,999	1	1	0	0	1	4	0	0
26,000-29,999	7	9	4	16	2	8	1	4
30,000-49,999	5	7	2	8	2	8	1	4
Total	75	100	25	100	25	100	25	100
Average Income	\$18,779		\$20,818		\$19,400		\$15,905	

*Percents are rounded to the nearest whole number.

are shown in Table VII. The apparent knowledge of the respondent was given consideration by the interviewer. Only 3 percent were rated as being among the first to adopt recommended practices while 16 percent were among the last few to make these adoptions.

When the dairymen were considered in production groups, it was important to note that the high producers tended to be farther along in adoption of practices than the low, and the medium producer fell at midpoint on the scale. The high producers averaged 3.4 points, "sooner than average," and low 2.1 points, which put them in the category of "a little later than most."

VIII. INTEREST IN DAIRY HERD MANAGEMENT IMPROVEMENT

The interviewer rated each producer according to his opinion as to their interest in improving the level of dairy herd management. Table VIII reveals about the same trend as was seen in the table regarding the stage of adoption (Table VII). Only one dairyman (a medium producer) was not interested in improving his management, and none of the producers were indifferent. Interest in improving dairy herd management was considerably higher among the high producers (68 percent) than the low producers (20 percent).

IX. MAJOR OCCUPATION

Ninety-three percent of the dairymen interviewed were classified as full-time farmers. Table IX reveals that none of the producers were

TABLE VII

INTERVIEWER'S OPINION OF STAGES OF THE ADOPTION PROCESS REPRESENTED
BY ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW
PRODUCERS, IN TERMS OF NEW RECOMMENDED DAIRY MANAGEMENT
PRACTICES, BY NUMBERS AND PERCENTS*

Stage in Adoption of New Dairy Man- agement Practices	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Among the first few (5 points)	2	3	2	8	0	0	0	0
Soon after first few (4 points)	13	17	8	32	4	16	1	4
Sooner than aver- age (3 points)	25	33	9	36	10	40	6	24
A little later than most (2 points)	23	31	3	12	8	32	12	48
Among the last few (1 point)	12	16	3	12	3	12	6	24
Total	75	100	25	100	25	100	25	100
Average Stage	2.6 points		3.4 points		2.6 points		2.1 points	

*Percents are rounded to the nearest whole number.

TABLE VIII

INTERVIEWER'S OPINION OF THE INTEREST OF ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS, IN IMPROVING THEIR
LEVELS OF DAIRY HERD MANAGEMENT BY NUMBERS AND PERCENTS,
AND AVERAGE INTEREST*

Degree of Interest in Improving Dairy Management Level	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not Interested (0 points)	1	1	0	0	1	4	0	0
Indifferent (1 point)	0	0	0	0	0	0	0	0
Somewhat Interested (2 points)	41	55	8	32	13	52	20	80
Very Interested (3 points)	33	44	17	68	11	44	5	20
Total	75	100	25	100	25	100	25	100
Average Interest	2.4 points		2.7 points		2.4 points		2.2 points	

*Percents are rounded to the nearest whole number.

TABLE IX

MAJOR OCCUPATIONS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS BY NUMBERS AND PERCENTS*

Major Occupation	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Full-time Farmer	70	93	22	88	25	100	23	92
Part-time Farmer	0	0	0	0	0	0	0	0
Businessman	4	6	3	12	0	0	1	4
Other	1	1	0	0	0	0	1	4
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

part-time farmers. However, four businessmen did operate dairies and three of these were high producers.

X. MAJOR FARM ENTERPRISES

As indicated in Table X, dairying was the major farm enterprise of 93 percent of the 75 dairymen interviewed. Dairying was not the chief source of income for the five who fell into the "other" category. They were the previously mentioned businessmen who received a larger share of their income off the farm.

XI. TOTAL FARM ACREAGE

Table XI shows that the average farm acreage of all producers was 224 acres. The high producers, with an average of 202 acres was somewhat lower than the average and also the other two groups. The medium and low producers had about the same acreage, 233 acres and 237 acres respectively. Two medium producers and two low producers had over 500 acres which partially accounts for the higher average.

XII. TOTAL CROPLAND ACREAGE

Average cropland acres show somewhat the same results as did average farm acreage (see Table XII). The high producers were below the average while the medium and low producers fell above the average. Note that there were not any high producers having as much as 350 acres. However, two medium producers and two low producers had more

TABLE X

MAJOR FARM ENTERPRISES OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS BY NUMBERS AND PERCENTS*

Major Farm Enterprise	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Dairying	70	93	22	88	25	100	23	92
Other	5	7	3	12	0	0	2	8
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XI

TOTAL FARM ACREAGE CATEGORIES OF ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY NUMBERS
AND PERCENTS, AND AVERAGE FARM ACRES*

Total Farm Acreage Interval	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Under 50	1	1	1	4	0	0	0	0
50-99	5	7	0	0	2	8	3	12
100-149	25	33	9	36	8	32	8	32
150-199	12	16	6	24	3	12	3	12
200-249	10	13	3	12	4	16	3	12
250-299	8	11	2	8	3	12	3	12
300-349	6	8	3	12	1	4	2	8
350-399	1	1	0	0	0	0	1	4
400-449	2	3	0	0	2	8	0	0
450-499	0	0	0	0	0	0	0	0
500 or over	5	7	1	4	2	8	2	8
Total	75	100	25	100	25	100	25	100
Average Acres in Farm	224		202		233		237	

*Percents are rounded to the nearest whole number.

TABLE XII

TOTAL CROPLAND ACREAGE CATEGORIES OF ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY NUMBERS
AND PERCENTS, AND AVERAGE ACRES*

Total Cropland Acreage Interval	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
0-49	2	3	1	4	0	0	1	4
50-99	13	17	4	16	5	20	4	16
100-149	24	32	8	32	9	36	7	28
150-199	15	20	7	28	2	8	6	24
200-249	11	15	2	8	4	16	5	20
250-299	5	7	2	8	3	12	0	0
300-349	1	1	1	4	0	0	0	0
350-399	0	0	0	0	0	0	0	0
400-449	2	3	0	0	2	8	0	0
450-499	1	1	0	0	0	0	1	4
Over 500	1	1	0	0	0	0	1	4
Total	75	100	25	100	25	100	25	100
Average Acres in Cropland	165		150		166		180	

*Percents are rounded to the nearest whole number.

than 350 acres of cropland.

XIII. COWS MILKED

Size of Herd

The average size of the milking herd was 39 cows. Seventy-six percent of the herds were under 50 cows. Table XIII shows that 49 percent of the herds fell in the 30-49 cow category. One-fourth, or 27 percent of the herds were below 30 cows. There seemed to be very little relation between the size of herd and butterfat production, though high producers (40 cow average) had larger herds than low (37 cows).

Registered Cows

Table XIV indicates that over one-half (56 percent) of the dairymen reported no registered cows in their herds. When the breakdown of registered cows is studied by producer group, again it is seen that high producers (6 cows) had more registered animals than did the low (5 cows average).

Breed of Cows

Tables XV and XVI show the breeds of registered and grade cows and their distribution throughout the three groups. It was noted that more dairymen (13 percent) were milking registered Holstein than any other breed. Guernseys followed with mentions in six herds. Five out of 10 registered Holstein breeders were high producers.

TABLE XIII

TOTAL NUMBERS OF COWS MILKED BY ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN 1963 BY
NUMBERS AND PERCENTS, AND AVERAGE HERD SIZE*

Herd Size Interval in Numbers of Cows	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
12-29	20	27	6	24	6	24	8	32
30-49	37	49	15	60	11	44	11	44
50-69	15	20	3	12	7	28	5	20
70-99	2	3	0	0	1	4	1	4
100-120	1	1	1	4	0	0	0	0
Total	75	100	25	100	25	100	25	100
Average Herd Size	39 cows		40 cows		40 cows		37 cows	

*Percents are rounded to the nearest whole number.

TABLE XIV

TOTAL NUMBERS OF REGISTERED COWS MILKED BY ALL GREENE COUNTY
DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN
1963 BY NUMBERS AND PERCENTS, AND AVERAGE NUMBERS*

Number of Registered Cows Milked	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
0	42	56	13	52	16	64	13	52
1-9	20	26	7	28	6	24	7	28
10-19	6	8	2	8	1	4	3	12
20-29	2	3	1	4	1	4	0	0
30-39	5	7	2	8	1	4	2	8
Total	75	100	25	100	25	100	25	100
Average Number	5 cows		6 cows		4 cows		5 cows	

*Percents are rounded to the nearest whole number.

TABLE XV

BREEDS OF REGISTERED COWS MILKED IN 1963 BY ALL GREENE COUNTY
DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS
BY NUMBERS AND PERCENTS*

Breed of Registered Cows	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	44	59	12	48	16	64	16	64
Guernsey	6	8	2	8	2	8	2	8
Holstein	10	13	5	20	3	12	2	8
Jersey	4	5	1	4	2	8	1	4
Other	4	5	1	4	2	8	1	4
Guernsey & Holstein	3	4	2	8	0	0	1	4
Guernsey, Holstein and/or Jersey	2	3	0	0	0	0	2	8
Holstein & Jersey	2	3	2	8	0	0	2	8
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XVI

BREEDS OF GRADE COWS MILKED IN 1963 BY ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS
BY NUMBERS AND PERCENTS*

Breed of Grade Cows	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	4	5	2	8	1	4	1	4
Guernsey	2	3	0	0	0	0	2	8
Holstein	16	21	8	32	5	20	3	12
Other	3	4	1	4	2	8	0	0
Guernsey & Holstein	16	21	4	16	5	20	7	28
Guernsey, Holstein and/or Jersey	11	15	2	8	5	20	4	16
Holstein & Jersey	9	12	4	16	3	12	2	8
Brown Swiss and/or Holstein and/or Jersey and/or Guernsey or other	6	8	1	4	1	4	4	16
All Four Above	2	3	1	4	0	0	1	4
All Four and Other	6	8	2	8	3	12	1	4
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

Four herds reported no grade cows at all. Twenty-one percent of the dairymen reporting had all Holstein grade cows, while another 21 percent had a mixture of grade Guernseys and Holsteins. It is of some interest to note that one-half of all Holstein grade herds were in the high producer group.

XIV. HEIFERS KEPT

Replacements

Eighty-five percent of all Greene County dairymen were raising at least a portion of their replacement heifers. Tables XVII and XVIII give a breakdown of heifers over and under one year of age, respectively, that were kept on the 75 Grade A dairy farms.

Eleven dairymen were buying all of their replacements. Some did not have resources for a heifer program and others thought that it was more profitable to buy replacements. Those dairymen keeping from one to 20 heifers were evenly distributed between production groups, but 5 of 10 having 20 or more heifers over a year in age were high producers. The average number of heifers kept one year and older was 12, while the average number under one year was 7. No appreciable differences were noted when high and low were compared.

Registered Heifers

Sixteen percent of all producers were keeping any registered heifers. Data in Tables XIX and XX show that the numbers of registered heifers kept were relatively small with only two herds having

TABLE XVII

TOTAL NUMBERS OF HEIFERS ONE YEAR OR OLDER KEPT BY ALL GREENE
COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW
PRODUCERS IN 1963 BY NUMBERS AND PERCENTS,
AND AVERAGE NUMBERS*

Number of Heifers Kept	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
0	11	15	4	16	5	20	2	8
1-10	28	37	9	36	8	32	11	44
11-20	26	35	7	28	11	44	8	32
21-30	6	8	4	16	0	0	2	8
31-40	4	5	1	4	1	4	2	8
Total	75	100	25	100	25	100	25	100
Average Number Kept	12 heifers		12 heifers		10 heifers		13 heifers	

*Percents are rounded to the nearest whole number.

TABLE XVIII

TOTAL NUMBERS OF HEIFERS UNDER ONE YEAR OF AGE KEPT BY GREENE
COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW
PRODUCERS IN 1963 BY NUMBERS AND PERCENTS,
AND AVERAGE NUMBERS*

Number of Heifers Kept	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
0	15	20	4	16	6	24	5	20
1-10	38	51	10	40	14	56	14	56
11-20	20	26	11	44	3	12	6	24
21-30	2	3	0	0	2	8	0	0
Total	75	100	25	100	25	100	25	100
Average Number Kept	7 heifers		8 heifers		7 heifers		7 heifers	

*Percents are rounded to the nearest whole number.

TABLE XIX

TOTAL NUMBERS OF REGISTERED HEIFERS ONE YEAR OR OLDER KEPT BY ALL
GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW
PRODUCERS IN 1963 BY NUMBERS AND PERCENTS,
AND AVERAGE NUMBERS*

Number of Heifers Kept	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
0	63	84	18	72	23	92	22	88
1-10	10	13	6	24	2	8	2	8
11-20	2	3	1	4	0	0	1	4
Total	75	100	25	100	25	100	25	100
Average Number by Those Keeping	1 heifer		1 heifer		1 heifer		1 heifer	

*Percents are rounded to the nearest whole number.

TABLE XX

TOTAL NUMBERS OF REGISTERED HEIFERS UNDER ONE YEAR OF AGE KEPT BY ALL
GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW
PRODUCERS IN 1963 BY NUMBERS AND PERCENTS,
AND AVERAGE NUMBERS*

Number of Heifers Kept	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
0	64	86	17	68	24	96	23	92
1-10	10	13	7	28	1	4	2	8
11-20	1	1	1	4	0	0	0	0
Total	75	100	25	100	25	100	25	100
Average Number by Those Keeping	1 heifer		1 heifer		1 heifer		1 heifer	

*Percents are rounded to the nearest whole number.

more than ten heifers one year or older and only one herd having more than ten heifers under one year of age. The average for all producers was about two registered heifers kept. Fifty-eight percent of those having older heifers and 73 percent of those having younger heifers were high producers. This would suggest that heifers from the high producing cows were probably being registered.

Breed of Heifers

It is seen in Table XXI that the Holstein breed, with 8 herds, was more frequently mentioned than any other breed among registered heifers kept. No other breed or combination of breeds was represented by more than two herds. Also, 6 of the 8 herds having registered Holstein heifers were on high production farms.

Table XXII tells about the same with respect to the predominance of the Holstein breed in grade heifers kept. Nearly one-third (32 percent) of the dairymen were keeping grade Holstein heifers, twelve reporting a combination of Guernseys and Holsteins, while eight had a mixture of Holsteins and Jerseys. Forty percent of the high producers kept Holstein grade heifers, while less than one-fourth (24 percent) of the low producers so reported.

XV. BULLS KEPT

Seventy-five percent of the dairymen reported keeping no dairy bulls. Nineteen of the producers reported keeping dairy bulls; 4 were high producers, 5 medium producers and 10 low producers. Table XXIII

TABLE XXI

BREEDS OF REGISTERED HEIFERS KEPT IN 1963 BY ALL GREENE COUNTY
DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS
BY NUMBERS AND PERCENTS*

Breed of Registered Heifers	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	58	77	16	64	21	84	21	84
Guernsey	1	1	0	0	0	0	1	4
Holstein	8	11	6	24	1	4	1	4
Jersey	2	3	1	4	0	0	1	4
Other	1	1	0	0	1	4	0	0
Guernsey and Holstein	1	1	1	4	0	0	0	0
Guernsey, Holstein and/or Jersey	2	3	0	0	1	4	1	4
Holstein and Jersey	2	3	1	4	1	4	0	0
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XXII

BREEDS OF GRADE HEIFERS KEPT IN 1963 BY ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY NUMBERS
AND PERCENTS*

Breed of Grade Heifers	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	17	22	7	28	6	24	4	16
Guernsey	3	4	0	0	0	0	3	12
Holstein	24	32	10	40	8	32	6	24
Jersey	2	3	2	8	0	0	0	0
Other	1	1	1	4	0	0	0	0
Guernsey and Holstein	12	16	3	12	3	12	6	24
Guernsey, Holstein and/or Jersey	3	4	0	0	2	8	1	4
Holstein and Jersey	8	11	1	4	4	16	3	12
Brown Swiss and/or Holstein and/or Jersey and/or Guernsey or other	2	3	0	0	1	4	1	4
All Four and Other	3	4	1	4	1	4	1	4
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XXIII

TOTAL NUMBERS OF BULLS KEPT BY ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN 1963
BY NUMBERS AND PERCENTS, AND AVERAGE NUMBERS*

Number of Bulls Kept	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
0	56	75	21	84	20	80	15	60
1	13	17	3	12	2	8	8	32
2	5	7	1	4	2	8	2	8
3	0	0	0	0	0	0	0	0
4	1	1	0	0	1	4	0	0
Total	75	100	25	100	25	100	25	100
Average Number by Those Keeping	1.4 bulls		1.3 bulls		2.0 bulls		1.2 bulls	

*Percents are rounded to the nearest whole number.

gives a summary of the number of bulls kept in each group.

In Tables XXIV and XXV it will be noted 11 producers were keeping registered bulls, while 10 dairymen were using grade bulls. No grade bulls were reported by high producers.

Breed of Bulls

The breeds of registered and grade dairy bulls kept by Grade A dairymen in Greene County are shown in Tables XXVI and XXVII. The Holstein breed again predominated in numbers of bulls kept. Six dairymen each reported keeping registered and grade Holstein bulls. A total of only 4 registered bulls and one grade bull was reported by producers having the three other breeds including Brown Swiss, Guernsey and Jersey.

Most of the dairymen using bulls felt that it was cheaper than artificial breeding. Also, some had tried artificial breeding and reported a low conception rate.

XVI. RATING OF HERD

Tables XXVIII and XXIX show the ratings given by the respondent and the interviewer for herds included in the study.

Table XXVIII shows that herds averaged between "fair" and "good" (1.8 points). Nineteen dairymen rated their herds as "fair;" while 50 rated their herds as "good." Only one producer (low category) rated his herd "poor" and two (high category) thought their herds were "excellent."

TABLE XXIV

TOTAL NUMBERS OF REGISTERED BULLS KEPT BY ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN 1963 BY NUMBERS
AND PERCENTS, AND AVERAGE NUMBERS*

Number of Bulls Kept	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
0	64	86	21	84	25	100	18	72
1	10	13	3	12	0	0	7	28
2	1	1	1	4	0	0	0	0
Total	75	100	25	100	25	100	25	100
Average Number Kept	1.1 bulls		1.3 bulls		0 bulls		1.0 bulls	

*Percents are rounded to the nearest whole number.

TABLE XXV

TOTAL NUMBERS OF GRADE BULLS KEPT BY ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN 1963 BY
NUMBERS AND PERCENTS, AND AVERAGE NUMBERS*

Number of Bulls Kept	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
0	65	87	25	100	20	80	20	80
1	6	8	0	0	2	8	4	16
2	3	4	0	0	2	8	1	4
3	0	0	0	0	0	0	0	0
4	1	1	0	0	1	4	0	0
Total	75	100	25	100	25	100	25	100
Average Number Kept	1.6 bulls		0.0 bulls		2.0 bulls		1.2 bulls	

*Percents are rounded to the nearest whole number.

TABLE XXVI

BREEDS OF REGISTERED BULLS KEPT IN 1963 BY ALL GREENE COUNTY
DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW
PRODUCERS BY NUMBERS AND PERCENTS*

Breed of Registered Bulls	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	65	87	21	84	25	100	19	76
Brown Swiss	1	1	0	0	0	0	1	4
Guernsey	1	1	0	0	0	0	1	4
Holstein	6	8	3	12	0	0	3	12
Jersey	2	3	1	4	0	0	1	4
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XXVII

BREEDS OF GRADE BULLS KEPT IN 1963 BY ALL GREENE COUNTY
DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW
PRODUCERS BY NUMBERS AND PERCENTS*

Breed of Grade Bulls	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	68	91	24	96	22	88	22	88
Guernsey	1	1	0	0	0	0	1	4
Holstein	6	8	1	4	3	12	2	8
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XXVIII

RATINGS GIVEN TO THEIR DAIRY HERDS BY ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN NUMBERS
AND PERCENTS, AND AVERAGE RATINGS*

Ratings Dairymen Gave Their Own Herds	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not Answered	3	4	2	8	0	0	1	4
Poor (0 points)	1	1	0	0	0	0	1	4
Fair (1 point)	19	25	2	8	7	28	9	36
Good (2 points)	50	67	19	76	18	72	14	56
Excellent (3 points)	2	3	2	8	0	0	0	0
Total	75	100	25	100	25	100	25	100
Average Rating	1.8 points		2.0 points		1.7 points		1.6 points	

*Percents are rounded to the nearest whole number.

TABLE XXIX

INTERVIEWER'S RATINGS GIVEN THE HERDS OF ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY NUMBERS AND
PERCENTS, AND AVERAGE RATINGS*

Ratings Interview- er Gave Herds of Producers	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not known well enough to rate	46	62	10	40	16	64	20	80
Poor (0 points)	0	0	0	0	0	0	0	0
Fair (1 point)	4	5	0	0	1	4	3	12
Good (2 points)	25	33	15	60	8	32	2	8
Excellent (3 points)	0	0	0	0	0	0	0	0
Total	75	100	25	100	25	100	25	100
Average Rating of Herds of Known Respondents	1.9 points		2.0 points		1.9 points		1.4 points	

*Percents are rounded to the nearest whole number.

It will be seen in Table XXIX that the interviewer did not know 62 percent of the dairymen well enough to place a rating on their herds. Of this group, 10 were high producers, 16 medium and 20 low producers.

Fewer of the medium (32 percent) or low (8 percent) producers were rated higher than "fair;" while 60 percent of the high rated "good."

XVII. TYPE OF MILKING FACILITIES

Table XXX shows that 25 dairymen were using the stanchion milk barn. The remaining 50 producers were milking in an elevated stall barn. Little difference was noted when production groups were compared.

XVIII. SIZE OF BULK TANK

All Grade A milk producers were using bulk tanks (see Table XXXI). Seventy-three percent of the dairymen were using bulk tanks with a capacity between 250 and 499 gallons. Another 19 percent were using larger tanks with a capacity between 500 and 749 gallons. There appeared to be no significant difference between the high, medium and low producers when tank sizes were compared.

XIX. PIPELINE SYSTEM AND WEIGHING DEVICES

It is seen from Table XXXII that 49 percent (37) of the dairymen were using a pipeline system with 51 percent (38 dairymen) reporting :

TABLE XXX

TYPES OF MILKING FACILITIES USED BY ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY
NUMBERS AND PERCENTS*

Type of Milking Facility	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Stanchión	25	33	8	32	10	40	7	28
Elevated Stall	50	67	17	68	15	60	18	72
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XXXI

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS HAVING BULK TANKS OF
DIFFERENT SIZES*

Size of Bulk Tank (gal.)	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
100-249	4	5	1	4	1	4	2	8
250-499	55	73	19	76	18	72	18	72
500-749	14	19	4	16	6	24	4	16
750-999	2	3	1	4	0	0	1	4
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XXXII

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS
HAVING PIPELINE SYSTEMS AND WEIGHING DEVICES*

Had Pipeline System	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Yes	37	49	12	48	17	68	8	32
Had Weighing Device	26	35	10	40	10	40	6	24
Used Device	15	20	8	32	5	20	2	8
Didn't Use	11	15	2	8	5	20	4	16
Didn't Have Weighing Device	49	65	15	60	15	60	19	76
No	38	51	13	52	8	32	17	68
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

none.

Twenty-six producers reported a weighing device in connection with their pipeline system. Fifteen dairymen were using the weighing device and 8 of these were high producers, 5 medium, and 2 were in the low group.

XX. STORAGE AVAILABLE FOR SILAGE

Kind

It will be seen in Table XXXIII that 85 percent of the dairymen had one or more silos of different types. Sixty-three percent of the producers had an upright silo. Also, 9 percent of this group had an additional type of silo either trench or bunker. Sixty-four percent of the high producers and fifty-two percent of the low producers had upright silos. None of the dairymen having trench silos were in the high production group.

Some dairymen were planning to add additional silage storage. Indications pointed to an increase in the number of upright silos and automatic feeding in all production categories.

Capacity

The capacities available for storing silage are shown in Table XXXIV. The largest percent of the dairymen, 26, had a storage capacity in the interval of "200-299" tons. Six dairymen had under 100 tons and one had over 750 tons. More than one-half of those dairymen having 200-300 tons of silage were medium producers.

TABLE XXXIII

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS HAVING DIFFERENT
KINDS OF SILOS*

Type of Silo	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	11	15	5	20	2	8	4	16
Upright	40	54	15	60	16	64	9	36
Trench	7	9	0	0	2	8	5	20
Bunker	9	12	4	16	2	8	3	12
Upright & Trench	4	5	0	0	2	8	2	8
Upright & Bunker	3	4	1	4	0	0	2	8
Trench and Bunker	1	1	0	0	1	4	0	0
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XXXIV

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS HAVING DIFFERENT SILAGE
STORAGE CAPACITY*

Silage Storage Capacity in Tonn- age Intervals	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	11	15	5	20	2	8	4	16
50-99	6	8	3	12	2	8	1	4
100-149	10	13	4	16	4	16	2	8
150-199	11	15	2	8	2	8	7	28
200-299	19	26	5	20	10	40	4	16
300-499	9	12	3	12	3	12	3	12
500-749	8	10	3	12	2	8	3	12
Over 750	1	1	0	0	0	0	1	4
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

XXI. SOURCE OF WATER FOR COWS

The different methods for providing water for cows are shown in Table XXXV. Twenty-three dairymen, 31 percent, reported a combination of water in the barn and some other outside source. Forty-four percent of the high and low producers had water in the barn; while 68 percent of those in the medium group had such water sources.

XXII. AMOUNT OF LOAFING BARN AREA

All of the producers except one reported some loafing barn area for his herd as seen in Table XXXVI. (Whenever possible the interviewer excluded feeding area). However, 64 percent of all dairymen had less than the minimum recommended amount of 50 square feet per cow. More high producers (40 percent) than low (32 percent) had more than that amount or had box stalls.

XXIII. MILKING

Person Doing Milking

As will be seen in Table XXXVII, 31 dairymen, or 41 percent of the total, reported they were doing their own milking. Thirty-six (48 percent) of the producers had tenants doing the milking. Both owner and tenant were doing the milking in three herds and someone other than owner or tenant did the milking in five herds. It is interesting to note that fewer high production herd owners (36 percent) milked than was true for the low (52 percent). It is probable that

TABLE XXXV

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS ACCORDING TO SOURCES OF
WATER FOR COWS*

Source of Water for Milk Cows	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Drinking cups in barn	1	1	1	4	0	0	0	0
Other water in barn	10	13	1	4	5	20	4	16
Water outside barn	11	15	6	24	2	8	3	12
Pond	4	5	1	4	0	0	3	12
Stream	12	16	4	16	3	12	5	20
Drinking cups and one or more other	5	7	1	4	2	8	2	8
Other water in barn and one or more other	23	31	8	32	10	40	5	20
Water outside and one or more other	7	9	2	8	3	12	2	8
Pond and stream	2	3	1	4	0	0	1	4
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XXXVI

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS HAVING DIFFERENT AMOUNTS
OF LOAFING AREA PER COW*

Loafing Barn Area per Cow (Square Feet)	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	1	1	0	0	1	4	0	0
Under 30	13	17	1	4	4	16	8	32
30-39	21	28	6	24	9	36	6	24
40-49	13	17	8	32	2	8	3	12
50-59	6	8	2	8	3	12	1	4
60-69	5	7	1	4	0	0	4	16
70 or more	14	19	5	20	6	24	3	12
Box (free) stalls	2	3	2	8	0	0	0	0
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XXXVII

PERSONS DOING THE MILKING ON FARMS OF ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY
NUMBERS AND PERCENTS*

Person Doing Milking	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Owner	31	41	9	36	11	44	11	44
Tenant	36	48	12	48	12	48	12	48
Both	3	4	0	0	1	4	2	8
Other	5	7	4	16	1	4	0	0
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

they spent more time with the decision making in return.

Way Milker Was Paid

Seventy percent of the milkers that were paid received a salary and a share of the tobacco. Only seven dairymen paid their milkers on percentage basis and six received only a salary.

XXIV. BUTTERFAT PRODUCTION

Table XXXVIII shows a breakdown of the average butterfat production per cow. The herds were grouped in 50 pound ranges from 100 to 500 pounds. Research indicates that cows averaging less than 250 pounds of butterfat are not profitable and should be culled from the herd. It was noted that 14 herds averaged less than 250 pounds. In fact, two herds were below 150 pounds. An additional 16 herds were in the group of 250 to 299 pounds. Only eight of the 75 dairymen had herds that fell between 400 and 500 pounds of butterfat. (See Table I for the actual ranges for production within each group.)

XXV. MILK PRODUCTION

The average milk production per cow is shown in Table XXXIX. It will be noted that the average for the 75 Grade A dairymen was 7,921 pounds. This is slightly above the national average of 7,554 pounds in 1963 (15:1). High producers averaged selling 9,902 pounds of milk per cow in 1964, while low producers averaged only 5,819 pounds. According to these data, it appears that almost

TABLE XXXVIII

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS BY AVERAGE BUTTERFAT
PRODUCTION CATEGORIES FOR 1963, AND TOTAL
AVERAGES*

Average Butterfat Production Cate- gory, 1963 (Pounds sold/cow)	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
100-149	2	3	0	0	0	0	2	8
150-199	7	9	0	0	0	0	7	28
200-249	5	7	0	0	0	0	5	20
250-299	16	21	0	0	5	20	11	44
300-349	19	26	0	0	19	76	0	0
350-399	18	24	17	68	1	4	0	0
400-449	7	9	7	28	0	0	0	0
450-500	1	1	1	4	0	0	0	0
Total	75	100	25	100	25	100	25	100
Total Average Production	307 lbs.		389 lbs.		312 lbs.		221 lbs.	

*Percents are rounded to the nearest whole number.

TABLE XXXIX

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED
HIGH, MEDIUM AND LOW PRODUCERS BY AVERAGE MILK PRODUCTION
CATEGORIES FOR 1963, AND TOTAL AVERAGES*

Average Milk Pro- duction Category, 1963 (Pounds sold/cow)	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
3,000-3,999	1	1	0	0	0	0	1	4
4,000-4,999	4	5	0	0	0	0	4	16
5,000-5,999	6	8	0	0	0	0	6	24
6,000-6,999	5	7	0	0	1	4	4	16
7,000-7,999	13	18	0	0	6	24	7	28
8,000-8,999	15	20	2	8	10	40	3	12
9,000-9,999	12	16	5	20	7	28	0	0
10,000-10,999	14	19	13	52	1	4	0	0
11,000-11,999	4	5	4	16	0	0	0	0
12,000-12,999	1	1	1	4	0	0	0	0
Total	75	100	25	100	25	100	25	100
Total Average Production	7,921 lbs.		9,902 lbs.		8,043 lbs.		5,819 lbs.	

*Percents are rounded to the nearest whole number.

one-third of the Grade A dairymen in the county are operating on a marginal, or negative return.

XXVI. BACTERIAL COUNT

The bacterial count for each month for 1963 was secured for 66 of the 75 herds (see Table XL). Information for 9 herds was not available.

The total median bacterial count for all producers was 43,000. From these data there appeared to be no definite relationship between production and average bacterial count, though the count for high producers was slightly lower (42,000) than for low (45,000).

TABLE XL

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM, AND LOW PRODUCERS BY AVERAGE BACTERIAL COUNT CATEGORIES IN 1963, AND TOTAL MEDIAN COUNTS*

Average Bacterial Count Category (Number/ml.)	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not Available	9	12	2	8	4	16	3	12
0-9,999	7	9	3	12	4	16	0	0
10,000-19,999	12	16	4	16	4	16	4	16
20,000-29,999	8	11	2	8	2	8	4	16
30,000-39,999	4	5	2	8	0	0	2	8
40,000-49,999	6	8	3	12	1	4	2	8
50,000-69,999	6	8	1	4	4	16	1	4
70,000-99,999	1	1	0	0	1	4	0	0
100,000-139,999	7	10	3	12	1	4	3	12
140,000-179,999	2	3	1	4	0	0	1	4
180,000-249,999	4	5	2	8	1	4	1	4
250,000-500,000	6	8	2	8	2	8	2	8
Over 500,000	3	4	0	0	1	4	2	8
Total	75	100	25	100	25	100	25	100
Total Median Bacterial Count**	43,000		42,000		45,000		45,000	

*Percents are rounded to the nearest whole number.

**Median counts are rounded to the nearest thousand.

CHAPTER III

SUMMARY

This report is based on the characteristics of Grade A milk producers in Greene County, Tennessee. The information was obtained through a personal interview survey of 75 Grade A milk producers in the county who produced milk throughout the year 1963. In addition to the survey, the milk plants were contacted and information concerning total milk production, butterfat test and bacterial count of milk for each producer was obtained. The producers were divided into three groups according to annual butterfat production per cow and the characteristics of these groups were compared.

I. REVIEW OF FINDINGS

In summarizing the data concerning the characteristics of Grade A dairymen in Greene County who produced in the high, middle and low thirds, according to average pounds of butterfat produced per cow in 1963, one might conclude that the dairymen:

1. Were generally known by the County Agent; 60 percent of the high producers being known very well or fairly well, as compared to 24 percent of the low producers
2. Had a receptive attitude toward the survey, with all being friendly.

3. Had a little over ten years of formal education; high producers being one grade level above the low

4. Average 49 years of age, with no significant difference between groups

5. Had an average gross family income of \$18,779 with the high group averaging \$20,818, compared to \$15,905 for the low production group

6. Received a major share of their family income from dairying and 93 percent were full-time farmers; none of the producers being part-time farmers

7. Operated a farm averaging 224 acres in size and had an average of 165 acres of cropland, low producers having the largest farms and the most cropland.

8. Milked an average of 39 cows, with the high and medium groups averaging 40 cows, compared to 37 for the low producers

9. Had an average of five registered cows per herd, with high producers having six, medium producers four, and low producers five

10. Were milking predominantly Holstein herds, 16 all Holstein, 16 Guernsey and Holstein, nine Holstein and Jersey and 11 Guernsey, Holstein and Jersey

11. Were generally producing replacement heifers, keeping an average of 19 heifers per herd; high producers averaging 20 and low 19

12. Produced an average of 307 pounds of butterfat and 7,921 pounds of milk per cow; with the high group averaging 389 pounds of butterfat and 9,902 pounds of milk, compared to 221 pounds of butterfat and 5,819 pounds of milk for the low group

13. Had an average of about 40 square feet of loafing area per cow; sixty-four percent with less than 50 square feet per cow

14. Were generally using artificial insemination on as many as 50 percent of their milking cows, while 75 percent of the herds (84 percent of the high and 60 percent of the low) had no bull.

All producers had bulk tanks, 49 percent had pipeline milking systems and 67 percent were milking in elevated stall barns. Silos were present on 85 percent of the farms with 63 percent of the farms having upright silos.

High producers were, on the average, very interested in improving their dairy management level; while the low producers were only somewhat interested. Also, the high producers were much higher on the adoption scale when the stages in adoption of new dairy management practices were compared.

II. IMPLICATIONS

Some of the implications that can be drawn from the findings are:

1. A careful consideration of the characteristic differences between high and low producers can be of assistance in planning educational programs for all Greene County dairymen

2. A wide range in educational levels from the second grade to a college degree, indicates that different educational approaches need to be considered

3. The age differences (from under 25 to over 65) point out the need for very careful planning for an effective educational program

4. Low producers need to be motivated to have much more interest in improving their management levels

5. The study pointed out all dairymen were friendly; therefore, it could be expected that they would be receptive to intensified Extension efforts in dairying.

PROBLEM B:

MANAGEMENT PRACTICES OF GREENE COUNTY GRADE A MILK PRODUCERS

A Special Problem in Lieu of Thesis

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

by
Arnold Fay Hunter

March 1966

CHAPTER I

INTRODUCTION

Grade A milk production is the second most important agricultural enterprise in Greene County, and has experienced several changes in recent years. Most Greene County producers have been producing Grade A milk for many years. In fact, a large percent of the operations are father and son operations or have been handed down from father to son. At the time of this study, approximately 125 Greene County farmers were selling Grade A milk to two companies, Knoxville Milk Producers at Knoxville, Tennessee, and Southeast Milk Sales, Inc., at Bristol, Virginia.

Most of the Grade A producers have had previous dairy experience in producing manufacturing milk for Pet Milk Company which started buying milk in Greene County in the late 1920's. Since starting in the Grade A business, many county producers have increased the size of their herds and are using more modern equipment. Rapid changes in technology and in the economic structure of the dairy industry have presented problems that few producers thought about when they first started into Grade A milk production. No previous attempt had been made to learn what Greene County producers were and were not doing with regard to recommended practices. Therefore, it was felt that a close look at the present situation concerning the management practices of Grade A dairymen should provide information for improving educational

and other programs designed to help present and future dairymen do a more efficient job.

I. THE PURPOSE OF THE STUDY

The purpose of this study was to determine which recommended practices Greene County Grade A milk producers were using and were not using in high, medium and low production groups in terms of annual pounds of butterfat per cow (1963 figures).

II. REVIEW OF LITERATURE

There seemed to be little information available regarding management practices of Grade A dairymen in Tennessee. Inquiries sent to ten leading dairy states revealed that there was limited information on this subject available in other areas as well, especially comparative information including all producers, high and low producers.

In a Michigan study (12:1397),* it was found that artificial insemination (A. I.) sired cows were superior to the non-A. I. cows within the same herds.

In Virginia (11:4), it was found that 139 Grade A dairymen who were members of a mail-in, record-keeping system had annual net farm incomes ranging from \$17,869 to a minus \$7,462. Most other information had to do with members of record-keeping systems such as Dairy Herd Improvement Association (D. H. I. A.).

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

In 1964, Miller (12) found that herds on continuous D. H. I. A. test (5 or more years in 1962) and new herds (started on test in 1962) increased in milk production at about the same rate, while selected herds never on test made a slower increase. The increase was 12.6 percent for herds on continuous test, 12.3 percent for new herds on test, and 9 percent for non-tested herds over a two-year period (1962 to 1964).

In a Pennsylvania Project III statement for 1964-65 (5:2), it was noted that the average D. H. I. A. herd tested in that state considerably outproduced the average for all other herds. Pennsylvania reported benchmark data for cows bred artificially and naturally, and gave feed costs per cow for hay, silage, grain and pasture.

III. METHODS

A complete list of Grade A dairymen was obtained from the local health department. The list revealed that there were 125 Grade A dairymen in the county who sold milk during the entire year of 1963. Total milk production, butterfat test and bacterial count figures for each dairyman were obtained from the two milk companies purchasing all the Grade A milk produced in Greene County during 1963. A random sample of 75 dairymen (60 percent) was taken from this group. Each of these producers was contacted personally and interviewed using a schedule (see Appendix) consisting of questions designed to reveal characteristics, production practices and factors influencing practice adoption. This

study has to do with those questions related to the production practices.

The 75 dairymen were divided as follows: (1) 25 high producers with average annual butterfat production (1963 figures) per cow ranging from 470 to 350 pounds; (2) 25 medium producers ranging from 349 to 290 pounds of butterfat per cow; and (3) 25 low producers ranging from 239 to 130 pounds.

Rating Explanation

Twenty-three recommended dairy production practices were included in the interview schedule in an effort to determine the practice adoption level of producers in the high, middle, and low thirds.

The following rating scheme was used to classify management levels of individuals on each of the 23 practices: (1) no points were given if the person interviewed had not 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 it; (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.

Average practice diffusion ratings of the groups are compared in this report. For this purpose the practice diffusion process is considered in the following stages: "unaware" 0-.49; "aware" .5-1.49; "interested in it" 1.5-2.49; "planning to try" 2.5-3.49; "tried"

3.5-4.49 and "using" 4.5-5.0.

An average practice diffusion rating was determined for each producer by adding up his total score and dividing by 23 (the number of recommended practices). Group total average ratings also were completed for the purpose of comparing various groups. Other data reported are simply numbers, percents and averages. Main comparisons are between high and low producers.

In obtaining the information regarding the production practices, each respondent was given a card with the recommended practice typed on it, as it appeared on the interview schedule. This was done in order to further help the respondent understand the practice as the interviewer discussed it with him. The interviewer explained only the basic details regarding the practice and consciously tried to let the respondent answer as he felt he was really carrying out the practice.

CHAPTER II

FINDINGS

I. MANAGEMENT LEVELS OF MILK PRODUCERS

Average Practice Diffusion Rating Intervals

Table XLI gives the average practice diffusion ratings for the 75 Greene County dairymen divided into high, medium and low thirds according to the average butterfat production per cow.

It is noted that all dairymen were, on the average, in the beginning of the "tried" stage with an average of 3.54, the high producers were at the bottom of the "tried" stage and the low producers were almost to the top of the "planning to try" stage.

The high producers had the highest average practice diffusion rating (3.76), when compared to the medium (3.55) and low (3.31) producers.

Table XLI shows that 53 percent (40 dairymen) were in the "tried" and "using" stages. Of this number 68 percent (17 dairymen) were in the high group while 32 percent (8 dairymen) were low producers. All 4 producers who had the highest average, rating in the "using" stage (4.50-5.00), were in the high group.

Relation to Production

The average individual dairy management practice diffusion ratings and total average ratings for all Greene County dairymen

TABLE XLI

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY AVERAGE PRACTICE DIFFUSION RATINGS, AND TOTAL AVERAGE RATINGS*

Average Practice Diffusion Rating Interval**	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
1.83-1.99	1	2	0	0	0	0	1	4
2.00-2.49	3	4	1	4	1	4	1	4
2.50-2.99	12	16	3	12	2	8	7	28
3.00-3.49	19	25	4	16	7	28	8	32
3.50-3.99	19	25	5	20	11	44	3	12
4.00-4.49	17	23	8	32	4	16	5	20
4.50-5.00	4	5	4	16	0	0	0	0
Total	75	100	25	100	25	100	25	100
Total Average Rating	3.54		3.76		3.55		3.31	

*Percents are rounded to the nearest whole number.

**In the rating scale used: 0 = unaware; 1 = aware of 23 recommended practices; 2 = interested in the practices; 3 = planning to try the practices; 4 = tried the practices but not using; and 5 = using the practices.

interviewed, high, medium and low producers, are shown in Table XLII. Also, Table XLIII gives a breakdown of the percents of Greene County dairymen in each of the stages of the diffusion process for each of the management practices studied.

A wide variation in average practice diffusion ratings (Table XLII) is noted from practice to practice for all dairymen. On the average, the range ran from the bottom of the "interested" stage (1.55) for Practice 18, "strip cup always used," to the "using" stage (4.92) for Practice 13, "silage supplemented with enough hay." All producers averaged in the "using" stage with regard to 5 practices: (1) Practice 3, "60-day dry period provided cows" (4.75); (2) Practice 4, "12-14 month calving period provided cows" (4.61); (3) Practice 13, "silage supplemented with enough hay" (4.92); (4) Practice 14, "high quality hay provided" (4.51); and (5) Practice 23, "calves vaccinated for brucellosis, etc." (4.56).

The high producers had a higher average rating than did the low producers in 20 of the 23 practices. They averaged .44 to 2.04 points better than the low producers in 8 of the 20 practices. These apparently critical practices may give some indications regarding the reasons for differences in production. Some observations regarding these practices will follow below.

Breeding practices. The first six practices listed in Tables XLII and XLIII are related to breeding. In the main, all producers averaged in the top of the "tried" stage for these practices. When

TABLE XLII

AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS AND TOTAL AVERAGE RATINGS FOR ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS*

Dairy Management Practice	All Dairymen Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
1. Artificially inseminated $\frac{1}{2}$ or more of cows	3.97	3.88	4.60	3.44
2. All cows bred to same breed bull	4.36	4.60	4.24	4.24
3. 60-day dry period provided cows	4.75	4.84	5.00	4.40
4. 12-14 month calving period provided	4.61	4.88	4.40	4.56
5. 75 percent cows fall freshened	4.16	4.28	4.20	4.00
6. 75 percent herd replacement raised	4.17	4.36	4.00	4.16
7. Adequate milk records kept	2.09	2.88	1.76	1.64
8. Fed cows according to production	1.56	2.12	1.16	1.40
9. Adequate herd records kept	3.04	3.88	2.72	2.52
10. Calves permanently identified	2.57	3.28	2.08	2.36
11. Adequate supply of silage provided	3.90	3.64	4.04	4.04
12. High quality silage provided	4.44	4.24	4.76	4.32
13. Silage supplemented with enough hay	4.92	5.00	5.00	4.76
14. High quality hay provided	4.51	4.36	4.88	4.28
15. Hay and/or silage provided on pasture	3.28	4.20	3.48	2.16
16. Adequate improved pasture provided	3.21	3.32	3.08	3.24
17. Sufficient summer pasture provided	2.63	2.56	3.00	2.32
18. Strip cup always used	1.55	1.36	1.48	1.80
19. Separate feeding and loafing areas provided	2.00	2.44	2.00	1.56
20. Flies systematically controlled	4.28	4.68	4.20	3.96
21. Milking system 6-month checked	2.77	2.76	3.08	2.48
22. Professional advice obtained	4.15	4.12	4.36	3.96
23. Calves vaccinated for brucellosis, etc.	4.56	4.64	4.52	4.52
Actual Total Average Rating	3.54	3.75	3.57	3.31

*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.

TABLE XLIII

PERCENTS OF GREENE COUNTY DAIRYMEN INTERVIEWED IN VARIOUS STAGES OF THE DIFFUSION PROCESS
ON EACH OF PRACTICES STUDIED*

Dairy Management Practice	Unaware of It Percent	Aware of It Percent	Interested in It Percent	Planning To Try Percent	Tried and Not Using Percent	Using It Percent	Total Percent
1. Artificially inseminated $\frac{1}{2}$ or more of cows	0	21	0	0	24	55	100
2. All cows bred to same breed bull	0	12	0	0	16	72	100
3. 6-day dry period provided cows	0	5	1	0	0	94	100
4. 12-14 month calving period provided	0	7	4	0	0	80	100
5. 75 percent cows fall freshened	0	15	7	0	5	73	100
6. 75 percent hered replacement raised	0	15	4	0	12	69	100
7. Adequate milk records kept	3	58	9	4	12	15	100
8. Fed cows according to production	0	79	8	1	3	9	100
9. Adequate herd records kept	0	43	8	0	1	48	100
10. Calves permanently identified	0	53	8	1	3	35	100
11. Adequate supply of silage provided	0	20	8	1	3	68	100
12. High quality silage provided	0	10	3	1	3	83	100
13. Silage supplemented with enough hay	0	1	0	1	0	98	100
14. High quality hay provided	0	7	8	1	0	85	100
15. Hay and/or silage provided on pasture	3	39	1	1	0	56	100
16. Adequate improved pasture provided	0	39	5	1	3	52	100
17. Sufficient summer pasture provided	1	51	5	5	1	37	100
18. Strip cup always used	0	86	0	1	1	12	100
19. Separate feeding and loafing areas provided	0	60	20	0	0	20	100
20. Flies systematically controlled	0	17	0	1	0	82	100
21. Milking system 6-month checked	0	55	1	0	0	44	100
22. Professional advice obtained	0	20	0	1	3	76	100
23. Calves vaccinated for brucellosis, etc.	0	8	1	0	8	83	100
Total Average	0	32	4	1	4	59	100

*Percents are rounded to the nearest whole number.

production groups were compared, no great difference was noted in any particular practice. The high group was in the top of the "tried" stage (4.47); while the low group was in the middle of the "tried" stage (4.13).

In Table XLIII, it is noted that more than 20 percent of the producers were below the "planning to try" stage on Practice 1 and 5, with only 55 percent using Practice 1 and 73 percent using Practice 5. It is interesting to note that 24 percent of the dairymen had tried artificial insemination, but were no longer using it.

Keeping and using records. Practices 7 through 10 are related to records and their use. There is a general assumption that farmers do not like to keep records. The results of this study indicate that this is generally true for Greene County Grade A milk producers. In Table XLII, it is noted that all producers were, on the average, only in the "interested" stage (2.32). This bundle of practices was lower than any other group studied and the only one falling below the "planning to try" stage. Practice 9, "adequate herd records kept," was in the "planning to try" stage (3.04) and the highest in the group.

When comparison was made between high and low producers, the main differences were noted in Practice 7, "adequate milk records kept," with the former in the "planning to try" stage (2.88), and the latter in the beginning of the "interested" stage (1.64), and in Practice 9, "adequate herd records kept," with the high producers about midway in the "tried" stage (3.88) and the low just into the "planning to try" stage (2.52).

Table XLIII Shows that on Practice 7 there were 70 percent of the producers below the "planning to try" stage, with only 15 percent "using" it. Likewise, 87 percent were below "planning to try" with regard to Practice 9 and only 9 percent were "using" it. It also is noted that 61 percent were below "planning to try" on Practice 10, but 35 percent were "using" it.

Since all producers are generally low with regard to adopting the four practices related to keeping and using records, it appears that these practices should have careful consideration when planning educational work, to help Grade A milk producers realize the potential benefits that they might receive by adopting these practices.

Feeding practices. Practices 11 through 17 are related to the cows with adequate amounts of quality feed. In Table XLII, it is noted that all producers averaged in the "tried" stage (3.50 to 4.50) on practices 11-17, but the average rating ranged between "planning to try" stage (2.63) to "using" stage (4.92).

In comparing high and low producers, a large difference was observed on only one practice. On Practice 15, "hay and/or silage provided on pasture," the high group was near the top of the "tried" stage (4.20) as compared to the low in the middle of the "planning to try" stage (2.16).

In Table XLIII it is noted that more than 40 percent of the producers were below the "planning to try" stage on Practices 15 and 16 with only 56 percent using Practice 15 and 52 percent using Practice 16.

Also, it will be seen that 57 percent were below the "planning to try" stage on Practice 17 with only 37 percent "using" it.

Sanitation and milking system practices. The next group of practices in Table XLII are generally classified as sanitary practices and includes practices 18-20. It is noted that all producers were, on the average, in the top of the "tried" stage (4.28) with regard to Practice 20, "flies systematically controlled," in the "interested" stage (2.00) on Practice 19, "separate feeding and loafing areas provided" and also in the "interested" stage on Practice 18, "strip cup always used". Incidentally, Practice 18 had the lowest average rating of the 23 practices.

When high and low groups were compared, the main differences were noted in Practice 19, "separate feeding and loafing areas," with the former almost to the "planning to try" stage (2.44) and the latter, on the average, in the beginning of the "interested" stage (1.56); and in Practice 20, "flies systematically controlled," with the high producers in the "using" stage (4.68) and the low in the "tried" stage (3.96).

In Table XLIII, it is found that 80 percent or more of all producers were below the "planning to try" stage on Practices 18 and 19. Only 12 percent were actually "using" Practice 18, and 20 percent were "using" Practice 19.

Other practices. The last three practices in Table XLII have been grouped as other practices for the purpose of this study and are

discussed separately. Practice 21, "milking system 6-month checked," had an average rating of "planning to try" (2.77), for all producers. A comparison of high and low shows the former producer to be in the "planning to try" stage (2.76), while the low were in the "interested" stage (2.48).

It is noted in Table XLIII that 56 percent of all producers were below the "planning to try" stage on Practice 21, and only 44 percent were "using" it.

All producers were, on the average, in the "tried" stage (4.15) on Practice 22, "professional advice obtained." There was only slight difference between the ratings of the high (4.12) and low (3.96) producers, with both in the "tried" stage.

It is noted in Table XLIII that only 20 percent of all producers were below the "planning to try" stage on Practice 22, while 76 percent were "using" it.

All producers were in the "using" stage (4.56) regarding Practice 23, "calves vaccinated for brucellosis, blackleg, etc."

Only 9 percent of all producers fell below the "planning to try" stage on Practice 23, while 83 percent were actually "using" it as seen in Table XLIII. At the time the survey was made, almost all of the dairymen were vaccinating for brucellosis, but some were not vaccinating for other diseases, including blackleg.

Relation to Herd Size

Table XLIV shows by herd size the total average rating for each of the 23 dairy management practices. In comparing the four herd size

TABLE XLIV

AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF GREENE COUNTY DAIRYMEN
BY HERD SIZE CATEGORIES FOR INDIVIDUAL DAIRY MANAGEMENT PRACTICES*

Dairy Management Practice	All Dairymen Average Rating (N = 75)	12-29 Cows Average Rating (N = 20)	30-49 Cows Average Rating (N = 37)	50-69 Cows Average Rating (N = 15)	70-110 Cows Average Rating (N = 3)
1. Artificially inseminated $\frac{1}{2}$ or more of cows	3.91	3.75	3.84	4.07	5.00
2. All cows bred to same breed bull	4.32	4.20	4.22	4.60	5.00
3. 60-day dry period provided cows	4.75	4.80	4.70	4.73	5.00
4. 12-14 month calving period provided	4.56	4.30	4.57	4.80	5.00
5. 75 percent cows fall freshened	4.16	3.85	4.03	5.00	3.67
6. 75 percent herd replacement raised	4.17	4.10	4.08	4.33	5.00
7. Adequate milk records kept	2.15	1.80	2.43	2.13	1.00
8. Fed cows according to production	1.60	1.45	1.78	1.47	1.00
9. Adequate herd records kept	3.05	2.90	3.14	3.20	2.33
10. Calves permanently identified	2.57	2.45	2.81	2.47	1.00
11. Adequate supply of silage provided	3.91	3.55	3.76	4.53	5.00
12. High quality silage provided	4.44	4.25	4.38	4.73	5.00
13. Silage supplemented with enough hay	4.92	4.80	4.95	5.00	5.00
14. High quality hay provided	4.47	4.55	4.43	4.80	2.67
15. Hay and/or silage provided on pasture	3.25	3.20	2.86	3.93	5.00
16. Adequate improved pasture provided	3.17	3.70	3.14	3.33	1.00
17. Sufficient summer pasture provided	2.63	2.75	2.49	3.07	1.33
18. Strip cup always used	1.55	1.55	1.43	1.67	2.33
19. Separate feeding and loafing areas provided	2.09	1.50	1.89	3.07	3.66
20. Flies systematically controlled	4.25	4.40	4.30	4.20	3.00
21. Milking system 6-month checked	2.77	2.60	2.76	3.13	2.33
22. Professional advice obtained	4.15	3.70	4.46	3.93	4.33
23. Calves vaccinated for brucellosis, etc.	4.56	4.25	4.54	4.93	5.00
Total Average Rating	3.54	3.41	3.52	3.79	3.46

*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.

categories, an ascending positive relation may be noted for practices in which ratings indicate the average producer to be "using" (4.50-5.00) them. For example, while only 3 of the practices in the 12-29 cow category showed average ratings of 4.50 or above, 4 in the 30-49 cow interval, 9 in the 50-69 cow interval and 10 in the 70-110 cow interval had such ratings.

II. BREEDING OF HEIFERS

Method

All producers were asked how heifers were bred and Table XLV gives the results. Thirty percent of all dairymen bred heifers "artificially," while 60 percent used "natural breeding" methods. Forty-four percent of the high producers bred all heifers "artificially," as compared to 20 percent of the low producers. Also, 44 percent of the high producers used "natural breeding" on all heifers as compared to 80 percent of the low producers. One high producer indicated that he used both natural and artificial methods of breeding his heifers.

Type of Bull

Table XLVI reveals that 27 percent (20 producers) were using only dairy bulls on their heifers, while 41 percent (31 producers) were using beef bulls only, and an additional 23 percent (17 producers) were using both dairy and beef bulls. When comparison was made between high and low production groups, it was noted that 52 percent of the low

TABLE XLV

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN 1963 BY METHOD OF BREEDING HEIFERS*

Method of Breeding Heifers	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not answered	7	9	2	8	5	20	0	0
Artificially	22	30	11	44	6	24	5	20
Naturally	45	60	11	44	14	56	20	80
Both	1	1	1	4	0	0	0	0
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XLVI

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN 1963 BY TYPE OF BULL USED ON HEIFERS*

Type of Bull Used	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not answered	7	9	3	12	4	16	0	0
Dairy	20	27	2	8	5	20	13	52
Beef	31	41	12	48	7	28	12	48
Both	17	23	8	32	9	36	0	0
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

producers were using only dairy bulls on their heifers as compared to 8 percent of the high group. Thirty-two percent of the high producers were using both beef and dairy bulls on their heifers; while no low producers were using this practice.

III. BREEDING OF COWS

Type of Bull

Eighty-one percent (61 producers) said their cows were bred to dairy bulls, while 19 percent (14 producers) used a beef bull only. No differences are to be noted between high and low producers (see Table XLVII).

IV. FEEDING OF COWS

Percent of Protein in Dairy Ration

As seen in Table XLVIII, the most common dairy ration was the 16 percent protein concentrate with 81 percent of the dairymen using it. The other most common ration was 14 percent protein used by 6 producers. Comparisons showed no differences between production groups, though there was a tendency for high producers to use lower percent protein rations than others.

Method of Providing Concentrates

Seventy-two percent (54 producers) indicated that they mixed their own feed, 12 percent (9 producers) bought concentrates and 16 percent (12 producers) did some of each. Thirty-two percent of the

TABLE XLVII

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS IN 1963 BY TYPE OF BULL USED ON COWS*

Type of Bull Used	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Dairy	61	81	21	84	19	76	21	84
Beef	14	19	4	16	6	24	4	16
Both	0	0	0	0	0	0	0	0
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE XLVIII

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH,
MEDIUM AND LOW PRODUCERS BY PERCENTS OF PROTEIN USED
IN DAIRY RATION*

Percent Protein in Dairy Ration	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
12%	2	3	0	0	2	8	0	0
14%	6	8	3	12	2	8	1	4
16%	61	81	22	88	20	80	19	76
18%	3	4	0	0	1	4	2	8
Other	3	4	0	0	0	0	3	12
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

high producers bought all their concentrates, whereas no low producers were buying their concentrates. The number "mixing own rations" included those who bought corn and supplement and directed the dealer in mixing it.

Grinding of Hay

Table XLIX shows that 87 percent (65 producers) were not grinding hay. However, 11 percent (8 producers) did grind hay. It was noted that none of the high group were grinding hay as compared to 20 percent (5 producers) of the low group.

Type of Hay Fed

Sixty-eight percent (51 producers) of the dairymen indicated that they fed a legume-grass mixture of hay to their cows. Nineteen percent (14 producers) fed only legume hay; while 13 percent (10 producers) were using all grass hay. Twenty-four percent of the high producers were using all legume hay as compared to only 16 percent of the low producers.

Method of Supplying Salt and Minerals

Data in Table L show that 68 percent (51 producers) of the dairymen supplied salt and minerals both mixed in the ration and free choice. Twenty-four percent (18 producers) of the dairymen supplied salt and mineral in the ration only. Two medium producers and 4 low producers were supplying salt and minerals only by the free choice method. The greatest difference between high and low producers was among those

TABLE XLIX

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH,
MEDIUM AND LOW PRODUCERS BY WHETHER OR NOT THEY
GROUND THEIR HAY*

Grinding of Hay	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not Answered	2	2	1	4	1	4	0	0
Did Grind Hay	8	11	0	0	3	12	5	20
Did Not Grind Hay	65	87	24	96	21	84	20	80
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE L

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH,
MEDIUM AND LOW PRODUCERS BY METHOD OF SUPPLYING
SALT AND MINERALS*

Method of Supplying Salt and Minerals	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Mixed in Ration	18	24	10	40	5	20	3	12
Free Choice	6	8	0	0	2	8	4	16
Both	51	68	15	60	18	72	18	72
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

mixing salt and minerals in the ration. Forty percent (10 producers) of the high group were using this method as compared to 12 percent (3 producers) of the low group.

Storage Capacity Available for Silage

Fifteen percent (11 producers) of the Greene County Grade A dairymen did not have storage available for silage as revealed by Table LI. The average storage capacity, for dairymen having silage, was 279 tons. Low producers (310 tons) reported a higher average capacity than high (270 tons).

V. THE RELATION OF PRODUCTION AND MANAGEMENT LEVELS TO AGE

Table LII reveals a tendency for younger producers, especially among high producers, to have higher average practice diffusion ratings than those in the older age groups. High producers, as usual, had higher average ratings than did low producers in each of the age groups. The greatest difference between high and low producers was in the "25-35" year age group, where the former producers were, on the average, in the "tried" stage with a rating of 4.30, while the latter were, on the average, in the "planning to try" stage (3.24).

VI. THE RELATION OF PRODUCTION AND MANAGEMENT LEVELS TO EDUCATIONAL LEVELS

Table LIII shows a slight increase in average practice diffusion ratings as the educational levels of producers increase with the

TABLE LI

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH
MEDIUM AND LOW PRODUCERS BY AMOUNTS OF SILAGE STORAGE
CAPACITY AVAILABLE*

Amount of Silage Storage Capacity Available in Tons	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None	11	15	5	20	2	8	4	16
50-99	6	8	3	12	2	8	1	4
100-149	10	13	4	16	4	16	2	8
150-199	11	15	2	8	2	8	7	28
200-299	19	25	5	20	10	40	4	16
300-499	9	12	3	12	3	12	3	12
500-749	8	11	3	12	2	8	3	12
750 or more	1	1	0	0	0	0	1	4
Total	75	100	25	100	25	100	25	100
Average Capacity	279		270		259		310	

*Percents are rounded to the nearest whole number.

TABLE LII

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS ACCORDING TO AGE GROUPS*

Age Group of Dairymen	All Dairymen Interviewed			High Producers		Medium Producers		Low Producers	
	No.	Average Rating	No.	Average Rating	No.	Average Rating	No.	Average Rating	No.
Under 25	1	4.04	0	--	0	--	1	4.04	
25-34	8	3.56	1	4.30	3	3.74	4	3.24	
35-44	21	3.63	7	4.15	6	3.56	8	3.21	
45-54	22	3.64	12	3.67	7	3.66	3	3.49	
55-64	17	3.35	5	3.33	6	3.46	6	3.24	
65 or More	6	3.30	0	--	3	3.22	3	3.38	
Actual Total	75	3.54	25	3.76	25	3.55	25	3.31	

*In the rating scale used: 0 = unaware; 1 = aware of the 23 recommended practices; 2 = interested in the practices; 3 = planning to try the practices; 4 = tried the practices but not using; and 5 = using the practices.

TABLE LIII

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY EDUCATIONAL LEVELS*

Educational Grade Level	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	Average Rating	No.	Average Rating	No.	Average Rating	No.	Average Rating
1-7	10	3.22	1	2.04	3	3.23	6	3.57
8	12	3.60	5	3.92	5	3.51	2	3.02
9-11	22	3.35	7	3.67	6	3.23	9	3.19
12	26	3.72	10	3.86	9	3.86	7	3.33
1-3 of College	4	3.83	2	4.05	2	3.61	0	--
B. S.	1	3.22	0	--	0	--	1	3.22
Actual Total	75	3.54	25	3.76	25	3.55	25	3.31

*In the rating scale used: 0 = unaware; 1 = aware of the 23 recommended practices; 2 = interested in the practices; 3 = planning to try the practices; 4 = tried the practices but not using; and 5 = using the practices.

exception of one low producer who had a B. S. degree. It is noted that high producers with 1-3 years college had the highest diffusion rating (4.05).

VII. THE RELATION OF PRODUCTION AND MANAGEMENT

LEVEL TO SIZE OF FARM

Data in Table LIV show that the high producers had a higher average practice diffusion rating than did the medium and low groups in most, though not all, categories. The 3 high producers in the 300-349 acre category, had the highest average rating (4.23) and were, on the average, in the "tried" stage; while the 2 low producers in the same category were in the "planning to try" stage (3.41). The greatest difference, 1.06 diffusion points, is noted in the 100-149 acre group where the high producers (3.98 average) were in the "tried" stage, compared to the low producers (2.92 average) who were in the "planning to try" stage.

VIII. THE RELATION OF PRODUCTION AND MANAGEMENT

LEVELS TO OCCUPATION

Ninety-three (70 producers) were classified as full-time farmers. Occupations of dairymen appeared not to be related to management levels. The full-time high producers were in the "tried" stage (3.72 average) as compared to the full-time low producers who were in the "planning to try" stage (3.35).

TABLE LIV

AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM AND LOW PRODUCERS BY SIZE OF FARM CATEGORIES*

Size of Farm Category	All Dairymen Interviewed			High Producers		Medium Producers		Low Producers	
	No.	Average Rating	No.	Average Rating	No.	Average Rating	No.	Average Rating	
Under 50	1	2.74	1	2.74	0	--	0	--	
50-99	5	3.79	0	--	2	3.78	3	3.80	
100-149	25	3.47	9	3.98	8	3.45	8	2.92	
150-199	12	3.64	6	3.72	3	3.99	3	3.14	
200-249	10	3.32	3	2.91	4	3.33	3	3.71	
250-299	8	3.65	2	4.13	3	3.52	3	3.46	
300-349	6	4.64	3	4.23	1	3.70	2	3.41	
350-399	1	3.22	0	--	0	--	1	3.22	
400-449	2	3.33	0	--	2	3.33	0	--	
450-499	0	--	0	--	0	--	0	--	
500 or Over	5	3.57	1	3.43	2	3.72	2	3.50	
Average	75	3.54	25	3.76	25	3.55	25	3.31	

*In the rating scale used: 0 = unaware; 1 = aware of the 23 recommended practices; 2 = interested in the practices; 3 = planning to try the practices; 4 = tried the practices but not using; and 5 = using the practices.

IX. THE RELATION OF PRODUCTION AND MANAGEMENT
LEVELS TO SOURCES OF INCOME

Dairying was the major source of income for 70 of the 75 farms interviewed. The 5 other producers received their major source of income from non-farm sources. No difference was noted in the diffusion ratings between those receiving the major source of their income from dairying and those receiving the major source of their income from non-farm sources.

X. THE RELATION OF PRODUCTION AND MANAGEMENT LEVELS
TO GROSS FAMILY INCOME

Table LV shows that no apparent relationship existed between total gross family income and the practice diffusion rating of all producers. The high producers rated higher for all gross family income categories than low producers.

XI. THE RELATION OF PRODUCTION AND MANAGEMENT
LEVELS TO DAIRY HERD RATING

Each respondent was asked to rate his herd as poor, fair, good or excellent. The results of this rating are shown in Table LVI. Seventeen producers rated their herds as fair; 50 herds were rated good, and only 2 producers (high category) rated their herds excellent.

The dairymen who rated their herds "fair" had an average rating of 3.21 while those who rated their herds "good" scored 3.63 and the 2

TABLE LV

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY TOTAL GROSS FAMILY INCOME REPORTED*

Total Gross Family Income Category	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	Average Rating	No.	Average Rating	No.	Average Rating	No.	Average Rating
Not Answered	7	3.42	3	3.62	0	--	4	3.26
\$2,000-7,999	4	3.65	2	4.13	0	--	2	3.18
\$8,000-11,999	9	3.33	1	3.65	2	3.44	6	3.24
\$12,000-19,999	28	3.47	7	3.38	15	3.60	6	3.26
\$20,000-29,999	22	3.71	10	3.90	6	3.52	6	3.57
\$30,000-49,999	5	3.65	2	4.29	2	3.38	1	2.91
Total	75	3.54	25	3.76	25	3.55	25	3.31

*In the rating scale used: 0 = unaware; 1 = aware of the 23 recommended practices; 2 = interested in the practices; 3 = planning to try the practices; 4 = tried the practices but not using; and 5 = using the practices.

TABLE LVI

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY RATINGS THEY GAVE THEIR OWN DAIRY HERDS*

Ratings Dairy- men Gave Their Own Herds	All Dairymen Interviewed				High Producers		Medium Producers		Low Producers	
	No.	Average Rating	No.	Average Rating	No.	Average Rating	No.	Average Rating	No.	Average Rating
Not Answered	5	3.68	3	3.84	0	--	2	3.44		
Poor	1	3.32	0	--	0	--	1	3.22		
Fair	17	3.21	2	2.33	7	3.52	8	3.16		
Good	50	3.63	18	3.89	18	3.56	14	3.39		
Excellent	2	3.94	2	3.94	0	--	0	--		
Total	75	3.54	25	3.76	25	3.55	25	3.31		

*In the rating scale used: 0 = unaware; 1 = aware of the 23 recommended practices; 2 = interested in the practices; 3 = planning to try the practices; 4 = tried the practices but not using; and 5 = using the practices.

owners who rated their herds excellent scored 3.94.

XII. THE RELATION OF PRODUCTION AND MANAGEMENT LEVELS
TO INTEREST IN IMPROVING DAIRY MANAGEMENT

All dairymen were rated by the interviewer as to his judgment of their interest in improving their dairy management. Table LVII shows the producers' practice diffusion ratings in relation to the interest ratings given each producer by the interviewer.

The producers rated as "very interested" were in the "tried" stage (3.83); while those rated as "somewhat interested" were in the "planning to try" stage (3.30).

TABLE LVII

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL GREENE COUNTY DAIRYMEN
INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY INTEREST OF RESPONDENT IN
IMPROVING HIS DAIRY MANAGEMENT*

Degree of Interest in Improving Dairy Management Level	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	Average Rating	No.	Average Rating	No.	Average Rating	No.	Average Rating
Not Interested	1	3.91	0	--	1	3.91	0	--
Somewhat Interested	41	3.30	8	3.26	13	3.38	20	3.25
Very Interested	33	3.83	17	3.99	11	3.71	5	3.53
Total	75	3.54	25	3.76	25	3.55	25	3.31

*In the rating scale used: 0 = unaware; 1 = aware of the 23 recommended practices; 2 = interested in the practices; 3 = planning to try the practices; 4 = tried the practices but not using; and 5 = using the practices.

CHAPTER III

SUMMARY

A total of 75 Greene County Grade A dairymen who produced milk throughout 1963 were interviewed regarding their dairy production practices.

Using 1963 information obtained from the milk plants and in the interview, the producers were divided into three equal production groups (high, medium and low) according to average annual butterfat production per cow. Consequently, 25 producers were in each of the three groups.

Producers were questioned concerning their use of 23 recommended production practices, and, as a result, given dairy production management practice diffusion ratings ranging from zero, "unaware," to five, "using." Average practice diffusion ratings were established for all producers and for the three production groups. The practice diffusion ratings were used in comparing the management levels of high, medium, low and all producers in relation to: (1) production; (2) stage in the diffusion process; (3) herd size; (4) age; (5) educational level; (6) size of farm; (7) occupation; (8) source of income; (9) gross family income; (10) herd ratings, and (11) interest in improving their dairy management.

In addition to information regarding the 23 recommended practices, other data were obtained regarding breeding and feeding

practices. For example, questions were asked to reveal methods of breeding heifers, and the types of bulls (dairy or beef) used on heifers and cows.

Feeding information obtained in addition to that included in the 23 recommended practices, had to do with: (1) the percent of protein in the dairy ration; (2) methods of providing concentrates; (3) whether hay was ground or not; (4) types of hay fed; (5) methods of supplying salt and minerals; and (6) and storage capacity available for silage.

Literature regarding management practices of Grade A dairymen, especially comparative information between high and low producers, was limited in Tennessee and other areas as well. Information received from extension dairy specialists in ten other states dealt largely with Dairy Herd Improvement Association members or producers enrolled in a farm record system in Pennsylvania and Virginia, and the fact that their record keeping and other practices helped them out-produce non-members.

I. REVIEW OF FINDINGS

The following is a brief summary of the major findings as related to production and management practices of Grade A dairy producers in Greene County:

1. High producers tended to be operating at higher management levels than was true for either medium or low producers

2. High producers had higher average practice diffusion ratings on 20 of the 23 production practices, than did the low producers

3. The high producers had ratings that were .44 diffusion points or more greater than the low producers in the following eight practices: (a) artificially inseminating one-half or more of cows; (b) providing a 60-day dry period for cows; (c) keeping adequate milk records; (d) feeding cows according to production; (e) keeping adequate herd records; (f) permanently identifying calves; (g) providing hay and/or silage on pasture; and (h) providing separate feeding and loafing areas

4. Ratings on bundle of four practices relating to record keeping were much lower than on any other group of practices studied, but relatively great differences existed between high and low producers here as elsewhere

5. High producers were not grinding their hay, while 20 percent of the low producers were following this unapproved practice

6. About one-third of the high producers were buying all of their concentrates as compared to none of the low producers

7. Forty percent of the high producers were mixing salt and minerals in their dairy ration, while only 12 percent of the low producers were following this recommended practice

8. Younger dairymen tended to have higher practice diffusion ratings than did older ones

9. Dairymen with higher levels of education tended to have higher practice diffusion ratings

10. Seventy percent of the high producers were "very interested" in improving their dairy management levels as compared to only 20 percent of the low producers who were so interested.

II. IMPLICATIONS

The findings suggest that further Extension efforts need to be made to reach and teach Grade A dairymen, especially those in the medium and low group. Further implications which may be drawn from the findings are:

1. The data indicated a strong relationship between recommended practice adoption and the level of production

2. The adoption of practices relating to adequate record keeping seemed to have a greater influence on the level of production than did most other practices.

3. Greene County dairymen were generally aware of the recommended practices, but additional educational efforts, through personal contact, should be made to motivate dairymen to use the practices

4. Exploration of reasons for the rejection of certain practices should be made, and educational efforts should be directed toward the re-adoption of these practices (assuming their utility).

PROBLEM C:
FACTORS INFLUENCING DAIRY MANAGEMENT PRACTICE ADOPTION
BY GREENE COUNTY GRADE A MILK PRODUCERS

A Special Problem in Lieu of Thesis

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

by
Arnold Fay Hunter
March 1966

CHAPTER I

INTRODUCTION

This report is based on further analysis of data from a survey of 75 Grade A dairymen in Greene County, Tennessee. The interview type survey included 75 Grade A dairymen in Greene County who marketed Grade A milk each month of 1963.

Dairying is an important agricultural enterprise in Greene County and represents almost 26 percent of the total county farm income. In 1959, dairy products ranked second in enterprise value, being exceeded only by the sale of tobacco (4:178).^{*} The dairy industry of the county has undergone many changes during the past 15 years. Some of the significant happenings in this period were: (1) the number of Grade A milk producers declined from about 175 to the 1966 number of 125; however, the number had remained constant since 1960; (2) the Pet Milk Company stopped buying Grade A milk directly from the farmer, milk going to the Knoxville Milk Producers Association at Knoxville and to the Southeast Milk Sales at Bristol, Virginia; (3) all Grade A producers were required to buy and use bulk tanks and more rigid health restrictions were imposed; and (4) dairymen were required to have a place on the market before selling Grade A milk.

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

Members of the county Extension staff have made considerable effort through the years to present educational information to Greene County Grade A dairymen. Some of the methods that have been used include: demonstrations; tours; farm management schools; dairy meetings; circular letters; news articles; radio programs, and individual work with the producers. Attempts have been made to evaluate the results of this teaching, but no previous attempt had been made to determine what factors influenced Grade A dairymen to adopt or not adopt recommended dairy management practices.

I. THE PURPOSE OF THE STUDY

The purpose of this study was to try to determine what factors, other than those identified earlier, have influenced Grade A milk producers in Greene County to adopt or not adopt recommended dairy management practices.

II. REVIEW OF LITERATURE

Studies (1:4) have shown that farmers adopt new ideas or practices at different times. Also, they tend to be at different stages in the adoption process at different times as it may relate to given recommended practices.

Authorities (1:7) generally accept the following stages in the adoption process: (1) awareness (referred to in this study as "aware"); (2) interest (hereafter referred to as "interested"); (3) evaluation

(referred to hereafter as "planning to try"); (4) trial (called "tried" in this study), and (5) adoption (hereafter called "using"). Research has indicated, in general terms, that as one proceeds from unawareness to "using" that personal contacts are generally required if adoption of a practice is to result.

At the "aware" and "interested" stages, mass media, such as farm magazines, newspapers, and radio, appear to be most important. At the "planning to try" and "tried" stages, neighbors and friends are known to be more important than mass media. As farmers approach the "using" stage, personal contacts with representatives of agricultural agencies are more important, but may still be second, at best, to neighbors and friends.

III. METHODS

A list of Grade A milk producers in Greene County was brought up to date and information concerning total milk sold, butterfat test and bacterial count figures were obtained from the milk companies.

A random sample of 75 producers was taken from the 125 Grade A dairymen in Greene County. Each of the dairymen who produced milk throughout 1963 was contacted personally and interviewed using a schedule (see Appendix) consisting of questions designed to reveal characteristics, production practices and factors influencing practice adoption. This study has to do with those questions related to the factors influencing practice adoption not already dealt with in a related problem above. After the information was obtained, the producers were

divided into thirds according to average butterfat production per cow in 1963. The high group (25 producers) had average butterfat production ranging downward from 470 to 350 pounds, the medium group (25 producers) had production from 349 to 290 pounds, and the low group (25 producers) were in a range from 239 to 130 pounds. Main comparisons in the present study were between high and low producers. Analyses were made based on simple numbers and percents, and averages shown where pertinent. Data, as usual, will be presented in tabular form.

CHAPTER II

FINDINGS

I. THINGS LIKED ABOUT GRADE A MILK PRODUCTION

Each milk producer was asked to tell what he liked most about Grade A dairy production. Table LVIII shows that 61 percent (46 dairymen) completed the statement with regard to the fact that it provided a regular source of income and was a stable form of agriculture. Each production group had about the same percent in this category. The second thing most frequently mentioned was "I love dairy cattle." Of the 23 percent (17 producers) mentioning this second item, it is noted that 5 were in the high group, 5 in the medium group and 7 were low producers. Some of the reasons given by the remaining 15 percent (11 producers) were: "More automation is possible and necessary in Grade A"; "Personal satisfaction"; "It is a way of improving my farm"; and "It makes me somewhat independent."

II. THINGS DISLIKED ABOUT GRADE A MILK PRODUCTION

Likewise, each milk producer was asked to tell what he disliked most about Grade A dairy production. In Table LIX it will be noted that 38 percent (28 dairymen) felt Grade A dairying was "Too confining." Forty-eight percent of the high producers (12 dairymen) gave this reason, compared to 32 percent (8 dairymen) of both medium and low producers. "The return on my time and money is inadequate," was mentioned by 11

TABLE LVIII

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS MENTIONING THINGS THEY LIKED MOST ABOUT GRADE A DAIRY PRODUCTION*

Things Liked Most About Grade A Dairying	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
It provides a regular source of income and is a stable form of agriculture	46	61	15	60	16	64	15	60
I love dairy cattle	17	23	5	20	5	20	7	28
It's what I know best	1	1	1	4	0	0	0	0
Other	11	15	4	16	4	16	3	12
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

TABLE LIX

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH,
MEDIUM AND LOW PRODUCERS MENTIONING THINGS THEY DISLIKED
MOST ABOUT GRADE A DAIRY PRODUCTION

Thing Disliked Most About Grade A Dairying	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not answered or none	6	8	1	4	1	4	4	16
Too confining	28	38	12	48	8	32	8	32
The return on my time and money is inadequate	8	11	1	4	5	20	2	8
Difficulties with labor	7	9	3	12	2	8	2	8
Too many disease problems (mastitis, etc.)	4	5	2	8	2	8	0	0
My facilities aren't suited to it	1	1	1	4	0	0	0	0
It takes too large an investment	1	1	0	0	1	4	0	0
Inspectors are inade- quate and incon- sistent	1	1	0	0	0	0	1	4
Other	19	26	5	20	6	24	8	32
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

percent of the producers (8 dairymen), 1 in the high group, 5 in the medium group and 2 low producers.

"Difficulties with labor" was given as a reason by 7 producers, 3 in the high group and 2 each in the medium and low. Some other reasons given by the dairymen were: "Too many disease problems"; "My facilities aren't suited to it"; "It takes too large an investment," and "Inspectors are inadequate and inconsistent."

It is noted that 6 of the dairymen did not have a particular dislike. Four of these were low producers and one each were in medium and high categories.

III. REASONS WHY GRADE A DAIRYMEN DO NOT ADOPT RECOMMENDED PRACTICES

In order to determine the relative importance of some reasons as to why Grade A milk producers do not adopt recommended dairy production practices, each milk producer was asked to select the three most important reasons from a set of ten. This was done by giving the respondent a set of ten cards, with a single reason typed on each, from which he made his selection. After the three reasons were selected, he was asked to rank them in order of importance as to why he thought Grade A dairymen do not adopt recommended dairy production practices, and to give any other reasons he felt to be important.

Table LX shows a combined summary of numbers and percents of all dairymen, high, medium and low producers who ranked each reason as

TABLE LX

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS
 RATING VARIOUS REASONS WHY GRADE A DAIRYMEN DO NOT ADOPT RECOMMENDED DAIRY MANAGEMENT
 PRACTICES FIRST, SECOND OR THIRD RANKING*

Reason Why Dairymen Do Not Adopt Recommended Practices**	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not Answered	3	4	0	0	3	12	0	0
1. Cost of practices outweighs possible benefits	50	67	13	52	15	60	22	88
2. Don't have the technical knowledge needed	48	64	13	52	19	76	16	64
3. Facilities are not suited	38	51	15	60	13	52	10	20
4. Physically unable to do supervision and management of job needed	24	32	8	32	11	44	5	20
5. More rewarding activities claim owner's time and money	19	25	8	32	4	16	7	28
6. Uncertainty of ownership in divided estate	14	19	6	24	3	12	5	20
7. Expect to sell dairy herd	14	19	5	20	3	12	6	24
8. Don't believe practices are sound	7	9	4	16	2	8	1	4
9. Have tried and found unsatisfactory	4	5	2	8	1	4	1	4
10. Expect to move away from farm	4	5	1	4	1	4	2	8

*Percents are rounded to the nearest whole number.

**Numbers and percents will not add up to totals since each dairyman made three selections.

either first, second, or third in importance. An examination of the data reveals that there was little difference between the high and low producers with regard to the order of their selection of the more important reasons. Nevertheless, higher percents of the low producers mentioned the first two reasons listed (88 and 64) than was true for the high (52 each).

Reason 1, "Cost of practices outweighs possible benefits," was selected by 67 percent of all producers. Though it was the first reason for low producers, high and medium producers placed it second. Some of the respondents named some practices that they thought were in this category. Those most often heard were: (1) keeping adequate production records (Dairy Herd Improvement Association, or D. H. I. A.); (2) using artificial insemination on cows and heifers; (3) providing separate feeding and loafing areas; and (4) producing alfalfa hay.

Reason 2, "Don't have the technical knowledge needed," was selected by 64 percent of all producers. Fifty-two percent of the high producers gave this reason, as compared to 64 percent of the low. Medium producers (76 percent) mentioned this item most frequently. Some of the practices that dairymen reported were not adopted due to "lack of technical knowledge" included: (1) labor not able to carry out practices; (2) record keeping; (3) feeding according to production; and (4) technological changes in agriculture.

Reason 3, "Facilities not suited," was selected by 51 percent of all producers. Sixty percent of the high producers mentioned this

reason, as compared with only 20 percent of the low producers. Some of the practices that were not adopted due to inadequate facilities were: (1) providing separate feeding and loafing areas; (2) feeding cows according to production; and (3) feeding silage during the summer.

Reason 4, "Physically unable to do supervision and management of job needed," was selected by 32 percent of all producers. This reason again was given more often by the older producers and dairymen who were depending on hired labor to do the milking. Record keeping was most frequently cited.

The other reasons and percents of dairymen giving them were: (1) Reason 5, "More rewarding activities claim owner's time and money" (25 percent); (2) Reason 6, "Uncertainty of ownership in divided estate: (19 percent); (3) Reason 7, "Expect to sell dairy herd" (19 percent); (4) Reason 8, "Don't believe practices are sound" (9 percent); (5) Reason 9, "Have tried and found unsatisfactory" (5 percent); (6) Reason 10, "Expect to move away from farm" (5 percent).

Each respondent was asked whether or not he thought there were other reasons why Grade A dairymen do not adopt recommended dairy production practices. Twenty-four percent (18 dairymen) indicated that being unable to keep good tenants was an important reason why dairymen did not adopt recommended production practices. Five of these were in the high group, 8 in the medium group and 5 in the low group. Three other dairymen gave one each of the following reasons: (1) the cost of labor is too high; (2) I'm too lazy; and (3) I lack necessary managerial ability.

IV. DAIRY MANAGEMENT ADVICE SOUGHT

It is generally recognized (1:7) that Grade A dairymen discuss problems regarding the management of their herds with different individuals. Study of Table LXI shows that 72 percent of the dairymen interviewed talked to one or more of the individuals listed regarding the management of their dairy herd. Each dairyman talked to an average of 4.1 individuals. The high and medium producers talked to more individuals, 4.8 and 5.0 respectively, than did the low producers who talked to an average of only 2.6.

It also is noted that more of the high and medium producers (88 percent) sought some advice than did those in the low (52 percent) group.

As far as all producers are concerned, more (72 percent) reported talking to a neighbor or friend than to any other individual. Similar findings have been reported in other studies regarding adopters of new farm ideas (1:7). When production groups are compared, it is noted that high and medium producers (84 percent each) most frequently consulted "neighbor or friend," while low (52 percent) "health department sanitarian."

The "milk plant fieldman" was the only person who was consulted on almost equal basis by all groups (60 percent of the high and medium and 48 percent of the low group). This might be expected since one of the milk plants has a fieldman who visits all their producers. The "health department sanitarian" was consulted by a high percentage of all groups. This may indicate that many contacts may have been made in an

TABLE LXI

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY FREQUENCY WITH WHICH THEY REPORTED HAVING SOUGHT ADVICE CONCERNING DAIRY MANAGEMENT OF CERTAIN INDIVIDUALS*

Person from Whom Advice was Sought**	All Dairymen Interviewed (N = 75)		High Producers (N = 25)		Medium Producers (N = 25)		Low Producers (N = 25)	
	No.	%	No.	%	No.	%	No.	%
None Sought	18	24	3	12	3	12	12	48
1. Neighbor or friend	54	72	21	84	21	84	12	48
2. Local veterinarian	51	68	20	80	20	80	11	44
3. Health department sanitarian	49	65	15	60	21	84	13	52
4. County agent	43	57	19	76	17	68	7	28
5. Milk plant fieldman	42	56	15	60	15	60	12	48
6. DHIA supervisor or ABA technician	39	52	18	72	15	60	6	24
7. Feed dealer or salesman	13	17	5	20	5	20	3	12
8. Banker, PCA or FHA representative	13	17	3	12	9	36	1	4
9. Extension dairyman	5	7	4	16	1	4	0	0
10. Vo-Ag teacher	2	3	0	0	2	8	0	0
Average Number of Individuals Giving Advice	4.1		4.8		5.0		2.6	

*Percents are rounded to the nearest whole number.

**Numbers and percents will not add up to the totals since dairymen talked to one or more individuals.

effort to find out what was wrong after the inspector had been on the farm.

In all cases, it is noted, that without exception, more of the high producers talked to the different individuals than did the low producers.

The greatest difference between high and low producers was noted with regard to the "county agent." Of the 57 percent (43 dairymen) who talked to him, 76 percent (19 dairymen) were in the high group compared to only 28 percent (7 dairymen) in the low group. It also is noted that, of the 52 percent (39 dairymen) who reported talking to the "D. H. I. A. supervisor or Artificial Breeders' Association (A.B.A.) technician," 72 percent were in the high group and only 24 percent were in the low.

Other individuals talked to regarding dairy herd management and percents reporting were: (1) feed dealer or salesman (17 percent); (2) banker, PCA or FHA representative (17 percent); (3) Extension dairyman (7 percent); and (4) Vo-Ag teacher (3 percent).

V. ADDITIONAL SOURCES OF DAIRY MANAGEMENT INFORMATION USED

It will be noted in Table LXII that 93 percent of the dairymen indicated that they received certain dairy management information from other sources as listed in the table. Only 7 percent indicated that they did not receive information from these sources. All dairymen

TABLE LXII

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS
BY FREQUENCY WITH WHICH THEY REPORTED RECEIVING INFORMATION USEFUL IN THE MANAGEMENT
OF THEIR DAIRY HERDS FROM DIFFERENT SOURCES*

Source of Useful Information**	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None Reported	5	7	2	8	0	0	3	12
1. Farm Magazines	70	93	23	92	25	100	22	88
2. Newsletters	61	81	18	72	23	92	20	80
3. Daily Newspapers	55	73	19	76	21	84	15	60
4. Radio	45	60	16	64	20	80	9	36
5. University Bulletins and Publications	42	56	15	60	18	72	9	36
6. Farm Meetings	27	36	13	52	9	36	5	20
7. Field Days	23	31	12	48	8	32	3	12
8. Commercial Feed Company Bulletins	11	15	2	8	5	20	4	16
9. Television	5	7	3	12	1	4	1	4
Average Number of Sources of Information	4.8		4.8		5.2		3.5	

*Percents are rounded to the nearest whole number.

**Numbers and percents will not add up to the total of 75 dairymen interviewed nor 100 per cent, since dairymen received information from more than one source.

reported that they received information from an average of 4.8 different sources. The high group averaged 4.8, the medium 5.2, and the low 3.5 sources.

Farm magazines were by far the most popular source reported, with 93 percent of all producers indicating this source. The high group reported 92 percent and the low 88 percent. It will be noted that 100 percent of the medium producers were using farm magazines.

Newsletters were reported by 81 percent of all dairymen. High producers reported 72 percent (18 dairymen) and the low group 80 percent (20 dairymen). Again the medium producers had the larger number, 92 percent (23 dairymen) using this source of information. All Grade A dairymen received newsletters from their respective association, and this figure is only an indication of what percent used them in the management of their dairy herd.

Daily newspapers were reported as a source of information by 73 percent of all producers. This source was reported by 76 percent of the high producers, while only 60 percent of the low group reported daily newspapers.

Radio was another important source of information with 60 percent of all dairymen reporting. The high group reported 64 percent and the medium producers again had the largest number reporting (20 dairymen). In comparison the low producers only reported 36 percent.

University bulletins and publications were used by 56 percent of all producers. High and medium producers reported 60 percent and

72 percent, respectively, but only 36 percent of the low producers were using University bulletins.

Data in Table LXII further reveal that the high producers, with one exception, reported using all of the remaining sources more than did the low. The low production group reported using commercial feed company bulletins more than did the high. The remaining sources and percents of all producers using them were: (1) farm meetings (36 percent); (2) field days (31 percent); (3) commercial feed company bulletins (15 percent); and (4) television (7 percent).

It is interesting to note that high producers led the other two groups in their report of two important Extension-related sources of information: farm meetings, and field days. While about one-half of the former group mentioned them, only about one-third of the medium and one-fifth to one-sixth of the low reported the two sources.

IV. DEGREE TO WHICH INTERVIEWER WAS FAMILIAR WITH DAIRY SITUATION

Table LXIII shows that the interviewer was "very familiar" or "fairly familiar" with 40 percent of the dairy situations. Sixty percent of the high producers were included in this group, compared to only 16 percent of the low group. On the other hand, the interviewer was either "not very familiar" or "not familiar" at all with a total of 60 percent, including 10 percent of the high group, as compared to 84 percent of the low. The fact that high producers were, in the main,

TABLE LXIII

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS BY DEGREE TO WHICH INTERVIEWER WAS FAMILIAR WITH THE DAIRY SITUATIONS OF THE RESPONDENTS*

Degree to Which Interviewer Knew Dairy Situation	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Very Familiar	11	15	6	24	4	16	1	4
Fairly Familiar	19	25	9	36	7	28	3	12
Not Very Familiar	26	35	5	20	10	40	11	44
Not Familiar	19	25	5	20	4	16	10	40
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

better known is consistent with findings reported elsewhere (18,25).

VII. PRODUCERS' NEED FOR INCREASING ATTENTION
TO MANAGEMENT OF HERD

In Table LXIV it will be noted that, in the interviewer's opinion, 82 percent of the Grade A dairymen "should pay more attention" to the management of their dairy herds. Closer attention to herd management details should result in greater production and, therefore, increase income in the interviewer's opinion.

The interviewer felt that 5 percent of the dairymen were using a high level of management and it would not be profitable for them to pay more attention to the management of their dairy herds. As seen in the table, the interviewer was "uncertain" about 13 percent (10 producers) of the dairymen. This uncertainty was a result of lack of familiarity with the situations in question.

TABLE LXIV

NUMBERS AND PERCENTS OF ALL GREENE COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS WHO SHOULD, IN THE INTERVIEWER'S OPINION, PAY MORE ATTENTION TO THE MANAGEMENT OF THEIR DAIRY HERD*

Attention Paid to Management of Dairy Herd	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Should pay more attention	61	82	18	72	25	100	18	72
Should not pay more attention	4	5	2	8	0	0	2	8
Uncertain	10	13	5	20	0	0	5	20
Total	75	100	25	100	25	100	25	100

*Percents are rounded to the nearest whole number.

CHAPTER III

SUMMARY

What are some of the factors that influence Grade A dairymen to adopt recommended dairy management practices? Seventy-five of the Grade A dairymen in Greene County who produced milk throughout 1963 were asked for certain information in a personal interview that might help to answer this question.

Other studies reviewed disclosed that farmers normally tend to be at different stages in the adoption process at different times with relation to a given recommended practice or bundle of practices, and that they may be influenced to proceed toward actual acceptance and use of said practices accordingly. The more advanced the stage in the adoption process, the greater the value of personal contact. Recognizing this fact, efforts were made to try to identify people and information media with which the respondents had been in contact during the previous year.

Each producer was further asked what he liked and disliked most about Grade A milk production. They also were asked to select and rank the three most important reasons from a group of ten as to why Grade A dairymen generally do not adopt recommended practices. They were given opportunity to add other reasons where such was desired.

The 75 Grade A dairymen were divided into high, medium and low groups (25 dairymen in each) according to butterfat production, and the

factors influencing dairy management practice adoption of these groups were considered based on a comparison of the data obtained from personal interviews.

I. REVIEW OF FINDINGS

In summarizing the information concerning factors influencing management practice adoption of Grade A dairymen in Greene County, the findings listed below seem relevant.

1. Of the things liked most by Grade A dairymen, "the regular income," was rated first by more than three-fifths (61 percent) of the dairymen (60 percent of the high and 60 percent of the low producers).

2. "Confinement" was the greatest dislike mentioned (38 percent) and was reported by more than one-third of the dairymen (48 percent of the high and 32 percent of the low groups).

3. Respondents felt that in general, Greene County Grade A dairymen most often do not adopt recommended production practices because the cost of the practices often outweighs their benefit (67 percent reporting), due to lack of technical knowledge (64 percent reporting) and because of having unsuitable facilities (61 percent reporting).

4. Almost three-fourths (72 percent) of the Greene County dairymen indicated they sought advice from various individuals, high producers preferring neighbors or friends (84 percent reporting) and

low most frequently mentioning the health department sanitarian (52 percent). Seventy-six percent of the high producers sought advice from the county agent as compared to only 28 percent of the low producers. Dairy management information was obtained by 88 percent of the high production group, while only 52 percent of the low producers sought such advice.

5. Most producers (93 percent) indicated that they received additional dairy management information from some mass or group contact. Farm magazines were most frequently mentioned with very little difference in production groups. Reported in descending order were newsletters, daily newspapers, radio, and university bulletins and publications. About one-half of the high producers attended farm meetings and field days for information as compared to one-sixth to one-fifth of the low.

6. The county agent was more familiar with the high producers (60 percent known) than with the low group (16 percent known).

7. In the interviewer's opinion, most Greene County dairymen (82 percent) should have been paying more attention to the management of their dairy herds.

II. IMPLICATIONS

The information obtained in the study should assist the Greene County Extension staff in planning an improved educational program for Grade A dairymen in the County. The following factors listed below

might be worthy of consideration in the planning and conducting of such a dairy educational effort:

1. Three-fifths of the dairymen liked Grade A milk production because of its regular income, though 38 percent disliked the necessary confinement; therefore, it may be assumed that the majority would be interested in increasing their net income.

2. Careful consideration should be given to the main reasons given for Grade A dairymen not adopting recommended dairy production practices.

3. Dairymen indicated that they used various sources of information regarding the management of their dairy herds. These should be explored and used more widely to encourage practice adoption.

4. Grade A dairymen should be familiarized with the information gained from this and the two related studies, and plans made for Extension teaching.

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APPENDIX

THE AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE
Knoxville, Tennessee

TENNESSEE GRADE "A" DAIRYING SURVEY

INTRODUCTION: I am helping with a survey that is being made by the University of Tennessee. The purpose is to obtain information to use in planning programs helpful to Grade "A" dairymen. The answers you give will be added to those given by other dairymen who are being interviewed in this county and other parts of the state to get a complete picture of the dairy situation. Could I have a little of your time to go over these questions?

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

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

6. Would you please complete this sentence? (Hand respondent card.)
"The thing I dislike most about Grade "A" dairy 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. We have listed on these cards some reasons why Grade "A" dairy farmers do not adopt recommended dairy production practices. (Hand respondent set of cards.) Now, here is what we would like you to do:
- Please look through all of the cards; read each one; and pick out the three cards that show why you believe Grade "A" dairy farmers do not use better production practices. After you have selected the three cards, please hand me the rest.
 - Now, these three reasons are not of the same importance; so please go through them and decide which one is probably of most importance. Please give me the number on the back of the card. Also, please do this with the other two cards.

Rank	1	2	3
Card Number			

Are there any other reasons why you believe Grade "A" dairy farmers do not adopt recommended dairy production practices?

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

- (1) is aware of certain recommended practices
- (2) is interested in using them
- (3) has tried them
- (4) is still using them, or will use them when the need arises
- (5) and his reasons 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 dairy 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.

8. Grade "A" Dairy Production Practices	Read or		Inter-		Is Using		Has Tried	
	Heard of		ested In		or			
	Yes	No	Yes	No	Yes	No	Yes	No
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
(1) Using artificial insemination in the breeding of 50% or more of your cows (exclude heifers)								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								
(2) Breeding each bull to a bull of same breed								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								
(3) Having a basis for weighing feed and grain according to production with special attention to assure that high producers receive enough grain (i.e., 1-3 or 1-4)								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								
(4) Providing an adequate (6-8 tons annually per cow) supply of silage (when fed with hay)								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								
(5) Providing high quality silage (i.e., corn cut in dent stage, alfalfa in early bloom stage and grasses in boot stage)								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								

	Read or		Inter-		Is Using		Has Tried	
	Heard of		ested In		or			
	Yes	No	Yes	No	Yes	No	Yes	No
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
(6) Providing enough roughage ($2\frac{1}{2}$ lb. of hay equivalent per cwt. of body weight daily) by supplementing silage with hay (1-2 tons annually per cow)								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								
(7) Providing high quality hay (i.e., alfalfa cut at bud to 1/10 bloom stage, grasses and small grains in boot stage)								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								
(8) Providing hay and/or silage when cows are on pasture								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								
(9) Providing an adequate amount (1-2 acres per cow) of improved pasture (e.g., orchard grass and ladino)								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								
(10) Providing sufficient summer pasture ($1/4$ to $1/2$ A. per cow)								
i. Reasons <u>for</u> <u>never</u> trying practice OR not using after trying								

	Read or		Inter-		Is Using		Has Tried	
	Heard of		ested In		or			
	Yes	No	Yes	No	Will	Use	Yes	No
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
(11) Keeping adequate milk production records on a per cow basis (i.e., D.H.I.R., D.H.I.A., W.A.D.A.M.								
i. Reasons <u>for never</u> trying practice OR not using after trying								
(12) Raising at least 75% of all herd replacements								
i. Reasons <u>for never</u> trying practice OR not using after trying								
(13) Annually providing an average of sixty days per cow for dry period								
i. Reasons <u>for never</u> trying practice OR not using after trying								
(14) Maintaining a 12-14 month calving period for each cow in the herd								
i. Reasons <u>for never</u> trying practice OR not using after trying								
(15) Having at least 75% of cows in the herd freshen in the fall								
i. Reasons <u>for never</u> trying practice or not using after trying								
(16) Permanently identifying each calf as to sire and dam								
i. Reasons <u>for never</u> trying practice OR not using after trying								

	Read or		Inter-		Is Using		Has Tried	
	Heard of		ested In		or			
	Yes	No	Yes	No	Will Use		Yes	No
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
(17) Vaccinating all calves (at 4-10 months of age) for brucellosis, blackleg, etc.								

i. Reasons for never trying practice OR not using after trying

(18) Keeping adequate herd records								
(a) Calving								
(b) Health								
(c) Heat								

i. Reasons for never trying practice OR not using after trying

(19) Using a strip cup on each cow before each milking								
--	--	--	--	--	--	--	--	--

i. Reasons for never trying practice OR not using after trying

(20) Having a routine check made (every 6 mo.) of milking system as to recommended vacuum level and pulsation rate (varies with manufacturer)								
---	--	--	--	--	--	--	--	--

i. Reasons for never trying practice OR not using after trying

(21) Providing separate feeding and loafing areas for the milking herd								
--	--	--	--	--	--	--	--	--

i. Reasons for never trying practice OR not using after trying

	Read or		Inter-		Is Using		Has Tried	
	Heard of		ested In		or			
	Yes	No	Yes	No	Will Use		Yes	No
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
(22) Systematically using a recommended method of fly control around barns, loafing and milking areas								

i. Reasons for never trying practice OR not using after trying

ii. TO INTERVIEWER: If recommended method is used, explain the system mentioned: _____

(23) Getting the advice of professional dairy workers

--	--	--	--	--	--	--	--

i. Reasons for never trying practice OR not using after trying

9. During the past year, have you talked with anyone about the management of your dairy herd?

a. Yes _____

b. No _____

TO THE INTERVIEWER: If No, skip to question 11. If Yes, ask question 10 first.

10. 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. Extension dairyman _____
 c. Local veterinarian _____
 d. D.H.I.A. supervisor _____
 e. A.B.A. technician _____
 f. Vo-Ag teacher _____

g. Milk plant field man _____
 h. Feed dealer or salesman _____
 i. Banker or PCA representative _____
 j. Neighbor or friend (other dairyman) _____
 k. Health department sanitarian _____
 l. Other (specify) _____

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

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

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

0	12345678	9	10	11	12	1	2	3	4	Bachelor's	Master's	Doctor's
None	Grade Sch.			H. S.		Col.	Underg.			Degree	Degree	Degree

13. Age of respondent?

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

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

15. (If respondent says he has no plans in question 14 above, ask why not.)

15. What land use system did you follow last year?

Crop	Acres	Bottom or Upland	Yield	Disposition	
				Used	Sold
Corn (grain)	_____	_____	_____	_____	_____
Corn (silage)	_____	_____	_____	_____	_____
Grass (silage)	_____	_____	_____	_____	_____
Kind _____	_____	_____	_____	_____	_____
Hay:					
Kind _____	_____	_____	_____	_____	_____
Kind _____	_____	_____	_____	_____	_____
Kind _____	_____	_____	_____	_____	_____
Pasture(improved)					
Kind _____	_____	_____	_____	_____	_____
Kind _____	_____	_____	_____	_____	_____
Kind _____	_____	_____	_____	_____	_____
Supplemental:					
Kind _____	_____	_____	_____	_____	_____
Kind _____	_____	_____	_____	_____	_____

17. How many dairy animals in each of the following classifications did you have last year?

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

18. How many dairy animals in each of the classifications did you have in the following breeds? (Check with question 17 to see totals are the same.)

<u>Breed</u>	<u>Number of Cows</u>		<u>Number of Heifers</u>		<u>Number of Bulls</u>	
	<u>Regis.</u>	<u>Grade</u>	<u>Regis.</u>	<u>Grade</u>	<u>Regis.</u>	<u>Grade</u>
a. Brown Swiss	_____	_____	_____	_____	_____	_____
b. Guernsey	_____	_____	_____	_____	_____	_____
c. Holstein	_____	_____	_____	_____	_____	_____
d. Jersey	_____	_____	_____	_____	_____	_____
e. Other	_____	_____	_____	_____	_____	_____
(please specify)	_____	_____	_____	_____	_____	_____

19. Do you now have more, the same or fewer dairy cows than you had last year?

a. More _____ i. How many more? _____ ii. Why? _____
 b. Same _____ i. Why? _____
 c. Fewer _____ i. How many fewer? _____ ii. Why? _____

20. How do you breed your heifers?

a. Artificially _____ b. Naturally _____

21. What type bull do you use on your heifers?

a. Dairy _____ b. Beef _____

22. What type of bull do you use on your cows?

a. Dairy _____ b. Beef _____

23. What percent protein do you use in your dairy ration?

a. 12% _____ b. 14% _____ c. 16% _____ d. 18% _____ e. Other(specify) _____

24. Do you mix your own concentrates?

a. Yes _____ b. Some _____ c. No _____

TO INTERVIEWER: If the answer to question 24 above was Yes, skip to question 26. If the answer was Some or No, ask question 25.

25. If you do not mix your own concentrates, how do you provide for them? _____

26. Do you grind your hay? a. Yes _____ b. No _____

TO INTERVIEWER: If the answer to question 26 above was Yes, ask question 27. If answer was No, skip to 28.

27. Please explain how hay is ground and fed. _____

28. What type of hay do you usually feed?

a. Legume _____ b. Grass _____ c. Legume-grass _____

29. How do you supply salt and minerals?

a. Mix in ration _____ b. Supply them free choice _____
c. Other (specify) _____

30. What source(s) of water do you have for your herd?

a. Drinking cups in barn _____ b. Other water in barn _____
c. Water outside barn _____ d. Pond _____ e. Stream _____

31. If you have a pond, what distance is it from the barn? _____ yds.

32. If you have a stream, what distance is it from the barn? _____ yds.

33. What type of milking set-up do you have?

a. Stanchion _____ b. Elevated stall c. Other (specify) _____

34. Do you have a bulk tank?

a. Yes _____ b. No _____

35. If you have a bulk tank, what is its capacity? _____ gallons

36. Do you have a pipeline system? a. Yes _____ b. No _____

37. If you do have a pipeline system, does it include a workable weighing device?

a. Yes _____ b. No _____

TO INTERVIEWER: If the answer to question 37 was Yes, ask question 38. If No, skip to question 39 below.

38. Do you use the weighing device?

a. Yes _____ b. No _____ If not, why not? _____

39. How much loafing barn area do you have for each cow? (in sq. ft.)

a. Under 30 _____ e. 60-69 _____
 b. 30-39 _____ f. 70 or above _____
 c. 40-49 _____ g. Box (free) stalls _____
 d. 50-59 _____

40. Do you have a silo? a. Yes _____ b. No _____

TO INTERVIEWER: If the answer to question 40 is Yes, ask question 41. If No, skip to question 42.

41. What type(s) of silo(s) do you have? What size? What type of cover to you use?

Type of Silo	Size	Type of Cover			
		Roof	Plastic	Other	None
Upright _____	_____	_____	_____	_____	_____
Trench _____	_____	_____	_____	_____	_____
Bunker _____	_____	_____	_____	_____	_____

42. Who does the milking?

a. Owner _____ b. Tenant _____ c. Other (please specify) _____

43. If person other than owner milks, how is he paid?

a. Percentage _____ b. Salary _____ c. Combination (specify) _____

44. (OPTIONAL) Approximately what was your total (gross) family income last year? (Hand card to respondent and ask him to select a category.)0

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

45. How would you rate the present condition and value of your dairy herd?

a. Excellent _____

c. Fair _____

b. Good _____

d. Poor _____

Name of Respondent _____

Address _____ County _____ Number _____

Date _____ Tenure Status _____

QUESTIONS FOR THE INTERVIEWER TO ANSWER (Not in interview)

Name of Respondent _____

Address _____ County _____ Number _____

Date _____

46. Pounds of milk sold last year _____ Percent B.F. Test _____
Average bacterial county last year _____

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

- | | |
|-----------------------------------|-----------------------------------|
| a. Among the first few _____ | c. Sooner than the average _____ |
| b. Soon after the first few _____ | d. A little later than most _____ |
| | e. Among the last few _____ |

48. Is the respondent

- | | |
|--------------|----------------|
| a. Man _____ | b. Woman _____ |
|--------------|----------------|

49. Interest of respondent in improving his dairy management (In interviewer's judgement).

- | | |
|------------------------------|-------------------------|
| a. Very interested _____ | c. Indifferent _____ |
| b. Somewhat interested _____ | d. Not interested _____ |

50. Respondent's attitude toward survey (In interviewer's judgement).

- | | |
|----------------------------|-----------------------|
| a. Friendly _____ | c. Indifferent _____ |
| b. Somewhat friendly _____ | d. Antagonistic _____ |

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

- | | | |
|--------------|-------------|--------------------|
| a. Yes _____ | b. No _____ | c. Uncertain _____ |
|--------------|-------------|--------------------|

52. How well do you know the respondent:

- | | |
|----------------------|------------------------|
| a. Very well _____ | c. Not very well _____ |
| b. Fairly well _____ | d. Not at all _____ |

53. How familiar are you with the respondent's dairy situation?

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

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

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

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