DAIRY FARM BUSINESS SUMMARY

April 1982 A.E. Ext. 82-13

COLUMBIA-DUTCHESS COUNTIES 1981

Stuart F. Smith

Department of Agricultural Economics
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, New York 14853

It is the policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age or handicap. The University is committed to the maintenance of affirmative action programs which will assure the continuation of such equality of opportunity.

COLUMBIA AND DUTCHESS COUNTIES

DAIRY FARM BUSINESS SUMMARY

TABLE OF CONTENTS

COLUMBIA AND DUTCHESS COUNTIES
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 ten regional summaries like this one and in one statewide summary. These publications are used by extension personnel, dairy farmers, and agribusiness people working in many segments of the dairy industry.

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 increasing size of 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.

The year ahead will not provide improved economic conditions for the dairy farming industry. Milk prices are expected to be down one-half to one percent while production costs may increase six to eight percent. To prevent a serious cost/price squeeze, dairyfarmers must place renewed emphasis on cost control and operating efficiency. The analysis section of this publication, beginning on page 10, is designed to help one determine the strength of productivity, efficiency and cost control on any individual dairy farm business. With careful determination of the business strengths and weaknesses and careful planning of next year's business operations, a dairyfarmer will be in a better position to manage through the challenges of the 1980's.

Business records for 45 farms in the Columbia-Dutchess County region are summarized in this publication.

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 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
45 Columbia-Dutchess County Dairy Farms, 1981

Type of Business	Number
Proprietorship	28
Partnership	14
Corporation	3
Owner	36
Renter	9

Business Records	Number
CAMIS	9
Account Book	2
Agrifax	31
Farm Bureau	1
Agway	0
Other	2

Dairy Records	Number
D.H.I.C.	40
Owner Sampler	1
Other	1
None	3

Barn Type	Number
Stanchion	27
Freestall	17
Other	1

Milking System	Number
Bucket & Carry	0
Dumping Station	3
Pipeline	23

	Number
Herringbone	14
Other Parlor	5

Labor Force	My Farm	Average
Operator 1.	_____ mo.	12
2.	_____ mo.	4
3.	_____ mo.	1
Family paid	_____ mo.	2
Family unpaid	_____ mo.	2
Hired	_____ mo.	21
Total	_____ mo.	42
Age of operator(s) 1.	_____ yrs.	47
2.	_____ yrs.	37
3.	_____ yrs.	29

Land Use	My Farm	Average
Total acres owned	_____	267
Total acres rented	_____	200
Total tillable acres	_____	279
Tillable acres rented	_____	155

Number of Cows	My Farm	Average
Beginning of year	_____	89
End of year	_____	93
Average for year	_____	92

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 occurs with herd expansion, new machinery, and building additions and appreciation of land, buildings and livestock.

CAPITAL INVESTMENT - FARM INVENTORY
45 Columbia-Dutchess County Dairy Farms, 1981

Item	My Farm 1/1/81	My Farm 1/1/82	Average 1/1/81	Average 1/1/82
Livestock	$_____	$_____	$124,069	$125,896
Feed & supplies	_____	_____	39,869	44,380
Machinery & equipment	_____	_____	77,892	85,662
Land & buildings*	_____	_____	222,367	237,044
TOTAL	$_____	$_____	$464,197	$492,982

*36 owners averaged $274,504 on 1/1/81 and $286,436 on 1/1/82.

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
45 Columbia-Dutchess County Dairy Farms, 1981

Item	My Farm	Average
End of year market value	(1)$_____	$85,662
Beginning market value	$_____	$77,892
Plus machinery purchased	+_____	+16,086
Less machinery sold	-_____	- 90
Less depreciation	-_____	-13,174
Net end investment	(2)$_____	$80,714
APPRECIATION (1 minus 2)	$_____	$ 4,948

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 is included as a farm expense. Real estate appreciation is the increase in value of real estate caused by demand and inflation.

REAL ESTATE INVENTORY CALCULATIONS
45 Columbia-Dutchess County Dairy Farms, 1981

Item	My Farm	Average
Beginning market value	$_____	$222,367
Cost of new real estate	$_____	$16,680
Less lost capital	-_____	- 2,327
Value of new added	+_____	+ 14,353
Less building depreciation	-_____	- 5,628
Less real estate sold	-_____	- 56
Total without appreciation	$_____	$231,036
Appreciation of beginning real estate	+_____	+ 6,008
End of year market value	$_____	$237,044

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 could be readily transformed into a cash receipt.

FARM RECEIPTS
45 Columbia-Dutchess County Dairy Farms, 1981

Item	My Farm	Ave: Amount	Percent
CASH RECEIPTS			
Milk sales	$_____	$192,914	87
Crop sales	_____	2,940	1
Dairy cattle sold	_____	16,613	8
Calves & other livestock sales	_____	3,606	2
Gas tax refunds	_____	716	<1
Government payments	_____	195	<1
Custom machine work	_____	302	<1
Other	_____	3,697	2
Total Cash Receipts	$_____	$220,983	100
NONCASH RECEIPTS			
Increase in livestock inventory[1]	_____	2,664	
Increase in feed & supplies	_____	4,511	
TOTAL FARM RECEIPTS EXCLUDING APPRECIATION	$_____	$228,158	
Livestock appreciation[2]	_____	- 837	
Machinery appreciation[3]	_____	4,948	
Real estate appreciation[3]	_____	6,008	
TOTAL FARM RECEIPTS	$_____	$238,277	

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

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

[3]Defined 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, 1981 & 1980

Item	My Farm	1981	1980
Average price/cwt. milk sold	$_____	$14.46	$13.49
Milk and cattle sales per cow	_____	$2,317	$2,229
Total cash receipts/worker	_____	$63,138	$59,795

Expenses

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

FARM EXPENSES
45 Columbia-Dutchess County Dairy Farms, 1981

Item	My Farm	Ave: Amount	Percent
Hired Labor	$_____	$ 21,779	12
Feed			
Dairy concentrate	_____	45,583	25
Hay and other	_____	1,280	1
Machinery			
Machine hire	_____	2,108	1
Machinery repairs	_____	10,558	6
Auto expense (farm share)	_____	133	<1
Gas & oil	_____	9,900	5
Livestock			
Replacement livestock	_____	2,559	1
Breeding fees	_____	3,106	2
Veterinary & medicine	_____	3,819	2
Milk marketing	_____	10,311	6
Other livestock expense	_____	9,366	5
Crops			
Fertilizer & lime	_____	11,102	6
Seeds & plants	_____	3,290	2
Spray, other crop expense	_____	3,445	2
Real Estate			
Land, building, fence repair	_____	3,245	2
Taxes	_____	4,876	3
Insurance	_____	4,096	2
Rent	_____	6,543	4
Other			
Telephone (farm share)	_____	529	<1
Electricity (farm share)	_____	4,415	2
Interest paid	_____	16,369	9
Miscellaneous	_____	3,830	2
Total Cash Expenses	$_____	$182,242	100
Decrease in livestock and/or feed	$_____	$ 0	
Expansion livestock	_____	1,120	
Machinery depreciation	_____	13,174	
Building depreciation	_____	5,628	
Unpaid family labor @ $500/month	_____	911	
TOTAL FARM EXPENSES EXCLUDING INT. ON EQUITY CAPITAL	$_____	$203,075	
Interest on equity capital @ 9%	_____	32,738	
TOTAL FARM EXPENSES	$_____	$235,813	

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 concentrate are expected to change significantly.

NET CASH FARM INCOME
Columbia-Dutchess County Dairy Farms, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
Cash Farm Receipts	$_____	$220,983	$197,323
Cash Farm Expenses	_____	182,242	159,731
NET CASH FARM INCOME	$_____	$ 38,741	$ 37,592

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
Columbia-Dutchess County Dairy Farms, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
Total farm receipts excluding appreciation	$_____	$228,158	$200,977
Total farm expenses	_____	235,813	206,622
LABOR & MANAGEMENT INCOME	$_____	$- 7,655	$- 5,645
Full-time operator-manager equivalents	_____	1.44	1.31
LABOR & MGT. INCOME/OPERATOR-MANAGER	$_____	$- 5,316	$- 4,309

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, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
Total farm receipts	$_____	$238,277	$215,925
Total farm expenses excluding interest on equity capital	_____	203,075	178,217
LABOR, MANAGEMENT AND OWNERSHIP INCOME PER FARM	$_____	$ 35,202	$ 37,708
Full-time operator-manager equivalents	_____	1.44	1.31
LABOR, MANAGEMENT AND OWNERSHIP INCOME/OPERATOR-MANAGER	$_____	$ 24,446	$ 28,785

Return on equity capital 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
Columbia-Dutchess County Dairy Farms, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
		Including Appreciation	
Labor, mgt. & ownership income/farm	$_____	$ 35,202	$ 37,708
Less value of operator's labor & mgt.*	_____	20,358	18,690
Return on equity capital	$_____	$ 14,844	$ 19,018
RATE OF RETURN ON $_____ EQUITY	_____%	4.1%	6.0%
		Excluding Appreciation	
Return on equity capital (from above)	$_____	$ 14,844	$ 19,018
Less real estate appreciation	_____	6,008	6,582
Less machinery appreciation	_____	4,948	3,747
Less livestock appreciation	_____	(837)	4,619
Return on equity capital	$_____	$ 4,725	$ 4,070
RATE OF RETURN EXCLUDING APPRECIATION	_____%	1.3%	1.3%

*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 high debt payments may 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
45 Columbia-Dutchess County Dairy Farms, January 1, 1982

Item	My Farm	Average 36 owners	Average 9 Renters
Assets			
Livestock	$	$128,417	$115,814
Feed and supplies		44,129	45,385
Machinery and equipment		86,019	84,235
Land and buildings		286,436	39,478
Co-op investments		17,468	14,303
Accounts receivable		16,075	21,091
Cash and checking accounts		4,698	4,852
Total Farm Assets	$	$583,242	$325,158
Savings Accounts	$	$ 7,912	$ 8,168
Cash value life insurance		2,242	1,662
Stocks and bonds		6,500	7,697
Nonfarm real estate		599	6,333
Auto (personal share)		333	111
All other		1,640	1,056
Total Nonfarm Assets	$	$ 19,226	$ 25,027
TOTAL ASSETS	$	$602,468	$350,185
Liabilities			
Real estate	$	$131,147	$ 0
Cattle & equipment		30,331	50,228
Installment contract		7,890	3,878
Other loans over 10 years		8,409	7,328
Other loans 1 to 10 years		6,416	12,227
Other loans less than 1 year		1,557	1,939
Feed store accounts		1,134	935
Other accounts		3,549	1,094
Total Farm Liabilities	$	$190,433	$ 77,629
Nonfarm Liabilities		0	3,556
TOTAL LIABILITIES	$	$190,433	$ 81,185
FARM NET WORTH (EQUITY CAPITAL)	$	$392,809	$247,529
FAMILY NET WORTH	$	$412,035	$269,000

Farm Net Worth averaged $363,753 on all 45 farms.

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
45 Columbia-Dutchess County Dairy Farms, 1981

Item	My Farm	Average 36 Owners	Average 9 Renters
Payment Ability			
Net cash farm income	$_____	$36,347	$48,328
Plus interest paid	_____	18,712	6,996
Plus off-farm income	_____	430	1,291
CASH AVAIL. FOR DEBT SERV. & LIVING	$_____	$55,489	$56,615
Less family living expenses*	_____	21,623	27,109
CASH AVAIL. FOR DEBT PYMT. & CAP. PURCH.	$_____	$33,866	$29,506
Scheduled Annual Debt Payments			
Real estate mortgage	$_____	$12,715	$ 0
Cattle and equipment liens	_____	12,686	10,583
Installment contracts	_____	2,820	2,462
Other loans over 10 years	_____	800	1,667
Other loans 1 to 10 years	_____	2,188	4,382
Other loans	_____	3,185	1,777
TOTAL PAYMENTS PLANNED 1982	$_____	$34,394	$20,871
Measures of Debt Commitment & Equity Position			
Farm debt payments planned per cow	$_____	$ 374	$ 220
Farm debt pymts. planned as % milk sales	_____ %	18%	10%
Farm debt per cow	$_____	$ 2,070	$ 817
Percent equity (total)	_____ %	68%	77%

*Estimated as $9,600 per family plus four percent of cash farm 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.

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
Columbia-Dutchess County Dairy Farms, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
Number of cows	_____	92	86
Number of heifers	_____	72	70
Pounds of milk sold	_____	1,334,200	1,267,100
Worker equivalent	_____	3.50	3.30
Total work units	_____	1,015	959
Total tillable acres	_____	279	271

In the table below, the 600 New York farms for 1980 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
600 New York Dairy Farms, 1980

Number of Cows	Number of Farms	Percent of Farms	Labor & Management Income Per Operator	Labor & Management Income Per Cow
Under 40	94	16	-$ 2,404	-$ 82
40 - 54	147	25	- 1,111	- 26
55 - 69	128	21	1,282	27
70 - 84	77	13	- 1,532	- 25
85 - 99	38	6	923	14
100 - 114	26	4	7,434	97
115 - 129	24	4	5,420	62
130 - 149	19	3	- 1,484	- 16
150 - 179	24	4	6,361	58
180 - 199	9	2	17,897	129
200 & over	14	2	24,291	149

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
45 Columbia-Dutchess County Dairy Farms, 1981

Crop	My Farm Acres	My Farm Yield	Average of Farms Reporting: Farms	Acres	Yield/Acre
Baled hay	_____		42	98	(combined below)
Hay crop silage	_____		21	98	
Corn silage	_____	_____	44	69	15.1 tons
Other forage	_____	_____	3	27	3.6 tons D.M.
Grain corn	_____	_____	34	80	95.2 bu.
Oats	_____	_____	6	27	48 bu.
Other crops	_____	_____	1	40	
Tillable pasture	_____		10	30	
Idle tillable land	_____		3	19	
Dry matter:					
All hay crops	_____	_____	44	140	2.8 tons D.M.
All forage crops	_____	_____	45	206	3.5 tons D.M.
Milk sold per cow	_____			14,502 lbs.	

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
600 New York Dairy Farms, 1980

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	24	50	$319	-$8,433	-$211
10,000 - 10,999	20	53	393	- 5,816	- 148
11,000 - 11,999	40	60	467	- 3,926	- 75
12,000 - 12,999	68	63	465	- 8,140	- 150
13,000 - 13,999	91	78	477	1,789	30
14,000 - 14,999	137	85	483	5,527	83
15,000 - 15,999	102	77	541	3,561	56
16,000 & over	118	77	572	4,584	76

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, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
Worker equivalent	_____	3.5	3.3
Cows per worker	_____	26	26
Lbs. milk sold per worker	_____	381,200	380,500
Work units per worker	_____	290	288

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
600 New York Dairy Farms, 1980

Pounds of Milk Sold Per Worker	Number of Farms	Number of Cows	Lbs. Milk Per Cow	Labor & Management Income Per Operator	Labor & Management Income Per Cow
Under 250,000	76	41	11,800	-$ 5,551	-$171
250,000 - 299,999	66	51	12,900	- 4,514	- 108
300,000 - 349,999	86	59	14,000	- 132	- 3
350,000 - 399,999	108	67	14,300	- 790	- 15
400,000 - 449,999	87	76	14,800	2,645	41
450,000 - 499,999	57	86	14,800	1,936	26
500,000 - 599,999	79	103	15,100	8,868	112
600,000 & over	41	154	15,100	13,947	119

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
Columbia-Dutchess Owned Dairy Farms, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
Farm capital per worker	$_____	$163,664	$145,738
Farm capital per cow	$_____	$5,924	$5,566
Land & buildings per cow	$_____	$3,113	$2,974
Land & buildings/tillable acre owned	$_____	$1,705	$1,646
Machinery investment per cow	$_____	$935	$909
Machinery per tillable acre	$_____	$294	$279
Capital turnover	_____ yrs.	2.3 yrs.	2.2 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.

SELECTED MEASURES OF CAPITAL EFFICIENCY
Columbia-Dutchess County Rented Dairy Farms, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
Farm capital per worker	$_____	$71,228	$62,551
Farm capital per cow	$_____	$2,999	$2,662
Machinery investment per cow	$_____	$887	$885
Capital turnover	_____ yrs.	1.1 yrs.	1.0 yrs.

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. 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 meal? 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 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
Columbia-Dutchess County Dairy Farms, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
Dairy concentrate purchased per cow	$_____	$495	$495
Dairy concentrate purchased per cwt. of milk sold	$_____	$3.42	$3.56
Percent dairy concentrate is of milk receipts	_____%	24%	26%
Crop expense per cow	$_____	$194	$175
Feed & crop expense/cwt. milk	$_____	$4.75	$4.75
Forage dry matter harvested/cow (tons)	_____	7.9	8.0
Acres of forage per cow	_____	2.2	2.4
Total tillable acres per cow	_____	3.0	3.2
Fertilizer and lime/tillable acre	$_____	$40	$37
Heifers as % of cow numbers	_____%	78%	81%

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
Columbia-Dutchess County Dairy Farms, 1981 & 1980

Item		My Farm	Average 1981	Average 1980
Machinery:	Depreciation[1]	$	$13,174	$11,842
	Interest[2]		7,360	6,476
	Operating expense[3]		22,699	19,129
Total machinery		$	$43,233	$37,447
	Per cow		470	799
	Per cwt. milk		$3.24	$5.43
Labor:	Value of operators[4]	$	$13,000	$12,000
	Unpaid family[5]		911	1,500
	Hired		21,779	17,773
Total labor		$	$35,690	$31,273
	Per cow		388	364
	Per cwt. milk		2.68	2.47
Labor & machinery costs/cwt. milk		$	$ 5.92	$ 5.43

[1]Regular depreciation from last year's tax plus 10 percent of new purchases.
[2]Nine percent of average machinery investment.
[3]Machine 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, 1981 & 1980

Item	My Farm	Average 1981	Average 1980
Livestock expense per cow	$	$289	$265
Real estate expense per cow	$	$204	$203
Total farm expense per cow	$	$2,563	$2,403

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

The worksheet below is a valuable tool in planning expansions and for setting goals for improving the farm business. An average for owned and rented farms is reported.

Item	Average Per Cow 35 Owners	9 Renters	My Farm, _____ Cows Per Cow	Total	Goal
CASH RECEIPTS					
Milk sales	$2,086	$2,094	$	$	$
Crop sales	40	1			
Dairy cattle	179	182			
Calves & other livestock	35	55			
Other	40	102			
Total Cash Receipts	$2,380	$2,434	$	$	$
CASH EXPENSES					
Hired labor	$ 237	$ 229	$	$	$
Dairy concentrate	477	552			
Hay and other	8	36			
Machine hire	25	15			
Machine repair & auto exp.	126	77			
Gas & oil	110	96			
Replacement livestock	22	49			
Breeding fees	31	41			
Vet & medicine	42	37			
Milk marketing (ADA, Dues)	112	110			
Other livestock expense	98	114			
Fertilizer & lime	130	84			
Seeds & plants	36	33			
Spray & other	40	25			
Land, bldg. fence repair	37	29			
Taxes	58	34			
Insurance	46	39			
Rent	48	157			
Telephone (farm share)	6	5			
Electricity (farm share)	48	48			
Miscellaneous	39	60			
Total Cash Expenses[1]	$1,775	$1,870	$	$	$
Total Cash Receipts	$2,380	$2,434			
Total Cash Expenses[1]	-1,775	-1,870	-	-	-
Net Cash Flow	$ 605	$ 564	$	$	$
Cash Family Living Expense[2]	- 238	- 277	-	-	-
Amount Left for Debt Service, Capital Investment & Retained Earnings	$ 367	$ 287	$	$	$
Scheduled Debt Service	- 378	- 213	-	-	-
Available for Capital Invest.	$ (11)	$ 74	$	$	$
Planned Expansion Livestock Purch.					
Planned Equipment Purchase					
Borrowed or Equity Funds Needed			$	$	$

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

[2]Estimated: $9,600 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	1979	1980	1981	1982 Goal
Size of Business				
Number of cows				
Number of heifers				
Pounds of milk sold				
Worker equivalent				
Total tillable acres				
Rates of Production				
Lbs. milk sold per cow				
Tons hay D.M. per acre				
Tons corn silage per acre				
Labor Efficiency				
Cows per worker				
Lbs. milk sold per worker				
Cost Control				
Purch. feed as % milk sold	$	$	$	$
Feed & crop exp./cwt. milk	$	$	$	$
Labor & mach. cost per cow	$	$	$	$
Capital Efficiency				
Farm capital per cow	$	$	$	$
Capital turnover	$	$	$	$
Price				
Price per cwt. milk	$	$	$	$
Financial Summary				
Net cash farm income	$	$	$	$
Labor & mgmt. 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 1981 and have you set new goals for 1982?

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 ten percent of the 600 farms for that factor. The other figures in each column are the average for the second ten percent, third ten percent, etc. Each column of the chart is independent of the others. The farms which are in the top ten percent for one factor would not necessarily be the same farms which make up the top ten percent for any other factor.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
600 New York Dairy Farms, 1980

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
5.3	185	2,773,200	17,600	4.5	21	44	641,600
3.7	113	1,642,100	16,400	3.5	18	36	529,500
3.2	86	1,261,400	15,600	3.1	16	32	472,700
2.8	73	1,073,300	15,100	2.8	15	29	428,000
2.5	64	942,500	14,600	2.6	15	27	396,300
2.3	58	831,800	14,200	2.3	14	26	368,400
2.0	52	736,300	13,600	2.0	13	24	338,500
1.9	45	629,100	13,000	1.8	11	22	303,900
1.6	39	512,300	12,100	1.5	9	20	262,100
1.3	30	358,700	10,000	1.2	5	16	194,300

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
$223	13	$242	$ 524	$2.77
333	19	308	611	3.48
395	23	344	659	3.87
443	25	374	703	4.17
485	27	403	740	4.42
528	29	438	777	4.64
570	31	468	814	4.93
611	33	503	870	5.20
671	36	560	943	5.50
792	41	686	1,112	6.26

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. Many things affect the level of costs, and these items must be taken into account when analyzing the factors.

RELATIONSHIP OF FARM DEBT AND EQUITY TO OTHER FACTORS

A simple comparison of the relationship debt per cow and percent equity have to other business factors is tabulated below.

FARM DEBT PER COW AND LABOR AND MANAGEMENT INCOME
600 New York Dairy Farms, 1980

Farm Debt Per Cow	Number of Farms	Number of Cows	Lbs. Milk Sold Per Cow	Lbs. Milk Sold Per Worker	Labor & Management Income Per Operator
None	19	45	13,800	310,500	-$6,350
$1 - $599	67	67	14,200	370,700	2,219
$600 - $1,199	80	91	14,700	447,300	8,535
$1,200 - $1,799	100	79	14,500	406,100	33
$1,800 - $2,399	101	80	14,100	411,600	- 549
$2,400 - $2,999	85	76	13,900	412,200	62
$3,000 - $3,599	66	71	14,800	421,000	3,148
$3,600 & over	82	61	14,600	369,100	- 1,057

FARM DEBT PER COW AND RELATED BUSINESS FACTORS
600 New York Dairy Farms, 1980

Farm Debt Per Cow	Age of Operator	Percent Equity	Debt Payment Per Cow	Debt Payment % Milk	Available For Living & Investment
None	50	100%	$ 0	0%	$29,315
$1 - $599	50	95	124	7	36,900
$600 - $1,199	48	84	259	14	40,000
$1,200 - $1,799	46	75	347	19	21,254
$1,800 - $2,399	42	63	436	25	13,900
$2,400 - $2,999	41	53	526	31	8,200
$3,000 - $3,599	39	47	597	33	5,600
$3,600 & over	36	41	707	38	- 600

PERCENT EQUITY AND LABOR AND MANAGEMENT INCOME
600 New York Dairy Farms, 1980

Percent Equity*	Number of Farms	Number of Cows	Lbs. Milk Sold Per Cow	Lbs. Milk Sold Per Worker	Labor & Mgmt. Inc. Per Oper.	Avail. For Living & Inv.
Less than 40%	53	68	14,100	372,600	$2,530	-$ 5,700
40 - 49	85	75	14,100	424,000	1,930	5,800
50 - 59	116	76	14,300	434,800	1,040	8,906
60 - 69	83	78	14,300	418,100	- 1,430	11,768
70 - 79	87	81	14,800	423,700	4,370	25,900
80 - 89	88	77	14,800	415,200	2,550	35,112
90 - 99	68	68	14,400	379,800	1,170	38,100
100	20	51	14,000	330,900	- 6,920	31,700

*Based on Family Net Worth.