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# **DAIRY FARM BUSINESS SUMMARY**

**February 1981**

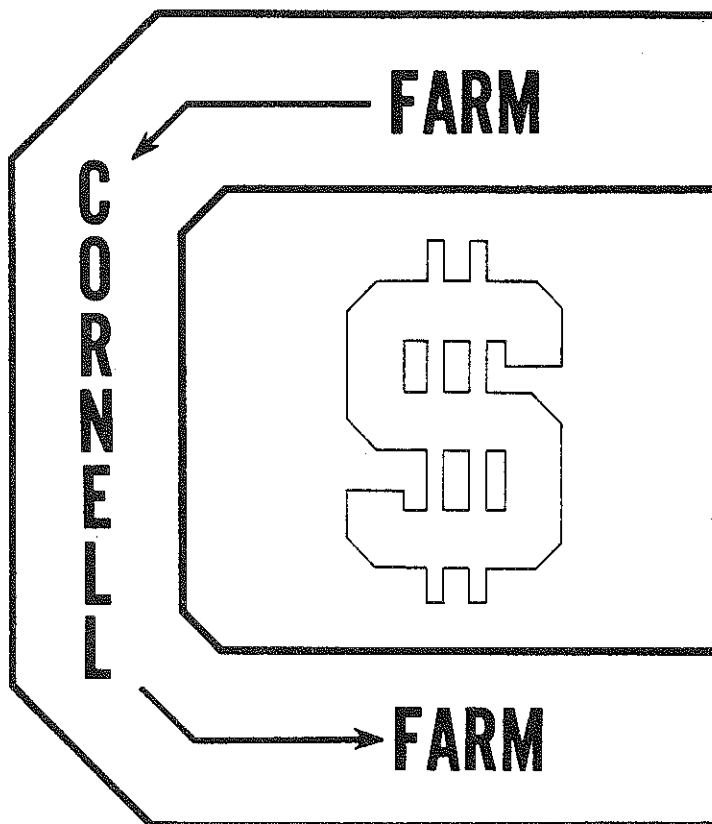
**A.E. Ext. 81-3**

## **CORTLAND COUNTY 1980**

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# **CORNELL FARM DECISION NETWORK**

**Department of Agricultural Economics  
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The Farm Business Summary Program is a portion of the total Cornell Farm Decision Network. Four distinct programs comprise the Network and each in their own unique way strive for obtaining accurate data and/or data analysis in order to provide information upon which to base improved decision making. Programs which comprise the Cornell Farm Decision Network are:

- (1) Farm Business Summaries - Analysis of the business and financial activity of dairy, beef, fruit, poultry, and other farms.
- (2) CAMIS - Computerized programs to facilitate the recording, tabulation, and analysis of farm business accounts.
- (3) NEWPLAN Programs - Computerized Decision Aids which include such topics as: Least-Cost Balanced Dairy Rations, Profitable Organization of Dairy Farm Enterprises, Profitable Combinations of Field Crop Enterprises, and Analysis of Major Capital Investments.
- (4) Enterprise Budgets and Economic Data - Collection of data and analysis of enterprise costs and returns.

For further information on how you may take advantage of these programs, contact your local cooperative extension office.

## Improvements In 1980 Dairy Farm Business Summary

Although there are no major changes in the format of this year's Dairy Farm Business Summary publication, there are several changes in the accounting procedures. These changes affect comparisons of 1980 data with farm business summaries from prior years.

The following accounting methods were used for the first time this year to more accurately separate the effect of inflation on farm inventories, from increases caused by greater quantity and/or improved quality of inventory items.

1. The fixed cost of maintaining machinery and equipment; depreciation is last year's regular income tax depreciation plus ten percent of machinery purchases in 1980. An increase in machinery market value that more than offsets the depreciation charge is machinery appreciation and is included in labor, management and ownership income of the farm business. Machinery appreciation is not included in the calculation of labor and management income but depreciation is included.
2. The change in livestock inventory is now divided into two parts. The change in herd market value attributed to a change in numbers and/or a definite change in herd quality, is the increase (or decrease) in livestock inventory that is included in labor and management income. The change in herd market value, caused by inflationary price increases, is excluded from labor and management income but is included in labor, management and ownership income.

Other new accounting procedures have been introduced to more accurately identify important farm resources and to obtain a better measure of forage production.

1. The number of operators now includes individuals who are integrally involved in the operation and management of the farm business in addition to the primary operator. Many farm spouses are included as part-time operators this year. The number of full-time operators per farm is total months of all operators' labor reported divided by 12.
2. The land available for crop production is called total tillable acres. Nontillable pasture, woodland and wasteland is included in the total land inventory. The reason for changing to tillable acres is to inventory the land resource available for production rather than only that currently in production.
3. Tons of dry matter has been adopted as an improved method of measuring forage harvested. It is more consistent and is more commonly used in dairy cattle nutrition than hay equivalent.

CORTLAND COUNTY  
DAIRY FARM BUSINESS SUMMARY

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CORTLAND COUNTY  
DAIRY FARM BUSINESS SUMMARY

INTRODUCTION

Dairy farmers in more than forty counties throughout the State submit records for summarization through Cooperative Extension's Farm Business Management Program. Each dairy farmer receives a report for the farm containing all the management information found in this publication. A compilation of the individual farm reports is published in ten regional summaries like this one and in one statewide summary. These publications are used not only by extension personnel and dairy farmers but also by many segments of the dairy industry to monitor the health of the milk production sector.

Primary objectives of the dairy farm business management program are to (1) assist farmers in developing and maintaining more complete farm business data for use in management decisions and (2) help farmers improve their management skills through appropriate use of farm record data and application of modern decision-making techniques. This report is prepared in workbook form for use in the systematic study of individual farm business operations. This booklet should also be useful to farmers in Cortland County who are not enrolled in the business management project and to agribusiness firms.

The increasing size of the New York dairy farms and the dynamic nature of the economic environment within which they operate make farm incomes increasingly dependent upon the accuracy of management decisions. An assessment of past business performance combined with careful analysis of future economic conditions and goals of the farm business will greatly enhance the operator's profit potential.

With upward pressure on costs continuing into 1981, dairy farmers will need to place emphasis on operating the most efficient business possible. Two areas for continued emphasis are (1) dairy concentrate purchases and the total livestock feeding program, and (2) the crop production program. Dairy concentrate purchases are the largest single cash expense and with large increases in fuel and fertilizer costs, the cropping program warrants careful examination as well. By carefully proceeding through this workbook to determine business strengths and weaknesses and by carefully planning next year's business operations, a dairy farmer will be in a better position to manage the farm through the challenges of the 1980s.

Business records for 16 farms in 1980 and 22 farms in 1979 in Cortland County are summarized in this publication.

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This summary was prepared by Wayne A. Knoblauch, Department of Agricultural Economics, Cornell University, in cooperation with Thomas R. Maloney and Cathy Wickswat, Cortland County Cooperative Extension Agents.

## SUMMARY OF THE FARM BUSINESS

Business Characteristics

Knowledge of farm business characteristics is fundamental to judging management performance. The combination of resources and management techniques used to put resources to work is an important part of planning a long-run farm organization strategy. The tables below show important farm business characteristics, the number of farms reporting these characteristics, and the average level of resources used in production.

MANAGEMENT SYSTEMS, PRODUCTION TECHNOLOGY AND FARM SIZE  
Cortland County Dairy Farms, 1980

Type of Business	Number	Business Records	Number	Dairy Records	Number
Individual	12	CAMIS	2	D.H.I.C.	13
Partnership	4	Account Book	7	Owner Sampler	1
Corporation	0	Agrifax	2	Other	1
		Farm Bureau	1	None	1
Owner	14	Agway	2		
Renter	2	Other	2		

Barn Type	Number	Milking System	Number	Number	
Stanchion	12	Bucket & Carry	0	Herringbone	4
Freestall	4	Dumping Station	5	Other Parlor	0
Other	0	Pipeline	7		

Labor Force	My Farm	Average	Land Use	My Farm	Average
Operator 1.	_____	mo. 12	Total acres owned	_____	366
2.	_____	mo. 3	Total acres rented	_____	134
3.	_____	mo. 1	Total tillable acres	_____	217
Family paid	_____	mo. 1	Tillable acres rented	_____	79
Family unpaid	_____	mo. 5			
Hired	_____	mo. 11	Number of Cows	My Farm	Average
Total	_____	mo. 33			
Age of operator(s) 1.	_____	yrs. 39	Beginning of year	_____	66
2.	_____	yrs. 38	End of year	_____	66
3.	_____	yrs. 26	Average for year	_____	65

Capital Investment-Farm Inventory Value represents the market value of resources committed to the farming operation measured at the beginning and ending of the year. Increases in inventory values occur with expanding herd size, purchasing new machinery and equipment and appreciation of land, buildings and livestock.

CAPITAL INVESTMENT - FARM INVENTORY VALUE  
Cortland County Dairy Farms

Item	My Farm		Average	
	1/1/80	1/1/81	1/1/80	1/1/81
Livestock	\$ _____	\$ _____	\$ 86,573	\$ 98,192
Feed & supplies	_____	_____	23,085	27,038
Machinery & equipment	_____	_____	54,270	61,192
Land & buildings*	_____	_____	185,118	198,638
TOTAL	\$ _____	\$ _____	\$349,046	\$385,060

\*Owners only.

### Machinery and Real Estate Inventory Calculations

Capital outlays for machinery, buildings, land and land improvements usually occur in large uneven amounts, but depreciate gradually over a period of time. Machinery depreciation is a charge for use of the machinery complement in production. Appreciation in the value of the machinery complement results from inflation in the value of used machinery; it is calculated as a residual.

#### MACHINERY & EQUIPMENT INVENTORY Cortland County Dairy Farms, 1980

Item	My Farm	Average
End of year market value	(1)\$ _____	\$ 61,192
Beginning market value	\$ _____	\$ 54,270
Plus machinery purchased	+ _____	+ 11,899
Less machinery sold	- _____	- 288
Less depreciation	- _____	- 9,192
Net end investment	(2)\$ _____	\$ 56,689
APPRECIATION (1 minus 2)	\$ _____	\$ 4,503

The end of year market value of real estate can be verified by starting with the beginning of year value, making adjustments for purchases and sales, depreciation of buildings and any appreciation in land. Lost capital is the difference between the cost of new buildings or land improvements and the amount these improvements added to the value of the farm. It is not included in farm expenses, since building depreciation is based on the full cost of new buildings and will account for lost capital over the life of the investments. Building depreciation was taken from the farm depreciation schedule and is included as a farm expense. Real estate appreciation was estimated by each farm operator. It is the increase in value of real estate caused by demand and inflation.

#### REAL ESTATE INVENTORY CALCULATIONS Cortland County Dairy Farms, 1980

Item	My Farm	Average
Beginning market value	\$ _____	\$161,978
Cost of new real estate	\$ _____	\$ 8,408
Less lost capital	- _____	- 1,356
Value of new added	+ _____	+ 7,052
Less building depreciation	- _____	- 2,629
Less real estate sold	- _____	- 150
Total without appreciation	\$ _____	\$166,251
Appreciation of beginning real estate	+ _____	+ 7,557
End of year market value	\$ _____	<u>\$173,808</u>



Receipts

Receipts from the business should be large enough to cover all expenses and leave a reasonable return for the operator's labor and management. Cash receipts items are those in which ownership is transferred or services are performed and payment is received during the year. Noncash receipts occur for items in which ownership is maintained and cash is not received, but due to appreciation in value or increases in physical quantities, could be readily transformed into a cash receipt.

FARM RECEIPTS  
Cortland County Dairy Farms, 1980

Item	My Farm	Ave: Amount	Percent
<b>CASH RECEIPTS</b>			
Milk sales	\$ _____	\$115,706	83
Crop sales	_____	5,099	4
Dairy cattle sold	_____	12,050	9
Calves & other livestock sales	_____	3,594	3
Gas tax refunds	_____	259	<1
Government payments	_____	707	<1
Custom machine work	_____	600	<1
Other	_____	1,403	1
Total cash receipts	\$ _____	\$139,445	100
<b>NONCASH RECEIPTS</b>			
Increase in livestock inventory	_____	\$ 5,815	
Increase in feed & supplies	_____	3,953	
Livestock appreciation	_____	5,804	
Machinery appreciation	_____	4,503	
Real estate appreciation	_____	7,557	
TOTAL FARM RECEIPTS	\$ _____	\$167,077	
TOTAL FARM RECEIPTS EXCLUDING APPRECIATION	\$ _____	\$149,213	

Income Analysis provides a means of examining the income producing capability of the farm business. Weak and strong points can be determined by comparing individual farm results with the averages. The average price per hundredweight of milk sold is calculated by dividing total milk receipts by total hundredweight sold. It will be different from an average of monthly prices received by the dairy farmer. Milk and cattle sales per cow combines production and price components to measure income generation capability per cow. Cash receipts per worker combines two factors: income generated on the total farm and labor efficiency.

INCOME ANALYSIS  
Cortland County Dairy Farms

Item	My Farm	1980	1979
Average price/cwt. milk sold	\$ _____	\$ 12.74	\$ 11.69
Milk and cattle sales per cow	_____	2,021	1,833
Total cash receipts/worker	_____	50,707	50,473

Expenses

Expenses on many dairy farms approach and some exceed \$500 per day! Classifying expenses into categories will help identify those that may need tighter control.

FARM EXPENSES  
Cortland County Dairy Farms, 1980

Item	My Farm	Ave: Amount	Percent
<u>Hired Labor</u>	\$ _____	\$ 9,561	9
<u>Feed</u>			
Dairy concentrate	_____	30,900	31
Hay and other	_____	1,058	1
<u>Machinery</u>			
Machine hire	_____	2,096	2
Machinery repairs	_____	5,772	6
Auto expense (farm share)	_____	555	1
Gas & oil	_____	5,212	5
<u>Livestock</u>			
Replacement livestock	_____	2,345	2
Breeding fees	_____	1,813	2
Veterinary & medicine	_____	2,864	3
Milk marketing	_____	2,116	2
Other livestock expense	_____	2,922	3
<u>Crops</u>			
Fertilizer & lime	_____	6,777	7
Seeds & plants	_____	3,437	3
Spray, other crop expense	_____	1,820	2
<u>Real Estate</u>			
Land, building, fence repair	_____	2,287	2
Taxes	_____	2,812	3
Insurance	_____	2,127	2
Rent	_____	3,915	4
<u>Other</u>			
Telephone (farm share)	_____	402	<1
Electricity (farm share)	_____	2,368	2
Interest paid	_____	6,864	7
Miscellaneous	_____	1,039	1
Total cash expenses	\$ _____	\$101,062	100
Decrease in livestock and/or feed	\$ _____	\$ 0	
Expansion livestock	_____	508	
Machinery depreciation	_____	9,192	
Building depreciation	_____	2,629	
Unpaid family labor @ \$500/month	_____	2,500	
Interest on equity capital @ 9%	_____	24,177	
TOTAL FARM EXPENSES	\$ _____	\$140,068	
TOTAL FARM EXPENSES EXCLUDING INT. ON EQUITY CAPITAL	\$ _____	\$115,891	

### Farm Business Profitability

The results of management are reflected in the net return from the business. Agricultural economists have developed a number of ways to measure the returns from a farm business. Four common measures are reported on this page and the next page.

Net cash farm income reflects the cash available from the year's operation of the business. Family living has first claim on cash income followed by fixed payments on debts. A family may have additional cash available if they have nonfarm income. Cash flow is not a good measure of farm business profits, but it is useful when planning debt repayment programs. Guidelines for annual cash flow planning are presented on page 9. Monthly cash flow planning is also recommended and may be required in order to identify cash flow problems in the year ahead. This is particularly true when major changes in the business are planned or when the price of important factors such as milk or purchased concentrate are expected to change significantly.

#### NET CASH FARM INCOME Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979
Cash Farm Receipts	\$ _____	\$139,445	\$134,764
Cash Farm Expenses	_____	101,062	101,389
NET CASH FARM INCOME	\$ _____	\$ 38,383	\$ 33,375

Labor and management income is the return to the operator for his or her labor and management input into the business. A nine percent charge for the use of the operator's equity capital in the business has been included as a farm expense. This interest charge reflects what the operator could have earned from this capital had it been invested elsewhere, such as in bank certificates of deposit. Labor and management income is the measure used most commonly when comparing farm businesses. Appreciation in livestock, machinery and real estate inventories is included as ownership income.

#### LABOR AND MANAGEMENT INCOME Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979*
Total farm receipts excluding appreciation	\$ _____	\$149,213	\$ 135,276
Total farm expenses	_____	140,068	139,168
LABOR & MANAGEMENT INCOME	\$ _____	\$ 9,145	\$(-)3,892
Full-time operator-manager equivalents	_____	1.33	1.33
LABOR & MGT. INCOME/OPERATOR-MANAGER	\$ _____	\$ 7,035	\$(-)2,926

\*Adjustments have been made in 1979 data to allow for more accurate comparison.

Labor, management and ownership income per operator reflects the combined return to the farmer for his/her triple role of worker-manager, financier and owner. Again, this is not a measure of the cash flow situation of the farm business. A satisfactory labor, management and ownership income does not eliminate cash flow problems if liabilities are large and repayment is rapid.

LABOR, MANAGEMENT AND OWNERSHIP INCOME  
Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979
Total farm receipts	\$ _____	\$167,077	\$166,638
Total farm expenses excluding interest on equity capital	_____	115,891	114,479
LABOR, MANAGEMENT AND OWNERSHIP INCOME PER FARM	\$ _____	\$ 51,186	\$ 52,159
Full-time operator-manager equivalents	_____	1.33	1.33
LABOR, MANAGEMENT AND OWNERSHIP INCOME/OPERATOR-MANAGER	\$ _____	\$ 39,374	\$ 39,217

Return on equity capital is a common measure for nonfarm businesses. It can be computed with or without appreciation. Both measures are shown below. To compute the rate of return, divide return on equity capital by farm net worth or equity capital.

RETURN ON EQUITY CAPITAL  
Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979*
<u>Including Appreciation</u>			
Labor, mgt. & ownership income/farm	\$ _____	\$ 51,186	\$ 52,159
Less value of operator's labor & mgt.**	_____	16,563	15,205
Return on equity capital	\$ _____	\$ 34,623	\$ 36,954
RATE OF RETURN ON \$ _____ equity	_____ %	12.9%	12.9%
<u>Excluding Appreciation</u>			
Return on equity capital (from above)	\$ _____	\$ 34,623	\$ 36,954
Less real estate appreciation	_____	7,557	15,107
Less machinery appreciation	_____	4,503	4,503
Less livestock appreciation	_____	5,804	11,752
Return on equity capital	\$ _____	\$ 16,759	\$ 5,592
RATE OF RETURN EXCLUDING APPRECIATION	_____ %	6.2%	2.0%

\*Adjustments have been made in 1979 data to allow for more accurate comparison.

\*\*Value of operator's labor and management estimated by operators.

Farm Family Financial Situation

The financial situation is an important part of the farm business summary. It has a direct affect on current cash outflow and future capital investment decisions. A farmer may have a good labor and management income, but a high debt payment schedule may seriously restrict management flexibility. Farm Net Worth is Total Farm Assets less Total Farm Liabilities. Family Net Worth is Total Assets less all Liabilities reported.

FARM FAMILY FINANCIAL SITUATION  
Cortland County Dairy Farms, January 1, 1981

Item	My Farm	Average Per Farm
<u>Assets</u>		
Livestock	\$ _____	\$ 98,192
Feed and supplies	_____	27,038
Machinery and equipment	_____	61,192
Land and buildings	_____	173,808
Co-op investments	_____	1,502
Accounts receivable	_____	8,480
Cash and checking accounts	_____	1,842
Total Farm Assets	\$ _____	\$372,054
Savings Accounts	\$ _____	\$ 1,343
Cash value life insurance	_____	2,718
Stocks and bonds	_____	844
Nonfarm real estate	_____	0
Auto (personal share)	_____	1,570
All other	_____	4,938
Total Nonfarm Assets	\$ _____	\$ 11,413
TOTAL ASSETS	\$ _____	\$383,467
<u>Liabilities</u>		
Real estate	\$ _____	\$ 53,724
Cattle & equipment	_____	42,548
Installment contract	_____	2,586
Other loans over 10 years	_____	0
Other loans 1 to 10 years	_____	1,410
Other loans less than 1 year	_____	585
Feed store accounts	_____	1,470
Other accounts	_____	1,097
Total Farm Liabilities	\$ _____	\$103,420
Nonfarm Liabilities	_____	826
TOTAL LIABILITIES	\$ _____	\$104,246
FARM NET WORTH (EQUITY CAPITAL)	\$ _____	\$268,634
FAMILY NET WORTH	\$ _____	\$279,221

Payment ability is the most important consideration in determining if and how proposed investments should be financed. The farm business must produce sufficient cash income to meet operating expenses, to cover family or personal living expenses, to make payments on debts and to cover cash purchases of capital items that occur during the year.

Payment ability is estimated in the following table. Interest paid and income from off-farm work are added to net cash farm income because planned or budgeted debt payments will include interest as well as principal. Estimate family living expenses for your farm to calculate cash available for debt payment and capital purchases made in cash.

Debt payments planned are the scheduled debt payments as of January. Some farms in the group had scheduled debt payments exceeding 50 percent of the milk receipts. Committing this much cash inflow to debt payments can put a "big squeeze" on cash available for operating the business and family living.

FINANCIAL MEASURES & DEBT COMMITMENT  
Cortland County Dairy Farms, 1980

Item	My Farm	Average
<u>Payment Ability</u>		
Net cash farm income	\$ _____	\$ 38,383
Plus interest paid	_____	6,864
Plus off-farm income	_____	0
CASH AVAILABLE FOR DEBT SERVICE AND LIVING	\$ _____	\$ 45,675
Less family living expenses*	_____	16,887
CASH AVAIL. FOR DEBT PAYMT. & CAP. PURCH.	\$ _____	\$ 28,788
<u>Scheduled Annual Debt Payments</u>		
Real estate mortgage	\$ _____	\$ 5,336
Cattle and equipment liens	_____	11,399
Installment contracts	_____	1,152
Other loans over 10 years	_____	479
Other loans 1 to 10 years	_____	714
Other loans less than 1 year	_____	1,701
TOTAL PAYMENTS PLANNED 1981	\$ _____	\$ 20,781
<u>Measures of Debt Commitment &amp; Equity Position</u>		
Debt payments planned per cow	\$ _____	\$ 315
Debt payments planned as % of milk sales	_____ %	18%
Farm debt per cow	\$ _____	\$ 1,567
Percent equity (total)	_____ %	73%

\* Estimated at \$8,700 per family plus 4 percent of cash receipts.

## ANALYSIS OF THE FARM BUSINESS

In analyzing a farm business, a manager must consider measures or factors that reflect the performance of specified parts of the farm business. One method of doing this is to look at factors of size, production, labor efficiency, capital efficiency and cost control. These factors are considered on the following pages. Another method, which is not considered in this workbook, is to analyze the farm business by analyzing the individual crop and livestock enterprises and the relationships between these enterprises.

Size of Business

Studies have shown that, in general, larger farms are more profitable than smaller farms. Two basic reasons are that larger businesses make possible more efficient use of overhead inputs such as labor and machinery and there are more units of production on which to make a profit. Another reason is that profitable farm businesses with good management have the ability and incentive to become larger. Large farms are not necessarily more profitable and size increases are only profitable with good management.

MEASURES OF SIZE OF BUSINESS  
Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979
Number of cows	_____	65	69
Number of heifers	_____	51	51
Pounds of milk sold	_____	907,900	965,900
Worker equivalent	_____	2.8	2.7
Total work units	_____	728	789
Total tillable acres	_____	217	212

In the table below, the 610 New York farms for 1979 are sorted by number of cows and the labor income is shown for each size group. In general, the large farms paid better, but, variability of income was significant.

COWS PER FARM AND LABOR AND MANAGEMENT INCOME  
610 New York Dairy Farms, 1979

Number of Cows	Number of Farms	Percent of Farms	Labor & Management Income	
			Per Operator	Per Cow
Under 40	89	15	\$11,635	\$380
40 - 54	168	28	14,680	344
55 - 69	123	20	19,435	404
70 - 84	73	12	22,814	387
85 - 99	30	5	18,876	301
100 - 114	34	6	24,429	308
115 - 129	24	4	35,147	460
130 - 149	22	4	23,757	268
150 and over	47	8	52,680	385

Rates of Production

Crop yields and rates of animal production are factors that affect farm incomes. In the table below, we examine the crops grown and yields along with the pounds of milk sold per cow.

CROP YIELDS & MILK SOLD PER COW  
Cortland County Dairy Farms, 1980

Crop	My Farm		Average of Farms Reporting		
	Acres	Yield	Farms	Acres	Yield
Baled hay	_____	_____	14	68	(combined below)
Hay crop silage	_____	_____	11	80	
Corn silage	_____	_____	15	50	4.7 tons D.M.
Other forage	_____	_____	5	8	1.3 tons D.M.
Grain corn	_____	_____	9	60	94.2 bu.
Oats	_____	_____	5	37	69.2 bu.
Wheat	_____	_____	0	0	0 bu.
Other crops	_____	_____	2	12	
Tillable pasture	_____	_____	3	22	
Idle tillable land	_____	_____	1	12	
-----					
Dry matter:					
All hay crops	_____	_____	16	115	2.5 tons
All forage crops	_____	_____	16	165	3.1 tons
Milk sold per cow	_____	_____			13,900

Tons of dry matter of all hay and silage is a good measure of the overall rate of forage production.

The importance of strong milk output per cow is shown in the table below.

MILK SOLD PER COW AND LABOR AND MANAGEMENT INCOME  
610 New York Dairy Farms, 1979

Pounds of Milk Sold Per Cow	Number of Farms	Number of Cows	Feed Bought Per Cow	Labor & Management Income	
				Per Operator	Per Cow
Under 10,000	22	48	\$286	\$ 1,092	\$ 26
10,000 - 10,999	32	54	357	9,137	217
11,000 - 11,999	45	58	386	12,273	235
12,000 - 12,999	72	68	423	13,673	237
13,000 - 13,999	106	77	459	18,496	302
14,000 - 14,999	128	86	462	27,895	433
15,000 - 15,999	115	80	509	26,527	401
16,000 and over	90	77	548	29,697	488



Labor Efficiency

Labor input is an important factor in farm production. Several measures of accomplishment per worker (labor efficiency) are shown below.

MEASURES OF LABOR EFFICIENCY  
Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979
Worker equivalent		2.8	2.7
Cows per worker		24	26
Lbs. milk sold per worker		330,100	361,760
Work units per worker		265	296

Number of cows per worker is calculated by dividing the average number of cows by the worker equivalent which represents the total farm labor force. Pounds of milk sold per worker is an important measure of labor efficiency on the dairy farm. It measures the ability of the labor force to handle a large number of cows without sacrificing milk output per cow.

It is important to look at other measures of labor efficiency, such as work units per worker because all dairy farms do not have the same relationship between cows, heifers, and crops grown.

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

Another factor which may influence the productivity of labor is the wage paid to employees. A productive employee will require a reasonable and competitive wage.

MILK SOLD PER WORKER AND LABOR AND MANAGEMENT INCOME  
610 New York Dairy Farms, 1979

Pounds of Milk Sold Per Worker	Number of Farms	Number of Cows	Lbs. Milk Per Cow	Labor & Management Income	
				Per Operator	Per Cow
Under 250,000	68	40	11,600	\$ 4,778	\$137
250,000 - 299,999	85	54	13,200	12,141	293
300,000 - 349,999	94	58	13,800	16,458	335
350,000 - 399,999	102	64	14,500	18,276	361
400,000 - 449,999	83	75	14,600	20,204	331
450,000 - 499,999	54	81	14,900	26,863	481
500,000 - 599,999	81	113	14,800	39,637	446
600,000 and over	43	151	15,300	49,358	403

### Capital Efficiency

Capital is a key resource and a manager must continually analyze its use in the business. The measures of capital efficiency shown in the following table include owned as well as borrowed capital. It is possible for the business to be undercapitalized, but investing too much capital per productive unit is a more common problem.

#### MEASURES OF CAPITAL EFFICIENCY Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979
Farm capital per worker	\$ _____	\$130,993	\$145,143
Farm capital per cow	\$ _____	\$ 5,458	\$ 5,536
Land & buildings per cow	\$ _____	\$ 2,633	\$ 2,988
Land & buildings/tillable acre owned	\$ _____	\$ 1,093	\$ 1,404
Machinery investment per cow	\$ _____	\$ 927	\$ 837
Machinery per tillable acre	\$ _____	\$ 282	\$ 276
Capital turnover	_____ yrs.	2.2 yrs.	2.6 yrs.

Land and building investment per crop acre owned shows the relationship between investments in land and buildings. The farmer who owns little cropland but builds many farm buildings will have a relatively large land and building investment per crop acre owned. This could be an indication that capital use is out of balance.

Capital turnover is calculated by dividing the total farm capital (total year end farm inventory) by the total farm receipts for the year. The factor is called capital turnover because it measures the number of years of receipts needed to equal or "turnover" farm capital. A fast rate of turnover is more desirable than a slow rate because it means capital purchases can be paid off at a faster rate. This figure also depends upon the enterprise selection of the business.

#### CAPITAL TURNOVER AND LABOR AND MANAGEMENT INCOME 610 New York Dairy Farms, 1979

Capital Turnover Rate - Years	Number of Farms	Number of Cows	Capital Investment		Labor & Mgmt. Income Per Operator
			Per Cow	Per Worker	
Less than 1.5	13	117	\$3,230	\$102,900	\$45,648
1.5 to 1.99	122	101	4,160	126,835	35,313
2.0 to 1.99	247	74	4,984	149,255	24,415
2.5 to 2.99	135	60	5,832	159,245	14,989
3.0 to 3.49	49	60	6,560	180,556	7,764
3.5 and over	44	54	7,645	179,670	- 4,965

## Cost Control

The control of costs is a big factor in the success of modern commercial dairy operations. Feed, machinery and labor costs are major items and are examined in detail. However, it is important to check all cost items both large and small. Expenses should be incurred only when the returns from the expense are expected to be greater than the cost incurred.

### Feed Costs

Purchased feed is the largest single expenditure on most dairy farms. Some farms included in this summary used as much as 40 cents from each dollar's worth of milk sold to purchase dairy feed. Two considerations are important in keeping the feed bill down: (1) Be careful that only nutrients required by the cow are being fed. A dairy farmer cannot afford to buy a feed mix that overfeeds energy or protein. (2) Be certain that the required nutrients are being obtained from their cheapest source. For example, what is the cheapest source of protein? urea? soybean oil meal? a commercial protein? Help in answering these questions can come from budgeting, from agribusinessmen selling feeds, and from dairy and management extension agents. Extension is supporting two computerized decision aids to assist in answering these questions: a NEWPLAN program of Least-Cost Balanced Dairy Rations, and the NYDHIC forage balancing program.

The size and productivity of the crop program has an important influence on the size of the purchased feed bill. Increased production of either roughages or grains should reduce the purchased feed expense unless cow numbers are increased. Also, heifer raising practices affect feed costs. The overall feed situation must be examined and evaluated as a "system".

### FEED COSTS AND RELATED MEASURES Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979
Dairy concentrate purchased per cow	\$ _____	\$ 475	\$ 443
Dairy concentrate purchased per cwt. of milk sold	\$ _____	\$ 3.40	\$ 3.16
Percent dairy concentrate is of milk receipts	_____ %	27%	27%
Crop expense per cow	\$ _____	\$ 185	\$ 152
Feed & crop expense/cwt. milk	\$ _____	\$ 4.73	\$ 4.25
Forage dry matter harvested/cow (tons)	_____	7.9	7.3
Acres of forage per cow	_____	2.5	2.5
Total tillable acres per cow	_____	3.3	3.1
Fertilizer and lime/tillable acre	\$ _____	\$ 31	\$ 29
Heifers as % of cow numbers	_____ %	78%	74%

### Machinery, Labor and Miscellaneous Costs

Labor and machinery operate as a team on a modern farm. The challenge is to obtain an efficient combination that will result in a reasonable cost per unit of output.

#### MACHINERY & LABOR COSTS Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979
<u>Machinery:</u> Depreciation <sup>1/</sup>	\$ _____	\$ 9,192	\$ 7,140
Interest <sup>2/</sup>	_____	5,196	4,885
Operating expense <sup>3/</sup>	_____	13,635	11,621
Total machinery	\$ _____	\$ 28,023	\$ 23,646
Per cow	_____	431	342
Per tillable acre	_____	129	112
<u>Labor:</u> Value of operators <sup>4/</sup>	\$ _____	\$ 12,000	\$ 10,400
Unpaid family <sup>5/</sup>	_____	2,500	1,700
Hired	_____	9,561	7,790
Total labor	\$ _____	\$ 24,061	\$ 19,890
Per cow	_____	370	288
Per cwt. milk	_____	2.65	2.05
Labor & machinery costs/cwt. milk	\$ _____	\$ 5.74	\$ 4.51

<sup>1/</sup> Regular depreciation from last years tax plus 10 percent of new purchases.

<sup>2/</sup> Nine percent of average machinery investment.

<sup>3/</sup> Machine hire, repairs, farm share auto expense, and gas and oil.

<sup>4/</sup> \$750 per month.

<sup>5/</sup> \$500 per month.

#### MISCELLANEOUS COST CONTROL MEASURES Cortland County Dairy Farms

Item	My Farm	Average	
		1980	1979
Livestock expense per cow	\$ _____	\$ 149	\$ 158
Real estate expense per cow	\$ _____	\$ 171	\$ 148
Total farm expense per cow	\$ _____	\$2,155	\$2,032

Livestock expense per cow includes breeding fees, veterinary and medicine, milk marketing, dairy supplies, bedding and DHIC fees. Real estate expenses include repairs, taxes, insurance and rent.

## YEARLY CASH FLOW PLANNING &amp; ANALYSIS

Completing the worksheet below can be a valuable tool in planning expansions and for setting goals for improving the farm business. The average is from 16 Cortland County farms in 1980.

Item	Average Per Cow	My Farm,		Cows
		Per Cow	Total	Goal
<b>CASH RECEIPTS</b>				
Milk sales	\$ 1,780	\$ _____	\$ _____	\$ _____
Crop sales	78	_____	_____	_____
Dairy cattle	185	_____	_____	_____
Calves & other livestock	55	_____	_____	_____
Other	47	_____	_____	_____
Total Cash Receipts	\$ 2,145	\$ _____	\$ _____	\$ _____
<b>CASH EXPENSES</b>				
Hired labor	147	\$ _____	\$ _____	\$ _____
Dairy concentrate	475	_____	_____	_____
Hay and other	16	_____	_____	_____
Machine hire	32	_____	_____	_____
Machine repair & auto expense	97	_____	_____	_____
Gas & oil	80	_____	_____	_____
Replacement livestock	36	_____	_____	_____
Breeding fees	28	_____	_____	_____
Vet & medicine	44	_____	_____	_____
Milk marketing (ADA, Dues)	33	_____	_____	_____
Other livestock expense	45	_____	_____	_____
Fertilizer & lime	104	_____	_____	_____
Seeds & plants	53	_____	_____	_____
Spray & other	28	_____	_____	_____
Land, bldg. fence repair (owner)	40	_____	_____	_____
Taxes (owner)	49	_____	_____	_____
Insurance (owner)	38	_____	_____	_____
Rent (owner)	69	_____	_____	_____
Telephone (farm share)	6	_____	_____	_____
Electricity (farm share)	36	_____	_____	_____
Miscellaneous	16	_____	_____	_____
Total Cash Expenses <sup>1/</sup>	\$ 1,472	\$ _____	\$ _____	\$ _____
Total Cash Receipts	\$ 2,145	_____	_____	_____
Total Cash Expenses <sup>1/</sup>	- 1,472	- _____	- _____	- _____
Net Cash Flow	\$ 673	\$ _____	\$ _____	\$ _____
Cash Family Living Expense <sup>2/</sup>	- 264	- _____	- _____	- _____
Amount Left for Debt Service, Capital Investment & Retained Earnings	\$ 409	\$ _____	\$ _____	\$ _____
Scheduled Debt Service	- 324	- _____	- _____	- _____
Available for Capital Investment	\$ 85	\$ _____	\$ _____	\$ _____
Planned Expansion Livestock Purch.		_____	_____	_____
Planned Equipment Purchase		_____	_____	_____
Borrowed or Equity Funds Needed		\$ _____	\$ _____	\$ _____

<sup>1/</sup> Interest paid excluded from cash expenses as it is contained in Scheduled Debt Service.

<sup>2/</sup> Estimated: \$8,700 per family and four percent of cash receipts.

# PROGRESS OF THE FARM BUSINESS

Comparing your business with that of other farmers is one part of a business checkup. It is equally important to compare your current year's business with that of earlier years to show the progress you are making, and to plan ahead, by setting business targets or goals.

Item	1978	1979	1980	1981 Goal
<u>Size of Business</u>				
Number of cows	_____	_____	_____	_____
Number of heifers	_____	_____	_____	_____
Pounds of milk sold	_____	_____	_____	_____
Worker equivalent	_____	_____	_____	_____
Total tillable acres	_____	_____	_____	_____
<u>Rates of Production</u>				
Lbs. milk sold per cow	_____	_____	_____	_____
Tons hay D.M. per acre	_____	_____	_____	_____
Tons corn silage/acre	_____	_____	_____	_____
<u>Labor Efficiency</u>				
Cows per worker	_____	_____	_____	_____
Lbs. milk sold per worker	_____	_____	_____	_____
<u>Cost Control</u>				
Purch. feed as % of milk sold	\$ _____	\$ _____	\$ _____	\$ _____
Feed & crop exp./cwt. milk	\$ _____	\$ _____	\$ _____	\$ _____
Labor & mach. cost/cow	\$ _____	\$ _____	\$ _____	\$ _____
<u>Capital Efficiency</u>				
Farm capital per cow	\$ _____	\$ _____	\$ _____	\$ _____
Capital turnover	\$ _____	\$ _____	\$ _____	\$ _____
<u>Price</u>				
Price per cwt. milk	\$ _____	\$ _____	\$ _____	\$ _____
<u>Financial Summary</u>				
Net cash farm income	\$ _____	\$ _____	\$ _____	\$ _____
Labor & mgt. inc./oper.	\$ _____	\$ _____	\$ _____	\$ _____
Farm net worth	\$ _____	\$ _____	\$ _____	\$ _____
Rate of return on equity	_____ %	_____ %	_____ %	_____ %
Percent equity	_____ %	_____ %	_____ %	_____ %
Farm debt per cow	_____	_____	_____	_____

### MEASURE YOUR PERFORMANCE

After you have entered your farm business data on the pages of this workbook, categorize your farm business performance into three groups. List the strong points, those which indicate average performance and those areas which need improvement. Your business factors that exceed the regional average should be listed as strong points, factors that are close to the regional average should be identified as average, and factors that are below average should be listed under need improvement.

The Farm Business Chart on the next page can also be used to identify strengths and weaknesses by comparing your business with a large number of New York dairy farms summarized for the previous year. It is recommended that you use more than one standard for comparison when analyzing the farm business.

STRONG POINTS:

AVERAGE:

_____	_____
_____	_____
_____	_____
_____	_____

NEED IMPROVEMENT:

_____
_____
_____

After identifying opportunities for improvement, consider alternative ways of solving each problem. List each alternative and analyze the consequences in detail. Extension conducts many schools, meetings, and provides many printed materials that should be of assistance. Local agribusinesses often provide helpful information and assistance. Seek out information related to the problem under consideration.

Another way to measure your management performance is to compare your current business factors with those from previous years. Page 17 is provided for this purpose. Answering the following questions may also help evaluate your farm business progress.

- 1) Do livestock numbers, labor force and crop acres make up a well balanced unit of resources?
- 2) Have rates of production shown a steady increase?
- 3) When will milk output per worker reach 600,000 pounds?
- 4) Have increases in costs been limited to the effects of inflation?
- 5) Is growth in net worth keeping up with increased capital investment?
- 6) Is net cash farm income increasing fast enough to meet your needs?
- 7) Have you reached the business goals set for 1980 and have you set new goals for 1981?