AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

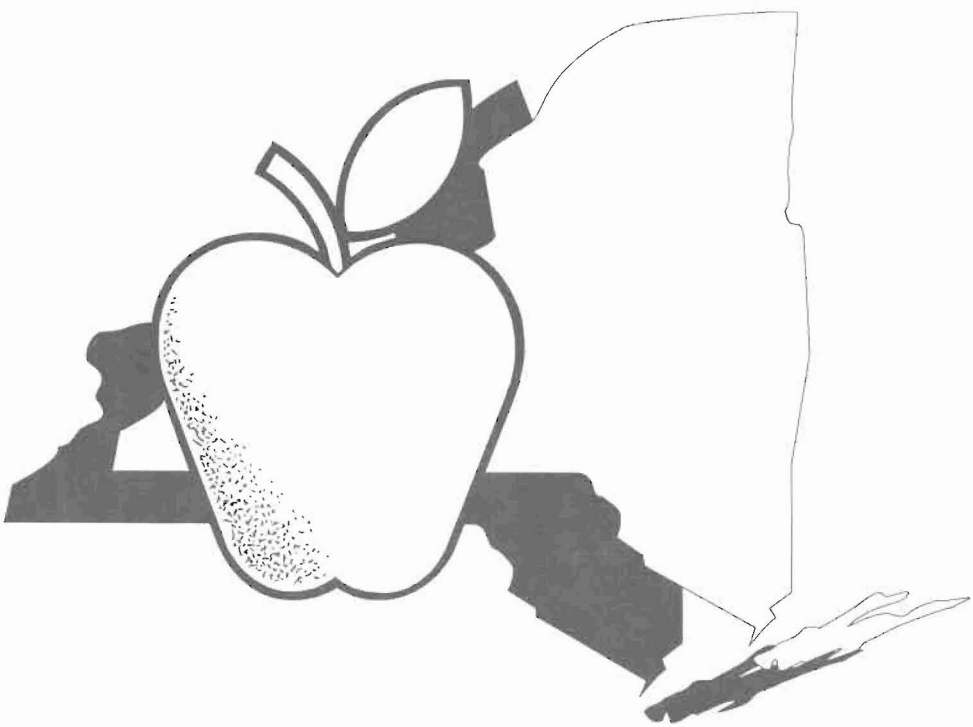
AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

FRUIT FARM BUSINESS SUMMARY

AUGUST 1997 E.B. 97-13

LAKE ONTARIO REGION NEW YORK 1996



Gerald B. White
Alison M. DeMarree
Linda D. Putnam

Department of Agricultural, Resource, and Managerial Economics
College of Agriculture and Life Sciences
Cornell University, Ithaca, New York 14853-7801

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.

ABSTRACT

This report is a summary of 1996 farm business data collected from 21 fruit farm businesses located in Western New York State. Apples are the predominant fruit crop. The data are presented as averages for all 21 farms. The business analysis includes a balance sheet, income statement, cash flow statement, and several financial and production analyses for the farms. Also included are blank columns for the user to enter his or her own farm data for comparison purposes.

ACKNOWLEDGEMENTS

The authors are Gerald B. White, Professor; Alison M. DeMarree, Regional Fruit Specialist; and Linda D. Putnam, Extension Support Specialist. Appreciation is expressed to the cooperating fruit farmers who provided the data summarized in this report.

1996 FRUIT FARM BUSINESS SUMMARY
LAKE ONTARIO REGION

Table of Contents

	PAGE
INTRODUCTION	1
Format Features	1
Apple Production and Prices in Recent Years	2
SUMMARY AND ANALYSIS OF THE FARM BUSINESS	3
Business Characteristics	3
Farm Financial Status	3
Income Statement	7
Profitability Analysis	11
Cash Flow Statement	14
Repayment Analysis	16
Capital Efficiency Analysis	19
Equipment Analysis	20
Labor Analysis	21
Cropping Program Analysis	22
Cost Control Factors	23
PROGRESS OF THE FARM BUSINESS	23

1996 LAKE ONTARIO FRUIT FARM BUSINESS SUMMARY

INTRODUCTION

Western New York fruit farmers, whose major crop is apples, are invited to participate in Cornell Cooperative Extension's fruit farm business summary program each year. Each participating farmer receives a comprehensive business summary and analysis of his or her farm business. This report presents averages for the data submitted by participating farmers for 1996.

The primary objective of the fruit farm business summary (FFBS) program is to help farm managers improve the financial management of their business through appropriate use of historical farm data and the application of modern farm business analysis techniques. The FFBS identifies the business and financial information farmers need and provides a framework for use in identifying and evaluating the strengths and weaknesses of the farm business.

A computer program is used to process the data collected from fruit farmers. This program enables an analysis to be produced on the farm as soon as the farmers' data are entered. This provides rapid processing of the information for timely use in the management of the farm business.

The farms in this study are primarily apple farms. An average of 87 percent of the receipts in 1996 was from the sale of apples. The data were not obtained from a random sample of all fruit farms in Western New York. Therefore, the analysis should not be used to represent the Western New York fruit industry.

Format Features

This report provides a set of tables which comprise a comprehensive analysis of the participating fruit farms. Worksheets are included to give fruit farmers an opportunity to summarize their business. The analysis tables have a blank column or section labeled "My Farm". It may be used to compare an individual farm business with the average performance of the 21 farms.

This report features:

1) A complete Balance Sheet and analysis including financial ratios.

2) An Income Statement including accrual accounting adjustments for farm business expenses and receipts, as well as measures of profitability with and without appreciation.

3) Forms for a Cash Flow Statement and Repayment Analysis Worksheets.

4) Analyses of Capital Efficiency, Equipment, and Labor.

5) A Cropping Program Analysis with Cost Control Factors.

6) A Three Year Comparison of selected business factors.

Apple Production and Prices in Recent Years

Apple production for the State was 24.5 million bushels in 1996. Statewide production was down about 1 percent from the two previous years. The 21 farms in this summary produced a total of 2,159,556 bushels, or about 8.8 percent of the state's total production.

The average price of apples (both fresh and processing) for the Fruit Farm Business Summary farms was $5.08 per bushel, the highest since 1991. The price for fresh apples and processing apples were both exceptionally strong. In fact, processing prices for the overall state were the highest on record, and the utilized value of the New York apple crop was $138.9 million, even higher than the banner year of 1991. Of course, costs were higher due to inflation, so financial performance in terms of net income and return on assets were not as impressive as for the 1991 season.

Table 1.

Apple Production and Prices, New York State, 1992-1996

Item	1992	1993	1994	1995	1996
Production			million bushels		
Fresh Apples					
Western New York	5.0	3.8	5.5	NA	NA
New York State	12.4	9.5	11.7	11.4	11.9
Processing Apples					
Western New York	13.1	9.3	12.4	NA	NA
New York State	15.5	11.2	14.5	15.0	12.6
All Varieties					
Western New York	18.1	13.1	17.9	NA	NA
New York State	27.9	20.7	26.2	26.4	24.5
Average Price Received Per Bushel			dollars		
All Apples					
New York State	4.16	4.87	4.95	5.09	5.66
Fruit Farm Business Summary	3.62	3.77	3.68	4.36	5.08
Fresh Apples					
New York State	5.96	7.31	7.56	7.85	7.43
Fruit Farm Business Summary	4.59	4.94	5.05	5.81	6.15
Processing Apples					
New York State	2.71	2.79	2.84	2.96	3.99
Fruit Farm Business Summary	2.88	3.14	2.81	3.09	4.29

NA = Not Available.

Source: New York Agricultural Statistics Service, FRUIT series, Seasonal releases for July 1993, 1994, 1995, 1996 and 1997 and the annual Fruit Farm Business Summaries.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics

Finding the right management strategies is an important part of operating a successful farm business. Various combinations of farm resources, enterprises, business arrangements, and management techniques are used by the fruit farmers in Western New York. The following table shows important farm business characteristics and the number of farmers reporting these characteristics.

Table 2.

Business Characteristics, 21 Western New York Fruit Farms, 1996

Type of Business	Number	Business Record System	Number
Proprietors	6	Account Book	3
Partnerships	7	Agrifax (mail-in)	0
Corporations	8	On-Farm Computer	18
		Other	0

Business Composition	Number
Fruit production only	5
Fruit with storage	7
Fruit & other enterprises	6
Fruit with storage & other enterprises	3

Farm Financial Status

The first step in evaluating the financial status of the farm business is to construct a balance sheet which identifies all the assets and liabilities of the business. The second step is to evaluate the relationships between assets, liabilities, and net worth at the end of the year and the changes that occurred during the year.

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 by signing the lease. The present value is also listed as an asset, representing the future value the item has to the business.

Table 3 presents the balance sheet data for the 21 fruit farm cooperators. It lists the average value of assets and liabilities for December 31, 1995 and December 31, 1996 and, therefore, shows the changes that occurred for each category during the year. Asset values that are estimated each year should reflect changes in quantity or quality of the asset and conservative adjustments for price changes. Careful attention to asset values is important for a meaningful calculation of change in net worth, a measure of financial progress.

Table 4 provides a format for the reader to use to develop a balance sheet for an individual farm business.

Table 3.
Farm Business Balance Sheet, 21 Western New York Fruit Farms, December 31, 1995 & 1996

Farm Assets	1995	1996	Farm Liabilities & Net Worth	1995	1996
Current	$	$	Current =<1 year	$	$
Cash, checking, sav.	20,139	13,133	Accounts payable	21,938	27,868
Accounts receivable	141,737	181,121	Operating debt	120,857	139,104
Prepaid expenses	1,689	1,985	Short-term	4,070	2,463
Fruit, other crops	109,650	114,309	Advanced gov't receipts	0	0
Production supplies	8,423	15,326	Accrued interest	2,944	3,453
Packing supplies	935	1,192			
Total Current	$ 282,573	$ 327,066	Total Current	$ 149,810	$ 172,887
Intermediate			Intermediate =>1 to <10 years		
Livestock	0	286	Structured debt	82,869	86,319
Livestock leased	0	0	Financial lease-livestock		
Equipment owned	217,084	225,660	& equipment	5,198	3,235
Equipment leased	5,198	3,235	Farm Credit stock	7,768	8,796
Farm Credit stock	7,768	8,796			
Other stock, cert.	60,444	61,812			
Total Intermediate	$ 290,494	$ 299,789	Total Intermediate	$ 95,835	$ 98,350
Long-Term			Long-Term =>10 years		
Land/Buildings:			Structured debt	154,521	146,646
Owned	496,790	509,765	Financial lease -		
Structures leased	0	0	structures	0	0
Total Long-Term	$ 496,790	$ 509,765	Total Long-Term	$ 154,521	$ 146,646
			Total Farm:		
			Liabilities	400,165	417,882
Total Farm:			Net Worth	669,692	718,737
Assets	$1,069,857	$1,136,620	Liabilities & Net Worth	1,069,857	1,136,620

Table 3a. **Nonfarm Assets & Liabilities**

NonFarm Assets	1995	1996	NonFarm Liabilities	1995	1996
Cash, checking, sav.	6,266	207		0	0
Life ins.-cash value	2,780	2,346			
Real estate	0	0			
Auto (pers. share)	429	333			
Stocks & bonds	4,597	15,827			
Household furn.	1,190	1,429			
All other	0	0			
Total NonFarm			Total Nonfarm: Liab.	0	0
Assets	15,262	20,141	Net Worth	15,262	20,141
			Liabilities & Net Worth	15,262	20,141
			Farm and Nonfarm		
Assets	1,085,119	1,156,761	Liabilities	400,165	417,882
			Net Worth	684,954	738,879
			Liabilities & Net Worth	1,085,119	1,156,761

Table 4.

Farm Business Balance Sheet, My Farm, December 31, 1995 & 1996

Farm Assets	1995	1996	Farm Liabilities & Net Worth	1995	1996
Current	$	$	Current = < 1 year	$	$
Cash, checking, sav.			Accounts payable		
Accounts receivable			Operating debt		
Prepaid expenses			Short-term		
Fruit, other crops					
Production supplies					
Packing supplies			Advanced gov't receipts		
			Accrual interest		
Total Current			Total Current		
Intermediate			Intermediate = > 1 to < 10 years		
Livestock			Structured debt		
Livestock leased					
Equipment owned					
Equipment leased					
Farm Credit stock					
Other stock, cert.			Financial lease-livestock, equipment		
			Farm Credit stock		
Total Intermediate			Total Intermediate		
Long-Term			Long-Term = > 10 years		
Land/Buildings:			Structured debt		
Owned					
Structures leased					
			Financial lease-struc.		
Total Long-Term			Total Long-Term		
			Total Farm:		
			Liabilities		
			Net Worth		
Total Farm Assets			Liabilities & Net Worth		

The balance sheet analysis involves an examination of financial and debt ratios. Percent equity is calculated by dividing end of year net worth by end of year assets. The debt to asset ratio is compiled by dividing liabilities by assets. Low debt to asset ratios reflect strength in solvency and the potential capacity to borrow. Debt levels per unit of production include some old standards that are still useful if used with measures of cash flow and repayment ability. The change in farm net worth without appreciation is an excellent indicator of financial progress from operating the business.

Table 5.
Farm Business Balance Sheet Analysis, 21 Western New York Fruit Farms, December 31, 1996

Item	21 Farms 1996	My Farm
	------ For the Farm Business Only ------	
Financial Ratios - end of year		
Percent equity	63%	_____ %
Debt to asset ratios:		
Total debt	0.37	_____
Long-term	0.29	_____
Current & intermediate	0.43	_____
Change in Net Worth		
Without appreciation	$ 37,121	$ _____
With Appreciation	$ 49,045	$ _____
Debt Analysis - end of year		
Percent of total farm debt that is:		_____ %
Long-term	35%	_____ %
Current & intermediate	65%	_____ %
Accounts payable only	7%	
Debt Levels - end of year		
Per bearing fruit acre:		
Total farm debt	$ 1,920	$ _____
Long-term	$ 674	$ _____
Current & intermediate	$ 1,246	$ _____

The farm inventory balance is an accounting of the value of assets used on the balance sheet and the changes that occur from the beginning to end of year. Net investment indicates whether the capital stock is being expanded (positive) or depleted (negative).

Table 6.

Farm Inventory Balance, 21 Western New York Fruit Farms, 1996

	21 Fruit Farm		My Farm	
Inventory Balance	Real Estate	Equipment	Real Estate	Equipment
Beginning of year (1)	$ 496,790	$ 217,084	$ _____	$ _____
Purchases	$ 18,054[1]	$ 27,565	_____	_____
+ Noncash transfer to farm	0	0	_____	_____
- Lost capital	2,261	--	_____	_____
- Sales	4,050	1,591	_____	_____
- Depreciation	9,097	27,526	_____	_____
= Net investment (2)	$ 2,646	$ (1,552)	_____	_____
Appreciation (3-1-2)	10,329[2]	10,128	_____	_____
End of year (3)	$ 509,765	$ 225,660	_____	_____

[1]Purchase includes $8,030 for land and $10,024 for buildings.
[2]Real estate appreciation excludes $-810 of appreciation on assets sold during the year.

Income Statement

On the following pages the accrual adjusted income statement begins with an accounting of all farm business expenses.

Cash Paid is the actual amount of money paid out during the year and does not necessarily represent the cost of goods and services actually used.

Change in Inventory: An increase in inventory is subtracted in computing accrual expenses; it represents inputs that were purchased but not actually used during the year. A decrease in inventory is added to expenses because it represents the cost of inputs purchased in a prior year and used this year.

Changes in Prepaid Expenses apply to non-inventory categories. Included are expenses that have been paid in advance of their use, for example, next year's rent paid this year. An increase in a prepaid expense is an amount paid this year that is an expense for a future year and, thus, is subtracted from expenses; a decrease in a prepaid expense indicates an amount paid in a prior year that is an expense for this year and added to cash expenses.

Change in Accounts Payable: An increase in payables is an expense chargeable to this year but not paid by the end of the year. A decrease in payables is an expense for a previous year that was paid this year.

Accrual Expenses are the costs of inputs actually used for this year's production.

The worksheet on page 9 is provided to enable any fruit farmer to compare his or her expenses with the group averages in the corresponding table.

Table 7.
Income Statement - Farm Expenses, 21 Western New York Fruit Farms, 1996

Expenses	Cash amount paid	+ Change in inventory or prepaid expenses	+ Change in accounts payable	= Accrual expenses
Hired Labor				
Wages: regular	$51,508	$ 0	$ 0	$ 51,508
picking	73,246	0	0	73,246
other part-time seas.	44,740	0	0	44,740
Other labor costs	39,314	(498)	(885)	37,930
Picker travel	1,654	0	0	1,654
Labor camp expenses	2,082	0	0	2,082
Equipment				
Machine hire, rent, lease	12,275	0	1,631	13,906
Repairs & parts	26,771	(210)	(406)	26,156
Auto expense - farm share	325	0	0	325
Fuel, oil & grease	13,543	(398)	2	13,147
Livestock				
All livestock expenses	226	0	0	226
Crops				
Fertilizer & lime	11,961	(719)	1,150	12,393
Replacement trees & plants	1,577	0	0	1,577
Spray	73,522	(5,277)	4,017	72,262
Supplies, other production exp.	13,405	111	783	14,299
Processing and packing supplies	981	(257)	(2)	723
Storage	12,429	0	1,537	13,966
Marketing, selling expenses	2,779	(115)	166	2,830
Real Estate				
Repair - land, building, fences	4,049	(19)	287	4,317
Taxes	10,184	(116)	719	10,788
Rent & lease	8,901	0	3,571	12,472
Other Expenses				
Insurance: Fire, liability	10,583	143	239	10,966
Crop	15	0	0	15
Telephone - farm share	1,331	0	1	1,331
Electricity - farm share	7,657	0	(4)	7,653
Fruit purchased for resale	14,385	0	5,828	20,213
Interest paid	27,328	0	160	27,488
Miscellaneous	16,489	(391)	(2,318)	13,780
TOTAL OPERATING EXPENSES	$ 483,260	$ (7,744)	$ 16,477	$ 491,993
Expansion orchard	$ 10,186	163	0	10,349
Depreciation: Equipment				27,526
Buildings				4,448
Bearing trees & vines				4,648
TOTAL ACCRUAL EXPENSES				$ 538,965

Table 8.

Income Statement, Farm Expenses, My Farm, 1996

Expenses	Cash amount paid	+	Change in inventory or prepaid expenses	+	Change in accounts payable	=	Accrual expenses
Hired Labor							
Wages: regular	$		$		$		$
picking							
other part-time seas.							
Other labor costs							
Picker travel							
Labor camp expenses							
Equipment							
Machine hire, rent, lease							
Repairs & parts							
Auto expense - farm share							
Fuel, oil & grease							
Livestock							
All livestock expenses							
Crops							
Fertilizer & lime							
Replacement trees & plants							
Spray							
Supplies, other production exp.							
Processing and packing supplies							
Storage							
Marketing, selling expenses							
Real Estate							
Repair - land, building, fences							
Taxes							
Rent & lease							
Other Expenses							
Insurance: Fire, liability							
Crop							
Telephone - farm share							
Electricity - farm share							
Fruit purchased for resale							
Interest paid							
Miscellaneous							
TOTAL OPERATING EXPENSES	$		$		$		$
Expansion orchard							
Depreciation: Equipment							
Buildings							
Bearing trees & vines							
TOTAL ACCRUAL EXPENSES							$

Table 9.

Income Statement, Farm Receipts
21 Western New York Fruit Farms, 1996

Receipts	Cash Receipts	Change in + inventory[1]	Change in accounts + receivable	Accrual = receipts
Apples: fresh	$ 249,675	$ 536193	$ 12,033	$ 267,326
processing	235,196	(1,184)	21,759	255,772
Cherries: sweet	10,757		(789)	9,968
tart	12,820		1,562	14,382
Grapes	509		(32)	476
Peaches	5,827		223	6,050
Pears	4,621		5	4,625
Plums & prunes	786		0	786
All other fruit	2,773	344	0	3,117
Other crops, livestock & prod.	2,324	(119)	(28)	2,178
Custom work, storage, rent	28,063		3,711	31,774
Other - including government receipts, refunds	7,922	0[2]	36	7,958
- Non-farm non-cash capital		0[3]		0
TOTAL OPERATING RECEIPTS	$ 561,273	$ 4,660	$ 38,480	$ 604,413

[1]Change in crop and livestock products inventory.
[2]Change in advanced government receipts.
[3]Gifts and inheritances of livestock and crops to the farm business.

Cash Receipts include the amount received during the year from the sale of farm products and services, and government programs.

Changes in Inventory are calculated by subtracting beginning of year values from end of year values excluding appreciation. Changes in crop and livestock inventories are calculated. Changes in advanced government receipts are calculated by subtracting the end of year balance from the beginning year balance.

Changes in Accounts Receivable are calculated by subtracting beginning year balances from end year balances.

Accrual Receipts represent the value of all farm commodities and services generated by the farm business during the year.

Table 10.

Income Statement, Farm Receipts
My Farm, 1996

Receipts	Cash receipts +	Change in inventory	+	Change in accounts receivable	=	Accrual receipts
Apples: fresh	$	$		$		$
processing						
Cherries: sweet						
tart						
Grapes						
Peaches						
Pears						
Plums & prunes						
All other fruit						
Other crops, livestock & prod.						
Custom work, storage, rent						
Other - including government receipts, refunds						
- Non-farm non-cash capital		(-)			(-)	
TOTAL OPER. RECEIPTS	$	$		$		$

Profitability Analysis

Farm owner-operators contribute labor, management, and capital to their businesses and the best combination of these resources maximizes profits. Farm profitability can be measured as the return to all family resources or as the return to one or more individual resources such as labor and management.

Net Farm Income is the total combined return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's annual net return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business operation. Cash flow is measured later in this report.

Net farm income is computed both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, equipment, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes in farm net worth and must be included for a complete profitability analysis.

Table 11.

Net Farm Income
21Western New York Fruit Farms, 1996

Item	21 Farms 1996	My Farm
Total accrual receipts	$604,413	$ _____
+ Appreciation:		
Livestock	119	_____
Equipment	10,128	_____
Real estate	9,520	_____
Other - Stocks & certificates	+(7,842)	+ _____
= Total accrual receipts with appreciation	$616,337	$ _____
- Total accrual expenses	-538,965	- _____
= Net farm income with appreciation	$ 77,372	$ _____
Net farm income without appreciation	$ 65,448	$ _____

Return to Operators' Labor, Management, and Equity Capital measures the total business profits for the farm operator(s). It is calculated by deducting a charge for unpaid family labor from net farm income. Operators' labor is not included in unpaid family labor. Return to operators' labor, management, and equity capital has been calculated both with and without appreciation. Appreciation is considered an important part of the return to ownership of farm assets.

Table 12.

Return to Operators' Labor, Management, and Equity Capital
21 Western New York Fruit Farms, 1996

Item	21 Farms 1996	My Farm
With appreciation:		
Net farm income	$ 77,372	$ _____
- Family unpaid labor @ $1,500 per month	-393	- _____
= Return to operators' labor, management, & equity	$ 76,979	$ _____
Without appreciation:		
Net farm income	$ 65,448	$ _____
- Family unpaid labor @ $1,500 per month	-393	- _____
= Return to operators' labor, management, & equity	$ 65,055	$ _____

Labor and Management Income is the return which farm operators receive for their labor and management used in operating the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and management income is calculated by deducting the opportunity cost of using equity capital, at a real interest rate of five percent, from the return to operators' labor, management, and equity capital excluding appreciation. The interest charge of five percent reflects the long-term average rate of return above inflation that a farmer might expect to earn in an investment of comparable risk.

Table 13.

Labor & Management Income
21 Western New York Fruit Farms, 1996

Item	21 Farms 1996	My Farm
Without appreciation:		
Return to operators' labor, management, & equity	$ 65,055	$ _____
- Real interest @ 5% on average equity capital	-34,711	_____
= Labor & management income per farm	$ 30,345	$ _____
Labor & management income per operator	$ 18,998	$ _____

Return on Equity Capital measures the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner-operators' labor and management. The earnings or amount of net farm income allocated to labor and management is the opportunity cost of operators' labor and management estimated by the cooperators. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the average farm net worth or equity capital.

Table 14.

Return on Equity Capital and Return on Total Capital, 21 Western New York Fruit Farms, 1996

Item	21 Farms 1996	My Farm
Average equity capital	$694,215	$_____
Average total capital	$1,103,238	$_____
Returns with appreciation:		
Return to operators' labor, management & equity capital	$ 76,979	$_____
- Value of operators' labor & management	-53,361	- _____
= Return on average equity capital	$ 23,618	$_____
+ Interest paid	+27,488	+_____
= Return on average total capital	$ 51,106	$_____
Rates of return (with appreciation) on:		
Average equity capital	3.4%	_____%
Average total capital	4.6%	_____%
Returns without appreciation:		
Return on average equity capital with appreciation	$ 23,618	$_____
- Total appreciation	-11,924	- _____
= Return on average equity capital	$ 11,694	$_____
+ Interest paid	+27,488	+_____
= Return on average total capital	$ 39,182	$_____
Rates of return (without appreciation) on:		
Average equity capital	1.7%	_____%
Average total capital	3.6%	_____%

Cash Flow Statement

Completing an annual cash flow statement is an important step in understanding the sources and uses of funds for the business. Understanding last year's cash flow is the first step toward planning and managing cash flow for the current and future years.

The **Annual Cash Flow Statement** is structured to compare all the cash inflows with all the cash outflows for the year. A complete list of cash inflows and cash outflows is included in Table 15. By definition, total cash inflows must equal total cash outflows when beginning and end balances are included. Any imbalance is, therefore, the error from incorrect accounting of cash inflows and cash outflows.

Table 15.

Annual Cash Flow Statement, 21 Western New York Fruit Farms, 1996

Item	21 Farms 1996	My Farm
Cash Inflows		
Beginning farm cash, checking, & savings	$ 20,139	$ _____
Cash farm receipts	580,816	_____
Sale of assets:		
Equipment	1,591	_____
Real estate	2,494	_____
Other stocks & certificates	3	_____
Money borrowed:		
Increase in operating debt	18,246	_____
Short-term	116	_____
Intermediate	21,172	_____
Long-term	5,053	_____
Refinanced debt	0	_____
Non-farm:		
Income	3,350	_____
Capital used in business	0	_____
Money borrowed	0	_____
Total Cash Inflows	$652,980	$ _____
Cash Outflows		
Cash farm expenses (excluding interest paid)	$455,932	$ _____
Capital purchases:		
Expansion orchard	10,186	_____
Equipment	27,565	_____
Real estate	18,054	_____
Other stocks & certificates	9,213	_____
Debt payments:		
Principal payments for -		
Decrease in operating debt	0	_____
Short-term	1,723	_____
Intermediate	17,721	_____
Long-term	12,928	_____
Refinanced debt	0	_____
Interest paid	27,328	_____
Personal withdrawals & family expenditures including non-farm debt payments & corporate operator labor costs	59,263	_____
Ending farm cash, checking & savings	13,133	_____
Total Cash Outflows	$653,047	$ _____
Imbalance (error)	$(68)	$ _____

Repayment Analysis

The second step in cash flow analysis is to compare the debt payments planned for this year with the amount actually paid. The measures listed below provide a number of different perspectives on the repayment performance of the business.

Table 16.

Farm Debt Payments Planned
21 Western New York Fruit Farms, 1996

	21 Fruit Farms			My Farm		
Debt Payments	Planned for 1996[1]	Actual Payments in 1996[2]	Planned for 1997	Planned for 1996	Actual payments 1996	Planned for 1997
Accts. payable (net reduction)	$ 0	$ 0	$ 0	$ ____	$ ____	$ ____
Operating (net reduction)	2,229	0	2,809	____	____	____
Short-term (principal & int.)	1,053	1,839	1,026	____	____	____
Intermediate (principal & int.)	16,818	23,752	13,233	____	____	____
Long-term (principal & int.)	20,646	24,532	20,997	____	____	____
Total debt payments	$40,745	$50,123	$38,065	$ ____	$ ____	$ ____
Payments as a percent of:						
Total accrual receipts	7%	8%		____%	____%	
Total accrual fruit receipts	7%	9%				
Payments per acre of:						
bearing fruit	$ 187	$ 230		$ ____	$ ____	
all fruit	$ 161	$ 198		$ ____	$ ____	
Payments/bushel of apples sold	$0.40	$0.49		$ ____	$ ____	

[1]If on the Fruit Farm Business Summary the previous year.
[2]Actual payments excluding refinanced debt.

The **Cash Flow Coverage Ratio** measures the ability of the farm business to meet its planned debt payment schedule. The ratio shows the percentage of planned payments that could have been made with this year's available cash flow. However, the critical question to many farmers and lenders is whether planned payments can be made in 1997. The worksheet provided in Table 18 can be used to estimate repayment ability which can then be compared to planned 1997 debt payments shown in Table 16.

Table 17.

Cash Flow Coverage Ratio
21 Western New York Fruit Farms, 1996

Item	21 Farms 1996	My Farm
Cash farm receipts	$580,816	$ _____
- Cash farm expenses	483,260	_____
+ Interest paid	27,328	_____
- Net personal withdrawals from farm[1]	55,912	_____
= Amount available for debt service (1)	$68,971	$ _____
Debt payments planned (2)	$40,745	$ _____
Cash Flow Coverage Ratio (1 ÷ 2)	1.69	_____

[1]Personal withdrawals and family expenditures less non-farm income and non-farm money borrowed.

Table 18.

Annual Cash Flow Worksheet, 1996 and 1996 Projection

Item	Average 21 Farms	My Farm, 1996 Total	My Farm, 1996 Per bearing acre	Expected change	1997 projection
Average bearing acres of fruit	218				
Accrual Operating Receipts (per bearing acre)					
Apples: Fresh	$1,228	$	$	$	$
Processing	1,175				
All other fruit	181				
Other crops, livestock & products	10				
Custom work, storage & rent	146				
Other - including government receipts, refunds	37				
Total Operating Receipts	$2,777	$	$	$	$
Accrual Operating Expenses (per bearing acre)					
Labor: Wages					
regular	$ 237				
picking	337				
other part-time, seasonal	206				
Other labor costs	174				
Picker travel, labor camp exp.	17				
Equip: Machine hire, rent, lease	64				
Repairs, parts & auto exp.	122				
Fuel, oil & grease	60				
Livestock: All livestock expense	1				
Crops: Fertilizer & lime	57				
Replacement trees & plants	7				
Spray	332				
Supplies, other prod. exp.	66				
Storage	64				
Packing supplies, marketing, selling exp.	16				
Real Est.: Repair - land, bldg., fences	20				
Taxes	50				
Rent & lease	57				
Other: Insurance - fire, liability crop	50				
Utilities - phone, electricity	41				
Resale items - fruit, etc.	93				
Miscellaneous	63				
Total Operating Expenses Excluding Interest	$2,134	$	$	$	$
Repayment Analysis (Total)					
Net accrual operating income exc. interest	$139,908	$			$
- Change in livestock & crop inv.	4,660				
- Change in accounts receivable	38,480				
+Change in crop & supply inv.	(7,744)				
+Change in accounts payable exc. interest	16,317				
Net Operating Cash Flow	$105,341	$			$
- Net personal withdrawals	55,912				
Available for debt payments, invest.	$ 49,428	$			$
- Farm debt payments: principal & interest	50,123				
Available for farm investment	$ (694)	$			$
Capital purchases	$ 65,019	$			$
Additional capital needed	$ 65,713	$			$

Capital Efficiency Analysis

Capital efficiency factors measure how intensively capital is being used in the farm business. As capital needs grow, capital management becomes more important.

Capital turnover is a measure of capital efficiency as it shows the number of years of farm receipts required to equal or "turnover" the capital investment. It is computed by dividing the average farm asset value by the year's total farm accrual receipts and appreciation.

Table 19.

Capital Efficiency Analysis
21 Western New York Fruit Farms, 1996

Item	Average Capital Investment			
	Per worker equivalent	Per Bearing Acre: Owned	Per Bearing Acre: Operated	Per all fruit acres
Assets				
Total farm capital	$90,108	$6,747	$5,069	$4,358
Real estate	41,106	3,078	N/A	1,988
All equipment	8,997	N/A	506	435
Capital turnover, years 1.79				
My Farm:				
Total farm capital	$_____	$_____	$_____	$_____
Real estate	_____	_____	_____	_____
All equipment	_____	_____	_____	_____
Capital turnover, years _____				

Equipment Analysis

Equipment costs comprised nearly 17 percent of the cost of fruit production in 1996. Total equipment expenses include the major fixed costs (interest and depreciation) as well as the accrual operating costs.

Table 20.

Accrual Equipment Expenses
21 Western New York Fruit Farms, 1996

Item	Average 21 Fruit Farms: Total equip. cost	Equipment cost per fruit acre operated: Bearing	All fruit	My Farm: Total equip. cost	Equipment cost per fruit acre operated: Bearing	All fruit
Annual Accrual Cost						
Machine hire, equip. rent, lease	$13,906	$ 64	$ 55	$ ____	$ ____	$ ____
Repair & parts	26,156	120	103	____	____	____
Auto exp. - farm share	325	1	1	____	____	____
Fuel, oil & grease	13,147	60	52	____	____	____
Interest - avg. cap. @5%	11,069	51	44	____	____	____
Depreciation	27,526	126	109	____	____	____
Total Equipment Cost	$92,129	$423	$364	$ ____	$ ____	$ ____

Labor Analysis

The efficient use of labor is closely related to farm profitability. Measures of labor efficiency or productivity are key indicators of management's success. Labor is the largest single cost category on fruit farms.

Table 21.
Labor Force Inventory and Analysis, 21 Western New York Fruit Farms, 1996

Labor Force	Full-time months	Age, years	Years of Education	Value of labor/mgmt.
Average:				
Operator -				
number 1	10.1	46	15	$27,005
number 2	5.0	44	14	14,781
number 3	3.1	45	14	8,859
number 4	1.0	46	15	2,716
Family unpaid	0.3		Total	$53,361
Family paid	4.7		Avg./oper.	$33,351
Hired -				
regular	27.8			
picking	64.6			
other part-time, seasonal	30.4			
Total	146.9	mo./12 =	12.24 worker equivalent 1.60 oper./manager equiv.	
My Farm:				
Total	_____	mo./12 =	____ worker equivalent	
Operators	_____	mo./12 =	____ oper./manager equiv.	

Labor Efficiency	Average Total	Average Per Worker	My Farm Total	My Farm Per Worker
Bearing fruit, acres	217.6	17.8	_____	_____
Total fruit, acres	253.2	20.7	_____	_____
Apples sold, bushels	104,259	8,515	_____	_____
Accrual receipts	$604,413	$49,366	$_____	$_____
Accrual fruit receipts	$562,503	$45,943	$_____	$_____

Labor Cost or Value

Type	Annual Accrual Cost: Average 21 Farms Total	Per worker equiv.	Per bearing acre	My Farm Total	Per worker equiv.	Per bearing acre
Value of operator(s) labor @ $1,500/mo.	$ 28,750	$ 2,349	$ 132	$ _____	$ _____	$ _____
Family unpaid @ $1,500/mo.	393	32	2	_____	_____	_____
Family paid (excl. operator)	10,669	872	49	_____	_____	_____
Hired -						
regular (excluding operator)	55,000	4,493	253	_____	_____	_____
picking	92,547	7,561	425	_____	_____	_____
other part-time, seasonal	53,423	4,365	245	_____	_____	_____
All labor (incl. non-cash)	$240,783	$19,672	$1,106	$ _____	$ _____	$ _____
All equipment cost	92,129	7,525	423	_____	_____	_____
Total labor & equip. cost	$332,912	$27,197	$1,530	$ _____	$ _____	$ _____

Cropping Program Analysis

The cropping program is the central part of a fruit farm business. A complete evaluation of available land resources, how they are being used, how well crops are producing, and what it costs to produce them, is required to evaluate alternative cropping choices. In the table below, average crop acres and yields are presented for the number of farms reporting each crop.

Table 22.
Land Resources and Crop Production, 21 Western New York Fruit Farms, 1996

Item	Average 21 Farms			My Farm		
	Owned	Rented	Total	Owned	Rented	Total
Land Class (end of year)						
Bearing fruit, acres	163.5	54.1	217.6			
Non-bearing fruit, acres	31.7	3.9	35.5			
Other crops, open, acres	32.3	5.5	37.8			
Non-tillable pasture, acres	3.5	0.0	3.5			
Other non-tillable, acres	30.5	3.4	34.0			
Total land operated	261.5	66.9	328.5			

Crop Production	For farms having the fruit: No. of farms	Average acres	Yield per acre	Total acres	Yield per acre
Bearing Fruit:					
Apples - fresh	21	94.5	458 bu.		bu.
processing	21	92.7	642 bu.		bu.
all apples	21	187.2	550 bu.		bu.
Cherries - sweet	9	8.1	3,269 lb.		lb.
tart	8	42.8	5,527 lb.		lb.
Grapes	1	7.8	7.4 tn.		tn.
Peaches	8	8.0	224 bu.		bu.
Pears	11	10.2	228 bu.		bu.
Plums, prunes	6	3.0	196 bu.		bu.
Other fruit	3	7.9			
Total bearing fruit	21	217.6			
Non-Bearing Fruit:					
Apples - fresh	20	25.0			
processing	5	36.3			
Cherries- sweet	4	5.7			
tart	2	9.1			
Other non-bearing	5	4.2			
Total non-bearing fruit acres	21	35.5			
Other Crops, Open:					
Other	19	41.8			

Cost Control Factors

The control of costs is an important factor in the success of modern commercial fruit farm businesses. But before they can be controlled, they must be known. A major reason for farm business analysis is to identify the most significant cost items so cost control decisions can be encouraged as warranted. However, the optimum level of input items used to obtain the greatest net return is difficult to determine.

Farm managers have substituted power and equipment for labor to a large degree. With labor and equipment costs in excess of 50 percent of total production costs on fruit farms, it is important to know and control these and other costs on a production unit basis.

Table 23.

Cost Control Factors
21 Western New York Fruit Farms, 1996

Item	Cost Per Fruit Acre Operated	
	Bearing acres	All fruit acres
All labor - including operators' labor	$1,106	$951
Picking labor	425	366
Other hired labor	547	470
All equipment cost	423	364
Spray	332	285

PROGRESS OF THE FARM BUSINESS

Comparing your business with average data from other fruit farms can be a helpful part of a business checkup. While a wide variation in business size and composition exists in this group of fruit farms, many of the factors will provide a meaningful indication of how you compare with other fruit farms. It is, perhaps, even more important for you to determine the progress your business has made over the past two or three years and to set goals for the future.

The tables on the following pages provide the opportunity for you to compare your business factors with averages for the participating farms for the past three years. It also encourages you to set some goals toward which to strive as you measure the progress of your farm business over the years.

Table 24.

Progress of the Fruit Farm Business, Western New York Fruit Farms, 1994-1996

Selected Factors	1994	1995	1996
Number of farms	20	21	21
Size of Business			
All cropland including fruit, acres	278	284	291
All fruit including non-bearing, acres	243	249	253
Bearing fruit, acres	213	219	218
Bearing apples, acres	179	185	187
Fresh - percent of all apple acres	50%	50%	50%
Apples produced, bushels	103,644	117,553	102,836
Apples sold, bushels	106,355	114,492	104,259
Worker equivalent	10.64	11.85	12.24
Total accrual operating receipts	$480,820	$575,127	$604,413
Rates of Production			
All apples, bushels per bearing acre	581	634	550
Fresh - percent of apples harvested	39%	39%	42%
Cherries - tart, pounds per bearing acre	8,041	7,213	5,527
Pears, bushels per bearing acre	279	213	228
Non-bearing to bearing acre ratio	14%	14%	16%
Labor Efficiency			
Bearing fruit, acres per worker	20	18	18
All fruit, acres per worker	23	21	21
Accrual receipts per worker	$45,184	$48,544	$49,366
Cost Control - Accrual			
Cost per bearing acre:			
All labor	$992	$1,098	$1,106
All equipment	$359	$389	$423
Spray	$273	$284	$332
Hired labor as percent of operating expenses	46%	45%	43%
Capital Efficiency - Average for the Year			
Total farm capital per bearing acre	$4,020	$4,891	$5,069
Total farm capital per fruit acre	$3,528	$4,292	$4,358
Capital turnover, years	1.7	1.8	1.8
Profitability			
Net farm income:			
Without appreciation	$38,941	$57,905	$65,448
With appreciation	$63,080	$90,918	$77,372
Labor & management income per operator	$8,836	$13,267	$18,998
Rate of return to average capital with appreciation:			
Equity capital	2.8%	4.8%	3.4%
Total capital	4.8%	6.1%	4.6%
Financial Summary - End of Year			
Farm:			
Net worth	$512,543	$716,087	$718,737
Debt to asset ratio	0.42	0.35	0.37
Debt per bearing acre	$1,723	$1,772	$1,920
Cash flow coverage ratio	1.49	1.52	1.69

Table 25.
Progress of the Fruit Farm Business, Same Summary Farms, Western New York, 1994-1996

Selected Factors	Average per Farm, Same 18 Farms in: 1994	1995	1996
Size of Business			
All cropland including fruit, acres	283	286	293
All fruit including non-bearing, acres	250	249	253
Bearing fruit, acres	218	219	219
Bearing apples, acres	180	182	185
Fresh - percent of all apple acres	47%	47%	50%
Apples produced, bushels	106,580	116,204	102,947
Apples sold, bushels	109,593	111,431	104,875
Worker equivalent	10.96	11.92	12.46
Total accrual operating receipts	$502,373	$571,331	$604,749
Rates of Production			
All apples, bushels per bearing acre	591	640	555
Fresh - percent of apples harvested	38%	38%	42%
Cherries - tart, pounds per bearing acre	8,041	7,603	5,569
Pears, bushels per bearing acre	282	222	238
Non-bearing to bearing acre ratio	14%	14%	16%
Labor Efficiency			
Bearing fruit, acres per worker	20	18	18
All fruit, acres per worker	23	21	20
Accrual receipts per worker	$45,826	$47,938	$48,553
Cost Control - Accrual			
Cost per bearing acre:			
All labor	$984	$1,092	$1,097
All equipment	$367	$389	$438
Spray	$278	$286	$331
Hired labor as percent of operating expenses	46%	46%	42%
Capital Efficiency - Average for the Year			
Total farm capital per bearing acre	$4,188	$4,606	$4,843
Total farm capital per fruit acre	$3,661	$4,042	$4,180
Capital turnover, years	1.7	1.7	1.7
Profitability			
Net farm income:			
Without appreciation	$47,292	$61,811	$62,862
With appreciation	$73,479	$91,917	$73,652
Labor & management income per operator	$12,210	$18,096	$17,702
Rate of return to average capital with appreciation:			
Equity capital	4.1%	5.6%	2.8%
Total capital	5.6%	6.5%	4.3%
Financial Summary - End of Year			
Farm:			
Net worth	$568,544	$652,647	$677,937
Debt to asset ratio	0.40	0.37	0.38
Debt per bearing acre	$1,702	$1,787	$1,894
Cash flow coverage ratio	1.76	1.59	1.87

Table 26.

Progress of the Fruit Farm Business, My Farm, 1994-1996

Selected Factors	1994	1995	1996	Goal
Size of Business				
All cropland incl. fruit, acres				
All fruit incl. non-bearing, acres				
Bearing fruit, acres				
Bearing apples, acres				
Fresh - % of all apple acres	%	%	%	%
Apples produced, bushels				
Apples sold, bushels				
Worker equivalents				
Total accrual oper. receipts	$	$	$	$
Rates of Production				
All apples, bushels/bearing acre				
Fresh - % of apples harvested	%	%	%	%
Cherries - tart, lbs./bearing acre				
Pears, bushels/bearing acre				
Non-bearing to bearing acre ratio	%	%	%	%
Labor Efficiency				
Bearing fruit, acres/worker				
All fruit, acres/worker				
Accrual receipts/worker	$	$	$	$
Cost Control - Accrual				
Cost/bearing acre:	$	$	$	$
All labor	$	$	$	$
All equipment	$	$	$	$
Spray	$	$	$	$
Hired labor as % of oper. exp.	%	%	%	%
Capital Efficiency - Average for the Year				
Total farm capital/bearing acre	$	$	$	$
Total farm capital/fruit acre	$	$	$	$
Capital turnover, years				
Profitability				
Net farm income:				
Without appreciation	$	$	$	$
With appreciation	$	$	$	$
Labor & mgmt. income/oper.	$	$	$	$
Rate of return to average capital w/apprec.:				
Equity capital	%	%	%	%
Total capital	%	%	%	%
Financial Summary - End of Year				
Farm:				
Net worth	$	$	$	$
Debt to asset ratio				
Debt/bearing acre	$	$	$	$
Cash flow coverage ratio				

NOTES

OTHER A.R.M.E. EXTENSION BULLETINS

EB No	Title	Author(s)
97-12	Dairy Farm Business Summary, Northern New York Region, 1996	Milligan, R.A., L.D. Putnam, P. Beyer, A. Deming, T. Teegerstrom, C. Trowbridge and G. Yarnall
97-11	Dairy Farm Business Summary, Central Valleys Region, 1996	LaDue, E.L., S.F. Smith, L.D. Putnam, D. Bowne, Z. Kurdich, C. Mentis, T. Wengert and C.Z. Radick
97-10	"Maximizing the Environmental Benefits per Dollar Expended": An Economic Interpretation and Review of Agricultural Environmental Benefits and Costs	Poe, G.
97-09	Dairy Farm Business Summary, Northern Hudson Region, 1996	Smith, S.F., L.D. Putnam, C.S. Wickswat, S. Buxton and D.R. Wood
97-08	Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 1996	Karszes, J., W.A. Knoblauch and L.D. Putnam
97-07	Dairy Farm Business Summary, Southeastern New York Region, 1996	Knoblauch, W.A., L.D. Putnam, S.E. Hadcock, L.R. Hulle, M. Kiraly, C.A. McKeon
97-06	Dairy Farm Business Summary, Western and Central Plateau Region, 1996	Knoblauch, W.A., L.D. Putnam, C.A. Crispell, J.S. Petzen, J.W. Grace, A.N. Dufresne and G. Albrecht
97-05	Dairy Farm Business Summary: Western and Central Plain Region, 1996	Knoblauch, W.A., L.D. Putnam, J. Karszes, M. Stratton, C. Mentis and George Allhusen
97-04	Fruit Farm Business Summary, Lake Ontario Region, New York, 1995	White, G.B., A. DeMarree and L.D. Putnam
97-03	Labor Productivities and Costs in 35 of the Best Fluid Milk Plants in the U.S.	Erba, E.M., R.D. Aplin and M.W. Stephenson
97-02	Micro DFBS: A Guide to Processing Dairy Farm Business Summaries in County and Regional Extension Offices for Micro DFBS Version 4.0	Putnam, L.D., W.A. Knoblauch and S.F. Smith
97-01	Changing Patterns of Fruit and Vegetable Production in New York State, 1970-94	Park, K., E.W. McLaughlin and C. Kreider
96-20	Supermarket Development in China	German, G., J. Wu and M.L. Chai

To order single copies of ARME publications, write to: Publications, Department of Agricultural, Resource, and Managerial Economics, Warren Hall, Cornell University, Ithaca, NY 14853-7801.