March 1970 A. E. Ext. 559

1969

FARM BUSINESS SUMMARY

CORTLAND COUNTY

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FARM BUSINESS SUMMARY
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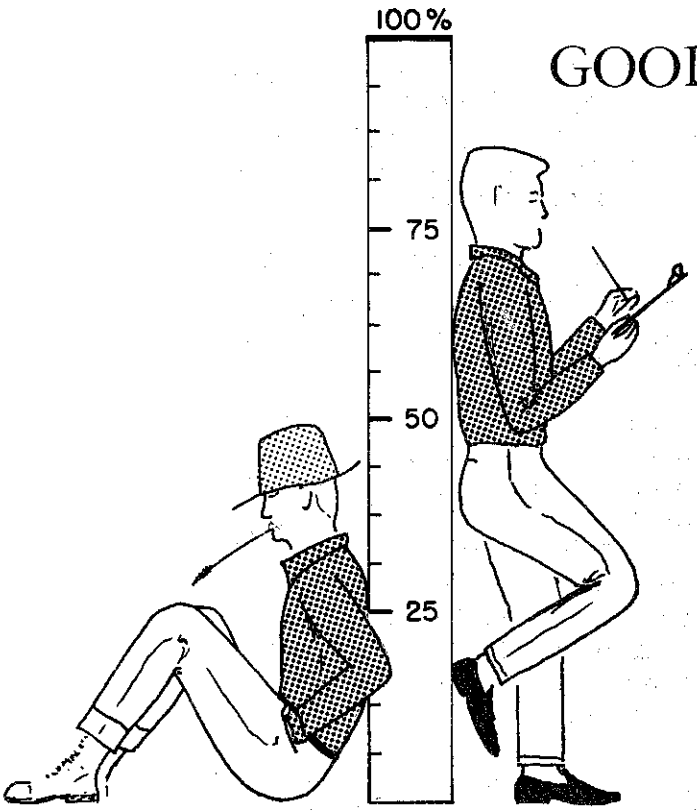
Each year for more than 10 years a group of Cortland County dairy farmers have cooperated in a farm business management program. Financial records of cooperating farmers have been summarized and analyzed with the objective of providing members of the group with standards of comparison by which to judge their own management performance.

Starting in 1959, membership in the group has varied between 13 and 30 farms, with a consistent turnover of membership, as farmers have been encouraged to participate for three years only. In 1969, 31 Cortland County farms were included in this summary.

Between 1960 and 1968, the number of dairy farmers in New York State decreased from approximately 40,000 to about 25,000. Projections based on this trend indicate that the number of dairymen in 1980 will be approximately 13,000. One of the major factors that will determine whether a dairyman of today is a dairyman in 1980 is his ability as a manager. Some dairymen will expand, others stay at about the same size and still others will quit farming. It is a callenge to each dairyman to decide upon the best course of action for himself and his family. A study of your business records and budgeting of some possible changes for the future will help you to make this decision.

The primary objective of these business management projects is to help cooperators do a better job of keeping and using records, and thus improve their skill as farm managers. The summary and analysis presented in this booklet should also be useful to farmers in Cortland County who are not enrolled in the business management projects, and to others connected with the agriculture of the County.

This summary was prepared by Robert S. Smith, Department of Agricultural Economics, New York State College of Agriculture, Cornell University, in cooperation with Ira Blixt and Carl Crispell, Cortland County Extension Service.



GOOD MANAGEMENT IS BASIC

How do you measure up ?

1. Have you developed a systematic approach to management problems?

2. Do you have the facts on your business?

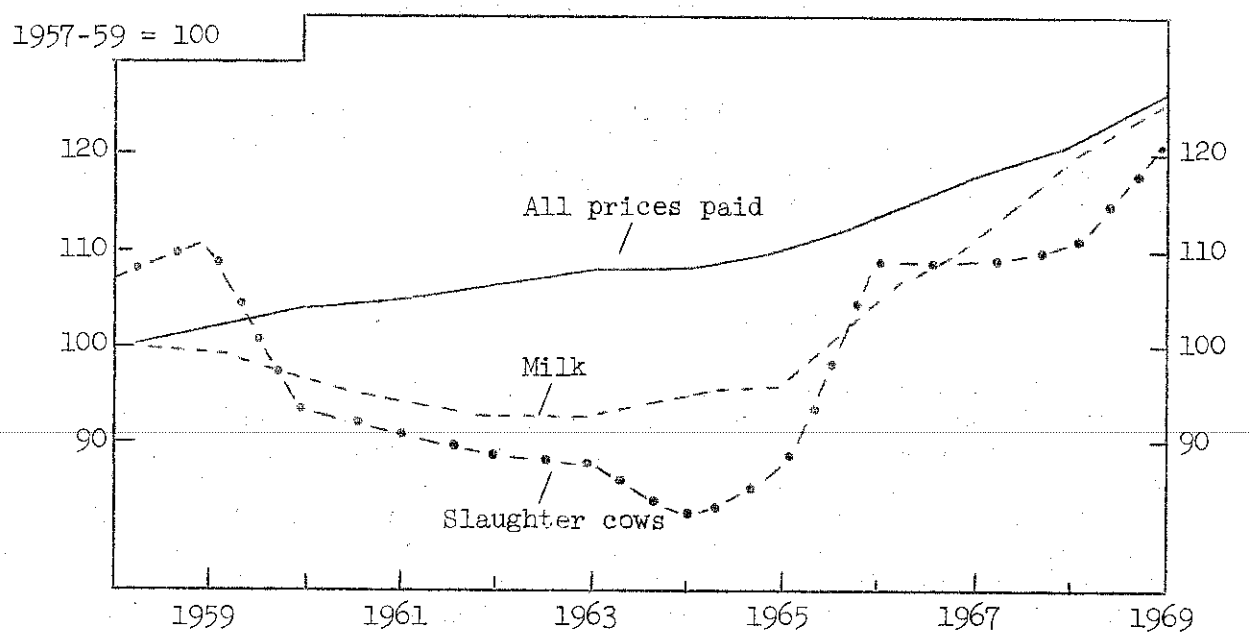
3. Are you improving your managerial skills?

Steps in making a management decision :

1. Locate the trouble spot (problem)
2. What is your objective? (goal)
3. Size up what you have to work with (resources)
4. Look for various ways to solve the problem (alternatives)
5. Consider probable results of each way (consequences)
6. Compare the expected results (evaluate)
7. Select way best suited to your situation (decision)
8. Put the decision into operation (action)

This workbook can help you !

PRICES RECEIVED AND PAID BY N. Y. DAIRY FARMERS



SOURCE: U.S.D.A. Agricultural Prices

Prices are one of the important factors affecting farm incomes. The relationship of prices received and prices paid determines the general level of farm incomes. The blended New York farm price for 3.5% milk in 1969 averaged $5.67 per hundredweight. This was 24 cents higher than the average for 1968 and $1.40 more than 1965. Cull dairy cow prices also were good in 1969. The overall index of prices paid by New York dairy farmers continued to rise in 1969.

In recent years, prices of some farm inputs have risen while others have declined. From 1965 to 1969, farm wages rose 35 percent, dairy cows rose 41 percent, while feed declined 3 percent, and fertilizer prices declined slightly. These differences give rise to management questions concerning substitutions.

AVERAGE YEARLY PRICES RECEIVED AND PAID BY N. Y. FARMERS, 1960-69

Year	Milk (cwt.)	Slaughter cows (cwt.)	Dairy cows (head)	Dairy ration (ton)	Wages per month with house	Prices paid by New York dairymen
1960	$4.31	$15.00	$278	$71	$210	104
1961	4.21	14.60	260	72	213	105
1962	4.14	14.26	245	74	218	106
1963	4.10	14.01	234	76	221	108
1964	4.21	13.17	237	74	227	108
1965	4.27	13.91	238	76	235	110
1966	4.79	17.35	269	80	258	113
1967	5.07	17.33	303	80	291	118
1968	5.43	17.58	319	74	306	121
1969*	5.67	19.42	336	74	316	126

* Preliminary

PART I
SUMMARY OF THE FARM BUSINESS

The first part of this booklet is designed to enable you to summarize your business in a systematic, orderly manner. It provides an opportunity to study your physical resources, capital investment, receipts, expenses and business income in depth.

MANAGEMENT AND OTHER RESOURCES

We judge the manager of a business on the basis of how much net income he can make the business produce. But the resources a manager has or does not have may severely restrict his ability to produce. A farm manager with small amounts or low quality of land, livestock, equipment, labor, and capital cannot produce well when judged against a manager who has these resources in large amounts and high quality. Therefore, knowledge of what resources are available and how they are combined is fundamental to judging management performance. Below are listed some facts about the physical resources of this group of farms.

FARM ORGANIZATION

Item	My farm 1969	31 Cortland Co. farms, 1969 Average	Average of 568 New York farms, 1968
Labor:			
Man equivalent	_____	2.1	2.1
Livestock: (number)			
Cows	_____	59	58
Heifers	_____	43	40
Crops: (Acres grown)			
Hay	_____	83	86 (557)*
Hay crop silage	_____	2	27 (84)
Corn for silage	_____	45	41 (515)
Corn for grain	_____	5	30 (149)
Oats for grain	_____	12	25 (275)
Total crop acres	_____	150	155

* Number of farmers that reported each crop.

CAPITAL INVESTMENT

Capital investment gives an indication of the capital resources available to the business manager. His ability to borrow is another part of his capital resource.

Management of the capital resource of a farm business is becoming increasingly important. To measure the complete financial progress of a dairy farm, year to year changes in the capital structure must be considered.

In this report borrowed as well as owned capital is included and the end of year farm inventory is used as the measure of capital investment.

FARM INVENTORY VALUES, END OF YEAR

Item	My farm 1969	31 Cortland Co. farms, 1969 Average per farm	31 Cortland Co. farms, 1969 Percent of total	Average of 568 New York farms, 1969
Machinery and equip.	$_____	$ 24,859	22	$ 25,247
Livestock	_____	31,381	27	27,317
Feed and supplies	_____	7,236	6	7,638
Land and buildings	_____	50,818	45	51,733
Total Investment	$_____	$114,294	100	$111,935

In many farm businesses, poor capital efficiency is a major cause of low profits. The following measures of capital efficiency will help you evaluate your overall capital management.

INVESTMENT ANALYSIS

Item	My farm 1969	Average per farm 31 Cortland Co. farms, 1969	Average per farm 578 New York farms, 1969
Machinery and equipment per cow	$_____	$ 421	$ 435
Land and buildings per cow	$_____	$ 861	$ 890
Total investment per cow	$_____	$ 1,937	$ 1,930
Total investment per man	$_____	$54,426	$53,300
Total investment per crop acre	$_____	$ 762	$ 722
Capital turnover*	_____yrs.	1.9 years	2.5 years

* Calculated by dividing the total year end investment by the total cash receipts for the year.

WHERE THE MONEY CAME FROM

A successful farm business requires a level of gross earnings great enough to pay all costs, both operating and overhead, and leave a margin for the operator's labor. Here we examine the sources of and total receipts for this group of dairy farms.

FARM RECEIPTS

Item	My farm 1969	31 Cortland Co. farms, 1969 Average per farm	31 Cortland Co. farms, 1969 Percent of total	Average of 568 New York farms, 1968
Milk sales	$_____	$42,230	87	$39,477
Livestock sold	_____	4,673	10	3,915
Crop sales	_____	408	1	393
Miscellaneous*	_____	1,131	2	1,301
TOTAL CASH RECEIPTS	$_____	$48,442	100	$45,086
Increase in inventory	_____	12,448		8,161
TOTAL FARM RECEIPTS	$_____	$60,890		$53,247

* Includes work off farm, conservation payments, refunds, etc.

Total cash receipts amounted to $48,442 per farm. The sale of milk, cull dairy cows and bob calves accounted for 97 out of every 100 dollars of cash receipts in this group of specialized dairy farms.

Increases in inventory resulting from more cows, more machinery and equipment, additions to buildings or a better feed situation are a normal occurence in most "going" farm businesses and are considered as farm receipts. These items could have been sold and turned into cash receipts, but instead the operator decided to invest this additional capital in his business. The cost of producing or acquiring these items is included in the farm expenses. For this group of farms, the net increase in inventory amounted to $12,448 per farm.

SELECTED INCOME FACTORS

Factor	My farm 1969	Average per farm: 31 Cortland Co farms, 1969	Average per farm: 568 New York farms, 1968
Average price per cwt. of milk sold	$_____	$ 5.69	$ 5.52
Milk sales per cow	$_____	$ 716	681
Total cash receipts per man	$_____	$23,068	$21,470

WHERE THE MONEY WENT

Some farmers may be able to increase profits by reducing costs. This requires a complete knowledge of what the business expenses are. With the large amount of cash flowing through a farm business today it is important that the farm operator study his expenses closely. Here is an opportunity for you to see how you are doing.

FARM EXPENSES

Item	My farm 1969	31 Cortland Co. farms, 1969 Average per farm	Average of 568 New York farms, 1968
Hired labor	$_____	$ 3,488	$ 3,006
Dairy feed bought	_____	11,357	9,459
Other feed bought	_____	230	259
Machine hire	_____	183	287
Truck, tractor, machinery expense	_____	1,723	1,605
Auto expense (farm share)	_____	264	247
Gasoline and oil	_____	1,315	1,136
Breeding fees	_____	549	401
Veterinary and medicine	_____	792	645
Other dairy, livestock expense	_____	1,630	1,745
Lime and fertilizer	_____	1,818	1,732
Seeds and plants	_____	557	460
Spray, other crop expense	_____	421	430
Building, fence expense	_____	891	775
Taxes, insurance	_____	1,566	1,851
Electricity, telephone (farm share)	_____	806	741
Miscellaneous	_____	953	818
TOTAL CASH OPERATING EXPENSES	$_____	$28,543	$25,597
New machinery	_____	7,326	6,178
New buildings, improvements	_____	5,420	3,301
Livestock purchased	_____	2,121	1,823
Unpaid family labor	_____	726	818
Decrease in inventory	_____	--	--
TOTAL FARM EXPENSES	$_____	$44,136	$37,717

FINANCIAL SUMMARY OF THE YEAR'S BUSINESS

The pay-off in management is in net income. There are several ways of measuring net income or profit for any business, including a farm. Large corporate businesses often express profit as net income before taxes, as net income after taxes, or as net income per dollar of sales. One of the best measures of profit for a farm business is labor income.

FARM INCOME AND LABOR INCOME

Item	My farm 1969	Average per farm: 31 Cortland Co. farms, 1969	Average per farm: 568 New York farms, 1968
Average capital investment	$_____	$108,070	$107,855
TOTAL FARM RECEIPTS	$_____	$60,890	$53,247
TOTAL FARM EXPENSES	_____	44,136	37,717
FARM INCOME	$_____	16,754	15,530
Interest on capital at 7%	_____	7,565	7,550
LABOR INCOME per farm	$_____	$ 9,189	$ 7,980
Number of operators on farms	_____	35	610
LABOR INCOME per operator	$_____	$ 8,262	$ 7,431

Changes in inventories during the year are included in figuring farm income and labor income. Increases in inventories due to expanding the business are considered as farm receipts and decreases in inventories are included as farm expenses. Interest payments and payments on debts are not included in the farm expenses.

"Farm Income" is the difference between total receipts, including inventory increases, and total expenses, including inventory decreases, but not interest paid. Farm income is really the amount provided by the business to pay for the use of all capital and the labor and management of the operator.

"Labor Income" is a measure used to determine the return the farm operator receives for his labor and management. It is the amount left after paying all farm expenses, and deducting a charge for unpaid family labor and for interest on the capital invested. To make all farms comparable, a seven percent interest charge on the average capital investment (average of beginning and end inventories) is deducted to get labor income. Labor income is the measure used most commonly when studying or comparing farm businesses.

Even in a very efficient and profitable dairy farm business, labor income can fluctuate markedly from year to year. Therefore, labor income over at least a three-year period should be studied before definite conclusions are drawn.

FARM CASH OPERATING INCOME AND INCOME AVAILABLE FOR DEBT REPAYMENT

Item	My farm 1969	Average per farm: 31 Cortland Co. farms, 1969	Average per farm: 568 New York farms, 1968
Total cash farm receipts	$_____	$48,442	$45,086
Total cash operating expenses	_____	28,543	25,597
FARM CASH OPERATING INCOME	$_____	$19,901	$19,489
Less: Family living expense	_____	6,097	6,275*
Income available for debt repayment and purchase of capital items	$_____	$13,804	$13,214

* Estimated at $5,400 per operator per year. Some farms had more than one operator.

Farm Cash Operating Income indicates the cash available from the year's operation of the farm business for family living, interest and debt payments, and new capital purchases or investments. The income available for debt repayment and purchase of capital items is the amount provided by the business for purchase of new machinery, livestock, real estate and interest and debt payments.

Both of these measures help provide a picture of the "cash flow" of the farm business. They are not good measures of farm "profit" because changes in inventory are not included.

RETURN ON INVESTMENT

Item	My farm 1969	Average per farm: 31 Cortland Co. farms, 1969	Average per farm: 568 New York farms, 1968
Farm income	$_____	$ 16,754	$ 15,530
Value of operator's labor*	_____	6,097	6,275
Return on Investment	$_____	$ 10,657	$ 9,255
Average capital investment	$_____	$108,070	$107,854
Rate of return on capital	_____%	9.9%	8.6%

* $5,400 per operator. Some farms had more than one operator. Value of operator's labor excludes privileges.

Return on Investment is the average return to all capital invested in the farm business after a charge has been made for the value of the operator's labor. In the above calculation the operator's labor has been valued at $5,400. Each farmer should use the value which, when added to the value of the use of his house and other privileges, equals what he could earn at another job.

PART II
ANALYSIS OF THE FARM BUSINESS

The key to success in farming is the overall management ability of the farm operator. This requires that he understand clearly, and more important apply the basic principles of farm management in making management decisions.

This section of the report presents guidelines for using these principles to help you analyze the profitability of your farm business. The "averages" presented provide useful standards for comparison whereby the relative strong and weak points and major problem areas of your business can be uncovered. Also presented are figures from the summary and analysis of New York dairy farms in 1968 and tables showing the basic relationship of various management factors to farm profits.

SIZE OF BUSINESS

There are some basic principles of farm management which a farm manager should recognize and use in making business decisions and in studying his business.

In general, large farms pay better than small farms. Larger farms make it possible to use equipment and other resources more efficiently. Further, if each hundredweight of milk is produced at a given profit, the more milk produced, the more profit. However, some 50 cow farms make larger incomes than others with 100 cows. This can happen when costs or other business factors are not in balance with the size of the farm business.

MEASURES OF SIZE OF BUSINESS

Measures	My farm 1969	Average per farm: 31 Cortland Co. farms, 1969	Average per farm: 568 New York farms, 1968
Number of cows	_____	59	58
Pounds of milk sold	_____	739,200	715,000
Man equivalent	_____	2.1	2.1
Total work units	_____	669	692

In the following table, the 568 New York dairy farms have been sorted into various size groups. For each size group the average labor income per operator is shown. Sorting the farms in this manner shows the relationship between size of business and farm profits.

COWS PER FARM AND LABOR INCOME
568 New York Dairy Farms, 1968

Number of cows	Number of farms	Percent of farms	Labor income per operator
Less than 25	13	3	$ 3,080
25 - 39	126	22	6,080
40 - 54	193	34	7,230
55 - 69	98	17	9,920
70 - 84	52	9	10,400
85 - 99	34	6	11,800
100 - 114	24	4	14,850
115 - 129	16	3	20,410
130 and over	12	2	19,270

RATES OF PRODUCTION

High rates of production of both animals and crops are very important to the success of a farm business. However, when high crop and animal yields are achieved without regard to cost, net income is reduced. In general, it pays to increase yields up to the point where the last unit of input (such as feed or fertilizer) is just paid for by the increase in output due to this last unit of input. Relatively few farmers have reached the point where the cost of an added input into milk or crop production is equal in value to the additional output.

MEASURES OF RATES OF PRODUCTION

Measure	My farm 1969	Average per farm: 31 Cortland Co. farms, 1969	Average per farm: 568 New York farms, 1968
Pounds of milk sold per cow	_____	12,400	12,300
Tons of hay per acre	_____	2.2	2.8
Tons of corn silage per acre	_____	13	14
Bushels of oats per acre	_____	60	61

DISTRIBUTION OF PRODUCTION PER COW
31 Cortland County Farms, 1969

Pounds of milk sold per cow	Number of farms
Under 10,000	2
10,000 - 10,999	6
11,000 - 11,999	7
12,000 - 12,999	3
13,000 - 13,999	5
14,000 and over	8

The relationship of production per cow to labor income on three sizes of farms is shown in the following table for the 568 New York dairy farms in 1968

MILK SOLD PER COW AND LABOR INCOME
568 New York Dairy Farms, 1968

Pounds of milk sold per cow	Number of farms	Number of cows	Feed bought per cow	Labor income
Under 10,000	58	55	$124	$ 4,250
10,000 - 10,999	66	56	130	6,990
11,000 - 11,999	112	56	150	7,880
12,000 - 12,999	133	60	169	9,670
13,000 - 13,999	112	62	173	10,240
14,000 and over	87	58	198	11,560

LABOR EFFICIENCY

Labor efficiency has a strong influence on the profits of any business and is becoming increasingly important on dairy farms, This is in part due to a steady increase in the substitution of machinery for labor and also increased adoption of new technology. Here we will examine several measures of labor efficiency, the most important one to dairy farmers being milk sold per man.

MEASURES OF LABOR EFFICIENCY

Measure	My farm 1969	Average per farm: 31 Cortland Co. farms, 1969	Average per farm: 568 New York farms, 1968
Number of cows per man	_____	29	28
Pounds of milk sold per man	_____	356,200	341,000
Work units per man	_____	319	330

DISTRIBUTION OF MILK SOLD PER MAN
31 Cortland County Farms, 1969

Pounds of milk sold per man	Number of farms
Under 300,000	7
300,000 - 399,999	16
400,000 - 499,999	4
500,000 and over	4

The relationship between milk sold per man and labor income is illustrated in the table below. Clearly the effect of labor efficiency on labor income is strong.

MILK SOLD PER MAN AND LABOR INCOME
568 New York Dairy Farms, 1968

Pounds of milk sold per man	Number of farms	Number or cows	Lbs. milk per cow	Labor income per operator
Under 200,000	29	47	9,800	$ 2,504
200,000 - 299,999	172	49	11,600	5,731
300,000 - 399,999	196	57	12,400	8,893
400,000 - 499,999	119	65	12,900	11,462
500,000 and over	52	87	13,400	16,627

COST ANALYSIS

Keeping costs in line is one of the most important factors affecting farm profits today. This does not mean cutting costs to the point of reducing efficiency, but keeping on the lookout for unnecessary or unwise expenditures. Since feed, machinery and labor account for the lion's share of farm expenses, these cost items should be studied in detail.

FEED COSTS

Feed bought is the largest single expense item on most dairy farms. The success of a dairy farm manager depends to a large degree on his ability to provide a good feeding program for his herd at reasonable cost. Because the feeding program includes both purchased and homegrown feed, and both roughage and concentrates, it is not easy to locate the week spots in efforts to control feed costs. The items on this page all have a bearing on feed costs, and may be helpful in planning a more efficient feeding program.

SELECTED FACTORS RELATED TO FEED COSTS

Item	My farm 1969	Average per farm: 31 Cortland Co. farms, 1969	Average per farm: 568 New York farms, 1968
Purchased Feed			
Dairy feed bought	$_____	$11,357	$9,459
Feed bought per cow	$_____	$ 188	$ 163
Feed bought as % of milk receipts	_____%	27%	24%
Feed bought per cwt. of milk sold	$_____	$ 1.54	$ 1.32
Roughage Harvested (hay equivalent)			
Hay (tons)	_____	195 tons	234 tons
Hay crop silage (_____tons ÷ 3)	_____	5 tons	12 tons
Corn silage (_____ tons ÷ 3)	_____	213 tons	174 tons
Total tons hay equivalent	_____	413 tons	420 tons
Tons hay equivalent per cow	_____	7.0 tons	7.2 tons
Other Considerations			
Total acres in crops per cow	_____	2.5 acres	217 acres
Lime & fertilizer expense/cow	$_____	$ 31	$ 30
Lime & fertilizer expense/crop acre	$_____	$ 12	$ 11
Number of heifers per 10 cows	_____	7.3	6.9

The above measures of harvested roughage consider only the quality. Quality is also significant and has a bearing on purchased feed and milk production. Such tings as overall quality, date first cutting was completed, percent legumes in the hay, and maturity of silage should be considered in evaluating and adjusting your roughage program.

POWER AND MACHINERY COSTS

Successful farm managers have substituted power and machinery for labor to a large degree. As this process continues, it is vitally important to retain control of the costs associated with owning and operating farm equipment. For this group of farms, power and machinery costs were about 21 percent of the total farm expenses.

POWER AND MACHINERY COSTS*

Item	My farm 1969	Average per farm: 31 Cortland Co. farms, 1969	Average per farm: 568 New York farms, 1968
Beginning inventory	$_____	$21,478	$22,575
New machinery bought	_____	7,326	6,178
Total	$_____	$28,804	$28,753
End inventory	$_____	$24,859	$25,247
Machinery sold	_____	105	168
Total	$_____	$24,964	$25,415
Depreciation	$_____	$ 3,840	$ 3,338
Interest at 7% av. inventory	_____	1,622	1,674
Gas and oil	_____	1,315	1,136
Machinery repairs	_____	1,723	1,605
Bale ties	_____	62	80
Milk hauling	_____	128	435
Other machine hire	_____	183	287
Auto expenses (farm share)	_____	264	247
Electricity (farm share)	_____	648	601
TOTAL MACHINERY COSTS	$_____	$ 9,785	$ 9,403
Gas tax refunds	$_____	$ 114	$ 81
Income from machine work	_____	75	106
NET MACHINERY COST	$_____	$ 9,596	$ 9,216
Net machinery cost per cow	$_____	$ 163	$ 159
Net machinery cost per crop acre	$_____	$ 63	$ 59
Net machinery cost per man	$_____	$ 4,570	$ 4,389
Net machinery cost/cwt. milk sold	$_____	$ 1.30	$ 1.27

* Does not include insurance, housing, or value of farm labor used in operation or repair.

LABOR AND MACHINERY COSTS

Most farm operators justify major machinery purchases as a way to save labor and increase productivity. How well labor and machinery are combined has an important bearing on farm profits.

LABOR AND POWER AND MACHINERY COSTS

Item	My farm 1969	Average per farm: 31 Cortland Co. farms, 1969	Average per farm: 568 New York farms, 1968
Value of operator's labor*	$_____	$ 6,097	$ 6,275
Hired labor	_____	3,488	3,006
Unpaid family labor	_____	726	818
TOTAL LABOR COSTS	$_____	$10,311	$10,099
Net power and machinery cost	_____	9,596	9,216
TOTAL LABOR & MACHINERY COST	$_____	$19,907	$19,315
Total per cow	$_____	$ 337	$ 333
Total per crop acre	$_____	$ 133	$ 125
Total per man	$_____	$ 9,480	$ 9,198
Total per cwt. milk sold	$_____	$ 2.69	$ 2.70

* Valued at $5,400 per operator. Some farms had more than one operator.

The following table shows the relationship of combined labor and machinery costs to labor income.

MACHINERY COST PER COW AND LABOR INCOME
568 New York Dairy Farms, 1968

Machinery cost per cow	Number of farms	Percent of farms	Labor income per operator
$225 & over	33	6	$ 4,800
$200 - $224	37	6	6,869
175 - 199	78	14	8,467
150 - 174	109	19	9,476
125 - 149	129	23	9,084
100 - 124	125	22	8,897
75 - 99	48	8	11,744
Less than $75	9	2	8,490

Farm Business Chart

The chart on pages 16 and 17 is a tool for use in analyzing a dairy farm business. It is essentially a series of measuring sticks combined into one tool.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
568 New York Dairy Farms,* 1968

Size of Business			Rates of Production			Labor Efficiency	
Man equivalent	No. of cows	Pounds milk sold	Pounds milk sold per cow	Tons hay per acre	Tons corn silage per acre	Cows per man	Pounds milk sold per man
4.0	124	1,545,800	15,300	4.6	21	44	554,600
2.8	86	1,075,600	14,000	3.6	19	37	464,800
2.4	69	868,800	13,400	3.2	17	34	417,600
2.2	59	736,800	13,000	3.0	16	31	379,300
2.0	53	651,500	12,600	2.8	15	29	346,000
1.8	48	587,300	12,100	2.6	14	27	322,100
1.6	43	524,100	11,600	2.4	13	24	298,700
1.4	40	472,600	11,100	2.2	12	23	271,500
1.3	36	408,900	10,400	2.0	10	21	245,700
1.1	28	301,500	8,900	1.6	8	18	195,800

* These farms are considerably above the average for all farms in New York State. For example, the median number of cows for the 568 farms was 50 compared with 36 for all farms in the State.

The Farm Business Chart is a tool which can be used in analyzing a business to determine the strong and weak points. The chart shows how far the individual farm is above or below the midpoint of the 568 farms for each factor.

The figure at the top of each column is the average of the top 10 percent of the farms for that factor. For example, the figure 4.0 at the top of the column headed "Man equivalent" is the average man equivalent on the 10 percent of the farms with the most men. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. The figure at the bottom of each column (1.1 for Man equivalent) is the average for the 10 percent of the farms which ranked lowest in that factor.

Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the top 10 percent for any other factor.

This chart is used in analyzing a particular dairy business by drawing a line through the figure in each column which shows where the farm being analyzed stands for that factor. This helps identify the strengths and weaknesses. Summarize these and list them at the bottom of page 17.

Farm Business Chart contd.

The cost control factors are ranked from low to high. For cost control factors, the lowest cost is not necessarily the most profitable. In some cases, the "best" might be somewhere near the average. Many things affect the level of these costs, and these items must be taken into account when analyzing the factors.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
568 New York Dairy Farms, 1968

Cost Control			
Feed bought per cow	% Feed is of milk receipts	Feed and crop expense per cwt. milk	Machinery cost per cow
$ 69	11%	$1.01	$ 87
103	16	1.27	106
125	20	1.44	117
145	22	1.55	129
160	24	1.65	140
173	26	1.74	150
185	28	1.84	162
201	30	1.93	177
218	31	2.07	195
262	37	2.38	241

Based on the analyzed results shown on the business chart, list below the strong and weak points of the business. Then identify the major problems.

STRONG POINTS:

WEAK POINTS:

MAJOR PROBLEMS:

After identifying problems, consider alternative ways of solving each problem. Each alternative should be studied in detail. A budgeting form can be used for projecting the likely results of each alternative.

FARM BUSINESS SUMMARY BY HERD SIZE
568 New York Dairy Farms, 1968

Item	My farm	Farms with less than 40 cows	40 to 54 cow farms	55 to 69 cow farms
Capital Investment (End of Year)				
Machinery and equipment	$_____	$15,049	$20,490	$ 26,851
Livestock	_____	15,016	21,633	28,442
Feed and supplies	_____	3,607	5,835	7,938
Land and buildings	_____	29,274	40,289	49,013
TOTAL INVESTMENT	$_____	$62,946	$88,247	$112,244
Receipts				
Milk sales	$_____	$21,733	$30,939	$ 40,843
Livestock sold	_____	2,234	3,035	4,241
Crop sales	_____	243	321	356
Miscellaneous receipts	_____	719	1,070	1,272
Total Cash Receipts	$_____	$24,929	$35,365	$ 46,712
Increase in inventory	_____	4,189	6,122	8,946
TOTAL FARM RECEIPTS	$_____	$29,118	$41,487	$ 55,658
Expenses				
Hired labor	$_____	$ 558	$ 1,587	$ 2,916
Dairy feed	_____	5,626	7,578	10,070
Other feed	_____	186	275	141
Machine hire	_____	153	188	328
Machinery repair	_____	829	1,282	1,583
Auto expense (farm share)	_____	184	250	246
Gas and oil	_____	661	941	1,158
Breeding fees	_____	256	335	419
Veterinary and medicine	_____	345	534	693
Other livestock expense	_____	930	1,267	1,729
Lime and fertilizer	_____	713	1,310	1,803
Seeds and plants	_____	231	386	487
Spray and other crop expense	_____	195	337	440
Land, bldg., fence repair	_____	392	621	742
Taxes and insurance	_____	1,047	1,450	1,786
Elec. and tel. (farm share)	_____	457	617	726
Miscellaneous expenses	_____	369	571	768
Total Cash Operating Exp.	$_____	$13,132	$19,529	$26,035
New machinery	_____	3,227	4,921	6,683
New real estate	_____	2,007	2,544	2,961
Purchased livestock	_____	1,045	1,344	1,967
Unpaid family labor	_____	831	898	823
TOTAL FARM EXPENSES	$_____	$20,242	$29,236	$ 38,469
Financial Summary				
Total Farm Receipts	$_____	$29,118	$41,487	$ 55,658
Total Farm Expenses	_____	20,242	29,236	38,469
Farm Income	$_____	$ 8,876	$12,251	$ 17,189
Interest on av. capital @ 5%	_____	3,043	4,259	5,389
Labor Income per Farm	$_____	$ 5,833	$ 7,992	$ 11,800
Number of operators	_____	141	218	121
LABOR INCOME PER OPERATOR	$_____	$ 5,751	$ 7,075	$ 9,557

FARM BUSINESS SUMMARY BY HERD SIZE
568 New York Dairy Farms, 1968

Item	My farm	70 to 84 cow farms	85 to 99 cow farms	Farms with 100 or more cows
Capital Investment (End of Year)				
Machinery and equipment	$_____	$ 36,325	$ 38,176	$ 47,617
Livestock	_____	36,180	42,525	60,363
Feed and supplies	_____	11,724	12,322	17,389
Land and buildings	_____	68,346	93,203	115,641
TOTAL INVESTMENT	$_____	$152,575	$186,226	$241,010
Receipts				
Milk sales	$_____	$ 53,053	$ 65,737	$ 85,278
Livestock sold	_____	4,433	6,466	8,877
Crop sales	_____	339	901	846
Miscellaneous receipts	_____	1,618	1,844	3,092
Total Cash Receipts	$_____	$ 59,443	$ 74,948	$ 98,093
Increase in inventory	_____	12,194	10,445	19,346
TOTAL FARM RECEIPTS	$_____	$ 71,637	$ 85,393	$117,439
Expenses				
Hired labor	$_____	$ 4,868	$ 6,626	$ 10,760
Dairy feed	_____	12,376	14,964	19,020
Other feed	_____	238	380	558
Machine hire	_____	252	463	858
Machinery repair	_____	2,078	2,758	3,697
Auto expense (farm share)	_____	341	318	268
Gas and oil	_____	1,413	1,610	2,497
Breeding fees	_____	537	647	701
Veterinary and medicine	_____	827	1,149	1,260
Other livestock expense	_____	2,241	3,163	4,302
Lime and fertilizer	_____	2,282	3,144	4,603
Seeds and plants	_____	601	733	973
Spray and other crop expense	_____	646	634	1,031
Land, bldg., fence repair	_____	1,109	1,410	1,680
Taxes and insurance	_____	2,527	3,248	4,030
Elec. and tel. (farm share)	_____	988	1,167	1,457
Miscellaneous expenses	_____	1,138	1,678	1,953
Total Cash Operating Exp.	$_____	$ 34,462	$ 44,092	$ 59,648
New machinery	_____	9,464	7,850	13,405
New real estate	_____	4,671	6,097	7,017
Purchased livestock	_____	1,779	2,737	4,853
Unpaid family labor	_____	358	644	1,050
TOTAL FARM EXPENSES	$_____	$ 50,734	$ 61,420	$ 85,973
Financial Summary				
Total Farm Receipts	$_____	$ 71,637	$ 85,393	$117,439
Total Farm Expenses	_____	50,734	61,420	85,973
Farm Income	$_____	$ 20,903	$ 23,973	$ 31,466
Interest on av. capital @ 5%	_____	7,324	9,050	11,567
Labor Income per Farm	$_____	$ 13,579	$ 14,923	$ 19,899
Number of operators	_____	69	45	66
LABOR INCOME PER OPERATOR	$_____	$ 10,233	$ 11,275	$ 15,678

SELECTED BUSINESS FACTORS BY HERD SIZE
568 New York Dairy Farms, 1968

Item	My farm	Farms with less than 40 cows	40 to 54 cow farms	55 to 69 cow farms
Number of farms		139	193	98
Size of Business				
Number of cows	_____	33	46	61
Pounds of milk sold	_____	398,700	563,800	745,500
Crop acres	_____	88	126	156
Man equivalent	_____	1.4	1.8	2.1
Total work units	_____	394	557	724
Rates of Production				
Milk sold per cow	_____	12,100	12,300	12,200
Tons hay per acre	_____	2.5	2.6	2.8
Tons corn silage per acre	_____	14	14	14
Bushels of oats per acre	_____	54	55	63
Labor Efficiency				
Cows per man	_____	24	26	29
Pounds milk sold per man	_____	284,800	313,200	355,000
Work units per man	_____	281	309	345
Crop acres per man	_____	63	70	74
Feed Costs				
Feed purchased per cow	$_____	$170	$165	$165
Crop expense per cow	$_____	$35	$44	$45
Feed & crop expense per cow	$_____	$205	$209	$210
Feed cost per cwt. milk	$_____	$1.41	$1.34	$1.35
Feed & crop expense/cwt. milk	$_____	$1.70	$1.70	$1.72
% Feed is of milk receipts	_____%	26%	24%	25%
Hay equivalent per cow	_____	6.6	7.1	7.3
Crop acres per cow	_____	2.7	2.7	2.6
Fertilizer & lime/crop acre	$_____	$8	$10	$12
Machinery Costs				
Total machinery costs	$_____	$4,930	$7,017	$8,771
Machinery cost per cow	$_____	$149	$153	$144
Machinery cost per man	$_____	$3,521	$3,898	$4,177
Machinery cost per cwt. milk	$_____	$1.24	$1.24	$1.18
Machinery cost per crop acre	$_____	$56	$56	$56
Capital Efficiency				
Investment per man	$_____	$44,961	$49,026	$53,450
Investment per cow	$_____	$1,907	$1,918	$1,840
Investment per cwt. milk sold	$_____	$16	$16	$15
Land and buildings per cow	$_____	$887	$876	$803
Machinery investment per cow	$_____	$456	$445	$440
Return on investment	_____%	5.6%	7.0%	9.4%
Other				
Price per cwt. milk sold	$_____	$5.45	$5.49	$5.48
Acres hay and hay crop silage	_____	60	77	92
Acres corn silage	_____	14	20	37

SELECTED BUSINESS FACTORS BY HERD SIZE
568 New York Dairy Farms, 1968

Item	My farm	70 to 84 cow farms	85 to 99 cow farms	Farms with 100 or more cows
Number of farms		52	34	52
Size of Business				
Number of cows	_____	76	92	126
Pounds of milk sold	_____	966,400	1,177,800	1,513,000
Crop acres	_____	199	236	320
Man equivalent	_____	2.5	2.9	3.7
Total work units	_____	905	1,084	1,459
Rates of Production				
Milk sold per cow	_____	12,700	12,800	12,000
Tons hay per acre	_____	2.8	3.2	2.9
Tons corn silage per acre	_____	14	13	15
Bushels oats per acre	_____	61	62	69
Labor Efficiency				
Cows per man	_____	30	32	34
Pounds milk sold per man	_____	386,600	406,100	408,900
Work units per man	_____	362	374	394
Crop acres per man	_____	80	81	86
Feed Costs				
Feed purchased per cow	$_____	$163	$163	$151
Crop expense per cow	$_____	$46	$49	$52
Feed & crop expense per cow	$_____	$209	$212	$203
Feed cost per cwt. milk	$_____	$1.28	$1.27	$1.26
Feed & crop expense/cwt. milk	$_____	$1.65	$1.65	$1.69
% Feed is of milk receipts	_____%	23%	23%	22%
Hay equivalent per cow	_____	7.5	7.0	7.6
Crop acres per cow	_____	2.6	2.6	2.5
Fertilizer & lime/crop acre	$_____	$11	$13	$14
Machinery Costs				
Total machinery costs	$_____	$12,215	$14,034	$18,290
Machinery costs per cow	$_____	$161	$153	$145
Machinery cost per man	$_____	$4,886	$4,839	$4,943
Machinery cost per cwt. milk	$_____	$1.26	$1.19	$1.21
Machinery cost per crop acre	$_____	$61	$59	$57
Capital Efficiency				
Investment per man	$_____	$61,030	$64,216	$65,138
Investment per cow	$_____	$2,008	$2,024	$1,973
Investment per cwt. milk sold	$_____	$16	$16	$16
Land and buildings per cow	$_____	$899	$1,013	$918
Machinery investment per cow	$_____	$478	$415	$378
Return on investment	_____%	9.0%	13.4%	10.6%
Other				
Price per cwt. milk sold	$_____	$5.49	$5.58	$5.64
Acres hay and hay crop silage	_____	107	120	157
Acres corn silage	_____	58	62	92

Considering a Change in the Dairy Business

Describe change: _____

List possible alternative changes : (use additional worksheets to analyze these alternatives) _____

I. Basic nature of proposed change

	Present	Change	Future with change
Number of cows	_____	_____	_____
Number of youngstock	_____	_____	_____
Production per cow	_____	_____	_____
Labor force (man equiv.)	_____	_____	_____

II. Estimated forage requirements and production:

No. of cows _____ x _____ tons hay equivalent = _____ tons

No. of youngstock _____ x _____ tons hay equiv./head = _____ tons

total hay equiv. requirement _____ tons

Allocate total hay equivalent requirement to hay and silage production:

Total hay equiv. required _____ = _____ hay tons + _____ tons hay equiv. as silage

Tons hay equiv. as silage _____ x 3 = _____ tons silage

Estimate needed crop acres and changes from present:

Future crop	Proposed Production	Estimated Yield	Acres Needed	Change in acres (list as plus or minus)
Hay	_____	_____	_____	_____
Hay crop silage	_____	_____	_____	_____
Corn silage	_____	_____	_____	_____
Other forage	_____	_____	_____	_____
Grain	_____	_____	_____	_____

III. Additional forward planning steps and pointers

1. List new capital items associated with the change including land, buildings, machinery and cattle. Estimate their cost.
2. Estimate changes in receipts and expenses (Part IV) considering all input and production items that are affected by the change under consideration. Adjust present figures if anticipated price changes are used in the budget.
3. When analyzing the effects of the proposed change, fulfillment of non-monetary goals may be considered.
4. More than one alternative change should be considered.

IV. Estimating changes in receipts and expenses

	Present	Net change (plus or minus)	Future with change
A. Receipts			
Milk sales, gross	$	$	$
Livestock sales			
Crop sales			
Miscellaneous receipts			
Total Cash Receipts	$	$	$
Increase in inventory			
Total Farm Receipts	$	$	$
B. Expenses			
Hired labor	$	$	$
Feed bought			
Machine hire			
Machinery repairs			
Auto expense (farm share)			
Gasoline and oil			
Breeding fees			
Veterinary and medicine			
Other livestock expense			
Lime and fertilizer			
Seeds and plants			
Spray, other crop expense			
Land, building, fence expense			
Taxes, insurance			
Electricity, telephone (farm share)			
Miscellaneous			
Total Cash Operating Exp.	$	$	$
New machinery and real estate			
Livestock purchases			
Unpaid family labor			
Decrease in inventory			
Total Farm Expenses	$	$	$
C. Financial Summary			
Capital Investment	$		$
Total Farm Receipts	$		$
Total Farm Expenses			
Farm Income	$		$
Interest on Capital			
LABOR INCOME	$		$

Selected Competitive Dairy Areas

A good manager aims to know how his business stands in relation to his competition both at home and in other dairy areas. The table below presents data from four states. These data were taken from reports on farm business management projects similar to the ones in New York. Some measures have been adjusted so that they are comparable for the four states.

1968 DAIRY FARM BUSINESS SUMMARY DATA

Selected Factors	New York	Southern Michigan	Pennsylvania	Ohio
Number of farms	568	331	76	65
Crop acres	155	275	171	178
Man equivalent	2.1	2.2	2.4	1.7
Number of heifers	40	NA	36	NA
Number of cows	58	54	55	47
Lbs. milk sold/ farm	715,200	665,100	630,000	592,560
Lbs. milk sold/ man	340,600	302,320	262,500	348,560
Lbs. milk sold/ cow	12,300	12,320	11,450	12,600
Milk sales/ cow	$681	$706	$674	$643
Av. price/ cwt. milk	$5.52	$5.73	$5.88	$5.10
Purchased feed/ cow	$163	$93	$158	$109
Taxes/ cow	$20	$18	$16	$28
Capital Investment				
Land & buildings	$51,730	$94,400	$47,100	$56,620
Machinery & equipment	$25,250	$22,500	$21,250	$16,870
Livestock	$27,320	$21,900	$26,850	$18,140
Feed & supplies	$ 7,640	$11,900	$10,540	$ 7,720
Investment/ man	$53,300	$68,500	$44,058	$58,440
Investment/ cow	$ 1,930	$ 2,790	$ 1,922	$ 2,110
Financial Summary				
Total farm receipts	$53,247	$49,553	$46,326	$40,328
Total farm expenses	$37,717	$33,735	$33,070	$26,068
Farm income	$15,530	$15,818	$13,256	$14,260
Interest at 5%	$ 5,393	$ 7,535	$ 5,287	$ 4,968
Labor income/ farm	$10,137	$ 8,283	$ 7,969	$ 9,292
Labor income/ operator	$ 8,724	$ 7,019	$ 7,244	$ 8,447

To properly analyze your farm business, more than one year's records are needed. Three or more years records will help you determine what progress you are making and what is normal for your farm. In the table below fill in the figures for your business for the last three years and study your progress.

Item	My farm 1967	1968	1969
SIZE OF BUSINESS			
Lbs. of milk sold			
Number of cows			
Total crop acres			
Total work units			
Gross receipts	$	$	$
LABOR EFFICIENCY			
Lbs. milk sold/man			
Cows per man			
Work units per man			
RATES OF PRODUCTION			
Lbs. milk sold/cow			
Tons hay/acre			
Tons corn silage/acre			
FEED COSTS			
% feed is of milk receipts	%	%	%
Tons hay equivalent/cow			
Feed bought/cow	$	$	$
LABOR AND MACHINERY COSTS			
Machinery cost/cow	$	$	$
Machinery cost/cwt. milk	$	$	$
Labor and machinery cost/cow	$	$	$
Labor and machinery cost/cwt.milk	$	$	$
CAPITAL INVESTMENT			
Total investment	$	$	$
Total investment/cow	$	$	$
Machinery investment/cow	$	$	$
Investment/cwt. milk sold	$	$	$
PRICE OF MILK	$	$	$
INCOME			
Labor income	$	$	$
Cash operating income	$	$	$
Return on investment	%	%	%
% expenses are of receipts	%	%	%

THE DAIRY INDUSTRY IN NEW YORK STATE -- 1960 to 1980

In 1960, the Department of Agricultural Economics at Cornell University initiated a research study of the changes in milk production in the New York Milkshed.* A random sample of farms was selected. Sample farms were visited each year from 1960 to 1964 and again in 1967 to gather information on changes that had taken place. In 1965, 1966, and 1968, some information was obtained with a mail questionnaire. A return of over 90 percent was experienced by mail each year.

The sample of farms studied included a 2.5 percent sample of the dairy farms in the New York Milkshed and a 5 percent sample of the Hudson Valley area. Farms delivering to all markets in New York State, and those located in New York State but delivering to New England markets were included. The sample included 1,073 farms in 1960.

From this sample of farms an estimate can be made of the number of producing units, number of milk cows, and number of heifers in New York State for each year from 1960 to 1968.

Item	1960	1968	% change 1960 to 1968	1980
Number of dairy farms	40,180	24,640	- 39	_____
Number of milk cows	1,178,000	976,000	- 17	_____
Cows per farm	29	40	+ 38	_____
Pounds of milk per cow	8,150**	9,800**	+ 20	_____
Pounds of milk per farm	236,000	392,000	+ 66	_____
Man equivalent per farm	1.8	1.8	0	_____
Cows per man	16	22	+ 38	_____
Pounds of milk per man	131,000	218,000	+ 66	_____
Farms with bulk tanks	18%	60%	+233	_____ %
Farms with free stalls	0%	6%	---	_____ %

* Cornell University Agricultural Experiment Station State Project 502, Department of Agricultural Economics, An Economic Analysis of Long-Run Changes in Milk Production in the New York Milkshed.

** New York Dairy Farm Report.

SELECTED FARM BUSINESS SUMMARY FACTORS
Cortland County Dairy Farms, 1965-1969

Item	Year 1965	1966	1967	1968	1969
Size of Business					
Average number of cows	59	56	56	61	59
Cwt. milk sold	7,406	7,173	6,864	7,380	7,392
Rates of Production					
Lbs. milk sold per cow	12,500	12,800	12,300	12,100	12,400
Tons corn silage/acre	14	15	16	14	13
Tons hay/acre	2.3	2.8	2.6	2.4	2.2
Labor Efficiency					
Cwt. milk sold per man	3,366	3,260	3,255	3,355	3,562
Cows/man	27	25	27	28	29
Cost Control					
% purchase feed is of milk	29%	26%	27%	25%	27%
Machinery cost per cow	$112	$131	$129	$140	$163
Capital Efficiency					
Total investment	$83,200	$90,400	$102,500	$112,000	$114,300
Total investment/cow	$ 1,410	$ 1,615	$ 1,831	$ 1,835	$ 1,937
Price					
Price per cwt. milk	$ 4.37	$ 4.82	$ 5.14	$ 5.52	$ 5.69
Financial Summary					
Total farm receipts	$42,412	$51,440	$ 52,861	$ 54,134	$ 60,890
Total farm expenses	$29,874	$34,987	$ 36,254	$ 36,891	$ 44,136
Farm income	$12,538	$16,453	$ 16,607	$ 17,243	$ 16,754
Interest on capital	$ 4,050	$ 4,242	$ 4,852	$ 5,425	$ 7,565*
Labor income/farm	$ 8,488	$12,211	$ 11,755	$ 11,818	$ 9,189
Labor income/operator	$ 7,130	$11,101	$ 9,656	$ 10,341	$ 8,262

* Interest was calculated at 7% for the 1969 summary. In previous years, 5% had been used. If 5% had been used in 1969, labor income per operator would have been $10,052.