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**EASTERN NEW YORK
FRUIT FARM BUSINESS SUMMARY
1978**

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EASTERN NEW YORK
FRUIT FARM PRODUCTION
BUSINESS SUMMARY
1978

Fifteen Fruit Farms

This is a summary and analysis of the 1978 farm business records from fifteen commercial fruit farms in Eastern New York State. The records were collected and checked in cooperation with the Farm Credit Service and Cooperative Extension in Columbia, Ulster, and Dutchess Counties.

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 89 percent of the cash receipts in 1978 was from the sale of apples. The data were not obtained by using a random or representative sample of all fruit farms in Eastern New York. Therefore, the analysis should not be used to represent the Eastern 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.

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 Eastern New York fruit farms.

FARM ORGANIZATION
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average	Range
<u>Labor:</u>			
Number of operators	_____	1.8	1 - 5
Operator's age	_____	43.4	21 - 69
Months of: Operator's	_____	21.3	8 - 60
Family paid	_____	5.1	0 - 12
Family unpaid	_____	3.2	0 - 12
Regular hired	_____	67.6	0 - 279
Seasonal hired ^{1/}	_____	38.1	8.5 - 129.3
Total	=====	135.3	25.0 - 444.3
Man equivalent (total months ÷ 12)	_____	11.3	2.1 - 37.0
<u>Land and crops (acres)*</u>			
Bearing fruit:			
Apples	_____	127.1 (15)	
Peaches	_____	1.6 (4)	
Pears	_____	6.8 (11)	
Plums and prunes	_____	.6 (5)	
Other fruit	_____	4.4 (4)	
Total bearing	_____	140.5	
Non-bearing	_____	36.1 (14)	
TOTAL FRUIT	=====	176.6	
Other crops	_____	0.0 (0)	
TOTAL CROP ACRES	_____	176.6	
Total acres owned	_____	212.6	
Crop acres rented	_____	35.9	

^{1/} Based on the assumption that a seasonal worker picked 7.4 boxes or 8.33 bushels of fruit per hour and worked 7.1 hours per day for 24 days per month. Thus, a worker was assumed to pick at the rate of 1,416 bushels per month. These assumptions are based on Fisher, D. U., Labor Productivity of Apple Harvest Workers in the Champlain Valley: 1970-1975, A. E. Res. 77-7, Department of Agricultural Economics, Cornell University, July 1977. The figures are averages Fisher found for Jamaican workers.

* Number of growers that reported each crop are in parenthesis; 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
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average per farm		Percent of total 1/79
		1/78	1/79	
Land & buildings	\$ _____	\$372,755	\$392,082	59.0
Machinery & equipment	_____	104,958	130,743	19.6
Fruit	_____	117,369	125,411	18.9
Production supplies	_____	2,621	5,774	.9
Packing supplies	_____	7,204	11,002	1.6
Other	_____	13	7	0.0
TOTAL FARM INVENTORIES	\$ _____	\$604,920	\$665,019	100.0

The average end inventory was \$60,099 higher than the average beginning inventory. There was an average of \$28,888 per farm in new machinery and equipment purchases which contributed nearly half of the inventory growth. These purchases are probably a reflection of two consecutive good crop years.

In many businesses, poor capital efficiency is a major cause of low profits. The following measures of capital efficiency will help evaluate overall capital management.

INVESTMENT ANALYSIS
Fifteen Eastern New York Farms, January 1979

Item	My Farm	Average per Farm
Total investment/man	\$ _____	\$58,551
Total investment/crop acre	_____	3,766
Total investment/acre of fruit	_____	3,766
Total investment/ acre of bearing fruit	_____	4,733
Machinery investment/crop acre	_____	740
Land & buildings/crop acre	_____	2,220
Land & buildings/acres owned	_____	1,844
 Capital Turnover*	 _____	 2.18 yrs.

* Calculated by dividing the total year-end investment by the total cash receipts for the year. Rapid capital turnover is more desirable than a slow rate of turnover when similar farm businesses are compared.

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
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average per Farm	Percent of Total
Apples	\$ _____	\$272,556	89.3
Cherries	_____	342	0.1
Peaches	_____	1,166	.4
Pears	_____	7,013	2.3
Plums and prunes	_____	315	.1
Other fruits	_____	3,294	1.1
TOTAL FRUITS	\$ _____	\$284,686	93.3
Miscellaneous	_____	20,516	6.7
TOTAL CASH RECEIPTS	\$ _____	\$305,202	100.0
Increase in fruit inventory	_____	17,470	
Increase in supply inventory	_____	6,947	
TOTAL FARM RECEIPTS	\$ _____	\$329,619	

The apple crop is by far the most important commodity produced on these farms. Total apple sales averaged 89.3 percent of total cash receipts. Peaches were sold on only four of the fifteen farms, pear sales were significant on eleven farms, and five farms reported selling plums or prunes. Other fruit income was reported on four farms.

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.

The fruit inventory increased on twelve farms and decreased on three farms. Fourteen farms showed increases in supply inventories.

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.

FARM EXPENSES
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average Per Farm	Percent of Total
Hired Labor (other than picking)	\$ _____	\$ 49,102	22.0
Picking labor	_____	30,368	13.6
Machine hire	_____	2,505	1.1
Machine repair & farm share of auto expense	_____	8,413	3.7
Gasoline and oil	_____	7,760	3.5
Spray	_____	17,902	8.0
Fertilizer	_____	2,413	1.1
Trees and plants (replacements)	_____	3,339	1.5
Other crop expense	_____	8,915	4.0
Packing supplies	_____	29,298	13.1
Marketing & storage	_____	5,377	2.4
Products bought for resale	_____	3,938	1.7
Real estate repairs	_____	7,795	3.5
Taxes	_____	5,992	2.7
Insurance	_____	8,413	3.8
Rent	_____	8,040	3.6
Utilities	_____	6,855	3.1
Interest paid	_____	8,092	3.6
Miscellaneous	_____	8,885	4.0
TOTAL CASH OPERATING EXPENSES	\$ _____	\$223,402	100.0
Machinery depreciation*	_____	2,953	
Building depreciation	_____	2,137	
Decrease in fruit inventory	_____	9,429	
Decrease in supply inventory	_____	0	
Unpaid family labor	_____	1,346	
Interest on equity capital @ 7%**	_____	38,968	
TOTAL FARM EXPENSES	\$ _____	\$278,235	

* Machinery and building depreciation are calculated on the next page.

** Calculated as follows: Total Farm Assets at the end of the year less farm liabilities on 1/79 x 7% interest.

Depreciation Calculations

Capital outlays for machinery and buildings usually occur in large uneven amounts, but assets depreciate gradually over a period of time. Different accounting methods may be used to even-out capital expenditures. Including the capital outlay as a farm expense and the increase in inventory as a farm receipt tends to inflate total farm expenses as well as total farm receipts.

In the following table the net change in inventory value is calculated using beginning and end of year market values as well as the actual cost of capital purchases and the amount received for capital sales. The beginning machinery inventory plus new purchases, will almost always be larger than the end inventory plus sales. The residue is machinery depreciation. However, the value of land and/or fruit trees may increase in value more than buildings depreciate during the year. This is called real estate appreciation.

MACHINERY DEPRECIATION AND REAL ESTATE BALANCE
Fifteen Eastern New York Farms, 1978

Item	Machinery		Real Estate	
	My Farm	Average	My Farm	Average
Beginning inventory	\$ _____	\$104,958	\$ _____	\$372,755
Purchases	\$ _____	28,888	\$ _____	27,934
Total (A)	\$ _____	\$133,846	\$ _____	\$400,689
End inventory	\$ _____	130,743	\$ _____	392,082
Sales	\$ _____	150	\$ _____	0
Total (B)	\$ _____	\$130,893	\$ _____	\$392,082
DEPRECIATION (A minus B) or	\$ _____	2,953		
APPRECIATION on Land			\$ _____	\$ 433
DEPRECIATION on Buildings			\$ _____	2,136
Lost Capital			\$ _____	6,904

The average machinery depreciation of \$2,953 is 2.2 percent of the beginning inventory plus machinery purchased.

Three farms reported no change in the value of real estate from the beginning to the end of the year. One farm showed real estate depreciation and one farm showed appreciation.

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.

NET CASH FARM INCOME
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average 12 Farms
Total Cash Receipts	\$ _____	\$305,202
Total Cash Operating Expenses	_____	<u>223,402</u>
NET CASH FARM INCOME	\$ _____	\$ 81,800

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

LABOR AND MANAGEMENT INCOME
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average 12 Farms
Total Farm Receipts	\$ _____	\$329,619
Total Farm Expenses	\$ _____	<u>278,235</u>
LABOR & MANAGEMENT INCOME PER FARM	\$ _____	51,384
Number of Operators	_____	1.8
LABOR & MANAGEMENT INCOME/ OPERATOR	\$ _____	\$ 28,547

In addition to labor and management income, the owner-operator of a farm business should receive income for the capital investment in the business. This income is received in the form of interest on equity in the business and real estate appreciation. These two "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
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average 12 Farms
Labor & Management Income per Farm	\$ _____	\$51,384
Add: Real Estate Appreciation	_____	433
Add: Interest on Equity Capital @ 7%	_____	<u>38,968</u>
LABOR, MANAGEMENT & OWNERSHIP INCOME PER FARM	\$ _____	\$90,785
Number of Operators	_____	1.8
LABOR, MANAGEMENT & OWNERSHIP INCOME PER OPERATOR	\$ _____	\$50,436

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
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average 12 Farms
Labor, Management & Ownership Income	\$ _____	\$90,785
Less: Value of Operator's Labor & Management*	_____	<u>16,852</u>
Return on Equity Capital	\$ _____	\$73,933
Rate of Return on Equity Capital (equity capital = \$556,698)	_____ %	13.3%

* Values estimated by farmers.

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.

Payment Ability is the most important consideration in determining if and how proposed investment 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.

FARM FAMILY FINANCIAL SITUATION
Fifteen Eastern New York Farms, January 1, 1979

Item	My Farm	Average 11 Farms
<u>Assets</u>		
Total farm inventory	\$ _____	\$665,019
Accounts receivable	_____	31,832
Cash and checking account	_____	7,635
Co-op stocks	_____	6,550
Total Farm Assets	\$ _____	\$711,036
Total Non-farm Assets	\$ _____	\$ 30,483
TOTAL ASSETS	\$ _____	\$741,519
<u>Liabilities</u>		
Real estate mortgage	\$ _____	\$ 83,389
Liens and secured notes	_____	49,412
Installment contracts	_____	500
Other farm debt	_____	21,037
Total Farm Liabilities	\$ _____	\$154,338
Non-farm Liabilities	\$ _____	\$ 747
TOTAL LIABILITIES	\$ _____	\$155,085
Farm Net Worth (Farm assets less farm liabilities)	\$ _____	\$556,698
Family Net Worth (Total assets less total liabilities)	\$ _____	\$586,434
Percent Equity (Family net worth + total assets)	_____ %	79.1%
<u>Payment Ability</u>		
Cash for investment, principle pay- ments, and family living expenses	\$ _____	\$ 81,800
Interest paid	_____	8,092
CASH AVAILABLE FOR DEBT PAYMENT, CAPITAL INVESTMENT, & FAMILY LIVING EXPENSES	\$ _____	\$ 73,708
Debt Payments Planned this year	\$ _____	\$ 21,231

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.

SELECTED FARM BUSINESS MEASURES
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average 12 Farms
<u>Measures of size</u>		
Acres in fruit	_____	176.6
Total bearing acres	_____	140.5
Man equivalents	_____	11.3
Bushels of apples produced	_____	53,944
Bushels of other fruit produced	_____	1,404
Fruit receipts	_____	284,686
<u>Production efficiency</u>		
Bushels of apples per bearing acre	_____	424
Bushels of peaches per bearing acre	_____	85
Bushels of pears per bearing acre	_____	155
Bushels of plums & prunes per bearing acre	_____	49
<u>Labor efficiency</u>		
Acres in fruit/man equivalent	_____	15.6
Fruit receipts/man equivalent	_____	25,193
Bushels of apples produced per man equivalent	_____	4,774
<u>Capital efficiency</u>		
Capital turnover	_____	2.18 yrs.
Total investment per acre of bearing fruit	_____	4,733

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
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average 15 Farms	Percent
Depreciation	\$ _____	\$ 2,953	9.9
Interest @ 7% on average inventory	_____	8,159	27.4
Machine hire	_____	2,505	8.4
Machinery repairs and auto	_____	8,413	28.2
Gas & oil	_____	7,760	26.1
TOTAL MACHINERY COSTS	\$ _____	\$29,790	100.0

Machinery cost:

Per crop acre	\$ _____	\$ 169
Per acre of bearing fruit	\$ _____	212
Per dollar of fruit sold	\$ _____	\$.10

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
Fifteen Eastern New York Farms, 1978

Item	My Farm	Average 15 Farms
Value of operator's labor*	_____	\$ 14,040
Hired labor	_____	79,470
Unpaid family labor	_____	<u>1,346</u>
TOTAL LABOR COSTS	_____	\$ 94,856
Total machinery cost	_____	<u>29,790</u>
TOTAL LABOR & MACHINERY COSTS	_____	\$124,646

Labor cost:		
Per crop acre	_____	\$ 537
Per acre of bearing fruit	_____	675
Per dollar of fruit sold	_____	.32
Labor and machinery costs:		
Per crop acre	_____	\$ 706
Per acre of bearing fruit	_____	887
Per dollar of fruit sold	_____	44

* Valued at \$7,800 per operator. Operator's labor does not include management and capital contributed.

Miscellaneous Cost Control Measures

MISCELLANEOUS COST MEASURES

Item	Average of 9 Eastern New York Fruit Farms, 1976	Average of 10 Eastern New York Fruit Farms, 1977*	Average of 15 Eastern New York Fruit Farms, 1978
Spray expense per fruit acre	\$125	\$ 73	\$101
Taxes per crop acre owned	27	27	43
Taxes per \$1,000 of end real estate inventory	11	11	15
Taxes and insurance per \$1,000 real estate inventory	21	21	21

* Comparison is with 1977 study for which only farms which packed and stored apples were included. (See A.E. Ext. 78-21, August 1978.)