

DAIRY FARM BUSINESS SUMMARY

April 1983

A.E. Ext. 83-16



**COLUMBIA AND DUTCHESS
COUNTIES
1982**

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DAIRY FARM BUSINESS SUMMARY

INTRODUCTION

Dairyfarmers throughout New York State submit business records for summarization and analysis through Cooperative Extension's Farm Business Management Program. Each participating farmer receives an individual farm report containing all the management information found in this publication. Averages from a compilation of the individual farm reports are published in several regional summaries and in one statewide summary.

Program Objectives

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.

The year ahead will bring increased economic pressures on the dairy farming industry. Milk prices are expected to be down three to five percent while feed and other production costs will increase. Dairyfarmers must continue to place emphasis on operating efficiency and cost control in order to maintain adequate farm incomes.

Changes in Computation

The interest charge made for using equity capital in the farm business has been reduced to five percent. This real rate of interest is intended to reflect the long time average rate of return that a farmer might expect to earn in investments with comparable risk to farm businesses in an economy with little or no inflation. Labor and management income does not include appreciation of farm assets, therefore, appreciation has been excluded in determining the use charge for equity capital.

Renting and leasing farm assets is becoming more common on New York dairy farms. Rental and lease payments are included as cash farm expenses. The discounted values of future financial lease payments have been added to the farm balance sheet to reflect the farmer's committed liability as well as the eventual value of the asset.

This summary was prepared by Stuart F. Smith, Department of Agricultural Economics, New York State College of Agriculture and Life Sciences, Cornell University, in cooperation with Cooperative Extension Agents Steve Hadcock, Ken Piester, Dave Tetor, and the Hudson Valley Farm Credit Association.

SUMMARY OF THE FARM BUSINESS

Business Characteristics

The combination of resources and management techniques used to put resources to work is an important part of planning. 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
38 Columbia-Dutchess County Dairy Farms, 1982

Type of Business	Number	Business Records	Number	Dairy Records	Number
Proprietorship	25	CAMIS	6	D.H.I.C.	35
Partnership	10	Account Book	2	Owner Sampler	0
Corporation	3	Agrifax	26	Other	1
		Farm Bureau	1	None	2
Owner	30	Other	3		
Renter	8				
Barn Type	Number	Milking System	Number		Number
Stanchion	24	Bucket & Carry	0	Herringbone	11
Freestall	13	Dumping Station	2	Other Parlor	4
Other	1	Pipeline	21		
Labor Force	My Farm	Average	Land Use	My Farm	Average
Operator 1.	_____	mo. 12	Total acres owned	_____	277
2.	_____	mo. 4	Total acres rented	_____	165
3.	_____	mo. 1	Total tillable acres	_____	265
Family paid	_____	mo. 2	Tillable acres rented	_____	132
Family unpaid	_____	mo. 2			
Hired	_____	mo. 21	Number of Cows	My Farm	Average
Total	_____	mo. 42			
Age of operator(s) 1.	_____	yrs. 49	Beginning of year	_____	87
2.	_____	yrs. 42	End of year	_____	90
3.	_____	yrs. 31	Average for year	_____	88

Capital Investment-Farm Inventory represents the market value of resources committed to the farm business at the beginning and end of the year. Increases in inventory occur with herd expansion, new machinery, and building additions and appreciation of land, buildings and livestock.

CAPITAL INVESTMENT - FARM INVENTORY
38 Columbia-Dutchess County Dairy Farms, 1982

Item	My Farm		Average	
	1/1/82	1/1/83	1/1/82	1/1/83
Livestock	\$ _____	\$ _____	\$118,095	\$117,098
Feed & supplies	_____	_____	43,113	42,173
Machinery & equipment	_____	_____	79,715	82,848
Land & buildings	_____	_____	218,047	233,428
TOTAL	\$ _____	\$ _____	\$458,970	\$475,547

Inventory Accounting

The value of the dairy herd is influenced by market prices, herd quality and quantity. Here the changes in market value caused by inflationary or deflationary price changes, are separated from changes in inventory caused by changes in herd quality and quantity.

CHANGE IN LIVESTOCK INVENTORY
38 Columbia-Dutchess County Dairy Farms, 1982

Item	My Farm	Average
End of year market value	\$ _____	\$117,098
less end at beginning prices	- _____	<u>-119,871</u>
Change due to price	\$ _____	\$-2,773
End inventory at beginning prices	\$ _____	\$119,871
less beginning of year inventory	- _____	<u>-118,095</u>
Change due to quality & quantity	\$ _____	\$ 1,776

Machinery and real estate inventories, based on current market values, include a use depreciation charge and are balanced by the residual called appreciation.

MACHINERY AND EQUIPMENT INVENTORY
38 Columbia-Dutchess County Dairy Farms, 1982

Item	My Farm	Average
End of year market value	(1)\$ _____	\$82,848
Beginning market value	\$ _____	\$ 79,715
Plus machinery purchased	+ _____	+ 12,158
Less machinery sold	- _____	- 306
Less depreciation	- _____	<u>- 12,561</u>
Net end investment	(2)\$ _____	\$79,006
APPRECIATION (1 minus 2)	\$ _____	\$ 3,842

The change in real estate value is also affected by lost capital which is the amount of a new building investment that does not increase the value of the farm.

REAL ESTATE INVENTORY CALCULATIONS
38 Columbia-Dutchess County Dairy Farms, 1982

Item	My Farm	Average
End of year market value	(1)\$ _____	\$233,428
Beginning market value	\$ _____	\$218,047
Cost of new real estate	\$ _____	\$19,511
Less lost capital	- _____	<u>- 2,367</u>
Value of new added	+ _____	+ 17,144
Less building depreciation	- _____	- 5,224
Less real estate sold	- _____	- 0
Net end investment	(2)\$ _____	\$229,967
APPRECIATION (1 minus 2)	\$ _____	\$ 3,461

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 occur when farm products and livestock are sold or services are performed and payment is received during the year. Noncash receipts do not result from sales, but are due to appreciation in value or increases in physical quantities of inventories that occurred during the year. Most of these items could be readily transformed into cash.

FARM RECEIPTS 38 Columbia-Dutchess County Dairy Farms, 1982

Item	My Farm	Per Farm	Per Cow
CASH RECEIPTS			
Milk sales	\$ _____	\$191,156	\$2,172
Crop sales	_____	2,596	30
Dairy cattle sold	_____	16,514	188
Calves & other livestock sales	_____	1,746	20
Gas tax refunds	_____	120	1
Government payments	_____	195	2
Custom machine work	_____	356	4
Other	_____	2,191	25
Total Cash Receipts	\$ _____	\$214,874	\$2,442
NONCASH RECEIPTS			
Increase in livestock inventory ¹	_____	1,776	20
Increase in feed & supplies	_____	0	0
TOTAL FARM RECEIPTS			
EXCLUDING APPRECIATION	\$ _____	\$216,650	\$2,462
Livestock appreciation ²	_____	- 2,773	- 32
Machinery appreciation ³	_____	3,842	44
Real estate appreciation ³	_____	3,461	39
TOTAL FARM RECEIPTS	\$ _____	\$221,180	\$2,513

¹The increase in herd market value attributed to a change in numbers and/or a definite change in herd quality.

²The increase in herd market value, caused by inflationary price increase.

³Defined on page 3.

Income Analysis provides a means of examining the income producing capability of the farm business.

INCOME ANALYSIS Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Average price/cwt. milk sold	\$ _____	\$14.52	\$14.46
Milk and cattle sales per cow	_____	\$2,380	\$2,317
Total cash receipts/worker	_____	\$61,393	\$63,138

Expenses

All farm expenses, cash operating and overhead, are summarized below.

FARM EXPENSES
38 Columbia-Dutchess County Dairy Farms, 1982

Item	My Farm	Per Farm	Per Cow
<u>Hired Labor</u>	\$ _____	\$ 22,957	\$ 261
<u>Feed</u>			
Dairy concentrate	_____	39,718	451
Hay and other	_____	2,029	23
<u>Machinery</u>			
Machine hire, rent and lease	_____	1,577	18
Machinery repairs	_____	9,601	109
Auto expense (farm share)	_____	105	1
Gas and oil	_____	8,843	100
<u>Livestock</u>			
Replacement livestock	_____	2,062	23
Breeding fees	_____	3,376	38
Veterinary and medicine	_____	3,996	45
Milk marketing	_____	10,819	123
Cattle lease	_____	165	2
Other livestock expense	_____	9,539	108
<u>Crops</u>			
Fertilizer & lime	_____	10,443	119
Seeds and plants	_____	2,817	32
Spray, other crop expense	_____	2,862	33
<u>Real Estate</u>			
Land, building, fence repair	_____	3,491	40
Taxes	_____	4,778	54
Insurance	_____	3,729	42
Rent and lease	_____	7,228	82
<u>Other</u>			
Telephone (farm share)	_____	629	7
Electricity (farm share)	_____	4,396	50
Interest paid	_____	18,352	209
Miscellaneous	_____	4,214	49
Total Cash Expenses	\$ _____	\$177,726	\$2,019
Decrease in livestock and/or feed	\$ _____	940	11
Expansion livestock	_____	1,617	18
Machinery depreciation	_____	12,561	143
Building depreciation	_____	5,224	59
Unpaid family labor @ \$500/month	_____	776	9
TOTAL FARM EXPENSES EXCLUDING INTEREST ON EQUITY CAPITAL	\$ _____	\$198,844	\$2,259
Interest on equity capital @ 5%	_____	16,807	191
TOTAL FARM EXPENSES	\$ _____	\$215,651	\$2,450

Farm Business Profitability

The results of management are reflected in the net return from the business. Four common ways to measure the returns from a farm business are reported here.

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 grain are expected to change significantly.

NET CASH FARM INCOME Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Cash Farm Receipts	\$ _____	\$214,874	\$220,983
Cash Farm Expenses	_____	<u>177,726</u>	<u>182,242</u>
NET CASH FARM INCOME	\$ _____	\$ 37,148	\$ 38,741

Labor and management income is the return to the operator for his or her labor and management input into the business. A five 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 the long term average rate of return that a farmer might expect to earn in investments with comparable risk to farm businesses in an economy with little or no inflation. Labor and management income is the measure used most commonly when comparing farm businesses. Appreciation in livestock, machinery and real estate inventories is excluded from labor and management income.

LABOR AND MANAGEMENT INCOME Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Total farm receipts excluding appreciation	\$ _____	\$216,650	\$228,158
Total farm expenses	_____	<u>215,651</u>	<u>221,264</u>
LABOR & MANAGEMENT INCOME	\$ _____	\$ 999	\$ 6,894
Full-time operator-manager equivalents	s _____	1.45	1.44
LABOR & MANAGEMENT INCOME PER OPERATOR-MANAGER	\$ _____	\$ 689	\$ 4,788

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
Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Total farm receipts	\$ _____	\$221,180	\$238,277
Total farm expenses excluding interest on equity capital	_____	198,844	203,075
LABOR, MANAGEMENT AND OWNERSHIP INCOME PER FARM	\$ _____	\$ 22,336	\$ 35,202
Full-time operator-manager equiv.	_____	1.45	1.44
LABOR, MANAGEMENT AND OWNERSHIP INCOME PER OPERATOR-MANAGER	\$ _____	\$ 15,404	\$ 24,446

Return on equity capital measures the net profit remaining to the farmer's owned or equity capital after earnings have been allocated to the owner-operator's labor and management. The earnings or amount of gross profit allocated to labor and management is the opportunity cost or value of operator's labor and management estimated by the cooperators. Return on equity capital is computed including appreciation in the table below.

RETURN ON EQUITY CAPITAL
Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Labor, management & ownership income per farm	\$ _____	\$22,336	\$35,202
Less value of operator's labor & management	_____	20,529	20,358
Return on equity capital	\$ _____	\$ 1,807	\$14,844
RATE OF RETURN INCLUDING APPRECIATION	_____ %	0.5%	4.1%
RATE OF RETURN EXCLUDING APPRECIATION	_____ %	-0.8%	1.3%

The rate of return on equity capital is computed by dividing the amount returned by farm net worth or equity capital. It is shown with and without appreciation included.

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. Financial lease obligations are included in the balance sheet. The present value of all future payments is listed as a liability since the farmer is committed to make the payments. The present values are also listed as assets, representing the future value the item has to the farmer.

FARM FAMILY FINANCIAL SITUATION 38 Columbia-Dutchess County Dairy Farms, January 1, 1983

Item	My Farm	Average
<u>Assets</u>		
Livestock	\$ _____	\$117,098
(includes discounted lease pymts)		(0)
Feed and supplies	_____	42,173
Machinery and equipment	_____	82,930
(includes discounted lease pymts)		(82)
Land and buildings	_____	240,297
(includes discounted lease pymts)		(6,869)
Co-op investments	_____	17,608
Accounts receivable	_____	19,412
Cash and checking accounts	_____	4,596
Total Farm Assets	\$ _____	\$524,114
Savings accounts	\$ _____	\$ 5,467
Cash value life insurance	_____	1,968
Stocks and bonds	_____	4,126
Nonfarm real estate	_____	2,655
Auto (personal share)	_____	263
All Other	_____	2,772
TOTAL FARM & NONFARM ASSETS	\$ _____	\$541,365
<u>Liabilities</u>		
Long term	\$ _____	\$117,119
Intermediate	_____	53,589
Financial lease	_____	6,951
Short term	_____	4,188
Other farm accounts	_____	6,128
Total Farm Liabilities	\$ _____	\$187,975
Nonfarm Liabilities	_____	816
TOTAL LIABILITIES	\$ _____	\$188,791
FARM NET WORTH (EQUITY CAPITAL)	\$ _____	\$336,139
FAMILY NET WORTH	\$ _____	\$352,574

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. Interest paid and income from off-farm work are added to net cash farm income in the following table 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.

Some farms in the group have scheduled debt payments exceeding 50 percent of the milk receipts. Committing this much cash inflow to debt payments creates a serious cash flow problem.

FARM FAMILY FINANCIAL SITUATION
38 Columbia-Dutchess County Dairy Farms, January 1, 1983

Item	My Farm	Average
<u>Payment Ability</u>		
Net cash farm income	\$ _____	\$37,148
Plus interest paid	_____	18,352
Plus off-farm income	_____	<u>2,172</u>
CASH AVAILABLE FOR DEBT SERVICE AND LIVING	\$ _____	\$57,672
Less family living expenses*	_____	<u>23,384</u>
CASH AVAIL. FOR DEBT PAYMENT & CAPITAL PURCHASES	\$ _____	\$34,288
<u>Scheduled Annual Debt Payments</u>		
Long term	\$ _____	\$13,323
Intermediate	_____	18,879
Short term	_____	3,959
Other farm accounts	_____	<u>1,768</u>
TOTAL FARM DEBT PAYMENTS	\$ _____	\$37,929
Nonfarm debt payments	_____	<u>0</u>
TOTAL PAYMENTS PLANNED 1983	\$ _____	\$37,929
<u>Commitment & Measures of Debt Equity Position</u>		
Farm debt pymts. planned/cow	\$ _____	\$421
Farm debt pymts. as % milk sales	_____ %	20%
Farm debt/asset ratio-long term	_____	0.49
Farm debt/asset ratio-intermediate & short term	_____	0.23
Farm debt per cow	\$ _____	\$2,089
Percent equity (total)	_____ %	65%

*Estimated as \$10,200 per family plus four percent of cash farm receipts.

ANALYSIS OF THE FARM BUSINESS

When analyzing a farm business, a manager must consider measures or factors that reflect the performance of specified parts of the farm business. To do this one must look at factors of size, rates of production, labor efficiency, capital efficiency and cost control. These measures and factors are detailed on the following pages.

Size of Business

Studies have shown that, in general, larger farms are more profitable than smaller farms. 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 earn a profit. Profitable farm businesses with good management have the ability and incentive to become larger. Large farms are not necessarily more profitable however, and size increases are only profitable with good management.

MEASURES OF SIZE OF BUSINESS
Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Number of cows	_____	88	92
Number of heifers	_____	67	72
Pounds of milk sold	_____	1,316,400	1,334,200
Worker equivalent	_____	3.50	3.50
Total work units	_____	965	1,015
Total tillable acres	_____	265	279

In the table below, the 553 New York farms for 1981 are sorted by number of cows and the labor and management 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
553 New York Dairy Farms, 1981

Number of Cows	Ave. Number of Cows	Number of Farms	Percent of Farms	Labor & Mgmt. Income Per Operator
Under 40	34	82	16	-\$ 4,300
40 to 54	47	130	25	- 6,077
55 to 69	61	110	21	- 1,204
70 to 84	77	74	13	- 5,284
85 to 99	90	38	6	- 3,648
100 to 114	106	26	4	- 5,677
115 to 129	121	25	4	- 15,635
130 to 149	139	16	3	- 11,780
150 to 179	163	23	4	- 4,577
180 to 199	187	8	2	3,497
200 & over	267	21	2	11,178

Rates of Production

Crop yields and rates of animal production are factors that have a significant impact on farm incomes. Here is a description of crops grown and yields along with the pounds of milk sold per cow.

CROP YIELDS & MILK SOLD PER COW 38 Columbia-Dutchess County Dairy Farms, 1982

Crop	My Farm		Average of Farms Reporting		
	Acres	Yield	Farms	Acres	Yield/Acre
Dry hay	_____		36	(combined below)	
Hay crop silage	_____		16	(combined below)	
Total hay crops	_____	_____	37	134	2.7 tons D.M.
Corn silage	_____	_____	36	75	13.3 tons
Other forage	_____	_____	2	43	0.7 tons D.M.
Total forage crops	_____	_____	37	209	3.3 tons D.M.
Grain corn	_____	_____	25	72	96.2 bushels
Oats	_____	_____	7	15	47.6 bushels
Wheat	_____	_____	0		
Other crops	_____	_____	3	16	
Tillable pasture	_____		8	16	
Idle tillable land	_____		9	29	

Milk sold per cow	_____			14,959 pounds	

Tons of dry matter per acre from 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 553 New York Dairy Farms, 1981

Pounds of Milk Sold Per Cow	Number of Farms	Number of Cows	Labor & Mgmt. Income/Oper.	Labor, Mgmt., & Owner-ship Income/Operator
Under 11,000	50	50	-\$ 8,642	\$ 5,165
11,000 to 11,999	30	67	- 5,687	13,593
12,000 to 12,999	48	76	- 17,052	9,159
13,000 to 13,999	96	78	- 5,925	20,818
14,000 to 14,999	117	83	- 6,178	26,893
15,000 to 15,999	109	89	302	32,468
16,000 to 16,999	52	82	2,142	30,451
17,000 to 17,999	28	78	1,716	27,606
18,000 & over	23	89	1,861	45,290

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 Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Worker equivalent	_____	3.5	3.5
Cows per worker	_____	25	26
Lbs. milk sold per worker	_____	376,114	381,200
Work units per worker	_____	276	290

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 553 New York Dairy Farms, 1981

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Lbs. Milk Per Cow	Labor & Mgmt. Income Per Operator	Labor, Mgmt., & Ownership Income Per Operator
Under 250,000	68	44	11,609	-\$9,348	\$ 5,325
250,000 to 299,999	58	53	13,185	- 7,361	12,436
300,000 to 349,999	77	62	14,060	- 6,337	19,102
350,000 to 399,999	91	67	14,178	- 3,738	19,365
400,000 to 449,000	81	77	14,849	- 1,350	24,137
450,000 to 499,999	60	93	14,799	- 5,635	30,006
500,000 to 599,999	79	108	15,500	1,741	39,315
600,000 & over	39	158	15,461	- 3,751	54,391

Capital Efficiency

Capital is a key resource in dairy farm businesses 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
Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Farm capital per worker	\$ _____	\$135,871	\$140,852
Farm capital per cow	\$ _____	5,284	5,301
Machinery investment per cow	\$ _____	921	921
Machinery per tillable acre	\$ _____	313	307
Land & buildings per cow	\$ _____	2,594	2,549
Land & buildings/tillable acre owned	\$ _____	1,381	1,912
Capital turnover	_____ yrs.	2.2 yrs.	2.1 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
553 New York Dairy Farms, 1981

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	9	111	\$3,369	\$104,662	\$ 22,725
1.5 to 1.99	87	114	4,565	151,288	8,817
2.0 to 2.49	183	82	5,406	167,094	-2,990
2.5 to 2.99	143	67	6,262	172,843	-6,860
3.0 to 3.49	73	69	7,014	190,300	-11,341
3.5 & over	58	52	7,344	182,757	-18,611

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 should be examined in detail. 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. 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 least expensive source. For example, is the lowest cost source of protein, urea, soybean meal or a commercial protein? Help in answering these questions can come from budgeting, from agribusiness people selling feeds, and from dairy and management extension agents. Extension is supporting computerized decision aids to assist in answering these questions including the NEWPLAN program, Least-Cost Balanced Dairy Rations, and the dairy ration analyzers.

The size and productivity of the cropping program has an important influence on the amount 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 Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Dairy concentrate purchased per cow	\$ _____	\$451	\$495
Dairy concentrate purchased per cwt. of milk sold	\$ _____	\$3.02	\$3.42
Percent dairy concentrate is of milk receipts	_____ %	21%	24%
Crop expense per cow	\$ _____	\$183	\$194
Feed & crop expense/cwt. milk	\$ _____	\$4.40	\$4.75
Forage dry matter harv./cow (tons)	_____	7.8	7.9
Acres of forage per cow	_____	2.4	2.2
Total tillable acres per cow	_____	3.0	3.0
Fertilizer and lime/tillable acre	\$ _____	\$39	\$40
Heifers as % of cow numbers	_____ %	76%	78%

Machinery, Labor and Miscellaneous Costs

Labor and machinery operate as a team on a dairy farm. The challenge is to obtain an efficient combination of these two inputs that will result in a low cost per unit of output.

MACHINERY AND LABOR COSTS Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
<u>Machinery:</u> Depreciation ¹	\$ _____	\$12,561	\$11,842
Interest ²	_____	4,064	3,598
Operating expense ³	_____	20,126	19,129
Total machinery	\$ _____	\$36,751	\$34,569
Per cow	_____	\$418	\$376
<u>Labor:</u> Value of operators ⁴	\$ _____	\$12,474	\$13,000
Unpaid family ⁵	_____	776	911
Hired	_____	22,957	21,779
Total labor	\$ _____	\$36,207	\$35,690
Per cow	_____	\$411	\$388
Per cwt. milk	_____	\$2.75	\$2.68
Labor & machinery costs per cow	_____	\$829	\$764
Labor & machinery costs/cwt. milk	\$ _____	\$5.54	\$5.26

¹Regular depreciation from last year's tax plus 10 percent of new purchases.

²Five percent of average machinery investment.

³Machine hire, repairs, farm share auto expense, and gas and oil.

⁴\$750 per month.

⁵\$500 per month.

MISCELLANEOUS COST CONTROL MEASURES Columbia-Dutchess County Dairy Farms, 1982 & 1981

Item	My Farm	Average of 38 Farms 1982	Average of 45 Farms 1981
Livestock expense per cow	\$ _____	\$317	\$289
Real estate expense per cow	\$ _____	\$218	\$204
Total farm expense per cow	\$ _____	\$2,450	\$2,563

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 & ANALYSIS

This worksheet is a valuable tool in financial planning, expansions and for setting goals for improving the farm business. The average is from 38 Columbia-Dutchess County dairy farms.

Item	Average	My Farm,		Cows
	Per Cow	Per Cow	Total	Goal
CASH RECEIPTS				
Milk sales	\$2,172	\$ _____	\$ _____	\$ _____
Crop sales	30	_____	_____	_____
Dairy cattle	188	_____	_____	_____
Calves & other livestock	20	_____	_____	_____
Other	32	_____	_____	_____
Total Cash Receipts	\$2,442	\$ _____	\$ _____	\$ _____
CASH EXPENSES				
Hired labor	\$ 261	\$ _____	\$ _____	\$ _____
Dairy concentrate	451	_____	_____	_____
Hay and other	23	_____	_____	_____
Machine hire	18	_____	_____	_____
Machine repair & auto expense	110	_____	_____	_____
Gas & oil	100	_____	_____	_____
Replacement livestock	23	_____	_____	_____
Breeding fees	38	_____	_____	_____
Vet & medicine	45	_____	_____	_____
Milk marketing (ADA, Dues)	123	_____	_____	_____
Other livestock exp. (incl. \$2 lease)	110	_____	_____	_____
Fertilizer & lime	119	_____	_____	_____
Seeds & plants	32	_____	_____	_____
Spray & other	33	_____	_____	_____
Land, bldg. fence repair	40	_____	_____	_____
Taxes	54	_____	_____	_____
Insurance	42	_____	_____	_____
Rent	82	_____	_____	_____
Telephone & elec. (farm share)	57	_____	_____	_____
Miscellaneous	50	_____	_____	_____
Total Cash Expenses ¹	\$1,811	\$ _____	\$ _____	\$ _____
Total Cash Receipts	\$2,442	_____	_____	_____
Total Cash Expenses ¹	-1,811	- _____	- _____	- _____
Net Cash Flow	\$ 631	\$ _____	\$ _____	\$ _____
Cash Family Living Expense ²	- 266	- _____	- _____	- _____
Amount Left for Debt Service,				
Capital Investment &				
Retained Earnings	\$ 365	\$ _____	\$ _____	\$ _____
Scheduled Debt Service	- 421	- _____	- _____	- _____
Available for Capital Investment	\$ (56)	\$ _____	\$ _____	\$ _____
Planned Expansion Livestock Purch.		_____	_____	_____
Planned Equipment Purchase		_____	_____	_____
Borrowed or Equity Funds Needed		\$ _____	\$ _____	\$ _____

¹Interest paid excluded for it is contained in Scheduled Debt Service.

²Estimated: \$10,200 per family and four percent of cash farm 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	1980	1981	1982	1983 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 per acre	_____	_____	_____	_____
<u>Labor Efficiency</u>				
Cows per worker	_____	_____	_____	_____
Lbs. milk sold per worker	_____	_____	_____	_____
<u>Cost Control</u>				
Purch. feed as % milk sold	\$ _____	\$ _____	\$ _____	\$ _____
Feed & crop exp./cwt. milk	\$ _____	\$ _____	\$ _____	\$ _____
Labor & mach. cost per 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 & mgmt. inc./oper.	\$ _____	\$ _____	\$ _____	\$ _____
Farm net worth	\$ _____	\$ _____	\$ _____	\$ _____
Rate of return on equity	_____ %	_____ %	_____ %	_____ %
Percent equity	_____ %	_____ %	_____ %	_____ %
Farm debt per cow	\$ _____	\$ _____	\$ _____	\$ _____

MANAGEMENT PERFORMANCE OF STATEWIDE COOPERATORS

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 553 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. 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.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
553 New York Dairy Farms, 1981

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons D.M./ Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
5.8	204	3,081,100	18,100	4.6	21	45	662,000
3.9	121	1,795,500	16,400	3.6	19	36	538,000
3.3	91	1,364,500	15,700	3.1	17	33	482,000
3.0	77	1,111,800	15,200	2.8	16	30	442,000
2.6	67	960,800	14,600	2.6	15	28	408,000
2.3	58	850,000	14,200	2.3	15	26	377,000
2.0	52	747,000	13,700	2.1	13	24	346,000
1.9	47	641,000	13,100	1.9	12	22	310,000
1.6	40	530,000	12,100	1.7	11	20	267,000
1.3	32	381,000	9,800	1.2	7	16	194,000

Feed Bought Per Cow	% Feed is of Milk Receipts	Machinery Cost Per Cow	Labor & Machinery Cost Per Cow	Feed and Crop Expense Per Cwt. Milk
\$197	11%	\$251	\$ 520	\$2.66
313	17	334	632	3.54
387	20	373	688	3.94
440	23	408	739	4.24
485	25	437	775	4.50
533	28	469	815	4.79
583	30	513	859	5.06
635	33	552	924	5.35
699	35	611	1,002	5.75
834	40	762	1,199	6.59

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

FINANCIAL ANALYSIS CHART
553 New York Dairy Farms, 1981

Liquidity (Repayment)				
Debt Payments Per Cow	Available For Debt Service Per Cow	Cash Flow Coverage Ratio ¹	Debt Payments as Percent of Milk Sales ²	Debt Per Cow
\$ 36	\$859	11.81	02	\$ 109
191	680	2.56	10	736
279	594	1.60	14	1,167
352	526	1.21	19	1,572
416	458	.98	23	1,989
447	388	.82	26	2,344
542	327	.66	30	2,724
627	273	.53	35	3,190
757	185	.36	42	3,763
1,039	- 34	-.10	59	4,876

Solvency				Profitability	
Leverage Ratio ³	Percent Equity	Debt/Asset Ratio		Percentage Rate of Return on	
		Current & Intermediate ⁴	Long Term ⁵	Equity ⁶	Investment ⁷
.02	98	.00	.00	35	22
.14	88	.04	.07	21	16
.26	79	.09	.18	17	14
.38	72	.16	.33	14	12
.54	65	.22	.43	12	11
.70	59	.29	.51	09	09
.87	53	.35	.60	07	08
1.10	47	.43	.70	04	06
1.57	39	.53	.83	01	04
3.67	24	.78	1.15	-14	-03

¹Amount available for debt service per dollar of annual scheduled debt payment, computed by dividing the available dollars by the annual payments planned. A high positive ratio indicates a strong capacity to repay debt.

²Amount of milk income committed to debt repayment, calculated by dividing scheduled debt payments by total milk sales (\$).

³Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

⁴All farm liabilities on less than 10 year repayment divided by all farm assets excluding real estate and other long term assets.

⁵Farm liabilities on 10 years or more repayment, including all real estate mortgages, divided by the value of farm real estate and other long term assets.

⁶Return on equity capital, including appreciation, divided by farm net worth.

⁷Return on all farm capital (no deduction for interest paid) divided by total farm assets.

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 page 18 and the Financial Analysis Chart on page 19 can 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 1982 and have you set new goals for 1983?