

A STUDY OF SOME FARM OPERATIONS AND HERD MANAGEMENT  
PRACTICES AMONG MILKING SHORTHORN  
BREEDERS IN KANSAS

by

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## INTRODUCTION

Enthusiasm for Milking Shorthorn cattle, as reflected by increases in numbers of cattle and breeders, and in general breed activities, has risen tremendously in Kansas since the mid-thirties. The Kansas Milking Shorthorn Society has developed into one of the stronger and more active breed associations in the state. Excellent cooperation in all activities have prevailed between the leaders in this society and the dairy husbandry staff of Kansas State College. Much interest has developed among breeders in evolving constructive policies and practices best fitted to promote the welfare of the breed and the entire dairy industry of Kansas. To what extent Milking Shorthorn breeders should adopt the programs of other breed organizations, both dairy and beef, and what special programs applicable to the best interests of this breed, are among the problems which have faced the breeders individually and collectively. Patterns for constructive programs among the special purpose dairy and beef breeds are well established. As a background for future plans, it seemed desirable to study the over-all place of Milking Shorthorn cattle by gathering data from the farms of leading breeders. Kansas seemed to offer an excellent opportunity for such a study.

## HISTORICAL REVIEW

The origin of the Shorthorn is obscure (Peterson, 24). Its native home is in Northeastern England in the counties of Durham, Northumberland and York. In the past, Shorthorns were also known as Durhams. It is generally believed that the early invaders of England, particularly the Romans and the Normans, brought cattle from the Continent, and that these cattle had a large part in the development of the Shorthorn. Later Flemish cattle were brought over from

Holland and crossed with native cattle, and possibly other cattle were also used.

At the beginning of the eighteenth century, the cattle from which the Shorthorns have been developed were mediocre and lacked uniformity. It was through the efforts of great breeders that the breed of cattle now known as Shorthorn was developed.

Colling Brothers began breeding Shorthorns in England in about 1770 (Atkeson, 1). Other early Milking Shorthorn breeders in England were Thomas Bates, Richard Booth, Christopher Mason, John Wilkinson and William Tarr. Of these, the work of Thomas Bates is of particular interest to those interested in dairying. Thomas Bates selected and bred for high milk production. Only those animals that met his standard were selected for breeding purposes, and inbreeding was extensively practiced. He developed about six families, of which the Duchess family was the most noted. After the death of Bates in 1849, the herd was dispersed. His results were so outstanding and his general influence so great that most of the Milking Shorthorns of today trace back to his cattle.

The first recorded importations to the United States were in 1783 (Conklin, 2). Early importations were of milking strains. Because of this, breeders leaned toward Bates cattle, and a wave of pedigree worship (such as Bates' Duchess family) developed. This was sometimes at the sacrifice of cattle merit. It culminated in the sale of Colonel Powell's herd of Bates-bred cattle at New York Mills, New York, in 1873, when 109 animals sold for an average of \$3,499, (2). Fifteen cows of the Duchess tribe averaged \$17,523, the highest being the Eighth Duchess of Geneva, which sold for \$40,600.

The first herd book in America was the American Shorthorn Herd Book,

which appeared in 1846 (2). Ohio Shorthorn Breeders Association also started a herd book, as did Anderson, a private breeder. All three were absorbed by the American Shorthorn Breeders Association in 1882. The American Shorthorn Breeders Association registered both beef and dairy types. In 1950, The American Milking Shorthorn Society was formed. A herd book which includes only the milking strain was developed.

The first Shorthorns in Kansas were of the dairy type and were brought to this state by S. S. Tipton from Iowa (Laude, 16). Tipton established his farm at Mineral Point in Anderson County in June, 1857. In the American Shorthorn Herd Book, Volume 6, are recorded three bulls and 15 cows under the ownership of Tipton. Tipton registered the first Shorthorn bred in Kansas, which was a female, Bertha Belle, born in 1859 (16). Tipton-bred cattle in Kansas until his death in 1889.

Most early Kansas herds were of the Bates breeding. One of the most influential early breeders was G. W. Glick, who started breeding Shorthorns in 1870 (16). In 1879, Glick heeded the fashion of the day and became a purist in breeding Shorthorns of straight Bates bloodlines. In face of a general swing to the Scotch or beef-type Shorthorn, he remained a leading exponent of the milking type until his herd was sold in 1889. Glick's influence can best be expressed by the fact that his leadership resulted in his election as Governor of Kansas in 1882.

Another early breeder of importance was W. R. Nelson, former owner of the Kansas City Star (16). He bought 15 head at the Glick dispersal for his famous Sni-A-Bar farm at Grandview, Missouri.

Kansas State College was among the first (1873) to breed Shorthorns of the dual character, including mostly Bates breeding (16). This herd was sold



in 1897 because of infection from tuberculosis and also because the college was criticized for maintaining herds of livestock. When Shorthorns were re-established at Kansas State College in 1905, the special purpose beef type was selected (16). Colonel W. A. Harris, Linwood, Kansas, started breeding the Scotch or beef-type Shorthorn in 1880 (16). He was perhaps more influential in swinging the American breeders away from dual character than any other man.

A state-wide organization of Milking Shorthorn breeders was formed at Dodge City in 1936, known as the Kansas Milking Shorthorn Society (Dixon, 3). This organization grew from 27 initial members to 174 members in 1951. The growth of the Milking Shorthorn breed in Kansas is reflected by the fact that 500 breeders registered cattle in the National Milking Shorthorn Society in 1951 (Freeland, 4). Members of the Kansas Milking Shorthorn Society have cooperated closely with the Dairy Husbandry Department, Kansas State College, in promoting the welfare of the dairy industry in Kansas. They have been especially active in Inter-Breed Dairy Council work.

The Milking Shorthorn Society has been quite aggressive in recent years in promoting this breed in the state. Although some other specialized dairy breeds exceed this breed in numbers of cattle, there were more Milking Shorthorns shown at the State Fair in 1951 than any other breed. They were also second high in their entries in the junior division at that show. Also compared with the five specialized dairy breeds in the same year, Milking Shorthorn breeders were second in number of exhibitors and were first in number of exhibitors per district, second in the total number of animals exhibited, and first in number of animals exhibited per show, with an average of 77.

In addition to show ring activities, the Kansas Milking Shorthorn Society

is aggressive in promoting the sale of cattle. A state sale is held each year, as well as promotional sales in some districts. Kansas breeders have consigned some of the top animals to the national sale each year.

Further indication of the growth of Milking Shorthorn activities in Kansas is the fact that during 1951 more Milking Shorthorns were registered from Kansas than from any other state (Sperkman, 23). Kansas also leads other states in number of bulls classified (23).

The Milking Shorthorn breed was the second highest breed in number of first services from the Kansas Artificial Breeding Service Unit (10). Seventeen percent of total first services in 1950 and 18 percent in 1951 were represented by this breed. There were 6,672 cows artificially bred to Milking Shorthorn bulls in 1950 and 10,382 in 1951.

The Milking Shorthorn breed is classified as a dual-purpose breed, that is, a breed combining beef and dairy characteristics. Because of this fact, it is to be expected that some breeders tend to place most emphasis on beef characteristics, while others tend to give major emphasis to dairy characteristics. Proponents of dual-purpose cattle claim that such cattle are specially well adapted to farms of the midwest and elsewhere when the farmer wants a dual source of income (beef and dairy products) and does not care to emphasize the many good practices essential to success on farms where specialized dairying or beef production is practiced. Thus, the dual-purpose breeds have been called the farmer's cow, particularly well adapted for the farmer who wants to keep a few cows as a part of a diversified farming system (Vaugh, 23).

In a publication from the University of Minnesota (Peters, et.al., 19), it is stated that "----the dual-purpose type of cattle is especially adapted



to the medium-sized farm of 160 to 320 acres on which there is not sufficient labor and equipment to milk enough cows to utilize the entire supply of feed, especially of pasture and roughage".

These and other such statements imply that dual-purpose cattle are adapted to particular farm conditions, and that certain feeding and management practices should prevail. The importance of the Milking Shorthorn breed in Kansas seemed to offer an opportunity to study the farm conditions and herd practices that prevail on farms where Milking Shorthorn cattle are maintained.

#### EXPERIMENTAL PROCEDURE

A questionnaire was developed that would provide information pertinent to some farm conditions, feeding and management practices, and general attitudes of the owners of Milking Shorthorn cattle in Kansas. A total of 57 questions were included pertaining to these three general categories (see sample questionnaire in appendix). The questionnaire was sent to the 174 members of the Kansas Milking Shorthorn Society. It was thought that such a list would represent a cross-section of the progressive breeders and would reflect the better practices and conditions where this breed was maintained. Most such breeders would probably be interested in breeding registered cattle either exclusively or partially. In order to get replies from more farms, and to get information on possibly a different class of breeders, the same questionnaires were also sent to 105 county agricultural agents in Kansas with a letter of instruction to deliver a questionnaire to Milking Shorthorn breeders in their respective counties.

Of the 174 questionnaires sent to breeders, 70, or 40 percent, were returned. The 315 questionnaires delivered by county agents resulted in 27

returns, or 8 percent. All but two of the 97 questionnaires received were sufficiently complete to be useful; but in some, a few questions were either unanswered, inadequately answered, or the answer indicated lack of understanding of the questions.

## RESULTS

### Age Distribution of Breeders of Milking Shorthorn Cattle

One of the questions on the questionnaire pertained to the age of the operator. This was considered of some interest as reflecting the possible years of dairy operations and the opportunity to have developed approved practices. The average age of the farmers surveyed was 42 years, ranging from 21 to 65 years (Table 1). More than half of them, 60 percent, were in the age group of 25 to 44 years. No data are available to determine how these age distributions would compare with ages of specialized Kansas dairymen. Comparison of age distribution of farmers in Kansas (27) and the United States (26) shows them to be identical. However, the Milking Shorthorn breeders surveyed were considerably younger than either the Kansas or United States farmers.

### Years of Dairying and Breeding Milking Shorthorns

Similarly, it was desirable to know something about the period of time that each operator had been in dairying and by comparison, how long he had been breeding Milking Shorthorns. Since dairying and cattle breeding are usually considered long-time agricultural enterprises, the length of time involved might be some indication of the degree of adoption of approved practices that could be expected.

Table 1. Age distribution of Milking Shorthorn breeders in survey, farmers of United States and farmers of Kansas.

Age Distribution	Milking Shorthorn Breeders		Kansas	United States
	Number	Percent	Percent <sup>1</sup>	Percent <sup>2</sup>
Under 25	3	3	3	3
25-35	24	28	16	16
35-44	28	33	23	23
45-54	20	23	23	23
55-64	10	12	20	20
65 and over	1	1	15	15
Total	86	100	100	100

<sup>1</sup>U. S. Department of Commerce, Bureau of the Census, United States Census of Agriculture 1950 VI, pt. 13, page 5.

<sup>2</sup>U. S. Department of Commerce, Bureau of the Census, United States Census of Agriculture 1950, Volume II, General Report, page 87.

Of the 79 farmers reporting on their years of dairy activities, nearly two-thirds (64%) had been dairying more than 10 years, and nearly one-half (49%) more than 15 years, with an average for the entire group of 16.2 years (Table 2). Contrasted with the years of dairy activity, the years of breeding Milking Shorthorns were 10 years or less for 56 percent of the farmers surveyed, and more than three-fourths (77%) had been breeding Milking Shorthorns 15 years or less, and the average for the entire group was 12.4 years. No comparable data are available for length of time breeding other dairy cattle within breeder groups in Kansas, but it is probable that the time distribution would not differ greatly from that found among these breeders of Milking Shorthorns.

Table 2. Distribution of farmers according to number of years engaged in dairying and in raising Milking Shorthorns.

Years	Distribution of farmers according to number of years engaged in dairying		Distribution of farmers according to number of years breeding Milking Shorthorns*		Distribution of farmers who shifted from dairy cattle to Milking Shorthorns		Av. yrs. : Av. yrs. : dairy breeding : Milking : Shorthorns	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1-5	12	15	17	18	2	4	5	2
6-10	16	21	36	38	11	21	9	4
11-15	12	15	20	21	9	17	14	8
16-20	12	15	6	6	10	19	19	10
21-25	14	18	9	9	12	23	24	14
26-30	6	8	3	3	4	8	29	23
31-35	6	8	3	3	4	8	34	24
over 35	1	0	1	1				
Total	79	100	95	99	52	100	962	586
Average		16.2 yrs.		12.4 yrs.			13.5	11.2

\*16 farmers reported no years of dairying.

It is interesting to note that 17 percent of the Milking Shorthorn breeders reported no dairying time, thus indicating the emphasis given to beef qualities only among one-sixth of the breeders. Eleven others had been breeding Milking Shorthorns more years than they had been dairying. Sixteen had been dairying the same number of years that they had bred Milking Shorthorns, and slightly more than one-half (52 among 95) had been dairying more years than they had bred Milking Shorthorns. The fact that 70 of the 95 had been dairying the same number of years, or more, as breeding Milking Shorthorns would seem to indicate the same tendency to emphasize dairy characteristics.

An attempt to ascertain the emphasis toward dairy or beef was made by the questions whether Milking Shorthorns were being kept strictly as a dairy breed, or as an opportunity to move from dairy to beef. Eighteen percent answered strictly dairy, while 41 percent answered dual purpose, and 41 percent answered "go either way". This would indicate that these breeders had dual purpose primarily in mind, but about half of them definitely had in mind going in the direction best suited to conditions. This, together with nearly a fifth going strictly dairy, shows a slight emphasis as a group toward dairy instead of beef.

#### Shift to Milking Shorthorns from Other Breeds

Since 52 of the 95 had been dairying an average of 18 years and had raised Milking Shorthorns an average of 11 years, it is evident that they shifted from some other kinds of dairy cattle to Milking Shorthorns (Table 2). How many shifted from beef is not known. Of the 95 farmers surveyed, 66 or 70 percent, reported having owned previously some special purpose dairy breeds. Holsteins had been on 44 farms, Jerseys on 44, Guernseys on 30, Ayrshires on 13,



and Brown Swiss on 6 farms. Sixteen farmers reported having changed from mixed cattle to Milking Shorthorns. There is an overlap of farmers in these reports, because many farms reported several different breeds before Milking Shorthorns were established. These shifts from special dairy breeds to Milking Shorthorns by such a large proportion of the Milking Shorthorn breeders would seem to indicate that these farmers believed that the Milking Shorthorn breed was specially adapted to their farming conditions.

#### Size and Composition of Herds

Size of herd is of interest because of its bearing on herd management practices, income from the enterprise, and herd and farm organization. The average size of all herds surveyed was 30.1 females; consisting of an average of 19.5 females, or 65 percent of breeding age; 7.0 or 23 percent, unbred yearling heifers; and 3.6 or 12 percent, heifers below one year (Table 3). This seems to be an unusually small proportion of young cattle below breeding age. It represents one yearling heifer for every 2.8 females of breeding age, and only one heifer under one year for every 5.4 females of breeding age. The ratio of heifers under one year to yearling heifers was 1:1.9. These unusual trends prevailed in all groups of different sized herds.

Only 11 percent of the herds consisted of 10 females or less, and about one-third of the herds were in the groups of 20 females or less. Two-thirds of the herds consisted of 21 or more females, with about half of all herds in the bracket of 21 to 40 females. In general, the herds were large enough to be adaptable to most of the better herd practices, and be of importance in total farm income. Of the total females, about three-fourths (74 percent) were purebreds, thereby indicating special emphasis on the herd. The 95 herds



Table 3. Size of herds, average number of females of breeding age, unbred yearling heifers, heifers below one year and ratio of purebreds to grades on Milking Shorthorn farms.

No. of cattle	Total Females		Average Number		Grades		Purebreds	
	No. of herds	Percent of herds in each group	Females of breeding age	Unbred Yearling Heifers	Heifers below one year	Grades	Purebreds	Purebreds
1-10	10	11	5	2	1	3	5	5
11-20	20	22	11	4	2	5	10	10
21-30	23	29	17	5	3	9	17	17
31-40	17	18	23	7	3	6	28	28
41-50	9	9	29	9	6	12	32	32
51-60	4	4	34	17	5	12	44	44
Over 60	7	7	49	19	13	15	65	65
Total	95	100	1862	663	343	756	2111	2111
Ave. No. Females- All Herds		30.1	19.5	7.0	3.6	7.9	22.2	22.2

surveyed represented 47, or 50 percent composed of purebreds only, 38, or 40 percent, composed of both purebreds and grades, and only 10 composed of grade cattle exclusively.

Since both beef and milking types of Shorthorns have special registration provisions for polled cattle, it was interesting to note that 80 farmers, or 84 percent, reported owning horned cattle only, while 12, or 13 percent, owned both horned and polled animals, and only three percent owned polled cattle only.

#### Location and Description of Farms

An attempt was made to ascertain whether Milking Shorthorns were kept more generally in certain types of farming areas, or on certain types of farms. In Fig. 1 is shown the number of herds located in each of the types of farming areas (Hoover, 7). About 25 percent of the herds surveyed were in the eastern third of Kansas, 55 percent in the middle third, and 20 percent in the western third. Since the eastern third represents smaller farms and more dairying, and the western third, larger farms with more wheat and range land, it would seem that the Milking Shorthorns have found more of a place for themselves in the areas generally described as "cash-grain, livestock, general", where rather large farms prevail, wheat is the most important crop, but some general livestock farming is practiced (Table 4).

The average number of acres for the 94 farms reported (one farmer did not answer) was 407, which is more than the state average (370 acres), according to the 1950 census (27). The size of farms ranged from 1 to 1400 acres. The largest number of farms were in 161-320 acre group, which represented 39 percent of the total. Nineteen percent were in the group 80-160 acres, 52 percent were from 161-480, and 65 percent were from 161-640, only

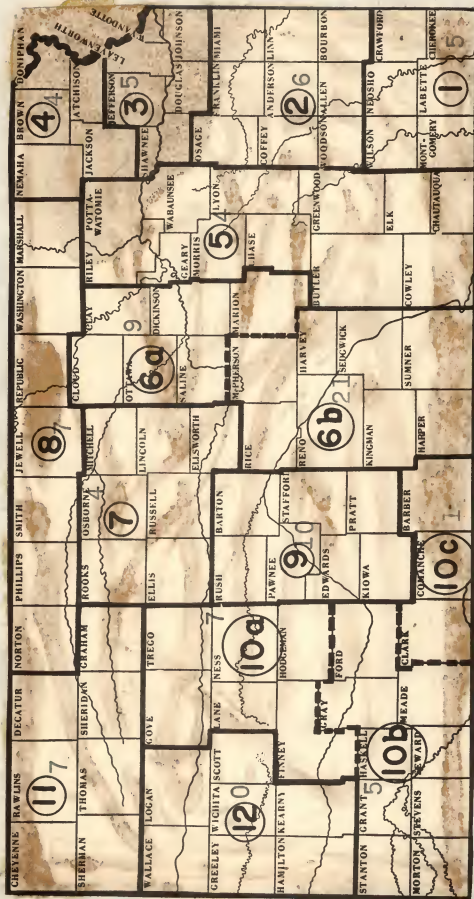


Fig. 1. Encircled number represents type of farming areas. The numbers not circled represent number of survey blanks received from each type of farming area.  
 (Revision of Fig. 18, Kansas Agricultural Experiment Station Bulletin 251.)

Table 4. Location of herds by type of farming areas.

Area	Description*	Number
1	General, livestock, cash-grain, self-sufficing poultry and dairy	5
2	General, livestock, poultry, cash-grain, dairy	6
3	General, livestock, dairy, cash-grain, poultry, self-sufficing	5
4	Livestock, general, cash-grain	4
5	Range livestock, general, cash-grain	4
6a	Cash-grain, livestock, general	9
6b	Similar to 6a, slightly more wheat and dairying	21
7	Cash-grain, livestock, general	4
8	Cash-grain, livestock, general	7
9	Cash-grain, some general farming, wheat most important	10
10a	Cash-grain, some livestock, some livestock, large proportion of wheat	7
10b	Similar to 10a, more wheat, less pasture, livestock, and general farming	5
10c	Cash-grain, livestock, and some general farming, less wheat, more pasture and range livestock	1
11	Cash-grain, livestock, general, wheat and beef cattle important	7
12	Cash-grain, range livestock, some general farming	0

\*Hoover, Leo M. A summary of Kansas Agriculture. Agr. Econ. Rept. No. 55, Kansas Agr. Expt. Sta. 1953.

16 percent being in the group representing more than a section of land (Table 5). It would seem that Milking Shorthorns are more generally kept on the medium to large-sized farms.

The average number of cultivated acres on all farms reported was 277 or 68 percent of the total. The cultivated acres tended to increase as the total acreages increased. The average number of acres in grass on all the farms was 122, of which 80 percent was in native grass, 11 percent in temporary pasture, and 9 percent tame pasture. The number of acres of native grass increase with the size of farms, whereas the acreages of temporary and tame pastures was proportionately more important on the smaller sized farms.

Comparison of the average number of Milking Shorthorn females summarized by sizes of farms (Table 5) shows that the size of herd increases as the farm acreage increases. On all farms, the average was one Milking Shorthorn female for about every nine acres of cultivated land, and every 4 acres of pasture. The number of acres of pasture available per animal greatly increased as the size of farms increased (Table 5). These facts further indicate that Milking Shorthorns are found more generally on the rather extensive types of farming where acreage and grassland is not a limiting factor.

#### Sources of Income on Farms Surveyed

In order to classify further the farms on which Milking Shorthorns were kept, and to estimate the importance of the Milking Shorthorn enterprise on the farm, each farmer surveyed was asked to list his main source of income, and the percentage of the total gross income that was derived from milk products and from sale of cattle. Cattle income headed the list with 33 percent of those farmers reporting; followed in order by wheat and cattle, 23 percent; and



Table 5. Distribution of cultivated acres, grasses and number of females by size of farms.

Size of Farm in Acres	No.	%	Cultivated Acres (Av. No.)	Acres of Grass (Av. No.)	No. of Tempor- ary Pasture (Av. No.)	Acres of Pasture (Av. No.)	Tempor- ary Pasture (Av. No.)	Acres of Pasture (Av. No.)	Milking Short- horn Females on Farms	Ratio of Female Animals to Available Pasture (No.)
80 or less	5	5	25	16	7	4	4	13	1-2	
81-160	13	14	100	30	11	13	13	23	1-2.4	
161-320	37	39	178	58	10	8	8	25	1-3	
321-480	12	13	310	100	6	6	6	29	1-3.8	
481-640	12	13	379	147	10	22	22	36	1-5	
641-960	10	11	569	186	50	16	16	45	1-5.6	
961-1280	4	4	759	349	10	10	10	59	1-6	
1281 or more	1	1	1090	310	50	50	50	31	1-11.6	
Total	94*	100	26123	9157	1343	1004	1004	2806		
Average			277	97	14	11	11	30		

\*One farmer did not report this information.



wheat, 22 percent. Seventy-eight percent of the farmers reporting derived their main source of income from these categories and 22 percent from other sources (Table 6). Cattle or cattle in combination with other enterprises represented the main source of income of 62 percent of those reporting. Although based only on the farmers' replies, the importance of cattle income seems unusually high, particularly in comparison with wheat, considering the types and sizes of farms generally represented. Milk was listed as the main source of income in only three percent of the replies, but it is possible that milk may have been included as part of the cattle income in some cases.

Further study of the gross income by percentage derived from both milk products and Milking Shorthorn cattle sales as estimated by farmers shows that the average for the entire group was 24 percent from milk and 32 from cattle sales (Table 7). Nearly three-fourths (73 percent) of those reporting received 30 percent or less of their gross income from sales of dairy products. About half (49 percent) received 20 percent or less, and 20 percent received 10 percent or less from this source. Only two percent of the farmers reported more than 50 percent of their gross income from milk products sales. Sales of Milking Shorthorn cattle represented from 21 to 40 percent of gross income among nearly half of those reporting. Cattle sales were more important than milk sales as a part of total gross income. These summaries are difficult to reconcile with the reports on main sources of income unless it is assumed that these farms are quite diversified, and a part of gross income, such as a third, could still be a main source of income. Generally, it can be concluded from the reports that income from Milking Shorthorn cattle is an important source of income for those farmers surveyed.

Since cattle sales were so important as a source of gross income, it is

Table 6. Estimated main source of cash income on farms surveyed.

Project	Number of Farms	Percent
Cattle	31	33
Wheat and Cattle	21	23
Wheat	20	22
Grain (milo and soybeans)	10	11
Hogs and cattle	4	4
Milk	3	3
Cattle and poultry	2	2
Sugar beets and alfalfa	1	1
Pipe fitter	1	1
Total	93	100

of interest to study further the percentage represented by different kinds of cattle, as estimated by the farmers surveyed. Eighty of the 95 farmers reported estimates. The averages of the percentages reported showed 36 percent of cattle income came from bull sales, 28 percent from steers, 23 percent from bred females, 11 percent from heifers and one each from veal and creep-fed calves.

The dependability of such estimates might be questioned, but the number of breeders involved does give some measure of the relative amounts that were received from the sale of different classes of cattle. One of the claims of Milking Shorthorn breeders is that their calves are better adapted to veal production. However, only six breeders sold any veal calves, and only three sold creep-fed calves. The main source of income came from bull sales, which

Table 7. Gross income from dairying and sale of Milking Shorthorn cattle.

Percent of gross income	Dairying		Milking Shorthorn cattle	
	Number reporting	Percent	Number reporting	Percent
10 or less	16	20	9	11
11-20	24	29	12	15
21-30	20	24	24	30
31-40	10	12	15	19
41-50	10	12	16	20
51-60	2	2	1	1
61-70			2	3
71-80			1	1
Total	82	99	80	100
Av. Percent of Gross Income		24		32

indicates an unusually strong demand for bulls of this breed, probably proportionately larger than would prevail with the special purpose dairy breeds. Value of Milking Shorthorns for steers is another claim of breeders of this breed. Steers were the second most important source of cattle sales income. Breeding cows and heifers followed in importance. These data are of interest in appraising the possibilities in breeding Milking Shorthorns.

#### Ratio of Males Registered to Females Registered

The Milking Shorthorn breed registered more bulls in relation to females than any other breed. This would indicate a strong demand for bulls and possibly less culling of bulls. Of total cattle registrations males represented the

following percentages:

Milking Shorthorns (5)	34.62 percent
Holsteins (18)	19.1 percent
Guernseys (17)	15.5 percent
Ayrshires (2)	13.5 percent
Jerseys (9)	11.6 percent
Brown Swiss (8)	20.7 percent

#### BREEDING PROGRAM

Since 90 percent of the farmers surveyed had some purebred cattle, it is of interest to ascertain the quality of bulls being used as part of a herd improvement program. Also, the average size of the herds, 30 females, with 22 of breeding age, would further emphasize the importance of good quality bulls. Bull service from good proved bulls is available to Milking Shorthorn breeders of Kansas through the state-wide artificial breeding program.

Only 13 percent of the breeders surveyed were using artificial breeding exclusively, while another 13 percent were using it to some extent. Eighty-three of the 95 reporting had artificial breeding associations in their areas. If those to whom the service was not available were deleted, the average would be 29 percent using the service entirely or partially.

Eighty-seven percent of the farmers surveyed owned their own herd sire. All reported using purebred bulls. This is in contrast to only 61 percent bred to purebred bulls, including artificial breedings, for the state as a whole (Freeland, 4). Also, it is interesting to note that Milking Shorthorns ranked second among the breeds in number of bulls in service in all herds, and in percentage of artificially bred cows (4).

There was a preponderance of young bulls being used on the farms included in this survey. Ninety-one percent (Table 8) of the farmers using bulls in natural service had bulls five years old or less. The range in age of the bulls being used was from one to ten years. Thirty-six percent of all bulls used were two years old. Only seven bulls over five years old were being used.

The age of bulls being used in natural service would support the fact that only seven farms reported using a proved bull. Of these seven farms thus reporting, there were four that could not have had proved bulls because of the age they gave for their bulls. This indicates that some do not understand the meaning of the term "proved bull". Forty-two or 50 percent (Table 8) reported using a son of a proved bull. Again, for the same reason, this may be quite high. For example, there were only seven Milking Shorthorn bulls proved in 1947 (11), eleven in 1948 (12), eight in 1949 (13), six in 1950 (14), and six in 1951 (15) in Kansas. These bulls include both the plus and minus proved bulls. Thus, it can be assumed that not all of the 42 were using sons of proved bulls.

The breeders as a whole are paying more attention to dams' records than they are to sires' backgrounds. Eighty-five percent of those using bulls in natural service were using bulls from tested dams. All records reported on dams of bulls being used, without adjustment for age or length of record, averaged 9,688 pounds of milk for 45 records reported. Using the breed average of four percent, this would be 387 pounds of butterfat. The highest milk record reported was 16,000 pounds of milk as a 15-year-old. The lowest milk record reported was 5,302 pounds as a junior-two-year old. The butterfat records reported for dams of bulls being used averaged 375 pounds of butterfat on all records, without adjustment for age or length of record. The highest butterfat



Table 8. Information on Milking Shorthorn bulls used in natural service on farms surveyed.

	Number	Percent
Using purebred bulls	83	100
Proven bull	7	8
Son of a proven bull	42	50
Son of a tested dam	71	85
Young bull (1-5 years)	76	91
Bulls over 5 years of age	7	8

record reported was 734 pounds of butterfat as a junior-four-year-old, and the lowest was 240 pounds of butterfat as a junior-two-year-old. Three-year-old records reported on dams of bulls being used averaged 7,953 pounds of milk and 334 pounds of butterfat. The two-year-old records averaged 7,264 pounds of milk and 323 pounds of butterfat.

#### BREED PROMOTION PROGRAMS

##### Production Testing Program

Testing individual cows for yearly production as a basis for economy of production, selection and culling, and for breeding programs is an approved practice, well-recognized, particularly for purebred herds. Among the farmers surveyed, 39 percent were testing their herds under the Dairy Herd Improvement plan. This is a much higher percentage than prevails for breeders of purebred cattle of other breeds in Kansas. Slightly more than two percent of all the dairy cows in Kansas are being tested in the Dairy Herd Improvement program (25).



Also, 28 percent of the farmers reported testing their herds under the program sponsored by the American Milking Shorthorn Society. Those using this program had tested from 1 to 16 years, with an average of 6.5 years. Considerable overlap exists in the two systems of testing and most breeders testing through the national breed association were also testing in the Dairy Herd Improvement Association plan because the two programs are so closely integrated.

These farmers are to be congratulated for their extensive participation in an organized testing program, particularly since they are breeding dual purpose cattle.

Among those farmers surveyed who were not testing, the reasons in order most frequently given for not testing were as follows:

1. Expense
2. No association
3. Herd not large enough
4. Not enough registered cows
5. All cows have Register of Merit Records
6. Weigh milk at home
7. Short of feed
8. Too much work
9. Just starting to build herd
10. Haven't time in summer, let calves suck
11. Barn not fixed yet
12. Don't know anything about plan

These reasons are rather typical of the usual excuses given by other farmer groups for not testing.

Average production of the 24 herds tested in 1951 was 7,412 pounds of milk and 272 pounds of fat, as reported by the farmers surveyed. However, the average of all Milking Shorthorn herds for the same year in Kansas Dairy Herd Improvement Associations was 6,196 pounds of milk and 249 pounds of butterfat, as reported by the association supervisors. The difference could be because all supervisors did not report, or because Milking Shorthorn breeders prefer to average only the cows being milked and not include the nurse cows as part of the milking herd.

The breeders surveyed were queried about what they considered to be a minimum production for profit. The largest number (42 percent) set the level at 300 pounds of butterfat, but almost as many (39 percent) indicated 250 pounds (Table 9). Comparison of these estimates with the reported averages of all tested herds (272 pounds of butterfat) indicates that the breeders are getting results close to the minimum necessary for a profit.

Summaries of Milking Shorthorn herds testing in Dairy Herd Improvement Associations in Kansas for the years 1950 and 1951 are presented in Table 10.

Persistency of production is generally considered to be less well established in the Milking Shorthorn breed than in the special dairy breeds. This may be due to both breeding and herd management practices. Lack of persistency materially reduces annual production in any cow. To determine to what extent Milking Shorthorns are subject to short lactation periods, a study was made of 73 individual records made in Dairy Herd Improvement Associations in Kansas during the years 1950 and 1951. Of these, 68 percent milked from 251 to 350 days, and 29 percent milked less than 251 days (Table 11). These results do not seem to indicate that lack of persistency is as big a factor in production as is sometimes assumed. Whether this limited number

Table 9. Pounds of butterfat that the farmers believed a cow should give to be profitable.

Lbs. Butterfat	Number	Percent
200	11	13
250	34	39
300	37	42
350	5	6
Total	87	100

Table 10. Summary of Milking Shorthorn herds tested in Kansas Dairy Herd Improvement Association.

	1950	1951
Cow years	347	243
Lbs. of Milk	6663	6196
Average percent test	4.08	4.03
Lbs. of Butterfat	272	249
Value of the Product	\$ 225	\$ 241
Average cost of roughage	\$ 40	\$ 59
Average cost of grain	\$ 51	\$ 87
Total feed costs	\$ 91	\$ 146
Average return above feed costs	\$ 134	\$ 95

Table 11. Persistency of individual records of Milking Shorthorn cows in Dairy Herd Improvement Associations 1950 and 1951.

Days in Milk	1951	Percent	1951	Percent	Total	
	No.		No.		No.	%
150 or less			2	6	2	3
151-200	3	7	1	3	4	5
201-250	12	27	4	12	16	21
251-300	19	43	15	44	34	43
301-350	9	20	11	32	20	25
351-365	1	2	1	3	2	3
Total	44	99	34	100	78	100

is typical of Milking Shorthorns in Dairy Herd Improvement Associations, or whether cows tested in such a program are typical of the breed is problematical. In 1950 only 22 percent of these cows milked over 300 days; in 1951, 35 percent. This may contribute to the low herd averages made by Milking Shorthorn Breeders in Kansas.

#### Type Classification Program

All of the national associations representing the six breeds of dairy cattle, including Milking Shorthorns, have established a type classification program, whereby the breed association sends a representative to the farmer's herd, at the farmer's request, for the purpose of evaluating the quality of all animals two years old or over, according to established classes, based on the official score-card. This program is recognized as a complement to production testing in herd and breed improvement.

Since 90 percent of the farmers surveyed owned all or some purebreds, and since the total females averaged 30 per herd, it would be expected that considerable interest would be manifested in this program. Forty-one, or 43 percent, of the farmers surveyed reported they were participating in the program. This is a rather high percentage for any group of breeders, and higher than the percentage of herds in the Dairy Herd Improvement testing program.

Those farmers participating gave the following reasons in order of importance:

1. So that the cows kept for replacements would follow breed standard
2. Offspring sell better
3. Cull the herd to fewer but better cattle
4. Give mail order buyers more confidence
5. Compare quality of cattle with other herds

Those not classifying their herds gave the following reasons, listed in order of frequency:

1. Too few registered cows
2. Grade cattle only
3. Haven't got around to it
4. Can't afford to
5. Can't get classified when I want it
6. Don't know about program
7. Cull herd myself

According to Sparkman (23) the following relationship prevails between type and production:

Excellent - 428 lbs. butterfat

Very good	- 398 lbs. butterfat
Good plus	- 395 lbs. butterfat
Good	- 379 lbs. butterfat
Fair	- 335 lbs. butterfat
Poor	- -----

Fifty percent of all Milking Shorthorn cows that have been classified in United States fall in the "very good" classification rating (Table 12). The "good plus" rating follows with 36 percent.

Table 12. Classification ratings in the Milking Shorthorn breed for the United States\*.

Rating	Number	Percent
Excellent	98	5.99
Very good	808	49.35
Good plus	585	35.74
Good	143	8.74
Fair	3	.18
Total classified	1637	100.00

\*Sparkman, John. Classification of Bulls, Milking Shorthorn Journal, 36:6, September, 1951.

Kansas leads the field in classification of bulls by quite a large number, although Kansas is lowest in percent of "excellent" bulls (Table 13). Kansas is seventh in number of "very good" bulls, second in number of bulls classified "good plus", and sixth in number of bulls classified "good". This would point to the fact that Kansas cattle could use type improvement.



Table 13. Classification of bulls by states.\*

State	Excellent %	Very Good %	Good plus %	Good %	Fair %	Total No.
Kansas	2.70	48.64	42.16	6.49		185
Illinois	7.89	61.84	25.00	5.26		152
Iowa	6.56	59.84	23.77	9.02	.82	122
Indiana	8.00	61.00	24.00	7.00		100
Idaho	7.95	36.36	43.18	12.50		88
Michigan	7.14	51.19	35.71	5.95		84
Ohio	4.34	55.07	37.23	4.34		69
Virginia	6.34	33.33	41.26	17.46	1.58	63
Wisconsin	12.90	50.00	35.43	1.61		62
Texas	9.43	47.16	30.18	13.20		53

\*Dixon, W. E. Extension News, Milking Shorthorn Journal 31:45. March, 1950.

#### HERD HEALTH PROGRAM

Herd health is one of the essential factors of success in any type of livestock enterprise, but, because of the relationship of herd health to healthful milk for human consumption, health is a primary essential in dairy herds. The two diseases for which state-wide control programs have been established are tuberculosis (Pickett, 21) and Brucellosis (Pickett, 20).

Of the farmers surveyed, 64, or 63 percent, were participating in the tuberculosis control program. Kansas has been a modified accredited area since 1935 (Harris, 6), and this disease is not the problem it was formerly. However, the individual breeder should be eternally vigilant to prevent further

outbreaks. Considering the class of herds involved in this survey, it would seem that more emphasis should be placed on tuberculosis control on a systematic basis.

Brucellosis is much less under control statewide than is tuberculosis. This disease is a constant threat to any herd and can cause devastating economic losses, besides the terrific set-back to any constructive herd improvement program. Fifty percent of these farmers were systematically testing their herds for Brucellosis. Seventy six, or 80 percent, however, were practicing vaccination while 20 percent were doing no vaccinating. Of any control method calfhood vaccination was being used most extensively. Ninety-one percent of those vaccinating were using calfhood vaccination, or about three-fourths of all the herds. Five percent of those vaccinating, or four percent of the entire group, were using both calfhood and adult vaccination, while four percent of those vaccinating, or three percent of the entire group, were using adult vaccination only. Twelve percent reported no control program of any kind. This may not be so unfavorable as it appears since a few of the herds were quite small, and a few were newly established.

These data indicate quite general adoption of calfhood vaccination and it is encouraging to note so few using adult vaccination, especially since some of the herds are operated more on the basis of beef herds than dairy. More systematic testing should be done, but this will soon be corrected in any herds selling milk because of the rapid extension of this requirement in city milk ordinances throughout the state.

## MANAGEMENT PRACTICES

### Herd Management Practices

One of the theoretical adaptations of Milking Shorthorns is the fact that the emphasis can be shifted from dairy to beef, or vice versa, either on a long or short-time basis to meet economic conditions or special farming operations. Contrary to general practice in dairy herds, some dual purpose breeders may milk only part of the year, or only part of their herd.

### Milking Practices, Summer and Winter

Of those farmers surveyed, only 25, or 26 percent, reported milking all their cows, while 73 percent milked only part of their cows. Forty-three percent of the farmers milked half or less of their cows in summer, and about a third of the farmers milked half or less of their cows in winter (Table 14). These facts, together with the distribution found (Table 14), indicate that these Milking Shorthorn breeders, a majority of which were purebred breeders, do adapt their milking operations to fit their respective farm conditions, either by reducing the number of cows being milked, or by shifting the season for milking, or by both.

### Time of Freshening

Further evidence of such adjustments is indicated by the season of year when cows are freshened. Usually beef cattle owners try to freshen their cows in early spring to suit market needs better. Dairy cattle owners either try to freshen their cows in the fall to meet the demands for milk, or attempt to distribute the freshenings throughout the year to maintain an even supply of

Table 14. Proportion of Milking Shorthorn cows milked in summer and winter.

Percentage of total cows milked	Summer		Winter	
	Number of farmers	Percent of cows milked	Number of farmers	Percent of cows milked
10 or less	6	7	2	2
11-20	4	5	5	5
21-30	8	10	3	3
31-40	11	13	4	4
41-50	15	18	22	24
51-60	2	2	10	11
61-70	5	6	6	6
71-80	8	10	14	15
81-90	2	2	3	3
91-100	21	26	24	26
Total	82	99	93	99

milk. Again, it is of interest to determine the practice of dual-purpose cattle owners. Of the farmers surveyed, the largest number, 43 percent, freshened their cows in the fall (Table 15). If all year (15 percent), spring and fall (15 percent), winter (4 percent), fall and winter (4 percent) are added to the fall freshening only, the total would be 81 percent which freshen their cows in fall or distribute them through the year. This indicates that these dual-purpose cattle owners place most emphasis on the dairy program for freshening. However, there seems to be some contradiction of these facts in the reports previously discussed regarding summer and winter milking practices.

Table 15. Time of freshening cows on Milking Shorthorn farms.

Season	Number of farms	Percent
Fall	41	43
All year (evenly distributed)	14	15
50 percent spring) 50 percent fall)	14	15
Spring	14	15
Winter	4	4
Fall and Winter	4	4
Summer	2	2
Spring and Summer	1	1
Don't attempt to control it	1	1
Totals	95	100

#### Length of Pasture Season

Considering the amount of pasture available and the types of farm operations involved, it is of interest to determine how extensively grass is used as a part of the feeding program. The farmers reported from 5 to 12 months, with six months representing the greatest frequency, 29 percent, followed by seven months, 22 percent, and eight months, 21 percent; the period six to eight months inclusive representing nearly three-fourths of the replies.

#### Machine Milking

The reports showed that these farmers had an average of 22 females of breeding age. If it is assumed that 20 percent of these were heifers, or 80



percent cows of milking age, then the number of milking age would average 17.7. Again, if it is assumed that 20 percent of the cows would be dry, the number of milking cows would average about 14. Usually herds of this size are milked by machine. However, since some of the cows are used to suckle calves, and since less emphasis is placed on year-'round dairying by Milking Shorthorn breeders, it is of interest to know how extensively they used machines for milking. Reports show that 67 farmers, or 71 percent, were using milking machines. This may not be so high as a similar number of dairymen milking special dairy breeds, but it does indicate that labor is a factor sufficient to justify machine milking, even though the emphasis on dairying is less pronounced.

#### Management of Bulls

Milking Shorthorns being a dual-purpose breed, it was interesting to study management of bulls to see if the Milking Shorthorn breeders turned bulls with cows as most beef herd owners do, or whether they kept their bulls up as most dairymen do. Forty-two (46 percent) did not let their bulls run with the cows. Twenty-eight (30 percent) let their bulls run with the cows, and 22 (24 percent) let the bulls run with their cows part-time. It would seem that these Milking Shorthorn breeders handle bulls about the same manner as do commercial dairymen of special purpose dairy breeds. With purebred breeders of special purpose dairy breeds, there would be a greater proportion of bulls kept up.

#### Calf Management

The large number of cows not being milked would indicate the cows are

being used as nurse cows. Twelve farmers (13 percent) used nurse cows exclusively for raising calves. Forty-three (46 percent) used nurse cows to start their calves and then changed to pail feeding. Thus, 58 percent were using nurse cows exclusively or to some extent with pail feeding. Of the farmers using nurse cows, 44 percent reported that they followed the practice of allotting two calves to the cow, and 80 percent allotted two or more calves per cow. Thirty-nine, or 42 percent, used pail-feeding only in raising their calves. Of those using pail-feeding or in combination with nurse cows, 26 percent fed whole milk only one month, and 43 percent two months, or total of 69 percent fed whole milk two months or less. Others fed whole milk longer lengths of time, but only three percent fed longer than six months (Table 16).

Table 16. Time whole milk was fed to pail-fed calves.

Time in months	No.	Percent
Less than 1 month	23	27.0
1-2	35	41.0
2-3	7	8.0
3-4	6	7.0
4-5	4	5.0
5-6	8	9.0
6-7	2	2.0
8-9	1	1.0
Totals	86	100.0

Thirty-one percent reported they fed milk substitutes to some extent, but the others had never used them. It is evident from these reports that Milking

Shorthorn breeders used nurse cows more extensively than dairymen with special dairy breeds generally do; milk substitutes are used much less extensively, but calves are fed whole milk about the same length of time as are calves of the special dairy breeds, unless nurse cows are used. These facts emphasize the importance placed on the income from offspring rather than dairy products, and the minimizing of labor by milking fewer cows and allowing the others to raise calves.

#### Disposition of Heifers and Bull Calves

Since Milking Shorthorn cattle sales made up 32 percent of the gross income, it was of interest to note the disposition made of heifer and bull calves. Eighty-nine of the 95 farmers reporting kept their heifer calves for replacements or at least part of them for that purpose. Twenty-seven indicated they sold some as purebreds. Two sold heifers as long yearlings, and one sold heifer calves as veal calves.

Sixty-three sold some of their bull calves as breeding bulls, while 68 reported some of their bull calves were eventually sold as steers. Four sold bull calves as veals.

The cheapest gain can be put on an animal when young. It was surprising that only 17 of the 95 reporting indicated they creep-fed their calves. Two indicated they wanted to get started.

Proponents of this breed have always stressed steers as an advantage for this breed. Thirty-five sold their steers off of grass, while 33 evidently finished their steers in the dry lot. Most of the breeders indicated they sold their steers between the ages of one and two years. Only 12 indicated they followed a deferred-fed steer program which is one of the good steer programs

for the state (22). Most of the steers were sold when they reached weights of 900-1200 lbs.

Bull sales for those surveyed are mostly local in nature, going into grade herds or local purebred herds. Six indicated they sold bulls all over the United States while others indicated Oklahoma, Missouri and Nebraska.

The age at which young bulls were sold was quite variable. Twenty-one reported selling their bulls at one year of age, while 19 sold at any age. Calves up to yearlings were mentioned 18 times. Five mentioned selling animals over one year of age. There was no predominant age of bulls when sold.

#### Age Heifers are Bred

Many breeders of the special purpose dairy breeds debate whether to get heifers into production early, or delay breeding and get more size to their heifers. This problem also exists in the Milking Shorthorn breed. Sixty-five percent of the farmers surveyed bred their heifers between 15 and 20 months. Seven percent bred heifers at less than 15 months of age and 28 percent at more than 20 months. The range in age for breeding heifers was 12-26 months. The majority of heifers were bred to freshen after two years of age.

#### Dairy Products Marketing Practices

Even though milk or cream averaged only 24 percent of the average income on the Milking Shorthorn farms surveyed, the regularity of such income makes it important. Ninety of the 95 farmers answering this survey were selling either whole milk or cream. Sixty reported selling cream, and 30, whole milk. Of the 60 farmers selling cream, 50 were marketing under the Kansas four-day plan regularly, and two were following that plan occasionally. Grade A

specifications could be complied with on 20 farms, and grade A milk was being marketed on 19 of these farms. It is of interest that only two farmers were producing grade A milk in a group of 17 who reported that they were keeping Milking Shorthorns strictly for dairy purposes.

Due to the fact that 66 percent of those surveyed are selling cream, use of skim milk is an important problem. Hogs and calves got most of the skim milk on these farms. These animals were listed 52 and 46 times respectively. Chickens were mentioned 20 times while cottage cheese, feed and sheep were mentioned once each. The answers concerning value of skim milk were quite varied. Most of the answers indicated a good appreciation of the value of skim milk. If there is more skim milk than the calves on the farm can consume, it entails having another project which may not fit efficiently with the other farm enterprises.

#### ATTITUDES OF MILKING SHORTHORN BREEDERS

As a final part of this study on the place of Milking Shorthorn cattle on Kansas farms and the practices followed by owners of this breed, it seems appropriate to summarize some of the attitudes of the breeders toward the breed and their future plans.

#### Reasons for Keeping Milking Shorthorns

The farms surveyed were asked to list five reasons why they preferred this breed. The answers given in their general order of frequency were as follows:

1. Dual purpose
2. Salvage value and heavy when sold
3. Less temperamental

4. Better sale cattle
5. Give a good quantity of milk
6. Utilize roughage and grass better than other breeds
7. Less protection needed in winter
8. Good steers for feed lot
9. Best for average farm
10. Attractive appearance
11. Milk averages about 4 percent fat
12. Long-lived cattle
13. Like them
14. Sturdy healthy breed
15. Calves heavier at weaning
16. Had them on farm at home
17. Less udder and breeding troubles
18. Shift from dairy to beef or vice versa
19. Larger than most breeds
20. Like the men that breed them

#### Plans for Future Herd Size

The average size of the herd for all farmers surveyed was 30 head of females, with approximately a third of the herds less than 20, nearly a third from 20 to 29, and slightly more than a third, 30 or more. It seemed worthwhile to learn what the general attitudes of the breeders were toward future herd sizes, and what differences in plans might prevail among owners with herds of different sizes. Of all 95 farmers surveyed, 54 percent reported they planned to increase the size of their herds, 37 percent planned to keep them the same



size, and 9 percent planned to reduce their herds. Among owners of herds of less than 20, the percentages were 55, 36, and 10 respectively, which are practically the same as the averages for the entire group. Owners of herds from 20 to 29 females indicated 62 percent more; 31 percent, the same; and 29 percent, less. For herds of 30 to 39, the answers were 53 percent, more; 47 percent, the same; and none, less. Only in the herds of 40 or more was the tendency toward smaller herds, with 39 percent planning more; 39 percent, the same; and 22 percent, smaller. It would appear that entire groups of breeders as a whole were well satisfied with the results obtained from Milking Shorthorns and in general planned further expansion of their herds.

#### What can Kansas State College do to Help the Individual Breeder?

Excellent relationships have prevailed between the College representatives and the breeders of Milking Shorthorns, particularly during the last ten years, when various activities within the breed have been greatly accelerated. When queried about what the College could do to be of further service in the future, the breeders reported the following answers listed in order of frequency:

1. Keep good Milking Shorthorn bulls at stud
2. Give dual purpose classification instead of placing as strictly dairy breed
3. Maintain good herd at the college or at one of the branch experiment stations
4. Higher proofs on bulls at stud
5. Give more recognition and publicity
6. Compare income by breeds
7. Encourage breeders to use good bulls

8. Learn how to judge them for beef as well as dairy
9. Put in Milking Shorthorn classes in F.F.A. and 4-H judging classes
10. Keep some polled Milking Shorthorn cattle

#### SUMMARY

Kansas ranks first most among the states in number of Milking Shorthorns registered by the American Milking Shorthorn Society. Milking Shorthorns are recognized as a dual-purpose breed. Breeders of dual-purpose cattle claim that these cattle are especially well adapted to certain types of farm conditions. Since the breeders are striving for a combination of beef and milk, the better management practices might be different for this class of cattle than for the special dairy breeds. Therefore, a survey of 95 farmers by questionnaire was made in Kansas to obtain information on the farm conditions and the herd practices where Milking Shorthorn cattle are kept.

The age of farmers surveyed was younger than those for all farmers in Kansas or the United States. Those surveyed had been dairying an average of 16 years, and had been breeding Milking Shorthorns an average of 12.2 years. Seventeen percent reported no dairying time. More than half had been dairying previous to breeding Milking Shorthorns. Of these, seventy percent had switched from special purpose dairy breeds.

The herds averaged 30 females, of which 20 were of breeding age. Ninety percent of the herds were exclusively or partially purebred. About 25 percent of the herds were located in the eastern third of the state, 20 percent in the western third, and 55 percent in the middle third where the farms were classed as "cash-grain, livestock, general". The average size of the farms was 407

acres, two-thirds of which were cultivated.

Thirty-three percent of the farmers reported cattle as the main source of income, followed by wheat and cattle, 23 percent; and wheat, 22 percent. Of the total herd income, 32 percent was reported from cattle sales and 24 percent from dairy products sales. Cattle income was estimated to be 36 percent from bulls, 28 percent from steers, 23 percent from bred females, 11 percent from heifers and one percent each from veal and creep-fed calves.

Thirteen percent were using artificial breeding, and 87 percent owned their own bull. All of the latter were purebred, 50 percent of which were by proved bulls, and 85 percent were from tested dams. Thirty-nine percent of the herds were on test in Dairy Herd Improvement associations for an average of 6.5 years. Average production of herds as reported was 272 pounds of butterfat. Eighty-one percent estimated 250 to 300 pounds of fat necessary for profitable production.

Forty-three percent of the herds were in an official type classification program. Sixty-eight percent of the herds were regularly tested for tuberculosis, and 50 percent for Brucellosis. Ninety-one percent of the herds were being calf-hood vaccinated.

Seventy-three percent milked only part of their cows; 43 percent milked half or less of their cows in summer; and about a third milked half or less of their cows in winter. Eighty-one percent freshened their cows in the fall or distributed them throughout the year. Six to eight months pasture was reported by three-fourths of the farmers. Seventy-one percent of the farmers milked by machine. Fifty-two percent let the bull run with the cows, all or part of the time. Fifty-eight percent were using nurse cows to feed calves exclusively or partially. Of those pail-feeding calves, 69 percent fed whole

milk two months or less. Eighty-nine percent kept their heifer calves for replacements, and two-thirds sold bulls for breeding purposes. Sixty-five percent bred their heifers between 15 and 20 months of age. About two-thirds were selling cream, and a third selling milk. Twenty percent were selling Grade A milk.

Fifty-four percent reported they planned to increase the size of their herds; 37 percent planned no change; and only 9 percent planned to reduce the size. Only in herds of 40 or more females was there any tendency to reduce size of herds.

The data gathered indicate that Milking Shorthorns are found under rather typical types of farming conditions, and that the herd management practices of the better breeders differ somewhat from those usually used by dairymen having special dairy breeds.

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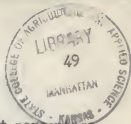


## APPENDIX

Farm Number \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_ Age \_\_\_\_\_

1. How many years have you been actively engaged in (A) Dairy \_\_\_\_\_ (B) Raising Milking Shorthorn cattle \_\_\_\_\_ (C) Polled \_\_\_\_\_ (yes or no)
2. Have you ever had on your farm: Jersey \_\_\_\_\_, Guernsey \_\_\_\_\_, Holstein \_\_\_\_\_, Ayrshire \_\_\_\_\_, Brown Swiss \_\_\_\_\_.
3. Do you keep Milking Shorthorns strictly as a dairy breed? \_\_\_\_\_
4. Or do you keep Milking Shorthorns as an opportunity to move from dairy to beef? \_\_\_\_\_
5. (A) How many females of breeding age in your herd? \_\_\_\_\_ Grade : Purebred  
: \_\_\_\_\_  
(B) How many heifers below one year? \_\_\_\_\_ : \_\_\_\_\_  
: \_\_\_\_\_  
(C) How many unbred yearling heifers below two years? \_\_\_\_\_ : \_\_\_\_\_
6. How many acres in your farm? \_\_\_\_\_
7. How many acres in cultivated land? \_\_\_\_\_
8. What is the main source of cash income on your farm? \_\_\_\_\_
9. What percentage of your yearly gross income does dairying provide (milk)? \_\_\_\_\_
10. What percentage of your yearly gross income does the sale of Milking Shorthorn cattle provide? \_\_\_\_\_
11. What percent of Milking Shorthorn cattles sales came from:
  - Creed fed calves \_\_\_\_\_ %
  - Steers \_\_\_\_\_ %
  - Heifers not for breeding purpose \_\_\_\_\_ %
  - Bulls \_\_\_\_\_ %
  - Veal calves \_\_\_\_\_ %
  - Bred females \_\_\_\_\_ %



12. Do you milk all your cows? \_\_\_\_\_ If not, what percentage  
do you milk in:  
Summer \_\_\_\_\_ %  
Winter \_\_\_\_\_ %
13. Are you using artificial breeding? \_\_\_\_\_
14. Is the bull you are using purebred? \_\_\_\_\_
15. Is the bull you are using a proved bull (one that has 5 daughters-dam  
comparisons)? \_\_\_\_\_
16. Is the bull you are using a son of a proved bull? \_\_\_\_\_
17. What is the age of the bull you are using? \_\_\_\_\_
18. Is the bull you are using from a tested dam? \_\_\_\_\_
19. What was the dams record? \_\_\_\_\_
20. Are you testing for production? \_\_\_\_\_
21. Are you under your National Association Production testing program? \_\_\_\_\_
22. If you are under your National Association testing plan, how many years  
have you been in this program? \_\_\_\_\_
23. What was your herd average last year? \_\_\_\_\_
24. If not testing, why are you not testing? \_\_\_\_\_
25. Do you milk cows by machine? \_\_\_\_\_
26. Are you a Grade A milk producer? \_\_\_\_\_
27. Do you sell whole milk? \_\_\_\_\_
28. Do you sell cream as a general practice? \_\_\_\_\_
29. Do you market your cream under the four day plan? \_\_\_\_\_
30. What use is made of skim milk? \_\_\_\_\_
31. What value do you give to skim milk? \_\_\_\_\_
32. Could your barn pass Grade A inspection? \_\_\_\_\_

33. What do you do with your heifer calves? \_\_\_\_\_
34. What do you do with your bull calves? \_\_\_\_\_
35. If you veal your calves, at what age? \_\_\_\_\_ What weight? \_\_\_\_\_
36. If calves are put on cows, how many to the cow? \_\_\_\_\_
37. Do you creep feed any of your steer calves? \_\_\_\_\_
38. Do you sell your steers off grass? \_\_\_\_\_ What age? \_\_\_\_\_
39. Do you follow a deferred steer program? \_\_\_\_\_ If so, what weight  
are they sold? \_\_\_\_\_ What was their grade? \_\_\_\_\_
40. If you raise bulls for sale where do you sell them? \_\_\_\_\_
41. At what age do you sell them? \_\_\_\_\_
42. Has artificial breeding hurt your bull sales? \_\_\_\_\_
43. What is your reaction toward quality of bulls being used at Manhattan  
in the artificial breeding stud? \_\_\_\_\_
44. Do you feed calves from pail or let them run on the cow? \_\_\_\_\_
45. How long do you feed whole milk to your calves if not on the cow? \_\_\_\_\_
46. Do you use a milk substitute for feeding young calves? \_\_\_\_\_
47. How many acres do you have in pasture?  
Native grasses \_\_\_\_\_  
Temporary \_\_\_\_\_  
Tame \_\_\_\_\_
48. Approximately how many months per year are your cows on pasture? \_\_\_\_\_
49. At what season of the year do the majority of your cows freshen? \_\_\_\_\_
50. Are your bulls allowed to run with the cows? \_\_\_\_\_
51. Do you follow a Tuberculosis (T.B.) testing program? \_\_\_\_\_
52. Is your milking herd tested for Brucellosis Bang's disease? \_\_\_\_\_

Are you using vaccination? \_\_\_\_\_ If so, what kind?

Calfhood \_\_\_\_\_

Adult vaccination \_\_\_\_\_

53. What are your plans concerning the future size of your herd?

Check only one.

Same number of cows \_\_\_\_\_

More cows \_\_\_\_\_

Less cows \_\_\_\_\_

54. Do you use the classification program? If so, why if not using, why? \_\_\_\_\_

55. What age do you breed your heifers? \_\_\_\_\_

56. What could Kansas State College do to help in building your breed? \_\_\_\_\_

57. Check the pounds of butterfat that you figure a cow should give to be profitable.

150 \_\_\_\_\_

200 \_\_\_\_\_

250 \_\_\_\_\_

300 \_\_\_\_\_

350 \_\_\_\_\_

58. Please list five reasons why you are using Milking Shorthorns.

A STUDY OF SOME FARM OPERATIONS AND HERD MANAGEMENT  
PRACTICES AMONG MILKING SHORTHORN  
BREEDERS IN KANSAS

by

RALPH EDWIN BONEWITZ

B. S., Kansas State College  
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ABSTRACT OF A THESIS

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Kansas ranks first among the states in number of Milking Shorthorns registered by the American Milking Shorthorn Society. Milking Shorthorns are recognized as a dual-purpose breed. Breeders of dual-purpose cattle claim that these cattle are especially well adapted to certain types of farm conditions. Since the breeders are striving for a combination of beef and milk, the better management practices might be different for this class of cattle than for the special dairy breeds. Therefore, a survey of 95 farmers by questionnaire was made in Kansas to obtain information on the farm conditions and the herd practices where Milking Shorthorn cattle are kept.

The age of farmers surveyed was younger than those for all farmers in Kansas or the United States. Those surveyed had been dairying an average of 16 years, and had been breeding Milking Shorthorns an average of 12.2 years. Seventeen percent reported no dairying time. More than half had been dairying previous to breeding Milking Shorthorns. Of these, seventy percent had switched from special purpose dairy breeds.

The herds averaged 30 females, of which 20 were of breeding age. Ninety percent of the herds were exclusively or partially purebred. About 25 percent of the herds were located in the eastern third of the state, 20 percent of them in the western third, and 55 percent in the middle third where the farms were classed as "cash-grain, livestock, general". The average size of the farms were 407 acres, two-thirds of which were cultivated.

Thirty-three percent of the farmers reported cattle as the main source of income, followed by wheat and cattle, 23 percent; and wheat, 22 percent. Of the total herd income, 32 percent was reported from cattle sales and 25 percent from dairy products sales. Cattle income was estimated to be 36 percent from bulls, 28 percent from steers, 23 percent from bred females, 11 percent

from heifers and one percent each from veal and creep-fed calves.

Thirteen percent were using artificial breeding, and 37 percent owned their own bull. All of the latter were purebred, 50 percent of which were by proved bulls, and 85 percent were from tested dams. Thirty-nine percent of the herds were on test in Dairy Herd Improvement associations for an average of 6.5 years. Average production of herds as reported was 272 pounds of butterfat. Eighty-one percent estimated 250 to 300 pounds of fat necessary for profitable production.

Forty-three percent of the herds were in an official type classification program. Sixty-eight percent of the herds were regularly tested for tuberculosis, and 50 percent for Brucellosis. Ninety-one percent of the herds were being calf-hood vaccinated.

Seventy-three percent milked only part of their cows; 43 percent milked half or less of their cows in summer; and about a third milked half or less of their cows in winter. Eighty-one percent freshened their cows in the fall or distributed them throughout the year. Six to eight months pasture was reported by three-fourths of the farmers. Seventy-one percent of the farmers milked by machine. Fifty-two percent let the bull run with the cows, all or part of the time. Fifty-eight percent were using nurse cows to feed calves exclusively or partially. Of those pail-feeding calves, 69 percent fed whole milk two months or less. Eighty-nine percent kept their heifer calves for replacements, and two-thirds sold bulls for breeding purposes. Sixty-five percent bred their heifers between 15 and 20 months of age. About two-thirds were selling cream, and a third selling milk. Twenty percent were selling Grade A milk.

Fifty-four percent reported they planned to increase the size of their

herds; 37 percent planned no change; and only 9 percent planned to reduce the size. Only in herds of 40 or more females was there any tendency to reduce the size of the herds.

The data gathered indicate that Milking Shorthorns are found under rather typical types of farming conditions, and that the herd management practices of the better breeders differ somewhat from those usually used by dairymen having special dairy breeds.

