

TABLE 1. MAIN PROFIT FACTORS IN INDIVIDUAL DAIRIES - 1949
AND AVERAGES FOR 1948 AND 1949

Ser. No.	Sold Per Cow		Av. Price		Net Stock Income	Misc. Income	Milk Sold	Total Income	Total Expense	Management Income	Farm Income
	Lbs. Milk	Lbs. Fat	Per Cwt. Milk	Per Lb. Fat							
Dollars per Average Cow											
MARKET MILK											
5	9573	434	5.31	1.17	90.37	5.25	508.58	604.20	394.09	210.11	291.52
9	7895	379	5.22	1.09	49.09	12.35	411.95	473.39	356.61	116.78	218.87
1	6978	384	6.02	1.09	54.13	11.84	419.95	485.95	404.95	180.97	135.81
6	9046	385	4.58	1.08	29.38	.81	414.48	444.67	381.70	62.97	82.19
10	10601	405	4.59	1.20	34.29	--	486.61	520.90	471.47	49.43	100.52
4	7368	344	5.02	1.08	25.00	1.25	369.81	396.06	371.00	25.06	136.37
28	6361	314	4.31	.87	73.82	2.99	274.25	351.06	327.07	23.99	154.11
13	9371	357	4.48	1.18	50.05	3.19	419.29	472.53	451.48	21.05	41.86
34	6592	283	4.53	1.06	51.08	7.43	298.65	357.16	360.55	- 3.39	125.71
14	10333	397	4.31	1.12	8.78	4.32	445.07	458.17	489.28	-31.11	9.99
11	6927	317	5.36	1.17	7.70	3.93	371.26	382.89	424.96	-42.07	36.89
32	6671	262	3.35	.85	24.74	--	223.62	248.36	358.99	-110.63	57.68
Av. 1949	8761	365	4.67	1.12	38.52	2.99	409.05	450.56	414.09	36.47	81.97
Av. 1948	8588	367	5.38	1.26	45.42	4.04	462.00	511.46	451.02	60.44	106.67
MANUFACTURING MILK											
33	10989	376	2.74	.80	209.65	25.14	300.72	535.51	409.97	125.54	239.54
21	8391	404	3.84	.80	29.21	10.07	322.26	361.54	328.50	33.04	116.99
20	8427	386	3.75	.82	26.41	4.46	315.99	346.86	323.52	23.34	53.83
22	9775	388	3.06	.77	105.26	1.08	299.01	405.35	383.46	21.89	131.22
26	6943	328	3.74	.79	40.12	7.01	259.42	306.55	312.02	-5.47	101.93
27	6803	359	4.14	.79	86.85	5.48	281.57	373.90	439.96	-66.06	65.78
35	4093	181	3.46	.78	17.76	12.33	141.80	171.89	377.40	-205.51	-102.61
Av. 1949	8378	366	3.48	.80	69.45	7.54	291.73	368.72	358.80	9.92	96.00
Av. 1948	7289	340	4.92	1.06	59.78	6.03	358.50	424.31	390.95	33.36	137.20

Individual records are listed in order of management income per cow in each of the two groups in the above table, as well as in succeeding tables of this report. The range in management income was from \$210 per cow for the most profitable record down to a loss of \$110 in the market milk group and from \$125 to a loss of \$205 in the manufacturing milk group. Variations in management income can be traced to a number of factors shown in table 1, such as pounds of milk and fat sold per cow, average price received, and net stock income. Total expense per cow is also one of the important profit-determining factors and is analyzed in table 5.

The 1949 record year was less profitable than 1948 in both the market milk and manufacturing milk groups. The costs of production in 1949 were lower than in 1948, but these were more than offset by the lower prices received for milk. Manufacturing milk showed a greater proportional decrease in price than the market milk group. As was the case in 1948, the market milk dairies showed a higher average management income per cow than the manufacturing milk dairies.

TABLE 2. PRODUCTION FACTORS IN INDIVIDUAL HERDS - 1949
AND AVERAGES FOR 1948 AND 1949.

Ser. No.	Pounds of milk-fat per cow		% of fat sold	% of Time Cows in milk	% of cows sold	Lbs. Conc. per cow	Lbs. T.D.N. per cow only	A. U. mo. pasture per cow	% fat in milk	Size of herd *
	Sold	Cow T. record								
MARKET MILK										
5	434	443	98	89	34.8	1847	7171	9.4	4.6	M
9	379	397	96	91	57.3	2453	6025	12.3	4.8	M
1	384	414	93	88	26.9	2489	5475	4.3	6.0	M
6	385	401	96	84	16.8	2504	7200	9.9	4.3	L
10	405	440	92	89	47.9	4545	8348	11.1	4.0	L
4	344	340	100	81	37.5	3335	6732	10.0	4.7	L
28	314	352	89	81	15.2	1155	6295	12.5	5.3	M
13	357	376	95	85	47.3	3344	8741	9.6	3.8	L
34	283	291	97	87	30.5	4124	8263	8.3	4.6	M
14	397	399	99	84	8.6	2203	9708	2.9	3.8	M
11	317	339	94	84	32.4	2569	7877	1.1	4.8	L
32	262	281	93	88	19.0	440	4862	1.9	4.2	S
Av. 1949	365	382	95	85	33.0	2912	7746	8.7	4.2	-
Av. 1948	367	386	95	85	20.8	2299	8148	8.8	4.3	-
MANUFACTURING MILK										
33	376	372	100	86	14.4	1371	8635	2.0	3.4	S
21	404	413	98	89	19.5	2237	8663	7.1	4.7	M
20	386	410	94	87	32.5	2022	8093	10.3	4.7	M
22	388	387	100	88	25.1	1840	6775	10.8	4.0	M
26	328	349	94	81	12.2	2283	5960	3.2	4.9	S
27	359	393	91	88	39.6	2551	6336	7.3	5.4	S
35	181	194	93	95	9.3	515	7261	7.5	4.4	S
Av. 1949	366	381	96	87	24.4	1949	7467	7.8	4.4	-
Av. 1948	340	367	93	85	24.0	1927	6648	6.3	4.7	-

The Cow Testing Record on herds in the study is used as a basis for calculating the proportion of the total milk fat which is sold. On the average 95 per cent of the milk fat produced was sold in the market milk group, which was about the same as for the manufacturing milk dairies. The pounds of milk fat sold per cow for the market milk group was about the same in 1949 as in 1948. Manufacturing milk dairies in the study this year showed a production approximately the same as the market milk group, which was somewhat higher than in 1948. The per cent of time cows are in milk is total cow months divided into cow months milking. The 85 per cent for the market milk group indicates just a little better than a 10-month lactation period. Considerable variation will be noted between dairies in the per cent of cows sold. Several dairies in the study showed a high turnover in the cow herd.

The pounds of concentrates per cow usually tends to vary with the production but it will be noted that in some herds, such as Nos. 34, 13 and 4, the pounds of concentrates per cow is rather high in relation to the total pounds of milk fat produced. The pounds of concentrates fed per cow includes small amounts fed to calves. The pounds of total digestible nutrients per cow, for cows only, is based on total reported feed less that probably consumed by stock other than cows at 4800 pounds per animal unit. The animal unit months of pasture per cow includes that used by young stock.

* Size of herd: S, small under 25 cows; M, medium, 25-60 cows; L, large, over 60 cows.

TABLE 4. NET STOCK INCOME IN INDIVIDUAL HERDS - 1949
AND AVERAGES FOR 1948 AND 1949.

Ser. No.	Per cent of cows			An. Units per cow	Head Raised per cow	Av. price cows sold	Stock Sales	Inven. Incr. or Decr.	Stock Bought	Net stock Income	
	Sold	Died	Added								Incr. or Decr.
MARKET MILK DAIRIES											
5	34.8	7.0	62.7	20.9	1.42	1.05	\$ 115	45.95	44.42	--	90.37
9	57.3	-	68.1	10.8	1.82	1.22	126	82.42	- 1.43	31.90	49.09
1	26.9	-	26.9	--	1.68	.62	107	79.67	-25.54	--	54.13
6	16.8	-	25.9	9.1	1.49	.60	135	27.20	43.08	40.90	29.38
10	47.9	-	44.6	-3.3	1.54	.84	161	101.85	-15.04	52.52	34.29
4	37.5	4.7	39.1	-3.1	1.66	.47	88	37.73	4.84	17.57	25.00
28	15.2	-	34.1	18.9	1.75	.46	85	23.63	74.81	24.62	73.82
13	47.2	-	41.2	-6.0	1.43	.96	122	69.72	- 5.42	14.25	50.05
34	30.5	-	27.1	-3.4	1.38	1.09	98	39.86	23.73	12.51	51.08
14	8.6	-	17.2	8.6	1.31	.26	142	32.41	-18.01	5.62	8.78
11	32.4	3.7	19.9	-16.2	1.45	.39	155	57.14	-43.21	6.23	7.70
32	19.0	-	19.0	--	1.35	.76	140	95.22	-49.05	21.43	24.74
Av. 1949	33.0	0.8	34.4	0.6	1.49	.74	126	53.35	8.52	23.35	38.52
Av. 1948	20.8	2.9	35.3	11.6	1.45	.75	165	51.19	38.63	44.40	45.42
MANUFACTURING MILK											
33	14.4	-	28.8	14.4	1.79	.96	292	172.15	37.50	--	209.65
21	19.5	-	19.5	--	1.38	.39	117	44.39	-15.18	--	29.21
20	32.5	-	30.7	-1.8	1.53	.70	142	78.94	-52.53	--	26.41
22	25.1	-	27.6	2.5	1.73	.91	152	58.65	46.61	--	105.26
26	12.2	-	24.4	12.2	1.47	.29	64	7.80	56.91	24.59	40.12
27	39.6	-	29.7	-9.9	2.02	.99	116	71.51	15.34	--	86.85
35	9.3	9.3	9.3	-9.3	1.70	--	135	12.62	5.14	--	17.76
Av. 1949	24.4	.5	26.4	1.5	1.63	.67	141	66.94	5.58	3.07	69.45
Av. 1948	24.0	3.0	32.0	5.0	1.52	.65	149	45.28	40.58	26.08	59.78

Net stock income represents the value of dairy stock produced in the dairy enterprise. The calculation of net stock income for each of the dairies in the study is shown in the above table in the last 4 columns. Stock sales plus an increase in stock inventory or minus a decrease, and minus the cost of the stock bought equals the net stock income. This figure varies a great deal between individual herds depending largely upon the number of young stock raised during the year and whether most of the replacement cows were raised or bought. Death losses, of course, have a tendency to reduce net stock income. In both the market milk and manufacturing milk groups the most profitable records in the study showed the highest net stock income. Net stock income for the market milk dairies in 1949 was a little lower than in 1948 on the average, whereas it was a little higher for those in the manufacturing milk group this year. The proportion of other stock to cows in the herds averaged a little higher in 1949 for both groups, as indicated in the column "Animal Units Per Cow." Prices received for cows sold averaged lower in 1949 than in the previous year.

TABLE 5. EXPENSE PER COW IN INDIVIDUAL HERDS - 1949
AND AVERAGES FOR 1948 AND 1949.

Ser. No.	Hours labor per cow	Cost hour hired labor	Investment	Feed cost	Hired labor	Operator's labor	Miscellaneous	Depreciation	Int. on Invest.	Total expense
MARKET MILK DAIRIES										
5	64	1.00	394.87	265.61	2.30	61.67	33.69	11.08	19.74	394.09
9	92	.87	362.06	204.92	6.67	83.98	31.64	11.29	18.11	356.61
1	98	1.00	577.93	199.13	72.29	25.94	68.13	10.56	28.90	404.95
6	84	1.00	384.51	234.14	84.26	--	35.75	8.33	19.22	381.70
10	103	.97	426.71	280.61	72.76	29.75	59.08	7.93	21.34	471.47
4	94	1.00	401.18	216.83	2.68	91.25	29.94	10.24	20.06	371.00
28	102	--	556.94	165.65	--	102.27	24.71	6.59	27.85	327.07
13	101	1.00	416.12	274.47	100.97	--	33.33	21.90	20.81	451.48
34	119	.52	369.10	202.32	4.35	110.64	20.57	4.21	18.46	360.55
14	96	1.00	539.70	303.95	81.40	14.12	48.15	14.68	26.98	489.28
11	107	1.00	483.20	252.98	52.55	54.80	35.18	5.29	24.16	424.96
32	143	--	509.05	168.36	--	142.86	7.56	14.76	25.45	358.99
Av. 1949	96	1.00	423.07	248.11	71.21	24.35	36.35	12.92	21.15	414.09
Av. 1948	98	.98	436.36	286.56	72.90	24.41	32.66	12.67	21.82	451.02
MANUFACTURING MILK										
33	88	--	525.17	271.34	--	87.74	14.34	10.29	26.26	409.97
21	66	--	360.02	214.95	--	65.95	25.47	4.13	18.00	328.50
20	54	1.00	501.61	229.48	48.74	5.41	7.99	6.82	25.08	323.52
22	88	--	432.75	247.79	--	87.69	22.07	4.27	21.64	383.46
26	89	1.00	497.68	172.76	6.30	82.52	15.93	9.63	24.88	312.02
27	101	1.61	647.82	262.56	1.60	99.45	35.47	8.49	32.39	439.96
35	92	1.00	487.85	218.80	13.74	78.51	28.88	13.08	24.39	377.40
Av. 1949	77	1.00	485.49	231.43	15.39	61.81	18.72	7.18	24.27	358.80
Av. 1948	92	.97	452.79	245.50	10.64	81.20	24.01	6.96	22.64	390.95

An analysis of expenses per cow is shown in the above table and indicates why some herds were more profitable than others in the study. Feed costs, of course, are the most important item and account for 60 to 65 per cent of the total expense. An analysis of feed cost per cow is given in table 6.

Labor is the second most important item and shows considerable variation between herds. The hours of labor per cow ranged from 64 to 143 in the market milk group and from 54 to 101 in the manufacturing group. It is to be expected that hours of labor per cow in the market milk dairies would tend to average somewhat higher than for the manufacturing milk dairies. For herds in the study in 1949 there was a difference of about 20 hours. With a herd which is an economical unit and has good facilities and good management, it would appear that the necessary work can be done in manufacturing milk herds in 60 to 70 hours per cow yearly and in market milk herds from 80 to 90 hours. The proportion of young stock to cows, of course, would have a bearing on the total hours of labor per cow.

Miscellaneous depreciation and interest on investment costs tend to remain more or less fixed. These costs can be kept to a minimum by maintaining an adequate size of business with economical provision of facilities.

TABLE 6. FEED PRACTICES AND COSTS PER COW - 1949
AND AVERAGES FOR 1948 AND 1949.

Ser. No.	Quantity per cow				Total digestible nutrients		Hay cost	Conc. cost	Silage green feed	Pasture	Total feed cost
	Hay lbs.	Conc. lbs.	Silage greens lbs.	Pasture A.U. mo.	Lbs. per cow	Cost cwt.					
Dollars per cow											
MARKET MILK DAIRIES											
5	8084	1847	--	9.4	9187	2.89	105.61	63.51	--	96.49	265.61
9	5068	2453	4444	12.3	9961	2.06	64.06	78.33	8.28	54.25	204.92
1	8823	2489	4355	4.3	8739	2.28	79.54	84.46	14.70	20.43	199.13
6	7427	2504	--	9.9	9552	2.45	80.52	88.81	--	64.81	234.14
10	6182	4545	--	11.1	10940	2.56	64.32	147.28	--	69.01	280.61
4	6797	3335	--	10.0	9900	2.19	83.70	76.88	--	56.25	216.83
28	5558	1155	8333	12.5	9895	1.67	69.46	42.37	14.05	39.77	165.65
13	7378	3344	5117	9.6	10805	2.54	89.62	95.12	9.32	80.41	274.47
34	2218	4124	28542	8.3	10087	2.01	20.57	69.90	54.90	56.95	202.32
14	15643	2203	3746	2.9	11196	2.71	179.49	83.71	13.11	27.64	303.95
11	13188	2569	8966	1.1	10037	2.52	144.10	68.53	35.87	4.48	252.98
32	10903	440	--	1.9	6542	2.57	144.15	16.59	--	7.62	168.36
Av. 1949	7868	2912	3786	8.7	10098	2.46	89.86	88.17	8.94	61.14	248.11
Av. 1948	8679	2299	4699	8.8	10308	2.78	116.41	94.58	18.41	57.16	286.56
MANUFACTURING MILK DAIRIES											
33	13870	1371	37812	2.0	12427	2.18	127.20	50.17	76.81	17.16	271.34
21	11938	2237	--	7.1	10487	2.05	110.37	77.56	--	27.02	214.95
20	10000	2022	--	10.3	10637	2.16	93.92	74.08	--	61.48	229.48
22	9158	1840	--	10.8	10279	2.41	108.72	78.93	--	60.14	247.79
26	9756	2283	2033	3.2	8216	2.10	93.45	53.29	10.57	15.45	172.76
27	12797	2551	--	7.3	11232	2.34	144.08	78.87	--	39.61	262.56
35	12944	515	5981	7.5	10621	2.06	134.02	18.43	14.96	51.40	218.80
Av. 1949	10907	1949	4567	7.8	10491	2.21	109.81	67.87	10.23	43.52	231.43
Av. 1948	9358	1927	4757	6.3	9144	2.68	115.49	77.87	13.35	38.79	245.50

Feed is the most important cost item in dairy production. It is in this phase of the business that the operator has the greatest opportunity to improve his profits by better management practices, especially after he has attained a high production per cow. A review of the above individual figures will show why some operators showed more profit than others. The proportion of lower cost feeds, particularly pasture, has an important bearing upon total feed cost.

The quantities of feed per cow as well as the estimated total digestible nutrients shown in the above table includes feed for bulls and young stock as well as cows. Where more young stock is raised per cow, total quantities as well as costs tend to be higher.

The average prices for hay, concentrates, etc., are not shown in the above table due to lack of space but may be roughly computed by dividing the quantity into the cost per cow. For all 19 dairies in the study the following are the average prices in 1949 and the cost per hundredweight of total digestible nutrients: Hay \$22.27 per ton - \$2.23 per cwt. of T.D.N.; Concentrates \$3.08 per cwt. - \$4.11 per cwt. T.D.N.; Silage and greens \$4.67 per ton - \$1.88 per cwt. T.D.N.; Pasture \$6.79 per A.U. Mo. - \$1.70 per cwt. T.D.N. Thus, it will be noted that pasture is the most economical source of nutrients. Not only is it the most economical source of feed but the cows do the harvesting themselves and thus save labor.

Table 7 gives further information on the relationship of the amount of pasture to profit.

TABLE 7. EFFECT OF PASTURE ON COSTS AND MANAGEMENT INCOME
Stanislaus County Dairy Study Records for 1949

	Market Milk		Mfg. Milk	
	High pasture	Low pasture	High pasture	Low pasture
Number of dairies	7	5	2	5
Av. pounds of milk fat sold per cow	371	336	387	347
Pounds of hay fed per cow	7154	10978	9648	12081
Pounds of concentrates fed per cow	2982	2610	1946	1953
Pounds of silage and green feed per cow	2441	9646	--	8828
Animal unit months of pasture per cow	10.0	3.2	10.5	5.3
Total feed cost per cow, as reported	\$250.12	\$239.36	\$237.13	\$226.11
Management Income per cow	\$48.07	\$-14.09	\$22.73	\$-2.04

In the above table herds were grouped according to the quantity of pasture. Those with more than 9 A.U. Mo. of pasture per cow are included in the high group in both the market milk and manufacturing milk dairies and those with less than 9 A.U. Mo. are averaged in the low groups. Many factors have a bearing on management income per cow. In the above compilation, however, it is interesting to note that the herds with the high pasture use showed a much higher average management income per cow than those which had low amounts of irrigated pasture. No attempt has been made to determine what proportion of the higher management income per cow was due to pasture. Those in the high pasture groups averaged higher production per cow and some of this was due no doubt to having a pasture. With more pasture the amount of labor required for feeding, of course, tends to be lower. This is another factor which does not show up in the above table.

TABLE 8. STANISLAUS COUNTY DAIRY RECORD AVERAGE COMPARISONS

	6 yrs. 1928- 33	1938-41		1948		1949	
		Mkt. milk	Mfg. milk	Mkt. milk	Mfg. milk	Mkt. milk	Mfg. milk
Average no. of records annually	13	10	12	13	16	12	7
Av. no. of cows per herd	25	72	38	94	25	86	28
Animal units per cow	1.47	1.45	1.51	1.45	1.52	1.49	1.63
Lbs. milkfat sold per cow	300	320	323	367	340	365	366
Av. price per lb. fat	\$0.48	\$0.52	\$0.41	\$1.26	\$1.06	\$1.12	\$.80
Net cost of production per lb.	.52	.47	.30	1.09	.96	1.02	.77
Management income per lb.	-.04	.05	.11	.17	.10	.10	.03
Hours of labor per cow	112	123	89	99	92	96	77
Av. value per hr. labor	\$0.35	\$0.37	\$0.32	\$0.99	\$1.00	\$1.00	\$1.00
Pounds of hay per cow	10798	9105	8838	8679	9358	7868	10907
Pounds of concentrates	1270	1574	1419	2299	1927	2612	1949
Lbs. silage and green feed	4193	7418	6351	4699	4757	3786	4567
Animal unit months of pasture	3.8	6.2	8.1	8.8	6.3	8.7	7.8
Cost of hay per ton	\$10.35	\$9.10	\$8.40	\$26.82	\$24.68	\$22.84	\$20.14
Cost of concentrates per cwt.	1.59	1.35	1.35	4.11	4.04	3.03	3.48
Silage & greens per ton	4.59	3.80	3.46	8.02	6.59	4.72	4.48
Pasture cost per A.U. Mo.	3.24	2.42	1.96	6.52	6.18	6.99	5.61
Net stock income per cow	\$21.60	\$21.20	\$36.16	\$45.42	\$59.78	\$38.52	\$69.45
Miscel. sacks, manure	.19	3.36	5.33	4.04	6.03	2.99	7.54
Income from milk	144.62	165.59	133.37	462.00	358.50	409.05	291.73
Total income per cow	166.41	190.85	174.86	511.46	424.31	450.56	368.72
Hay cost per cow	\$56.57	\$41.42	\$37.15	\$116.41	\$115.49	\$89.86	\$109.81
Concentrate cost per cow	19.09	21.13	19.05	94.58	77.87	88.17	67.87
Silage and green feed	9.14	14.08	10.99	18.41	13.35	8.94	10.23
Pasture cost	12.34	15.02	15.92	57.16	38.79	61.14	43.52
Feed cost per cow	97.14	91.65	83.11	286.56	245.50	248.11	231.43
Hired labor	13.13	34.85	17.44	72.90	10.64	71.21	15.39
Operator's & family labor	27.15	10.89	10.64	24.41	81.20	24.35	61.81
Miscellaneous	14.39	18.11	11.10	32.66	24.01	36.35	18.72
Deprec. bldg., & equip.	6.86	5.12	3.43	12.67	6.96	12.92	7.18
Interest on investment	18.51	14.60	11.75	21.82	22.64	21.15	24.27
Total expense per cow	177.18	175.22	137.47	451.02	390.95	414.09	358.80
Management income per cow	-10.77	15.63	37.39	60.44	33.36	36.47	9.92
Farm income per cow	34.90	41.12	59.78	106.67	137.20	81.97	96.00
Average investment per cow, dairy enterprise	308.56	292.00	235.06	436.36	452.79	423.07	485.49

Record averages for two earlier studies are presented above for comparison with the 1948 and 1949 records in the current study. For the six years, 1928-33, records were not summarized separately for market and manufacturing milk. It is interesting to note in this table that the 1949 record year was less profitable for manufacturing milk dairies than the prewar 1938-41 average, although the average price received per pound fat was nearly double. Market milk dairies in 1949 were not even as profitable as the prewar manufacturing milk average. Even if management income were as high in 1949 as the 1938-41 average, actual profit in terms of purchasing power would still be considerable less because of inflation.