

COLORADO DAIRY-HERD IMPROVEMENT ASSOCIATIONS, 1931



One of the leading small dairy herds of Colorado

PUBLISHED BY
COLORADO AGRICULTURAL COLLEGE
EXTENSION SERVICE **F. A. ANDERSON, DIRECTOR**
FORT COLLINS

Cooperative Extension Work in Agriculture and Home Economics, Colorado Agricultural College and the United States Department of Agriculture Cooperating, Distributed in Furtherance of the Acts of Congress of May 8 and June 30, 1914.

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BY C. A. SMITH. EXTENSION DAIRYMAN

Profitable dairying is dependent both upon the producing ability of the cows in the herd and the management of the herd. Many a herd which has been bred with great care to develop high-producing ability has shown only ordinary production until proper feeding and management methods were adopted. Proper feeding and management is possible only when the individual production of each cow in the herd is known. The keeping of records on individual cows takes time; however, it is questionable whether the time spent on any other one thing will pay greater dividends than the time spent on keeping records of milk production.

For those dairymen who do not have the time and facilities for keeping records on their cows, the dairy-herd improvement association has furnished this service at a very low cost. A dairy-herd improvement association is a cooperative organization of farmers who hire a tester to test their cows at regular intervals for production of milk and butterfat and to determine the monthly feed cost of each cow in the herd. The cow tester spends one day each month on the farm of each dairyman, who is a member of the association. He weighs and samples each cow's milk night and morning and determines the butterfat content of the milk by use of the Babcock test. He weighs the grain and silage and estimates the weight of the roughage consumed by each cow. From these figures the cow tester computes the milk and butterfat produced by each cow in the herd and figures the cost of feed and return above feed for each cow for the current month.

Dairymen are finding that records kept in dairy-herd improvement associations are a necessity in every well-managed dairy herd. They provide the most economical and satisfactory means of obtaining information necessary to develop a high-producing and profitable dairy herd.

From the records kept by the cow tester the dairyman is able to:

1. Eliminate unprofitable cows.
2. Feed the cows according to their production.

3. Determine the best feeding methods.
4. Select heifers from the best-producing cows for replacement purposes.
5. Determine the value of the herd sire by dam-and- daughter comparisons.

This report deals briefly with the most outstanding results in dairy-herd-improvement-association work for the year ending- January 1, 1932. It deals largely with cows of high-producing ability, which production has been attained thru careful culling of herds and improved feeding practices. While the production and returns of dairy-herd-improvement-association cows are comparatively high, they are not beyond the reach of all Colorado dairymen.

During the past year 14 dairy-herd improvement associations have been in operation in 27 Colorado counties. Two hundred and ninety-one dairymen have completed yearly records on their herds.

Information on All Costs Is Valuable

Herd-improvement-association records lose some of their value unless cow owners are familiar with the entire business information affecting their herds. Such records give valuable information centered around production and methods and costs on feeding. A word here in regard to other costs affecting the dairy business might not be out of place. Feed costs of 80 to 90 dollars per cow for the year 1931 would be considered fair by most dairymen. A return over feed cost might easily be determined when the total income and the cost of feeds are given. It is important, however, that dairymen begin to realize that in spite of low feed costs certain of the expenses of doing business have been maintained at such a high level that profit is improbable. If the dairyman finds it possible to control or reduce some of the expense factors, his chances of making a profit are much better.

Colorado dairymen are beginning to show just such an interest. Last year for the first time, groups of dairymen in different counties working in cooperation with their county extension agents, supplied detailed information regarding their income and expense for the entire year, 1931. Such information was prepared and submitted to farm-management workers in the extension service at the Agricultural College who were able to summarize the year's business and show the various factors affecting the return for labor and investment.

The following figures are taken from a group of six dairies in Arapahoe county and four dairies in the Pikes Peak region. Most of these men were members of herd-improvement associations.

In all there were 210 cows in these 10 herds.

Feed costs per cow ran \$79.40 for the year which is probably a little lower than some would expect. It is fair to say that very poor pastures and a very limited production of crops due to the drouth caused several of the dairymen to restrict their feeding- materials. The lowest feed cost per cow came from a herd that did not have enough feed provided for highest production. Finances, no doubt, prevented the purchase of sufficient amounts. This might answer the question of whether we can improve our position as dairymen by merely reducing feed costs per cow per year. The production in this low-feed-cost herd was too low to guarantee a profit. Here, then, spending money for feed might have shown additional net income.

Referring to the entire group of 10 records again, feed cost represents 47.6 percent of the entire expense of doing business. Expenses included the following: Feed, hired labor, family labor, miscellaneous, depreciation, interest and reduced inventory. These other items represent 52.4 percent of the total expenses. Herd-improvement-association members might do well to consider this fact. It is probable that some of these other factors are capable of control as the feed costs. Fourteen percent of the total expense is represented by family labor which was valued at 20 cents per hour. Depreciation represents 3 percent. Interest on the investment represents 4 percent of the expense, tho the rent was figured at 6 percent of the average investment. One of the large items was called miscellaneous. This item includes milk hauling, repairs for milking machines and other dairy equipment and taxes. Almost the entire 18 percent is chargeable to milk hauling, for a large part of the year dairymen were paying one-fifth of their gross income for hauling of their milk.

These 10 herds showed a total expense of \$34,969.28 and a total income of \$32,238.77, or a net loss of \$2,730.51. This amounts to about a \$13 loss per cow. Records of production and feed cost alone would not have shown such a loss. Discouragement is strong in the face of such figures and the hope of an immediate change is slight in the face of our present market. Some of these dairymen, however, did make a profit and in almost every case dairymen found expenses in their reports which they propose to reduce. In a few cases less cows would mean a lower total feed bill. Their income might be the same, as their better cows would receive more feed.

In this present situation dairymen must be awake to the entire group of factors which affect their incomes. That means not to discontinue testing work but to supplement this with additional study on the other costs which make up about one-half of their total expense.

Tables I and II are summaries of complete costs kept of the 10 herds mentioned.

TABLE I.—PRELIMINARY SUMMARY OF FOUR DAIRY ENTERPRISE RECORDS
El Paso County
1931

Farm No.	1	2	3	4
Size of Herd				
Cows	27.75	17.58	9.92	19.17
Bulls	2.75	1.00	1.00	2.00
Heifers	10.50	9.50	4.00	9.00
Calves	7.50	7.00	4.50	6.00
Investment				
Land	\$ 2,500.00	\$ 125.00	\$ 500.00	\$ 495.00
Buildings	3,726.25	750.50	915.75	1,724.00
Equipment	501.25	52.50	680.00	483.00
Miscellaneous	122.50			467.68
Dairy Stock	4,662.50	2,374.00	1,412.50	2,668.50
Total Investment	\$11,512.50	\$3,302.00	\$3,508.25	\$5,838.18
Expenses				
Feed	\$ 4,667.03	\$1,756.88	\$ 934.68	\$1,409.79
Hired Labor	735.20	96.00	4.00	71.20
Family Labor	425.60	682.00	728.00	427.00
Miscellaneous	2,232.67	374.43	141.06	682.61
Depreciation	460.00	54.00	105.50	108.00
Interest	690.75	198.12	202.79	465.40
Net Stock Cost				138.15
Total Expense	\$ 9,211.25	\$3,161.43	\$2,116.03	\$3,302.24
Income				
Market Milk, B. F.	\$ 6,689.35	\$2,823.08	\$2,041.18	\$3,029.99
B. F. Home Use	33.55	23.45	124.49	65.70
Miscellaneous	55.85	119.44	31.50	20.00
Net Stock Income	50.75	27.00	420.00	
Total Income	\$ 6,829.50	\$2,992.97	\$2,616.17	\$3,115.60
Total Cost per				
Whole milk				
pound Butterfat	basis	.64	.56	.63
Net Profit or Loss	-\$2,381.75-	168.46	\$ 500.14	\$ 186.55
Labor Income per Hour	—\$.91	+\$.15	+ \$.33	+ \$.28

The greater part of the loss shown by No. 1 is due to a heavy inventory loss. Cows in this herd produced extremely well. In fact, these four herds all rank very high in the state.

(Prepared by C. A. Smith, Extension Dairyman, and F. C. Jans, Extension Economist in Farm Management.)

TABLE II.—PRELIMINARY SUMMARY OF SIX DAIRY ENTERPRISE RECORDS IN THE DENVER AREA, 1931

Farm Number	1	2	3	4	5	6
Size of Herd						
Cows	8.75	16.50	31.17	50.30	15.50	13.50
Bulls	1.00	1.00	1.00	2.00	1.50	1.00
Calves	4.00	6.00	8.00	9.50	3.00	6.50
Heifers	3.50	5.50	2.00	12.50	8.00	6.80
Investment						
Land	Rent	Rent	{ Rent }	\$7,040.00	Rent	{ Rent }
Buildings			{ 144.00 }	1,446.00		{ \$360.00 }
Equipment		\$ 113.00	387.85	430.00	\$ 280.00	155.70
Miscellaneous				6.50		
Dairy Stock	752.00	1,627.00	2,635.00	3,510.00	1,157.00	1,482.00
Expenses						
Feed	\$ 674.32	\$1,234.28	\$2,042.13	\$1,315.00	\$1,057.65	\$1,582.65
Hired Labor	145.50	12.50	10.00	123.40		
Family Labor	116.40	456.00	368.00	294.20	306.00	1,077.80
Miscellaneous	276.20	481.28	1,145.98	705.66	245.14	839.18
Depreciation		15.00	46.85	158.00	46.00	41.50
Interest	45.81	103.98	217.25	776.44	84.84	96.99
Net Stock Cost	122.00	58.10	154.00	701.30		
Total	\$1,380.23	\$2,361.11	\$3,984.21	\$4,074.00	\$1,739.63	\$3,638.12
Income						
Market Milk or Butterfat	\$1,011.80	\$1,939.94	\$3,558.43	\$2,700.35	\$1,659.90	\$3,643.14
Butterfat, home use	66.53	78.11	58.40	36.40	82.95	206.80
Miscellaneous	25.68	25.00	28.00	50.00	9.75	80.96
Net Stock Income					323.50	304.60
Total	\$1,104.01	\$2,043.05	\$3,644.83		\$2,076.10	\$4,028.70
Total cost per pound, butterfat						
	\$.56	\$.50	\$.48	\$.65	\$.38	\$.92
Net profit or loss .-	-\$276.22	-\$318.00	-\$339.38	-\$1287.25	\$336.47	\$390.58

Note—Number 6 retails a considerable portion of the total milk yield. Where rent is not stated the amount of rent paid for the use of the dairy buildings and lots would be difficult to estimate. In these cases rent is paid for an entire farm.

These figures are given to show herd costs and returns for 1931.
(Prepared by C. A. Smith, Extension Dairyman, and F. C. Jans, Extension Economist, Farm Management.)

SUMMARY OF ALL COLORADO DAIRY-HERD IMPROVEMENT ASSOCIATIONS

Associations	Average No. of Cows	Average lbs. milk	Average test	Average lbs. fat	Succulent feed	Dry Roughage	Protein supplement	Grain	Days on pasture	Total cost of feed
El Paso	45.5	11576	3.5	399.4	7384	6724		2779	75	\$115.50
Northern	14.6	8907	4.1	362.7	7050	3856	173.0	2024	109	69.65
Adams	19.4	9829	3.6	351.0	3830	5632	1.6	2414	113	81.85
Mesa Grand Vallev	15.5	8353	4.2	347.4	1401	8201	148	2205	38	86.90
Arapahoe	15.2	10104	3.3	335.7	3986	6215		2500	86	97.18
Pueblo	28.8	8526	3.8	323.8	5658	6152	25	2481	96	97.93
El Paso-Elbert	20.5	7730	4.0	309.3	4066	4297	.4	2013	143	83.76
Fremont-Custer-Chaffee	18.8	7946	3.6	284.5	2090	5992		1491	140	69.58
Mesa Plateau Valley	17.4	7487	3.7	280.2	267	5358	3	858	176	43.25
South Platte Valley	17.0	7699	3.6	279.2	2306	2725	74	2253	164	48.71
Montrose	18.0	6739	4.1	277.4	91	5686		1093	134	39.07
Delta	15.4	6547	4.1	269.7		4810	4	470	162	36.38
Huerfano-Las Animas	31.7	6870	3.8	260.4	542	5808		1590	141	67.51
San Luis Valley	13.2	7016	3.6	250.1	632	5116	25	1361	192	52.61
Average	20.8	8238	3.8	309.3	2807	5469	32	1824	126	70.71

**RELATION OF BUTTERFAT PRODUCTION TO COST OF FEED AND RETURN ABOVE
FEED COST**

No. of Cows	Pounds of Milk	Average Butterfat Test	Pounds of Butterfat	Price of Product	Value of Product	Cost of Roughage	Cost of Grain	Total Cost of Feed	Value of Product Above Feed Cost
14	1469	3.9	58	\$.40	\$ 23	\$33	\$ 7	\$ 40	—\$ 17
53	2792	3.7	102	.40	41	3 4	15	49	— 8
118	4234	3.6	153	.40	61	39	15	54	7
306	5446	3.7	203	.40	81	42	20	62	19
432	6724	3.7	251	.40	100	44	23	67	33
462	8168	3.7	300	.40	120	48	27	75	45
426	9401	3.7	349	.40	140	51	32	83	57
295	10972	3.6	397	.40	159	54	38	92	67
147	12300	3.6	447	.40	179	60	44	104	To
75	14061	3.5	497	.40	199	72	48	120	79
38	14954	3.6	543	.40	217	72	53	125	92
19	16481	3.6	600	.40	240	82	62	144	96
5	16487	3.9	650	.40	260	78	55	133	127
2	19364	3.6	706	.40	282	9 8	62	160	122
1	15227	5.0	758	.40	303	56	75	131	172
2394	8411	3.7	309	.40	124	49	29	78	46

Only records of cows on test 12 months were used.

The price of the product used (.40) is the mean price paid for sweet cream and butterfat in whole milk in 1931.

For this tabulation the records were sorted in such a way as to have the group centers 50 pounds apart and to have each center approximately on the 50 or 100-pound butterfat point.

RELATION OF COST OF GRAIN TO RETURNS ABOVE FEED COST

No. of Cows	Pounds of Milk	Average Butterfat Test	Pounds of Butterfat	Price of Product	Value of Product	Cost of Roughage	Cost of Grain	Total Cost of Feed	Value of Product Above Feed Cost
109	5594	4.0	221	\$.40	\$ 88	\$31		\$ 31	\$57
166	5541	4.1	226	.40	90	30	\$ 4	34	56
153	6688	3.8	251	.40	100	36	10	46	54
119	6486	3.9	251	.40	100	35	15	50	50
275	7272	3.7	270	.40	108	40	20	60	48
288	7604	3.8	285	.40	114	47	25	72	12
344	8315	3.7	310	.40	124	51	30	81	43
262	8950	3.7	332	.40	133	58	35	93	40
211	9475	3.6	345	.40	138	63	40	103	35
151	10304	3.6	370	.40	148	61	45	106	42
121	11008	3.5	381	.40	152	62	50	112	40
66	12117	3.4	413	.40	165	65	55	120	45
54	12643	3.4	433	.40	173	66	60	126	47
25	13457	3.4	457	.40	183	69	64	133	50
21	13820	3.3	458	.40	183	69	70	139	44
19	14069	3.4	474	.40	190	75	75	150	40
4	15282	3.2	489	.40	196	65	79	144	52
2	10018	3.3	332	.40	133	61	87	148	—15
3	17995	2.7	481	.40	192	67	90	157	35
1	16876	2.7	454	.40	182	70	108	178	4
2394	8411	3.7	309	.40	124	49	29	78	46

Only records of cows on test 12 months were used.

This table was compiled by grouping- the records according to yearly cost of grain per cow. The first group fed grain had a range from \$1 to \$7 inclusive; the second group from \$8 to \$12 inclusive; the third group from \$13 to \$17 inclusive, etc.

RELATION OF MILK PRODUCTION TO RETURN ABOVE FEED COST.

No. of Cows	Pounds of Milk	Average Butterfat Test	Pounds of Butterfat	Price of Product	Value of Product	Cost of Roughage	Cost of Grain	Total Cost of Feed	Value of Product Above Feed Cost
1						\$37		\$37	—\$37
7	1057	4.6	49	\$.40	\$ 20	31	\$ 3	34	— 14
27	2125	4.2	89	.40	36	30	8	38	— 2
58	3081	4.2	131	.40	52	37	15	52	0
121	4071	4.4	178	.40	71	40	16	56	15
194	5028	4.2	211	.40	84	39	18	57	27
321	6024	4.1	250	.40	100	41	22	63	37
298	7021	3.9	274	.40	110	47	25	72	38
276	7991	3.8	303	.40	121	47	28	75	46
285	8997	3.6	325	.40	130	49	30	79	51
232	9982	3.5	350	.40	140	51	32	83	57
185	10974	3.5	379	.40	152	57	37	94	58
134	11983	3.4	409	.40	164	60	42	102	62
97	12981	3.4	435	.40	174	62	45	107	67
55	13952	3.4	469	.40	188	74	49	123	65
46	14931	3.4	501	.40	200	75	53	128	72
24	15880	3.3	525	.40	210	79	5 4	133	77
18	16977	3.2	543	.40	217	79	67	146	71
10	17824	3.3	591	.40	236	9 3	60	153	83
2	18666	3.5	655	.40	262	82	80	162	100
2	19859	2.9	576	.40	230	82	70	152	73
1	21282	3.0	646	.40	258	90	5 4	144	111
2394	8411	3.7	309	.40	124	49	29	78	46

Only records of cows on test 12 months were used.

For this tabulation the records were sorted in such a way as to have the group centers 1,000 pounds apart and to have each group center approximately on the thousand-pound point.

PRODUCTION OF PUREBRED COWS COMPARED

No. of Cows	Age Years	Pounds of Milk	Average Butterfat Test	Pounds of Butterfat	Price of Product	Value of Product	Cost of Roughage	Cost of Grain	Total Cost of Feed	Value of Product Over Feed Cost
51	2	3845	3.9	341	\$.40	\$136	\$55	\$31	\$ 86	\$50
99	3	9009	3.8	341	.40	136	54	31	85	51
139	4	9477	3.7	349	.40	140	51	34	85	55
88	5	9460	3.6	342	.40	137	51	36	87	50
81	6	9787	3.6	356	.40	142	56	37	93	49
49	7	10553	3.5	369	.40	148	52	36	88	60
49	8	8300	3.7	310	.10	124	48	34	82	42
28	9	10935	3.7	403	.40	161	60	44	104	57
21	10	10699	3.4	368	.40	147	55	34	89	58
15	11	9786	3.4	329	.40	132	46	35	81	51
14	12	8622	3.7	317	.40	127	34	33	67	60
4	13	5044	4.0	202	.49	81	56	28	84	— 3
5	14	9126	3.3	304	.40	122	59	38	97	25
1	16	10017	3.4	342	.40	137	35		35	102
1	17	5275	5.3	281	.40	112	31	15	46	66
645		9440	3.7	346	.40	138	52	34	86	52

Only records of cows on test 12 months were used.

PRODUCTION OF GRADE COWS COMPARED

No. of Cows	Age Years	Pounds of Milk	Average Butterfat Test	Pounds of Butterfat	Price of Product	Value of Product	Cost of Roughage	Cost of Grain	Total Cost of Feed	Value of Product Over Feed Cost
128	2	6745	3.9	263	\$.40	\$105	\$49	\$26	\$ 75	\$30
138	3	7750	3.8	292	.40	117	50	24	74	43
147	4	8128	3.7	301	.40	120	47	26	73	47
155	5	8492	3.7	314	.40	126	47	28	75	51
158	6	8578	3.7	317	.40	127	54	31	85	42
97	7	8289	3.7	304	.40	122	47	27	74	48
79	8	8515	3.6	308	.40	123	43	27	70	53
59	9	8221	3.6	295	.40	118	44	28	72	46
32	10	7882	3.7	288	.40	115	44	29	73	42
18	11	7518	3.8	284	.40	114	44	28	72	42
17	12	6050	3.5	213	.40	85	45	23	68	17
4	13	7305	3.6	266	.40	106	44	22	66	40
7	14	8428	3.5	295	.40	118	57	37	94	21
2	15	7538	3.7	276	.40	110	61	30	91	19
1	16	12520	3.3	415	.40	166	93	57	150	16
1042		8030	3.7	298	.40	119	48	27	75	44

Only records of cows on test 12 months were used.

Centennial Cow-Testing Association

The Centennial Cow-Testing Association was organized in August, 1929, in the counties of Boulder, Weld and Larimer. It was organized to provide the dairyman with a small herd a means of testing his cows for production.

Members of this association keep monthly milk weights on each cow in their herd. They send samples of 24 hours' milk from each cow once a month thru the mail to a central laboratory located at the Colorado Agricultural College. Here the samples are tested for butterfat and the monthly production of each cow calculated. The results of the test are mailed to each member monthly.

In 1930 there were 49 members in the Centennial Cow-Testing Association, their average production per cow was 7556 pounds of milk and 293.7 pounds of butterfat. During the year, 1931, there were 42 members in the association, their average production this year was 8009 pounds of milk and 308.4 pounds of butterfat per cow.