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FRUIT FARM BUSINESS SUMMARY

LAKE ONTARIO REGION 1986

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LAKE ONTARIO FRUIT FARM
BUSINESS SUMMARY
1986
10 Fruit Farms

This is a summary and analysis of the 1986 farm business records from 10 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 1986 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, and 1986 Crop Years

Apple production in New York State was 22.6 million bushels in 1986. This was down about 13 percent from the 1985 crop of 26.0. Prices for fresh apples were about 43 percent higher than in 1985, and the average price of processing apples increased 32 percent. The average price paid for processing fruit is effected substantially by the price paid for juice apples throughout the marketing season. The average price for all apples was \$3.91 per bushel compared with \$2.94 in 1985.

The 1982, 1983, and 1984 Crop Years

	<u>1984</u>	<u>1985</u>	<u>1986</u>
Bushels of apples produced, all varieties, million bushels			
Western New York	17.0	18.6	15.0
State of New York	24.3	26.0	22.6
Average price received per bushel			
All apples	4.70	2.94	3.91
Fresh apples	8.44	4.83	6.93
Processing apples	2.25	1.87	2.48
F.O.B. fresh price less packing, storage costs, etc., Western New York	4.18	4.62	6.89
Bulk price, fresh apples, Western New York	4.77	4.45	4.83

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

A comparison of selected measures from the fruit farm business summaries is shown below. Labor and management income was \$17,662 in 1986.

	<u>1983</u>	<u>1984</u>	<u>1986</u>
Number of farms	16	13	10
Acres of bearing apples	90.6	96.0	107.1
Worker equivalents	5.8	6.0	6.2
Total farm investment (\$)	411,468	412,558	379,647
Investment per bearing acre (\$)	3,348	3,216	2,931
Bushels of apples harvested per worker	8,771	7,513	7,009
Apple yield per bearing acre (bushels)	562	470	406
Fruit receipts per bearing acre (\$)	1,490	1,464	1,714
Average price per bushel of apples (\$)	2.77	3.42*	4.43*
Cash expenses per bearing acre (\$)	1,182	1,111	1,357
Labor & management income per farm (\$)	14,891	6,206	17,662
Rate of return on equity capital (%)	9.9	10.6	6.6
Percent of acreage in nonbearing fruit	18.3	13.2	12.9

*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.

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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average	Range
<u>Land & crops (acres)*</u>			
Bearing fruit:			
Apples	_____	107.1 (10)	20.5 - 221
Tart Cherries	_____	5.0 (9)	0 - 29
Peaches	_____	1.2 (6)	0 - 21
Pears	_____	5.5 (8)	0 - 4
Plums & prunes	_____	1.6 (5)	0 - 12.5
Grapes	_____	5.5 (3)	0 - 43
Sweet Cherries	_____	3.5 (6)	0 - 15.5
Other fruit	_____	0.2	0 - 2
Total bearing	_____	129.6	55 - 262
Nonbearing	_____	20.8	2 - 52
TOTAL FRUIT	_____	150.4	67.7 - 314
Other crops	_____	5.4	0 - 31.5
TOTAL CROP ACRES	_____	155.7	67.7 - 314
Total acres owned	_____	196.8	45 - 350
Crop acres rented	_____	29.95	0 - 102
<u>Labor:</u>			
Number of operators	_____	1.4	0.25 - 3
Operator's age	_____	43.0	23 - 65
Months of: Operator's	_____	16.35	3 - 36
Family paid	_____	2.04	0 - 8
Family unpaid	_____	1.0	0 - 10
Regular hired	_____	27.08	5 - 59
Seasonal hired	_____	<u>28.52</u>	3 - 110
Total	_____	74.99	22 - 196
Worker equivalent (total months ÷ 12)	_____	6.2	1.83 - 16.33

*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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm		Percent of Total, 1/86
		1/85	1/86	
Land & buildings	\$ _____		\$195,017	51.4
Machinery & equipment	_____		142,940	37.7
Fruit	_____		39,202	10.3
Production supplies	_____		1,965	0.5
Packing supplies	_____		523	0.1
TOTAL FARM INVENTORIES	\$ _____		\$379,647	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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average
End of year market value	(1)\$ _____	\$142,940
Beginning market value	\$ _____	\$142,401
Plus machinery purchased	+ _____	+ 15,355
Less machinery sold	- _____	- 768
Less depreciation	- _____	- 22,528
Net end investment	(2)\$ _____	\$134,460
APPRECIATION (1 minus 2)	\$ _____	\$ 8,480

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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average
Beginning market value	\$ _____	\$181,386
Cost of new real estate	\$ _____	\$15,523
Less lost capital	- _____	- 475
Value of new added	+ _____	+ 15,049
Less real estate depreciation	- _____	- 6,683
Less real estate sold	- _____	- 15
Total without appreciation	\$ _____	\$189,736
Appreciation of beginning real estate	+ _____	+ 5,281
End of Year Market Value	\$ _____	\$195,017

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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm
<u>Assets</u>		
Total farm inventory	\$ _____	\$379,647
Accounts receivable	_____	50,644
Cash & checking account	_____	8,118
Co-op stocks	_____	<u>22,553</u>
Total Farm Assets	\$ _____	\$460,963
Total Non-Farm Assets	_____	<u>75,107</u>
TOTAL ASSETS	\$ _____	<u>\$536,069</u>
<u>Liabilities</u>		
Real estate mortgage	\$ _____	\$ 54,314
Liens & secured notes	_____	8,703
Installment contracts	_____	0
Other farm debt	_____	<u>42,944</u>
Total Farm Liabilities	\$ _____	\$105,961
Non-Farm Liabilities	_____	<u>0</u>
TOTAL LIABILITIES	\$ _____	<u>\$105,961</u>
Farm Net Worth (farm assets less farm liabilities)	\$ _____	\$355,002
Family Net Worth (total assets less total liabilities)	\$ _____	\$430,109
Percent Equity (family net worth - total assets)	_____ %	80%
<u>Payment Ability</u>		
Cash for investment, principal payments, & family living expenses	\$ _____	\$ 69,974
Interest paid	_____	<u>9,358</u>
CASH AVAILABLE FOR DEBT PAYMENT, CAPITAL INVESTMENT, & FAMILY LIVING EXPENSES	\$ _____	\$ 79,332
Debt Payments Planned this Year	\$ _____	\$ 28,183

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 10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm	Percent of Total
Apples	\$ _____	\$192,537	78.3
Tart cherries	_____	2,653	1.1
Peaches	_____	1,072	0.4
Pears	_____	11,583	4.7
Plums & prunes	_____	1,353	0.6
Grapes	_____	3,124	1.3
Sweet cherries	_____	9,390	3.8
Other fruits	_____	<u>420</u>	<u>0.2</u>
TOTAL FRUITS	\$ _____	\$222,133	90.4
Miscellaneous	_____	<u>23,702</u>	<u>9.6</u>
TOTAL CASH RECEIPTS	\$ _____	\$245,835	100.0
Increase in fruit inventory	_____	0	
Increase in supply & other inventory	_____	<u>0</u>	
TOTAL FARM RECEIPTS	\$ _____	\$245,835	

The apple crop is by far the most important commodity produced on these farms. Total apple sales averaged 78 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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm	Percent of Total
<u>Gross Wages</u>			
Hired labor (other than picking)	\$ _____	\$ 29,546	16.8
Picking labor	_____	34,043	19.4
Other labor costs (soc. sec., unemp. ins, health benefits, workers comp., etc.)	_____	13,501	7.7
Machine hire	_____	2,010	1.1
Machine repair & farm share of auto expenses	_____	10,583	6.0
Gasoline & oil	_____	5,960	3.4
Trucking	_____	1,086	0.6
Spray	_____	23,724	13.5
Fertilizer	_____	4,724	2.7
Trees & plants (replacements)	_____	295	0.2
Other crop expense	_____	2,519	1.4
Harvest supplies	_____	447	0.3
Labor camp expenses	_____	485	0.3
Picker travel	_____	333	0.2
Packing supplies	_____	3,416	1.9
Storage	_____	10,060	5.7
Marketing	_____	679	0.4
Products bought for resale	_____	3,416	1.9
Real estate repairs	_____	3,325	1.9
Taxes	_____	4,008	2.3
Insurance	_____	3,160	1.8
Rent	_____	3,803	2.2
Electric	_____	1,539	0.9
Telephone	_____	614	0.3
Interest paid	_____	9,358	5.3
Miscellaneous	_____	<u>3,227</u>	<u>1.8</u>
TOTAL CASH OPERATING EXPENSES	\$ _____	\$175,861	100.0
Machinery depreciation	_____	22,528	
Building depreciation	_____	2,976	
Orchard depreciation	_____	3,707	
Decrease in fruit inventory	_____	4,681	
Decrease in supply & other inventory	_____	70	
Unpaid family labor @ \$600/month	_____	600	
Interest on equity capital @ 5%*	_____	<u>17,750</u>	
TOTAL FARM EXPENSES	\$ _____	\$228,173	

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

NET CASH FARM INCOME
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm
Total Cash Receipts	\$ _____	\$245,835
Total Cash Operating Expenses	_____	<u>175,861</u>
NET CASH FARM INCOME	\$ _____	\$ 69,974

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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm
Total Farm Receipts	\$ _____	\$245,835
Total Farm Expenses	_____	<u>228,173</u>
LABOR & MANAGEMENT INCOME PER FARM	\$ _____	\$ 17,662
Number of Operators	_____	1.4
LABOR & MANAGEMENT INCOME PER OPERATOR	\$ _____	\$ 12,616

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
10 Western New York Fruit Farms, 1986

<u>Item</u>	<u>My Farm</u>	<u>Average per Farm</u>
Labor & Management Income per Farm	\$ _____	\$17,662
Add: Real Estate Appreciation	_____	5,281
Add: Machinery Appreciation	_____	8,480
Add: Interest on Equity Capital @ 5%	_____	<u>17,750</u>
LABOR, MANAGEMENT & OWNERSHIP INCOME PER FARM	\$ _____	\$49,173
Number of Operators	_____	1.4
LABOR, MANAGEMENT & OWNERSHIP INCOME PER OPERATOR	\$ _____	\$35,124

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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm
		<u>Including Appreciation</u>
Labor, Management & Ownership Income	\$ _____	\$49,173
Less: Value of Operator's Labor & Management*	_____	<u>25,747</u>
Return on Equity Capital	\$ _____	\$23,426
Rate of Return on Equity Capital (equity capital = \$452,253)	_____ %	6.6%

*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 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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm
<u>Measures of Size</u>		
Acres in crops	_____	155.7
Acres in fruit	_____	150.4
Total bearing acres	_____	129.6
Worker equivalents	_____	6.2
Bushels of apples produced	_____	43,455
Fruit receipts (\$)	_____	222,133
<u>Production Efficiency</u>		
Fruit receipts per bearing acre (\$)	_____	1,714
Bushels of apples per bearing acre	_____	406
Bushels of peaches per bearing acre	_____	64
Bushels of pears per bearing acre	_____	358
Bushels of plums & prunes per bearing acre	_____	309
<u>Labor Efficiency</u>		
Acres in fruit per worker equivalent	_____	24.3
Fruit receipts per worker equivalent (\$)	_____	35,828
Bushels of apples harvested per worker equivalent	_____	7,009
<u>Capital Efficiency</u>		
Capital turnover	_____	1.5 years
Total investment per acre of bearing fruit (\$) (379,647)	_____	2,931
Total investment per worker equivalent (\$)	_____	60,752
Total investment per crop acre (\$)	_____	2,438
Land & buildings per crop acre (\$) (195,017)	_____	1,253
Land & buildings per acre owned (\$)	_____	991

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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm	Percent
Depreciation	\$ _____	\$22,528	46.7
Interest @ 5% on average inventory	_____	7,134	14.8
Machine hire	_____	2,010	4.2
Machine repairs & auto	_____	10,583	21.9
Gasoline & oil	_____	<u>5,960</u>	<u>12.4</u>
TOTAL MACHINERY COSTS	\$ _____	\$48,215	100.0
 Machinery Cost:			
Per crop acre	\$ _____	\$310	
Per acre of bearing fruit	\$ _____	\$372	
Machinery investment per fruit acre	\$ _____	\$951	
Per dollar of fruit sold	\$ _____	\$0.22	

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
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm
Value of operator's labor*	\$ _____	\$ 14,280
Hired labor	_____	77,091
Unpaid family labor (@ \$600/month)	_____	600
TOTAL LABOR COSTS	\$ _____	\$ 91,971
Total machinery cost	_____	48,215
TOTAL LABOR & MACHINERY COSTS	\$ _____	\$140,186

Labor cost:

Per crop acre	\$ _____	\$591
Per acre of bearing fruit	\$ _____	\$710
Per dollar of fruit sold	\$ _____	\$0.41

Labor & machinery costs:

Per crop acre	\$ _____	\$900
Per acre of bearing fruit	\$ _____	\$1,082
Per dollar of fruit sold	\$ _____	\$0.63

*Valued at \$10,200 per operator. Operator's labor does not include management and capital contributed.

Miscellaneous Cost Control Measures

MISCELLANEOUS COST MEASURES
10 Western New York Fruit Farms, 1986

Item	My Farm	Average per Farm
Spray materials per fruit acre	\$ _____	\$158
Taxes per crop acre owned	_____	26
Taxes per \$1,000 of end real estate inventory	_____	21
Taxes & insurance per \$1,000 of real estate inventory	_____	37