FRUIT FARM BUSINESS SUMMARY

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LAKE ONTARIO REGION 1987

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This is a summary and analysis of the 1987 farm business records from 11 commercial fruit farms in Western New York State. The records were collected and checked by Alison DeMarree, Cooperative Extension Fruit Economics Specialist 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 78 percent of the cash receipts in 1987 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. The analysis should not be used to represent the Western New York fruit industry.

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

The 1984, 1985, 1986, and 1987 Crop Years

Apple production in New York State was 23.6 million bushels in 1987. This was up about nine percent from the 1986 crop of 21.4. Prices for fresh apples were about 17 percent less than in 1986 before deducting storage, packing, and marketing costs. The price actually received by farmers was about 16 percent less than in 1986. The average price paid for processing fruit decreased about four percent. The average price paid for processing fruit is substantially affected by the price paid for juice apples throughout the marketing season. The average price for all apples was $5.67 in New York State compared to $3.91 in 1986.

The 1984 Through 1987 Crop Years

	1984	1985	1986	1987
Bushels of apples produced, all varieties, million bushels				
Western New York	17.0	18.6	15.0	14.5
State of New York	24.3	26.0	21.4	23.6
Average price received per bushel				
All apples	$4.70	$2.94	$ 3.91	$ 5.67
Fresh apples	8.44	8.42	11.68	10.00
Fresh apples, Western New York	7.76	6.85	11.00	8.17
Processing apples	2.25	1.87	2.48	2.39
F.O.B. fresh price less packing, storage costs, etc., Western New York	4.18	4.62	6.89	5.92
Bulk price, fresh apples, Western New York	4.77	4.45	4.83	4.37

SOURCE: New York Crop Reporting Service, Fruit series, selected reports from 1984, 1985, 1986, and 1987.

A comparison of selected measures from the fruit farm business summaries is shown below. Labor and management income per farm was $-9,430 in 1987.

	1984	1986	1987
Number of farms	13	10	11
Acres of bearing apples	96.0	107.1	122.8
Worker equivalents	6.0	6.2	6.8
Total farm investment ($)	412,558	379,647	436,058
Investment per bearing acre ($)	3,216	2,931	2,880
Bushels of apples harvested per worker	7,513	7,009	8,106
Apple yield per bearing acre (bushels)	470	406	449
Fruit receipts per bearing acre ($)	1,464	1,714	1,430
Average price per bushel of apples ($)	3.42*	4.43*	3.20**
Cash expenses per bearing acre ($)	1,111	1,357	1,339
Labor & management income per farm ($)	6,206	17,662	(9,430)
Rate of return on equity capital (%)	10.6	6.6	-2.2
Percent of fruit acreage in nonbearing fruit	13.2	12.9	12.2

*Calculated as calendar year receipts divided by total bushels of apples. Fifty-six percent of the calendar year receipts in 1986 were from the 1986 crop. Fifty-three percent of the calendar year receipts in 1987 were from the 1987 apple crop. The average price per bushel using this was $3.49.

**Accrued price per bushel = cash receipts from 1987 apple crop + accounts receivable from 1987 apple crop + value of 1987 apple crop in storage.

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. The physical resources for this group of fruit farms are listed on the following table.

FARM ORGANIZATION
11 Western New York Fruit Farms, 1987

Item	My Farm	Average	Range
Land & crops (acres)*			
Bearing fruit:			
Apples		122.8 (11)	20.5 - 221.0
Tart Cherries		11.2 (6)	0 - 39.8
Peaches		1.6 (3)	0 - 8.5
Pears		5.1 (6)	0 - 21.0
Plums & prunes		2.4 (6)	0 - 11.5
Grapes		4.6 (2)	0 - 43.0
Sweet Cherries		2.7 (5)	0 - 20.0
Other fruit		1.0 (3)	0 - 10.35
Total bearing		151.4	45.7 - 277.0
Nonbearing		21.1	2.0 - 42.0
TOTAL FRUIT		172.5	72.7 - 310.0
Other crops		2.3	0 - 10.0
TOTAL CROP ACRES		174.8	72.7 - 310.0
Total acres owned		239.1	45 - 510.0
Crop acres rented		37.5	0 - 163.8
Labor:			
Number of operators		1.6	0.7 - 3.3
Operator's age		47.0	24 - 65.0
Months of: Operator's		18.6	8.6 - 39.0
Family paid		2.0	0 - 8.5
Family unpaid		0.3	0 - 3.0
Regular hired		23.3	0 - 54.0
Seasonal hired		36.9	11 - 112.0
Total		81.2	30 - 189.6*
Worker equivalent (total months ÷ 12)		6.8	2.5 - 15.8

*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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm 12/31/87	Percent of Total 12/31/87
Land & buildings	$_____	$235,398	54.0
Machinery & equipment	_____	155,983	35.8
Fruit	_____	41,537	9.5
Production supplies	_____	2,193	0.5
Packing supplies	_____	947	0.2
TOTAL FARM INVENTORIES	$_____	$436,058	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
11 Western New York Fruit Farms, 1987

Item	My Farm		Average
End of year market value	(1)$_____		$155,983
Beginning market value	$_____	$153,570	
Plus machinery purchased	+_____	+ 16,516	
Less machinery sold	-_____	- 2,778	
Less depreciation	-_____	- 20,516	
Net end investment	(2)$_____		$146,792
APPRECIATION (1 minus 2)	$_____		$ 9,191

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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average
Beginning market value	$_____	$224,836
Cost of new real estate $_____		$16,282
Less lost capital -_____		- 0
Value of new added	+_____	+ 16,282
Less real estate depreciation	-_____	- 8,496
Less real estate sold	-_____	- 0
Total without appreciation	$_____	$232,623
Appreciation of beginning real estate	+_____	+ 2,776
End of Year Market Value	$_____	$235,398

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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm
Assets		
Total farm inventory	$_____	$436,058
Notes, accounts receivable & prepaid expenses	_____	49,433
Cash & checking account	_____	11,884
Co-op stocks	_____	23,025
Total Farm Assets	$_____	$520,400
Total Non-Farm Assets	_____	68,160
TOTAL ASSETS	$_____	$588,560
Liabilities		
Real estate mortgage/lont-term	$_____	$ 56,925
Machinery/intermediate	_____	22,262
Operating/current	_____	37,163
Accounts payable	_____	0
Total Farm Liabilities	$_____	$116,351
Non-Farm Liabilities	_____	0
TOTAL LIABILITIES	$_____	$116,351
Farm Net Worth (farm assets less farm liabilities	$_____	$404,049
Family Net Worth (total assets less total liabilities)	$_____	$472,209
Percent Equity (family net worth - total assets)	_____%	80%
Payment Ability		
Cash for investment, principal payments, & family living expenses	$_____	$ 44,690
Interest paid	_____	9,536
CASH AVAILABLE FOR DEBT PAYMENT, CAPITAL INVESTMENT, & FAMILY LIVING EXPENSES	$_____	$ 54,226
Debt Payments Planned this Year	$_____	$ 22,876

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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm	Percent of Total
Apples	$_____	$192,209	77.7
Tart cherries	_____	5,407	2.2
Peaches	_____	1,851	0.7
Pears	_____	6,169	2.5
Plums & prunes	_____	965	0.4
Grapes	_____	4,109	1.7
Sweet cherries	_____	3,239	1.3
Other fruits	_____	2,602	1.1
TOTAL FRUITS	$_____	$216,551	87.5
Miscellaneous	_____	30,910	12.5
TOTAL CASH OPERATING RECEIPTS	$_____	$247,461	100.0
Change in fruit inventory	_____	3,317	
Change in accounts receivable	_____	(4,377)	
TOTAL FARM RECEIPTS	$_____	$246,402	

The apple crop is by far the most important commodity produced on these farms. Total apple sales averaged 77.7 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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm	Percent of Total
Gross Wages			
Hired labor (other than picking)	$_____	$ 31,529	15.5
Picking labor	_____	35,100	17.3
Other labor costs (soc. sec., unemp. ins, health benefits, workers comp., etc.)	_____	15,799	7.8
Machine hire	_____	2,864	1.4
Machine repair & farm share of auto expenses	_____	12,048	5.9
Gasoline & oil	_____	6,658	3.3
Trucking	_____	1,221	0.6
Spray	_____	29,987	14.8
Fertilizer	_____	5,297	2.6
Trees & plants (replacements)	_____	631	0.3
Other crop expense	_____	4,122	2.0
Harvest supplies	_____	677	0.3
Labor camp expenses	_____	410	0.2
Picker travel	_____	1,199	0.6
Packing supplies	_____	340	0.2
Storage	_____	10,638	5.2
Marketing	_____	434	0.2
Products bought for resale	_____	8,450	4.2
Real estate repairs	_____	2,760	1.4
Taxes	_____	5,315	2.6
Insurance	_____	4,190	2.1
Rent	_____	4,530	2.2
Electric	_____	2,580	1.3
Telephone	_____	999	0.5
Interest paid	_____	9,536	4.7
Miscellaneous	_____	5,457	2.7
TOTAL CASH OPERATING EXPENSES	$_____	$202,771	100.0
Machinery depreciation	_____	20,516	
Building depreciation	_____	3,386	
Orchard depreciation	_____	5,110	
Change in accounts payable	_____	(47)	
Change in prepaid expenses	_____	182	
Change in supply & other inventory	_____	129	
Unpaid family labor @ $650/month	_____	176	
Interest on equity capital @ 5%*	_____	23,610	
TOTAL FARM EXPENSES	$_____	$255,832	

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

NET CASH FARM INCOME
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm
Total Cash Operating Receipts	$_____	$247,461
Total Cash Operating Expenses	_____	202,771
NET CASH FARM INCOME	$_____	$ 44,690

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 real rate of interest or opportunity cost for the use of equity capital. This real rate of interest represents the long-term average rate of return that a grower could expect to earn on investments with comparable risks to farming, in an economy with little or no inflation.

LABOR AND MANAGEMENT INCOME
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm
Total Farm Receipts	$_____	$246,402
Total Farm Expenses	_____	255,832
LABOR & MANAGEMENT INCOME PER FARM	$_____	$ (9,430)
Number of Operators	_____	1.6
LABOR & MANAGEMENT INCOME PER OPERATOR	$_____	$ (5,821)

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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm
Labor & Management Income per Farm	$_____	$(9,430)
Add: Real Estate Appreciation	_____	2,776
Add: Machinery Appreciation	_____	9,191
Add: Interest on Equity Capital @ 5%	_____	20,202
LABOR, MANAGEMENT & OWNERSHIP INCOME PER FARM	$_____	$22,739
Number of Operators	_____	1.6
LABOR, MANAGEMENT & OWNERSHIP INCOME PER OPERATOR	$_____	$14,212

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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm
		Including Appreciation
Labor, Management & Ownership Income	$_____	$22,739
Less: Value of Operator's Labor & Management*	_____	31,575
Return on Equity Capital	$_____	$(8,836)
Rate of Return on Equity Capital (equity capital = $404,049)	_____%	-2.2%

*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 businesses have the potential to 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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm
Measures of Size		
Acres in crops	_____	174.8
Acres in fruit	_____	172.5
Total bearing acres	_____	151.4
Worker equivalents	_____	6.8
Bushels of apples produced	_____	55,122
Fruit receipts ($)	_____	216,551
Production Efficiency		
Fruit receipts per bearing acre ($)	_____	1,430
Bushels of apples per bearing acre	_____	449
Bushels of peaches per bearing acre	_____	94
Bushels of pears per bearing acre	_____	356
Bushels of plums & prunes per bearing acre	_____	126
Labor Efficiency		
Acres in fruit per worker equivalent	_____	25.4
Fruit receipts per worker equivalent ($)	_____	31,846
Bushels of apples harvested per worker equivalent	_____	8,106
Capital Efficiency		
Capital turnover	_____	1.8 years
Total investment per acre of bearing fruit ($) (436,058)	_____	2,880
Total investment per worker equivalent ($)	_____	64,126
Total investment per crop acre ($)	_____	2,495
Land & buildings per crop acre ($) (235,398)	_____	1,347
Land & buildings per acre owned ($)	_____	985

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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm	Percent
Depreciation	$_____	$20,516	41.3
Interest @ 5% on average inventory	_____	7,569	15.2
Machine hire	_____	2,864	5.8
Machine repairs & auto	_____	12,048	24.3
Gasoline & oil	_____	6,658	13.4
TOTAL MACHINERY COSTS	$_____	$49,655	100.0
Machinery Cost:			
Per crop acre	$_____	$284	
Per acre of bearing fruit	$_____	$328	
Per dollar of fruit sold	$_____	$0.23	
Machinery investment per fruit acre	$_____	$904	

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
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm
Value of operator's labor*	$_____	$17,280
Hired labor	_____	82,428
Unpaid family labor (@ $650/month)	_____	195
TOTAL LABOR COSTS	$_____	$ 99,903
Total machinery cost	_____	49,655
TOTAL LABOR & MACHINERY COSTS	$_____	$149,558
Labor cost:		
Per crop acre	$_____	$572
Per acre of bearing fruit	$_____	$660
Per dollar of fruit sold	$_____	$0.46
Labor & machinery costs:		
Per crop acre	$_____	$856
Per acre of bearing fruit	$_____	$988
Per dollar of fruit sold	$_____	$0.69

*Valued at $10,800 per operator. Operator's labor does not include management and capital contributed.

Miscellaneous Cost Control Measures

MISCELLANEOUS COST MEASURES
11 Western New York Fruit Farms, 1987

Item	My Farm	Average per Farm
Spray materials per fruit acre	$_____	$174
Taxes per crop acre owned	_____	30
Taxes per $1,000 of end real estate inventory	_____	23
Taxes & insurance per $1,000 of real estate inventory	_____	40