COSTS & RETURNS on Matanuska Valley DAIRY FARMS

a five-year summary
1957 - 1961

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This study is based on 15 dairy farms in the Matanuska Valley during the period of 1957 through 1961. While all of the farms are owner-operated 80 per cent of them also utilize additional rented crop land. Eleven of the dairies have cooperated for the entire five years. Replacements were necessary in four cases because of changes in business organization or ownership. These dairies, varying in size from 10 to over 50 cows, make up a fairly representative sample of approximately 25 per cent of the dairy farms in the area. They accounted for 26 per cent of the total cow population in the Valley in 1961.

SUMMARY OF 1961 RESULTS

Key factors related to production costs and income for 1961 are summarized in Table 1. To illustrate strong and weak points, the averages for the three high and three low income farms are shown along with the averages for all 15 dairies. A fourth column has been provided for dairymen who wish to make a comparison of their own operation. The Experiment Station will be glad to cooperate in making this comparison.

PRODUCTION - The three high income farms produced nearly twice as much milk as the three low income farms. This additional production was achieved with only 19 per cent more cows and was made possible because cows on the high income farms produced 3,677 more pounds of milk per head. The cows on these high income farms were on the production line 90 per cent of the time as opposed to only 73 per cent for cows on the low income farms. Some of the cows on these low income farms are not paying their room and board and should be culled. Culling should be based not only on the amount of milk a cow produces during her lactation period but also on timely breeding.

Two sets of figures relating to herd size are shown. The first is for the number of cows 2 years old and over--those that are capable of production. The second figure is for the average number of cows actually being milked. A good dairy should average at least 85 per cent of the herd on the production line. A cow that is out of production more than 15 to 20 per cent of the time is probably worth more for hamburger than milk.

Sometimes it is not the cow that is responsible for low production and long pauses between lactations. Proper feeding, not only in quantity but quality, along with good management practices substantially add to total production. Records of calving dates and heat periods, plus pregnancy testing of questionable breeders, will help keep more cows in production. It is the small details of management that can add up to success or failure.

TABLE I

COSTS OF PRODUCTION AND INCOME ANALYSIS OF
15 DAIRY FARMS - MATANUSKA VALLEY - 1961

	AVERAGES FOR DAIRY INDUSTRY			
PRODUCTION	THREE HIGHEST INCOME	ALL FARMS	THREE LOWEST INCOME	YOUR OPERATION
Total milk per farm . . . . . pounds	504,165	344,212	266,758	
Cows 2 years old and over . . number	48	42	39	
Production per cow . . . . pounds	10,576	8,183	6,899	
Average number milked . . . . number	43	32	28	
Production per cow milked pounds	11,725	10,602	9,415	
Average, herd milked . . . per cent	90	77	73	
INVESTMENT PER FARM				
Total investment	$110,823	$96,786	$94,769	
Total debt	32,383	50,204	65,720	
Owner's equity	78,440	46,584	29,049	
Percent indebtedness	29	52	69	
Interest paid	1,604	2,309	2,648	
Machinery investment, total	16,282	14,407	13,961	
Per cultivated acre	94	106	97	
Investment per cow 2 years & over .	2,325	2,459	2,451	
Investment per cow milking.	2,577	3,209	3,345	
GROSS CASH INCOME RECEIVED				
Per cwt of milk sold	$ 10.47	$ 10.74	$ 10.49	
Total for milk sold	52,748	36,680	27,997	
Total from other sources	1,679	1,360	1,067	
Total income	54,427	38,040	29,064	
CASH COST OF PRODUCTION				
Total cash expenses	$ 34,605	$27,702	$24,401	
Per cwt of milk produced	6.86	8.05	9.15	
Miscellaneous costs/cwt produced . .	2.53	2.79	3.12	
Total feed costs per cwt of milk . .	4.33	5.26	6.03	
Feed purchased per cwt	2.15	2.35	2.75	
Feed raised per cwt	2.18	2.91	3.28	
Total costs per cow over 2 years . .	721	640	631	
Total costs per cow milked	805	827	861	
NET INCOME				
Per cow 2 years and over, cash income	$ 436	$ 277	$ 121	
Per cow milking, cash income	484	351	165	
Total cash income	19,822	10,338	4,633	
Return to equity	4,861	2,880	1,750	
Depreciation, buildings & equipment.	2,404	2,499	2,911	
Net income	12,557	4,959	- 28	
Per cow 2 years and over	261	118	-.72	
Per cow milking	292	153	- 1.00	

INVESTMENT - As would be expected the high income farms, which were larger in size, had the greatest total investment. More important, however, their investment per cow was less. Major investments such as milk parlors, milk houses, barns and machinery are necessary on all farms regardless of size. Higher producing farms can make more efficient use of these items. Additions if any to handle a larger volume of milk are usually small in comparison to the cost of the basic facilities.

The higher income farmers had a 71 per cent equity in their investment compared with a 31 per cent equity held by the low income farmers. This difference in equity is partly explained by the fact that the higher income farms had been operated by their present managers for a longer period of time. Of more importance, the low income farms had less income that could be applied to the repayment of debt after operating expenses and family living cost had been met. The interest paid on indebtedness amounted to 31 cents per hundred weight of milk sold for the high income farms, 99 cents for the low income group and 67 cents for all of the farms.

GROSS INCOME - There was no appreciable difference in the selling price of milk between the various farms. Milk sales accounted for 92 per cent or more of the gross income on every farm, and averaged approximately 96 per cent on all farms. The difference in income between the high and low income farms lies in the volume of milk sold, as related to other organizational and management factors.

COST OF PRODUCTION - The average cash cost of producing a hundred pounds of milk in 1961 was $8.05. This was an increase of $0.19 over 1960. The cash cost of production on the high income farms was $1.19 below the average and on the low income farms $1.10 above the average.

Only in hired labor did the high income farms significantly exceed the average, or low income farms in the cost of producing milk. On the other hand, expenditures for feed, seed, fertilizer, repairs, veterinary expenses, fuel, interest and electricity were significantly higher per hundred weight of milk on the low income farms.

Feed costs are the largest items of expense on all dairy farms. The low income farms spent $1.70 more per hundred weight of milk produced for feed than the high income farms. There appears to be little difference in the actual cost of the feed on high and low enterprises. Actual differences in feeding cost is largely a matter of how efficiently the feed was utilized by the cow in producing milk. Cows of the same size and breed will require about the same amount of feed to maintain body weight and temperature. While the high producing cow will need additional feed to produce more milk, the cost of feed for maintenance is spread over more pounds of milk. This is illustrated by the fact the high income farms spent $90 more per cow in the herd, but $55 per cow less when figured on the basis of the average number of cows being milked.

TABLE II

COST OF PRODUCING 100# OF MILK

15 MATANUSKA DAIRY FARMS 1961

	THREE HIGHEST INCOME	AVERAGE FARM	THREE LOWEST INCOME
Hired labor	$1.48	$1.07	$ .78
Feed purchased	2.15	2.35	2.75
Seed and fertilizer	.70	1.21	1.58
Machine hire and hauling	.40	.41	.54
Supplies	.25	.17	.11
Repairs on auto equip. & improvements	.31	.43	.65
Veterinary and breeding	.10	.17	.22
Gas, oil and fuel	.23	.37	.41
Taxes	.20	.18	.15
Insurance	.14	.16	.21
Interest	.33	.67	.99
Electricity and telephone	.15	.22	.30
Rent	.06	.21	.08
Miscellaneous expenses	.36	.43	.38
TOTAL CASH COSTS*	$6.86	$8.05	$9.15
Return to equity	.96	.84	.65
Depreciation	.48	.73	1.09
TOTAL COST	$8.30	$9.62	$10.90
Average price received	10.47	10.66	10.49
NET INCOME (return to labor and management)	2.17	1.04	-.41

*All farm expenses have been figured against the cost of producing milk. In actual practice approximately 3.6 per cent of the gross farm income is derived from sales and custom work other than milk production, this is equivalent to an additional income of $.39 per hundred weight of milk sold, of this amount $.20 was derived from sale of dairy stock. From the data available it was not possible to allocate the expense between the cost of producing milk and other sources of farm income.

If the expenses were allocated proportionally to the gross income this would reduce the cost of producing milk by $.29 per hundred weight, and increase the return to labor and management to $1.39 on the average farm.

NET INCOME - The table on net income clearly indicates that the combination of high production and low cost is more important in producing income than the size of the herd. The high income farms returned approximately three times as much income per cow after cash costs as the low income farms. After subtracting the cost of depreciation on buildings and equipment and making an allowance for a return on the owners' equity, the low income farms failed to yield any return for family labor and management.

SUMMARY OF 1957-1961 TRENDS

The selected dairies have shown an increase in size of herd and total production for each succeeding year of the study. By 1961 herd size and production per farm had doubled. This increase has not been at a steady rate. Increase in size in 1958 and 1959 were a result of normal growth. In 1960 there was a sudden jump in size followed by additional expansion in 1961. The rapid growth in these latter two years can be largely attributed to two factors. In 1960 the military services started purchasing fresh milk for troop issue which greatly increased the size of the market. At about the same time Alaska experienced a more favorable position in farm financing. For the first time the Federal Land Bank started loaning money in Alaska and more credit was made available from other sources.

The investment per farm has also shown a similar trend during this time. While herd size and production have doubled, farm investment increased by 75 per cent. This increase has been accomplished primarily with borrowed money. Between 1957 and 1961 farm investment rose $42,000. Deficit financing contributed $31,000 while $11,000 was from increase in owner's equity. At the start of the period farmers had a 62 per cent equity in their business, by the end of 1961, their equity had decreased to 48 per cent. Value of livestock constituted the largest increase in investment. Value of land and buildings also showed a substantial increase, which was about equally divided between increased land values and additional land and buildings. Despite the increase in total investment, investment per cow in the herd was at a minimum in 1961, since these increases were more than matched by additions to the herd size.

The price received per hundred weight of milk has fluctuated from $10.25 in 1958 to $10.95 in 1959. The average price received by these particular farmers during the five year period was $10.72. Milk sales have accounted for 90 to 96 per cent of the gross income during the years of the study. The volume of milk sold is the primary factor determining gross income of these farms.

The cost of producing 100 pounds of milk was highest in 1957 at $8.26 and lowest in 1958 at $7.26. Since 1958 there has been a steady upward trend in production cost to $8.05 per hundred weight in 1961. Feed has consistently run approximately two-thirds of the production cost, with purchased feed amounting to 45 per cent of the total feed cost and home grown feeds 55 per cent. Non-feed costs which include expenditures for animal care, housing, dairy equipment, milk hauling, and so forth, account for the other third of production costs. There has been no consistent trend in cost per cow which has varied from $637 to $750.

TABLE III

FIVE YEAR SUMMARY, COST OF PRODUCTION AND INCOME
ANALYSIS OF 15 DAIRY FARMS - MATANUSKA VALLEY
1957 - 1961

	1957	1958	1959	1960	1961	Average
PRODUCTION						
Total milk per farm . . . . . pounds	170,119	211,126	228,318	293,724	344,212	249,500
Cows 2 years old and over . . number	21	24	25	37	42	30
Production per cow . . . . pounds	8,101	8,550	9,125	8,311	8,183	8,454
Average number milked . . . . number	15	19	21	27	32	23
Production per cow milked pounds	11,047	11,170	11,009	10,965	10,602	10,959
Average, herd milked . . . .per cent	71	79	84	73	77	76
INVESTMENT PER FARM						
Total investment	$55,009	$58,735	$66,303	$89,262	$96,786	$73,219
Total debt	19,567	21,580	27,510	45,367	50,204	32,845
Owner's equity	35,442	37,155	38,793	43,895	46,584	40,374
Percent indebtedness.	38	37	43	51	52	45
Interest paid	1,004	1,182	1,334	1,657	2,309	1,493
Machinery investment, total	9,861	10,378	10,649	13,086	14,407	11,676
Per cultivated acre	118	124	71	104	106	105
Investment per cow 2 years & over . .	2,855	2,468	2,815	2,638	2,459	2,647
Investment per cow milking	3,811	3,108	3,430	3,514	3,209	3,412
CASH GROSS INCOME RECEIVED						
Per cwt of milk sold	$ 10.79	$ 10.25	$ 10.95	$ 10.93	$ 10.66	$ 10.72
Total for milk sold	17,799	20,562	24,508	31,616	36,680	26,233
Total from other sources	1,970	1,394	1,984	2,179	1,360	1,777
Total income	19,870	21,956	26,492	33,795	38,040	28,010
CASH COSTS OF PRODUCTION						
Total cash expenses	$14,052	$15,328	$17,512	$23,405	$27,702	$19,600
Per cwt of milk produced	8.26	7.26	7.67	7.86	8.05	7.82
Miscellaneous costs per cwt produced	2.71	2.44	2.91	2.43	2.79	2.66
Total feed costs per cwt of milk. . .	5.55	4.82	4.76	5.43	5.26	5.16
Feed purchased per cwt	2.55	2.29	2.19	2.46	2.35	2.37
Feed raised per cwt	3.00	2.53	2.57	2.97	2.91	2.79
Total cost per cow over 2 years . . .	750	661	721	637	640	682
Total costs per cow milked	1,015	809	867	851	827	874
NET INCOME						
Per cow 2 years and over, cash income	$ 277	$ 313	$ 321	$ 281	$ 246	$ 288
Per cow milking, cash income.	388	394	389	384	318	375
Total cash	5,819	7,444	7,523	10,390	10,338	8,302
Return to equity	2,238	2,414	2,381	2,633	2,880	2,509
Depreciation on buildings & equipment	1,572	1,617	1,804	2.170	2,499	1,932
Net income	2,009	3,413	3,338	5,586	4,959	3,861
Per cow 2 years and over	96	142	133	152	118	128
Per cow milking	134	180	159	206	153	168

Net income per farm was highest in 1960 at $5,586 and lowest at $2,009 in 1957. While 1961 produced next to highest total net income, the net income per cow was next to the lowest of any year. The highest net return per cow was $152 in 1960 and the lowest was $96 in 1957.

FUTURE OUTLOOK AND MANAGEMENT SUGGESTION

In view of the past study, what does the future for dairy farmers in the Matanuska Valley appear to be like?

The average price received by farmers for their milk has been fairly steady at around $10.72 for the past five years. There is nothing to indicate at the present time that price paid farmers will increase in the next few years. With the coming of better techniques for handling and shipping fresh milk over long distances, outside areas with lower production costs are now able to be more competitive on the Alaska market. As this competition increases there is a real possibility that local price paid for milk will be forced downward.

The outlook for what a farmer must pay is just the opposite. The local and national trend has been upward for the past twenty years and will probably continue to rise. This in effect will be putting a two-way squeeze on the farmer. The higher income farms in this study can live with these prospects. Unless there is improvement in efficiency, however, the lower income farms will be forced out of the dairy business.

To improve his income the farmer has two broad courses, improve efficiency or increase size. For most dairy farmers increased efficiency is the first consideration. What is efficiency and how do you measure it? Stated simply, efficiency is the most pounds of milk produced at the least cost. The two are closely related--low cost cannot be achieved without good production and high production can help reduce costs. The following points are suggested for the farmer wishing to improve his efficiency:

- Keep enough records so you will know what it is costing to produce a hundred pounds of milk. Set this information down as shown in Table II, so that you can see which costs are high.

- Keep track of your breeding dates and length of lactation periods as well as production records. A cow that is out of production for more than 4 months probably will not pay her yearly board bill.

- A profitable herd will have to average at least 10,000 pounds per year per cow. In 1961 the total charge for keeping a cow one year (cash costs, depreciation and return on equity) was $768. If milk sells for $10.66 there is no profit for the dairy farmer on the first 7,245 pounds of production.

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