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FRUIT FARM BUSINESS SUMMARY

LAKE ONTARIO REGION 1981

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LAKE ONTARIO
FRUIT FARM
BUSINESS SUMMARY
1981
18 Fruit Farms

This is a summary and analysis of the 1981 farm business records from 18 commercial fruit farms in Western New York State. The records were collected and checked by Richard L. Pease, Cooperative Extension Fruit 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 70 percent of the cash receipts in 1981 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 Gerald B. White, Department of Agricultural Economics, Cornell University, for use in a systematic study of individual farm business operations.

The 1979, 1980, and 1981 Crop Years

Apple production in New York State reached 19.0 million bushels in 1981. This was down from both the 24.6 million bushels reported in 1979 and the record crop of 1980. However, prices for both fresh and processing apples increased during the 1981 season resulting in an average price of \$5.38 per bushel compared to the \$3.95 per bushel figure reported in 1980.

The 1979, 1980, and 1981 Crop Years

	<u>1979</u>	<u>1980</u>	<u>1981</u>
Bushels of apples produced, all varieties, mil. bu.			
Western New York	16.2	17.4	12.6
State of New York	24.6	26.2	19.0
Average price received per bushel			
All apples	4.20	3.95	5.38
Fresh apples	7.35	7.56	8.82
Processing apples	2.16	1.81	2.67

Source: New York Crop Reporting Service, Fruit series, selected reports from 1980, 1981, and 1982.

A comparison of selected measures from the fruit farm business summaries is shown below. Labor and management income was down in 1981. (A change in the method of handling machinery and real estate depreciation occurred in 1980 and is responsible for a part of this decline since 1979.) Apple yield per acre decreased from 1979 and 1980, but the price received per bushel was up reflecting higher prices for both fresh and processing apples in 1981.

	<u>1979</u>	<u>1980</u>	<u>1981</u>
No. of farms	10	10	18
Acres of bearing apples	85.0	82.9	75.7
Man equivalents	5.7	6.1	5.0
Total farm investment (\$)	301,449	332,886	353,571
Investment per bearing acre (\$)	2,340	2,785	3,426
Bu. of apples harvested/man	7,325	7,617	6,614
Apple yield/bearing acre (bu.)	491	560	437
Fruit receipts/bearing acre (\$)	1,409	1,403	1,324
Average price per bu. of apples (\$)	3.10	2.81	3.17
Cash expense/bearing acre (\$)	993	1,180	1,087
Labor and mgt. income/farm (\$)	53,912	9,417	3,076
Rate of return on equity capital (%)	17.7	5.7	9.7

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
18 Western New York Fruit Farms, 1981

Item	My Farm	Average	Range
<u>Land and crops (acres)*</u>			
Bearing fruit:			
Apples	_____	75.7(18)	11 - 181
Cherries	_____	11.2(12)	0 - 35
Peaches	_____	2.9(9)	0 - 16
Pears	_____	4.6(10)	0 - 21
Plums and prunes	_____	3.0(8)	0 - 20
Grapes	_____	5.3(5)	0 - 56
Other fruit	_____	.5(3)	0 - 7
Total bearing	_____	103.2	35 - 234
Non-bearing	_____	24.5	0 - 80
TOTAL FRUIT	=====	127.7	35 - 304
Other crops	_____	19.1	
TOTAL CROP ACRES	_____	146.8	53 - 304
Total acres owned	_____	218.8	0 - 750
Crop acres rented	_____	18.9	0 - 120
<u>Labor:</u>			
Number of operators	_____	1.3	1 - 3
Operator's age	_____	40.0	25 - 65
Months of: Operator's	_____	13.8	7 - 30
Family paid	_____	3.7	0 - 13
Family unpaid	_____	.7	0 - 6
Regular hired	_____	19.3	0 - 48
Seasonal hired	_____	21.9	0 - 52
Total	_____	59.4	18 - 115
Man equivalent (total months ÷ 12)	_____	5.0	1.5 - 9.6

* 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 18 Western New York Fruit Farms, 1981

Item	My Farm	Average per farm		Percent of total 1/82
		1/81	1/82	
Land & buildings	\$ _____	\$204,669	\$214,546	60.7
Machinery & equipment	_____	88,761	92,363	26.1
Fruit	_____	33,464	41,272	11.7
Production supplies	_____	2,421	3,030	.9
Packing supplies	_____	518	865	.2
Other	_____	551	1,495	.4
TOTAL FARM INVENTORIES	\$ _____	\$330,384	\$353,571	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 18 Western New York Fruit Farms, 1981

Item	My Farm	Average
End of year market value	(1)\$ _____	\$92,363
Beginning market value	\$ _____	\$88,761
Plus machinery purchased	+ _____	+ 7,526
Less machinery sold	- _____	- 642
Less depreciation	- _____	-12,856
Net end investment	(2)\$ _____	\$82,789
APPRECIATION (1 minus 2)	\$ _____	\$ 9,574

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
18 Western New York Fruit Farms, 1981

Item	My Farm	Average
Beginning market value	\$ _____	\$204,669
Cost of new real estate	\$ _____	\$ 8,882
Less lost capital	- _____	- 92
Value of new added	+ _____	+ 8,790
Less real estate depreciation	- _____	- 4,335
Less real estate sold	- _____	- 0
Total without appreciation	\$ _____	\$209,124
Appreciation of beginning real estate	+ _____	+ 5,422
End of year market value	\$ _____	<u>\$214,546</u>

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 18 Western New York Fruit Farms, 1981

<u>Item</u>	<u>My Farm</u>	<u>Average per Farm</u>
<u>Assets</u>		
Total farm inventory	\$ _____	\$353,571
Accounts receivable	_____	11,656
Cash and checking account	_____	16,356
Co-op stocks	_____	7,865
Total Farm Assets	\$ _____	\$389,448
Total Non-farm Assets	\$ _____	\$ 24,746
TOTAL ASSETS	\$ _____	\$414,194
<u>Liabilities</u>		
Real estate mortgage	\$ _____	\$ 40,523
Liens and secured notes	_____	15,182
Installment contracts	_____	2,410
Other farm debt	_____	26,771
Total Farm Liabilities	\$ _____	\$ 84,886
Non-farm Liabilities	\$ _____	0
TOTAL LIABILITIES	\$ _____	\$ 84,886
Farm Net Worth (Farm assets less farm liabilities)	\$ _____	\$304,562
Family Net Worth (Total assets less total liabilities)	\$ _____	\$329,308
Percent Equity (Family net worth ÷ total assets)	_____ %	80%
<u>Payment Ability</u>		
Cash for investment, principle pay- ments, and family living expenses	\$ _____	\$ 38,320
Interest paid	_____	6,284
CASH AVAILABLE FOR DEBT PAYMENT, CAPITAL INVESTMENT, & FAMILY LIVING EXPENSES	\$ _____	\$ 44,604
Debt Payments Planned this year	\$ _____	\$ 11,894

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 18 Western New York Fruit Farms, 1981

Item	My Farm	Average per Farm	Percent of Total
Apples	\$ _____	\$104,936	69.7
Cherries	_____	13,638	9.1
Peaches	_____	3,515	2.3
Pears	_____	5,121	3.4
Plums and prunes	_____	2,858	1.9
Grapes	_____	5,981	4.0
Other fruits	_____	569	.4
TOTAL FRUITS	\$ _____	\$136,618	90.8
Miscellaneous	_____	13,856	9.2
TOTAL CASH RECEIPTS	\$ _____	\$150,474	100.0
Increase in fruit inventory	_____	7,808	
Increase in supply and other inventory	_____	1,900	
TOTAL FARM RECEIPTS	\$ _____	\$160,182	

The apple crop is by far the most important commodity produced on these farms. Total apple sales averaged 70 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
18 Western New York Fruit Farms, 1981

Item	My Farm	Average Per Farm	Percent of Total
Hired Labor (other than picking)	\$ _____	\$ 21,283	19.0
Picking labor	_____	21,736	19.4
Machine hire	_____	2,423	2.2
Machine repair & farm share of auto expense	_____	6,670	6.0
Gasoline and oil	_____	6,893	6.1
Spray	_____	16,715	14.9
Fertilizer	_____	4,166	3.7
Trees and plants (replacements)	_____	953	.8
Other crop expense	_____	1,246	1.1
Packing supplies	_____	1,962	1.7
Marketing and storage	_____	3,276	2.9
Products bought for resale	_____	594	.5
Real estate repairs	_____	962	.9
Taxes	_____	3,950	3.5
Insurance	_____	3,148	2.8
Rent	_____	970	.9
Utilities	_____	1,992	1.8
Interest paid	_____	6,284	5.6
Miscellaneous	_____	6,931	6.2
TOTAL CASH OPERATING EXPENSES	\$ _____	\$112,154	100.0
Machinery depreciation	_____	12,856	
Building depreciation	_____	4,335	
Decrease in fruit inventory	_____	0	
Decrease in supply & other inventory	_____	0	
Unpaid family labor @ \$500/mo.	_____	350	
Interest on equity capital @ 9%*	_____	27,411	
TOTAL FARM EXPENSES	\$ _____	\$157,106	

* Calculated as follows: Total farm assets at the end of the year less farm liabilities @ 9% interest.

NET CASH FARM INCOME
18 Western New York Fruit Farms, 1981

Item	My Farm	Average per Farm
Total Cash Receipts	\$ _____	\$150,474
Total Cash Operating Expenses	_____	<u>112,154</u>
NET CASH FARM INCOME	\$ _____	\$ 38,320

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 nine percent interest rate, or opportunity cost, for the use of equity capital, assuming an alternative investment would return as much.

LABOR AND MANAGEMENT INCOME
18 Western New York Fruit Farms, 1981

Item	My Farm	Average per Farm
Total Farm Receipts	\$ _____	\$160,182
Total Farm Expenses	_____	<u>157,106</u>
LABOR & MANAGEMENT INCOME PER FARM	\$ _____	\$ 3,076
Number of Operators	_____	1.3
LABOR & MANAGEMENT INCOME PER OPERATOR	\$ _____	\$ 2,366

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
18 Western New York Fruit Farms, 1981

Item	My Farm	Average per Farm
Labor & Management Income per Farm	\$ _____	\$ 3,076
Add: Real Estate Appreciation	_____	5,422
Add: Machinery Appreciation	\$ _____	9,574
Add: Interest on Equity Capital @ 9%	_____	<u>27,411</u>
LABOR, MANAGEMENT & OWNERSHIP INCOME PER FARM	\$ _____	\$45,483
Number of Operators	_____	1.3
LABOR, MANAGEMENT & OWNERSHIP INCOME PER OPERATOR	\$ _____	\$34,987

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
18 Western New York Fruit Farms, 1981

Item	My Farm	Average per Farm
		<u>Including Appreciation</u>
Labor, Management & Ownership Income	\$ _____	\$45,483
Less: Value of Operator's Labor & Management*	_____	<u>16,088</u>
Return on Equity Capital	\$ _____	\$29,395
Rate of Return on Equity Capital (equity capital = \$304,562)	_____ %	9.7%

* 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
18 Western New York Fruit Farms, 1981

Item	My Farm	Average per Farm
<u>Measures of size</u>		
Acres in crops	_____	146.8
Acres in fruit	_____	127.7
Total bearing acres	_____	103.2
Man equivalents	_____	5.0
Bushels of apples produced	_____	33,069
Fruit receipts	_____	136,618
<u>Production efficiency</u>		
Bushels of apples per bearing acre	_____	437
Bushels of peaches per bearing acre	_____	132
Bushels of pears per bearing acre	_____	269
Bushels of plums & prunes per bearing acre	_____	229
<u>Labor efficiency</u>		
Acres in fruit/man equivalent	_____	25.5
Fruit receipts/man equivalent	_____	27,324
Bushels of apples harvested per man equivalent	_____	6,614
<u>Capital efficiency</u>		
Capital turnover	_____	2.3 yrs.
Total investment per acre of bearing fruit	_____	3,426
Total investment/man equivalent	_____	70,714
Total investment/crop acre	_____	2,409
Land and buildings/crop acre	_____	1,462
Land and buildings/acre owned	_____	981

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
18 Western New York Fruit Farms, 1981

Item	My Farm	Average per Farm	Percent
Depreciation	\$ _____	\$12,856	34.8
Interest @ 9% on average inventory	_____	8,151	22.0
Machine hire	_____	2,423	6.6
Machine repairs and auto	_____	6,670	18.0
Gasoline and oil	_____	6,893	18.6
TOTAL MACHINERY COSTS	\$ _____	\$36,993	100.0
Machinery cost:			
Per crop acre	\$ _____	\$252	
Per acre of bearing fruit	\$ _____	359	
Per dollar of fruit sold	\$ _____	2.7	

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
18 Western New York Fruit Farms, 1981

Item	My Farm	Average per Farm
Value of operator's labor*		\$ 11,700
Hired labor		43,019
Unpaid family labor		350
TOTAL LABOR COSTS		\$ 55,069
Total machinery cost		36,993
TOTAL LABOR & MACHINERY COSTS		\$ 92,062

Labor cost:

Per crop acre		\$375
Per acre of bearing fruit		\$534
Per dollar of fruit sold		\$.40

Labor and machinery costs:

Per crop acre		\$627
Per acre of bearing fruit		\$892
Per dollar of fruit sold		\$.67

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

Miscellaneous Cost Control Measures

MISCELLANEOUS COST MEASURES
18 Western New York Fruit Farms, 1981

Item	My Farm	Average per Farm
Spray materials per fruit acre		\$131
Taxes per crop acre owned		31
Taxes per \$1,000 of end real estate inventory		18
Taxes and insurance per \$1,000 real estate inventory		33