

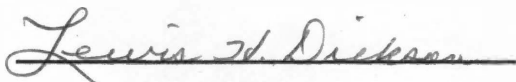
December 1, 1965

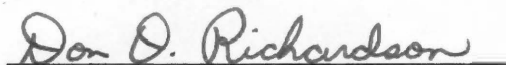
To the Graduate Council:

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


Major Professor

We have read these problems
and recommend their acceptance:





Accepted for the Council:


Dean of the Graduate School

GRADE A MILK PRODUCERS IN HENRY COUNTY, TENNESSEE:

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

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

PROBLEM C: FACTORS INFLUENCING DAIRY MANAGEMENT PRACTICE ADOPTION BY
HENRY 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
George Curtis Shearon

December 1965

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PROBLEM A:

CHARACTERISTICS OF HENRY COUNTY GRADE A MILK PRODUCERS AND THEIR FARMS

A Special Problem in Lieu of Thesis

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

by
George Curtis Shearon

December 1965

CHAPTER I

INTRODUCTION

I. THE SITUATION AND NEED FOR THE STUDY

Statewide, dairying usually ranks about fourth in importance as a source of agricultural income in Tennessee (19:1).^{*} Annual receipts averaged about 85 million dollars for the five-year period 1959-1963. 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 American cow produced 7,545 pounds. 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.

Henry County is located in the northwest corner of the Western Division of Tennessee. It is bordered by the state of Kentucky to the north and the Tennessee River to the east. The agriculture of the county is rather diversified, a little more than one-half of the agricultural income coming from the sale of livestock and livestock products and a little under one-half coming from the sale of crops. Dairying ranks second in importance and is exceeded only in dollar value by the sale of cattle and calves (5:217).

Grade A dairying has been a growing industry in Henry County for the past ten years. In 1955, all of the Grade A milk produced was sold

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

to one local plant, the Paris Dairy Company. Twenty-three producers were selling Grade A milk at that time. In 1957, the Sealtest Milk Company started soliciting milk in Henry County. Many farmers, who had been producing manufacturing milk, started building barns and making preparations to produce Grade A milk. By early 1963, approximately 75 farmers were producing Grade A milk in Henry County and selling to one of three markets, the above mentioned Paris Dairy, Sealtest and also the Ryan Milk Company of Murray, Kentucky, which began purchasing Grade A milk in 1958. The Ryan Milk Company was purchasing all Jersey Milk from 12 producers. At about this time, the changeover to bulk tanks went into effect, and several of the smaller producers went out of business, while others began milking. During the year 1963, a total of 60 dairymen produced milk the entire year.

Some statewide milk production problems that have been identified include (4:16):1) there is a lack of an adequate supply of quality feed (especially hay and silage); 2) too few dairymen are using artificial breeding; 3) most dairymen in Tennessee do not keep adequate records; 4) many housing and milking facilities are inadequate and/or inefficient; 5) mastitis continues to be a common disease in dairy herds throughout the state, and 6) use of too much or too little insecticides in the control of flies and other insect pests poses 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. Henry County was one of several Tennessee counties participating in a statewide project under the guidance of the Agricultural Extension Training and Studies and Dairy Departments 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 Henry County dairymen, including those who annually produce in high, middle, and low thirds in terms of pounds of butterfat.

III. REVIEW OF LITERATURE

Only limited research has been conducted to determine the characteristics of Grade A dairy producers in Tennessee. Correspondence with some leading dairy states in the country indicates that the same situation may exist in these states also.

Givan (8:8) 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. Fifty-five Henry County dairymen were included in Givan's study which consisted of 3,097 producers throughout Tennessee selling milk under Federal orders. Virginia researchers had conducted a similar study in 1958 and had made like findings (13:4).

In a Pennsylvania Project III statement for 1964-65 (7:2), it was noted that benchmark data were included for numbers of herds, numbers of cows and numbers of bulk tanks and pipeline milkers. However, no comparative information was available for higher and lower producers.

Much of the literature reviewed dealt with dairy farmers who were in some way cooperating with a Land Grant College or University. This included test demonstration farmers and dairy farmers who were members of various record-keeping groups. Such information does not give much insight into the characteristics of the average or below average dairymen who generally have not participated in these programs.

O'Neal (16:25) found that levels of milk production of Anderson County dairymen were related to the operator's management ability.

IV. METHODS

For the purpose of this study, the total population of 60 Grade A dairymen was divided into three groups of 20 each according to their

average per cow butterfat production. Table I shows the groups and the range of butterfat production of each group.

A comprehensive survey (see Appendix) consisting of 45 main questions, some of them containing many sub parts was completed by personal interview with each of the 60 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 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.

TABLE I

NUMBERS OF HENRY 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	20	188 lb. - 280 lb.
Medium	20	287 lb. - 357 lb.
High	20	359 lb. - 495 lb.
Total	60	188 lb. - 495 lb.

CHAPTER II

FINDINGS

I. DEGREE TO WHICH INTERVIEWER KNEW GRADE A MILK PRODUCERS

Table II shows that 70 percent or 42 of the producers were known very well or fairly well by the interviewer. The generally-accepted assumption that the more progressive farmers, as a rule, are in closer contact with the county agent is borne out by the fact that, while 85 percent of the high producers were known very well or fairly well, only 60 percent of the low producers were known so well. The interviewer was acquainted with all of the producers excepting for four. Three of these four lived near the northern border of the county and tended to go toward Murray, Kentucky, for more of their advice than toward Paris. One of the dairymen was well acquainted with the county agent in Calloway County, Kentucky.

II. RESPONDENT'S ATTITUDE TOWARD THE SURVEY

The interviewer was well-received in 90 percent of the cases and only 2 producers could be classed as antagonistic (see Table III). They did, however, cooperate by answering all questions. Four other producers were indifferent toward the survey, but also were willing to cooperate after the purpose of the survey was explained. Only 1

TABLE II

DEGREES TO WHICH INTERVIEWER KNEW ALL HENRY 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	21	35	9	45	7	35	5	25
Fairly well	21	35	8	40	6	30	7	35
Not Very well	14	23	2	10	6	30	6	30
Not At all	4	7	1	5	1	5	2	10
Total	60	100	20	100	20	100	20	100

*Percents are rounded to nearest whole number.

TABLE III

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

Attitude Toward the Survey	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Friendly	45	80	18	90	15	75	15	75
Somewhat Friendly	6	10	1	5	3	15	2	10
Indifferent	4	7	1	5	2	10	1	5
Antagonistic	2	3	0	0	0	0	2	10
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

indifferent producer was in the high production group, while both antagonistic producers and an indifferent respondent were in the low group.

III. EDUCATIONAL LEVELS

Formal education did not seem to play an important part in this study when the levels of each group were compared. In Table IV it would be noted, however, that 3 of the 4 producers who had college training were in the high group, while only 1 was in the low group.

The interviewer got the impression that interest, attitude, and desire had more to do with the success of the producer than did his formal educational level.

IV. AGE GROUPS

The difference in ages of producers is shown in Table V. It will be noted that the high producers averaged 4 years younger (49 years) than the low producers (53 years),

V. GROSS FAMILY INCOME

Gross family income was an optional question on the interview schedule, but all 60 of the dairymen interviewed gave the information which is revealed in Table VI.

Fifty percent of the low producers had gross family incomes of \$12,000 or less; while only 15 percent of the high producers were in

TABLE IV

EDUCATIONAL LEVELS OF ALL HENRY COUNTY DAIRYMEN INTERVIEWED,
HIGH, MEDIUM, AND LOW PRODUCERS BY NUMBER 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	5	1	5	2	10	0	0
5-7	8	13	4	20	3	15	1	5
8	17	28	3	15	6	30	8	40
9-11	14	24	5	25	4	20	5	25
12	14	23	4	20	5	25	5	25
1-4 (college)	4	7	3	15	0	0	1	5
Total	60	100	20	100	20	100	20	100
Average Educational Levels	9.3 grades		9.4 grades		8.7 grades		9.8 grades	

*Percents are rounded to the nearest whole number.

TABLE V

AGE GROUPS OF ALL HENRY 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.	%
25 - 34	2	3	0	0	2	10	0	0
35 - 44	16	27	8	40	3	15	5	25
45 - 54	21	35	7	35	7	35	7	35
55 - 64	16	27	4	20	6	30	6	30
65 or more	5	8	1	5	2	10	2	10
Total	60	100	20	100	20	100	20	100
Average Age	51		49		51		53	
	years		years		years		years	

*Percents are rounded to the nearest whole number.

TABLE VI

TOTAL 1963 GROSS FAMILY INCOMES OF ALL HENRY 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.	%
4000-5999	3	5	0	0	0	0	3	15
6000-7999	4	7	1	5	1	5	2	10
8000-9999	7	11	2	10	3	15	2	10
10,000-11,999	4	7	0	0	1	5	3	15
12,000-13,999	6	10	1	5	2	10	3	15
14,000-15,999	6	10	2	10	4	20	0	0
16,000-17,999	6	10	2	10	2	10	2	10
18,000-19,999	5	8	1	5	2	10	2	10
20,000-21,999	3	5	2	10	1	5	0	0
22,000-23,999	4	7	0	0	1	5	3	15
24,000-25,999	1	2	1	5	0	0	0	0
26,000-29,999	2	3	3	15	0	0	0	0
30,000-49,999	6	10	4	20	2	10	0	0
50,000-99,999	2	3	1	5	1	5	0	0
Total	60	100	20	100	20	100	20	100
Average Income	\$19,339		\$25,211		\$20,100		\$13,000	

*Percents are rounded to the nearest whole number.

this category. With regard to gross family incomes above \$20,000, it may be noted that this bracket included nearly one-half (45 percent) of the high producers and only 15 percent of the low producers. None of the low producers had gross incomes above \$24,000 while 9 (45 percent) of the high producers reported \$24,000 or more.

The 60 dairymen averaged \$19,339 gross income per family with the high producers averaging \$25,214, the medium \$20,100 and the low producers \$13,000.

VI. SEX GROUPS

The interview schedule provided a place for indicating the sex of the dairymen. Only two of the operations, both in the low group, were completely managed by females.

In relation to this topic however, the interviewer found both husband and wife very interested in the dairy operation in a large percent of cases. Almost 50 percent of the interviews were conducted with both husband and wife participating.

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 are shown in Table VII. Efforts were made by the interviewer to be as objective as possible in this rating, and consideration was given to the apparent knowledge of the respondent.

TABLE VII

INTERVIEWER'S OPINION OF STAGES OF THE ADOPTION PROCESS REPRESENTED
BY ALL HENRY 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)	6	10	4	20	2	10	0	0
Soon after first few (4 points)	8	13	4	20	3	15	1	5
Sooner than aver- age (3 points)	18	30	8	40	6	30	4	20
A little later than most (2 points)	16	27	3	15	5	25	8	40
Among the last few (1 point)	12	20	1	5	4	20	7	35
Total	60	100	20	100	20	100	20	100
Average Stage	2.7 points		3.4 points		2.7 points		2.0 points	

*Percents are rounded to nearest whole number.

It will be noted that only 10 percent were rated as being among the first few to adopt recommended practices. Twenty percent were rated as being among the last few to make these adoptions. The important point revealed by this table is that high producers tended to be farther along in adoption than low, and the medium group fill in between. The high producers averaged 3.4 points, "sooner than average," when the stage of adoption was put on a rating scale where five (5) points were given those classified among the first few, and one (1) point given those among the last few, others falling in between. The low producers had an average of only 2 points, which put them in the category of "a little later than most".

VIII. INTEREST IN DAIRY HERD MANAGEMENT IMPROVEMENT

About the same trend will be noted in Table VIII as was seen in the preceding table regarding the stage of adoption. The interviewer rated each producer according to his opinion as to their interest in improving the level of dairy herd management. These ratings were given numerical numbers with those receiving a "not interested" rating zero (0) and the ratings of "indifferent," "somewhat interested," and "very interested" receiving ratings of 1, 2, and 3 respectively.

It will be noted that the average for all dairymen was slightly below the "somewhat interested" level (1.9 points). Table VIII shows that the high producers had an average of 2.5 points putting them between "somewhat interested" and "very interested." While the low pro-

TABLE VIII

INTERVIEWER'S OPINION OF THE INTEREST OF ALL HENRY 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)	3	5	0	0	1	5	2	10
Indifferent (1 point)	16	27	1	5	5	25	10	50
Somewhat Interested (2 points)	23	38	8	40	8	40	7	35
Very Interested (3 points)	18	30	11	55	6	30	1	5
Total	60	100	20	100	20	100	20	100
Average Interest	1.9 points		2.5 points		2.0 points		1.4 points	

*Percents are rounded to nearest whole number.

ducers came out with a rating of 1.4 placing them between the "indifferent" and "somewhat interested" group.

IX. MAJOR OCCUPATION

Table IX reveals that 54 of the dairymen received a major share of their family income from full-time farming. All of the high producers were in this group. At the same time, 20 percent of the low producers were classified as part-time farmers.

X. MAJOR FARM ENTERPRISES

As seen in Table X, dairying was the major enterprise in all excepting 4 of the cases. Three farmers listed tobacco as being the major farm enterprise, and 1 listed other crops (a combination of cotton, tobacco, grain crops, and legume seeds).

XI. TOTAL FARM ACREAGE

Table XI shows the total farm acreages of all producers. The high producers, with an average of 210 acres, had a slightly higher farm acreage than did the other two groups. The average for the 60 Grade A dairymen was 195 acres, compared to 140 acres for all farms in the county (5:147)..

XII. TOTAL CROPLAND ACREAGE

While the medium producers had the smallest total acreage (Table XI) they show the largest average cropland acreage (154 acres) as

TABLE IX

MAJOR OCCUPATIONS OF ALL HENRY 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	54	90	20	100	18	90	16	80
Part-time Farmers	5	9	0	0	1	5	4	20
Professional Person	1	1	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

TABLE X

MAJOR FARM ENTERPRISES OF ALL HENRY 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.	%
Dairy	56	93	18	90	20	100	18	90
Other Crops	1	2	1	5	0	0	0	0
Tobacco	3	5	1	5	0	0	2	10
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

TABLE XI

TOTAL FARM ACREAGE CATEGORIES OF ALL HENRY 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.	%
50-99	9	15	4	20	3	15	2	10
100-149	19	32	5	25	7	35	7	35
150-199	9	15	2	10	3	15	4	20
200-249	8	13	2	10	3	15	3	15
250-299	5	8	2	10	2	10	1	5
300-349	2	3	1	5	1	5	0	0
350-399	2	4	2	10	0	0	0	0
400-449	4	7	1	5	0	0	3	15
450-499	0	0	0	0	0	0	0	0
500-549	0	0	0	0	0	0	0	0
550-600	2	3	1	5	1	5	0	0
Total	60	100	20	100	20	100	20	100
Average Acres in Farm	195		210		186		189	

*Percents are rounded to nearest whole number.

seen in Table XII with 154 acres, as compared to an average of 134 acres for both the high and the low producers.

There seemed to be more association between how the farm was managed and the productivity level of the soil, than between the number of total or cropland acres.

XIII. COWS MILKED

Size of Herd

As indicated in Table XIII, 9 producers or 15 percent of the total were milking more than 50 cows. Of this number 2 were in the high group, and 4 in the low group.

There seemed to be very little relation between the size of herd and butterfat production since both high and low producers had herd averages of 29 cows.

Registered Cows

Table XIV presents data concerning registered cows milked. Forty-five percent of the high producers were milking registered cows, while only 25 percent of the low producers reported milking registered animals. The high producers had an average of 3 registered cows per herd while the low producers had only 2. This tends to denote more interest and greater attention to management detail.

TABLE XII

TOTAL CROPLAND ACREAGE CATEGORIES OF ALL HENRY 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	1	2	1	5	0	0	0	0
50-99	23	38	8	40	6	30	9	45
100-149	14	23	2	10	7	35	5	25
150-199	12	20	6	30	3	15	3	15
200-249	3	5	1	5	2	10	0	0
250-299	2	3	1	5	0	0	1	5
300-349	4	7	1	5	1	5	2	10
350-399	0	0	0	0	0	0	0	0
400-450	1	2	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100
Average Acres in Cropland	141		134		154		134	

*Percents are rounded to the nearest whole number.

TABLE XIII

TOTAL NUMBERS OF COWS MILKED BY ALL HENRY 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	28	47	9	45	7	35	12	60
30-49	23	38	9	45	10	50	4	20
50-69	8	13	2	10	2	10	4	20
70-100	1	2	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100
Average Herd Size	31 cows		29 cows		34 cows		29 cows	

* Percents are rounded to the nearest whole number.

TABLE XIV

TOTAL NUMBERS OF REGISTERED COWS MILKED BY ALL HENRY 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	41	68	11	55	15	75	15	75
1-9	12	20	7	35	3	15	2	10
10-19	5	8	2	10	0	0	3	15
20-29	1	2	0	0	1	5	0	0
30-39	1	2	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100
Average Number	3 cows		3 cows		3 cows		2 cows	

*Percents are rounded to the nearest whole number.

Breed of Cows

Tables XV and XVI show the breeds of registered and grade cows and their distribution throughout the three groups. It is of some interest to note that 8 herds reported both grade and registered Jersey's. Only 1 herd reported having any registered Guernsey cows, while 6 reported registered Holstein, 2 herds reported other breeds and 1 herd reported having both registered Holstein and Jersey cows.

Three herds reported no grade cows. One of these all registered herds was in the high group and the other 2 fell in the low group of producers. There were 42 producers reporting no registered cows in their herds, these are divided with 13 in the high group, 14 in the medium group and 15 in the low group.

XIV. HEIFERS KEPT

Replacement

Almost 90 percent of all the milk producers 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 60 Grade A dairy farms.

Only 1 of the high producers was not attempting to raise any of his replacement heifers. This producer said that he had not been very successful at raising heifers and felt that it was more profitable for him to devote all of his resources to the milking herd and buy replacement heifers from other producers just before they freshened. There

TABLE XV

BREEDS OF REGISTERED COWS MILKED IN 1963 BY ALL HENRY 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	42	70	13	65	14	70	15	75
Guernsey	1	2	1	5	0	0	0	0
Holstein	6	10	4	20	1	5	1	5
Jersey	8	13	1	5	3	15	4	20
Other	2	3	0	0	2	10	0	0
Holstein & Jersey	1	2	1	5	0	0	0	0
Total	60	100	20	100	20	100	20	100

*Percents are rounded to nearest whole number.

TABLE XVI

BREEDS OF GRADE COWS MILKED IN 1963 BY ALL HENRY 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	2	3	0	0	0	0	2	10
Holstein	14	24	7	35	4	20	3	15
Jersey	8	13	1	5	3	15	4	20
Guernsey & Holstein	4	7	1	5	2	10	1	5
Guernsey, Holstein &/or Jersey	13	22	4	20	3	15	6	30
Holstein & Jersey	16	27	6	30	6	30	4	20
Brown Swiss &/or Holstein &/or Jersey &/or Guernsey or other	2	3	1	5	1	5	0	0
All Four and Other	1	1	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

TABLE XVII

TOTAL NUMBERS OF HEIFERS ONE YEAR OR OLDER KEPT BY ALL HENRY
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	7	12	1	5	2	10	4	20
1-10	31	52	11	55	10	50	10	50
11-20	16	27	6	30	7	35	3	15
21-30	5	8	2	10	1	5	2	10
31-40	1	1	0	0	0	0	1	5
Total	60	100	20	100	20	100	20	100
Average Number Kept	9 heifers		10 heifers		9 heifers		9 heifers	

*Percents are rounded to the nearest whole number.

TABLE XVIII

TOTAL NUMBERS OF HEIFERS UNDER ONE YEAR OF AGE KEPT BY HENRY
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	7	15	1	5	3	15	3	15
1-10	32	53	12	60	9	45	11	55
11-20	20	33	7	35	7	35	6	30
21-30	0	0	0	0	0	0	0	0
31-40	1	2	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100
Average Number Kept	8 heifers		8 heifers		10 heifers		7 heifers	

*Percents are rounded to the nearest whole number.

were 4 low producers who had no heifers over one year of age, and 3 with no heifers under one year of age. These producers seemed to dislike raising heifers and mentioned many problems connected therewith. Some of the problems were: 1) lose too many calves; 2) artificially-sired calves are weak and won't grow off good, so those bred naturally to beef type bulls are preferred; 3) do not have time to fool with calves and do other farm work, and 4) I have not been able to raise heifers that produce as well as the ones I buy. In general, the problems appeared to be related to the dairyman's attitude and managerial ability. It was noted that most such producers were not sympathetic with the detailed programs necessary for doing a good job of producing quality heifers. More high producers tended to raise more heifers (either over or under one year of age) than was true for the low producers.

Registered Heifers

Only about 15 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 1 herd showing more than 10. Some producers who reported registered cows that they had purchased were not making any attempt to have their heifers registered. Almost all of the producers who reported registered cows indicated that they were trying to breed these cows artificially to registered bulls, but felt that the trouble of keeping up with registration papers would not be of any benefit to them.

TABLE XIX

TOTAL NUMBERS OF REGISTERED HEIFERS ONE YEAR OR OLDER KEPT BY ALL
HENRY 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	51	85	17	85	17	85	17	85
1-10	8	13	3	15	3	15	2	10
11-20	1	2	0	0	0	0	1	5
Total	60	100	20	100	20	100	20	100
Average Number Kept	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
HENRY 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	53	88	18	90	18	90	17	85
1-10	7	12	2	10	2	10	3	15
Total	60	100	20	100	20	100	20	100
Average Number Kept	1 heifer		1 heifer		1 heifer		1 heifer	

*Percents are rounded to the nearest whole number.

Breed of Heifers

It is seen in Table XXI that 11 herds reported registered heifers. This is compared to 19 herds (Table XIV) that reported registered cows.

The Holstein breed seemed to predominate on the high production farms. This is evident when the tables showing the breeds of both cows and heifers are studied. As noted in Table XIV, there were 6 herds that reported registered Holsteins with 4 of these in the high group and 1 each in the medium and low group. The same breakdown is found with respect to registered heifers. When we look at registered Jersey's, we see 8 herds reporting with 1 in the high and 4 in the low group. Registered Jersey heifers are reported in only 4 cases with 2 of these being in the medium and 2 in the low group. A further look at Table XVI shows that 19 of the herds in the high group were made up of Holstein cows or a combination of Holstein and one or more other breeds.

Tables XXI and XXII tell about the same story with respect to the predominance of the Holstein breed in the high production group. It was pointed out earlier (Table XVII) that only one high producer was not keeping replacement heifers. With regard to the replacement heifers being kept by high producers (Table XXII), we note that 13 had only grade Holstein heifers with one having a combination of Guernsey and Holstein and one a combination of Jersey and Holstein. As seen in Table XXI, 6 producers reported registered Holstein heifers and 4 of these were in the high production group.

TABLE XXI

BREEDS OF REGISTERED HEIFERS KEPT IN 1963 BY ALL HENRY 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	49	81	15	75	17	85	17	85
Holstein	6	10	4	20	1	5	1	5
Jersey	4	7	0	0	2	10	2	10
Guernsey and Holstein	1	2	1	5	0	0	0	0
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

TABLE XXII

BREEDS OF GRADE HEIFERS KEPT IN 1963 BY ALL HENRY 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	12	20	3	15	3	15	6	30
Holstein	27	45	13	65	9	45	5	25
Jersey	9	15	2	10	2	10	5	25
Other	1	2	0	0	1	5	0	0
Guernsey & Holstein	2	3	1	5	1	5	0	0
Holstein & Jersey	6	10	1	5	2	10	3	15
Brown Swiss &/or Holstein &/or Jersey &/or Guernsey or other	3	5	0	0	2	10	1	5
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

This appears to be significant, and may point to the forage feeding practices being used by Henry County dairymen. The larger, roomier Holstein cows might be expected to make better use of heavy forage feeding than is generally true with the smaller Jersey's.

XV. BULLS KEPT

Seventy-seven percent of the dairymen reported keeping no dairy bulls (not including beef bulls kept and used on dairy cows and heifers). Fourteen of the producers reported keeping dairy bulls, 5 were high producers, 6 medium producers and 3 low producers. Table XXIII gives a summary of the number of bulls kept in each group.

In Table XXIV it will be noted that 9 of the 14 dairymen keeping bulls kept registered bulls, leaving only four producers using grade bulls, as revealed in Table XXV.

Breed of Bulls

The breeds of registered and grade dairy bulls kept by Grade A dairymen in Henry County are shown in Tables XXVI and XXVII. Only 5 herds reported keeping registered bulls. Three of these were keeping registered Jersey bulls and 2 reported registered Holstein bulls. Five producers also reported having grade bulls--4 of which said they had Holstein bulls and 1 reported a grade Brown Swiss bull.

Most of the better producers indicated that they kept bulls due to the inconvenience and poor conception rate when artificial breeding

TABLE XXIII

TOTAL NUMBERS OF BULLS KEPT BY ALL HENRY 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	46	77	15	75	14	70	17	85
1	9	15	4	20	3	15	2	10
2	4	7	1	5	2	10	1	5
3	1	1	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100
Average Number Kept	1.4 bulls		1.2 bulls		1.7 bulls		1.3 bulls	

*Percents are rounded to the nearest whole number.

TABLE XXIV

TOTAL NUMBERS OF REGISTERED BULLS KEPT BY ALL HENRY 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	51	85	17	85	15	75	19	95
1	5	8	2	10	2	10	1	5
2	3	5	1	5	2	10	0	0
3	1	2	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100
Average Number Kept	1.6 bulls		1.3 bulls		1.8 bulls		1.0 bulls	

*Percents are rounded to the nearest whole number.

TABLE XXV

TOTAL NUMBERS OF GRADE BULLS KEPT BY ALL HENRY 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	55	92	18	90	19	95	18	90
1	4	7	2	10	1	5	1	5
2	1	1	0	0	0	0	1	5
Total	60	100	20	100	20	100	20	100
Average Number Kept	1.3 bulls		1.0 bulls		1.0 bulls		2.0 bulls	

*Percents are rounded to the nearest whole number.

TABLE XXVI

BREEDS OF REGISTERED BULLS KEPT IN 1963 BY ALL HENRY 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	55	92	19	95	17	85	19	95
Holstein	2	3	1	5	1	5	0	0
Jersey	3	5	0	0	2	10	1	5
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

TABLE XXVII

BREEDS OF GRADE BULLS KEPT IN 1963 BY ALL HENRY 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	55	92	17	85	19	95	19	95
Brown Swiss	1	1	0	0	1	5	0	0
Holstein	4	7	3	15	0	0	1	5
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

had been tried. Some of the low producers said they kept bulls, because "the naturally sired calves are stronger and grow off better than artificial calves."

XVI. RATING OF HERD

Tables XXVIII and XXIX show the ratings of dairy herds as adjudged by the producers and by the interviewer respectively.

It will be noted in Table XXVIII that each group had herds averaging between "fair" and "good" (1.5 points). Most producers seemed to be reluctant to put a rating of "poor" or "excellent" on their own herds. Therefore, it may be noted that 33 producers rated their herds as "fair" and 26 rated their herds as "good" with only one producer rating his herd as "excellent".

In Table XXIX it will be noted that the interviewer did not know 23 of the herds well enough to rate them. Four of these herds were in the high group, and 10 in the low group. This again reveals the fact that the interviewer was better acquainted with the high producers than with the low. It will be noted that the averages for the medium and low groups were almost identical--the medium receiving a 1.4 average rating and the low 1.5 or a rating about halfway between "fair" and "good". The average for the 16 high producers that was rated was 1.9 or slightly below "good".

TABLE XXVIII

RATINGS GIVEN TO THEIR DAIRY HERDS BY ALL HENRY 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	0	0	0	0	0	0	0	0
Poor (0 points)	0	0	0	0	0	0	0	0
Fair (1 point)	33	55	11	55	12	60	10	50
Good (2 points)	26	43	9	45	7	35	10	50
Excellent (3 points)	1	2	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100
Average Rating	1.5 points		1.5 points		1.5 points		1.5 points	

*Percents are rounded to the nearest whole number.

TABLE XXIX

INTERVIEWER'S RATINGS GIVEN THE HERDS OF ALL HENRY 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	23	38	4	20	9	45	10	50
Poor (0 points)	3	5	0	0	2	10	1	5
Fair (1 point)	8	13	2	10	3	15	3	15
Good (2 points)	26	44	14	70	6	30	6	30
Excellent (3 points)	0	0	0	0	0	0	0	0
Total	60	100	20	100	20	100	20	100
Average Rating of Herds of Known Respondents	1.6 points		1.9 points		1.4 points		1.5 points	

*Percents are rounded to the nearest whole number.

XVII. TYPE OF MILKING FACILITIES

The 60 dairymen interviewed all had either the elevated stall or stanchion facility type of milking (see Table XXX). Thirty-three producers (55 percent) were milking in an elevated-stall barn, while the other 27 (45 percent) were using stanchion barns. The elevated-stalls held a slight edge over the stanchion's in that 13 (65 percent) of the high producers were using this method, while only 9 (45 percent) of the low producers had this facility.

XVIII. SIZE OF BULK TANK

It will be seen in Table XXXI that all producers interviewed were using bulk tanks. Only 1 producer had a tank of less than 100 gallons. Sixty-three percent of the producers were using tanks between 250 and 499 gallons. Only 9 producers (15 percent) had tanks that held more than 500 gallons of milk. Six of these producers were in the high group and only 1 in the low group; indicating, that the higher producers found it necessary to have a large tank due to greater production per cow. (It will be remembered here that the average size of herd for high and low producers, as seen in Table XIII, was identical at 29 cows.)

XIX. PIPELINE SYSTEM AND WEIGHING DEVICES

It is seen from Table XXXII that 63 percent (38) of the dairymen were using a pipeline system with 37 percent (22 dairymen) reporting none.

TABLE XXX

TYPES OF MILKING FACILITIES USED BY ALL HENRY 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.	%
Stanchion	27	45	7	35	9	45	11	55
Elevated Stall	33	55	13	65	11	55	9	45
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

TABLE XXXI

NUMBERS AND PERCENTS OF ALL HENRY 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.	%
Less than 100	1	2	0	0	0	0	1	5
100-249	12	20	3	15	3	15	6	30
250-499	38	63	11	55	15	75	12	60
500-749	9	15	6	30	2	10	1	5
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

TABLE XXXII

NUMBERS AND PERCENTS OF ALL HENRY 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	38	63	18	90	14	70	6	30
Had Weighing Device	5	8	3	15	2	10	0	0
Used Device	3	5	2	10	1	5	0	0
Didn't Use	2	3	1	5	1	5	0	0
Didn't Have Weighing Device	55	92	17	85	18	90	20	100
No	22	37	2	10	6	30	14	70
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

It is interesting to note that 90 percent of the high producers were using a pipeline system, while only 30 percent of the low producers reported this type of milking system. Some observations that might be mentioned concerning this are: 1) the high producers were younger, more efficient, and had better incomes, wherewith to purchase more modern equipment; 2) low producers were older and showed greater tendencies toward giving up dairy farming, and 3) the low producers generally were less efficient and had less desire and initiative.

Only 5 producers reported a weighing device in connection with their pipeline system. Three of these reported that they were using the device regularly, while 2 said that they were not using the device or used it only on rare occasions. Two of the 3 that were using the weighing devices were in the high group and 1 in the medium group.

XX. STORAGE AVAILABLE FOR SILAGE

Kind

It will be seen in Table XXXIII that 71 percent of the dairymen had a silo of some type. Of the 29 percent that reported no silo, only 2 were in the high group, while 8 were in the low group. Fifty-three percent reported having a trench silo, while only 8 percent (5 dairymen) had upright silos. Four of the 5 producers with upright silos were in the high group and 1 in the medium group.

Many dairymen indicated their intentions of making some change in their silage storage program. Several were planning to build upright

TABLE XXXIII

NUMBERS AND PERCENTS OF ALL HENRY 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	17	29	2	10	7	35	8	40
Upright	5	8	4	20	1	5	0	0
Trench	32	53	11	55	11	55	10	50
Bunker	3	5	0	0	1	5	2	10
Upright & Trench	2	3	2	10	0	0	0	0
Trench & Bunker	1	2	1	5	0	0	0	0
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

silos with automatic unloading equipment. Most of the producers who were not already using silage did not show a tendency toward including it in their future plans.

Capacity

The capacities available for storing silage are shown in Table XXXIV. Fifty percent of the high producers were able to store 300 or more tons of silage, while only 20 percent of the low producers could store more than 300 tons. Two of the low producers that had silage had room for less than 150 tons, and 8 of the low producers had no silage storing facilities. Only 2 high producers did not have silage.

XXI. SOURCE OF WATER FOR COWS

The different methods for providing water for cows are shown in Table XXXV. Attention is called to the fact that, of 17 producers who used a pond only as a source of water, only two were in the high group. One producer who showed only a stream as a source of water was in the low group. Five producers who had combinations of ponds and streams were divided with 1 in the high group, and 4 in the low group. Thus, out of 23 producers that were using pond and/or stream, there were only 3 in the high group, with 12 in the low group.

Cows in 37 of the herds had an opportunity to drink fresh water from a well either inside or outside the barn and 17 of these were in the high production group, while only 8 were in the low group. This

TABLE XXXIV

NUMBERS AND PERCENTS OF ALL HENRY 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	17	29	2	10	7	35	8	40
100-149	3	5	0	0	1	5	2	10
150-199	8	13	4	20	3	15	1	5
200-299	12	20	4	20	3	15	5	25
300-499	17	28	9	45	5	25	3	15
500-749	3	5	1	5	1	5	1	5
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

TABLE XXXV

NUMBERS AND PERCENTS OF ALL HENRY 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.	%
Other water in barn	2	3	1	5	0	0	1	5
Water outside barn	15	25	8	40	4	20	3	15
Pond	17	28	2	10	8	40	7	35
Stream	1	2	0	0	0	0	1	5
Other water in barn and one or more other	1	2	0	0	1	5	0	0
Water outside and one or more other	19	32	8	40	7	35	4	20
Pond and Stream	5	8	1	5	0	0	4	20
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

may indicate that the provision of plenty of fresh water that is relatively warmer in winter and cooler in summer could be a vital factor in increasing milk production.

XXII. AMOUNT OF LOAFING BARN AREA

All of the producers except 1 reported some loafing barn area for their cows as seen in Table XXXVI. However, 42 percent (25 of the producers) reported less than the minimum recommended amount of 50 square feet per cow. Twenty of these herds were in the medium and low groups with only 5 in the high group. Forty-two percent (29 herds) reported more than 70 square feet of loafing area per cow. Seventy-five percent of the high producers had 50 or more square feet per cow loafing areas, as compared with 45 and 50 percent for the middle and low groups, respectively.

It was noted that in most cases the loafing area provided also was used as a hay feeding area. None of the producers were using free stalls, at the time the survey was made.

XXIII. MILKING

Person Doing Milking

Fifty of the 60 dairymen reported that the milking was done by the owner. As will be seen in Table XXXVII, 8 of the producers reported that the milking was done by both owner and tenant, while only 1 producer reported tenant doing all the milking, and 1 also reported milking was done by others, or in this case hired labor.

TABLE XXXVI

NUMBERS AND PERCENTS OF ALL HENRY 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	0	0	1	5
Under 30	16	27	5	25	7	35	4	20
30-39	3	5	0	0	1	5	2	10
40-49	6	10	0	0	3	15	3	15
50-59	6	10	5	25	0	0	1	5
60-69	3	5	1	5	0	0	2	10
70 or more	25	42	9	45	9	45	7	35
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

TABLE XXXVII

PERSONS DOING THE MILKING ON FARMS OF ALL HENRY 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	50	83	17	85	15	75	18	90
Tenant	1	2	0	0	1	5	0	0
Both	8	13	3	15	3	15	2	10
Other	1	2	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

Way Milker Was Paid

All of the milkers other than the owner and his family, were paid a salary. None of the milkers were on a percentage or other basis.

XXIV. BUTTERFAT PRODUCTION

A breakdown of average butterfat production per cow is shown in Table XXXVIII. The herds were grouped in 50 pound ranges from 150 to 500 pounds of butterfat per cow. Dairy Herd Improvement Association records have shown that cows averaging less than 250 pounds of butterfat are not profitable and should be culled from the herd. It is noted that 11 herds averaged less than 250 pounds of butterfat, and 12 other herds were in the marginal group of 250 to 299 pounds. Ten herds were between 400 and 500 pounds of butterfat. (The reader is referred to 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 60 Grade A dairymen was 8,133 pounds. This is above the national average of 7,554 pounds (19:1). The low group had an average of only 5,650 pounds with 50 percent of them falling below 6,000 pounds of milk. From this it is concluded that these herds have a very low, or possibly a negative income per cow. With the average of 5,650 pounds of milk per cow for the low group, it would seem that almost one-third of the Grade A dairymen

TABLE XXXVIII

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

Average Butterfat Production Category, 1963 (Pounds sold/cow)	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
150-199	1	2	0	0	0	0	1	5
200-249	10	17	0	0	0	0	10	50
250-299	12	20	0	0	3	15	9	45
300-349	11	18	0	0	11	55	0	0
350-399	16	27	10	50	6	30	0	0
400-449	5	8	5	25	0	0	0	0
450-500	5	8	5	25	0	0	0	0
Total	60	100	20	100	20	100	20	100
Total Average Production	325 lbs.		412 lbs.		326 lbs.		236 lbs.	

*Percents are rounded to the nearest whole number.

TABLE XXXIX

NUMBERS AND PERCENTS OF ALL HENRY 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.	%
4,000-4,999	2	3	0	0	0	0	2	10
5,000-5,999	8	13	0	0	0	0	8	40
6,000-6,999	8	13	0	0	2	10	6	30
7,000-7,999	6	10	0	0	3	15	3	15
8,000-8,999	10	17	2	10	7	35	1	5
9,000-9,999	9	15	3	15	6	30	0	0
10,000-10,999	7	12	5	25	2	10	0	0
11,000-11,999	4	7	4	20	0	0	0	0
12,000-12,999	3	5	3	15	0	0	0	0
13,000-13,999	3	5	3	15	0	0	0	0
Total	60	100	20	100	20	100	20	100
Total Average Production	8,133 lbs.		10,600 lbs.		8,150 lbs.		5,650 lbs.	

*Percents are rounded to the nearest whole number.

in the county are operating on a marginal, or negative net return.

The high group of producers was averaging 10,600 pounds of milk, and it can be assumed from these figures that this group was getting a reasonably fair return. It is interesting to note, that 3 herds with averages above 13,000 pounds of milk were producing about three times as much milk per cow as were the 2 bottom herds in the low group.

XXVI. BACTERIAL COUNT

The bacterial count for each month for 1963 was secured for 51 of the 60 herds. Information for 9 herds that were producing all Jersey milk and selling it in Kentucky were not available. The average bacterial count for the year is seen in Table XL.

It is assumed that good management, consistent with high production, would also result in a low bacteria count. This proves to be generally true when we look at the median counts for the 3 groups, and observe that it is only 9,000 for the high group, compared to 22,000 for the low group.

TABLE XL

NUMBERS AND PERCENTS OF ALL HENRY 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	15	1	5	4	20	4	20
0-9,999	22	37	11	55	6	30	5	25
10,000-19,999	7	12	1	5	3	15	3	15
20,000-29,999	5	8	2	10	0	0	3	15
30,000-39,999	0	0	0	0	0	0	0	0
40,000-49,999	6	10	0	0	4	20	2	10
50,000-69,999	3	5	1	5	0	0	2	10
70,000-99,999	3	5	2	10	1	5	0	0
100,000-139,999	1	2	0	0	0	0	1	5
140,000-179,999	0	0	0	0	0	0	0	0
180,000-249,999	3	5	1	5	2	10	0	0
250,000-566,000	1	1	1	5	0	0	0	0
Total	60	100	20	100	20	100	20	100
Total Median Bacterial Count**	16,000		9,000		18,000		22,000	

*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 Henry County, Tennessee. The information was obtained through a personal interview survey of all the Grade A milk producers in the county who produced milk throughout the year 1963. There were 60 of these producers. 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 butterfat production and the characteristics of these groups were compared.

I. REVIEW OF FINDINGS

In summarizing the data concerning the characteristics of Grade A dairymen in Henry 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. Averaged 51 years of age with the high production group being the youngest (49 years as compared to 53 for the low).
2. Had a little over 9 years of formal education, with no significant difference between groups
3. Were generally known by the county agent; 85 percent of the high producers being known fairly well or very well, as compared to 60 percent of the low producers

4. Had a receptive attitude toward the survey, with only 2 (low producers) being antagonistic

5. Had an average gross family income of \$19,339 with the high group averaging \$25,211, compared to \$13,000 for the low production group

6. Produced an average of 325 pounds of butterfat and 8,133 pounds of milk per cow; with the high group averaging 412 pounds of butterfat and 10,600 pounds of milk, compared to 236 pounds of butterfat and 5,650 pounds of milk for the low group

7. Received the major share of their family income from dairying and 90 percent were full-time farmers; none of the high, but 4 of the low producers were classified as part-time farmers

8. Operated a farm averaging 195 acres and had an average of 141 acres of cropland, high producers having largest farms with an average of 210 acres; and medium producers having the most cropland with an average of 154 acres

9. Milked an average of 31 cows, with the medium producers having the highest average of 34 cows, compared to 29 each for the high and low producers

10. Had an average of 3 registered cows per herd, with the high producers having 3 and the low producers 2

11. Were generally producing replacement heifers, 95 percent of the high producers and 85 percent of the low producers having replacement heifers on hand

12. Had a total median bacterial count of 16,000; with the median for the high group being 9,000 and that for the low group 22,000.

All producers had bulk tanks, 63 percent had pipeline milking systems and 55 percent were milking in elevated stall barns. Silos were present on 71 percent of the farms. Ninety percent of the high producers had silos, as compared to 60 percent for the low producers. The high producers tended to store more silage per cow than did the low producers.

High producers did a little better job of supplying fresh water, and tended to provide more spacious loafing areas for the cows.

The high producers also showed a greater interest in improving their dairy production practices.

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 producers; especially those in the low group
2. A high percent of the producers can be expected to be receptive to Extension personnel; however, the need for motivation and attitude changes are indicated regarding many of the producers in the low group
3. A wide range in educational levels from the third grade to three years of college, indicates that different educational approaches need to be considered

4. The age differences (from below 30 to past 65, with an average of 51 years) indicates a need for very careful planning if educational programs are to be most effective

5. Differences in silage storage capacity, loafing barn area, and drinking water supply for the herd indicates a need for more individual as well as group educational and Extension demonstrations to improve these situations.

6. Further evaluations of these characteristics, and individual study of the material revealed in each questionnaire can be helpful in planning and working with these and other Grade A dairymen on an individual and a group basis.

PROBLEM B:

MANAGEMENT PRACTICES OF HENRY 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
George Curtis Shearon
December 1965

CHAPTER I

INTRODUCTION

Grade A milk production is the second most important agricultural enterprise in Henry County, and has experienced very rapid growth in recent years. Most Henry County producers have been producing Grade A milk for less than ten years. The big change in Grade A milk production came in 1957, when the Sealtest Milk Company started purchasing milk in the county. Prior to this time the only Grade A milk being marketed was to the local Paris Dairy. At the time of the study approximately 75 Henry County farmers were selling Grade A milk to three companies including the above-mentioned Sealtest Milk Company and Paris Dairy, and, also, the Ryan Milk Company of Murray, Kentucky.

Most of the Grade A producers have had previous dairy experience in producing manufacturing milk for Pet Milk Company which started buying milk in Henry County in late 1950. Since starting in the Grade A business, many producers had attempted to both increase the size of their herds and obtain more modern equipment. Rapid changes in technology and in the economic structure of the dairy industry had presented problems that few producers thought about when they first entered upon Grade A milk production. No previous attempt had been made to learn what producers were and were not doing. 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 Henry 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 Virginia (13:4),^{*} 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.).

In a Michigan study (14:1397), it was found that artificial insemination (A. I.) sired cows were superior to the non-A. I. cows within the same herds.

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

In 1964, Miller (14) 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 (7:2), 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

All companies purchasing Grade A milk in Henry County were contacted and a complete list of producers was obtained, along with total milk production, butterfat test, and bacterial count figures for each month during the year 1963. This list revealed that there were 60 Grade A dairymen in the county who sold milk during the entire year of 1963. 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 60 dairymen were divided as follows: 1) 20 high producers with average annual butterfat production (1963 figures) per cow ranging from 495 to 359 pounds; 2) 20 medium producers ranging from 357 to 287 pounds of butterfat per cow; and 3) 20 low producers ranging from 280 to 188 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 60 Henry 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 rating of 3.66, the high producers were about the middle of the "tried" stage (3.95), while the medium producers were at the top of the "planning to try" stage and the low producers were at the bottom of the "tried" stage.

The high producers had the highest average practice diffusion rating (3.95), when compared to the medium (3.46) and low (3.56) producers.

Another note of interest in Table XLI is that 60 percent (12 producers) of the high producers were in the top half of the "tried" stage (4.00-4.49); while only 35 percent (7 producers) of the low group rated this high. Only one producer (medium group) had the highest average rating in the "using" stage (4.50-5.00). Ten percent of the low and medium groups (4 producers) were in the "interested" stage (1.50-2.49), while none of the high group rated so low.

TABLE XLI

NUMBERS AND PERCENTS OF ALL HENRY 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	1	5	0	0
2.00-2.49	3	5	0	0	1	5	2	10
2.50-2.99	8	13	1	5	5	25	2	10
3.00-3.49	11	18	3	15	4	20	4	20
3.50-3.99	10	17	4	20	1	5	5	25
4.00-4.49	26	43	12	60	7	35	7	35
4.50-5.00	1	2	0	0	1	5	0	0
Total	60	100	20	100	20	100	20	100
Total Average Rating	3.66		3.95		3.46		3.56	

*Percents are rounded to 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.

Relation to Production

The average individual dairy management practice diffusion ratings and total average ratings for all Henry County dairymen interviewed, high, medium and low producers, are shown in Table XLII. Also, Table XLIII gives a breakdown of the percents of Henry 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 "interested" stage (2.03) for Practice 7, "adequate milk records kept," to the "using" stage (4.97) for Practice 3, "60-day dry period provided cows." All producers averaged in the "using" stage with regard to only 4 practices: 1) Practice 2, "all cows bred to same breed bull" (4.50); 2) Practice 3, "60-day dry period provided cows" (4.97); 3) Practice 4, "12-14 month calving period provided" (4.53); and 4) Practice 20, "flies systematically controlled" (4.52).

The high producers had a higher average rating than did the low producers in 19 of the 23 practices. They averaged .6 to 1.45 points better than the low producers in 10 of the 19 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 beyond the "tried" stage for these practices. When high and low groups were compared, the only large difference was noted on Practice 5, "75 percent of cows fall freshened." The former averaged in the "using" stage (4.70), while the latter were in the "tried" stage (3.80).

In Table XLIII, it is noted that 17 percent of the producers were below the "planning to try" stage on Practice 5, with only 53 percent "using it." Most of those not using the practice appear to have been low and medium dairymen. Also, regarding Practice 1, "artificially inseminated one-half or more of cows," 14 percent were below the "planning to try" stage, with only 53 percent in the "using" stage.

In general the producers seemed to be having some problems with the breeding practices. Many of the respondents indicated that they had had difficulty in getting cows bred artificially and the resulting delays tended to upset their total breeding programs. This may indicate a need for further evaluation and for the planning of more educational work in this area.

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 indicates that this is generally true for Henry County Grade A milk producers. In

TABLE XLII

AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS AND TOTAL AVERAGE RATINGS FOR ALL HENRY 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	4.15	4.45	3.75	4.25
2. All cows bred to same breed bull	4.50	4.65	4.30	4.55
3. 60-day dry period provided cows	4.97	5.00	4.95	4.95
4. 12-14 month calving period provided	4.53	4.85	4.05	4.70
5. 75 percent cows fall freshened	4.12	4.70	3.85	3.80
6. 75 percent herd replacement raised	4.45	4.45	4.60	4.30
7. Adequate milk records kept	2.03	2.45	1.95	1.70
8. Fed cows according to production	2.23	2.50	2.30	1.90
9. Adequate herd records kept	4.17	4.40	3.40	4.70
10. Calves permanently identified	2.42	2.45	2.05	2.75
11. Adequate supply of silage provided	4.03	4.45	3.85	3.80
12. High quality silage provided	4.08	4.60	3.80	3.85
13. Silage supplemented with enough hay	3.82	4.30	3.50	3.65
14. High quality hay provided	4.12	4.75	3.80	3.80
15. Hay and/or silage provided on pasture	2.55	3.20	2.20	2.25
16. Adequate improved pasture provided	4.33	4.45	4.25	4.30
17. Sufficient summer pasture provided	3.95	4.25	3.75	3.85
18. Strip cup always used	2.27	2.05	2.35	2.40
19. Separate feeding and loafing areas provided	2.58	3.30	2.40	2.05
20. Flies systematically controlled	4.52	4.40	4.65	4.50
21. Milking system 6-month checked	2.63	3.30	2.75	1.85
22. Professional advice obtained	3.87	4.20	3.45	3.95
23. Calves vaccinated for brucellosis, etc.	3.73	3.95	3.85	3.60
Actual Total Average Rating	3.66	3.95	3.46	3.56

*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 HENRY 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	12	2	0	33	53	100
2. All cows bred to same breed bull	3	3	0	0	20	74	100
3. 60-day dry period provided cows	0	0	0	0	3	97	100
4. 12-14 month calving period provided	0	3	7	0	13	77	100
5. 75 percent cows fall freshened	2	5	10	0	30	53	100
6. 75 percent herd replacement raised	0	5	8	2	7	78	100
7. Adequate milk records kept	3	45	29	3	8	12	100
8. Fed cows according to production	5	34	33	2	8	17	100
9. Adequate herd records kept	5	3	13	0	5	74	100
10. Calves permanently identified	12	15	40	5	10	18	100
11. Adequate supply of silage provided	0	13	7	0	23	57	100
12. High quality silage provided	7	10	3	0	8	72	100
13. Silage supplemented with enough hay	8	3	17	2	10	60	100
14. High quality hay provided	5	2	17	0	6	70	100
15. Hay and/or silage provided on pasture	17	10	35	2	13	23	100
16. Adequate improved pasture provided	0	7	5	0	25	63	100
17. Sufficient summer pasture provided	0	10	15	1	17	57	100
18. Strip cup always used	5	47	13	0	22	13	100
19. Separate feeding and loafing areas provided	7	10	48	0	7	28	100
20. Flies systematically controlled	0	3	10	2	2	83	100
21. Milking system 6-month checked	8	3	19	0	3	67	100
22. Professional advice obtained	8	3	19	0	3	67	100
23. Calves vaccinated for brucellosis, etc.	0	7	30	1	7	55	100
Total average	5	11	17	1	12	54	100

*Percents are rounded to nearest whole number.

Table XLII, it is noted that all producers were, on the average, only in the "interested" stage with regard to all of this group excepting Practice 9, "adequate herd records kept," which were in the "tried" stage. Producers indicated that they kept such herd records which included calving dates, cow health information and heat periods, in various ways. The most popular place seemed to be on a chart or large calendar on the wall in the milk barn.

When comparison is made between high and low producers, the main differences were noted in Practice 7, "adequate milk records kept," with the former almost to the "planning to try" stage (2.45), and the latter in the beginning of the "interested" stage (1.70), and in Practice 8, "fed cows according to production," with the high producers just to the "planning to try" stage (2.50) and the low in the "interested" stage (1.90).

Table XLIII shows that on Practice 7, there were 77 percent of the producers below the "planning to try" stage, with only 12 percent "using" it. Likewise, 73 percent were below "planning to try" with regard to Practice 8 and only 17 percent were "using" it. It also is noted that 67 percent were below "planning to try" on Practice 10, and only 18 percent were "using" it.

Since all producers are generally low with regard to adopting the four practices related to keeping and using records, and only slight differences in practice diffusion ratings existed between high and low producers, it may be assumed that not enough producers were using

these practices to properly demonstrate the benefits proven by research. This information indicates that these practices should have careful consideration in planning educational work, to help all Grade A milk producers realize the potential benefits that they might receive by adopting these practices.

Feeding practices. Dairy specialists have often been heard to say that the average Tennessee dairy cow is better "bred" than "fed." Practices 11 through 17 are related to providing the cows with adequate amounts of quality feed. An evaluation of these practices tends to indicate that the above statement has some merit with regard to Grade A dairy cows in Henry County.

In Table XLII, it is noted that all producers averaged in the "tried" stage (3.50 to 4.50) on Practices 11-17, with one exception, Practice 15, "hay and/or silage provided on pasture," they were, on the average, in the beginning of the "planning to try" stage (2.55).

In comparing high and low producers, larger differences are observed on more of the feeding practices than in any other group. On Practice 11, "adequate supply of silage provided," the high group was almost to the "using" stage (4.45), as compared to the low in the "tried" stage (3.80). Practice 12, "high quality silage provided," shows the high group to be in the "using" stage (4.60) with the low again in the "tried" stage (3.80). On Practice 13, "silage supplemented with enough hay," the high producers were in the "tried" stage (4.30), and the low in the "planning to try" stage (3.65). Still

greater differences are noted on the next two feeding practices, Practice 14, "high quality hay provided," since high producers were in the "using" stage (4.75) and low in the "planning to try" (3.80); and on Practice 15, "hay and/or silage provided on pasture," since high producers were in the "planning to try" stage (3.20), and low in the "interested" stage (2.25).

Table XLIII shows that a rather high percent of all producers were below the "planning to try" stage on most of the feeding practices. For example, 62 percent were in this category on Practice 15, 28 percent on Practice 13, 25 percent on Practice 17, and 20 percent each on Practices 11 and 12. Only 23 percent of the producers were "using" Practice 15 and only 57 percent were "using" Practice 11.

The data tend to indicate that the low producers have the best opportunity to narrow the production gap through adopting practices to help provide adequate amounts of quality feed for their cows.

Sanitation 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 "using" stage (4.52) with regard to Practice 20, "flies systematically controlled," in the "planning to try" stage (2.58) on Practice 19, "separate feeding and loafing areas provided" and only in the "interested" stage (2.27) on Practice 18, "strip cup always used." When high and low groups were compared, the only large difference noted was on Practice 19, with the former in the "planning to try" stage (3.30),

while the latter were in the "interested" stage (2.05).

In Table XLIII, it is noted that 65 percent of all producers were below the "planning to try" stage on practices 18 and 19. Only 13 percent were actually "using" Practice 18 and 28 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 "planning to try" (2.63), for all producers. A comparison of high and low shows the former to be in the "planning to try" stage (3.30), while the low were in the "interested" stage (1.85).

It is noted in Table XLIII that 58 percent of all producers were below the "planning to try" stage on Practice 21, and only 39 percent were "using" it.

All producers were, on the average, in the "tried" stage (3.87) on Practice 22, "professional advice obtained." There is only slight difference between the ratings of the high (4.20) and low (3.95) producers, with both in the "tried" stage.

It is noted in Table XLIII that 30 percent of all producers were below the "planning to try" stage on Practice 22, while 67 percent were "using" it.

All producers were in the "tried" stage (3.73) regarding Practice 23, "calves vaccinated for brucellosis, blackleg, etc."

Thirty-seven percent of all producers fell below the "planning to try" stage on Practice 23, with 55 percent 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 many 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 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 2 of the practices in the 12-29 cow category showed average ratings of 4.50 or above, 8 in the 30-49 cow interval, 13 in the 50-60 cow interval and 18 in the 70-100 cow interval had such ratings.

II. BREEDING OF HEIFERS

Method

All producers were asked how heifers were bred, and Table XLV gives the results. Sixty percent (36 producers) said that they used a bull in natural service on all of their heifers. One high producer indicated that he used both natural and artificial methods of breeding his heifers. Others bred artificially. No differences are noted between high and low producers.

TABLE XLIV

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

Dairy Management Practice	All Dairymen Average Rating (N=60)	12-29 Cows Average Rating (N=28)	30-49 Cows Average Rating (N=23)	50-69 Cows Average Rating (N=8)	70-100 Cows Average Rating (N=1)
1. Artificially inseminated $\frac{1}{2}$ or more of cows	4.15	4.00	4.35	4.50	1.00
2. All cows bred to same breed bull	4.50	4.25	4.65	4.88	5.00
3. 60-day dry period provided cows	4.97	4.96	4.96	5.00	5.00
4. 12-14 month calving period provided	4.53	4.54	4.43	4.75	5.00
5. 75 percent cows fall freshened	4.12	4.11	3.96	4.50	5.00
6. 75 percent herd replacements raised	4.45	4.36	4.52	4.50	5.00
7. Adequate milk records kept	2.03	1.39	2.70	2.50	1.00
8. Fed cows according to production	2.23	1.75	2.91	2.13	1.00
9. Adequate herd records kept	4.17	3.89	4.30	5.00	2.00
10. Calves permanently identified	2.42	2.04	2.61	3.25	2.00
11. Adequate supply of silage provided	4.03	4.32	4.52	5.00	5.00
12. High quality silage provided	4.08	3.21	4.78	5.00	5.00
13. Silage supplemented with enough hay	3.82	3.25	4.22	4.50	5.00
14. High quality hay provided	4.12	3.64	4.65	4.13	5.00
15. Hay and/or silage provided on pasture	2.25	1.75	3.17	3.25	5.00
16. Adequate improved pasture provided	4.33	4.07	4.57	4.50	5.00
17. Sufficient summer pasture provided	3.95	3.36	4.30	4.88	5.00
18. Strip cup always used	2.27	2.25	2.43	1.50	5.00
19. Separate feeding and loafing areas provided	2.75	2.29	3.21	2.63	5.00
20. Flies systematically controlled	4.52	4.25	4.65	5.00	5.00
21. Milking system 6-month checked	2.63	1.82	3.70	2.13	5.00
22. Professional advice obtained	3.87	3.29	4.48	4.00	5.00
23. Calves vaccinated for brucellosis, etc.	3.73	3.25	4.26	3.75	5.00
Total average rating	3.66	3.26	4.02	3.97	4.22

*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 XLV

NUMBERS AND PERCENTS OF ALL HENRY 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.	%
Artificially	23	38	9	45	5	25	9	45
Naturally	36	60	10	50	15	75	11	55
Both	1	2	1	5	0	0	0	0
Total	60	100	20	100	20	100	20	100

*Percents are rounded to nearest whole number.

Type of Bull

Table XLVI reveals that 28 percent (17 producers) were using beef bulls on their heifers, while 69 percent (41 producers) were using dairy only, and 3 percent (2 producers) were using both dairy and beef bulls. There was little difference between the high, medium and low groups in the type of bull used.

III. BREEDING OF COWS

Type of Bull

Eighty-seven percent (52 producers) said their cows were bred to dairy bulls, while 11 percent (7 producers) used a beef bull only. One low producer said that he used both dairy and beef bulls in breeding his cows.

The high producers were all using dairy bulls as shown in Table XLVII. Twenty-five percent of the medium group (8 producers) and 10 percent of the low (2 producers) were using beef bulls.

IV. FEEDING OF COWS

Percent of Protein in Dairy Ration

The producers were asked the percent of protein used in the dairy ration. Table XLVIII shows that 90 percent (18 producers) of the high group was feeding rations of 16 percent protein or above, compared to 50 percent (10 producers) of both the medium and low groups. Rations containing 12 percent protein were reported by 25 percent (5

TABLE XLVI

NUMBERS AND PERCENTS OF ALL HENRY 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.	%
Dairy	41	69	13	65	14	70	14	70
Beef	17	28	5	25	6	30	6	30
Both	2	3	2	10	0	0	0	0
Total	60	100	20	100	20	100	20	100

*Percents are rounded to nearest whole number.

TABLE XLVII

NUMBERS AND PERCENTS OF ALL HENRY 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	52	87	20	100	15	75	17	85
Beef	7	11	0	0	5	25	2	10
Both	1	2	0	0	0	0	1	5
Total	60	100	20	100	20	100	20	100

*Percents are rounded to nearest whole number.

TABLE XLVIII

NUMBERS AND PERCENTS OF ALL HENRY 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.	%
Not answered	1	2	0	0	0	0	1	5
12%	8	13	0	0	3	15	5	25
13%	0	0	0	0	0	0	0	0
14%	12	20	2	10	7	35	3	15
15%	1	2	0	0	0	0	1	5
16%	32	53	16	80	8	40	8	40
17%	0	0	0	0	0	0	0	0
18%	6	10	2	10	2	10	2	10
20%	0	0	0	0	0	0	0	0
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

producers) of the low group and 15 percent (3 producers) of the medium group. One low producer did not answer.

Method of Providing Concentrates

Ninety-three percent (56 producers) indicated that they bought their concentrates. Only 4 producers were mixing their own rations. One of these was in the high group and three in the low group.

The large number purchasing concentrates is largely explained by the fact that they harvested their corn and banked it in the fall with the feed dealer, and then he delivered their dairy feed to the farm as needed.

Grinding of Hay

Table XLIX shows that 25 percent (15 producers) were grinding hay. It is noted that only 10 percent (2 producers) of the high group were grinding hay compared to 40 percent (8 producers) of the low group.

Type of Hay Fed

Eighty-seven percent (52 producers) of the dairymen indicated that they fed only legume hay. Thirteen percent (8 producers) were using a legume-grass mixture. None of the producers indicated using all grass hay. Comparisons showed no differences between production groups.

Method of Supplying Salt and Minerals

Data in Table L show that 80 percent (48 producers) of the dairymen supplied salt and minerals both mixed in the ration and free choice.

TABLE XLIX

NUMBERS AND PERCENTS OF ALL HENRY 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.	%
Did Grind Hay	15	25	2	10	5	25	8	40
Did Not Grind Hay	45	75	18	90	15	75	12	60
Total	60	100	20	100	20	100	20	100

* Percents are rounded to nearest whole number.

TABLE L

NUMBERS AND PERCENTS OF ALL HENRY 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	6	10	1	5	5	25	0	0
Free Choice	6	10	0	0	3	15	3	15
Both	48	80	19	95	12	60	17	85
Total	60	100	20	100	20	100	20	100

*Percents are rounded to nearest whole number.

Ten percent (6 producers) of the dairymen supplied salt and mineral in the ration only. Fifteen percent of the dairymen in both medium and low groups (3 each) were supplying salt and minerals only by the free choice method.

Storage Capacity Available for Silage

Twenty-nine percent (17 producers) of the Henry County Grade A dairymen did not have storage available for silage, as revealed by Table LI. Forty percent (8 producers) of the low group had no storage, as compared with only 10 percent (2 producers) for the high group. All producers having silos indicated a storage capacity of at least 100 tons or more. On the average, high producers (329 tons) tended to have greater silage storage capacity than did the low producers (292 tons). Ninety percent (18 producers) of the high group had silage storage capacity in excess of 150 tons compared to 50 percent (10 producers) in the low group. One-half of the high producers had storage capacity of over 300 tons, this compared to only 20 percent (4 producers) of the low group.

V. THE RELATION OF PRODUCTION AND MANAGEMENT LEVELS TO AGE

Table LII reveals a tendency for younger producers to have higher average practice diffusion ratings than those in the older age groups irrespective of production level. 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 was in the 65 or more year age

TABLE LI

NUMBERS AND PERCENTS OF ALL HENRY 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	17	29	2	10	7	35	8	40
100-149	3	5	0	0	1	5	2	10
150-199	8	13	4	20	3	15	1	5
200-299	12	20	4	20	3	15	5	25
300-499	17	28	9	45	5	25	3	15
500-749	3	5	1	5	1	5	1	5
Total	60	100	20	100	20	100	20	100
Average Capacity	313 tons		329 tons		310 tons		292 tons	

*Percents are rounded to nearest whole number.

TABLE LII

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL HENRY 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.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating
25-34	2	4.33	0	--	2	4.33	0	--
35-44	16	3.99	8	4.06	3	3.83	5	3.96
45-54	21	3.65	7	3.94	7	3.63	7	3.38
55-64	16	3.31	4	3.73	6	2.81	6	3.54
65 or more	5	3.45	1	4.04	2	3.37	2	3.24
Actual Total	60	3.66	20	3.95	20	3.46	20	3.56

*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.

group, where the farmer producers were, on the average, in the "tried" stage with a rating of 4.04, while the latter were, on the average, in the "planning to try" stage (3.24). The small numbers involved tends to minimize the import of this last finding.

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

A slight increase in average practice diffusion ratings is noted as the educational levels of producers increase. This is shown in Table LIII. It is noted that the high producers with 1-3 years college (4.44) were, on the average, almost to the "using" stage (4.50-5.00).

VII. THE RELATION OF PRODUCTION AND MANAGEMENT LEVEL TO SIZE OF FARM

Table LIV shows that the high producers had higher practice diffusion ratings than the other groups in each of the farm-size categories. Two high producers in the 400-600 acre category, had the highest average rating (3.97) and were, on the average, in the "tried" stage; while 3 low producers were lower but in the same "tried" stage (3.91). The greatest difference is noted in the 200-399 acre group where the high producers (3.97 average) were in the "tried" stage, compared to the low producers (3.10 average) who were in the "planning to try" stage.

TABLE LIII

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

Educational Grade Level	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating
1-7	3	3.46	1	3.76	2	3.15	0	3.52
8	8	3.55	4	3.97	3	3.62	1	3.34
9-11	17	3.57	3	3.87	6	3.08	8	3.68
12	14	3.84	4	3.92	5	3.89	5	3.74
1-3 of College	4	4.31	3	4.44	0	--	1	3.91
Actual Total	60	3.66	20	3.95	20	3.46	20	3.56

*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 LIV

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL HENRY 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.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating
50-99	9	3.32	4	3.66	3	3.00	2	3.13
100-199	28	3.75	7	3.98	10	3.62	11	3.71
200-399	17	3.52	7	3.97	6	3.29	4	3.10
400-600	6	4.12	2	4.39	1	4.22	3	3.91
Actual Total	60	3.66	20	3.95	20	3.46	20	3.56

*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.

VIII. THE RELATION OF PRODUCTION AND MANAGEMENT LEVELS TO OCCUPATION

Ninety percent (54 producers) were classified as full-time farmers, while 10 percent (6 producers) were classified as part-time farmers. The full-time farmers had an average practice rating of 3.70, compared to 3.24 for the 6 part-time farmers.

All high producers were full-time farmers. Two of the part-time farmers were in the medium group with an average practice diffusion rating of 3.42, and four were in the low group with an average rating of 3.15.

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

Dairying was the major source of income for 56 of the 60 farmers. The 4 other producers received their major income from other farm sources. The group receiving their major income from dairying had a slightly higher average practice diffusion rating of 3.68, compared to 3.34 for the 4 producers who received a greater share of their income from farm products other than dairying.

X. THE RELATION OF PRODUCTION AND MANAGEMENT LEVELS TO SEX

Only two of the dairy enterprises were managed solely by women. They were both in the low group and had an average practice diffusion

rating of 3.61, compared to 3.56 for the 18 male producers in the low group. The average practice diffusion rating for the 58 males in the survey was 3.66.

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

Average practice diffusion ratings tended to increase as levels of total gross family income went up. Table LV shows that the average ratings went from "planning to try" (3.24) for 18 producers in the income bracket of \$2,000 to \$11,999 to a rating of 4.19 ("tried") for 8 producers in the bracket of \$30,000 to \$99,999. The same trend is noted in all three production groups.

Again it is noted that the high producers had higher average ratings than did low producers in each of the income brackets.

XII. 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. Thirty-three producers rated their herds as fair; 26 herds were rated good, and only 1 producer (medium category) rated his herd as excellent. The average practice ratings increased in the same manner as the producers tended to increase their herd ratings.

It is interesting to note that the trend of ratings within the three production groups are about the same as for the total for all

TABLE LV

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL HENRY 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.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating
\$2000-11,999	18	3.24	3	3.55	5	2.71	10	3.40
12,000-29,999	34	3.92	12	4.03	12	3.57	10	3.72
30,000-99,999	8	4.19	5	4.14	3	4.26	0	--
Total	60	3.66	20	3.95	20	3.46	20	3.56

*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.

TABLE LVI

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL HENRY 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.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating
Poor	0	--	0	--	0	--	0	--
Fair	33	3.55	11	3.87	12	3.13	10	3.69
Good	26	3.77	9	4.05	7	3.89	10	3.43
Excellent	1	4.39	0	--	1	4.39	0	--
Total	60	3.66	20	3.95	20	3.46	20	3.56

*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.

producers. That is, the medium and low producers tended to rate their herds as high as did the high producers. This may indicate that dairy-men tend to think that they are about average, and few of them feel that they are in either the "poor" or "excellent" category.

XIII. 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" had higher practice ratings than did others in their respective groups, excepting the one producer in the low group who had a 3.30 practice rating, compared to higher ratings for all other producers in the low group. The explanation of this fact may possibly lie in the fact that some of the Henry County producers have been in the Grade A dairy business for only a short time, and may not have been able to establish themselves in the recommended practices to the same extent as experienced producers might have done.

TABLE LVII

NUMBERS AND AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATINGS OF ALL HENRY 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.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating	No.	Avg. Rating
Not Interested	3	3.26	0	--	1	3.00	2	3.39
Indifferent	16	3.17	1	2.70	5	2.66	10	3.47
Somewhat Interested	23	3.71	8	3.95	8	3.43	7	3.77
Very Interested	18	4.09	11	4.07	6	4.25	1	3.30
Total	60	3.66	20	3.95	20	3.46	20	3.56

*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.

CHAPTER III

SUMMARY

A total of 60 Henry 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, 20 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) sex; 10) gross family income; 11) herd ratings, and 12) 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 type(s) 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) the 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. Inquiries sent to Extension Dairy Specialists in ten states was answered with little information on the subject. The information received 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 outproduce 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 Henry 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 19 of the 23 production practices, than did the low producers

3. The high producers had ratings of .6 diffusion points or more greater than the low producers in the following ten practices: a) having 75 percent of cows freshen in the fall; b) keeping adequate milk records; c) feeding cows according to production; d) providing an adequate supply of silage; e) providing high quality silage; f) supplementing silage with enough hay; g) providing high quality hay; h) providing hay and/or silage to cows on pasture; i) having milking system checked every 6-months, and j) providing separate feeding and loafing areas
4. High producers used more artificial breeding on both cows and heifers than other groups, and bred all of their cows to dairy bulls, while some other groups bred to beef
5. High producers tended to feed higher protein rations than did producers in other groups
6. Only 10 percent of the high producers were grinding hay, while 40 percent of the low producers were following this undesirable practice
7. Ninety percent of the high producers were feeding silage, compared to 60 percent of the low group
8. The younger dairymen tended to have higher practice diffusion ratings than did older ones
9. Dairymen with higher levels of education also tended to have higher practice diffusion ratings

10. The practice diffusion ratings tended to go up as the gross family income increased
11. More than 20 percent of the producers indicated that they had "tried and stopped using" certain practices, namely:-a) artificially inseminating one-half or more of cows; b) having 75 percent of cows freshen in the fall; c) providing an adequate supply of silage; d) providing an adequate amount of improved pasture, and e) using a strip cup.

II. IMPLICATIONS

Some of the implications that 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 the provision of a sufficient quantity and quality of feed seemed to have a greater influence on the level of production than did most other practices
3. Henry County Grade A dairymen were generally aware of recommended practices, but additional educational efforts are needed if they are to be expected to adopt more recommended practices
4. Further analyses of the reasons for the rejection of certain practices need to be made, and the practices re-evaluated, and further educational work done to help producers realize the value of the practices.

PROBLEM C:
FACTORS INFLUENCING DAIRY MANAGEMENT PRACTICE ADOPTION
BY HENRY 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
George Curtis Shearon
December 1965

CHAPTER I

INTRODUCTION

This report is based on further analysis of data from a survey of 60 Grade A dairymen in Henry County, Tennessee. The interview type survey included all of the Grade A dairymen in Henry County who marketed Grade A milk each month of 1963.

Dairying is an important agricultural enterprise in Henry County and represents almost 15 percent of the total county farm income. In 1959, dairy products ranked second in enterprise value, being exceeded only by the sale of cattle and calves (5:217).^{*} The dairy industry of the county has undergone many changes and made rapid growth during the past 15 years. Some of the significant happenings in this period were: 1) the Pet Milk Company established a buying station in Paris and started purchasing milk for manufacturing purposes in late 1950; 2) the Sealtest Milk Company started buying Grade A milk during the mid 1950's, and during 1957 put on a drive for producers--greatly increasing the number of Grade A milk producers in Henry County (at the time of the survey Sealtest had 54 producers in Henry County); and 3) the Ryan Milk Company of Murray, Kentucky, began buying all-Jersey milk in 1959 (at the time of the survey, Ryan had 12 producers in Henry County).

Members of the county Extension staff have made considerable effort through the years to present educational information to Henry

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

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 had 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 Henry 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. They tend to be at different stages in the adoption process at different times as it may relate to a given recommended practice or bundle of practices.

Authorities (1:7) generally agree that the stages in the adoption process include the following: 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 more and more intensive or personal contacts are required if adoption of a practice is to result.

At the "aware" and "interested" stages, mass media sources, such as farm magazines, newspapers, and radio, are most important. At the "planning to try" and "tried" stages, neighbors and friends are generally more important influences than mass media. When farmers move closer to the "using" stage, personal contacts with representatives of agricultural agencies are of more importance, but may still be secondary to neighbors and friends.

III. METHODS

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

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. There were 60 dairymen included in the study. After the information was obtained, the producers were divided into thirds according to average butterfat production per cow in 1963. The high group (20 producers) had average butterfat production ranging downward from 495 to 359 pounds; the medium group (20 producers) had production from 357 to 287

pounds, and the low group (20 producers) were in a range from 280 to 188 pounds. Main comparisons in the present study will be between high and low producers. Analyses will be 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 74 percent (44 dairymen) completed the statement with regard to the fact that it provided a regular source of income and was a stable form of agriculture. It will be noted that there was little difference between groups in regard to this most often given answer. The second thing most frequently mentioned was "I love dairy cattle." Of the 13 percent (8 producers) mentioning this second item, it is noted that 2 were in the high group, 5 in the medium group and 1 in the low group. Other reasons were given by the remaining 13 percent (8 producers) some of these were: "It's an enterprise that the entire family can participate in"; "I like to take a dairy cow and see what I can get out of her based on records"; "It's a good way of life" and "It's what I know best."

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 56 percent (34 dairymen) felt Grade A dairying was "Too confining." One-half of the high producers (10 dairymen) gave this reason, compared to 60 percent (12 dairymen) of both medium and low producers. Inade-

TABLE LVIII

NUMBERS AND PERCENTS OF ALL HENRY 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	44	74	15	75	13	65	16	80
I love dairy cattle	8	13	2	10	5	25	1	5
Other	8	13	3	15	2	10	3	15
Total	60	100	20	100	20	100	20	100

^a Percents are rounded to the nearest whole number.

TABLE LIX

NUMBERS AND PERCENTS OF ALL HENRY 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	10	3	15	3	15	0	0
Too confining	34	56	10	50	12	60	12	60
Inspectors are inadequate and inconsistent	4	7	4	20	0	0	0	0
Too many disease problems (mastitis, etc.)	4	7	1	5	1	5	2	10
Other	12	20	2	10	4	20	6	30
Total	60	100	20	100	20	100	20	100

*Percents are rounded to the nearest whole number.

adequacies and inconsistencies of inspectors were mentioned by 20 percent (4 producers) in the high group, others not including this item. Disease problems were mentioned by 7 percent of the producers (4 dairymen), 2 in the low group and 1 each in the medium and high. Some other reasons given only once or twice were: "the return on my time and money is inadequate"; "my facilities aren't suited to it"; "putting up with all the mud," and "cleaning up andhauling manure."

It is noted that 10 percent (6 producers) of the dairymen did not have a particular dislike. Three of these were in the high group and 3 in the medium,

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 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

TABLE LX

NUMBERS AND PERCENTS OF ALL HENRY 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 Dairy- men Do Not Adopt Recommended Practices**	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
Not answered***	1	2	0	0	0	0	1	5
1. Cost of practices outweighs possible benefits	37	62	13	65	11	55	13	65
2. Facilities are not suited	34	57	12	60	14	70	8	40
3. Don't have the technical knowledge needed	27	45	10	50	10	50	7	35
4. Physically unable to do supervision and management of job needed	25	42	8	40	9	45	8	40
5. More rewarding activities claim owner's time and money	20	33	7	35	6	30	7	35
6. Don't believe practices are sound	13	22	5	25	3	15	5	25
7. Have tried and found unsatisfactory	6	10	2	10	0	0	4	20
8. Expect to sell dairy herd	6	10	2	10	2	10	2	10
9. Uncertainty of ownership in undivided estate	6	10	1	5	3	15	2	10
10. Expect to move away from farm	3	5	0	0	2	10	1	5

*Percents are rounded to nearest whole number.

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

***One producer did not think one reason was more important than another and therefore did not select and rank three reasons.

as 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 selection of reasons.

Reason 1, "Cost of practices outweighs possible benefits," was selected by 62 percent of all producers. Though it was the first reason for high and low producers, 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) producing alfalfa hay; 3) providing summer pasture; 4) using artificial insemination on cows and heifers, and 5) feeding hay and/or silage to cows on pasture.

Reason 2, "Facilities not suited," was selected by 57 percent of all producers. Sixty percent of the high producers selected this practice, compared to 40 percent of the low. Medium producers (70 percent) mentioned this item most frequently. Some of the practices that producers indicated dairymen had not adopted due to "lack of suitable facilities" included: 1) feeding cows according to production; 2) providing an adequate supply of silage, and 3) providing separate feeding and loafing areas.

Reason 3, "Don't have the technical knowledge needed," was selected by 45 percent of all producers. More of the high and medium producers (50 percent each) mentioned this reason than was true for the low (35 percent). The general comments regarding this reason were in reference to technological changes in agriculture such as the use

of herbicides, insecticides and other developments that require special abilities for understanding and putting practices into use.

Reason 4, "Physically unable to do supervision and management of job needed," was selected by 42 percent of all producers. There seemed to be a tendency for the older producers to select this reason more often than younger ones. The difficulty of removing silage from a trench silo for feeding was most frequently cited.

The other reasons and percents of dairymen giving them were:

1) Reason 5, "More rewarding activities claim owners time and money" (33 percent); 2) Reason 6, "Don't believe practices are sound" (22 percent); 3) Reason 7, "Have tried and found satisfactory" (10 percent); 4) Reason 5, "Expect to sell dairy herd" (10 percent); 5) Reason 9, "Uncertainty of ownership in an undivided estate" (10 percent), and 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 dairy farmers do not adopt recommended dairy production practices. Twenty-two percent (13 dairymen) gave other reasons. Three of these were in the high group, 5 in the medium group and 5 in the low group. Analysis of these reasons showed that most of them related very closely to one or more of the reasons listed above.

Six of the reasons mentioned had to do with high cost or capital investment needed to carry out practices, and were closely related to Reason 1, "Cost of practices outweighs possible benefits" and Reason 2, "Facilities are not suited." The initial cost or large amount of capital needed when adopting new practices, was mentioned 4 times,

and 2 producers mentioned the "need for more land to produce high quality feed" as being a reason why dairymen might not adopt recommended practices. The shortage of labor, or inability of the dairymen to get around to all of the jobs that needed to be done, was mentioned by 3 producers. Three other reasons (given by low producers) indicated that they felt that dairymen were not willing to put forth the effort needed to put recommended practices into use. For example, one producer said, "Dairying, as it should be done, requires more work than many dairymen are willing to put forth." Another said, "Dairymen just don't do what they know they should do." While a third said, "Dairymen get in a rut and don't change as fast as the times."

The one remaining reason given by a medium producer was, "Older dairymen are set in their ways and refuse to change."

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 67 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 3.7 individuals. The high producers talked to more individuals, 4.3 on the average, than did the medium, 3.8, or the low, 2.8.

It also is noted that more of the high producers (75 percent) sought advice than did those in the medium (65 percent) and low (60 percent) groups.

TABLE LXI

NUMBERS AND PERCENTS OF ALL HENRY 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		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None sought	20	33	5	25	7	35	8	40
1. Neighbor or friend	32	53	12	60	11	55	9	45
2. Local veterinarian	31	51	10	50	10	50	11	55
3. Milk plant fieldman	29	48	11	55	10	50	8	40
4. Health department sanitarian	28	47	11	55	10	50	7	35
5. County agent	26	43	13	65	8	40	5	25
6. Feed dealer or salesman	23	38	9	45	7	35	7	35
7. Banker or PCA representative	17	28	7	35	7	35	3	15
8. DHIA supervisor or ABA technician	17	28	6	30	7	35	4	20
9. Extension dairyman	15	25	7	35	7	35	1	5
10. Vo-Ag teacher	1	1	0	0	0	0	1	5
Average Number Individuals Giving Advice	3.7		4.3		3.8		2.8	

*Percents are rounded to nearest whole number.

**Numbers and percents will not add up to the total of 60 dairymen interviewed nor 100 per cent, since dairymen talked to one or more individuals.

As far as all producers were concerned, more (53 percent) reported talking to a neighbor or friend than to any other individual. Similar findings have been reported in other studies regarding adoptors of new farm ideas (1:7). When production groups are compared, it is noted that high producers (65 percent) most frequently consulted the "county agent," medium (55 percent) "neighbor or friend," and low (55 percent) "local veterinarian."

The "local veterinarian" was the only person who was consulted on an almost equal basis by all groups (50 percent of the high and medium and 55 percent of the low group). This may indicate that most of these contacts were for treating sick animals rather than for seeking management advice.

In the remainder of the cases, it is noted that, with a single exception, more of the high producers talked to the different individuals than did the low producers.

As far as all producers were concerned, very little difference was reported between percents reportedly seeking advice of "milk plant fieldmen" (48 percent) and the "health department sanitarian" (47 percent). Only 11 percent of the high producers talked to both, compared to 40 percent of the low producers talking to the "fieldmen" and 35 percent to the "sanitarian."

The greatest difference between high and low producers was noted with regard to the "county agent." Of the 43 percent (26 dairymen) who talked to him, 65 percent (13 dairymen) were in the high group compared to only 25 percent (5 dairymen) in the low group. It also is noted

that, of the 25 percent (15 dairymen) who reported talking to the "Extension dairyman," 35 percent were in the high and medium groups (7 dairymen in each), compared to only 5 percent (1 dairyman) in the low group.

Other individuals talked to regarding dairy herd management and percents reporting were: 1) feed dealer or salesman (38 percent); 2) banker or PCA representative (28 percent), and 3) D. H. I. A. supervisor or Artificial Breeders Association (A. B. A.) technician (28 per cent),

V. ADDITIONAL SOURCES OF DAIRY MANAGEMENT INFORMATION USED

It will be noted in Table LXII that 95 percent indicated that they received certain dairy management information from other sources as listed in the table. Only 5 percent indicated that they did not receive information from these sources. One of the three involved was a low producer and 2 were medium producers. All dairymen reported that they received information from an average of 4.3 different sources. The high group averaged 5.3, the medium 3.6 and the low 4.0 sources.

Farm magazines were by far the most popular source reported, with 87 percent of all producers indicating this source. Little difference is noted between production groups with respect to farm magazines, with 90 percent of the high group and 85 percent of the medium and low group reporting.

Newsletters were reported by 55 percent of all producers. It is interesting to note that this was the only source reported by more

TABLE LXII

NUMBERS AND PERCENTS OF ALL HENRY 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 Use- ful Information **	All Dairymen Interviewed		High Producers		Medium Producers		Low Producers	
	No.	%	No.	%	No.	%	No.	%
None reported	3	5	0	0	2	10	1	5
1. Farm magazines	52	87	18	90	17	85	17	85
2. Newsletters	33	55	11	55	7	35	15	75
3. University bulletins and publications	32	53	12	60	9	45	11	55
4. Farm meetings	27	45	13	65	6	30	8	40
5. Daily newspapers	24	40	12	60	7	35	5	25
6. Commercial feed company bulletins	21	35	7	35	10	50	4	20
7. Radio	20	33	8	40	5	25	7	35
8. Weekly newspapers	18	30	10	50	30	15	5	25
9. Field days	18	30	9	45	5	25	4	20
10. Television	12	20	6	30	3	15	3	15
Average Number of Sources of Information	4.3		5.3		3.6		4.0	

*Percents are rounded to nearest whole number.

**Numbers and percents will not add up to the total of 60 dairymen interviewed nor 100 per cent, since dairymen received information from more than one source.

of the low producers, 75 percent, compared to 55 percent of the high producers. The medium group reported only 35 percent using this source.

University bulletins and publications were very close behind newsletters in percent reporting with 53 percent. Little difference was noted between high (60 percent) and low (55 percent) groups in their mention of this source of useful dairy herd management information.

Farm meetings were reported as a source of information by 45 percent of the dairymen. This source was reported by 65 percent of the high producers, and was the second leading source of information for that group. In comparison, only 40 percent of the low and 30 percent of the medium groups included this source.

Data in Table LXII further reveal that the high producers reported using all of the remaining sources more than did the low. The remaining sources and percents of all producers using them were:

1) daily newspapers (40 percent); 2) commercial feed company bulletins (35 percent); 3) radio (33 percent); 4) weekly newspapers (30 percent); 5) field days (30 percent), and 6) television (20 percent).

VI. DEGREE TO WHICH INTERVIEWER WAS FAMILIAR WITH DAIRY SITUATION

Table LXIII shows that the interviewer was "very familiar" or "fairly familiar" with 62 percent of the dairy situations. Eighty percent of the high producers were included in this group, compared

TABLE LXIII

NUMBERS AND PERCENTS OF ALL HENRY 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	18	3	15	5	25	3	15
Fairly familiar	26	44	13	65	6	30	7	35
Not very familiar	17	28	2	10	8	40	7	35
Not familiar	6	10	2	10	1	5	3	15
Total	60	100	20	100	20	100	20	100

*Percents are rounded to nearest whole number.

to 50 percent of the low group. On the other hand, the interviewer was "not very familiar" with 38 percent, which included 20 percent of the high group, compared to 50 percent of the low. The fact that high producers were, in the main, better known is consistent with findings reported elsewhere (21:25).

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

In Table LXIV it will be noted that, in the interviewer's opinion, 74 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, increased income in the interviewer's opinion.

The interviewer felt that only 8 percent of the dairymen were in a situation where it would not be profitable for them to give more attention to herd management. Two of these were in the high group, with one doing an exceptionally good job of management, while the other was an elderly producer in failing health. Also, one of the low producers was an elderly man who was about ready to retire. The other 2 producers, one in the medium and one in the low group, were younger men who were just getting started in the dairy business and gave indications that they were doing a very exceptional job of herd management.

As seen in the table, the interviewer was "undertain" about 18 percent (11 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 HENRY 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	44	74	14	70	15	75	15	75
Should not pay more attention	5	8	2	10	1	5	2	10
Uncertain	11	18	4	20	4	20	3	15
Total	60	100	20	100	20	100	20	100

*Percents are rounded to nearest whole number.

CHAPTER III

SUMMARY

What are some of the factors that influence Grade A dairymen to adopt recommended dairy management practices? The 60 Grade A dairymen in Henry 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 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.

Also, each producer was asked what he liked and disliked most about Grade A milk production. They were further asked to select and rank the most important 3 reasons from a group of 10 as to why Grade A dairymen (in general) do not adopt recommended practices. In addition they were given an opportunity to add other reasons.

The 60 Grade A dairymen were divided into high, medium and low groups (20 dairymen in each) according to butterfat production, and

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

I. REVIEW OF FINDINGS

In summarizing the information concerning factors influencing management practice adoption of Grade A dairymen in Henry County, the following findings seem relevant:

1. Of the things liked most by Grade A dairymen, "the regular income," was rated first by three-fourths (74 percent) of the dairymen (75 percent of the high and 80 per cent of the low producers).

2. "Confinement" was the greatest dislike mentioned (56 percent) and was reported by more than one-half of the dairymen (50 percent of the high and 60 percent of the low groups).

3. Respondents felt that, in general, Henry County Grade A dairymen most often do not adopt recommended production practices because of the relatively high cost (62 percent reporting), unsuitable facilities (57 percent reporting) and lack of technical knowledge (45 percent reporting).

4. Two-thirds of the Henry County dairymen indicated that they sought advice from various individuals, high producers preferring the county agent (65 percent reporting) and low mentioning the local veterinarian (55 percent). Seventy-five percent of the high producers sought advice compared to 60 percent of the low producers.

5. Nearly all producers (95 percent) indicated that they received information from some mass or group contact, including, in

descending order, farm magazines, newsletters, university bulletins and publications, farm meetings, daily newspapers, commercial feed company bulletins, radio, weekly newspapers, field days, and television.

6. The county agent was more familiar with the high producers (80 percent known) than with the low group (50 percent known).

7. In the interviewer's opinion most Henry County dairymen (74 percent) should pay more attention to the management of their dairy herds.

II. IMPLICATIONS

The Agricultural Extension educational program with Grade A milk producers in Henry County could be strengthened based on the information obtained in the study. The following are some factors that should be considered in the planning and conducting of a dairy educational program:

1. Most dairymen like the regular income from Grade A milk production, though more than 50 percent dislike the confinement; therefore it may be assumed that the majority is interested in maximizing income.

2. The three main reasons given by respondents as to why Grade A dairymen often do not adopt recommended dairy production practices should be given careful consideration.

3. Henry County dairymen do depend on various sources of management information, and all possible media should be utilized to encourage

recommended practice adoption.

4. Information from this and the two related studies should be presented to all Grade A dairymen.

5. The dairymen should help select a committee to assist the Extension Service in planning a long-range dairy improvement program based on survey findings and other relevant data.

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BIBLIOGRAPHY

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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 _____ 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 Heard of		Inter-ested in		Is Using or Will Use		Has Tried	
	Yes (a)	No (b)	Yes (c)	No (d)	Yes (e)	No (f)	Yes (g)	No (h)
(1) Using artificial insemination in the breeding of 50% or more of your cows (exclude heifers)								

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

- (2) Breeding each cow to a bull of the same breed

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

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

- (4) Providing an adequate (6-8 tons annually per cow) supply of silage (when fed with hay)

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

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

	Read or Heard of		Inter- ested in		Is Using or Will Use		Has Tried	
	Yes (a)	No (b)	Yes (c)	No (d)	Yes (e)	No (f)	Yes (g)	No (h)
(6) Providing enough rough- age ($2\frac{1}{2}$ lb. of hay equivalent per cwt. of body weight daily) by supplementing silage with hay (1-2 tons annually per cow)								

i. Reasons for never trying practice OR not using it after try-
ing _____

(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 for never trying practice OR not using it after try-
ing _____

(8) Providing hay and/or silage when cows are on pasture								
--	--	--	--	--	--	--	--	--

i. Reasons for not trying practice OR not using it after trying

(9) Providing an adequate amount (1-2 acres per cow) of improved pas- ture (e.g. orchard grass and ladino)								
--	--	--	--	--	--	--	--	--

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

(10) Providing sufficient summer pasture ($\frac{1}{4}$ to $\frac{1}{2}$ A. per cow)								
---	--	--	--	--	--	--	--	--

i. Reasons for not trying practice OR not using it after trying

	Read of Heard of		Inter- ested in		Is Using or Will Use		Has Tried	
	Yes (a)	No (b)	Yes (c)	No (d)	Yes (e)	No (f)	Yes (g)	No (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 for never trying practice OR not using it after trying _____								
(12) Raising at least 75% of all herd replacements								
i. Reasons for not trying practice OR not using it after trying _____								
(13) Annually providing an average of sixty days per cow for dry period								
i. Reasons for never trying OR not using it after trying _____								
(14) Maintaining a 12-14 month calving period for each cow in the herd								
i. Reasons for not trying practice OR not using it after trying _____								
(15) Having at least 75% of cows in the herd freshen in the fall								
i. Reasons for never trying OR not using it after trying _____								
(16) Permanently identifying each calf as to sire and dam								
i. Reasons for not trying practice OR not using it after trying _____								

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

i. Reasons for never trying OR not using it after trying_____

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

i. Reasons for not trying practice OR not using it after trying_____

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

i. Reasons for not trying practice OR not using it after trying_____

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

i. Reasons for not trying practice OR not using it after trying_____

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

i. Reasons for not trying practice OR not using it after trying_____

- (22) Systematically using a recommended method of Fly Control around barns, loafing and milking areas

Heard of		Inter- ested in		Will Use		Has Tried	
Yes (a)	No (b)	Yes (c)	No (d)	Yes (e)	No (f)	Yes (g)	No (h)

i. Reasons for not trying practice OR not using it 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 not trying practice OR not using it 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 P.C.A. representative _____
 j. Neighbor or friend (other dairy-
 men _____
 k. Health department sanitarian _____
 l. Other (please 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 _____
 b. Commercial (feed company bulletins) _____
 c. Farm magazines _____
 d. Daily newspapers _____
 e. Weekly newspapers _____

f. Radio _____
 g. Television _____
 h. Farm meetings _____
 i. Field days and tours _____
 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
 None Grade Sch. H. S. Col. Underg. Degree Degree
 Doctor's
 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 other mentioned)

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

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

<u>Crop</u>	<u>Acres</u>	Bottom or		Disposition	
		<u>Upland</u>	<u>Yield</u>	<u>Used</u>	<u>Sold</u>
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 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 of 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 do 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 square feet)

- 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 above 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 do you use?

<u>Type of Silo</u>	<u>Size</u>	<u>Type of Cover</u>			
		<u>Roof</u>	<u>Plastic</u>	<u>Other</u>	<u>None</u>
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.)

- 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 count 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 _____