

MASSACHUSETTS AGRICULTURAL COLLEGE

The Extension Service

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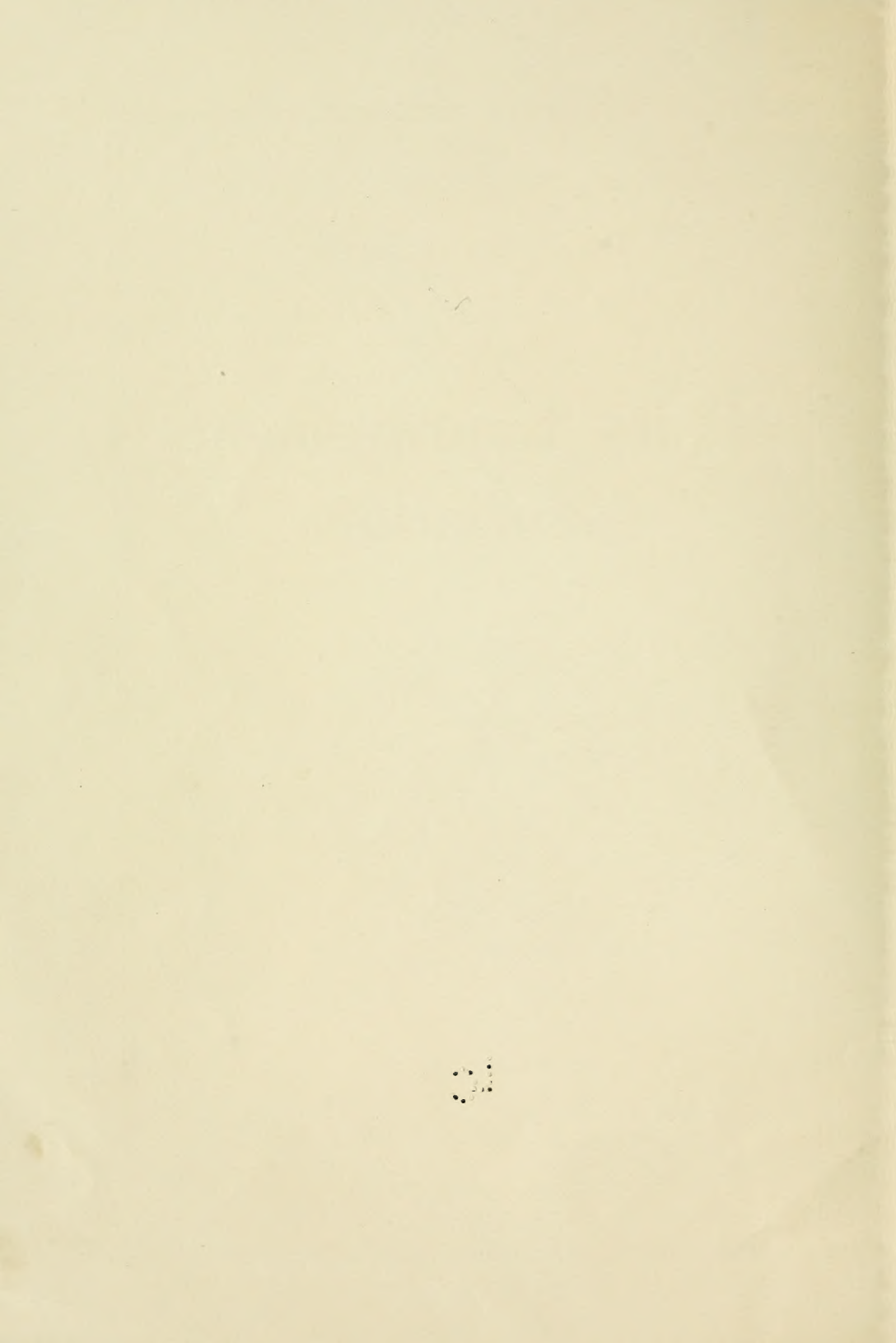
# Dairy Improvement Associations



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AMHERST, MASSACHUSETTS

1913



# Dairy Improvement Associations In Massachusetts

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*Organization*

*Purposes*

*Results*

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Material compiled from the Records  
of the  
Connecticut Valley Dairy Improvement Association  
and the  
Norfolk-Middlesex Dairy Improvement Association

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## Introduction.

In preparing a bulletin on Dairy Improvement Association work in Massachusetts, it was thought best to briefly describe the purpose and benefits of Dairy Improvement Associations in general and follow this with the presentation of data showing the work of Associations already formed. At present, there are three Associations in Massachusetts located as follows: Connecticut Valley Association, centering at Amherst, in operation since June 1, 1911; Norfolk County Association, centering at Walpole, in operation since July 1, 1911; Littleton Association at Littleton, in operation since May 1, 1913.

Compared with some other states, Massachusetts has been rather slow in organizing Dairy Improvement Associations. This may be due in part to the fact that Massachusetts is a milk producing state and the dairymen, as a rule, are not concerned with the Babcock test. However, New York, which is also a milk producing state, has eighteen (18) in operation, Vermont, nineteen (19), and so on throughout the country.

The saving in feed cost due to co-operative buying and more careful feeding methods is of great importance even in a market milk section.

It is doubtful if any one factor at present operative in Massachusetts is capable of greater benefit to the average dairyman than membership in a Dairy Improvement Association.

# What a Dairy Improvement Association Is.

## The Duties and Privileges of Members:

It shall be the duty of the members to keep as accurate an account of milk production and feed consumed as is possible under ordinary farm practice, in order that they may give reliable information to the tester.

One of the greatest benefits to be obtained, aside from the work of the tester, will be the weighing of the milk each day. Daily record blanks can be obtained, free of charge, from the Extension Service of the College.

Complaints often come from members who fail to give the tester accurate information regarding the cost of feed, etc., and, when the report is given as to what their herd really did, the figures are far from being accurate and cause dissatisfaction.

Members should strive, in every way, to co-operate with the tester and endeavor to get all information possible from him. The tester will not force suggestions or advocate changes unless he feels they will be received in the proper spirit by the various members, and, in order to get the greatest good from the work of the tester, it will be necessary to make your wants known.

## The Duties of a Tester:

It shall be the duty of the tester to spend one day each month with each herd, going to the home of each member in the afternoon, weighing the feed which each cow receives, weighing, mixing, and sampling milk from each cow. In the morning the same operations are repeated. The Babcock test is applied to the composite sample from each cow, the outfit washed, the necessary computations made and recorded on blanks for that purpose. After this, the official tester goes to the home of the nearest member.

It is also the duty of the tester to figure out rations which will be of more profit than the one he finds being fed; to offer suggestions along the line of better milk production, questions of breeding, feeding, etc., as deemed advisable by the attitude of the member.

## What the Extension Service Will Do:

The Extension Service of the Agricultural College stands ready to furnish all the necessary blanks, both for the regular work of the Association and the monthly record sheets for the individual members, free of charge. It also is ready and willing to send speakers for the monthly meeting whenever possible and to be of any legitimate service at any time desired by members of the Association.

Benefits of the Association, as told by members:

- 1 "Exactness replaces rule of guess."
- 2 "Better feeding methods prevail."
- 3 "Barns are improved."
- 4 "Better bulls are purchased."
- 5 "Community establishes a reputation for good dairying."
- 6 "Buyers are attracted by good stock."
- 7 "Records sell all good stock at high prices."
- 8 "Farmers begin to think and live."
- 9 "Saving in cost of feed, due to co-operative buying, often pays for membership in the Association."
- 10 "Greater interest in the herd given by the herdsman."

Any inquiries relative to Association work will be handled from the office of the Extension Service, Amherst, Massachusetts.

# Plan of Organization for Dairy Improvement Association.

## Dairy Improvement Association By-Laws.

Articles of Association of the.....Dairy Improvement Association, of.....Mass.

### ARTICLE 1—PURPOSE.

The purpose for which it is formed is generally to promote the dairy interests of its members and particularly to provide means and methods for testing and determining the cost of producing the milk of cows of the members periodically.

### ARTICLE 2—NAME.

The name by which this Association shall be known is..... Dairy Improvement Association.

### ARTICLE 3—LOCATION.

Its principal office and place of business shall be at.....Mass.

### ARTICLE 4—MEMBERSHIP.

Any person acceptable to the board of directors may become a member upon paying a membership fee of twenty-five cents.

### ARTICLE 5—DUES.

Each member shall pay a fee of twenty-five cents annually on or before the first..... The first annual dues shall be paid on call of the Treasurer. No member shall be allowed to participate in the election of the board of directors who shall not have paid his or her annual dues in advance.

### ARTICLE 6—ANNUAL AND SPECIAL MEETINGS.

The annual meeting of the members of this Association shall be held at a place designated by the board of directors in the village of.....on the..... of each year at.....o'clock in the..... for the purpose of electing a board of directors and such other officers as may be provided by the by-laws and to transact such other business as may properly come before the meeting.

Regular meetings shall be held on the.....of each month at such place and hour as the Association may by vote direct.

Special meetings may be called by the board of directors and notice thereof shall be given by the Secretary by mailing to each member a written or printed notice thereof, at least five days prior to such meeting. Such notice shall state the object of the meeting, and no other business shall be transacted thereat.

### ARTICLE 7—OFFICERS.

Sec. 1. The officers of the Association shall consist of a President, Vice-President, Secretary, Treasurer, and Board of five Directors, of which Board, the President and Secretary shall be members ex officio.

The office of Secretary and Treasurer.....be held by the same person.

Sec. 2. The officers shall be elected by a majority vote of the members of the Association present at the annual meeting.

Sec. 3. In case of death or resignation or removal of any officer his successor shall be elected at the first meeting of the Association, regular or special, held thereafter.

Sec. 4. The board of directors shall have the management and control of the business of the Association and shall employ such assistants as they may deem advisable and fix the rate of compensation of such assistants.

Sec. 5. The board of directors shall meet prior to each regular meeting and upon the call of the President of the Association or at such other times as they may by vote determine.

Sec. 6. A majority of the directors shall constitute a quorum at all meetings of the board.

ARTICLE 8—AMENDMENTS.

These by-laws may be amended, added to or altered by a majority vote of all members present at any annual meeting or at a special meeting called for that purpose.

## Survey Blank.

Whereas, the.....Dairy Improvement Association has been organized for the principal purpose of providing means for the co-operation of its members in testing the milk of their cows periodically, and for the improvement of their dairy interests, and whereas, it is proposed by said Association to engage a suitable person for that purpose as soon as enough subscriptions are obtained to warrant said Association to engage such person, we the undersigned members of said Association, each for himself and not one for the other, severally agree to pay the sum of not to exceed .....dollars and .....cents a year for each cow set opposite our respective names to said Association for that purpose. Said fees are to be paid in.....installments in advance; the first payment is to be made as soon as such person is engaged by the Association.

Each one of us also agrees to furnish board and lodging for said person for at least one day each month and convey him to his next place of work. Said person shall not work Sundays but shall have board and lodging every Sunday at the place where he worked Saturday.

NAME OF MEMBERS.	COWS.	NAME OF MEMBERS.	COWS.
		.	

## Dairy Improvement Association Member's Contract.

Whereas, the.....Dairy Improvement Association is organized for the purpose of providing means for the co-operation of its members in ascertaining the relative merits of their cows, and in the economical production of dairy products; and

Whereas, the Association agrees, from monthly tests made by an employee of the Association, to furnish each member with a record of the individual performance of each animal subscribed, and to advise the members in regard to economical feeding and the improvement of their herds; and

Whereas, I,....., am desirous of becoming a member of said Association, for the objects above stated:



Now, therefore, in consideration of my admission to membership and the services above mentioned, I make this agreement with said Association and with the other persons who are now or shall hereafter become members of said Association.

I agree and promise to pay to the treasurer of the Association the sum of \$ . . . . for one year's record of each of my cows entered, to wit, \$ . . . . . for the periodical testing of . . . . . cows; with the following provisos, namely, that the charge of one herd shall be not less than \$ . . . . . for ten cows; and that the tester shall not test more than thirty (30) cows in one day, but shall give two or more days' service each month, in proportion to the number of cows in the herd if larger than thirty; and I agree to pay for the yearly record of my herd on this basis.

It is agreed that the rate of payment for additional cows entered after the year is begun shall be fixed by the board of directors, but shall not exceed 15 cents a month per cow. If a cow which is being tested dies or is sold from the herd before the year is over, there shall be no reduction in the amount to be paid; but another cow may be substituted for the dead or sold cow. Aside from this, no cow shall be replaced by another in the number of cows undergoing test. The secretary must be notified before the second test of all new cows, whether substituted for old ones or entered as additional cows.

I agree to make payments for such testing semiannually, the first payment to be due on or before the last day of the month in which the tester begins actual work, and the other payment to be due on or before the last day of the sixth month thereafter. And I agree to take or send the money to the treasurer of the Association without being called on therefor.

I agree to furnish board and lodging for the expert employed as tester by said Association for at least one day each month, and over Sunday if his regular course brings him to my house on Saturday; and to convey him to his next place of work, or to stable and feed his horse while he is staying at my farm.

I agree to be subject to the by-laws of this Association.

This contract is not to be binding unless the said Association secures a sufficient number of cows to warrant starting operations.

The term of this agreement shall be one year from the time the testing begins.

(Signed) . . . . .

(Date) . . . . .

Witnesses:

For the Association:

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. . . . .

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## Source of Data.

The data contained in this bulletin were obtained from the records of two Dairy Improvement Associations. The first series of tables are the records of the Connecticut Valley Dairy Improvement Association and are expressed in Scandinavian units; the second series of tables are the records of the Norfolk County Dairy Improvement Association and are expressed in the regular way.

It is the opinion of the author that while the Danish system is excellent for comparing the productive capacity of cows, it does not give results in dollars and cents, a condition extremely desirable for the average dairyman.

It is to be hoped that an expression of opinion may be obtained from practical dairy-men regarding the value of these records, in order that subsequent publications may be printed in the most helpful form.

## Connecticut Valley Association.

In presenting the past year's work of the Connecticut Valley Dairy Improvement Association, based upon the Scandinavian Feed Unit System, it is offered with the following misgivings:

1st. The system has been little used in this country and the results as portrayed may be more or less confusing to the reader.

2d. The Scandinavian unit values differ slightly from the analyses of American feeds. (However, this error will be the same for all.)

3d. Definite values should have been placed on the feeds by the tester each month, instead of lumping them at the end. The failure to do this was not a fault of the tester, Mr. P. W. Fuller, as the original plan was to publish the records in the usual manner.

4th. It does not show in dollars and cents the returns for each cow and herd. This, however, is in accordance with a vote cast by the Members of the Association.

Nevertheless, the system offers a means of studying the relative productive capacity of dairy cattle which is far superior to any other plan in common use at the present time, and it is hoped that this beginning will be considered in the light of an experiment, and that breeders and students will endeavor to profit by its lessons.

In order that all may understand exactly what the Feed Unit System is, the following quotation is introduced from Henry's "Feeds and Feeding," pages 124 to 126:

# The Scandinavian Feed Unit System.

A system of feed equivalents based mainly on the extensive experiments with milch cows and swine by Fjord and his successors at the Copenhagen Station, has been adopted in Denmark and other Scandinavian countries, especially by the cow-testing associations, for measuring the relative production economy of cows. This system is extensively used with cows, occasionally with pigs, and rarely with other animals. It has great merit, especially in co-operative efforts to improve dairy cattle and their feeding—lines in which the Scandinavian farmers are leaders.

THE FEED UNIT. The feed unit of the Danish association is one lb. of standard grain feed, such as corn and barley, or their equivalents in feeding value. In Sweden it is one kilo (2.2 lbs.) of mixed concentrates or their equivalent. All feeding stuffs are reduced to this standard in calculating the feed consumption of the animal. The Danish valuation table is as follows:

## Danish Valuation of Feeding Stuffs.

	Feed required to equal one unit.	
	Average lbs.	Range. lbs.
FOR DAIRY COWS.		
Indian corn, wheat, barley, palmnut meal, dry matter in roots—the standard of value . . . . .	1.0	
Cotton-seed meal, peanut meal . . . . .	0.8	
Linseed meal, rape-seed meal, sunflower meal . . . . .	0.9	
Oats, wheat bran . . . . .	1.1	
Malt sprouts, molasses feed . . . . .	1.2	
Dried beet pulp and molasses . . . . .	1.3	1.2-1.5
Whole milk . . . . .	2.5	
Hay . . . . .	2.5	2.0-3.0
Wet brewers' grains, potatoes, straw and chaff . . . . .	5.0	4.0-6.0
Skim milk and buttermilk . . . . .	6.0	
Silage, green clover, and mixed green grasses . . . . .	8.0	6.0-10.0
Mangels, rutabagas, carrots, beet pulp silage, and soilage crops other than clover and mixed grasses . . . . .	11.0	8.0-12.0
Beet leaves and tops . . . . .	12.0	10.0-15.0
Turnips and fresh beet pulp . . . . .	12.5	10.0-15.0
Beet leaves, fresh . . . . .	15.0	12.0-18.0

### FOR PIGS.

Indian corn, barley, wheat, oil cakes . . . . .	1.0
Rye, wheat bran . . . . .	1.4
Boiled potatoes . . . . .	4.0
Skim milk . . . . .	6.0
Whey . . . . .	12.0

### FOR HORSES.

One lb. of Indian corn equals 1 lb. of oats or 1 lb. of dry matter in roots.

It is shown in the table that 1 lb. of Indian corn, wheat, barley, palmnut meal, or the dry matter of roots is taken as the unit standard. On this basis 0.8 lb. of cotton-seed meal or 1.1 lbs. of oats have the same feeding value as the unit standard, 1 lb. of corn. Of the roughage, 2.5 lbs. of good hay, or 8 lbs. of silage, green clover, or mixed fresh grasses count as 1 unit. The grass consumed by a cow at pasture during 1 day is valued at from 10 to 16 units according to its quality and the production of the cow.

Since working up the records from these figures, a revised list of values has been received from Mr. Helmar Rabild, Department of Agriculture, Washington, D. C., which seems to correspond more nearly to American conditions and should be used in later work of this kind.

The records of the twenty-one herds totaling 234 cows, which follow, represent all of the cows which had completed a full year's work up to June 1, 1912. According to the tester's reports, about 400 cows were tested during the year, but of these nearly 25%, or 97, changed hands, and their records were lost to the Association.

The remainder for one reason or another had not completed a full year's record. Tables showing record of each cow with herd averages follow:

#### HERD No. 1.

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
1	7605	298.2	3521	2814	6335	120.4	4.7
4	11328	410.2	3521	3853	7374	153.5	5.56
5	8053	322.5	3521	2898	6419	125.4	5.02
6	5903	269.3	3521	2473	5994	98.4	4.49
8	11339	397.6	3521	4086	7607	149.	5.22
5	44228	1697.8			33729	646.	24.9
	8845.6	339.5			6745	129.2	4.98

#### HERD No. 2.

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
4	5756	193.5	2983	1904	4887	118.5	3.96
5	5016	162.9	2995	1958	4953	100.4	3.27
7	5529	272.	3078	1888	4966	111.2	5.47
9	4442	218.4	3061	1610	4671	95.	4.7
10	5703	253.	3053	2037	5090	112.	4.97
11	6604	326.6	2983	1704	4687	143.	6.98
12	5979	291.2	3070	1907	4977	120.	5.85
13	5024	198.1	3083	1949	5032	99.8	3.94
15	4948	249.4	3083	1559	4642	106.5	5.4
17	5162	203.2	3083	1605	4688	111.	4.35
19	3448	165.1	3146	1526	4672	74.	3.54
20	3268	156.	3146	1057	4203	77.8	3.7
12	60879	2689.			57468	1270.	56.2
	5073.2	224.			4789	105.8	4.68

#### HERD No. 3.

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
1	5427	272.4	2980	1714	4694	116.	5.82
2	5431	210.	2980	1714	4694	116.	4.48
3	9223	287.8	2980	1714	4694	197.	6.15
4	6813	235.6	2980	1714	4694	145.	5.
5	6814	240.4	2980	1714	4694	145.	5.12
5	33708	1246.				719.	26.6
	6741	249.2			4694	143.8	5.32

HERD No. 4.

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
1	9332	295.5	3604	2687	6291	148.4	4.7
2	7859	263.6	3650	2530	6180	127.5	4.27
4	10272	349.7	3865	2629	6494	158.2	5.4
6	8572	279.5	3602	2216	5818	147.5	4.8
8	8616	281.4	3486	1440	4926	175.	5.7
10	7320	256.6	3323	1492	4815	152.	5.34
12	6163	206.	3412	1382	4794	129.	4.3
13	6498	211.4	3397	1306	4803	135.	4.4
14	8976	362.1	3442	1679	5121	175.	7.6
16	7671	242.7	3422	1637	5059	151.5	4.8
267	6827	216.8	3410	1276	4686	146.	4.6
11	88106	2965.			58987	1646.	55.9
	8009.6	269.5			5362	149.6	5.08

HERD No. 5.

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
2	5446	276.5	3296	1933	5229	104.	5.3
3	4382	248.2	3425	1547	4962	88.5	5.
4	6126	288.	3758	1606	5364	114.	5.4
6	4651	217.2	3213	1474	4687	99.5	4.6
7	3531	175.2	2797	896	3693	95.6	4.7
8	6447	289.6	3213	1153	4366	147.5	6.6
11	4873	233.6	3365	1972	5337	91.5	4.4
12	5277	265.2	3480	1093	4583	115.5	5.8
13	5788	259.	3382	1565	4847	119.5	5.35
14	5064	292.5	3130	1774	4904	103.	5.95
15	5029	247.7	3075	1802	4877	103.	5.1
16	702	46.8	2812	362	3174	22.1	1.4
17	5465	250.2	3450	1310	4760	115.	5.25
18	4488	262.	3450	1417	4867	92.	5.4
19	3874	230.	3240	1168	4408	88.	5.2
22	6101	297.8	3410	1575	4985	120.5	6.
27	6132	294.5	3361	1493	4854	126.	6.05
17	83376	4174.			79887	1749	87.6
	4904.4	245.5			4699	102.8	5.15

HERD No. 6.

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
2	5644	180.5	3785	1037	4822	117.	3.8
4	3991	162.5	2777	1018	3795	105.	4.3
5	4683	163.5	3350	1015	4365	107.	3.7
6	4068	140.9	2800	1055	3855	121.5	3.6
7	4598	151.5	3350	1087	4437	103.5	4.4
8	5364	227.5	2876	1092	3968	135.	5.7
9	3996	129.5	2964	1072	4036	99.	3.2
13	3614	110.7	3210	812	4022	90.	2.7
16	4970	202.2	3220	1001	4221	118.	4.8
17	4156	139.7	3225	930	4155	100.	3.37
10	45084	1609.			41676	1097.	38.6
	4508.4	160.9			4167	109.7	3.86

HERD No. 7

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
2	6760	255.4	3215	1777	4992	135.5	5.1
6	7980	292.7	3215	1975	5190	154.	5.6
10	6834	235.	3215	1810	5025	136.	4.7
15	4388	196.6	3215	1436	4651	94.5	3.
18	6842	219.9	3215	1987	5102	134.	4.3
5	32804	1200.			24960	655.	22.7
	6560.8	240.			4992	131.	4.54

HERD No. 8

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
4	6053	249.	3113	1732	4845	125.	5.15
6	3662	138.	3143	1101	4243	86.8	3.26
8	5067	186.4	3016	1222	4258	120.	4.4
10	5268	189.6	3195	965	4160	122.	4.55
11	4533	242.3	2944	1232	4176	108.	5.8
16	4769	205.1	3078	1739	4817	99.	4.2
6	29352	1210.			26479	661.	27.5
	4892	201.6			4413	110.1	4.58

HERD No. 9

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
2	7480	258.8	3082	2154	5236	143.	4.9
4	7305	288.6	3082	2356	5438	134.5	5.3
5	4596	213.7	3082	1944	5026	91.5	4.25
3	19381	716.			15700	369.	14.5
	6460.3	253.6			5233	123.	4.83

HERD No. 10

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
10	7299	231.4	3073	3118	6191	118.	3.7
22	8182	316.5	3007	3362	6369	128.	4.8
7	5007	204.4	3127	2440	5567	90.	3.66
19	7365	274.	2932	3394	6326	116.5	5.35
24	6508	228.3	3160	2705	5865	111.	3.9
20	4869	165.2	3122	2210	5332	91.5	3.1
16	8410	291.1	3197	3045	6242	135.	4.7
15	8007	304.7	3224	3275	6499	113.	4.7
18	9036	311.6	3269	3646	6715	134.5	4.6
23	7109	265.5	3230	3077	6307	112.5	4.2
17	6888	246.4	3230	2728	5958	115.5	4.15
42	5694	184.3	3145	2582	5727	99.5	3.2
41	4764	175.7	3230	2963	6193	77.	2.8
13	4145	150.8	3230	2094	5324	78.	2.8
44	7225	210.8	3140	3267	6407	113.	3.3
12	6421	240.1	3115	2844	5959	107.5	4.
11	9009	318.1	3110	3616	6526	134.	4.7
43	7291	222.2	3230	2923	6153	118.	3.6
18	123229	4331.			109860	2004.	71.2
	6846	240.6			6103	111.3	3.96

HERD No. 11

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
2	4716.6	228.3	2874	2280	5154	91.5	4.45
3	5163	230.	2862	1391	4253	121.	5.4
4	6353.5	325.8	2951	2088	5039	126.	6.5
6	5908	290.2	2787	3020	5807	102.	5.
8	8133	419.6	2857	3227	6084	134.	6.9
9	7181	325.1	2900	2270	5170	139.	6.3
10	6010.5	361.6	2936	2225	5161	116.5	7.
11	5120	237.1	2842	2168	5010	102.	4.7
8	48587	2418.			41678	932.	46.3
	6073.3	302.2			5029	116.5	5.78

HERD No. 12

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
2	5517	244.	3003	1497	4500	122.	5.45
3	4948	222.7	2657	1709	4366	113.	5.1
5	5315	240.2	3009	1528	4537	117.	5.3
6	5541	237.	2955	1853	4808	115.	4.95
7	5296	227.8	2787	1741	4528	117.	5.
8	4425	193.4	2988	1568	4556	97.	4.25
9	5125	224.	2925	2054	4979	103.	4.5
10	5357	203.	2756	1613	4369	123.	4.65
11	4868	228.3	2690	1654	4344	112.	5.3
13	4480	207.5	2748	1613	4361	102.5	4.7
16	5698	215.2	3109	1979	5088	112.	4.2
17	5507	192.7	2586	1892	4478	132.	4.3
18	3727	179.3	2531	1524	4055	92.	4.4
20	4302	188.2	2989	1395	4384	98.5	4.3
21	4503	211.8	2978	1512	4490	100.4	4.7
22	3966	201.3	2983	1482	4465	89.	4.5
23	4581	192.5	2704	1613	4317	106.	4.45
17	83156	3609.			76625	1842.	80.2
	4891.5	212.3			4507	108.3	4.7

HERD No. 13

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
4	4999	218.8	3019	2296	5315	94.	4.1
7	5592	174.7	2986	2380	5366	104.	3.2
8	5200	198.9	2819	2446	5265	98.5	3.8
9	6441	252.	2992	2702	5694	113.	4.4
11	5769	244.6	3015	2326	5341	103.	4.6
14	6834	294.8	3024	2666	5690	120.	5.2
15	4741	208.9	2925	2197	5122	92.5	4.1
16	4522	206.	3015	1992	5007	90.5	4.1
19	5167	177.8	2945	2131	5076	100.	3.5
22	5636	230.9	2819	2331	5150	109.	4.5
23	5205	193.3	3005	2197	5202	100.	3.7
24	7233	251.5	3015	2554	5569	130.	4.5
12	67239	2616.			63797	1254.	49.7
	5603.2	218.				104.5	4.14

## HERD No. 14

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
1	5991	245.7	3560	2313	5873	102.	4.2
2	7707	344.9	3497	2991	6488	119.	5.35
4	4949	260.1	3560	2076	5636	88.	4.6
5	7065	329.7	3497	2442	5939	119.	5.55
8	6402	265.3	3497	2472	5969	107.	4.45
9	6987	265.6	3497	2752	6249	112.	4.3
10	6028	300.4	3497	2437	5934	101.5	5.06
11	4297	208.6	3560	1571	5131	83.7	4.07
8	49426	2222.			47219	832.	37.8
	6178.2	277.5			5902	104.	4.72

## HERD No. 15

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
1	7788	271.4	3241	3930	7171	108.5	3.8
2	6778	238.7	3316	2926	6242	109.	3.8
3	7353	222.	3339	2844	6183	119.	3.6
4	7278	247.5	3086	2869	5955	122.	4.15
7	11028	395.9	3281	3527	6808	162.	5.8
10	5495	229.3	2881	1732	4613	119.	5.
11	7896	280.	2961	2672	5633	140.	5.
7	53616	1885.			42605	880.	31.2
	7659.4	269.3			6086	125.7	4.45

## HERD No. 16

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
2	4905	253.5	3302	1772	5074	97.	5.
3	8277	361.7	3392	3147	6539	127.	5.5
4	3191	170.1	3377	1390	4767	67.	3.6
9	6059	316.2	3365	2266	5631	117.7	5.6
10	4809	255.7	3330	2143	5473	88.	4.7
5	27241	1357.			27484	497.	24.4
	5448.2	271.4			5497	99.4	4.88

## HERD No. 17

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
18	5312	203.2	3400	2931	6331	84.	3.2
34	6022	209.2	3393	2531	5924	102.	3.5
55	6633	277.1	3344	2912	6256	106.	4.3
41	4581	236.6	3344	1935	5279	87.	4.5
21	7647	267.4	3318	2652	5970	128.	4.5
30	3813	149.7	3344	2343	5677	67.	2.6
48-49	7833	282.3	3422	4451	7873	99.5	3.6
33	6312	251.	3234	2828	6062	104.	4.15
27E	5489	192.9	3457	2354	5811	94.5	3.3
56	5693	188.5	3384	2720	6104	93.	3.1
17	5626	210.3	3703	2278	5981	94.	3.5
7	7245	239.	3372	4157	7529	96.4	3.2
59	6927	270.2	3177	3239	6416	108.	4.2
58	6683	237.8	3374	2800	6174	108.	3.85
16	7307	220.8	3474	2825	6299	116.2	3.5
10-3	1861	122.2	3433	2393	5826	32.	2.1
25	5553	247.4	3762	2203	5965	93.	4.15
17	100537	3806.			105487	1612.	61.3
	5914	223.8			6205	94.8	3.6



HERD No. 18

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
1	4551	210.	3343	1610	4953	92.	4.2
2	2603	101.3	3086	849	3935	66.	2.6
3	4356	202.8	3136	1542	4678	93.5	4.3
4	5320	233.7	3851	1772	5623	95.	4.15
5	3442	198.3	3667	1314	4981	69.	4.
6	4695	183.8	3618	1492	5110	92.	3.6
7	7014	223.6	3175	2342	5517	127.	4.05
8	4215	167.5	3184	1575	4579	88.5	3.5
9	4908	219.2	3305	1823	5128	96.	4.3
10	4538	241.3	3547	1757	5304	85.5	4.5
11	5073	200.5	3293	1591	4884	104.	4.1
12	5230	270.2	3438	1892	5330	98.	5.1
13	5432	261.1	3444	1924	5368	101.	4.85
14	4168	212.5	3202	1594	4796	87.	4.45
15	4429	218.1	3204	1726	4930	90.	4.4
16	4455	231.9	3291	1863	5154	86.5	4.5
17	6057	269.3	3408	2139	5547	109.	4.9
18	7140	341.9	3555	2263	5818	122.5	5.9
19	4902	232.8	3355	1737	5092	96.5	4.6
20	4551	202.2	3355	1728	5083	90.	4.
21	4421	187.3	3392	1791	5183	85.5	3.6
21	101500	4609.			107173	1975.	89.6
	4833.3	219.3			5103	94.	4.2

HERD No. 19

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
28-19	5658	215.6	3138	2090	5228	108.	4.1
20	7280	295.7	3161	2281	5442	134.	5.45
21	7369	306.6	3162	2307	5469	134.5	5.6
22	8331	387.1	3123	2286	5409	154.	7.15
13	4972	197.7	3111	2169	5280	94.5	3.75
10	5539	251.	3142	2122	5264	105.	4.75
4	6937	271.7	3156	1951	5107	136.	5.3
2	8039	369.	3111	2429	5540	145.	6.7
8	54125	2294.			42739	1011.	42.8
	6765.6	286.7			5342	126.3	5.35

HERD No. 20

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
25	3540	136.	3021	1790	4811	73.6	2.8
22	3085	165.7	3021	1677	4708	65.5	3.5
21	2565	130.2	2348	1129	3477	74.	3.8
16	4666	258.9	3096	1832	4928	95.	5.25
17	4056	157.4	3139	2027	5166	78.5	3.1
18	3836	153.5	3164	1658	4822	79.5	3.2
19	2484	200.5	2947	1642	4589	54.5	4.4
10	6543	293.6	3273	2381	5654	112.	5.2
11	4165	176.5	2887	1787	4674	87.	3.8
12	5049	247.7	3266	1929	5195	97.5	4.8
13	4002	172.1	2951	2140	5091	79.	3.4
14	3438	152.7	2769	1661	4430	77.5	3.4
8	4200	184.6	3039	1987	5026	83.7	3.7
5	3725	188.7	3003	1820	4823	77.5	3.9
6	4981	197.7	3013	2107	5120	97.5	3.9
15	60235	2816.			72514	1233.	58.2
	4015.6	187.7			4834	82.2	3.8

HERD No. 21

No. of Cow	Milk pounds	Fat pounds	Units in roughage	Units in grain	Total units	Milk lbs. per 100 units	Fat lbs. per 100 units
179	6513	242.8	3332	1678	5010	130.	4.85
198	6216	253.7		1959	5291	117.5	4.8
187	6624	220.8		2248	5580	118.5	4.
236	4650	168.3		1321	4653	100.	3.6
229	6690	262.1		2222	5554	120.5	4.7
160	7965	308.2		2275	5607	142.	5.5
186	4036	141.2		1489	4821	83.8	2.9
190	3338	171.5		949	4281	78.	4.
219	3786	146.9		1332	4664	81.2	3.15
218	3114	170.7		920	4252	73.	4.
235	5151	188.8		1403	4735	109.	4.
214	4887	170.1		1548	4880	100.1	3.5
298	6111	208.6		1555	4887	125.	4.3
175	6103	244.7		1815	5147	119.	4.8
122	7168	269.3		1925	5257	137.	5.1
137	8478	294.		2106	5438	156.	5.4
231	6573	212.3		1845	5177	127.	4.1
227	5637	216.5		2169	5501	102.	3.95
185	6237	252.9		2119	5451	114.	4.6
33	5473	237.9		1743	5075	107.5	4.6
222	6621	300.8		2161	5493	120.5	5.5
183	6378	243.2	3332	1874	5206	122.	4.7
224	5187	180.2		1462	4794	108.	3.8
141-270	7632	237.5		2291	5623	136.	4.2
24	140568	5343.			122377	2727.	104.1
	5857	222.6			5099	113.6	4.3

AVERAGES.

Association	234 cows.
Pounds of Milk.	6008.8
Pounds of Fat.	253.5
Total units.	5243.6

Following are a few comparisons of different cows in the Association:

The herd range in milk was from 4015.6 lbs. in a herd of fifteen cows to 8845.6 lbs. in a herd of five cows. The herd range in butter fat was from 160.9 to 339.5 lbs. There were ten herds above the average in milk production and ten below. In butter fat production 8 herds were above the average and 13 below.

The range of individual cows was even greater than for herds. The lowest record in the Association was 702 lbs. milk and 46.8 lbs. fat. This cow, however, was not in a normal condition and the record is not an indication of her capacity. The next lowest record was 2565 lbs. milk and 130.6 butter fat. The highest record of the Association was 11,328 lbs. milk and 410.2 lbs. butter fat.

Attention is called to herd No. 1, cows Nos. 1 and 6, for an example of the variation in the ability of cows to make good use of feed. Cow No. 1 gave 7605 lbs. milk and 298.2 lbs. butter fat, and consumed 6335 units of feed, which was equivalent to 120 lbs. milk and 4.7 lbs. fat for each 100 units of feed consumed. Cow No. 6 gave 5903 lbs. milk and 269.3 lbs. fat and consumed 5994 units of feed, which was equivalent to 98 lbs. milk and 4.5 lbs. fat for each 100 units of feed consumed. Making allowance for extra feed and milk, cow No. 1 still produced 22 lbs. milk and .2 lbs. fat more than No. 6 for each 100 units of feed consumed.

In herd No. 5 we find that cow No. 3 gave 4382 lbs. milk and 248.2 lbs. fat on 4962 units of feed, this being 88.5 lbs. milk and 5 lbs. fat for each 100 units of feed. Cow No. 8 gave 6447 lbs. milk and 289.6 lbs. fat on 4366 units of feed, or 147.5 lbs. milk and 6.6 lbs. fat for each 100 units of feed. The low feed cost of No. 8 was due to the cow being dry during December, January, and February.

Herd No. 3 offers a good example of variation with cows getting similar rations.

Cow No.	Milk	Fat	Units	Milk for 100 units	Fat for 100 units
1	5427	272.4	4694	116.	5.82
2	5431	210.	4694	116.	4.48
3	9223	287.8	4694	197.	6.15



HERD 4, COW 4



HERD 4, COW 8

In herd No. 4 we find that cow No. 4 gave 10,272 lbs. milk and 349.7 lbs. fat on 6494 units of feed, this being 158.2 lbs. milk and 5.4 lbs. fat for each 100 units of feed. Cow No. 8 in the same herd gave 8616 lbs. milk and 251.4 lbs. fat on 4926 units of feed. This was equivalent to 175 lbs. milk and 5.7 lbs. fat for each 100 units of feed, or 16.8 lbs. milk and .2 lbs. fat more per 100 units of feed than did No. 4, which had a large yearly total.

Herd No. 15 contains two cows which gave practically the same amount of milk and fat, yet one gave a much larger profit than the other, due to difference in feed cost.

Cow No.	Milk	Fat	Units	Milk for 100 units	Fat for 100 units
1	7788	271.4	7171	108.5	3.8
11	7896	280.	5633	140.	5.

Further study of the records will show many other points of interest to the careful dairyman.



A PROMISING YOUNG BULL AT THE HEAD OF HERD No. 21

## Norfolk-Middlesex Dairy Improvement Records.

On the following pages will be found the records of the Norfolk-Middlesex Dairy Improvement Association. The figures are year totals for the different cows completing a full year's test and are taken from the report of the tester, Mr. R. F. Johnson, without verification. They represent a statement of the feed cost for the cows, but do not include charge for labor, taxes, interest, depreciation, etc., which properly come into a complete statement of the herd for the year. Apparent discrepancies in value of milk are due in many cases to cows freshening when price of milk was fluctuating.

In studying the data, close attention should be paid to the price of milk, as there is a wide variation in the amount received by the different men, and unless this is taken into account the relative value of cows or methods of handling cannot properly be judged.

HERD No. 1

Cow No.	Breed.	Age.	Lbs. Milk, 12 Mos.	Av. Test.	Av. Price per Qt.	Value of Milk.	Corn Meal.	Cotton Seed Meal.	Oil Meal.	Middlings.	Bran.	Gluten.	Dried Brewers' Grain.	Red Dog.	Corn Silage.	Meadow Hay.	Beet Pulp.	Hay.	Pasture Grass.	Green Corn.	Cost of Grain.	Cost of Roughage.	Total Feed Cost.	Balance over Feed Cost.	Av. Feed Cost per Qt. Milk.	Returns for \$1.00 Spent for Feed.
1	A.	4.4	563	4.4	5.5	144.03	195	555	181	407	572	477	210	48	5795	900	364	1680	3 <sup>1</sup> / <sub>4</sub>	2265	39.46	57.35	96.81	47.22	.037	1.49
2	H.s.b.	3.8	993	3.8	5.5	247.24	270	609	125	430	590	498	275	54	5795	900	274	1680	3 <sup>1</sup> / <sub>4</sub>	2265	41.06	65.17	106.23	141.01	.024	2.33
3	H.p.b.	3.5	688	3.5	5.5	175.83	270	597	154	461	598	491	210	48	5795	800	364	1680	3 <sup>1</sup> / <sub>4</sub>	2265	43.03	57.37	100.40	75.43	.031	1.75
4	H.g.	4.0	5724	4.0	5.5	146.93	362	721	24	216	362	295	275	54	5795	900	274	1680	3 <sup>1</sup> / <sub>4</sub>	2265	21.48	64.36	85.84	61.09	.032	1.71
5	H.g.	3.3	7781	3.3	5.5	199.87	135	721	197	444	552	405	135	24	5795	900	409	1680	3 <sup>1</sup> / <sub>4</sub>	2265	38.43	58.95	97.38	102.49	.027	2.05
	Average		7103 <sup>1</sup> / <sub>2</sub>			182.78															39.69 <sup>1</sup> / <sub>2</sub>	60.64	97.33 <sup>1</sup> / <sub>2</sub>	85.44 <sup>1</sup> / <sub>2</sub>	.03 <sup>1</sup> / <sub>2</sub>	1.86 <sup>1</sup> / <sub>2</sub>

HERD No. 2

Cow No.	Breed.	Age.	Lbs. Milk, 12 Mos.	Av. Test.	Av. Price per Qt.	Value of Milk.	Corn Meal.	Cotton Seed Meal.	Seed Meal.	Mixed Feed.	Middlings.	Bran.	Mangels.	Mixed Hay.	Corn Silage.	Green Barley.	Beet Pulp.	Rowen.	Green Rye.	Corn Fodder.	Cost of Grain.	Cost of Roughage.	Total Feed Cost.	Balance over Feed Cost.	Av. Feed Cost per Qt. Milk.	Returns for \$1.00 Spent for Feed.
1	2 <sup>1</sup> / <sub>2</sub>	5.4	5560	5.4	.046	117.06	569	433	866	999	270	289	390	3750	5250	200	248	120	800	525	42.07	65.01	107.08	9.98	.0415	1.09
2	A.	6	12495	3.7	.046	261.56	1252	834	1269	1269	199	289	390	3762	3150	404	404	1000	1105	68.49	64.47	132.96	128.60	.023	1.97	
	Average		9027.5			189.31															55.28	64.74	120.02	69.29	.0322	1.53

HERD No. 3

Cow No.	Breed.	Age.	Lbs. Milk, 12 Mos.	Av. Test.	Av. Price per Qt.	Value of Milk.	Butter.	Gluten.	Cotton Seed Meal.	Middlings.	Ground Oats.	Hominy.	Carrots.	Mixed Hay.	Milliet.	Green Corn.	Oats and Peas.	Beet Pulp.	Clover Hay.	Corn Silage.	Green Rye.	Cost of Grain.	Cost of Roughage.	Total Feed Cost.	Balance over Feed Cost.	Av. Feed Cost per Qt. Milk	Returns for \$1.00 Spent for Feed.	Molasses Meal.
1	J.	1	696	4.4	.30	73.76	1073	199	404	91	27	7	240	1890	525	5190	1125	403	879	5355	3465	31.37	72.11	103.48	70.28	.93	1.80	5
2	J.&H.	3	5285	4.85	.60	150.73	829	514	312	19	32	5	240	2100	525	5190	1125	403	879	5355	3465	24.44	72.09	96.53	45.20	.39	1.56	
3	J.	3	5218	4.9	.60	145.68	879	575	333	21	24	8	240	1890	525	5190	1125	374	879	5355	3465	27.07	72.11	99.18	45.50	.41	1.47	
4	J.&A.	4	4610	4.8	.60	128.94	875	503	293	26	39	15	240	1890	525	5180	1125	374	879	5355	3465	24.22	72.83	96.05	42.89	.45	1.34	12
5	J.&H.	3	5062	4.4	.60	141.66	782	548	308	32	48	17	240	1890	525	5190	1125	374	879	5355	3465	24.92	72.11	97.03	44.63	.41	1.46	4
7	J.	2	3904	5.1	.60	109.02	543	393	224	20	30	11	240	1890	525	5190	1125	374	1089	5355	3465	18.50	72.83	90.33	18.69	.05	1.21	4
8	J.	2	3630	5.2	.60	101.16	513	375	213	20	30	12	240	1890	525	5190	1125	374	879	5355	3465	18.21	71.83	90.04	11.12	.05	1.12	4
9	J.	5	5853	5.3	.60	164.04	1104	587	338	12	73	24	240	2100	525	5190	1125	334	879	5355	3465	29.24	71.21	100.45	11.12	.05	1.12	4
14	A.	6	6790	3.8	.60	190.19	1638	426	220	31	44	20	240	1890	525	5190	1125	374	879	5355	3465	32.60	71.81	104.41	85.78	.03	1.82	6
15	J.	6	5695	4.8	.60	158.94	998	670	327	73	101	15	240	1890	525	5190	1125	329	879	5355	3465	32.83	71.46	103.29	56.40	.39	1.54	16
16	J.	5	5827	4.2	.60	165.32	1240	628.5	378	5	10	240	2040	525	5190	1125	329	879	5355	3465	33.11	71.34	104.45	58.97	.39	1.75	16	
19	J.	11	5383	5.4	.60	147.84	887	552	313	38	46	38	240	1890	525	5190	1125	284	879	5355	3465	27.25	71.08	98.33	49.51	.39	1.51	16
25	H.	9	8867	3.9	.60	247.40	1546	870	434	71	99	53	240	1890	525	5190	1125	347	879	5355	3465	45.66	71.36	117.02	330.38	.28	2.11	20
44	J.	5	3048	4.5	.60	88.08	805	447	209	39	59	23	240	1890	525	5190	1125	374	879	5355	3465	23.21	71.65	94.86	6.78	.07	.93	8
46	D.	6	6737	3.6	.60	187.94	1077	651	397	34	35	46	2100	525	5190	1125	313	879	5355	3465	33.49	69.19	102.68	85.26	.03	1.83	20	
47	J.	5	7555	5.	.60	211.00	1147	705	428	21	31	240	1890	525	5190	1125	403	879	5355	3465	34.92	72.11	107.03	103.76	.31	1.97	13	
48	J.	5	5477	4.9	.60	152.70	990	566	323	22	35	7	240	2100	525	5190	1125	276	519	3645	3465	27.99	65.39	93.38	50.92	.37	1.65	9
56	A.	10	4998	4.1	.60	140.08	871	546	326	20	33	5	240	2100	525	5190	1125	403	879	5355	3465	26.08	72.09	98.17	41.91	.42	1.43	9
72	D.	4	5565	4.3	.60	155.40	982	536	349	9	9	13	240	1920	525	5290	1125	403	879	2925	3465	27.84	72.21	100.05	56.96	.39	1.57	16
73	J.	6	5484	4.5	.60	153.54	828	593	258	65	92	46	240	1890	525	5190	1125	284	519	4455	3465	26.89	66.31	93.20	60.34	.39	1.65	16
76	H.	6	9379	3.9	.60	265.50	1301	915	520	52	65	46	240	1890	525	5190	1125	403	879	5355	3465	42.84	72.11	114.95	150.55	.26	2.30	16
84	J.	7	5442	4.5	.60	152.23	1078	548	316	13	24	2	240	2100	525	5190	1125	230	879	4545	3465	30.86	72.09	102.95	54.15	.37	1.55	16
88	J.	7	5999	4.5	.60	167.58	1101	631	393	13	23	2	240	2100	525	5190	1125	403	879	4545	3465	28.72	69.81	98.53	46.37	.41	1.47	16
89	J.	8	5175	5.	.60	144.90	885	594	292	72	104	46	40	1890	525	5215	1125	314	879	5355	3465	34.70	70.72	105.41	94.61	.03	1.90	12
92	A.	8	7157	4.4	.60	200.10	455	748	382	52	75	35	240	1890	525	5190	1125	292	879	5355	3465	34.70	69.97	104.14	76.50	.35	1.73	16
100	A.	9	6421	4.4	.60	180.64	1206	653	440				120	2520	525	5190	1125	313	879	2925	3465	32.35	70.11	116.75	78.16	.03	1.75	16
Total Av.			6002			168.57																30.67	70.76	108.29	67.39	.037	1.65	

HERD No. 4

Cow No.	Breed.	Age.	Lbs. Milk, 12 Mos.	Av. Test.	Av. Price per Qt.	Value of Milk.	Bran.	Cotton Seed.	Middings.	Corn Meal.	Gluten.	Hominy.	Clover Hay.	Green Barley.	Corn Fodder.	Green Corn.	Dried Brewers' Grain.	Beet Pulp.	Hay.	Grass.	Green Millet.	Cost of Grain.	Cost of Roughage.	Total Feed Cost.	Balance over Feed Cost.	Av. Feed Cost per Qt. Milk.	Returns for \$1.00	Spent for Feed.	Alfalfa Hay.	
5929.1	1	4.1	5	5	157.17	521	61	311	200	1800	750	306	453	2654	6	1500	26.60	65.59	1.71	83.52	0.32	1.63	85.59	53.52	0.32	1.63				
7059	2	3.9	5	5	130.91	410	421	280	188	1800	750	306	453	2654	6	1500	26.63	63.96	1.71	83.52	0.32	1.63	85.59	53.52	0.32	1.63				
7572	3	3.8	5	5	194.68	585	578	291	251	375	2025	750	342	453	2654	5	1500	27.82	63.74	1.68	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
7552	4	3.7	5	5	192.03	634	638	324	281	1125	1800	750	306	453	2654	5	1500	27.74	66.74	1.68	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
6081	5	3.1	5	5	156.18	970	918	352	124	1125	1350	750	329	453	2654	5	1500	27.74	66.74	1.68	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
6790	6	3.1	5	5	174.16	533	739	427	281	1125	1350	750	329	453	2654	5	1500	27.74	66.74	1.68	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
6743	7	3.4	5	5	173.17	514	697	427	281	1125	1350	750	329	453	2654	5	1500	27.74	66.74	1.68	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
7268	8	4.0	5	5	186.21	684	768	402	281	1125	1350	750	329	453	2654	5	1500	27.74	66.74	1.68	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
6254	9	3.5	5	5	160.15	524	494	208	103	1125	1800	750	321	513	2465	5	1500	23.13	68.80	1.81	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
7588	10	4.2	5	5	194.71	598	704	388	103	1125	1800	750	321	513	2465	5	1500	24.53	65.57	1.77	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
7191	11	3.7	5	5	200.12	497	666	406	201	1125	1350	750	289	453	2654	5	1500	24.53	65.57	1.77	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
7476	12	4.0	5	5	182.46	599	770	352	124	1125	1350	750	289	453	2654	5	1500	24.53	65.57	1.77	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
6417	13	4.0	5	5	162.04	632	634	360	131	1025	1800	1500	391	223	2100	6	2100	33.85	61.44	1.81	83.52	0.32	1.63	85.59	53.52	0.32	1.63			
6896.2	Average	4.0	5	5	162.46	450	382	381	162	1125	1350	1000	352	270	1800	6	1700	28.98	46.71	1.90	83.52	0.32	1.63	85.59	53.52	0.32	1.63			

HERD No. 5

Cow No.	Breed.	Age.	Lbs. Milk, 12 Mos.	Av. Test.	Av. Price per Qt.	Value of Milk.	Gluten.	Mixed Feed.	Hominy.	Ground Oats.	Meadow Hay.	Mangels.	Oat Hay.	Corn Fodder.	Hungarian Hay.	Hay.	Corn Silage.	Green Corn.	Cost of Grain.	Cost of Roughage.	Total Feed Cost.	Balance over Feed Cost.	Av. Feed Cost per Qt. Milk.	Returns for \$1.00	Spent for Feed.	
5725	1	3.9	.07	187.92	620	620	620	388	480	600	600	600	600	600	450	840	7350	1500	36.61	47.08	83.69	104.23	0.31	2.24		
3216	4	5.5	.07	105.00	696	696	696	280	480	600	600	600	600	600	450	840	7350	1500	25.90	46.08	77.98	33.02	0.48	1.46		
5566	5	4.8	.07	181.65	640	640	640	400	480	600	600	600	600	600	450	840	7350	1500	40.87	43.08	83.95	97.10	0.32	2.17		
5100	8	4.8	.07	176.74	631	631	631	394	480	600	600	600	600	600	450	840	7350	1500	37.20	46.12	83.32	93.42	0.35	2.12		
4901	Average	4.8	.07	162.82	631	631	631	394	480	600	600	600	600	600	450	840	7350	1500	35.14	45.59	82.23	81.94	0.36	1.95		

HERD No. 6

Cow No.	Breed.	Age.	Lbs. Milk, 12 Mos.	Av. Test.	Av. Price per Qt.	Value of Milk.	Gluten.	Bran.	Limon Grains.	Oat Hay.	Rowen.	Turnips.	Green Barley.	Millet.	Hungarian Hay.	Green Corn.	Grass.	Corn Silage.	Mixed Hay.	Green Rye.	Green Corn.	Cost of Grain.	Cost of Roughage.	Total Feed Cost.	Balance	Av. Feed Cost	per Qt. Milk.	Returns for \$1.00	Spent for Feed.
1	J	3.7	5764	3.7	.10	270.10	303	594	594	600	240	2700	695	2775	1200	2220	1995	1500	43.52	68.9	99.9	112.18	157.02	.042	1.67				
2	J	4.1	6558	4.1	.10	306.40	1120	590	600	600	240	2700	600	1775	2000	2220	1995	1500	37.27	64.46	99.9	101.73	204.67	.033	1.03				
3	J	4.4	5568	4.4	.10	260.50	1280	640	600	600	240	2700	675	2775	1200	2220	1530	1500	42.27	67.73	99.9	110.00	150.50	.043	2.37				
4	J	5.4	5929	5.4	.10	276.60	1320	660	700	240	240	2700	675	2775	1200	2220	1995	1500	40.52	71.66	99.9	112.18	164.42	.041	2.46				
5	J	6.6	6663	5.2	.10	311.00	1310	720	720	600	240	2700	675	2775	1200	2220	1995	1500	40.52	71.66	99.9	112.18	198.82	.036	2.77				
6	J	6.9	6199	5.4	.10	289.20	1320	720	720	600	240	2700	675	2775	1200	2220	1995	1500	40.52	71.66	99.9	112.18	177.02	.039	2.57				
7	J	5.0	5908	4.8	.10	275.40	1337	660	660	600	240	1544	675	2775	1200	2940	1995	857	40.39	63.70	104.29	171.11	.038	2.64					
8	J	7.4	7472	4.6	.10	348.70	1440	720	480	600	240	2700	675	2775	1200	2940	1995	1500	43.52	68.66	99.9	112.18	236.52	.032	3.10				
Average			6161			292.24													41.06	68.52	99.9	109.61	182.62	.038	2.61				

HERD No. 7

Cow No.	Breed.	Age.	Lbs. Milk, 12 Mos.	Av. Test.	Av. Price per Qt.	Value of Milk.	Gluten.	Bran.	Limon Grains.	Oat Hay.	Rowen.	Turnips.	Green Barley.	Millet.	Hungarian Hay.	Green Corn.	Grass.	Corn Silage.	Mixed Hay.	Green Rye.	Green Corn.	Cost of Grain.	Cost of Roughage.	Total Feed Cost.	Balance	Av. Feed Cost	per Qt. Milk.	Returns for \$1.00	Spent for Feed.
1	J	4.1	9584	4.1	.05	363.58	59	130	1138	184	150	480	175	1100	270	2000	1240	6975	896	1218	20.18	54.16	74.34	62.01	.027	1.84			
2	J	4.6	7074	4.6	.05	386.10	80	160	1630	184	150	360	175	1100	270	2150	1240	7190	896	1388	29.89	58.27	88.16	97.94	.024	1.90			
3	J	5.1	5451	3.9	.05	326.04	63	120	957	184	150	360	170	1100	270	2150	1240	5615	896	1388	18.30	55.68	73.98	52.06	.029	1.71			
4	J	5.1	6115	3.9	.05	321.44	75	150	1250	184	150	360	170	750	270	1800	1240	8874	896	1198	22.26	54.87	77.13	60.51	.027	1.85			
5	J	6.7	9677	3.8	.05	202.80	107	214	1931	184	150	360	175	1100	270	2150	1240	8090	1256	1388	36.05	58.35	94.40	108.40	.023	2.15			
6	J	7.0	7057	4.0	.05	166.65	87	174	1397	184	150	360	175	350	270	350	1240	7190	896	758	26.36	32.21	78.57	84.08	.024	2.12			
7	J	8.1	8118	4.0	.05	188.40	85	170	1407	184	150	360	175	1100	270	2150	1240	6365	896	1388	26.23	57.43	83.66	104.74	.022	2.16			
8	J	7.0	7039	3.7	.05	163.09	80	160	1335	184	150	360	175	350	270	350	1240	7190	896	1298	24.84	56.11	80.95	82.11	.025	2.12			
9	J	8.1	8175	4.0	.05	190.37	87	195	1364	334	360	175	750	270	1850	1240	7050	896	1318	25.71	57.40	83.11	107.26	.021	2.18				
10	J	8.1	8175	4.0	.05	183.28	63	126	1660	184	150	360	175	1100	270	2150	1240	7190	896	928	28.93	49.82	78.75	104.53	.021	2.33			
11	J	8.1	7863	3.5	.05	271.44	68	174	2140	180	150	360	175	1100	270	2150	1240	7190	896	1388	37.94	58.27	96.21	175.33	.018	2.82			
12	J	8.1	8069	3.5	.05	271.44	75	150	1169	184	150	360	175	1100	270	2150	1240	7190	896	1288	21.84	58.28	80.82	59.55	.029	1.74			
13	J	8.1	8069	3.5	.05	140.37	75	150	1169	184	150	360	175	1100	270	2150	1240	7190	896	1288	21.84	58.28	80.82	59.55	.029	1.74			
14	J	8.1	8069	3.5	.05	140.37	75	150	1169	184	150	360	175	1100	270	2150	1240	7190	896	1288	21.84	58.28	80.82	59.55	.029	1.74			
15	J	8.1	8069	3.5	.05	140.37	75	150	1169	184	150	360	175	1100	270	2150	1240	7190	896	1288	21.84	58.28	80.82	59.55	.029	1.74			
16	J	8.1	8069	3.5	.05	140.37	75	150	1169	184	150	360	175	1100	270	2150	1240	7190	896	1288	21.84	58.28	80.82	59.55	.029	1.74			
17	J	8.1	8069	3.5	.05	140.37	75	150	1169	184	150	360	175	1100	270	2150	1240	7190	896	1288	21.84	58.28	80.82	59.55	.029	1.74			
Average			7287			169.49													43.82	68.52	99.9	109.61	182.62	.038	2.61				

\*Increase of 19% in feed cost. Increase in value of milk 93%. Increase in profit 194%.



HERD No. 8

Cow No.	Breed.	Age.	Lbs. Milk, 12 Mos.	Av. Test.	Av. Price per Qt.	Value of Milk.	Schumacher	Stock Feed.	Cotton Seed Meal.	Bran.	Corn Meal.	Gluten.	Hammond Feed.	Mixed Feed.	Meadow Hay.	Mixed Hay.	Silage.	Millet.	Beet Pulp.	Clover Hay.	Green Rye.	Pasture Grass.	Cost of Grain.	Cost of Roughage.	Total Feed Cost.	Balance over Feed Cost.	Av. Feed Cost per Qt. Milk.	Returns for \$1.00 Spent for Feed.
7233	6	2	632	4.9	-.05	69.00	270		90	90	181	498	1183	450	690	900	2700	2100	182	545	1650	5 mos.	28.22	151	80.14	96.68	.024	2.12
7064	3	8	105	3.8	-.05	104.81	183		50	50	109	498	1183	450	690	900	2700	2100	145	576	1650		27.94	51.72	79.66	88.15	.024	2.07
6940	4	4	7	3.7	-.05	162.20	135		90	90	190	400	940	85	690	1140	2700	2100	197	545	1650		29.64	52.81	82.45	79.75	.025	1.98
7155	7	4	2	3.6	-.05	120.25	270		180	180	305	710	180	690	690	1140	2700	2100	302	540	1650		29.76	53.92	83.68	88.58	.035	1.44
7209	6	9	7	3.6	-.05	168.30	270		90	90	421	695	60	690	690	1140	2700	2100	302	540	1650		33.79	53.92	87.71	70.89	.026	1.97
6997	10	6	7	3.6	-.05	156.25	67		49	22	54	483	1145	40	690	1140	2700	2100	197	540	1650		27.11	52.48	79.59	76.66	.026	1.97
4238	3	4	5	3.5	-.05	98.80	67		34	7	25	337	778	85	690	1140	2700	2100	197	540	1650		19.40	52.48	71.88	76.92	.036	1.37
10411	11	11	1	3.3	-.05	219.35	270		90	90	520	1235	40	690	690	1140	2700	2100	302	540	1650		37.39	53.92	91.31	128.04	.019	2.00
7538	14	14	1	3.3	-.05	176.60	157		142	90	190	477	1131	40	690	1140	2700	2100	250	540	1650		33.32	53.12	86.44	90.16	.025	2.00
7350	5	5	1	3.2	-.05	166.90	270		180	90	380	902	100	690	690	1140	2700	2100	302	540	1650		32.16	53.92	86.08	81.82	.025	1.94
5977	15	15	1	4.5	-.05	139.50	270		180	90	321	746	220	690	690	1140	2700	2100	302	540	1650		30.60	53.92	84.52	84.38	.03	2.11
7806	16	16	1	3.6	-.05	182.24	270		180	90	340	794	175	690	690	1140	2700	2100	302	540	1650		30.97	53.92	84.89	77.38	.023	2.11
6957	18	18	1	3.8	-.05	162.95	270		180	90	339	789	220	690	690	1140	2700	2100	302	540	1650		31.35	53.92	85.27	77.03	.036	1.90
6235	22	22	1	4.3	-.05	145.35	270		180	90	405	961	160	690	690	1140	2700	2100	302	540	1650		33.00	54.92	87.74	77.43	.03	1.66
4439	23	23	1	4.2	-.05	103.05	270		90	10	382	891	110	690	690	1140	2700	900	302	540	1470		26.08	11.06	57.92	45.83	.037	1.34
6277	24	24	1	4.1	-.05	147.65	180		105	5	100	455	1078	40	690	1140	2700	2100	302	540	1650		29.79	53.92	87.74	42.81	.038	1.77
5243	25	25	1	3.9	-.05	120.25	120		40	10	422	661	40	690	690	1140	2700	2100	285	540	1650		23.78	53.92	87.74	43.04	.032	1.56
6633	Average			3.9	-.05	153.18	120		40	10	422	661	40	690	690	1140	2700	2100	285	540	1650		23.78	53.92	87.74	43.04	.032	1.56
				3.9	-.05	153.18	120		40	10	422	661	40	690	690	1140	2700	2100	285	540	1650		23.78	53.92	87.74	43.04	.032	1.56
				3.9	-.05	153.18	120		40	10	422	661	40	690	690	1140	2700	2100	285	540	1650		23.78	53.92	87.74	43.04	.032	1.56
				3.9	-.05	153.18	120		40	10	422	661	40	690	690	1140	2700	2100	285	540	1650		23.78	53.92	87.74	43.04	.032	1.56

HERD No. 9

Cow No.	Bred.	Age.	Lbs. Milk, 12 Mos.	Av. Test.	Av. Price per Qt.	Value of Milk.	Ground Alfalfa.	Brewers' Grain (Wet).	Gluten.	Corn Meal.	Cotton Seed Meal.	Brum.	Corn and Cob Meal.	Turnips.	Oat Hay.	Green Corn.	Miller and Miller Stlage.	Oats, Peas and Mangels.	Green Rye.	Meadow Hay.	Pasture.	Rowen Hay.	Corn Fodder.	Mixed Hay.	Cost of Grain.	Cost of Roughage.	Total Feed Cost.	Balance over Feed Cost.	Av. Feed Cost per Qt. Milk.	Returns for \$1.00 Spent for Feed.
1812	5-11	3-7	1882	4.7	51	219.70	90	8250	122	419	80	79	981	1800	450	175	3600	1950	2160	1260	5	510	450	720	57.10	114.70	1020.36	.028	2.80	
1084	5-11	3-3	1084	3.3	51	271.96	90	6000	805	237	97	30	210	1800	450	175	3600	1500	2160	1260	5	330	450	720	41.45	94.75	177.21	.019	2.87	
9228	5-11	3-3	9228	4.	51	225.57	90	7875	637	366	67	67	141	1800	450	175	3600	1500	2160	1260	5	510	450	720	51.28	108.82	116.75	.025	2.35	
1895	5-11	3-2	1895	3.2	51	137.05	90	5250	519	318	40	44	67	1500	450	175	3600	1500	2160	1270	5	510	450	720	35.81	92.65	44.40	.035	1.88	
483	5-11	3-2	483	3.2	51	119.09	96	5625	738	313	40	69	67	1800	450	175	3600	1500	2160	960	4	450	720	34.67	75.35	43.74	.033	1.48		
64	5-11	3-5	64	3.5	51	245.28	96	7600	1114	383	40	84	210	1800	450	175	3600	1350	2160	1260	5	510	450	720	54.41	111.95	133.33	.025	2.19	
30	5-11	3-2	30	3.2	51	221.45	96	7500	1150	433	88	82	198	1800	450	175	3600	1500	2160	1260	5	510	450	720	49.96	93.80	127.65	.022	2.36	
6007	5-11	3-2	6007	3.2	51	113.01	60	5185	530	295	40	62	38	1800	450	175	3600	1500	2160	1260	5	510	450	720	35.61	93.15	19.86	.042	1.23	
4715	5-11	3-2	4715	3.	51	112.25	60	5185	546	327	85	85	1500	450	175	3600	1500	2160	1260	5	510	450	720	37.40	94.24	18.01	.043	1.19		
4074	5-11	3-2	4074	3.2	51	103.76	60	3750	627	275	20	37	98	1800	450	1800	1800	1500	1080	1270	5	330	450	720	21.66	58.36	45.40	.031	1.78	
6060	5-11	3-6	6060	3.6	51	226.58	60	6000	963	277	20	46	210	1800	450	175	2925	1950	2160	1260	5	1770	450	720	44.38	95.02	17.86	.023	2.38	
7050	5-11	3-6	7050	3.6	51	186.16	60	8350	968	329	40	72	186	1950	450	175	3600	1350	2160	1260	5	510	450	720	49.99	107.93	78.23	.03	1.73	
4635	5-11	3-5	4635	3.5	51	113.29	60	7325	758	329	40	62	90	1950	450	175	3600	1350	2160	1260	5	510	450	720	41.52	99.02	14.27	.046	1.13	
6802	5-11	3-6	6802	3.6	51	165.26	60	8250	915	304	40	64	173	1800	450	175	3600	1500	2160	1290	5	510	450	720	48.39	105.93	51.07	.034	1.51	
8672	5-11	3-3	8672	3.3	51	210.18	90	5450	881	387	80	72	156	1500	450	175	3600	1500	2160	1260	5	510	450	720	40.91	97.75	67.51	.031	1.70	
5161	5-11	3-3	5161	3.3	51	177.54	90	4650	1125	354	40	64	156	1800	450	175	3600	1500	2160	1260	4	330	450	720	56.50	114.06	96.12	.038	1.85	
6294	5-11	3-6	6294	3.6	51	155.71	90	7500	112	357	80	30	186	1800	450	175	2475	1500	2160	1260	4	330	450	720	31.75	84.35	43.19	.035	1.51	
6478	5-11	3-9	6478	3.9	51	155.55	90	5440	619	281	88	45	105	1500	450	175	3600	1500	2160	1260	5	510	450	720	37.86	92.06	63.63	.031	1.69	
Average			7000			171.76																			43.10	95.40	75.49	.031	1.82	



AVERAGES FOR THE ASSOCIATION.

Milk yield 157 cows.....	6784.2 pounds
Value.....	\$182.38
Feed cost.....	\$ 96.65
Feed cost of qt. of milk.....	\$ 0.037
Returns for \$1.00 spent for feed.....	\$ 2.01

EXTREME INDIVIDUAL RECORDS.

	Highest Record	Lowest Record
Milk yield.....	12,495	3,048
Value at 5 cent per quart.....	\$290.55	\$70.85
Cost of feed.....	\$132.96	\$94.86
Balance over feed.....	\$167.59	\$24.01
Cost of quart of milk.....	\$ 0.023	\$ 0.067
Returns for \$1.00 spent for feed.....	\$ 2.19	\$ 0.75



HERD No. 2

Interesting facts brought out by the data:

In herd No. 1, cows 1 and 2, we note the wide variation that often exists between cows in the same herd.

Cow No.	Lbs. milk	Value	Feed cost	Balance over feed	Feed cost of qt. milk	Ret. for one dollar
1	5563	\$144.03	\$ 96.81	\$ 47.22	\$0.037	\$1.49
2	9593	\$247.24	\$106.23	\$141.01	\$0.024	\$2.33

The above statement cannot be taken as a true measure of the value of the two cows unless we know their age, health during the lactation period, etc. However, it does show that low producing cows are found even in herds with high average production and should be weeded out in order to bring the average well above the limit of profitable production.

In records of herd No. 3, cows 73 and 84, we find material to contradict the statement

that "knowing how much milk a cow yields enables one to place a true value on her." As a matter of fact, the milk yield is of great value to the owner but is incomplete without a statement of cost of production. Cow 73 produced 5484 lbs. of milk costing \$93.20, leaving a balance of \$60.34; cow 84 produced 5442 lbs. of milk costing \$98.08, leaving a balance of \$54.15, or a difference of \$6.19 in favor of cow 73. Deducting from this the value of 42 lbs. of extra milk at 6c per quart, we find that we still have \$5.02 left, which is 10% interest on \$50. In other words, cow 73 was really worth \$50 more than No. 84, when considered in the light of an investment.

In herd No. 7 we find that cow No. 16 produced 6069 lbs. milk, worth \$140.37, with a feed cost of \$80.82, leaving a balance of \$59.55. The feed cost of a quart of milk was \$0.029, and she returned \$1.74 for each dollar spent for feed.

Cow No. 15 in the same herd produced 11,672 lbs. milk, worth \$271.44, at a cost of \$96.21, leaving a balance of \$175.23. The feed cost of a quart of milk was \$0.018, and she returned \$2.82 for each dollar spent for feed.

Analysis of these figures shows that cow No. 15 received 19% more feed than No. 16, but produced 93% more milk and 194% more profit.

It can safely be said that there are few herds in the state that could not furnish similar data were records available, but, owing to lack of interest, scarcity of help, etc., records are kept in comparatively few herds, and we find that these herds are mainly responsible for the annual state production being at the very low figure of \$59.60.

Wherever records are kept, either privately or by a Dairy Improvement Agent, an interest is awakened in good dairying and a large number of unprofitable cows are thrown on the market to be purchased by the man who does not keep accounts with his cows.

Attention is called to herd No. 9, cows Nos. 16 and 21. No. 16 produced 8812 lbs. of milk costing \$114.70, while No. 21 produced 10,894 lbs. of milk at a cost of \$94.75. The ability of No. 21 to make better use of her feed resulted in her giving more milk at less cost and yielding a profit of \$74.85 greater than No. 16. If this were capitalized at 10% it would give No. 21 a value of \$748.50 greater than No. 16.

On the other hand, had the product been sold on a butter fat basis, cow No. 16 would have produced 54.6 lbs. more butter fat than No. 21 (note test in second column of table), which at 40c per pound would have been worth \$21.84. Subtracting from this the greater feed cost of No. 16 (\$19.95) would still have given a balance of \$1.89 in favor of No. 16. Therefore the market where product was sold would determine which of the two cows was the more profitable.

Facts like these should impress every dairyman with the necessity of keeping a complete record of his herd. If time does not permit, organize a Dairy Improvement Association among your neighbors and hire some one to do it for you. In many ways this is better, for it insures the work being done on time, and from the records you are able to learn how your neighbor is producing milk at a reasonable figure.

To illustrate this point, let us compare cow No. 8, herd No. 7, which received a wide range of home grown feeds and relatively small purchased grain ration, with cow No. 7, herd No. 10, where large amounts of low grade grains were fed. Cow 8, herd 7, produced 8657 lbs. of milk, which at 6c per quart (price received in other herd) was worth \$241.56, and cost \$94.40, leaving a balance of \$147.16.

Cow 7, herd No. 10, produced 8618 lbs. of milk worth \$240.48, costing \$136.22, leaving a balance of \$104.26. \$147.16 (\$104.26-\$1.08 value of 39 lbs. extra milk) gives a balance of \$41.80 in favor of cow No. 8, herd No. 7. Without doubt the larger part of the difference was due to the character of the grain ration, as the cost of roughage was practically the same in each case.

Many instances could be cited where the tester has pointed out these facts to the advantage of the owner, but it is thought unnecessary to go further into detail to show the value of putting the dairy herd on a business basis.





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