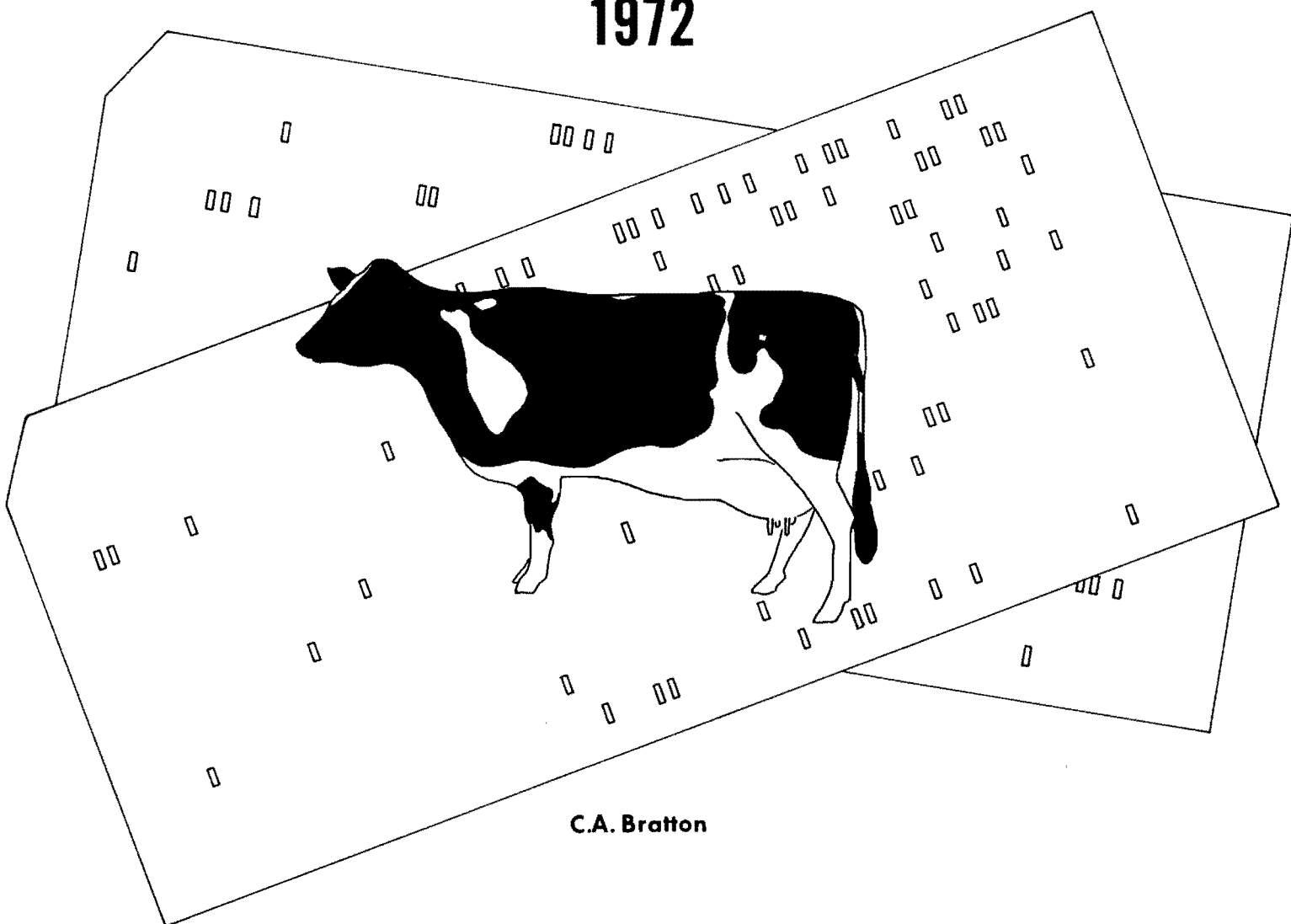


DAIRY FARM MANAGEMENT

BUSINESS SUMMARY NEW YORK 1972



C.A. Bratton

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 1962, 1967, 1971 and 1972	40
Farm Business Summary, 28 New York Dairy Crop Farms, 1972	41
Farm Business Summary, 26 New York Dairy Renters Farms, 1972	42
Farm Business Summary, Top 10 Percent of the Farms by Labor Income . .	43
Farm Business Summary, 571 New York Dairy Farms, 1972	44

INTRODUCTION

Farm business management projects are a basic part of the management extension program in New York State. In 1972, 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.

Each dairyman kept farm business records. Some were in electronic farm accounting programs, while others used farm account books for keeping records. 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 aims of these extension activities were 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 571 farm business records have been included in the general dairy summary for 1972. Farms with combinations of dairy and other major enterprises were excluded from the general analysis reported in this publication. Special features in the 1972 study include a summary of the financial situation on 416 farms, an analysis of 198 farms with free-stall housing facilities, and an analysis by age of operator. Also included are summaries of 28 dairy-cash crop operations and 26 renter operations, and a comparison that shows changes in dairy businesses over the past decade.

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 571 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. L. Casler, 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 computer operations were completed under the supervision of Myrtle Voorheis and the typing was done by Angie Torchia.

Growing Conditions

Table 1. TEMPERATURE, GROWING SEASON AND PRECIPITATION
Selected Stations

Station	Average temperature		Precipitation				Length of growing season*	
	May - Sept.		May - Sept.		Total Annual		1947-67 1972	
	1941-70	1972	1941-70	1972	1941-70	1972	1947-67	1972
	degrees				inches		days	
Alfred	61.8	62.0	17.3	31.0	36.8	53.2	125	112
Auburn	65.0	NA	14.1	NA	32.0	NA	174	NA
Batavia	64.0	65.3	15.3	20.1	32.6	41.2	154	165
Canton	63.0	62.0	16.5	21.7	34.5	44.7	127	131
Lowville	62.5	NA	16.5	NA	38.5	NA	123	NA
Norwich	61.9	62.2	18.4	22.0	39.9	49.1	120	112
Poughkeepsie FAA	66.3	66.8	16.7	23.9	38.0	54.8	164	144
Salem	62.8	63.0	18.4	22.1	39.0	47.7	119	143
Utica FAA	63.5	64.4	18.1	27.1	40.6	61.6	157	156

* 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 1972 and for the period 1941-70.

In general, the 1972 crop season can be characterized as having excessive rainfall, normal temperatures, and the length of growing season varied considerably in different parts of the State. Data are presented for nine weather stations. The rainfall is reported by months for the growing season. There was much heavier than normal rainfall throughout most of the season and in all areas (table 2).

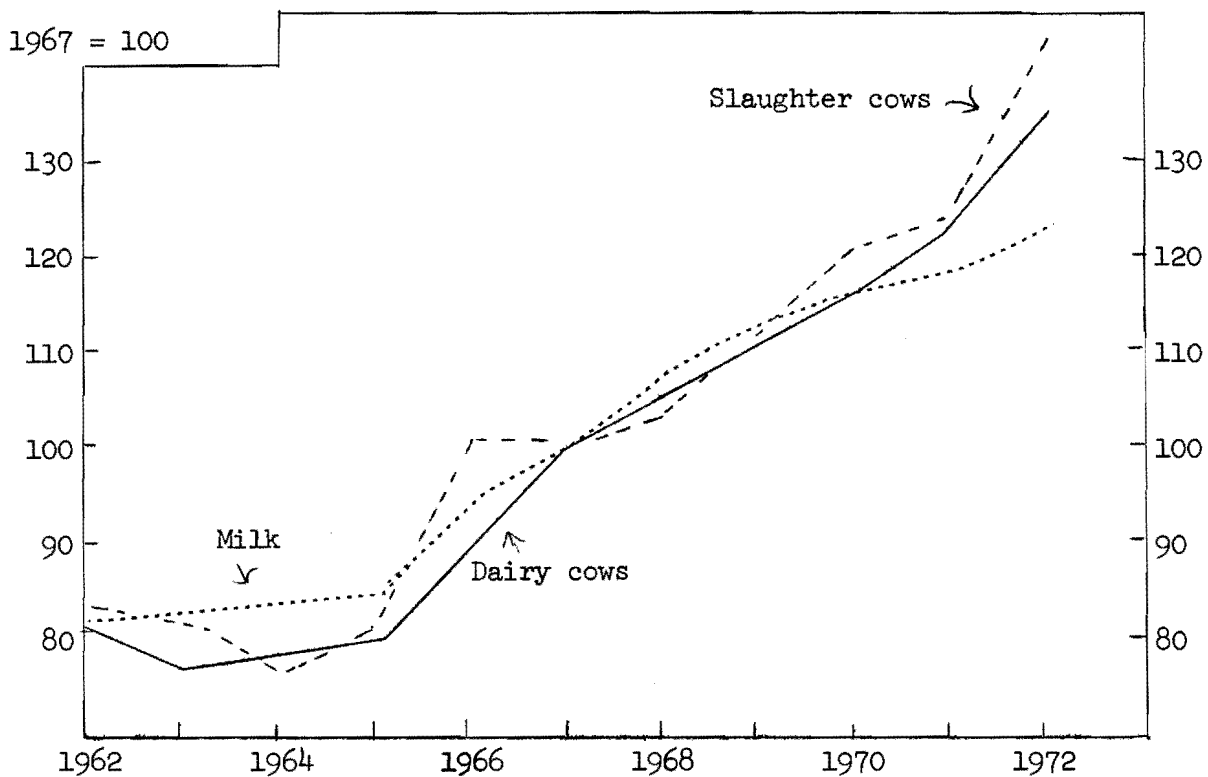
Table 2. GROWING SEASON RAINFALL
Selected Stations, 1941-70 and 1972

Station	May		June		July		August		September	
	1941-70	1972	1941-70	1972	1941-70	1972	1941-70	1972	1941-70	1972
Alfred	3.84	4.76	3.76	16.60	3.73	3.15	3.00	2.89	2.93	3.58
Auburn	2.82	NA	2.90	NA	3.43	NA	2.57	NA	2.35	NA
Batavia	3.17	6.03	2.69	5.77	3.05	1.62	3.50	3.04	2.87	3.67
Canton	3.37	3.60	2.91	3.85	3.45	7.07	3.45	5.51	3.31	1.66
Lowville	3.42	NA	2.94	NA	3.26	NA	3.58	NA	3.31	NA
Norwich	3.92	5.79	4.13	8.85	3.95	3.31	3.17	1.93	3.27	2.16
Poughkeepsie	3.37	7.74	3.42	7.99	3.20	4.13	3.59	2.14	3.16	1.93
Salem	3.75	5.03	3.89	6.51	3.66	6.16	3.43	1.61	3.67	2.81
Utica	3.52	6.17	3.55	10.50	4.17	3.04	3.54	3.77	3.32	3.65

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

Prices

PRICES RECEIVED BY N.Y. DAIRY FARMERS, 1962-1972



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

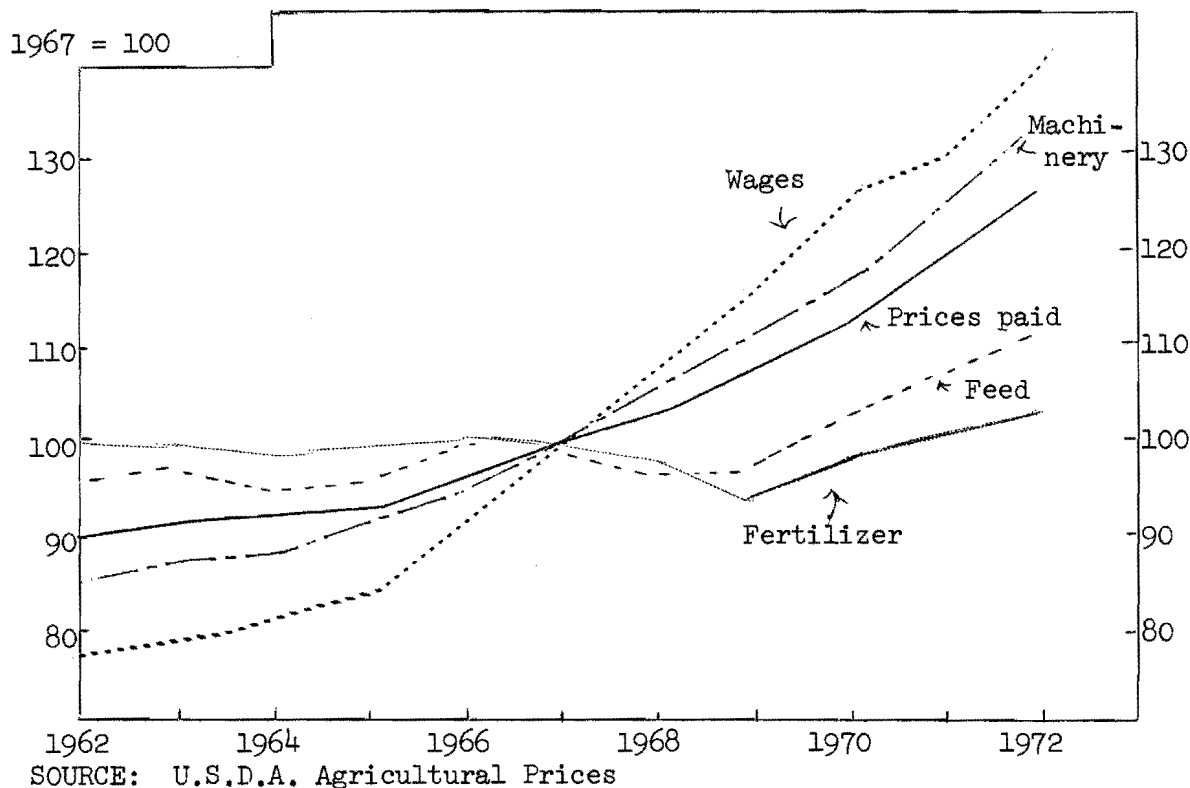
Prices are an important business factor. The relationship of prices received to prices paid determines the general level of incomes. The graph above shows the trend in prices since 1962 for the major items sold on dairy farms. A look at the 1972 price situation shows it to have been one of rising prices.

Milk prices for 1972 averaged \$6.25 compared with \$5.98 in 1971 and \$4.14 in 1962. Both dairy and slaughter cow prices in 1972 were at new highs for the decade. In general, prices received by dairymen in 1972 were good.

Table 3. PRICES RECEIVED FOR MILK AND COWS BY N.Y. FARMERS, 1962-1972

Year	Milk 3.5% B.F. (cwt.)	Slaughter cows (cwt.)	Dairy cows (head)	Monthly farm price per 100 pounds of milk, 1972
1962	\$4.14	\$14.26	\$245	January \$6.37
1963	4.15	14.01	234	February 6.29
1964	4.21	13.17	237	March 5.97
1965	4.27	13.91	238	April 5.70
1966	4.79	17.35	271	May 5.62
1967	5.07	17.10	303	June 5.58
1968	5.43	17.60	320	July 6.14
1969	5.66	19.30	336	August 6.72
1970	5.89	20.70	353	September 6.96
1971	5.98	21.20	372	October 7.05
1972	6.25	24.48	410	November 6.95 December 6.69

PRICES PAID BY N.Y. DAIRY FARMERS, 1962-1972



From 1962 to 1972, the index of prices paid by New York dairy farmers rose steadily, but some items changed more than others. From 1967 to 1972, farm wages rose 40 percent, machinery rose 34 percent, feed rose 12 percent, and fertilizer rose 3 percent. These variations have an influence on management decisions.

Table 4. PRICES PAID BY NEW YORK DAIRY FARMERS, 1962-1972

Year	Index 1967 = 100				Prices paid by New York dairy farmers	Dairy ration (cwt.)	Wages per month with house
	Feed	Fertilizer	Wages	Machinery			
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	126	120	4.13	372
1972	112	103	140	134	126	4.27	393

SUMMARY OF THE FARM BUSINESS

Labor, Livestock, and Crops Grown

The first step in a farm business summary and analysis is an examination of the things they had to work with. Below is the summary of the resources used on the 571 dairy farms included in this study.

TABLE 5. LABOR FORCE, LIVESTOCK NUMBERS, AND ACRES
OF CROPS GROWN
571 NEW YORK DAIRY FARMS, 1972

ITEM	MY FARM	AVERAGE OF 571 FARMS	RANGE	
			LOW	HIGH
LABOR				
MONTHS OF:				
OPERATORS	-----	14.3		
FAMILY UNPAID	-----	2.5		
FAMILY PAID	-----	2.7		
HIRED	-----	7.9		
OTHER	-----	0.3		
TOTAL MONTHS		27.8		
MAN EQUIVALENT (NO. MEN)	-----	2.3	1.0	9.0
AGE OF OPERATOR	-----	42	21	72
LIVESTOCK (NUMBER)				
COWS	-----	70	20	361
HEIFERS	-----	46	0	220
CROPS (ACRES GROWN)*				
HAY	-----	(554)	96	1 500
HAY CROP SILAGE	-----	(105)	63	2 309
GREEN CHOP	-----	(38)	25	2 90
CORN SILAGE	-----	(540)	60	5 350
CORN FOR GRAIN	-----	(150)	45	2 240
OATS	-----	(145)	23	2 80
TOTAL ACRES OF CROPS	-----	(570)	188	1 815

*Average for farms reporting so acres do not add to total. Number of farms growing is in parenthesis.

Partnerships (or family corporations) are relatively common on New York dairy farms. Of the 571 farms, 102 had two or more operators with a total of 682 operators. Thus, about 18 percent of the farms were partnerships. The average man equivalent was 2.3 with 9.0 the largest. Family members provided 19.5 months of labor or 70 percent of the total. The average age of the first operator was 42 and the second (partnership) was 34.

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. However, in a period of rising prices, there is likely to be some lag in values used. The total investment on these farms averaged \$174,000.

Table 6. FARM INVENTORY VALUES, JANUARY 1, 1973
571 New York Dairy Farms

Item	My farm	Average of 571 farms	% of total
Livestock	\$ _____	\$ 42,003	24
Feed and supplies	_____	10,074	6
Machinery and equipment	_____	34,255	20
Land and buildings	_____	87,448	50
TOTAL INVENTORY	\$ _____	\$173,780	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. The 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 \$4,784 is 12.2 percent of the beginning inventory plus purchases. This suggests an eight year average life, but since beginning inventory items are already partially depreciated, the average life would probably be ten years or more. The small building depreciation of \$439 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
571 New York Dairy Farms, 1972

Item	Machinery		Land and Buildings	
	My farm	Av. 571 farms	My farm	Av. 571 farms
Beginning inventory	\$ _____	\$31,703	\$ _____	\$82,379
Purchases	_____	7,517	_____	5,662
Total (1)	\$ _____	\$39,220	\$ _____	\$88,041
End inventory	\$ _____	\$34,255	\$ _____	\$87,448
Sales	_____	181	_____	154
Total (2)	\$ _____	\$34,436	\$ _____	\$87,602
DEPRECIATION (1 minus 2)	\$ _____	\$ 4,784	\$ _____	\$ 439

Receipts

The receipts give a picture of the nature of the business. They also are a basic part of the financial phases of the analysis of the operation.

Table 8. FARM RECEIPTS
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms	% of total
Milk sales	\$ _____	\$56,858	87
Livestock sold	_____	6,811	10
Crop sales	_____	358	1
Government payments	_____	504	1
Gas tax refund	_____	111	--
Machine work	_____	74	--
Work off farm	_____	60	--
Miscellaneous	_____	715	1
Total Cash Receipts	\$ _____	\$65,491	100
Increase in livestock and feed inventories	_____	2,885	
TOTAL FARM RECEIPTS	\$ _____	\$68,376	

Milk sales on these 571 farms accounted for 87 percent of the total cash receipts. Livestock sold, the second largest item, accounted for an additional 10 percent. The cash flow into the business on these farms averaged \$65,000. Increase in livestock and feed, which are noncash receipts, averaged \$2,885 or 4 percent of the total farm receipts.

Table 9. INCOME ANALYSIS
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms
Average price per cwt. milk sold	\$ _____	\$6.41
Milk sales per cow	\$ _____	\$812
Total cash receipts per man	\$ _____	\$28,475

The average price per hundredweight of milk sold by the 571 farms in 1972 was \$6.41. 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 \$6.00	22	4
\$6.00 - 6.24	205	36
6.25 - 6.49	199	35
6.50 - 6.74	77	13
6.75 - 6.99	41	7
OVER \$7.00	27	5
TOTAL	571	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 571 farms in 1972 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	5	1
\$ 20,000 - 29,999	36	6
30,000 - 39,999	85	15
40,000 - 49,999	98	17
50,000 - 59,999	88	15
60,000 - 79,999	102	18
80,000 - 99,999	51	9
100,000 - 119,999	44	8
120,000 AND OVER	62	11
TOTAL	571	100

Only five of the 571 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). Three-fifths of the 571 farms had receipts of over \$50,000, and 19 percent had receipts of \$100,000 or more.

Expenses

Keeping check on where the money goes is part of the job of a manager. A study of the expenses is essential in a business analysis. Expenses need to be broken down in some detail to be useful in making management decisions.

Table 10. FARM EXPENSES
571 New York Dairy Farms, 1972

Item	My farm	Average 571 farms	
		Amount	Percent
<u>Labor</u>			
Hired labor	\$ _____	\$ 5,431	12
<u>Feed</u>			
Dairy concentrate	_____	14,403	33
Other feed	_____	615	1
<u>Machinery</u>			
Machine hire	_____	700	2
Machinery repairs	_____	2,816	6
Auto expense (farm share)	_____	281	1
Gas and oil	_____	1,519	3
<u>Livestock</u>			
Purchased animals	_____	3,144	7
Breeding fees	_____	702	2
Veterinary and medicine	_____	1,025	2
Other livestock expense	_____	2,462	5
<u>Crops</u>			
Lime and fertilizer	_____	2,484	6
Seeds and plants	_____	774	2
Spray, other crop expense	_____	618	1
<u>Real Estate</u>			
Land, building, fence repair	_____	1,165	3
Taxes	_____	1,604	4
Insurance	_____	1,123	3
Rent	_____	816	2
<u>Other</u>			
Telephone (farm share)	_____	243	1
Electricity (farm share)	_____	999	2
Interest paid (488 farms reported)	_____	(\$4,060) --	--
Miscellaneous	_____	739	2
TOTAL CASH EXPENSES	\$ _____	\$43,663	100
Machinery depreciation	_____	4,784	
Real estate depreciation	_____	439	
Unpaid labor	_____	750	
Decrease in livestock and feed inventories	_____	--	
TOTAL FARM EXPENSES	\$ _____	\$49,636	

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. To include all the expenses in the year of purchase, inflates the farm expenses. Consequently, depreciation has been calculated and carried as an expense item on page 10.

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 571 farms was an increase.

Interest paid on farm indebtedness was reported by 488 farms and averaged \$4,060. The payments have not been included in the farm expenses since the accounting system used in this analysis calculates an interest charge on all capital used and deducts this from the farm income (page 12).

Total farm expenses for the 571 farms averaged \$49,600 or \$141 per day. The cash operating expenses averaged \$43,700 or 88 percent of the total, and \$624 per cow. The total farm expenses averaged \$709 per cow.

Farm expenses can be classified on the basis of fixed, variable, and capital items as shown below:

<u>Overhead Expenses (fixed)</u>		<u>Operating Expenses (variable)</u>	
Land & building repairs	\$1,165	Labor	\$ 5,431
Property taxes	1,604	Feed	15,018
Insurance	1,123	Machinery repairs	2,816
Rent	816	Gas and oil	1,519
Electricity	999	Machine hire	700
Telephone	243	Auto	281
Total Fixed Overhead	\$5,950	Livestock purchased	3,144
		Livestock expenses	4,189
<u>Capital Expenses</u>		Fertilizer and lime	2,484
Machinery depreciation	\$4,784	Other crop expenses	1,392
Real estate depreciation	439	Miscellaneous	739
Total Capital	\$5,223	Total Variable	\$37,713

On these farms, the variable expenses accounted for 76 percent, the fixed 12 percent, and the capital depreciation 11 percent of the total farm expenses.

Income

Researchers have developed a number of ways to measure the income from a farm business. The measure selected usually depends on the point from which the results are being studied. Several common measures are reported here.

Table 11. FARM INCOME AND LABOR INCOME
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms	Percent of receipts
Total farm receipts	\$ _____	\$68,376	100
Total farm expenses	_____	49,636	73
FARM INCOME	\$ _____	\$18,740	27
Interest on av. capital @ 7%	_____	11,796	17
Labor income per farm	\$ _____	\$ 6,944	10
Number of operators (682)	_____	1.19	
LABOR INCOME PER OPERATOR	\$ _____	\$ 5,835	

Farm income measures the return to all capital and the operator's labor and management. It is the total receipts (including increase in livestock and feed inventories) minus the total expenses (including decreases in livestock and feed inventories but excluding interest payments).

Labor income is the return to the farm operator for his labor and management. This is the measure most commonly used when studying or comparing farm businesses. To get the labor income, a 7 percent interest charge on all capital is subtracted from the farm income.

Distribution of Labor Incomes Per Operator

Labor income per operator	Farms	
	Number	Percent
Minus	138	24
\$ 0 - 4,999	137	24
5,000 - 9,999	143	25
10,000 - 14,999	80	14
15,000 - 19,999	41	7
20,000 - 24,999	15	3
25,000 or more	17	3

One hundred thirty-eight or 24 percent of the farms had a minus labor income. This indicates that the business did not return enough to pay all expenses plus 7 percent return on the capital invested. On the other hand, there were 32 or 6 percent of the farms with labor incomes of \$20,000 or more.

Table 12. FARM CASH OPERATING INCOME AND DEBT PAYMENT ABILITY
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms
Total cash receipts	\$ _____	\$65,491
Total cash operating expense	_____	43,663
FARM CASH OPERATING INCOME	\$ _____	\$21,828
Family cash living expenses*	_____	7,165
DEBT PAYMENT ABILITY	\$ _____	\$14,663

* Estimated at \$6,000 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 \$6,000 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, \$6,000 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
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms
Farm income	\$ _____	\$18,740
Value of operator's labor*	_____	7,165
Return on investment	\$ _____	\$11,575
Average capital investment	\$ _____	\$168,527
RATE OF RETURN ON INVESTMENT	_____ %	6.9%

* \$6,000 per operator - some farms had more than one operator.

Farm income, as calculated here, is the return from the business for three major input items: (1) the operator's labor, (2) the operator's management, and (3) the total capital investment. In calculating operator's labor income, the first two inputs are combined, and in calculating rate of return on investment, the last two are combined.

"Profit" is a measure commonly used in nonfarm businesses. This measure is used where the management inputs are actually hired. In some farm management studies, the management input has been valued at 8 percent of the cash farm receipts, and the operator's labor at the average wage for hired men with houses. Using this procedure, the profit was computed as follows:

FARM INCOME		\$18,740
Less: (1) Operator's labor @ \$90/week	\$ 5,569	
(2) Management @ 8% of cash receipts	5,240	
(3) Interest on capital @ 7%	<u>11,796</u>	
		<u>22,605</u>
PROFIT (LOSS)		(-\$ 3,865)

These 571 dairy farms in 1972 showed an average loss of \$3,865 after allowing the operators an average of \$10,809 for their labor and management, and 7 percent interest on the capital invested.

The operators in 1972 were asked to estimate the value of their labor and management (what they might earn if hired as a manager). Many indicated they had no basis for making an estimate but 333 did submit a value. The average for the 333 was \$8,950. This is nearly \$2,000 less than the calculated figures used above. However, if the operators' estimates were used, there would have been an average loss of \$2,000.

Returns Per Unit of Input

Income from a business can also be calculated in relation to various input units. For example, since these are family-type farms, the labor and management return can be figured on a per-man basis. This is shown below:

<u>Returns to All Labor</u>	
Labor income per farm	\$ 6,944
Value hired labor	5,431
Value unpaid labor	<u>750</u>
Total returns to labor	\$13,125
Average man equivalent	2.3
Returns per man equivalent	\$5,707
Returns per hour (3,000 hrs./yr.)	\$1.90

In like manner, returns can be calculated on the basis of production units or on a per-cow basis. These are given below:

<u>Returns per Cow</u>	
Cash operating income per cow	\$312
Farm income per cow	\$268
Labor income per cow	\$99
Profit per cow	minus \$55

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: size of business, rates of production, labor efficiency, use of capital, and cost control. The 1972 averages for selected measures for these factors are reported along with general relationships of factors 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 (when well managed) 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
571 New York Dairy Farms, 1972

Measure	My farm	Average of 571 farms
Number of cows	_____	70
Total acres in crops	_____	188
Man equivalent	_____	2.3
Total work units	_____	754
Pounds of milk sold	_____	887,500
Total cash receipts	\$ _____	\$65,491
Total investment	\$ _____	\$173,780

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 1972 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.

Table 15.

COWS PER FARM AND LABOR INCOME
571 New York Dairy Farms, 1972

Number of cows	Number of farms	Percent of farms	Labor income per operator
Less than 40	87	15	\$ 3,222
40 - 54	155	27	5,115
55 - 69	122	21	5,512
70 - 84	66	12	5,700
85 - 99	40	7	6,766
100 - 114	36	6	7,474
115 - 129	23	4	1,734
130 - 149	21	4	9,747
150 & over	21	4	16,243

The relationship of size of business and labor income was observed for size as measured by number of cows and by man equivalent. On the basis of herd size, in general the larger the business the higher the labor income per operator. The exception of the 115-129 cow group is not readily explainable.

The 1972 relationship is consistent with that of earlier studies. A well-managed large farm will provide the operator a higher income than a well-managed small one, but a large farm poorly managed also can lose more.

Man equivalent is often used as a measure of size. It is of interest that 76 percent of the farms had man equivalents of less than 3.0 (table 16). Thirty-nine percent of the farms had less than 2.0 men. The relationship of man equivalent and income was not regular. The one-man with extra help and the farms with 3.0 or more men had slightly higher incomes than those with two to three men. This suggests that there are items in addition to size of labor force that affect income.

TABLE 16. MAN EQUIVALENT PER FARM AND LABOR INCOME
571 NEW YORK DAIRY FARMS, 1972

MAN EQUIVALENT	NUMBER OF FARMS	PERCENT OF FARMS	NUMBER OF COWS	LABOR INCOME PER OPERATOR
1.0 - 1.4	96	17	42	\$ 5,740
1.5 - 1.9	124	22	50	5,980
2.0 - 2.4	158	28	60	5,080
2.5 - 2.9	53	9	75	3,780
3.0 - 3.4	67	12	98	5,950
3.5 - 3.9	26	5	117	7,840
4.0 AND OVER	47	8	144	6,600

Rates of Production

Production per animal and per acre are factors that affect farm income.

Table 17. MEASURES OF RATES OF PRODUCTION
571 New York Dairy Farms, 1972

Measure	My farm	Average of 571 farms
Pounds of milk sold per cow	_____	12,700
Tons hay per acre	_____	2.4
Tons corn silage per acre	_____	11
Tons of hay equivalent per acre of all roughages	_____	2.8
Bushels of oats per acre	_____	40
Bushels grain corn per acre	_____	52

Pounds of milk sold per cow is calculated by dividing the total pounds milk sold by the average number of cows. The average for the 571 farms was 12,700 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 dividing the total tons of hay equivalent from all roughage by the total acres used for roughages. 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 1972, the farms with the higher rates of production tended to be larger, bought more feed per cow, and in general had higher incomes. The 16,000 and over group was an exception.

TABLE 18. MILK SOLD PER COW AND LABOR INCOME
571 NEW YORK DAIRY FARMS, 1972

POUNDS OF MILK SOLD PER COW	NUMBER OF FARMS	NUMBER OF COWS	FEED BOUGHT PER COW	LABOR INCOME PER OPERATOR
UNDER 10,000	57	64	155	39
10,000 - 10,999	54	58	172	2,891
11,000 - 11,999	90	66	199	3,666
12,000 - 12,999	116	77	204	6,342
13,000 - 13,999	127	71	219	5,928
14,000 - 14,999	78	74	226	9,331
15,000 - 15,999	32	78	246	11,791
16,000 AND OVER	17	67	224	7,680

Labor Efficiency

Accomplishments per worker are used to measure labor efficiency. This is an important factor affecting labor incomes.

Table 19. MEASURES OF LABOR EFFICIENCY
571 New York Dairy Farms, 1972

Measure	My farm	Average of 571 farms
Pounds of milk sold per man	_____	385,900
Number of cows per man	_____	30
Work units per man	_____	328
Crop acres per man	_____	82

Pounds of milk sold per man is determined by dividing the total pounds of milk sold by the man equivalent. This is probably the best measure of labor efficiency for dairy farms. The 571 farms averaged 385,900 pounds per man.

Labor accomplishments (efficiency) depends on a number of things. Among these are the amount of mechanization, the field and building layout, the work methods used, and the abilities of the workers. All of these are management items under the control of the operator.

The relationship of labor efficiency to labor income was positive on the 571 farms. The higher the pounds of milk sold per man, the higher the income. The higher output per man was accomplished in part by more and higher producing cows (table 20).

TABLE 20. MILK SOLD PER MAN AND LABOR INCOME
571 NEW YORK DAIRY FARMS, 1972

POUNDS OF MILK SOLD PER MAN	NUMBER OF FARMS	NUMBER OF COWS	LBS. MILK PER COW	LABOR INCOME PER OPERATOR
UNDER 250,000	70	43	\$ 10,900	\$ 270
250,000 - 299,999	84	56	11,800	2,100
300,000 - 349,999	103	61	12,400	4,280
350,000 - 399,999	96	70	12,800	5,100
400,000 - 449,999	73	76	13,100	8,090
450,000 - 499,999	60	81	13,200	7,100
500,000 - 599,999	62	95	13,700	10,820
600,000 AND OVER	23	129	13,600	17,200

Use of Capital

The average end-of-year inventory on the 571 farms was \$173,780. 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
571 New York Dairy Farms, 1972

Measure	My farm	Average of 571 farms
Total capital per man	\$ _____	\$75,600
Total capital per cow	_____	2,480
Machinery and equipment per cow	_____	490
Land and building investment per cow	_____	1,250
Land and building investment per crop acre	_____	465
Total capital per cwt. milk sold	_____	20
Capital turnover (capital ÷ receipts)	_____	2.5

Capital efficiency is often associated with size of herd. For this reason, the 571 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 farms with 85 cows or more. This is probably related to the free-stall barn situation which is examined on pages 38 and 39.

TABLE 22. SIZE OF HERD AND CAPITAL EFFICIENCY
571 NEW YORK DAIRY FARMS, 1972

NUMBER OF COWS	NUMBER OF FARMS	CAPITAL INVESTMENT PER COW		
		TOTAL	REAL ESTATE	MACHINERY
UNDER 40	87	\$2,693	\$1,389	\$563
40 - 54	155	2,411	1,147	\$545
55 - 69	122	2,499	1,256	\$509
70 - 84	66	2,664	1,371	\$539
85 - 99	40	2,667	1,364	\$498
100 - 114	36	2,659	1,327	\$499
115 - 129	23	2,428	1,296	\$438
130 - 149	21	2,178	1,055	\$414
150 & OVER	21	2,199	1,125	\$342

The financial situation is an important part of the analysis of a farm business. This indicates the condition of the operation as it relates to present financing and future expansion possibilities. In the 571 records for 1972, a total of 416 included a financial situation statement.

TABLE 23. FARM FAMILY FINANCIAL SITUATION
416 NEW YORK DAIRY FARMS, JANUARY 1, 1973

ITEM	MY FARM	NO. OF FARMS	% OF FARMS	AVERAGE AMOUNT	% OF TOTAL
ASSETS					
	\$			\$	
FARMLAND & BUILDINGS	-----	416	100	91,392	46
LIVESTOCK	-----	416	100	41,809	21
MACHINERY	-----	416	100	33,857	17
FEED & SUPPLIES	-----	416	100	9,972	5
CO-OP INVESTMENT	-----	327	79	3,470	2
ACCOUNTS RECEIVABLE	-----	273	66	3,711	2
CASH & CHECKING ACCOUNTS	-----	373	90	1,600	1
SAVINGS ACCOUNTS	-----	212	51	1,974	1
CASH VALUE LIFE INS.	-----	273	66	3,293	2
STOCKS & BONDS	-----	168	40	1,538	1
NON-FARM REAL ESTATE	-----	61	15	3,095	2
AUTO(PERSONAL SHARE)	-----	302	73	969	0
ALL OTHER	-----	122	29	1,458	1
TOTAL ASSETS	-----	416	100	198,138	100
LIABILITIES					
	\$			\$	
REAL ESTATE MORTGAGE	-----	357	86	36,118	51
LIENS ON CATTLE & EQUIP.	-----	288	69	24,156	34
INSTALLMENT CONTRACTS	-----	148	36	2,985	4
SECURED NOTES	-----	134	32	2,955	4
UNSECURED NOTES	-----	109	26	2,194	3
STORE ACCOUNTS	-----	128	31	635	1
PERSONAL DEBT & OTHER	-----	176	42	1,748	2
TOTAL LIABILITIES	-----	400	96	70,791	100
NET WORTH	-----			127,347	

The farm inventory accounted for 89 percent of the total family assets reported. Accounts receivable, the cash value of life insurance, and co-op investments were the largest nonfarm items. Real estate mortgages were the largest liability and accounted for 51 percent of all debts. The percent of farms reporting gives an indication of the frequency of each item. For example, 51 percent of the families reported savings accounts and 86 percent reported real estate mortgages.

TABLE 24. DEBT COMMITMENTS AND FINANCIAL MEASURES
416 NEW YORK DAIRY FARMS, 1972

	MY FARM	NUMBER OF FARMS	AVERAGE OF FARMS REPORTING
TOTAL DEBT PAYMENTS	\$ _____	353	\$13,878
FINANCIAL MEASURES:			
NUMBER OF COWS	_____	353	70
ANNUAL DEBT PAYMENT/COW	\$ _____	353	\$198
DEBT PMT. AS % MILK SALES	_____ %	353	25%
PERCENT EQUITY	_____ %	416	64%
PERCENT DEBT ON REAL EST.	_____ %	400	51%
DEBT PER COW	\$ _____	416	\$1,011

Of the 416 farms, 353 reported their total debt payments for the year 1972. The debt payment for interest and principle averaged \$13,878. These commitments averaged \$1,150 per month, \$198 per cow per year, and 25 percent of the milk receipts.

Debts on the 416 farms reporting amounted to 36 percent of the total assets. This gives an average equity of 64 percent. The average debt per cow was \$1,011. There was a wide range in these factors among the farms reporting.

TABLE 25. FINANCIAL SITUATION BY SIZE OF HERD
416 NEW YORK DAIRY FARMS, 1972

HERD SIZE (COWS)	NUMBER OF FARMS	NUMBER OF COWS	TOTAL ASSETS	TOTAL LIABILITIES	NET WORTH	PERCENT EQUITY	DEBT PER COW
			\$	\$	\$	%	\$
UNDER 40	65	34	104,696	31,371	73,325	70	923
40 - 54	106	47	127,379	49,095	78,284	61	1,045
55 - 69	93	61	170,519	63,676	106,843	63	1,044
70 - 84	59	76	229,841	79,468	150,373	65	1,046
85 - 99	30	92	286,929	102,665	184,264	64	1,116
100 - 114	21	106	334,882	106,528	228,354	68	1,005
115 - 129	9	121	361,055	166,538	194,517	54	1,376
130 - 149	17	136	330,326	106,600	223,726	68	784
150 & OVER	16	206	512,088	185,508	326,580	64	901

Cost Control

Keeping costs in line can make the difference between profit and loss. Small as well as large costs must be checked. An analysis of the various costs is one step in maintaining good cost control. Several important costs are examined below.

Feed Costs

Purchased feed is the largest single expense item on most New York dairy farms. For the 571 farms in 1972, dairy concentrate accounted for 33 percent of the cash operating expenses so feed is the first item examined.

Dairy feed costs are affected by many things. In late 1972, feed prices rose sharply. There is no satisfactory single measure of feed cost control so the feed situation is examined in the business analysis of feed costs. Below are some measures related to feed costs on a dairy farm.

Table 26. ITEMS RELATED TO FEED COSTS
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms
<u>Feed expense</u>		
Dairy feed purchased	\$ _____	\$14,403
Feed purchased as % of milk receipts	_____ %	25%
Feed purchased per cwt. of milk sold	\$ _____	\$1.62
Feed purchased per cow	\$ _____	\$206
Crop expense per cow	\$ _____	\$55
Total feed and crop expense per cow	\$ _____	\$261
Total feed and crop expense per cwt. of milk sold	\$ _____	\$2.06
<u>Roughage harvested (hay equivalent)</u>		
Hay (tons)	_____	219
Corn silage (tons ÷ 3)	_____	210
Hay crop silage (tons ÷ 2 or 3)*	_____	28
Total tons hay equivalent	_____	457
Tons hay equivalent per cow	_____	6.5
<u>Other considerations</u>		
Acres in crops per cow	_____	2.7
Lime and fertilizer expense per cow	\$ _____	\$35
Lime and fertilizer expense per crop acre	\$ _____	\$13
Number of heifers per 10 cows	_____	6.4

* Depending on moisture content of silage.

The above measures of roughage harvested consider quantity only. Quality is also important and should be considered when studying the feeding program.

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 reasonable prices.

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 the total spent for fertilizer and lime, seeds and plants, spray, and other crop expense divided by the average number of cows. This represents the direct cash costs for growing feed.

Total feed and crop expense is the purchased feed expense plus total crop expense. This indicates the amount spent 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
571 NEW YORK DAIRY FARMS, 1972

% FEED OF MILK	NUMBER OF FARMS	NUMBER OF COWS	H.E. PER COW	LBS. MILK PER COW	LABOR INCOME PER OPERATOR
OVER 40%	18	71	5.8	12,500	\$ 200
35 - 39	45	68	5.8	12,000	1,200
30 - 34	102	69	6.1	12,300	3,700
25 - 29	168	67	6.5	12,600	5,300
20 - 24	115	71	6.7	12,900	7,300
UNDER 20%	123	75	7.1	12,600	8,500

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.

Machinery Costs

Mechanization on dairy farms has been proceeding at a relatively rapid pace. This increases the importance of analyzing the machinery costs. On the 571 farms, machinery costs accounted for 25 percent of the total farm expenses in 1972. Below are the calculations of the machinery costs and related factors.

Table 28. MACHINERY COST
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms	Percent of total
Depreciation (from p. 5)	\$ _____	\$ 4,784	38
Interest @ 7% on av. inventory	_____	2,309	19
Machine hire	_____	700	6
Machinery repairs	_____	2,816	23
Auto expense (farm share)	_____	281	2
Gas and oil	_____	<u>1,519</u>	<u>12</u>
Total machinery costs	\$ _____	\$12,409	100

Machinery cost:			
per cow	\$ _____	\$1.77	
per cwt. milk sold	\$ _____	\$1.40	

Depreciation and interest accounted for 57 percent of the machinery cost on these farms. These are fixed cost items so must be used on enough units to keep the costs at a reasonable level. In general, the lower the machinery cost per cow the higher the labor income (table 29).

TABLE 29. MACHINERY COST PER COW AND LABOR INCOME
571 NEW YORK DAIRY FARMS, 1972

MACHINERY COST PER COW	NUMBER OF FARMS	PERCENT OF FARMS	LABOR INCOME PER OPERATOR
UNDER \$100	25	4	\$7,920
100 - 149	147	26	8,050
150 - 199	206	36	5,760
200 - 249	141	25	4,200
250 - 299	38	7	1,690
300 & OVER	14	2	1,240

Labor and Machinery Costs

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
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms
Labor cost:		
Value of operators' labor*	\$ _____	\$ 7,165
Hired labor**	_____	5,431
Unpaid family labor	_____	750
Total Labor Cost	\$ _____	\$13,346
Total Machinery Cost (p. 24)	_____	12,409
TOTAL LABOR AND MACHINERY COST	\$ _____	\$25,755

Labor cost:		
per cow	\$ _____	\$191
per cwt. milk sold	\$ _____	\$1.50
Labor and machinery cost:		
per cow	\$ _____	\$368
per cwt. milk sold	\$ _____	\$2.90

* Valued at \$6,000 per operator - some farms had more than one operator.

** Includes family paid and nonfamily hired.

The labor cost exceeded the machinery cost on these farms. Hired labor accounted for 29.6 percent of all labor and averaged \$498 per month.

Table 31. ANALYSIS OF LABOR COSTS
571 New York Dairy Farms, 1972

Item	My farm	Average 571 farms
Percent of labor furnished by:		
Operator	_____ %	51.6%
Family unpaid	_____ %	9.0%
Family paid	_____ %	9.8%
Hired	_____ %	29.6%
Cost per month of hired labor	\$ _____	\$498
Labor cost per man equivalent	\$ _____	\$5,800

Miscellaneous Cost Control Measures

Cost control applies to all expenditures both large and small. Reducing various cost items to a per cow or per acre basis provides cost control measures which are easy to understand and they can be used for analyzing farms of various sizes. These factors are influenced by a number of things so must be used with that in mind.

Table 32. COST CONTROL MEASURES
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms
<u>Overhead</u>		
Land and building repair per cow	\$ _____	\$17
Taxes per cow	_____	23
Insurance per cow	_____	16
Electricity per cow	_____	14
<u>Machinery</u>		
Machinery depreciation per cow	\$ _____	\$ 68
Machinery repair per cow	_____	40
Gas and oil per cow	_____	22
Machinery cost per cow	_____	177
<u>Dairy</u>		
Veterinary and medicine per cow	\$ _____	\$15
Breeding fees per cow	_____	10
Other livestock expense per cow	_____	35
<u>Crops</u>		
Fertilizer and lime per crop acre	\$ _____	\$13
Seeds and plants per crop acre	_____	4
Other crop expense per crop acre	_____	3
Gas and oil per crop acre	_____	8
<u>General</u>		
Total labor per cow*	\$ _____	\$191
Total feed and crop expense per cow	_____	261
Total expenses per cow	_____	709
Total expenses per \$100 receipts	_____	73

* Using \$6,000 per year for operator's labor.

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 four important 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 571 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
571 NEW YORK DAIRY FARMS, 1972

NUMBER OF FACTORS ABOVE AVERAGE	NUMBER OF FARMS	PERCENT OF FARMS	LABOR INCOME PER OPERATOR
4 FACTORS BETTER THAN AVERAGE	55	10	\$12,700
3 FACTORS BETTER THAN AVERAGE	113	20	10,000
2 FACTORS BETTER THAN AVERAGE	151	26	4,200
1 FACTORS BETTER THAN AVERAGE	167	29	3,600
0 FACTORS BETTER THAN AVERAGE	85	15	1,700

* Factors were:

Size - number of cows - average 70.

Rates of production - pounds of milk sold per cow - average 12,700.

Labor efficiency - pounds of milk sold per man - average 385,900.

Cost control - percent purchased feed was of milk receipts - average 25%.

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. 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 571 farms are shown for seven herd size groups. These data also can be used to study the effect of size on the many aspects of dairy farm businesses.

Table 34.

FARM BUSINESS SUMMARY BY HERD SIZE
571 New York Dairy Farms, 1972

Item	My farm	Farms with:		
		Less than 40 cows	40 to 54 cows	55 to 69 cows
<u>Capital Investment (end of year)</u>				
Livestock	\$ _____	\$20,274	\$ 27,689	\$ 36,617
Feed and supplies	_____	4,471	5,963	8,302
Machinery and equipment	_____	18,750	25,365	31,123
Land and buildings	_____	46,286	53,733	76,984
TOTAL INVESTMENT	\$ _____	\$89,781	\$112,750	\$153,026
<u>Receipts</u>				
Milk sales	\$ _____	\$25,938	\$36,535	\$48,603
Livestock sales	_____	2,967	4,176	5,986
Crop sales	_____	163	325	293
Miscellaneous receipts	_____	607	995	1,328
Total Cash Receipts	\$ _____	\$29,675	\$42,031	\$56,210
Increase in livestock and feed	_____	2,022	2,138	2,209
TOTAL FARM RECEIPTS	\$ _____	\$31,697	\$44,169	\$58,419
<u>Expenses</u>				
Hired labor	\$ _____	\$ 1,107	\$ 1,960	\$ 3,803
Dairy feed	_____	6,720	9,508	12,563
Other feed	_____	270	367	443
Machine hire	_____	258	443	572
Machinery repair	_____	1,266	1,695	2,303
Auto expense (farm share)	_____	238	264	259
Gas and oil	_____	774	1,059	1,370
Purchased animals	_____	1,636	1,692	2,259
Breeding fees	_____	353	474	627
Veterinary and medicine	_____	417	736	846
Other livestock expense	_____	1,235	1,679	1,966
Lime and fertilizer	_____	901	1,440	2,114
Seeds and plants	_____	309	480	675
Spray and other crop expense	_____	229	374	497
Land, bldg., fence repair	_____	586	748	1,049
Taxes and insurance	_____	1,362	1,781	2,398
Electricity & phone (farm share)	_____	672	876	1,049
Miscellaneous expenses	_____	520	830	1,188
Total Cash Operating Expenses	\$ _____	\$18,853	\$26,406	\$35,981
Machinery depreciation	_____	2,501	3,488	4,194
Real estate depreciation	_____	111	290	419
Unpaid family labor	_____	810	900	720
TOTAL FARM EXPENSES	\$ _____	\$22,275	\$31,084	\$41,314
<u>Financial Summary</u>				
Total Farm Receipts	\$ _____	\$31,697	\$44,169	\$58,419
Total Farm Expenses	\$ _____	22,275	31,084	41,314
Farm Income	\$ _____	\$ 9,422	\$13,085	\$17,105
Interest on av. capital at 7%	_____	6,103	7,612	10,380
Labor Income Per Farm	\$ _____	\$ 3,319	\$ 5,473	\$ 6,725
Number of operators	_____	1.03	1.07	1.22
LABOR INCOME PER OPERATOR	\$ _____	\$ 3,222	\$ 5,115	\$ 5,512

Table 34 contd.

FARM BUSINESS SUMMARY BY HERD SIZE
571 New York Dairy Farms, 1972

Item	Farms with:			
	70 to 84 cows	85 to 99 cows	100 to 149 cows	150 or more cows
Capital Investment (end of year)				
Livestock	\$ 46,543	\$ 58,627	\$ 70,046	\$116,208
Feed and supplies	10,838	14,972	19,024	28,099
Machinery and equipment	40,753	45,477	53,779	66,120
Land and buildings	104,249	124,700	146,003	220,797
TOTAL INVESTMENT	\$202,383	\$243,776	\$288,852	\$431,224
Receipts				
Milk sales	\$61,207	\$74,244	\$101,014	\$167,934
Livestock sales	7,624	8,865	11,544	22,478
Crop sales	294	621	576	663
Miscellaneous receipts	1,344	1,461	2,027	7,506
Total Cash Receipts	\$70,469	\$85,191	\$115,161	\$198,581
Increase in livestock and feed	3,520	5,659	3,547	6,099
TOTAL FARM RECEIPTS	\$73,989	\$90,850	\$118,708	\$204,680
Expenses				
Hired labor	\$ 5,363	\$ 8,615	\$12,874	\$ 24,223
Dairy feed	16,035	17,647	25,358	40,013
Other feed	799	703	1,046	2,494
Machine hire	395	723	1,442	3,339
Machinery repair	2,891	3,879	5,321	8,690
Auto expense (farm share)	267	375	274	613
Gas and oil	1,509	1,978	2,653	3,695
Purchased animals	3,638	4,088	5,288	13,730
Breeding fees	738	984	1,277	1,433
Veterinary and medicine	1,096	1,344	1,869	2,682
Other livestock expense	2,468	3,490	4,364	6,990
Lime and fertilizer	2,683	3,395	4,708	8,076
Seeds and plants	743	1,057	1,428	2,514
Spray and other crop expense	675	797	1,192	2,030
Land, bldg., fence repair	1,196	1,341	2,078	3,412
Taxes and insurance	2,952	3,495	4,495	8,362
Electricity & phone (farm share)	1,315	1,701	2,098	3,078
Miscellaneous expenses	1,383	1,840	3,265	6,822
Total Cash Operating Expenses	\$46,146	\$57,452	\$81,010	\$142,196
Machinery depreciation	5,896	6,451	7,684	9,524
Real estate depreciation	420	928	747	945
Unpaid family labor	900	510	540	240
TOTAL FARM EXPENSES	\$53,362	\$65,341	\$89,981	\$152,905
Financial Summary				
Total Farm Receipts	\$73,989	\$90,850	\$118,708	\$204,680
Total Farm Expenses	53,362	65,341	89,981	152,905
Farm Income	\$20,627	\$25,509	\$ 28,727	\$ 51,775
Interest on av. capital at 7%	13,673	16,578	19,707	29,359
Labor Income Per Farm	\$ 6,954	\$ 8,931	\$ 9,020	\$ 22,416
Number of operators	1.22	1.32	1.40	1.38
LABOR INCOME PER OPERATOR	\$ 5,700	\$ 6,766	\$ 6,443	\$ 16,243

Table 35. SELECTED BUSINESS FACTORS BY HERD SIZE
571 New York Dairy Farms, 1972

Item	My farm	Farms with:		
		Less than 40 cows	40 to 54 cows	55 to 69 cows
Number of farms		87	155	122
<u>Size of Business</u>				
Number of cows		33	46	61
Pounds of milk sold		408,500	580,600	770,000
Crop acres		100	132	170
Man equivalent		1.5	1.7	2.1
Total work units		364	504	659
<u>Rates of Production</u>				
Milk sold per cow		12,400	12,600	12,600
Tons hay per acre		2.2	2.2	2.3
Tons corn silage per acre		11	11	10
Bushels of oats per acre		33	35	46
<u>Labor Efficiency</u>				
Cows per man		22	27	29
Pounds milk sold per man		272,300	341,500	366,700
Work units per man		243	296	314
<u>Feed Costs</u>				
Feed purchased per cow	\$	\$204	\$207	\$206
Crop expense per cow	\$	\$44	\$50	\$54
Feed and crop expense per cow	\$	\$248	\$257	\$260
Feed cost per cwt. milk	\$	\$1.65	\$1.64	\$1.63
Feed and crop exp./cwt. milk	\$	\$2.00	\$2.03	\$2.06
% Feed is of milk receipts	%	26%	26%	26%
Hay equivalent per cow		6.8	6.3	6.6
Crop acres per cow		3.0	2.9	2.8
Fertilizer and lime/crop acre	\$	\$9	\$11	\$12
<u>Machinery and Labor Costs</u>				
Total machinery costs	\$	\$6,285	\$8,644	\$10,791
Machinery cost per cow	\$	\$190	\$188	\$177
Machinery cost per cwt. milk	\$	\$1.54	\$1.49	\$1.40
Labor cost per cow	\$	\$246	\$201	\$195
Labor cost per cwt. milk	\$	\$1.99	\$1.59	\$1.54
<u>Capital Efficiency</u>				
Investment per man	\$	\$59,854	\$66,324	\$72,870
Investment per cow	\$	\$2,721	\$2,451	\$2,509
Investment per cwt. milk sold	\$	\$22	\$19	\$20
Land and buildings per cow	\$	\$1,403	\$1,168	\$1,262
Machinery investment per cow	\$	\$568	\$551	\$510
Return on investment	%	0	6%	7%
<u>Other</u>				
Price per cwt. milk sold	\$	\$6.35	\$6.29	\$6.31
Acres hay and hay crop silage		71	82	100
Acres corn silage		21	35	51

Table 35 contd. SELECTED BUSINESS FACTORS BY HERD SIZE
571 New York Dairy Farms, 1972

Item	Farms with:			
	70 to 84 cows	85 to 99 cows	100 to 149 cows	150 or more cows
Number of farms	66	40	80	21
<u>Size of Business</u>				
Number of cows	75	91	118	200
Pounds of milk sold	953,600	1,159,100	1,553,800	2,555,500
Crop acres	196	260	305	451
Man equivalent	2.4	3.0	3.6	4.7
Total work units	837	986	1,268	2,045
<u>Rates of Production</u>				
Milk sold per cow	12,700	12,700	13,200	12,800
Tons hay per acre	2.5	2.6	2.5	2.6
Tons corn silage per acre	12	11	11	12
Bushels oats per acre	33	45	46	61
<u>Labor Efficiency</u>				
Cows per man	31	30	33	43
Pounds milk sold per man	397,300	386,400	431,600	543,700
Work units per man	349	329	352	435
<u>Feed Costs</u>				
Feed purchased per cow	\$214	\$194	\$215	\$200
Crop expense per cow	\$55	\$58	\$62	\$63
Feed & crop expense per cow	\$269	\$252	\$277	\$263
Feed cost per cwt. milk	\$1.68	\$1.52	\$1.63	\$1.57
Feed & crop exp./cwt. milk	\$2.11	\$1.98	\$2.10	\$2.06
% Feed is of milk receipts	26%	24%	25%	24%
Hay equivalent per cow	6.9	7.1	6.6	5.7
Crop acres per cow	2.6	2.9	2.6	2.3
Fertilizer & lime/crop acre	\$14	\$13	\$15	\$18
<u>Machinery and Labor Costs</u>				
Total machinery costs	\$13,717	\$16,510	\$21,008	\$30,282
Machinery cost per cow	\$183	\$181	\$178	\$151
Machinery cost per cwt. milk	\$1.44	\$1.42	\$1.35	\$1.18
Labor cost per cow	\$182	\$188	\$185	\$164
Labor cost per cwt. milk	\$1.43	\$1.47	\$1.40	\$1.28
<u>Capital Efficiency</u>				
Investment per man	\$84,326	\$81,259	\$80,237	\$91,750
Investment per cow	\$2,698	\$2,679	\$2,448	\$2,156
Investment per cwt. milk sold	\$21	\$21	\$19	\$17
Land and buildings per cow	\$1,390	\$1,370	\$1,237	\$1,104
Machinery investment per cow	\$543	\$500	\$456	\$331
Return on investment	7%	7%	7%	10%
<u>Other</u>				
Price per cwt. milk sold	\$6.42	\$6.41	\$6.50	\$6.57
Acres hay and hay crop silage	115	134	155	209
Acres corn silage	64	84	113	178

Farm Business Chart

The farm business chart is a tool for use in analyzing a dairy farm business. It is a series of measuring sticks combined into one tool.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
571 NEW YORK DAIRY FARMS, 1972*

SIZE OF BUSINESS		RATES OF PRODUCTION				LABOR EFFICIENCY	
MAN EQUIV- ALENT	NO. OF COWS	POUNDS MILK SOLD	POUNDS MILK SOLD PER COW	TONS HAY/ ACRE	TONS CORN SILAGE PER ACRE	COWS PER MAN	POUNDS MILK SOLD PER MAN
4.5	157	2,066,300	15,700	4.2	18	47	601,300
3.3	105	1,376,400	14,400	3.2	15	39	504,400
2.8	85	1,085,600	13,800	2.9	13	35	454,300
2.4	71	906,000	13,400	2.6	12	32	411,000
2.2	62	779,800	13,000	2.4	11	30	377,500
2.0	56	696,100	12,500	2.2	10	28	350,000
1.8	50	618,300	12,000	2.0	9	26	320,800
1.5	44	547,100	11,400	1.9	8	24	295,500
1.4	39	462,800	10,600	1.5	6	22	261,700
1.2	31	346,300	8,900	1.1	4	18	205,900

* These farms are considerably above the average for all farms in New York State. For example, the median number of cows for the 571 farms was 59 compared with 39 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 571 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 4.5 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 (1.2 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 the next page.

The cost control factors are ranked from low to high. For cost control, 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 costs, and these items must be taken into account when analyzing the factors.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
 571 NEW YORK DAIRY FARMS, 1972
 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
\$ 94	13	\$102	\$256	\$1.28
133	18	131	299	1.58
160	21	144	324	1.74
182	23	156	346	1.87
198	25	168	363	1.98

214	27	182	381	2.08
228	28	197	404	2.21
246	30	213	429	2.36
270	33	233	460	2.53
318	39	282	538	2.86

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.

SUPPLEMENTAL INFORMATION

Cost of Producing Milk

The cost of producing milk can be calculated by using the total farm business summary if the operations have dairy as the only principal enterprise. The average cost per hundredweight of producing milk on the 571 farms and comparisons with earlier years is shown on page 35.

Age of Operator

Age is often considered as a factor affecting management. To test this, the 1972 farm businesses were studied on the basis of age of operator. The results are presented on pages 36 and 37.

Farms With Free Stall Barns

There has been much interest in free-stall barns in recent years. Farms with free-stall barns were identified by the 1972 cooperators. A total of 198 reported free-stall facilities and were included in a special analysis. The business factors for the free-stall farms have been compared with the other types (conventional stanchion or tie-stall barns). Comparisons were also made by size of herd (page 38).

Trends

The manager of any business must keep abreast of current trends. This is essential if he is to keep his business in tune with the times. It is also important as one develops plans for the future. Trends can be measured in different ways. One way is to compare similar business studies to observe changes that have occurred. On page 40, selected farm business summary factors are given for 1962, 1967, 1971, and 1972.

Operating Statements

Operating statements are common in business accounting. In farm accounting, business summaries are prepared and business factors calculated. This is essentially an operating statement for the farm business with the highlights of the year's operations presented on one page.

In establishing goals, one is often interested in what the "better" businesses accomplish. For this purpose, the 10 percent of the 571 farms with the highest labor incomes were grouped together and an operating statement prepared (page 43).

Operating statements are included for two small groups of dairy operators who participated in the farm business management projects but were not in the 571 farm analysis. These are the farms that had crop sales which were equal to 10 percent or more of the milk receipts and were classified as "dairy-cash crop" operations. The other group is the "renter" operators. These are reported on pages 41 and 42.

Cost of Producing Milk

By adding an estimate of the value of the operator's labor and interest on the capital investment to the total farm expenses, the farm cost of producing milk can be calculated. The value of the operator's time for 1972 was estimated at \$500 per month. Receipts for items other than milk are credited against the total cost. This assumes that these items were produced at cost.

Table 36. AVERAGE FARM COST OF PRODUCING MILK
571 New York Dairy Farms, 1972

Item	My farm	Average of 571 farms
Total farm expenses	\$ _____	\$49,636
Interest at 7% on average capital	_____	11,796
Value of operators' labor*	_____	7,165
Total Costs	\$ _____	\$68,597
Total farm receipts	\$ _____	\$68,376
Less milk sales	_____	56,858
Other Income	_____	11,518
Cost of Producing Milk (total costs less other income)	\$ _____	\$57,079
Hundredweights of milk sold	_____	8,875
Cost per cwt. of milk sold**	\$ _____	\$6.43
Average price received	\$ _____	\$6.41

* Figured at \$6,000 per operator (there were 682 operators on 571 farms).

** Does not include any charge for management.

The average cost of producing milk using the whole farm figures has been calculated for selected years and is shown below. The average price received is also reported.

Table 37. COST OF PRODUCING MILK AND PRICES RECEIVED

Year	Operator's labor	Cwt. milk sold	Cost per cwt.	Av. price received
1959	\$3,600	3,274	\$4.76	\$4.73
1965	3,600	5,239	4.18	4.41
1969	5,400	7,617	5.41*	5.80
1970	5,400	8,222	5.73*	6.10
1971	5,400	8,617	5.84*	6.21
1972	6,000	8,875	6.43*	6.41

* Used 7% interest charge (in previous years 5% was used).

Age of Operator

Questions are often asked about the age of the cooperators and the relationships, if any, to the nature of the business. Ages were obtained for the 1972 records and an analysis made based on age of the operators. For partnerships, the age of the senior partner was used.

TABLE 38. AGE OF OPERATOR AND FARM ORGANIZATION
571 NEW YORK DAIRY FARMS, 1972

AGE	NUMBER OF FARMS	NUMBER OF COWS	NUMBER HEIFERS	NO. OF CROP ACRES	MAN EQUIV- ALENT	NUMBER FREE STALL BARNNS
UNDER 30	67	59	37	160	1.9	18
30 - 34	88	62	42	168	2.0	24
35 - 39	101	64	44	184	2.1	35
40 - 44	94	77	50	210	2.5	37
45 - 49	65	78	48	201	2.6	27
50 - 54	74	76	49	213	2.5	27
55 & OVER	82	76	51	178	2.7	30

The age distribution of the cooperators was fairly even with the largest group being those 35-39 (table 38). This is as expected since the young farmers who are getting established are most interested in the business management projects. Some of the older farmers may have had sons in partnership with them. The age groups under 40 had smaller size herds, less crop acres, and smaller man equivalents.

TABLE 39. AGE OF OPERATOR AND BUSINESS SUMMARY
571 NEW YORK DAIRY FARMS, 1972

AGE	TOTAL RECEIPTS	TOTAL EXPENSES	NUMBER OPERATORS	LABOR INCOME PER OPERATOR
UNDER 30	\$56,639	\$39,475	1.2	\$7,171
30 - 34	62,543	45,528	1.1	6,081
35 - 39	62,090	45,412	1.0	5,265
40 - 44	74,920	55,704	1.1	5,379
45 - 49	79,999	60,939	1.2	4,962
50 - 54	77,203	55,931	1.4	5,058
55 & OVER	74,053	52,814	1.5	5,590

The groups over 50 had the highest average numbers of operators, which is a likely reflection of the father and son partnerships. The receipts and expenses were smaller for the age groups under 40. The young men under 30 had the highest average labor incomes, while the groups from 45 to 54 had the lowest.

TABLE 40. AGE OF OPERATOR AND CAPITAL INVESTMENT
571 NEW YORK DAIRY FARMS, 1972

AGE	END INVENTORY VALUE OF:			TOTAL
	CATTLE	MACHINERY	LAND & BLDGS.	
UNDER 30	\$34,619	\$27,062	\$64,836	\$134,356
30 - 34	38,613	30,867	78,008	156,581
35 - 39	38,823	33,643	76,987	159,336
40 - 44	43,244	37,376	97,563	189,359
45 - 49	46,322	36,923	99,336	193,911
50 - 54	45,273	38,186	103,560	199,405
55 & OVER	46,362	35,285	93,385	185,319

The average total capital investment was lowest for the age group under 30. This is as expected since these young men are just getting started in farming. The largest total investment was for the age group 50 to 54. The operators 50-54 had the largest machinery and land and building investments but slightly lower cattle investments.

TABLE 41. AGE OF OPERATOR AND EFFICIENCY FACTORS
571 NEW YORK DAIRY FARMS, 1972

AGE	LBS. MILK		CORN TONS SILAGE PER ACRE	MACHINERY COST PER COW	% FEED IS OF MILK
	PER COW	PER MAN			
UNDER 30	12,400	380,700	10	175	26
30 - 34	12,700	390,300	10	177	26
35 - 39	12,400	388,100	10	189	24
40 - 44	12,400	386,300	10	177	26
45 - 49	12,400	364,700	10	182	26
50 - 54	13,100	386,900	11	193	25
55 & OVER	12,600	342,700	11	171	27

There did not seem to be any definite relationship between age and efficiency factors. It is of interest to observe that milk sold per man was lowest for the 55 and over age group and the highest was the 30-34 age group.

In general, the businesses varied some by the age of operator, but age did not seem to be a major factor affecting the efficiency or the labor incomes of these dairy farm businesses.

Farms With Free-Stall Barns

A total of 198 of the 571 farms in the 1972 summary reported having free-stall barns. These were separated out for analysis. The averages for the free-stall operations have been compared with the other types of housing in table 42.

TABLE 42. COMPARISON OF FARMS WITH FREE-STALL BARNs AND ALL OTHERS
571 NEW YORK DAIRY FARMS, 1972

ITEM	MY FARM	FARMS WITH FREE STALL BARNs	FARMS WITH OTHER TYPES OF BARNs
NUMBER OF FARMS		198	373
SIZE			
MAN EQUIVALENT	-----	2.9	2.0
NUMBER OF COWS	-----	97	56
LBS. MILK SOLD	-----	1,233,600	703,800
MILK PRODUCED			
LBS. MILK SOLD PER COW	-----	12,700	12,500
LBS. MILK SOLD PER MAN	-----	432,300	349,100
CAPITAL USE			
LAND & BUILDING VALUE	\$-----	\$118,477	\$70,978
TOTAL INVENTORY VALUE	\$-----	\$236,353	\$140,568
LAND & BUILDING PER COW	\$-----	\$1,262	\$1,261
TOTAL INVENTORY PER COW	\$-----	\$2,517	\$2,522
TOTAL INVENTORY PER MAN	\$-----	\$84,614	\$69,415
TOT. INV. PER CWT. MILK	\$-----	\$20	\$20
COST FACTORS			
TOTAL LABOR COST	\$-----	\$17,053	\$11,381
TOTAL MACHINERY COST	\$-----	\$17,163	\$9,888
LABOR COST PER COW	\$-----	\$181	\$209
MACHINERY COST PER COW	\$-----	\$182	\$180
LABOR & MACHINERY COST PER CWT. MILK	\$-----	\$2.90	\$3.17
VETERINARY COST PER COW	\$-----	\$15	\$14
FINANCIAL SUMMARY			
TOTAL FARM RECEIPTS	\$-----	\$97,545	\$54,380
TOTAL FARM EXPENSES	\$-----	\$71,908	\$39,322
LABOR INCOME PER OPERATOR	\$-----	\$7,139	\$4,811
RECEIPTS PER COW	\$-----	\$1,001	\$966
EXPENSE PER COW	\$-----	\$733	\$690
LABOR INCOME PER COW	\$-----	\$98	\$105

TABLE 43.
COMPARISON OF FARMS WITH FREE-STALL AND OTHER TYPES OF BARNES
BY HERD SIZE, 571 NEW YORK DAIRY FARMS, 1972

	HERD SIZE				
	LESS THAN 60 COWS	60 TO 79 COWS	80 TO 99 COWS	100 TO 119 COWS	120 OR MORE COWS
NUMBER OF FARMS					
FREE STALL	28	54	37	33	46
OTHER	254	74	23	11	11
NUMBER OF MEN					
FREE STALL	1.8	2.1	2.7	3.4	4.1
OTHER	1.7	2.3	3.1	3.4	4.4
NUMBER OF COWS					
FREE STALL	47	69	89	109	158
OTHER	44	66	88	104	151
LAND & BLDGS./COW					
FREE STALL	\$1,292	\$1,322	\$1,332	\$1,267	\$1,113
OTHER	\$1,223	\$1,276	\$1,528	\$1,436	\$1,324
LBS. MILK SOLD/COW					
FREE STALL	11,900	12,700	12,400	13,100	13,000
OTHER	12,400	12,500	12,800	13,400	13,300
LBS. MILK SOLD/MAN					
FREE STALL	311,200	428,800	426,100	435,000	513,300
OTHER	327,600	383,100	373,500	436,100	478,200
LABOR COST/COW					
FREE STALL	\$210	\$175	\$176	\$191	\$168
OTHER	\$217	\$191	\$199	\$197	\$194
MACHINERY COST/COW					
FREE STALL	\$201	\$179	\$188	\$174	\$176
OTHER	\$183	\$174	\$177	\$189	\$146
VETERINARY COST/COW					
FREE STALL	\$13	\$15	\$15	\$16	\$14
OTHER	\$14	\$14	\$13	\$18	\$15
LABOR INC./OPERATOR					
FREE STALL	\$2,720	\$8,085	\$4,660	\$7,342	\$10,568
OTHER	\$4,729	\$5,157	\$4,126	\$5,140	\$5,489

In general, for each herd size, the free-stall farms had fewer men but more cows, higher machinery but lower labor cost per cow, and (except for less than 60 cows) higher labor incomes per operator than the other farms.

Table 44. SELECTED FARM BUSINESS SUMMARY FACTORS
New York Dairy Farms, Selected Years 1962-1972

Item	Year			
	1962	1967	1971	1972
Number of farms	503	548	569	571
<u>Financial Summary</u>				
Average capital invested	\$53,541	\$88,050	\$147,378	\$173,780
Total farm receipts	\$21,351	\$44,309	\$64,682	\$68,376
Total farm expenses	\$16,406	\$31,545	\$44,857	\$49,636
Labor income per operator	\$2,019	\$7,511	\$8,127	\$5,835
<u>Size of Business</u>				
Number of cows	38	51	67	70
Pounds of milk sold	394,893	616,600	861,700	887,500
Crop acres	101	138	185	188
Man equivalent	1.8	1.9	2.2	2.3
Total work units	524	594	729	754
<u>Rates of Production</u>				
Milk sold per cow	10,392	12,100	12,900	12,700
Tons hay per acre	1.8	2.6	2.7	2.4
Tons corn silage per acre	12	17	16	11
<u>Labor Efficiency</u>				
Cows per man	21	27	30	30
Pounds milk sold per man	219,385	324,700	391,700	385,900
Work units per man	291	313	331	328
<u>Cost Control Factors</u>				
Machinery cost per cow	\$106	\$137	\$173	\$177
Machinery cost/cwt. milk	\$1.02	\$1.13	\$1.34	\$1.40
Feed bought per cow	\$147	\$165	\$194	\$206
Feed bought/cwt. milk	\$1.41	\$1.37	\$1.51	\$1.62
Feed & crop expense/cwt. milk	\$1.66	\$1.74	\$1.95	\$2.06
% Feed is of milk receipts	33%	26%	24%	25%
<u>Capital Efficiency</u>				
Total investment per man	\$30,074	\$48,300	\$69,680	\$75,560
Total investment per cow	\$1,425	\$1,800	\$2,290	\$2,480
Machinery investment/cow	\$296	\$397	\$478	\$489
Total investment/cwt. milk	\$14	\$15	\$18	\$20
<u>Other</u>				
Price per cwt. milk sold	\$4.33	\$5.25	\$6.21	\$6.41
Acres hay & hay crop silage	70	76	155	156
Acres corn silage	16	24	51	57
Total acres in crops/cow	2.7	2.7	2.8	2.7
Lime & fertilizer expense per crop acre	\$7	\$12	\$13	\$13
Farm income per cow	\$130	\$250	\$296	\$268
Labor income per cow	\$60	\$147	\$142	\$99

FARM BUSINESS SUMMARY
Average of 28 New York Dairy Crop Farms, 1972

<u>CAPITAL INVESTMENT</u>			<u>RECEIPTS</u>	
	<u>1/1/72</u>	<u>1/1/73</u>		
Livestock	\$ 30,256	\$ 35,640	Milk sales	\$43,111
Feed & supplies	14,809	13,702	Livestock sold	6,763
Machinery & equipment	35,801	39,529	Crop sales	9,999
Land & buildings	96,017	99,222	Government payments	1,694
TOTAL INVESTMENT	\$176,883	\$188,093	Gas tax refund	168
			Machine work	387
			Work off farm	358
			Miscellaneous	1,531
			TOTAL CASH RECEIPTS	\$64,011
			Increase in livestock and feed inventories	4,277
			TOTAL FARM RECEIPTS	\$68,288
<u>EXPENSES</u>			<u>FINANCIAL SUMMARY</u>	
<u>Labor</u>			Total Farm Receipts	\$68,288
Hired		\$ 6,896	Total Farm Expenses	49,052
<u>Feed</u>			Farm Income	\$19,236
Dairy concentrate		9,405	Int. on av. capital @ 7%	12,774
Hay and other		111	Farm Labor Income	\$ 6,462
<u>Machinery</u>			Number of operators (33)	1.17
Machine hire		680	LABOR INCOME/OPERATOR	5,523
Machinery repair		3,264		
Auto expense		214		
Gas and oil		2,097		
<u>Livestock</u>				
Purchased animals		3,730		
Breeding fees		579		
Veterinary, medicine		804		
Other livestock expense		2,754		
<u>Crops</u>				
Fertilizer and lime		2,976		
Seeds and plants		1,376		
Spray and other		910		
<u>Real Estate</u>				
Land, building, fence repair		1,112		
Taxes		1,956		
Insurance		955		
Rent		1,502		
<u>Other Cash Expense</u>				
Telephone (farm share)		216		
Electricity (farm share)		847		
Miscellaneous		926		
TOTAL CASH EXPENSES		\$43,310		
Machinery depreciation		4,639		
Building depreciation		593		
Unpaid labor		510		
TOTAL FARM EXPENSES		\$49,052		
			<u>BUSINESS FACTORS</u>	
			Man equivalent	2.4
			Number of cows	54
			Number of heifers	41
			Acres of hay	100
			Acres of corn silage	50
			Total acres of crops	263
			Lbs. of milk sold	685,500
			Lbs. of milk sold/cow	12,700
			Tons hay/acre	2.6
			Tons corn silage/acre	11
			Lbs. of milk sold/man	285,600
			Cows per man	23
			% Feed is of milk receipts	22%
			Feed & crop expense/cwt. milk	\$2.14
			Lime & fertilizer/crop acre	\$11
			Machinery cost/cow	\$251
			Av. price/cwt. milk	\$6.29

FARM BUSINESS SUMMARY
26 New York Dairy Renters Farms, 1972

CAPITAL INVESTMENT

	1/1/72	1/1/73
Livestock	\$31,657	\$34,719
Feed & supplies	9,784	9,996
Machinery & equipment	20,532	22,900
Land & buildings	0	0
TOTAL INVESTMENT	\$61,973	\$67,615

EXPENSES

<u>Labor</u>	
Hired	\$ 4,390
<u>Feed</u>	
Dairy concentrate	13,164
Hay and other	405
<u>Machinery</u>	
Machine hire	472
Machinery repair	2,354
Auto expense	176
Gas and oil	1,156
<u>Livestock</u>	
Purchased animals	3,278
Breeding fees	692
Veterinary, medicine	948
Other livestock expense	2,249
<u>Crops</u>	
Fertilizer and lime	1,666
Seeds and plants	490
Spray and other	338
<u>Real Estate</u>	
Land, building, fence repair	511
Taxes	84
Insurance	624
Rent	5,056
<u>Other Cash Expense</u>	
Telephone (farm share)	179
Electricity (farm share)	972
Miscellaneous	625
TOTAL CASH EXPENSES	\$39,829
Machinery depreciation	3,449
Building depreciation	0
Unpaid labor	300
TOTAL FARM EXPENSES	\$43,578

RECEIPTS

Milk sales	\$47,398
Livestock sold	6,613
Crop sales	1,158
Government payments	475
Gas tax refund	72
Machine work	102
Work off farm	28
Miscellaneous	321
TOTAL CASH RECEIPTS	\$56,167

Increase in livestock
and feed inventories

3,274

TOTAL FARM RECEIPTS

\$59,441

FINANCIAL SUMMARY

Total Farm Receipts	\$59,441
Total Farm Expenses	43,578
Farm Income	\$15,863
Int. on av. capital @ 7%	4,535
Farm Labor Income	\$11,328
Number of operators (29)	1.11
LABOR INCOME/OPERATOR	\$10,205

BUSINESS FACTORS

Man equivalent	2.0
Number of cows	58
Number of heifers	42
Acres of hay	96
Acres of corn silage	52
Total acres of crops	170
Lbs. of milk sold	730,400
Lbs. milk sold/cow	12,600
Tons hay/acre	2.3
Tons corn silage/acre	12
Lbs. of milk sold/man	365,200
Cows per man	29
% Feed is of milk receipts	28%
Feed & crop expense/cwt. milk	\$2.14
Lime & fertilizer/crop acre	\$10
Machinery cost/cow	\$157
Av. price/cwt. milk	\$6.49

FARM BUSINESS SUMMARY
Top 10 Percent of the Farms by Labor Income
571 New York Dairy Farms, 1972

<u>CAPITAL INVESTMENT</u>			<u>RECEIPTS</u>	
	<u>1/1/72</u>	<u>1/1/73</u>		
Livestock	\$ 58,840	\$ 65,595	Milk sales	\$ 92,226
Feed & supplies	15,339	16,371	Livestock sold	11,994
Machinery & equip.	41,677	44,413	Crop sales	433
Land & buildings	108,781	112,939	Government payments	888
TOTAL INVESTMENT	\$224,637	\$239,318	Gas tax refund	137
			Machine work	78
			Work off farm	85
			Miscellaneous	2,139
			TOTAL CASH RECEIPTS	\$107,980
			Increase in livestock & feed inventories	7,787
			TOTAL FARM RECEIPTS	\$115,767
<u>EXPENSES</u>			<u>FINANCIAL SUMMARY</u>	
<u>Labor</u>			Total Farm Receipts	\$115,767
Hired		\$10,513	Total Farm Expenses	73,703
<u>Feed</u>			Farm Income	\$ 42,064
Dairy concentrate		20,855	Int. on av. capital @ 7%	16,238
Hay and other		1,093	Farm Labor Income	\$ 25,826
<u>Machinery</u>			Number of operators (65)	1.14
Machine hire		1,161	LABOR INCOME/OPERATOR	\$ 22,654
Machinery repair		4,125		
Auto expense		307		
Gas and oil		1,995		
<u>Livestock</u>				
Purchased animals		4,043		
Breeding fees		989		
Veterinary, medicine		1,563		
Other livestock expense		3,591		
<u>Crops</u>				
Fertilizer and lime		3,846		
Seeds and plants		1,235		
Spray and other		988		
<u>Real Estate</u>				
Land, building, fence repair		1,406		
Taxes		2,482		
Insurance		1,811		
Rent		1,655		
<u>Other Cash Expense</u>				
Telephone (farm share)		296		
Electricity (farm share)		1,304		
Miscellaneous		1,350		
TOTAL CASH EXPENSES		\$66,608		
Machinery depreciation		6,002		
Building depreciation		553		
Unpaid labor		540		
TOTAL FARM EXPENSES		\$73,703		
			<u>BUSINESS FACTORS</u>	
			Man equivalent	2.8
			Number of cows	105
			Number of heifers	63
			Acres of hay	109
			Acres of corn silage	97
			Total acres of crops	263
			Lbs. of milk sold	1,444,300
			Lbs. milk sold/cow	13,800
			Tons hay/acre	2.7
			Tons corn silage/acre	12
			Lbs. of milk sold/man	515,800
			Cows per man	38
			% Feed is of milk receipts	23%
			Feed & crop expense/cwt. milk	\$1.86
			Lime & fertilizer/crop acre	\$15
			Machinery cost/cow	\$158
			Av. price/cwt. milk	\$6.39

FARM BUSINESS SUMMARY
Average of 571 New York Dairy Farms, 1972

<u>CAPITAL INVESTMENT</u>				<u>RECEIPTS</u>	
	<u>1/1/72</u>	<u>1/1/73</u>			
Livestock	\$ 38,643	\$ 42,003	Milk sales		\$56,858
Feed & supplies	10,549	10,074	Livestock sold		6,811
Machinery & equip.	31,703	34,255	Crop sales		358
Land & buildings	82,379	87,448	Government payments		504
TOTAL INVESTMENT	\$163,274	\$173,780	Gas tax refund		111
			Machine work		74
			Work off farm		60
			Miscellaneous		<u>715</u>
			TOTAL CASH RECEIPTS		\$65,491
			Increase in livestock & feed inventories		<u>2,885</u>
			TOTAL FARM RECEIPTS		\$68,376
<u>EXPENSES</u>			<u>FINANCIAL SUMMARY</u>		
<u>Labor</u>			Total Farm Receipts		\$68,376
Hired		\$ 5,431	Total Farm Expenses		49,636
<u>Feed</u>			Farm Income		<u>\$18,740</u>
Dairy concentrate		14,403	Int. on av. capital @ 7%		<u>11,796</u>
Hay and other		615	Farm Labor Income		<u>\$ 6,944</u>
<u>Machinery</u>			Number of operators (682)		1.19
Machine hire		700	LABOR INCOME/OPERATOR		\$ 5,835
Machinery repair		2,816			
Auto expense		281	<u>BUSINESS FACTORS</u>		
Gas and oil		1,519	Man equivalent		2.3
<u>Livestock</u>			Number of cows		70
Purchased animals		3,144	Number of heifers		45
Breeding fees		702	Acres of hay		96
Veterinary, medicine		1,025	Acres of corn silage		60
Other livestock expense		2,462	Total acres of crops		188
<u>Crops</u>			Lbs. of milk sold		887,500
Fertilizer and lime		2,484	Lbs. of milk sold/cow		12,680
Seeds and plants		774	Tons hay/acre		2.4
Spray and other		618	Tons corn silage/acre		11
<u>Real Estate</u>			Lbs. of milk sold/man		385,870
Land, building, fence repair		1,165	Cows per man		30
Taxes		1,604	% Feed is of milk receipts		25%
Insurance		1,123	Feed & crop expense/cwt. milk		\$2.06
Rent		816	Lime & fertilizer/crop acre		\$13
<u>Other Cash Expense</u>			Machinery cost/cow		\$177
Telephone (farm share)		243	Av. price/cwt. milk		\$6.41
Electricity (farm share)		999			
Miscellaneous		<u>739</u>			
TOTAL CASH EXPENSES		\$43,663			
Machinery depreciation		4,784			
Building depreciation		439			
Unpaid labor		<u>750</u>			
TOTAL FARM EXPENSES		\$49,636			

$$\begin{array}{r}
 CR = 65491 \\
 CE \quad 43,663 \\
 \hline
 21,828 \div 70 = 312
 \end{array}$$