FRUIT FARM BUSINESS SUMMARY

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LAKE ONTARIO REGION 1982

Alison M. Wolanyk

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

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This is a summary and analysis of the 1982 farm business records from 14 commercial fruit farms in Western New York State. The records were collected and checked by Richard L. Pease and Alison Wolanyk, Cooperative Extension Fruit Specialist and Cooperative Extension Fruit Economics Specialist, respectively, for the Lake Ontario Region.

The main objectives of this study were to assist cooperators in this project and other fruit growers to: (1) develop skills in summarizing and analyzing data from their farm businesses; and (2) use the analysis to improve managerial decision-making. The purpose of the study was to provide a useful framework for analysis of the farm business. A grower may use the data to compare the farm operation with other similar farm businesses.

The farms in this study are primarily apple farms. An average of 72 percent of the cash receipts in 1982 was from the sale of apples. The data were not obtained by using a random or representative sample of all fruit farms in Western New York. Therefore, the analysis should not be used to represent the Western New York fruit industry.

This report was prepared in workbook form by Alison Wolanyk for use in a systematic study of individual farm business operations.

The 1980, 1981, and 1982 Crop Years

Apple production in New York State reached a record 26.9 million bushels in 1982. This was up from both the 19.0 million bushels reported in 1981 and the record crop of 1980. Prices for both fresh and processing apples decreased during the 1982 season resulting in an average price of $3.74 per bushel compared to the $5.38 per bushel figure reported in 1981.

The 1980, 1981, and 1982 Crop Years

	1980	1981	1982
Bushels of apples produced, all varieties, mil. bu.			
Western New York	17.4	12.6	17.3
State of New York	26.2	19.0	26.9
Average price received per bushel			
All apples	3.95	5.38	3.74
Fresh apples	7.56	8.82	6.09
Processing apples	1.81	2.67	2.39

Source: New York Crop Reporting Service, Fruit series, selected reports from 1981, 1982, and 1983.

A comparison of selected measures from the fruit farm business summaries is shown below. Labor and management income was negative in 1982. Apple yield per acre increased from the short 1981 crop, but was not as high as 1980. The price per bushel was down, reflecting lower fresh and processing prices in 1982.

	1980	1981	1982
Number of farms	10	18	14
Acres of bearing apples	82.9	75.7	84.7
Worker equivalents	6.1	5.0	5.2
Total farm investment ($)	332,886	353,571	392,690
Investment per bearing acre ($)	2,785	3,426	3,433
Bushels of apples harvested per worker	7,617	6,614	8,008
Apple yield per bearing acre (bushels)	560	437	492
Fruit receipts per bearing acre ($)	1,403	1,324	1,429
Average price per bushel of apples ($)	2.81	3.17	3.08
Cash expense per bearing acre ($)	1,180	1,087	1,172
Labor & management income per farm ($)	9,417	3,076	-7,230
Rate of return on equity capital (%)	5.7	9.7	0.1
Percent of acreage in nonbearing fruit	16.7	19.2	18.6

Summary of the Farm Business

The first part of this publication summarizes the fruit business in a systematic, orderly manner. It provides an opportunity to study physical resources, capital investments, receipts and expenses.

Physical Resources

Knowledge of what resources are employed and how they are combined is fundamental to sound business planning. This includes both the physical and financial resources of the business. Below are listed the physical resources for this group of fruit farms.

FARM ORGANIZATION
14 Western New York Fruit Farms, 1982

Item	My Farm	Average	Range
Land and crops (acres)*			
Bearing fruit:			
Apples		84.7(14)	11 - 179
Tart Cherries		10.1(12)	0 - 32
Peaches		2.8 (6)	0 - 12
Pears		6.3(10)	0 - 21
Plums and prunes		1.6 (4)	0 - 11
Grapes		6.5 (4)	0 - 55
Sweet Cherries		2.3 (4)	0 - 14
Other fruit		0.1 (2)	0 - 1
Total bearing		114.4	44 - 198
Non-bearing		26.1	0 - 75
TOTAL FRUIT		140.5	45 - 254
Other crops		0.9	0 - 8
TOTAL CROP ACRES		141.4	45 - 254
Total acres owned		181.7	0 - 401
Crop acres rented		18.0	0 - 101
Labor:			
Number of operators		1.1	1 - 3
Operator's age		44.0	28 - 66
Months of: Operator's		12.9	7 - 32
Family paid		4.5	0 - 20
Family unpaid		1.5	0 - 10
Regular hired		19.3	0 - 42
Seasonal hired		23.7	6 - 52
Total		62.0	24 - 104
Worker equivalent (total months ÷ 12)		5.2	2 - 8.7

* Number of growers that reported each crop are in parentheses; average acreage is for all growers.

Capital Investment

Management of the capital resources of a farm business is becoming increasingly important. To measure the complete financial progress of a farm, year to year changes in the capital structure must be considered. In this report borrowed as well as owned capital is included, and the end-of-year farm inventory is used as the measure of capital investment.

FARM INVENTORY VALUES
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per farm 1/82	Average per farm 1/83	Percent of total 1/83
Land & buildings	$_____	$220,005	$219,605	55.9
Machinery & equipment	_____	112,819	130,298	33.2
Fruit	_____	44,732	38,705	9.9
Production supplies	_____	3,789	3,573	0.9
Packing supplies	_____	382	509	0.1
TOTAL FARM INVENTORIES	$_____	$381,727	$392,690	100.0

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
14 Western New York Fruit Farms, 1982

Item	My Farm		Average	
End of year market value		(1)$_____		$130,298
Beginning market value	$_____		$112,819	
Plus machinery purchased	+_____		+ 21,032	
Less machinery sold	-_____		- 636	
Less depreciation	-_____		- 17,744	
Net end investment		(2)$_____		$115,471
APPRECIATION (1 minus 2)		$_____		$ 14,827

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

REAL ESTATE INVENTORY CALCULATIONS
14 Western New York Fruit Farms, 1982

Item	My Farm	Average
Beginning market value	$_____	$220,005
Cost of new real estate	$_____	$ 13,750
Less lost capital	-_____	- 5
Value of new added	+_____	+ 13,745
Less real estate depreciation	-_____	- 8,714
Less real estate sold	-_____	- 1,500
Total without appreciation	$_____	$223,536
Appreciation of beginning real estate	+_____	- 3,931
End of year market value	$_____	$219,605

Farm Family Financial Situation

The financial situation is an important part of the fruit farm business summary. It has a direct effect on current cash outflow and future capital investment decisions. A fruit grower may have a good labor income, but a high debt payment schedule may seriously restrict his management flexibility.

FARM FAMILY FINANCIAL SITUATION
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm
Assets		
Total farm inventory	$_____	$392,690
Accounts receivable	_____	6,745
Cash and checking account	_____	23,314
Co-op stocks	_____	9,490
Total Farm Assets	$_____	$432,239
Total Non-farm Assets	$_____	$ 45,117
TOTAL ASSETS	$_____	$477,356
Liabilities		
Real estate mortgage	$_____	$ 39,609
Liens and secured notes	_____	23,076
Installment contracts	_____	1,727
Other farm debt	_____	7,201
Total Farm Liabilities	$_____	$ 71,613
Non-farm Liabilities	$_____	0
TOTAL LIABILITIES	$_____	$ 71,613
Farm Net Worth (Farm assets less farm liabilities)	$_____	$360,626
Family Net Worth (Total assets less total liabilities)	$_____	$405,743
Percent Equity (Family net worth ÷ total assets)	_____%	85%
Payment Ability		
Cash for investment, principle payments, and family living expenses	$_____	$ 44,125
Interest paid	_____	7,631
CASH AVAILABLE FOR DEBT PAYMENT, CAPITAL INVESTMENT, & FAMILY LIVING EXPENSES	$_____	$ 36,494
Debt Payments Planned this year	$_____	$ 22,342

Payment Ability is the most important consideration in determining if and how proposed investments should be financed. The farm business must produce enough cash income to meet operating expenses, to cover family or personal living expenses, and to make debt payments.

Sources of Income

A successful farm business requires a level of gross earnings great enough to pay all costs, both operating and overhead, and leave a margin for the operator's labor and management. Here we examine the sources of receipts for this group of fruit farms.

FARM RECEIPTS
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm	Percent of Total
Apples	$_____	$128,388	72.0
Tart Cherries	_____	11,862	6.7
Peaches	_____	5,083	2.9
Pears	_____	5,818	3.3
Plums and prunes	_____	1,001	0.6
Grapes	_____	6,850	3.8
Sweet Cherries	_____	4,501	2.5
TOTAL FRUITS	$_____	$163,503	91.8
Miscellaneous	_____	14,722	8.2
TOTAL CASH RECEIPTS	$_____	$178,225	100.0
Increase in fruit inventory	_____	0	
Increase in supply and other inventory	_____	0	
TOTAL FARM RECEIPTS	$_____	$178,225	

The apple crop is by far the most important commodity produced on these farms. Total apple sales averaged 72 percent of total cash receipts.

The increases in fruit and supply inventories are included as farm receipts when measuring total farm income. The expenses associated with increasing fruit and supply inventories are included on the next page. The increase in supplies includes both production and packing supplies. Decreases in fruit and supply inventories are charged as overhead expenses.

Where the Money Went

With the large amount of cash flowing through a farm business today, it is important that the farm operator study expenses closely.

Financial Summary

The net returns for any business can be measured in several different ways. Each measure calculates the net return to a selected resource or group of resources such as labor or capital. Some of the common farm business measures are given below.

Net cash farm income reflects the cash available from the year's operation of the farm business for family living, payments on debt principal, and new purchases or investments. A family may have had additional cash available if members had non-farm income.

FARM EXPENSES
14 Western New York Fruit Farms, 1982

Item	My Farm	Average Per Farm	Percent of Total
Hired Labor (other than picking)	$_____	$27,661	20.6
Picking labor	_____	29,805	22.2
Machine hire	_____	3,348	2.5
Machine repair & farm share of auto expense	_____	8,858	6.6
Gasoline and oil	_____	7,067	5.3
Trucking	_____	779	0.6
Spray	_____	18,167	13.5
Fertilizer	_____	4,328	3.2
Trees and plants (replacements)	_____	651	0.5
Other crop expense	_____	2,280	1.7
Packing supplies	_____	931	0.7
Storage	_____	2,950	2.2
Marketing	_____	1,352	1.0
Products bought for resale	_____	1,362	1.0
Real estate repairs	_____	1,613	1.2
Taxes	_____	4,275	3.2
Insurance	_____	3,494	2.6
Rent	_____	2,405	1.8
Electric	_____	1,386	1.0
Telephone	_____	405	0.3
Interest paid	_____	7,631	5.7
Miscellaneous	_____	3,353	2.5
TOTAL CASH OPERATING EXPENSES	$_____	$134,100	100.0
Machinery depreciation	_____	17,744	
Building depreciation	_____	8,714	
Decrease in fruit inventory	_____	6,027	
Decrease in supply & other inventory	_____	89	
Unpaid family labor @ $500/mo.	_____	750	
Interest on equity capital @ 5%*	_____	18,031	
TOTAL FARM EXPENSES	$_____	$185,455	

* Calculated as follows: Total farm assets at the end of the year less farm liabilities @ 5% interest.

NET CASH FARM INCOME
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm
Total Cash Receipts	$_____	$178,225
Total Cash Operating Expenses	_____	134,100
NET CASH FARM INCOME	$_____	$ 44,125

Labor and management income is the return to the farm operator for labor and management. It is the measure most commonly used when comparing the profitability of farm businesses. Labor and management income is the amount left after paying all cash operating expenses and deducting charges for depreciation, unpaid labor, interest on equity capital, and losses in fruit and supply inventories. The business is charged a five percent interest rate, or opportunity cost, for the use of equity capital, assuming an alternative investment would return as much.

LABOR AND MANAGEMENT INCOME
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm
Total Farm Receipts	$_____	$178,225
Total Farm Expenses	_____	185,455
LABOR & MANAGEMENT INCOME PER FARM	$_____	(-)$ 7,230
Number of Operators	_____	1.1
LABOR & MANAGEMENT INCOME PER OPERATOR	$_____	(-)$ 6,573

In addition to labor and management income, the owner-operator of a farm business should receive income from the capital investment in the business. This income is received in the form of interest on equity in the business and real estate and machinery appreciation. These three "ownership income" items are added to labor and management income to determine labor, management, and ownership income. This indicates the total return the owner-operator receives for owning and operating the business.

LABOR, MANAGEMENT, AND OWNERSHIP INCOME
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm
Labor & Management Income per Farm	$_____	(-)$ 7,230
Add: Real Estate Appreciation	_____	(-) 3,931
Add: Machinery Appreciation	$_____	14,827
Add: Interest on Equity Capital @ 5%	_____	18,031
LABOR, MANAGEMENT & OWNERSHIP INCOME PER FARM	$_____	$21,697
Number of Operators	_____	1.1
LABOR, MANAGEMENT & OWNERSHIP INCOME PER OPERATOR	$_____	$19,725

Return on equity capital can be computed with or without real estate appreciation. To calculate return on equity capital (including real estate appreciation), the value of the operator's labor and management is deducted from labor, management and ownership income. This return to equity capital is divided by the owner's equity investment in the business to compute the rate of return on equity capital. Owner's equity investment used here is total end of year farm assets less total farm liabilities.

RETURN ON EQUITY CAPITAL
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm
		Including Appreciation
Labor, Management & Ownership Income	$_____	$21,697
Less: Value of Operator's Labor & Management*	_____	18,128
Return on Equity Capital	$_____	$ 3,569
Rate of Return on Equity Capital (equity capital = $360,626)	_____%	0.1%

* Values estimated by farmers.

Analysis of the Farm Business

Size and Efficiency

In analyzing a farm business, size is usually the first factor to be examined. Size of farm can have an important effect on many of the other factors such as labor efficiency, cost control, and capital efficiency. The prices received and paid by a farmer are often affected by the volume involved which is a function of the size factor.

In general, larger farm busineses make larger incomes. There are at least two basic reasons for this. Larger businesses make possible more efficient use of inputs such as equipment, the regular labor force, and other overhead items. Secondly, there are more units of production on which to make a profit. However, some small farms make greater incomes than larger farms. This happens when management ability is not in balance with the size of the business.

High rates of crop production are very important to the success of a farm business. However, when high crop yields are achieved without regard to quality or cost, net income can be reduced.

Labor is one of the limiting resources on many farms. Efficient use of labor tends to add to the profitability of a farm business. The productivity of labor can be increased by use of modern equipment, buildings and materials. However, one must be careful not to invest in technology that adds little to productivity in relation to cost.

In many businesses, poor capital efficiency is a major cause of low profits. 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 under-capitalized, but investing too much capital per production unit is a more common problem.

SELECTED FARM BUSINESS MEASURES
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm
Measures of size		
Acres in crops	_____	141.4
Acres in fruit	_____	140.5
Total bearing acres	_____	114.4
Worker equivalents	_____	5.2
Bushels of apples produced	_____	41,640
Fruit receipts ($)	_____	163,503
Production efficiency		
Fruit receipts per bearing acre ($)	_____	1,429
Bushels of apples per bearing acre	_____	492
Bushels of peaches per bearing acre	_____	203
Bushels of pears per bearing acre	_____	236
Bushels of plums & prunes per bearing acre	_____	130
Labor efficiency		
Acres in fruit per worker equivalent	_____	27.0
Fruit receipts per worker equivalent ($)	_____	31,443
Bushels of apples harvested per worker equivalent	_____	8,008
Capital efficiency		
Capital turnover	_____	2.2 yrs.
Total investment per acre of bearing fruit ($)	_____	3,433
Total investment/worker equivalent ($)	_____	75,517
Total investment per crop acre ($)	_____	2,777
Land and buildings per crop acre ($)	_____	1,553
Land and buildings per acre owned ($)	_____	1,209

Cost Control

The control of costs is a big factor in the success of modern commercial fruit operations. The exact level of production items to be used to obtain the greatest net return is difficult to determine.

Successful farm managers have substituted power and machinery for labor to a large degree. As this process continues, it is vitally important to retain control of the costs associated with owning and operating farm equipment.

MACHINERY COSTS
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm	Percent
Depreciation	$_____	$17,744	41.2
Interest @ 5% on average inventory	_____	6,078	14.1
Machine hire	_____	3,348	7.8
Machine repairs and auto	_____	8,858	20.5
Gasoline and oil	_____	7,067	16.4
TOTAL MACHINERY COSTS	$_____	$43,095	100.0
Machinery cost:			
Per crop acre	$_____	$ 305	
Per acre of bearing fruit	$_____	377	
Machinery investment per fruit acre	$_____	927	
Per dollar of fruit sold	$_____	.26	

Most farm operators justify major machinery purchases as a way to save labor and increase productivity. How well labor and machinery are combined has an important bearing on farm profits.

LABOR AND MACHINERY COSTS
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm
Value of operator's labor*		$ 9,900
Hired labor		57,466
Unpaid family labor		750
TOTAL LABOR COSTS		$ 68,116
Total machinery cost		43,095
TOTAL LABOR & MACHINERY COSTS		$111,211
Labor cost:		
Per crop acre		$482
Per acre of bearing fruit		$595
Per dollar of fruit sold		$.42
Labor and machinery costs:		
Per crop acre		$786
Per acre of bearing fruit		$972
Per dollar of fruit sold		$.68

* Valued at $9,000 per operator. Operator's labor does not include management and capital contributed.

Miscellaneous Cost Control Measures

MISCELLANEOUS COST MEASURES
14 Western New York Fruit Farms, 1982

Item	My Farm	Average per Farm
Spray materials per fruit acre		$129
Taxes per crop acre owned		35
Taxes per $1,000 of end real estate inventory		20
Taxes and insurance per $1,000 real estate inventory		35