

Department of Agricultural Economics
Cornell University Agricultural Experiment Station
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, New York 14850

TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
Distribution of Dairy Farms	2
Growing Conditions	3
Prices	4
Summary of the Farm Business	6
Labor, Livestock, and Crops Grown	6
Capital Investment	7
Receipts	8
Expenses	10
Income	12
Analysis of the Farm Business	15
Size of Business	15
Rates of Production	17
Labor Efficiency	18
Use of Capital	19
Cost Control	22
Feed Costs	22
Machinery Costs	24
Labor and Machinery Costs	25
Miscellaneous Cost Control Measures	26
Combination of Factors	27
Farm Business Summary by Herd Size	28
Selected Business Factors by Herd Size	30
Farm Business Chart	32
Supplemental Information	34
Cost of Producing Milk	35
Age of Operator	36
Farms With Free Stall Barns	38
Selected Summary Factors for 1961, 1966, 1970, and 1971	40
Farm Business Summary, Top 10 Percent of the Farms by Labor Income . .	41
Farm Business Summary, 569 New York Dairy Farms, 1971	42

INTRODUCTION

Farm business management projects are a basic part of the management extension program in New York State. In 1971, more than 600 dairymen participated in College sponsored management projects. These projects serve a dual purpose. They provide the basis for extension educational programs and also data for applied research studies.

Farm business records were kept by each dairyman. Some used farm account books for keeping records while others were in electronic farm accounting programs. In all cases, the information was submitted to the College for summary and analysis.

Extension agents cooperated in the organization of local groups and in collection of the data. Regional summary reports were prepared for use by the agents in winter meetings with farmers. The aim of these extension activities was to help the dairymen develop their managerial skills and solve business management problems.

The records from all regions of the state have been combined for use in a continuing research study of factors affecting dairy farm incomes. The major purposes of this research are to: (1) keep abreast of changes taking place in dairy farming, and (2) provide current farm business data for use by dairymen, extension agents, teachers, agribusinessmen, policy makers, and others concerned with the New York dairy industry.

A total of 569 farm business records have been included in the dairy summary for 1971. Farms with combinations of dairy and other major enterprises were excluded from the analysis reported in this publication. Special features in the 1971 study include a summary of the financial situation on 319 farms, an analysis of 156 farms with free stall housing facilities, and an analysis by age of operator. Also a new method for handling building and machinery depreciation was used for the 1971 records.

This study does NOT represent the average of all dairy farms in the state. Participation in the project was on a voluntary basis. Although cooperators were located in various parts of the state not all areas were represented (see page 2). The 569 farms represent a cross section of commercial operators who in general are somewhat above the average for all dairy farms in the state.

Acknowledgements

C. A. Bratton, G. J. Conneman, E. L. LaDue, C. W. Loomis, A. C. Lowry, R. S. Smith, and S. F. Smith with the assistance of the Cooperative Extension Agents supervised the farm business management projects and the records which made this summary possible. Summarization and tabulation of the records and all machine operations were completed under the supervision of Myrtle Voorheis and the typing was done by Angie Torchia.

Growing ConditionsTable 1. TEMPERATURE, GROWING SEASON AND PRECIPITATION
Selected Stations

Station	Av. temperature		Precipitation				Length of growing season*	
	May thru Sept.		May thru	Sept.	Total annual		growing season*	
	1941-70	1971	1941-70	1971	1941-70	1971	1947-67	1971
	degrees		inches				days	
Alfred	61.8	62.9	17.3	12.7	36.8	29.9	125	146
Auburn	65.0	63.3	14.1	11.2	32.0	40.8	174	NA
Batavia	64.0	65.4	15.3	17.3	32.6	30.7	154	164
Canton	63.0	62.5	16.5	15.9	34.5	35.9	127	129
Lowville	62.5	NA	16.5	13.4	38.5	37.7	123	NA
Norwich	61.9	61.5	18.4	17.6	39.9	40.6	120	142
Poughkeepsie FAA	66.3	66.7	16.7	26.6	38.0	46.1	164	195
Salem	62.8	63.3	18.4	19.9	39.0	38.8	119	NA
Utica FAA	63.5	64.3	18.1	18.6	40.6	51.0	157	196

* Days between the last temperature of 32 degrees in the spring and the first in the fall

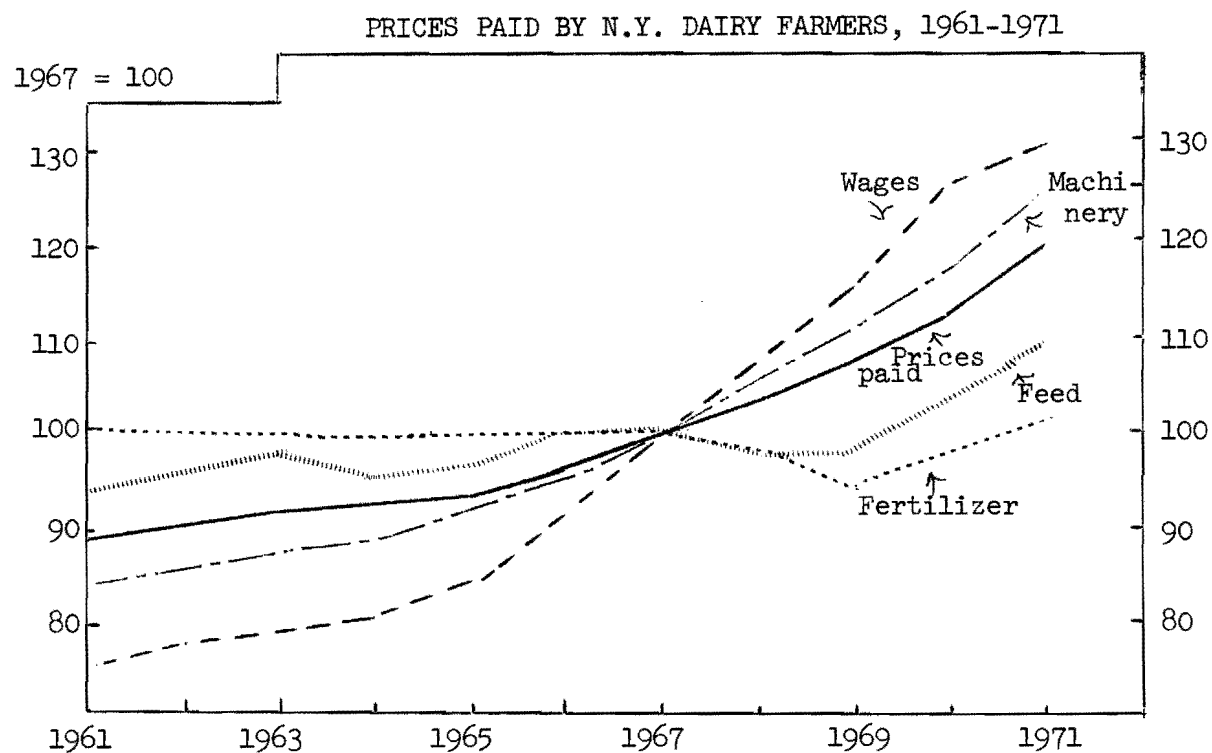
Weather is a factor to be considered when studying a farm business for a specific year. The growing conditions have a marked effect on the crops for that year. It is for this reason that data are presented on the growing conditions for 1971 and for the period 1941-70.

In general, the 1971 growing season can be characterized as having near normal temperatures, a longer than normal growing season and variable rainfall conditions. Data are presented for nine weather stations. The rainfall is reported by months for the growing season. There was considerable variation from the 30-year average throughout the season and in all areas (table 2).

Table 2. GROWING SEASON RAINFALL
Selected Stations, 1941-70 and 1971

Station	May		June		July		August		September	
	1941-70	1971	1941-70	1971	1941-70	1971	1941-70	1970	1941-70	1971
Alfred	3.84	1.37	3.76	3.14	3.73	3.05	3.00	1.24	2.93	3.93
Auburn	2.82	1.97	2.90	3.00	3.43	2.65	2.57	3.53	2.35	--
Batavia	3.17	1.76	2.69	5.18	3.05	4.97	3.50	2.45	2.87	2.96
Canton	3.37	3.34	2.91	2.48	3.45	4.38	3.45	3.27	3.31	2.46
Lowville	3.42	2.59	2.94	2.21	3.26	3.57	3.58	2.61	3.31	2.40
Norwich	3.92	3.30	4.13	2.86	3.95	5.49	3.17	2.73	3.27	3.27
Poughkeepsie	3.37	5.03	3.42	1.47	3.20	5.22	3.59	10.92	3.16	3.98
Salem	3.75	3.83	3.89	1.88	3.66	4.70	3.43	6.37	3.67	2.12
Utica	3.52	3.06	3.55	2.48	4.17	7.19	3.54	2.81	3.32	3.03

SOURCE: Climatological Data, New York, Environmental Data Service, NOAA, U. S. Department of Commerce



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

From 1961 to 1971, the index of prices paid by New York dairy farmers rose steadily, but some items changed more than others. From 1967 to 1971, farm wages rose 30 percent, machinery rose 25 percent, feed rose 8 percent, and fertilizer rose 1 percent. These variations have an influence on management decisions.

Table 4. PRICES PAID BY NEW YORK DAIRY FARMERS, 1961-1971

Year	Index 1967 = 100				Prices paid by New York dairy farmers	Dairy ration (cwt.)	Wages per month with house
	Feed	Fertilizer	Wages	Machinery			
1961	94	101	78	85	89	\$3.61	\$214
1962	96	100	80	86	90	3.68	218
1963	98	100	81	88	92	3.79	222
1964	95	99	83	89	92	3.72	228
1965	96	100	86	92	93	3.79	236
1966	100	100	91	95	96	4.00	254
1967	100	100	100	100	100	4.00	280
1968	97	98	109	105	103	3.70	302
1969	97	94	116	111	107	3.70	321
1970	103	98	126	117	112	3.90	354
1971	108	101	130	125	120	4.13	372

Capital Investment

The end-of-year inventory is used as the measure of the capital investment. The inventory should reflect the "fair market value" or what things would bring at a well-attended sale. This is a measure of the capital resource used in the business. The total investment on these farms averaged \$153,000.

Table 6. FARM INVENTORY VALUES, JANUARY 1, 1972
569 New York Dairy Farms

Item	My farm	Average of 569 farms	% of total
Livestock	\$ _____	\$ 35,327	23
Feed and supplies	_____	10,538	7
Machinery and equipment	_____	32,059	21
Land and buildings	_____	75,381	49
TOTAL INVENTORY	\$ _____	\$153,305	100

Machinery and buildings are depreciable items in a farm business. Since investments in these items usually come in large amounts, some accounting method must be used to spread the cost over the years of expected life. For the 1971 summary, depreciation for machinery and for real estate was calculated (table 7) and then entered as expense items (see page 10).

The average machinery depreciation of \$4,297 is 11.8 percent of the beginning inventory plus purchases. Since beginning inventory items are already partially depreciated this would indicate an average life of more than 10 years. The small building depreciation of \$417 shows that the summary does not include much write-off for buildings. This may indicate that rising real estate values about offset building depreciation.

Table 7. MACHINERY AND LAND AND BUILDING DEPRECIATION
569 New York Dairy Farms, 1971

Item	Machinery		Land and Buildings	
	My farm	Av. 569 farms	My farm	Av. 569 farms
Beginning inventory	\$ _____	\$28,748	\$ _____	\$70,774
Purchases	_____	7,719	_____	5,150
Total (1)	\$ _____	\$36,467	\$ _____	\$75,924
End inventory	\$ _____	\$32,059	\$ _____	\$75,381
Sales	_____	111	_____	126
Total (2)	\$ _____	\$32,170	\$ _____	\$75,507
DEPRECIATION (1 minus 2)	\$ _____	\$4,297	\$ _____	\$417

The average price per hundredweight of milk sold by the 569 farms in 1971 was \$6.21. The average price is calculated by dividing the gross milk receipts for the year by the total pounds of milk sold. The variation in average price received is shown below:

Variation in Average Milk Price

<u>Average price received for milk</u>	<u>Number of farms</u>	<u>Percent of farms</u>
Below \$5.75	16	3
\$5.75 - 5.99	159	28
6.00 - 6.24	233	41
6.25 - 6.49	75	13
6.50 - 6.74	41	7
6.75 - 6.99	21	4
Over \$7.00	<u>24</u>	<u>4</u>
TOTAL	569	100

Dairymen often say there is nothing they can do about the price received for milk. This may be true as it pertains to the price at a particular time, but the variation shown here does indicate that the average annual prices received for milk by farmers do vary. Management practices account for some of the differences. Seasonality of production and butterfat test are two management items that affect the average price for the year.

Gross receipts are sometimes used as a measure of size of business. The census of agriculture uses this measure in classifying farms. The distribution of total farm receipts of the 569 farms in 1971 is shown below:

Distribution of Farms by Total Farm Receipts

<u>Total farm receipts</u>	<u>Farms</u>	
	<u>Number</u>	<u>Percent</u>
Under \$20,000	6	1
\$ 20,000 - 29,999	44	8
30,000 - 39,999	86	15
40,000 - 49,999	111	19
50,000 - 59,999	84	15
60,000 - 79,999	93	16
80,000 - 99,999	55	10
100,000 - 119,999	39	7
120,000 and over	<u>51</u>	<u>9</u>
TOTAL	569	100

Only six of the 569 farms had receipts under \$20,000. Consequently, practically all the farms in this study would be classified by the census as Economic Classes I and II farms (\$20,000 and over). More than one-half of the 569 farms had receipts of over \$50,000 and 16 percent had receipts of \$100,000 or more.

The cash expense classifications used on page 10 are taken from the "Cornell Farm Account Book." Lists of the items included in each category are presented on the inside back cover of that account book.

Machinery and real estate depreciation - expenditures for machinery and buildings are usually made in large amounts. These purchases are often financed through loans. To include all the expenses in the year of purchase inflates the farm expenses. Consequently, depreciation has been calculated for these (page 7) and carried as expense items.

Unpaid family labor refers to work done by members of the family who are not paid cash wages. The operator estimates the number of months of unpaid labor. This is charged to the business at \$300 per-month.

Decrease in livestock and feed inventories is the amount that the beginning inventory for these two items exceeds the end inventory. Since this indicates a "using up" of capital items, it is considered as a farm expense. Some individual farms had a decrease, but the net inventory change for the 569 farms was an increase.

Total farm expenses for the 569 farms averaged \$44,857 or \$127 per day. The cash operating expenses averaged \$39,400 or 88 percent of the total. The cash operating expenses averaged \$588 per cow. When depreciation and unpaid labor were included, the total farm expenses averaged \$670 per cow.

Farm expenses can be classified in various ways. Another way to study expenses is to divide them on the basis of fixed, variable, and capital items. This is shown below:

<u>Overhead expenses (fixed)</u>		<u>Operating expenses (variable)</u>	
Land & building repairs	\$1,206	Labor	\$ 4,801
Property taxes	1,543	Feed	13,473
Insurance	1,006	Machinery repairs	2,566
Rent	760	Gas and oil	1,452
Electricity	859	Machine hire	899
Telephone	208	Auto	220
Total Fixed Overhead	\$5,582	Livestock purchased	2,540
		Livestock expenses	3,461
<u>Capital expenses</u>		Fertilizer and lime	2,432
Machinery depreciation	\$4,297	Other crop expenses	1,306
Real estate depreciation	417	Miscellaneous	631
Total Capital	\$4,714	Total Variable	\$33,781

The variable expenses on these farms accounted for 75 percent of the grand total. These are items over which the operator has direct control. The fixed items accounted for only 12 percent of the total, and capital depreciation 11 percent. The variable expenses are the ones the dairymen must make decisions on daily.

Table 12. FARM CASH OPERATING INCOME AND DEBT PAYMENT ABILITY
569 New York Dairy Farms, 1971

Item	My farm	Average of 569 farms
Total cash receipts	\$ _____	\$60,745
Total cash operating expense	_____	39,363
FARM CASH OPERATING INCOME	\$ _____	\$21,382
Family cash living expenses*	_____	6,340
DEBT PAYMENT ABILITY	\$ _____	\$15,042

* Estimated at \$5,400 per operator per year

Farm cash operating income reflects 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. A family may have had additional cash available if some member of the family had a nonfarm income, or if money were inherited or borrowed.

Debt payment ability is a measure of the amount of cash available for debt payments. It is calculated by deducting family living expenses from the farm cash operating income. Since actual living expenses were not available, they were estimated at \$5,400 per operator. It is assumed here that new machinery and real estate are purchased with borrowed capital. This measure is useful in planning debt payment schedules.

Rate of return on investment is calculated by deducting a charge for the operator's labor from the "farm income." This is then divided by the average investment for the year to determine the rate of return on investment. In the calculation below, \$5,400 has been used arbitrarily as the value of the operator's labor. This is comparable to what "good" hired men earn. Rate of return really reflects the return to capital and management.

Table 13. RATE OF RETURN ON INVESTMENT
569 New York Dairy Farms, 1971

Item	My farm	Average of 569 farms
Farm income	\$ _____	\$19,825
Value of operator's labor*	_____	6,340
Return on investment	\$ _____	\$13,485
Average capital investment	\$ _____	\$147,378
RATE OF RETURN ON INVESTMENT	_____ %	9.2%

* \$5,400 per operator - some farms had more than one operator

ANALYSIS OF THE FARM BUSINESS

This part of the report includes a systematic analysis of the farm business to determine strengths and weaknesses. Five business factors are examined. These are: size of business, rates of production, labor efficiency, use of capital, and cost control. The 1971 averages for selected measures for each of these factors are reported along with general relationships of each to labor income.

Since the measures examined here are interrelated, all factors should be examined before arriving at major conclusions.

Size of Business

Size of farm has an effect on other factors such as labor efficiency, cost control, and capital efficiency. The prices received and paid by a farmer are often affected by the volume which is a function of size. Farm management studies have shown that in general larger farm businesses make larger labor incomes. Two basic reasons for this are that larger businesses make possible more efficient use of overhead inputs such as labor and machinery, and there are more units of production (milk) on which to make a profit.

Table 14. MEASURES OF SIZE OF BUSINESS
569 New York Dairy Farms, 1971

Measure	My farm	Average of 569 farms
Number of cows	_____	67
Total acres in crops	_____	185
Man equivalent	_____	2.2
Total work units	_____	729
Pounds of milk sold	_____	861,700
Total cash receipts	\$ _____	\$60,745
Total investment	\$ _____	\$153,000

Number of cows is the average number in the herd for the year. Where available, the D.H.I.C. annual average is used.

Total acres in crops includes all acres on which crops were harvested during the 1971 year. It does not include cropland pasture or uncropped land.

Man equivalent is the amount of labor available on the farm during the year in terms of full-time man years. Work by part-time workers and family members is converted to full-time man equivalent.

Total work units represents the number of productive man days that would be required, under average conditions, to care for the acreage of crops grown and the number of livestock handled. A man work unit is the average amount of productive work accomplished in ten hours.

Rates of Production

Production per animal and per acre are factors that affect farm incomes. However, high rates of production should be obtained at reasonable costs.

Table 17. MEASURES OF RATES OF PRODUCTION
569 New York Dairy Farms, 1971

Measure	My farm	Average of 569 farms
Pounds of milk sold per cow	_____	12,900
Tons hay per acre	_____	2.7
Tons corn silage per acre	_____	16
Tons of hay equivalent per acre of all roughages	_____	3.5
Bushels of oats per acre	_____	60
Bushels grain corn per acre	_____	80

Pounds of milk sold per cow is calculated by dividing the total pounds of milk sold by the average number of cows. The average for the 569 farms was 12,900 pounds per cow.

Tons of hay equivalent per acre of all roughages is determined by converting all silage produced to tons of hay equivalent and then dividing the total tons of hay equivalent from all roughage by the total acres used for roughage production. This measure gives an indication of how intensively the roughage land is used.

Studies have shown repeatedly that farms with higher rates of production tend to have higher labor incomes. In 1971, the farms with the higher rates of production were larger, bought more feed per cow, and in general had higher incomes.

Table 18. MILK SOLD PER COW AND LABOR INCOME
569 New York Dairy Farms, 1971

Pounds of milk sold per cow	Number of farms	Number of cows	Feed bought per cow	Labor income per operator
Under 10,000	45	59	\$126	\$ 2,330
10,000 - 10,999	57	66	155	5,310
11,000 - 11,999	82	62	186	6,900
12,000 - 12,999	117	72	193	7,820
13,000 - 13,999	111	68	210	10,060
14,000 - 14,999	91	67	224	9,150
15,000 and over	66	68	232	11,840

Use of Capital

The average end-of-year inventory on the 569 farms was over \$150,000. This includes both owned and borrowed capital. The use of credit is part of capital management. Since capital is a key input item, it is important to analyze the use of capital in the business.

The analysis in this section examines how the capital is used and the financial situation of the farm family.

Table 21. MEASURES OF CAPITAL EFFICIENCY
569 New York Dairy Farms, 1971

Measure	My farm	Average of 569 farms
Total capital per man	\$ _____	\$69,700
Total capital per cow	_____	2,290
Machinery and equipment per cow	_____	480
Land and building investment per cow	_____	1,125
Land and building investment per crop acre	_____	410
Total capital per cwt. milk sold	_____	18
Capital turnover (capital ÷ receipts)	_____	2.4

Capital efficiency is often associated with size of herd. For this reason, the 569 farms were sorted on the basis of number of cows and the capital efficiency measures were calculated. There seemed to be a relationship between size and capital efficiency for machinery but not for real estate.

Table 22. SIZE OF HERD AND CAPITAL EFFICIENCY
569 New York Dairy Farms, 1971

Number of cows	Number of farms	Capital Investment Per Cow		
		Total	Real estate	Machinery
Under 40	102	\$2,389	\$1,175	\$538
40 - 54	166	2,325	1,117	523
55 - 69	100	2,330	1,161	491
70 - 84	69	2,306	1,131	504
85 - 99	39	2,318	1,115	467
100 - 114	41	2,431	1,217	470
115 - 129	17	2,208	1,087	440
130 - 149	22	2,266	1,196	419
150 & over	13	1,759	820	329

Table 24. DEBT COMMITMENTS AND FINANCIAL MEASURES
319 New York Dairy Farms, 1971

	My farm	Average of farms reporting	
Total debt payments	\$ _____	(241 farms)	\$13,254
Financial measures:			
Number of cows	_____	(241 farms)	66
Annual debt payment/cow	\$ _____	(241 farms)	\$201
Debt payment as % milk check	_____ %	(241 farms)	25%
Percent equity	_____ %	(319 farms)	64%
Percent debt on real estate	_____ %	(319 farms)	48%
Debt per cow	\$ _____	(319 farms)	\$927

Of the 319 farms, 241 reported their total debt payments for the year 1971. The debt payment for interest and principle averaged \$13,254. These commitments averaged nearly \$1,100 per month, \$201 per cow per year, and 25% of the milk receipts.

Debts on the 319 farms reporting amounted to 36 percent of the total assets. This gives an average equity of 64 percent. The average debt per cow was \$927. There was a wide range in these factors among the farms reporting.

Table 25. FINANCIAL SITUATION BY SIZE OF HERD
319 New York Dairy Farms, 1971

Herd size (cows)	Number of		Total assets	Total liabilities	Net worth	Percent equity	Debt per cow
	Farms	Cows					
Under 40	60	33	\$ 97,077	\$ 29,853	\$ 67,224	69	\$ 905
40 - 54	91	47	123,109	42,773	80,336	65	910
55 - 69	60	61	164,927	56,315	108,612	66	923
70 - 84	39	75	198,655	75,058	123,597	62	1,001
85 - 99	17	90	206,782	95,111	111,671	54	1,057
100 - 114	22	102	283,305	82,658	200,647	71	810
115 - 129	9	122	322,444	92,515	229,929	71	758
130 - 149	12	139	366,298	144,797	221,501	60	1,042
150 & over	9	184	350,974	168,680	182,294	52	917

Feed cost is influenced by a number of factors. On the production side, it is affected by the amount of home-grown grains, quality and quantity of the roughage, and the number of youngstock. On the purchasing side, it is influenced by the farmer's ability to purchase concentrates at low costs.

Feed purchased as percent of milk receipts is calculated by dividing feed purchased by milk receipts. This measure can be used to determine whether the feed costs are in line. The amount of home-grown grain must be considered as you evaluate this measure. Milk prices also influence this factor.

Feed purchased per cow is calculated by dividing the total expense for dairy concentrate by the average number of cows. Because this also includes the amount spent for calf and heifer feed, it actually represents the feed cost per cow and the replacements being raised.

Crop expense per cow is calculated by dividing the total money spent for fertilizer and lime, seeds and plants, spray, and other crop expense by the average number of cows. This represents the direct cash costs of the dairyman for growing feed.

Total feed and crop expense is determined by adding the purchased feed expense to total crop expense. This indicates the total amount spent by the dairyman to provide the feed requirements of the herd. If the dairyman gets a high amount of nutrients per dollar spent and feeds these nutrients so as to get efficient milk production per unit of nutrient, he will keep his feed and crop expense per hundredweight of milk down.

Number of heifers per 10 cows is figured by dividing the number of heifers by the number of cows and multiplying by ten.

Table 27. PERCENT PURCHASED FEED IS OF MILK RECEIPTS AND LABOR INCOME
569 New York Dairy Farms, 1971

<u>% Feed is of milk</u>	<u>Number of farms</u>	<u>Number of cows</u>	<u>H.E. per cow</u>	<u>Lbs. milk per cow</u>	<u>Labor income per operator</u>
Over 40%	20	61	7.4	12,000	\$ 1,960
35 - 39	36	59	8.0	13,200	3,090
30 - 34	99	61	8.0	12,700	5,200
25 - 29	149	66	7.9	12,900	7,530
20 - 24	125	72	8.2	12,900	10,790
Under 20%	140	71	8.3	12,700	10,390

In general, the lower the percent of the milk check going for purchased feed, the higher the income (table 27). Farms with a lower percent of the milk check going for purchased feed had more tons of hay equivalent per cow. This suggests that adequate supplies of roughage has an effect on concentrate purchases and labor incomes.

Labor and Machinery Costs

The primary justification given for more mechanization is to reduce labor costs. However, if a machine is added without expanding size or reducing the labor force, costs will be increased. "Labor and machinery cost" provides a measure of the efficiency of the operator's machinery and labor combination.

Table 30. LABOR AND MACHINERY COST
569 New York Dairy Farms, 1971

Item	My farm	Average of 569 farms
Labor cost:		
Value of operators' labor*	\$ _____	\$ 6,340
Hired labor**	_____	4,801
Unpaid family labor	_____	780
Total Labor Cost	\$ _____	\$11,921
Total Machinery Cost (p. 24)	_____	11,562
TOTAL LABOR AND MACHINERY COST	\$ _____	\$23,483

Labor cost:		
per cow	\$ _____	\$177
per cwt. milk sold	\$ _____	\$1.38
Labor and machinery cost:		
per cow	\$ _____	\$350
per cwt. milk sold	\$ _____	\$2.73

* Values at \$5,400 per operator - some farms had more than one operator

** Includes family paid and non-family hired

The costs of labor and of machinery were about equal on these farms. Non-family hired labor accounted for 29.5% of all labor. The cost of hired labor averaged \$457 per month.

Table 31. ANALYSIS OF LABOR COSTS
569 New York Dairy Farms, 1971

Item	My farm	Average 569 farms
Percent of labor furnished by:		
Operator	_____ %	52.2%
Family unpaid	_____ %	9.7%
Family paid	_____ %	8.6%
Hired	_____ %	29.5%
Cost per month of hired labor	\$ _____	\$457
Labor cost per man equivalent	\$ _____	\$5,420

Combination of Factors

Individual factors have been examined in the analysis up to this point. It has been suggested that these factors are interrelated. In this section, the combination of factors is studied. The factors used here are size, rates of production, labor efficiency, and cost control as measured by number of cows, pounds of milk sold per cow, pounds of milk sold per man, and percent purchased feed was of milk receipts.

For each factor, the farms were divided on the basis of whether they were above or below the average for the 569 farms. They were then grouped on the basis of the number of factors better than average. The combination of factors above or below average within the three middle groups varied.

Table 33. COMBINATION OF FACTORS ABOVE AVERAGE* AND LABOR INCOME
569 New York Dairy Farms, 1971

Number of factors above average	Number of farms	Percent of farms	Labor income per operator
4 factors better than average	55	10	\$18,720
3 factors better than average	108	19	11,610
2 factors better than average	166	29	7,310
1 factor better than average	158	28	5,400
0 factors better than average	82	14	3,280

* Factors were:

Size - number of cows - average 67

Rates of production - pounds of milk sold per cow - average 12,900

Labor efficiency - pounds of milk sold per man - average 391,700

Cost control - percent purchased feed was of milk receipts - average 24%

The relationship between the number of factors better than average and labor income is shown in table 33. As the number of factors better than average decreased, labor incomes decreased at a rapid rate. In order to get a labor income higher than good hired men's wages, it appears that a business must be above average in at least two factors.

It is important in managing a farm business to give attention to all major factors affecting the business. Concentrating on only one or two factors and neglecting the others, will not give the kind of net income most farmers want.

Comparison by Herd Size

In making an analysis of an individual farm business, it is helpful to compare it with businesses of approximately the same size. On the following four pages, the business summary and business factors for the 569 farms are shown for seven herd size groups. These data also illustrate the effect of size on various business factors.

Table 34 contd.

FARM BUSINESS SUMMARY BY HERD SIZE
569 New York Dairy Farms, 1971

Item	Farms with:			
	70 to 84 cows	85 to 99 cows	100 to 149 cows	150 or more cows
<u>Capital Investment (end of year)</u>				
Livestock	\$ 39,654	\$ 51,912	\$ 60,412	\$ 85,396
Feed and supplies	11,566	15,248	21,070	31,749
Machinery and equipment	38,357	42,656	51,920	63,128
Land and buildings	86,373	101,075	137,570	157,447
TOTAL INVESTMENT	\$175,950	\$210,891	\$270,972	\$337,720
<u>Receipts</u>				
Milk sales	\$ 59,295	\$ 74,156	\$ 99,446	\$152,800
Livestock sales	5,470	7,754	10,092	15,786
Crop sales	546	513	600	720
Miscellaneous receipts	1,181	1,510	1,819	3,925
Total Cash Receipts	\$ 66,492	\$ 83,933	\$111,957	\$173,231
Increase in livestock and feed	4,691	6,454	7,047	10,923
TOTAL FARM RECEIPTS	\$ 71,183	\$ 90,387	\$119,004	\$184,154
<u>Expenses</u>				
Hired labor	\$ 5,502	\$ 7,828	\$ 11,737	\$ 22,007
Dairy feed	14,868	17,056	23,684	35,221
Other feed	637	758	676	1,103
Machine hire	741	1,150	1,773	5,942
Machinery repair	2,537	3,653	5,283	8,681
Auto expense (farm share)	227	234	219	416
Gas and oil	1,587	1,973	2,522	3,578
Purchased animals	3,178	4,472	3,943	12,193
Breeding fees	661	855	1,100	1,130
Veterinary and medicine	934	1,378	1,694	2,097
Other livestock expense	2,116	3,251	3,619	3,946
Lime and fertilizer	2,439	3,698	5,098	7,499
Seeds and plants	634	1,034	1,346	2,064
Spray and other crop expense	591	819	1,415	1,302
Land, bldg., fence repair	1,407	1,632	2,044	3,114
Taxes and insurance	2,711	3,124	4,595	7,821
Electricity & phone (farm share)	1,186	1,531	1,880	2,627
Miscellaneous expenses	1,282	2,440	2,620	7,135
Total Cash Operating Expenses	\$ 43,235	\$ 56,886	\$ 75,248	\$127,876
Machinery depreciation	5,109	5,871	7,126	8,560
Real estate depreciation	440	793	840	1,368
Unpaid family labor	840	600	638	180
TOTAL FARM EXPENSES	\$ 49,627	\$ 64,150	\$ 83,852	\$137,984
<u>Financial Summary</u>				
Total Farm Receipts	\$ 71,183	\$ 90,387	\$119,004	\$184,154
Total Farm Expenses	49,627	64,150	83,852	137,984
Farm Income	\$ 21,556	\$ 26,237	\$ 35,152	\$ 46,170
Interest on av. capital at 7%	11,860	14,052	18,433	22,671
Labor Income Per Farm	\$ 9,696	\$ 12,185	\$ 16,719	\$ 23,499
Number of operators	1.23	1.28	1.38	1.53
LABOR INCOME PER OPERATOR	\$ 7,883	\$ 9,520	\$ 12,115	\$ 15,359

Table 35 contd. SELECTED BUSINESS FACTORS BY HERD SIZE
569 New York Dairy Farms, 1971

Item	Farms with:			
	70 to 84 cows	85 to 99 cows	100 to 149 cows	150 or more cows
Number of farms	69	39	80	13
<u>Size of Business</u>				
Number of cows	76	91	117	192
Pounds of milk sold	950,600	1,208,200	1,571,500	2,400,500
Crop acres	203	248	310	505
Man equivalent	2.4	2.9	3.4	5.1
Total work units	817	998	1,270	1,967
<u>Rates of Production</u>				
Milk sold per cow	12,500	13,300	13,400	12,500
Tons hay per acre	2.7	3.1	2.8	2.8
Tons corn silage per acre	16	16	16	15
Bushels oats per acre	60	69	66	69
<u>Labor Efficiency</u>				
Cows per man	32	31	34	38
Pounds milk sold per man	396,100	416,620	462,200	470,700
Work units per man	340	344	374	386
<u>Feed Costs</u>				
Feed purchased per cow	\$196	\$187	\$202	\$183
Crop expense per cow	\$48	\$61	\$67	\$57
Feed & crop expense per cow	\$244	\$248	\$269	\$240
Feed cost per cwt. milk	\$1.56	\$1.41	\$1.51	\$1.47
Feed & crop exp./cwt. milk	\$1.95	\$1.87	\$2.01	\$1.92
% Feed is of milk receipts	25%	23%	24%	23%
Hay equivalent per cow	8.1	8.3	8.3	8.0
Crop acres per cow	2.7	2.7	2.6	2.6
Fertilizer & lime/crop acre	\$12	\$15	\$16	\$15
<u>Machinery and Labor Costs</u>				
Total machinery costs	\$12,754	\$15,674	\$20,394	\$31,318
Machinery cost per cow	\$168	\$172	\$174	\$163
Machinery cost per cwt. milk	\$1.34	\$1.30	\$1.30	\$1.30
Labor cost per cow	\$170	\$168	\$167	\$159
Labor cost per cwt. milk	\$1.36	\$1.27	\$1.25	\$1.27
<u>Capital Efficiency</u>				
Investment per man	\$73,313	\$72,721	\$79,698	\$66,220
Investment per cow	\$2,315	\$2,317	\$2,316	\$1,759
Investment per cwt. milk sold	\$18	\$17	\$17	\$14
Land and building per cow	\$1,136	\$1,111	\$1,176	\$820
Machinery investment per cow	\$505	\$469	\$444	\$329
Return on investment	8.8%	9.6%	10.5%	11.7%
<u>Other</u>				
Price per cwt. milk sold	\$6.24	\$6.14	\$6.33	\$6.37
Acres hay and hay crop silage	123	117	148	244
Acres corn silage	57	76	104	171

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
569 New York Dairy Farms, 1971
Cost Control

Feed bought per cow	% Feed is of milk receipts	Machinery cost per cow	Labor and machinery cost per cow	Feed and crop expense per cwt. milk
\$ 81	11%	\$ 96	\$243	\$1.18
125	17	122	278	1.47
147	20	136	305	1.62
168	22	150	326	1.75
189	24	165	344	1.87

205	26	177	360	1.99
223	28	190	380	2.09
239	30	205	402	2.23
265	32	224	443	2.41
317	38	284	538	2.81

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.