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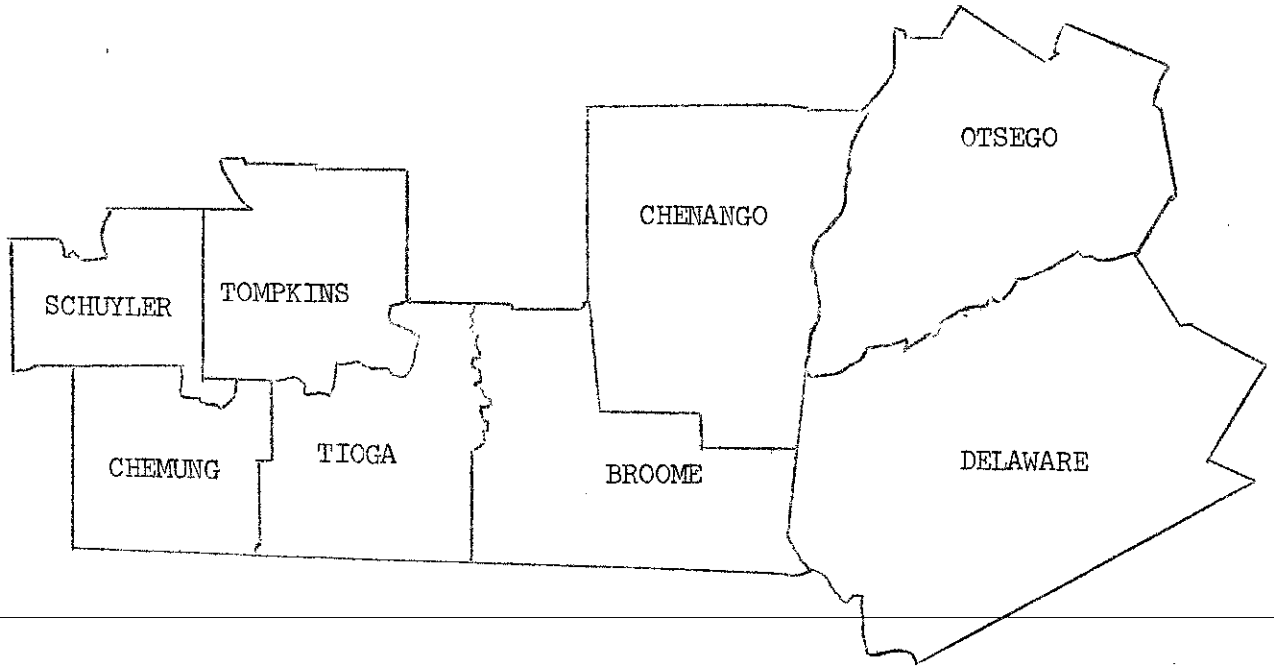
EASTERN PLATEAU REGION

FARM BUSINESS SUMMARY 1968



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EASTERN PLATEAU REGION
FARM BUSINESS SUMMARY
1968

This report is a summary of the 1968 farm business records of 97 dairy farms in the Eastern Plateau region of New York. These farmers are cooperators in the Extension Service farm business management program in Broome, Chemung, Chenango, Delaware, Otsego, Schuyler, Tioga, and Tompkins. There are approximately 40 counties in New York State in which such projects are operated in cooperation with the College of Agriculture at Cornell.

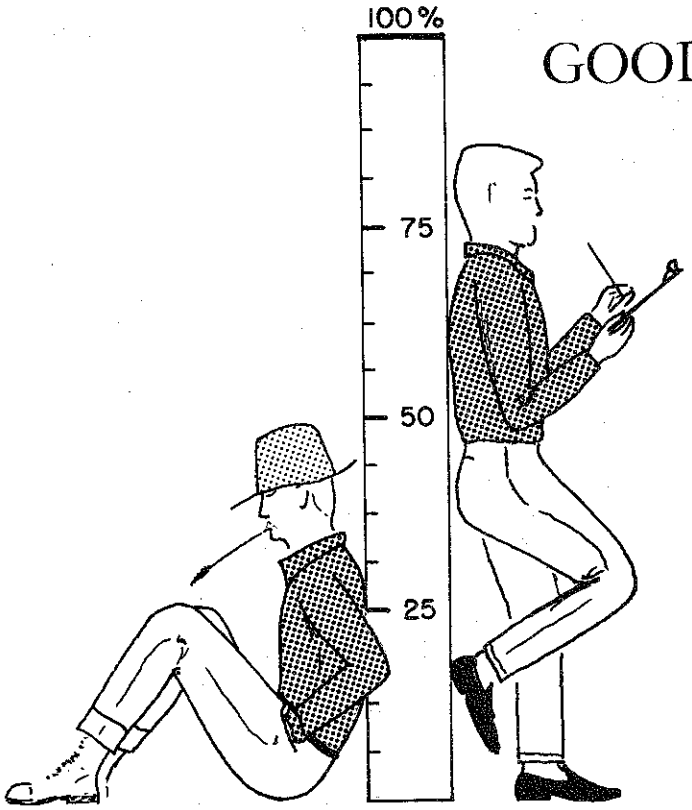
Farmers participating in the farm business management program keep financial and physical records of their farm business. Throughout the year Cooperative Extension Agents assist the farmers in keeping, closing and using their records. At the end of each year, the records are summarized by the Department of Agricultural Economics at Cornell and meetings are held to analyze the records and study the principles of farm business management.

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 challenge 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. This report has been prepared in workbook form for use in a systematic study of individual farm business operations. The 1967 data from 548 New York dairy farms and the 1968 data from the 97 Eastern Plateau Region dairymen can be used for comparison.

The summary and analysis presented in this booklet should also be useful to farmers in this area who are not enrolled in the business management projects. Others connected with the agriculture of the area, such as teachers of agriculture and farm credit representatives, should also find it useful in teaching farm management and analyzing farm businesses.

This summary was prepared by G.J. Conneman, Department of Agricultural Economics, New York State College of Agriculture, Cornell University, in cooperation with the following Cooperative Extension Agents: William H. Gengenbach, Jr., Clarence H. Padgham, Elwyn G. Voss, Van C. Travis, Jr. and Richard E. Eschler.



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?

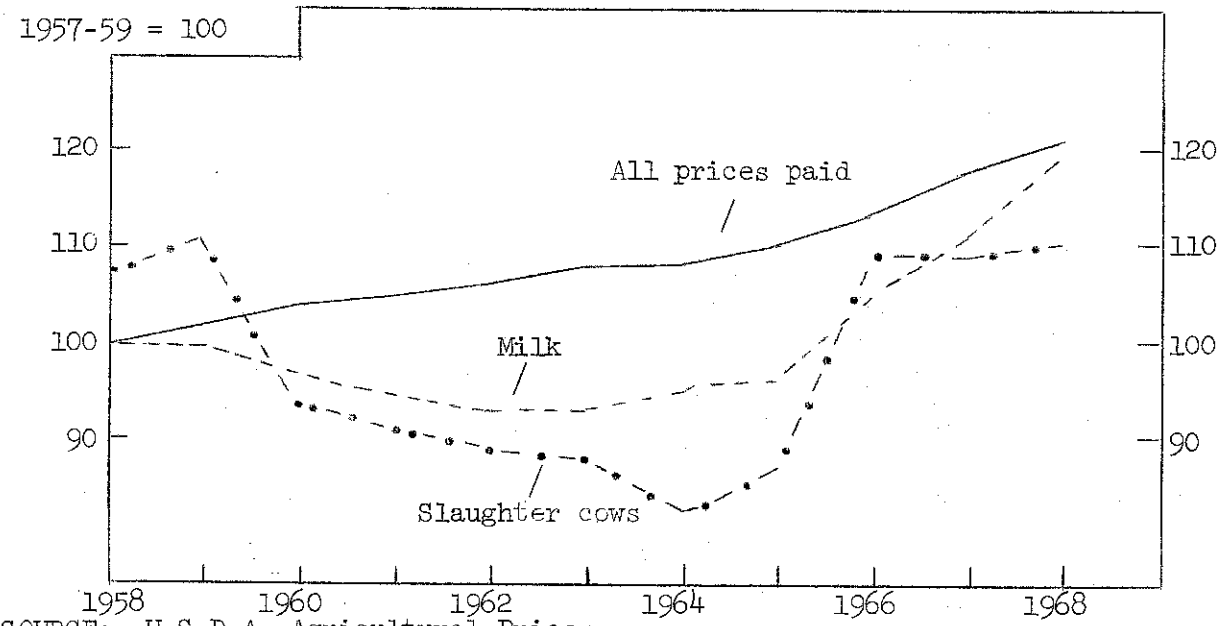
3. Are you improving your managerial skills?

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 1968 averaged $5.43 per hundredweight. This was 36 cents higher than the average for 1967 and $1.16 more than 1965. Cull dairy cow prices also were relatively good in 1968. The overall index of prices paid by New York dairy farmers continued to rise in 1968.

In recent years, prices of some farm inputs have risen while others have declined. From 1965 to 1968, farm wages rose 30 percent, dairy cows rose 34 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, 1960-68

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

* 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 1968	97 Eastern Plateau Region farms, 1968 Average	Range Low	Range High	Average of 548 New Yo farms, 196
Labor:					
Man equivalent	_____	1.9	1.0	9.7	1.9
Livestock: (number)					
Cows	_____	51	16	190	51
Heifers	_____	36	0	104	33
Crops: (Acres grown)					
Hay	_____	76 (97)*	26	275	79(495)
Hay crop silage	_____	3 (18)	0	56	25(112)
Corn for silage	_____	30 (91)	0	120	30(452)
Corn for grain	_____	3 (18)	0	60	21(205)
Oats for grain	_____	8 (40)	0	50	21(252)
Other crops	_____	6 (6)	--	--	
Total crop acres	_____	126	31	373	138

* 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 1968	97 Eastern Plateau Region farms, 1968 Average per farm	97 Eastern Plateau Region farms, 1968 Percent of total	Average of 548 New York farms, 1967
Machinery and equipment	$_____	$21,923	23	$20,251
Cattle	_____	24,593	25	22,163
Poultry and other livestock	_____	108	--	--
Feed and supplies	_____	6,319	6	6,836
Land and buildings	_____	44,998	46	42,557
Total Investment	$_____	$97,941	100	$91,807

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 1968	Average per farm: 97 Eastern Plateau Region farms, 1968	Average per farm: 548 New York farms, 1967
Machinery and equipment per cow	$_____	$ 430	$ 397
Land and buildings per cow	$_____	$ 882	$ 834
Total investment per cow	$_____	$ 1,920	$ 1,800
Total investment per man	$_____	$51,548	$48,300
Total investment per crop acre	$_____	$ 777	$ 665
Capital turnover*	_____yrs.	2.5 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 1968	97 Eastern Plateau Region farms, 1968 Average per farm	97 Eastern Plateau Region farms, 1968 Percent of total	Average of 548 New York farms, 1967
Milk sales	$_____	$34,221	88	$32,347
Livestock sold	_____	3,576	9	3,283
Egg sales	_____	7	--	--
Crop sales	_____	314	1	133
Miscellaneous*	_____	963	2	1,032
TOTAL CASH RECEIPTS	$_____	$39,081	100	$36,795
Increase in inventory	_____	7,612		7,514
TOTAL FARM RECEIPTS	$_____	$46,693		$44,309

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

Total cash receipts amounted to $39,081 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 $7,612 per farm.

SELECTED INCOME FACTORS

Factor	My farm 1968	Average per farm: 97 Eastern Plateau Region farms, 1968	Average per farm: 548 New York farms, 1967
Average price per cwt. of milk sold	$_____	$ 5.47	$ 5.25
Milk sales per cow	$_____	$ 671	$ 634
Total cash receipts per man	$_____	$20,569	$20,442

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 1968	97 Eastern Plateau Region farms, 1968 Average per farm	97 Eastern Plateau Region farms, 1968 Percent of total	Average of 548 New York farms, 1967
Hired labor	$_____	$ 2,544	11	$ 2,147
Dairy feed bought	_____	9,096	40	8,440
Other feed bought	_____	195	1	200
Machine hire	_____	237	1	179
Truck, tractor, machinery expense	_____	1,410	6	1,310
Auto expense (farm share)	_____	259	1	219
Gasoline and oil	_____	1,031	4	922
Breeding fees	_____	373	2	347
Veterinary and medicine	_____	508	2	529
Other dairy, livestock expense	_____	1,314	6	1,461
Lime and fertilizer	_____	1,353	6	1,511
Seeds and plants	_____	355	2	414
Spray, other crop expense	_____	309	2	364
Building, fence expense	_____	600	3	611
Taxes, insurance	_____	1,530	7	1,431
Electricity, telephone (farm share)	_____	710	3	628
Miscellaneous	_____	648	3	580
TOTAL CASH OPERATING EXPENSES	$_____	$22,472	100	$21,293
New machinery	_____	5,210		5,128
New buildings, improvements	_____	3,611		2,867
Livestock purchased	_____	1,871		1,432
Unpaid family labor	_____	851		825
Decrease in inventory	_____	--		--
TOTAL FARM EXPENSES	$_____	$34,015		$31,545

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 1968	Average per farm 97 Eastern Plateau Region farms, 1968	Average per farm 548 New York farms, 1967
Average capital investment	$_____	$94,135	$88,050
TOTAL FARM RECEIPTS	$_____	$46,693	$44,309
TOTAL FARM EXPENSES	_____	34,015	31,542
FARM INCOME	$_____	12,678	12,764
Interest on capital at 5%	_____	4,707	4,402
LABOR INCOME per farm	$_____	$ 7,971	$ 8,362
Number of operators on farms	_____	105	610
LABOR INCOME per operator	$_____	$ 7,363	$ 7,511

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 five 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 1968	Average per farm: 97 Eastern Plateau Region farms, 1968	Average per farm: 548 New York farms, 1967
Total cash farm receipts	$_____	$39,081	$36,795
Total cash operating expenses	_____	22,472	21,293
FARM CASH OPERATING INCOME	$_____	$16,609	$15,502
Less: Family living expense	_____	5,000*	5,000*
Income available for debt repayment and purchase of capital items	$_____	$11,609	$10,502

* Estimated at $5,000 per operator per year.

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 1968	Average per farm: 97 Eastern Plateau Region farms, 1968	Average per farm: 548 New York farms, 1967
Farm income	$_____	$12,678	$12,764
Value of operator's labor*	_____	5,845	6,011
Return on Investment	$_____	$ 6,833	$ 6,753
Average capital investment	$_____	$94,135	$88,050
Rate of return on capital	_____%	7.3%	7.7%

* $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 1967 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 1968	Average per farm: 97 Eastern Plateau Region farms, 1968	Average per farm: 548 New York farms, 1967
Number of cows	_____	51	51
Pounds of milk sold	_____	625,000	617,000
Man equivalent	_____	1.9	1.9
Total work units	_____	605	594

In the following table, the 548 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
548 New York Dairy Farms, 1967

Number of cows	Number of farms	Labor income per operator
Under 25	22	$3,560
25-39	176	5,350
40-54	170	7,380
55-69	104	8,800
70-84	38	11,020
85-99	11	11,790
100 and over	27	13,360

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 costs, 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 1968	Average per farm: 97 Eastern Plateau Region farms, 1968	Average per farm: 548 New York farms, 1967
Pounds of milk sold per cow	_____	12,200	12,100
Tons of hay per acre	_____	2.7	2.6
Tons of corn silage per acre	_____	15	17
Bushels of oats per acre	_____	51	50

DISTRIBUTION OF PRODUCTION PER COW
97 Eastern Plateau Region Farms, 1968

Pounds of milk sold per cow	Number of farms
Under 10,000	12
10,000 - 10,999	12
11,000 - 11,999	17
12,000 - 12,999	20
13,000 - 13,999	17
14,000 and over	19

The relationship of production per cow to labor income on three sizes of farms is shown in the following table for the 548 New York dairy farms in 1967.

MILK SOLD PER COW AND LABOR INCOME BY SIZE OF FARM
548 New York Dairy Farms, 1967

Pounds milk sold per cow	114 farms with less than 35 cows: Percent of farms	114 farms with less than 35 cows: Labor income	252 farms with 35-54 cows: Percent of farms	252 farms with 35-54 cows: Labor income	182 farms with 55 cows and over: Percent of farms	182 farms with 55 cows and over: Labor income
Less than 10,000	15	$2,588	12	$4,325	10	$ 8,818
10,000 - 10,999	18	4,311	13	5,399	9	6,636
11,000 - 11,999	25	5,246	23	6,085	23	9,141
12,000 - 12,999	20	4,773	18	7,285	20	10,831
13,000 - 13,999	11	5,347	19	7,838	24	11,418
14,000 & over	11	6,687	15	9,814	14	12,375

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 1968	Average per farm: 97 Eastern Plateau Region farms, 1968	Average per farm: 548 New York farms, 1967
Number of cows per man	_____	27	27
Pounds of milk sold per man	_____	329,000	325,000
Work units per man	_____	318	313

DISTRIBUTION OF MILK SOLD PER MAN
97 Eastern Plateau Region Farms, 1968

Pounds of milk sold per man	Number of farms
Under 250,000	22
250,000 - 299,999	19
300,000 - 349,999	23
350,000 - 399,999	11
400,000 and over	22

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 BY SIZE OF HERD
548 New York Dairy Farms, 1967

Pounds milk sold per man	114 farms with less than 35 cows: Percent of farms	114 farms with less than 35 cows: Labor income	252 farms with 35-54 cows: Percent of farms	252 farms with 35-54 cows: Labor income	182 farms with 55 cows and over: Percent of farms	182 farms with 55 cows and over: Labor income
Under 200,000	24	$3,073	5	$3,521	2	$ 4,334
200,000 - 299,999	49	4,745	37	5,647	16	7,561
300,000 - 399,999	25	6,235	35	7,291	53	9,370
400,000 & over	2	6,499	23	9,090	29	13,513

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 weak 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 1968	Average per farm: 97 Eastern Plateau Region farms, 1968	Average per farm: 548 New York farms, 1967
Purchased Feed			
Dairy feed bought	$_____	$ 9,096	$8,440
Feed bought per cow	$_____	$ 178	$ 165
Feed bought as % of milk receipts	_____ %	27%	26%
Feed bought per cwt. of milk sold	$_____	$ 1.46	$ 1.37
Roughage Harvested (hay equivalent)			
Hay (tons)	_____	206 tons	182 tons
Hay crop silage (____ tons ÷ 3)	_____	7 tons	13 tons
Corn silage (____ tons ÷ 3)	_____	145 tons	136 tons
Total tons hay equivalent	_____	358 tons	331 tons
Tons hay equivalent per cow	_____	7.0 tons	6.5 tons
Other Considerations			
Total acres in crops per cow	_____	2.5 acres	2.5 acres
Lime & fertilizer expense/cow	$_____	$ 27	$ 30
Lime & fertilizer expense/crop acre	$_____	$ 11	$ 12
Number of heifers per 10 cows	_____	7.1	6.5

The above measures of harvested roughage consider only the quantity. Quality is also significant and has a bearing on purchased feed and milk production. Such things 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 19 percent of the total farm expenses.

POWER AND MACHINERY COSTS*

Item	My farm	Average per farm 97 Eastern Plateau Region farms, 1968	Average per farm 548 New Yo farms, 196
Beginning inventory	$_____	$19,564	$17,808
New machinery bought	_____	5,210	5,128
Total	$_____	$24,774	$22,9
End inventory	$_____	$21,923	$20,251
Machinery sold	_____	87	131
Total	$_____	$22,010	$20,38
Depreciation	$_____	$ 2,764	$ 2,55
Interest at 5% av. inventory	_____	1,037	95
Gas and oil	_____	1,031	9
Machinery repairs	_____	1,410	1,31
Bale ties	_____	75	8
Milk hauling	_____	103	424
Other machine hire	_____	237	179
Auto expenses (farm share)	_____	259	219
Electricity (farm share)	_____	572	510
TOTAL MACHINERY COSTS	$_____	$ 7,488	$ 7,154
Gas tax refunds	$_____	$ 44	$ 93
Income from machine work	_____	60	97
NET MACHINERY COST	$_____	$ 7,384	$ 6,964
Net machinery cost per cow	$_____	$ 145	$ 137
Net machinery cost per crop acre	$_____	$ 59	$ 56
Net machinery cost per man	$_____	$ 3,886	$ 3,665
Net machinery cost/cwt. milk sold	$_____	$ 1.18	$ 1.13

* 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 1968	Average per farm: 97 Eastern Plateau Region farms, 1968	Average per farm: 846 New York farms, 1967
Value of operator's labor*	$_____	$ 5,845	$ 6,011
Hired labor	_____	2,544	2,147
Unpaid family labor	_____	851	825
TOTAL LABOR COSTS	$_____	$ 9,240	$ 8,983
Net power and machinery cost	_____	7,384	6,964
TOTAL LABOR & MACHINERY COST	$_____	$16,624	$15,947
Total per cow	$_____	$ 326	$ 313
Total per crop acre	$_____	$ 132	$ 116
Total per man	$_____	$ 8,749	$ 8,393
Total per cwt. milk sold	$_____	$ 2.66	$ 2.58

* 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
548 New York Dairy Farms, 1967

Machinery cost per cow	Percent of farms	Labor income
$225 & over	1	$2,430
$200 - @224	7	5,276
$175 - $199	10	5,871
$150 - $174	17	7,370
$125 - $149	24	7,524
$100 - $124	26	8,406
$75 - $99	13	8,690
Less than $75	2	8,672

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
548 New York Dairy Farms,* 1967

Size of Business		Rates of Production			Labor Efficiency	
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
105	1,269,200	15,300	4.1	25	43	531,700
70	900,700	14,000	3.3	21	35	428,900
59	739,600	13,300	3.0	20	32	385,600
54	653,300	12,900	2.8	18	29	357,800
48	582,400	12,500	2.5	17	27	334,400
44	530,400	11,900	2.3	16	26	313,400
40	467,600	11,500	2.1	15	24	288,200
36	421,500	11,000	1.9	14	22	260,100
32	361,900	10,200	1.4	12	20	228,40
25	262,600	8,500	.8	9	17	179,5

* These farms are considerably above the average for all farms in New York State. example, the average number of cows for the 548 farms was 46 compared with 38 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 average of the 548 farms for each factor.

The figure at the top of each column is the average of the top ten percent of the farms for that factor. For example, the figure 105 at the top of the column headed "No. of Cows" is the average number of cows on the ten percent of the farms with the most cows. The other figures in each column are the average for the second ten percer third ten percent, etc. The figure at the bottom of each column (25 for No. of Cows) is the average for the ten 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 ten percent for one factor would not necessarily be the same farms which make up the top ten 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.

COST CONTROL FACTORS

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.

Cost Control			
Feed bought per cow	% Feed is of milk receipts	Feed and crop expense per cwt. milk	Machinery cost per cow
$ 75	13%	$1.07	$ 82
110	18	1.32	98
128	21	1.46	109
143	23	1.58	118
157	25	1.68	129
173	27	1.79	141
187	29	1.90	150
204	32	1.99	162
225	34	2.12	180
260	39	2.37	217

Factors Affecting Feed Cost:

- tons hay equivalent per cow
- quality of forage
- ratio of cows to heifers
- lbs. milk sold per cow
- quantity of home grown grain
- average price of milk

Factors Related to Machinery Costs:

- amount of machinery
- use made of machinery
- substitution of machinery for labor
- new vs. old machinery
- mechanical skill of operator

STRONG AND WEAK POINTS

After analyzing the business and determining changes to be considered, each possible change should be studied in detail. The work sheet or budgeting form found on pages 22 and 23 can be used for projecting the likely results of each alternative.

STRONG POINTS:

WEAK POINTS:

FARM BUSINESS SUMMARY BY HERD SIZE
548 New York Dairy Farms, 1967

Item	My farm	Farms with less than 25 cows	25 to 39 cow farms	40 to 54 cow farms
Capital Investment (end of year)				
Machinery and equipment	$	$ 7,043	$13,981	$18,627
Livestock		8,141	14,234	19,749
Feed and supplies		2,560	4,178	5,964
Land and buildings		20,075	25,878	36,695
TOTAL INVESTMENT	$	$37,819	$58,271	$81,035
Receipts				
Milk sales	$	$12,511	$20,464	$28,963
Livestock sold		1,283	2,154	2,932
Crop sales		67	117	155
Miscellaneous receipts		413	756	840
Total Cash Receipts	$	$14,274	$23,491	$32,890
Increase in inventory		1,912	4,012	6,004
TOTAL RECEIPTS	$	$16,186	$27,503	$38,894
Expenses				
Hired labor	$	$ 189	$ 572	$ 1,397
Dairy feed		3,352	5,593	7,558
Other feed		65	159	189
Machine hire		98	115	189
Machinery repair		426	847	1,130
Auto expense (farm share)		165	177	236
Gas and oil		469	691	828
Breeding fees		156	245	312
Veterinary and medicine		243	338	484
Other livestock expense		482	870	1,181
Lime and fertilizer		451	855	1,316
Seeds and plants		134	245	385
Spray and other crop expense		95	227	313
Land, bldg., fence repair		178	428	484
Taxes and insurance		663	931	1,288
Elec. and tel. (farm share)		293	450	558
Miscellaneous expenses		151	345	551
Total Cash Operating Exp.	$	$ 7,610	$13,088	$18,399
New machinery		1,908	3,491	4,379
New real estate		210	1,105	2,282
Purchased livestock		380	802	1,207
Unpaid family labor		675	836	888
TOTAL FARM EXPENSES	$	$10,783	$19,322	$27,155
Financial Summary				
Total Farm Receipts	$	$16,186	$27,503	$38,894
Total Farm Expenses		10,783	19,322	27,155
Farm Income	$	$ 5,403	$ 8,181	$11,739
Interest on av. capital @ 5%		1,843	2,813	3,902
Labor Income per Farm	$	$ 3,560	$ 5,368	$ 7,837
Number of operators		20	169	194
LABOR INCOME PER OPERATOR	$	$ 3,560	$ 5,337	$ 7,191

FARM BUSINESS SUMMARY BY HERD SIZE
548 New York Dairy Farms, 1967

Item	My farm	55 to 69 cow farms	70 to 84 cow farms	Farms with 85 or more cows
Capital Investment (end of year)				
Machinery and equipment	$_____	$ 24,315	$ 28,152	$ 41,815
Livestock	_____	26,994	34,251	48,451
Feed and supplies	_____	7,973	10,922	16,886
Land and buildings	_____	49,347	66,075	108,048
TOTAL INVESTMENT	$_____	$108,629	$139,400	$215,200
Receipts				
Milk sales	$_____	$ 38,862	$ 51,004	$ 71,452
Livestock sold	_____	3,625	4,574	8,334
Crop sales	_____	152	153	60
Miscellaneous receipts	_____	1,369	1,400	2,098
Total Cash Receipts	$_____	$ 44,008	$ 57,131	$ 81,944
Increase in inventory	_____	10,167	11,066	21,171
TOTAL RECEIPTS	$_____	$ 54,175	$ 68,197	$103,115
Expenses				
Hired labor	$_____	$ 2,661	$ 5,422	$ 8,421
Dairy feed	_____	9,971	13,218	18,058
Other feed	_____	251	149	404
Machine hire	_____	231	261	222
Machinery repair	_____	1,464	2,040	3,342
Auto expense (farm share)	_____	210	255	328
Gas and oil	_____	1,033	1,365	1,798
Breeding fees	_____	438	526	619
Veterinary and medicine	_____	618	918	1,063
Other livestock expense	_____	1,809	2,417	3,811
Lime and fertilizer	_____	1,808	2,261	4,110
Seeds and plants	_____	511	532	1,018
Spray and other crop expense	_____	493	575	762
Land, bldg., fence repair	_____	824	893	1,325
Taxes and insurance	_____	1,603	2,251	3,263
Elec. and tel. (farm share)	_____	733	952	1,251
Miscellaneous expenses	_____	624	1,175	1,199
Total Cash Operating Exp.	$_____	$ 25,282	$ 35,210	$ 50,994
New machinery	_____	6,911	6,593	10,827
New real estate	_____	4,054	4,205	9,693
Purchased livestock	_____	1,676	1,947	4,398
Unpaid family labor	_____	847	608	731
TOTAL FARM EXPENSES	$_____	$ 38,770	$ 48,563	$ 76,643
Financial Summary				
Total Farm Receipts	$_____	$ 54,175	$ 68,197	$103,115
Total Farm Expenses	_____	38,770	48,563	76,643
Farm Income	$_____	$ 15,405	$ 19,634	$ 26,472
Interest on av. capital @ 5%	_____	5,177	6,693	10,231
Labor Income per Farm	$_____	$ 10,228	$ 12,941	$ 16,241
Number of operators	_____	123	49	55
~~LABOR INCOME PER OPERATOR~~	~~$_____~~	~~$ 8,481~~	~~$ 10,300~~	~~$ 12,107~~

SELECTED BUSINESS FACTORS BY HERD SIZE
548 New York Dairy Farms, 1967

Item	My farm	Farms with less than 25 cows	25 to 39 cow farms	40 to 54 cow farms
Number of farms		20	168	178
Size of Business				
Number of cows	_____	21	33	46
Pounds of milk sold	_____	241,700	395,600	558,800
Crop acres	_____	57	92	121
Man equivalent	_____	1.2	1.4	1.7
Total work units	_____	245	401	544
Rates of Production				
Milk sold per cow	_____	11,500	12,000	12,100
Tons hay per acre	_____	2.4	2.3	2.5
Tons corn silage per acre	_____	15	16	14
Bushels of oats per acre	_____	54	45	49
Labor Efficiency				
Cows per man	_____	18	24	27
Pounds milk sold per man	_____	201,400	282,600	328,700
Work units per man	_____	204	286	320
Crop acres per man	_____	48	66	71
Feed Costs				
Feed purchased per cow	$_____	$ 160	$ 169	$ 164
Crop expense per cow	$_____	$ 32	$ 40	$ 44
Feed & crop expense per cow	$_____	$ 192	$ 209	$ 208
Feed cost per cwt. milk	$_____	$ 1.39	$ 1.41	$ 1.35
Feed & crop expense/cwt. milk	$_____	$ 1.67	$ 1.75	$ 1.71
% Feed is of milk receipts	_____%	29%	27%	26%
Hay equivalent per cow	_____	6.3	6.5	6.7
Crop acres per cow	_____	2.7	2.8	2.6
Fertilizer & lime/crop acre	$_____	$ 8	$ 9	$ 11
Machinery Costs				
Total machinery costs	$_____	$ 2,905	$ 4,861	$ 6,133
Machinery cost per cow	$_____	$ 138	$ 147	$ 133
Machinery cost per man	$_____	$ 2,421	$ 3,472	$ 3,608
Machinery cost per cwt. milk	$_____	$ 1.20	$ 1.23	$ 1.10
Machinery cost per crop acre	$_____	$ 51	$ 53	$ 51
Capital Efficiency				
Investment per man	$_____	$31,516	$41,622	$47,668
Investment per cow	$_____	$ 1,801	$ 1,766	$ 1,762
Investment per cwt. milk sold	$_____	$ 16	$ 15	$ 15
Land and buildings per cow	$_____	$ 956	$ 784	$ 798
Machinery investment per cow	$_____	$ 335	$ 424	$ 405
Return on investment	_____%	--	4.7%	7.2%
Other				
Price per cwt. milk sold	$_____	$ 5.18	$ 5.17	$ 5.18
Acres hay and hay crop silage	_____	43	62	73
Acres corn silage	_____	6	14	23

SELECTED BUSINESS FACTORS BY HERD SIZE
548 New York Dairy Farms, 1967

Item	My farm	55 to 69 cow farms	70 to 84 cow farms	Farms with 85 or more cows
Number of farms		102	39	41
Size of Business				
Number of cows	_____	60	77	112
Pounds of milk sold	_____	743,200	949,600	1,323,700
Crop acres	_____	134	197	220
Man equivalent	_____	2.1	2.7	3.4
Total work units	_____	689	903	1,244
Rates of Production				
Milk sold per cow	_____	12,400	12,300	11,800
Tons hay per acre	_____	2.8	2.6	3.0
Tons corn silage per acre	_____	17	16	18
Bushels oats per acre	_____	55	52	49
Labor Efficiency				
Cows per man	_____	29	29	33
Pounds milk sold per man	_____	353,900	351,700	389,300
Work units per man	_____	328	335	366
Crop acres per man	_____	64	73	65
Feed Costs				
Feed purchased per cow	$_____	$ 166	$ 172	$ 161
Crop expense per cow	$_____	$ 47	$ 44	$ 53
Feed & crop expense per cow	$_____	$ 213	$ 216	$ 214
Feed cost per cwt. milk	$_____	$ 1.34	$ 1.39	$ 1.36
Feed & crop expense/cwt. milk	$_____	$ 1.72	$ 1.75	$ 1.81
% Feed is of milk receipts	_____%	26%	26%	25%
Hay equivalent per cow	_____	6.3	7.0	6.1
Crop acres per cow	_____	2.2	2.6	2.9
Fertilizer & lime/crop acre	$_____	$ 13	$ 11	$ 19
Machinery Costs				
Total machinery costs	$_____	$ 8,244	$10,790	$14,377
Machinery costs per cow	$_____	$ 137	$ 140	$ 128
Machinery cost per man	$_____	$ 3,926	$ 3,996	$ 4,229
Machinery cost per cwt. milk	$_____	$ 1.11	$ 1.14	$ 1.09
Machinery cost per crop acre	$_____	$ 62	$ 55	$ 65
Capital Efficiency				
Investment per man	$_____	$51,728	$51,630	$63,294
Investment per cow	$_____	$ 1,810	$ 1,810	$ 1,921
Investment per cwt. milk sold	$_____	$ 15	$ 15	$ 16
Land and buildings per cow	$_____	$ 822	$ 858	$ 965
Machinery investment per cow	$_____	$ 405	$ 366	$ 373
Return on investment	_____%	8.2%	9.2%	8.9%
Other				
Price per cwt. milk sold	$_____	$ 5.23	$ 5.37	$ 5.40
Acres hay and hay crop silage	_____	79	109	125
Acres corn silage	_____	28	47	55

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.

1967 DAIRY FARM BUSINESS SUMMARY DATA

Selected Factors	New York	Southern Michigan	Vermont	Connecticut
Number of farms	548	290	127	25
Crop acres	138	259	NA	NA
Man equivalent	1.9	2.2	2.0	2.1
Number of heifers	33	NA	35	40
Number of cows	51	54	53	66
Lbs. milk sold/ farm	616,600	657,640	608,560	811,460
Lbs. milk sold/ man	324,500	298,930	304,300	386,400
Lbs. milk sold/ cow	12,100	12,180	11,480	12,290
Milk sales/ cow	$635	$670	$635	$736
Av. price/ cwt. milk	$5.25	$5.50	$5.53	$5.99
Purchased feed/ cow	$165	$96	$190	$228
Taxes/ cow	$17	$17	NA	NA
Capital Investment				
Land & buildings	$42,560	$87,000	$46,540	$66,360
Machinery & equipment	$20,250	$23,400	$13,440	$17,760
Livestock	$22,160	$21,400	$20,020	$26,770
Feed & supplies	$ 6,840	$11,000	$ 5,890	$ 8,420
Investment/ man	$48,320	$64,910	$42,940	$56,820
Investment/ cow	$ 1,800	$ 2,640	$ 1,620	$ 1,810
Financial Summary				
Total farm receipts	$44,309	$45,002	$42,810	$51,494
Total farm expenses	$31,545	$31,112	$32,322	$37,712
Farm income	$12,764	$13,890	$10,488	$13,782
Interest at 5%	$ 4,402	$ 7,140	$ 4,294	$ 5,966
Labor income/ farm	$ 8,362	$ 6,750	$ 6,194	$ 7,816
Labor income/ operator	$ 7,511	$ 6,193	$ 5,631	$ 6,513

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 1966	1967	1965
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.

NUMBER OF DAIRY FARMS BY SIZE OF HERD
New York State, 1960 and 1968; Projected to 1980

Cows per farm	1960	1968	1980	Change between 1968 and 1980	
				Number	Percent
Under 20	12,620	3,920			
20 - 29	11,020	4,680			
30 - 39	8,040	6,220			
40 - 49	4,420	4,620			
50 - 59	1,980	2,140			
60 - 99	1,720	2,360			
100 and over	380	700			
TOTAL	40,180	24,640			

DISTRIBUTION OF DAIRY FARMS AND MILK COWS BY SIZE OF HERD
New York State, 1960 and 1968; Projected to 1980

Cows per farm	Percent of farms			Percent of cows		
	1960	1968	1980	1960	1968	1980
Under 20	31	16		14	5	
20 - 29	28	19		23	12	
30 - 39	20	25		23	22	
40 - 49	11	18		16	21	
50 - 59	5	9		9	12	
60 - 99	4	10		10	17	
100 and over	1	3		5	11	
TOTAL	100	100		100	100	