GRAPE FARM BUSINESS SUMMARY

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FINGER LAKES REGION 1981

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FINGER LAKES REGION GRAPE FARM BUSINESS

SUMMARY AND ANALYSIS, 1981

This is a summary and analysis of the 1981 farm business records from 17 commercial grape farms in the Finger Lakes Region of New York. The summary was prepared by Thomas J. Zabadal, Regional Extension Grape Specialist; and Gerald B. White and Daniel B. Whitaker, Department of Agricultural Economics, Cornell University.

The main purpose of this study is to help the cooperators in this project and other grape growers to improve their skills as farm managers. The objective is to demonstrate the importance of good business records and to show how they can be used as a base for sound management decisions.

The summary and analysis presented in this publication should also be useful to agribusinessmen and agricultural teachers. However, caution should be exercised in using data from this book. These data were not obtained by using a random or representative sample of all grape farms in the Finger Lakes Region. This publication, therefore, should not be used as an exact representation of the entire Finger Lakes Region grape farm industry.

This report has been prepared for use in a systematic study of individual farm business operations.

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The 1981 Crop Year

Grape production in New York State was 147,000 tons in 1981, 14 percent below 1980 but well above the disastrous crop yields in 1977. The five counties which comprise the Finger Lakes Grape Region (Ontario, Schuyler, Seneca, Steuben, and Yates) had a four percent decrease in total production. Prices were, in general, up from 1980. The average price paid to New York growers increased from $213 to $234 per ton for all varieties. However, the price for Concords declined from $187 to $185 per ton.

	1976	1977	1978	1979	1980	1981
Tons of grapes produced, all varieties						
Finger Lakes Region	45,606	31,814	63,589	51,326	53,018	51,081
State of New York	164,492	97,209	181,911	158,966	171,000	146,500
Tons Concord grapes produced						
Finger Lakes Region	20,192	12,262	24,988	23,125	18,936	20,729
State of New York	123,277	67,407	125,243	119,875	123,121	102,914
Average price paid by wineries and processors						
Concords, NYS ($/ton)	163	224	217	204	187	185
All varieties, NYS ($/ton)	178	240	241	225	213	234

Source: New York Crop Reporting Service, Fruit, selected reports from 1978, 1979, 1980, 1981, and 1982.

A comparison of selected measures from the grape farm business summaries is shown below. Labor and management income per year was -$9,021 compared with -$2,993 in 1977. Investment per acre and cash expense per acre continued to increase due to inflation.

COMPARISONS OF SELECTED MEASURES, 1975, 1976, 1977 & 1981

	1975	1976	1977	1981
Number of farms	5	12	15	17
Acres of bearing grapes	48.8	86.2	56.8	47.6
Worker equivalents	3.7	4.5	2.9	2.5
Total farm investment	$141,281	$237,584	$183,833	$234,095
Investment per bearing acre	$2,895	$2,756	$3,236	$4,918
Tons grapes harvested per worker	56	77	51	75
Grape yield per bearing acre (tons)	4.3	4.0	2.6	4.0
Grape receipts per bearing acre	$1,146	$738	$650	$1,273
Average price per ton of grapes	$268	$205	$250	$322
Cash expense per grape acre	$730	$601	$625	$1,026
Net cash farm income	$22,448	$10,305	$9,716	$10,944
Labor & management income per farm	$7,120	$-4,523	$-2,993	$-9,021
Rate of return on equity capital including appreciation	6.0%	-2.9%	-2.3%	-.35%

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 investment, 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 grape farms.

FARM ORGANIZATION
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average	Range
Labor:			
Number of operators	_____	1.06	1.0 - 2.0
Months of:			
Operator's	_____	10.20	1.0 - 18.0
Family paid	_____	2.36	0.0 - 12.0
Family unpaid	_____	1.19	0.0 - 4.8
Regular hired	_____	8.41	0.0 - 40.2
Seasonal hired	_____	7.70	0.0 - 27.6
Other	_____	0.25	0.0 - 4.3
Total	_____	30.11	5.1 - 65.0
Worker equivalent (total months ÷ 12)	_____	2.51	0.43 - 5.42
Land and Crops (acres)			
Bearing grapes:			
Harvested	_____	46.32	15.25 - 97.5
Not harvested	_____	1.24	0.0 - 10.8
Nonbearing grapes	_____	3.76	0.0 - 24.8
Total Acres in Grapes	_____	51.32	15.25 - 119.9
Total Crop Acres	_____	65.61	15.25 - 175.6
Crop Acres Rented	_____	11.25	0.0 - 57.0
Total Acres Owned	_____	162.77	40.0 - 400.0

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
17 Finger Lakes Region Grape Farms

Item	My Farm 1/81	My Farm 1/82	Average per Farm 1/81	Average per Farm 1/82
Land & buildings	$_____	$_____	$184,333	$187,977
Livestock	_____	_____	446	518
Machinery & equipment	_____	_____	39,457	40,976
Supplies & crops	_____	_____	41,154	4,624
TOTAL FARM INVENTORIES	$_____	$_____	$228,390	$234,095

In many farm 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
17 Finger Lakes Region Grape Farms, January 1981

Item	My Farm	Average per Farm
Total invest./worker equivalent	$_____	$93,325
Total investment/acre of bearing grapes	$_____	$ 4,918
Land & buildings/total acres owned	$_____	$ 1,155
Capital Turnover*	_____ yrs.	3.68 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 grape farms.

FARM RECEIPTS
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average per Farm	Percent of Total
Grapes:			
Primary market	$_____	$51,564	81.1
Distress market	_____	4,030	6.3
Total 1981 Payments Received	$_____	$55,594	87.4
Previous year's payments, certificates	_____	$ 2,055	3.2
Machine work and trucking	_____	661	1.1
Other crop receipts	_____	3,437	5.4
Work off farm	_____	560	0.9
Livestock and livestock product sales	_____	281	0.4
Rent	_____	142	0.2
Other	_____	863	1.4
Total Cash Receipts	$_____	$63,593	100.0
Total Cash Receipts	$_____	$63,593	
Less previous year's payments	- _____	- 2,055	
Plus anticipated 1981 payments	+ _____	+ 5,023	
Increase in crop and supply inventory	+ _____	+ 470	
Total Farm Receipts	$_____	$67,031	

Grape income accounted for 91 percent of cash receipts. An average of 188 tons of grapes per farm were harvested and sold. Cash grape receipts for the 1981 crop totaled $322 per ton.

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
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average per Farm	Expense per acre of grapes (total)
Hired labor	$_____	$19,317	$ 376
Machine hire	_____	4,986	97
Machine repair & farm share of auto expense	_____	2,744	54
Gasoline & oil	_____	2,478	48
Spray	_____	3,076	60
Fertilizer	_____	1,963	38
Seeds & grape roots (replacements)	_____	93	2
Posts and wire	_____	421	8
Other crop expense	_____	1,984	39
Real estate upkeep	_____	602	12
Taxes	_____	2,239	44
Insurance	_____	1,470	29
Rent	_____	888	17
Utilities	_____	507	10
Interest paid	_____	7,845	153
Miscellaneous	_____	2,038	40
TOTAL CASH & OPERATING EXPENSES	$_____	$52,649	$1,026
Machinery depreciation	_____	4,754	93
Real estate depreciation	_____	3,225	63
Decrease in supply inventory	_____	0	0
Unpaid family labor	_____	594	12
Interest on equity capital @ 9%	_____	14,830	289
TOTAL FARM EXPENSES	$_____	$76,052	$1,483

Machinery and Real Estate Inventory Calculations

Capital outlays for machinery, buildings and land improvements (including drainage and vineyard establishment) usually occur in large, uneven amounts, but depreciate gradually over a period of time. Depreciation is the annual charge for the use of the machinery complement and real estate improvements in production. Depreciation was taken from the farm depreciation schedule. Appreciation, which results from inflation, is calculated as a residual.

MACHINERY AND EQUIPMENT INVENTORY
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average
End of year market value	(A)$_____	$40,976
Beginning market value	$_____	$ 39,456
Plus machinery purchases	+_____	+ 3,808
Less machinery sales	-_____	- 234
Less depreciation*	-_____	- 4,754
Net end investment	(B)$_____	38,276
APPRECIATION [(A)-(B)]	$_____	$ 2,700

The average machinery depreciation of $4,754 is 11 percent of the beginning inventory plus machinery purchases.

REAL ESTATE INVENTORY
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average
End of year market value	(A)$_____	$187,977
Beginning market value	$_____	$184,333
Plus cost of new real estate	+_____	+ 5,138
Less real estate sold	-_____	- 0
Less depreciation*	-_____	- 3,225
Net end investment	(B) _____	186,246
Appreciation [(A)-(B)]	$_____	$ 1,731

*Depreciation (excluding additional first year depreciation) from tax records.

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 nonfarm income.

NET CASH FARM INCOME
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average per Farm
Total Cash Receipts	$_____	$63,593
Total Cash Operating Expenses	_____	52,649
NET CASH FARM INCOME	$_____	$10,944
Family Living Expenses	_____	
CASH FOR INVESTMENT AND PRINCIPAL PAYMENTS ON DEBTS	$_____	

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

Labor and management income; labor, management and ownership income; and return on equity capital are computed in the following three tables. The computations are done by two different methods. These methods are as follows:

Method (1) Total receipts is the sum of total cash receipts minus grape payments from previous years plus anticipated 1981 payments plus or minus the increase or decrease in the crop and supply inventory. This method is the one which has been used in the most recent years in Cornell grape farm business summaries.

Method (2) Total receipts is the sum of total cash receipts in the calendar year (including grape payments from previous years) plus or minus the increase or decrease in crop and supply inventory. Using this method, net income did not depend on growers estimates of future receipts for the current crop.

LABOR AND MANAGEMENT INCOME
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average per Farm [Method 1]	Average per Farm [Method 2]
Total Farm Receipts	$_____	$67,031	$64,063
Total Farm Expenses	_____	76,052	76,052
LABOR & MANAGEMENT INCOME PER FARM	$_____	(-)$ 9,021	(-)$11,988

It is common to compute labor and management return per operator as well as per farm because most studies include some farms with more than one operator. The average number of operators was 1.06; therefore labor and management income per operator was -$8,510 and -$11,309 for Method 1 and Method 2 respectively.

In addition to labor and management income, the owner-operator of a farm business should receive income for his capital investment in the business. He receives this income 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.

The growers who participated in this summary submitted balance sheets and net worth or equity capital was easily computed. Average equity capital was estimated as $164,775 per farm.

LABOR, MANAGEMENT AND OWNERSHIP INCOME
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average per Farm [Method 1]	Average per Farm [Method 2]
Labor & Management Income Per Farm	$_____	(-)$ 9,021	(-)$11,988
Add: Real Estate Appreciation	_____	1,731	1,731
Add: Machinery Appreciation	_____	2,700	2,700
Add: Interest on Equity Capital @ 9%	_____	14,830	14,830
LABOR, MANAGEMENT & OWNERSHIP INCOME PER FARM	$_____	$10,240	$ 7,273
PER OPERATOR	$_____	$ 9,660	$ 6,861

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 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 inventories less total farm liabilities.

RETURN ON EQUITY CAPITAL
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average per Farm [Method 1]	Average per Farm [Method 2]
Labor & Management & Ownership Income	$_____	$10,240	$ 7,273
Less: Value of Operator's Labor & Management*	_____	10,826	10,826
Return on Equity Capital	_____	-$ 586	-$ 3,553
Rate of Return on Equity Capital (equity capital = $164,775)	_____%	-.35%	-2.2%

* Values estimated at $750 per month for labor and 5 percent of cash receipts for management.

Farm Family Financial Situation

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

The balance sheet of the financial situation is provided below.

FARM FAMILY FINANCIAL SITUATION
17 Finger Lakes Region Grape Farms, 1981

Item	My Farm	Average per Farm
Assets		
Total farm inventory	$_____	$234,095
Accounts receivable	_____	5,299
Co-op investment	_____	4,316
Cash and checking account	_____	7,000
TOTAL FARM ASSETS	$_____	$250,710
Liabilities		
Real estate mortgage	$_____	$ 54,791
Liens and secured loans	_____	12,425
Installment contracts	_____	238
Accounts payable	_____	191
Other farm debt	_____	18,290
TOTAL FARM LIABILITIES	$_____	$ 85,935
FARM NET WORTH (Farm assets less liabilities)	$_____	$164,775
Percent Equity (Farm net worth ÷ total farm assets)	_____%	65.8%
Farm Debt Per Worker Equivalent	$_____	$ 34,259
Farm Debt per Bearing Acre of Grapes	$_____	$ 1,807

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 living expenses and to make debt payments. The average farm in this study had a net cash flow, excluding interest paid, of $18,789. This amount was available for family living expenses, debt payments, and cash for capital investments during the year.

Analysis of the Farm Business

Some of the business factors which affect profits and which a farmer can control to some degree are: (1) size of enterprise, (2) labor efficiency, (3) yields, and (4) price.

A comparison of your farm with the averages of these factors for these farms can provide valuable clues to the strong and weak points of an individual grape farm business.

SELECTED FARM BUSINESS MEASURES
17 Finger Lakes Region Grape Farms, 1981

Item	Average per Farm	My Farm
Measures of Size		
1. Acres in bearing grapes	47.6	_____
2. Acres of grapes harvested	46.3	_____
3. Acres in nonbearing grapes	3.8	_____
4. Man equivalent	2.5	_____
5. Tons of grapes harvested	188.1	_____
6. Tons of grapes grown	188.1	_____
Labor Efficiency		
1. Acres in grapes harvested per man	18.5	_____
2. Tons of grapes harvested per man	75.0	_____
Production Factors		
1. Grape yield per acre (tons) of bearing grapes	4.0	_____
2. Grape receipts* per acre of bearing grapes	$1,273	$_____
Price		
1. Average price per ton of grapes sold**	$ 322	$_____

* Cash receipts from sale of grapes plus anticipated payments from current grape crop.

**Grape receipts ÷ tons of grapes harvested.

Cost Control

Power and machinery costs were major expenses on these grape farms. Net operating and investment costs averaged $18,406.

POWER AND MACHINERY COSTS
17 Finger Lakes Region Grape Farms, 1981

Item	Average per Farm	My Farm
Machinery depreciation	$ 4,754	$_____
Interest at 9% ave. inventory	3,619	_____
Gas and oil	2,478	_____
Auto	365	_____
Truck, tractor & equip. repair	2,380	_____
Machine hire	4,986	_____
Utilities	507	_____
Total Machinery Costs	$19,089	$_____
Income from machine work	- 661	_____
Gasoline tax refund	- 22	_____
NET MACHINERY COSTS	$18,406	$_____
Net Machinery Costs:		
Per acre of bearing grapes	$ 387	$_____
Per worker equivalent	$ 7,338	$_____
Per ton of grapes harvested	$ 98	$_____

Since power and machinery costs represent a substantial portion of total costs, efficiency in use is an important factor affecting profitability of the business. Net machinery costs per acre of bearing grapes averaged $387.

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
17 Finger Lakes Region Grape Farms, 1981

Item	Average per Farm	My Farm
Value of operator's labor*	$ 7,646	$_____
Hired labor	19,317	_____
Unpaid family labor	594	_____
TOTAL LABOR COSTS	$27,557	$_____
Total net machinery cost	18,406	_____
TOTAL LABOR AND MACHINERY COSTS	$45,963	$_____
Labor cost:		
Per worker equivalent	$10,986	$_____
Per acre of bearing grapes	$ 580	$_____
Per ton of grapes harvested	$ 147	$_____
Labor and machinery cost:		
Per worker equivalent	$18,323	$_____
Per acre of bearing grapes	$ 967	$_____
Per ton of grapes harvested	$ 244	$_____

* Valued at $750 per month for operator's labor (value of management and owned capital excluded).

MISCELLANEOUS COST MEASURES
17 Finger Lakes Region Grape Farms, 1981

Item	Average per Farm	My Farm
Crop expense per acre of bearing grapes**	$158	$_____
Spray expense per acre of bearing grapes	$ 65	$_____
Taxes per crop acre owned	$ 14	$_____
Taxes per $1,000 of end real estate inventory	$ 12	$_____
Taxes and insurance per $1,000 real estate inventory	$ 20	$_____

**Includes spray, fertilizer, replacement vines, posts and wire, and other crop expenses.

Capital and Capital Efficiency Factors

The average investment in the farm business was $234,095. About 80 percent of this total is represented by vineyards, land and buildings.

CAPITAL INVESTMENT AND CAPITAL EFFICIENCY FACTORS
17 Finger Lakes Region Grape Farms, 1981

Item	Average per Farm	Percent of Total	My Farm
Land and buildings	$187,977	80.3	$_____
Livestock	518	0.2	_____
Machinery and equipment	40,976	17.5	_____
Supplies	4,624	2.0	_____
Total Farm Inventories	$234,095	100.0	$_____
Worker equivalent	2.5		$_____
Investment per worker equiv.	$ 93,325		$_____
Acres of bearing grapes	47.6		$_____
Machinery and equipment investment per acre of bearing grapes	$ 861		$_____
Land and building investment per acre owned	$ 1,155		$_____
Total farm investment per acre of bearing grapes	$ 4,923		
Total farm investment per ton of grapes sold	$ 1,245		
Capital turnover (years for cash receipts to equal capital)	3.7		$_____

Investment costs such as depreciation and interest are part of the total cost of operating a farm business. Obtaining efficiency in the use of capital, as measured by investment relative to productive capacity and income, is an important part of managing a farm. The factors calculated in the table above can help a farmer gauge the soundness of his capital investment. On these farms, investment per acre of bearing grapes ranged from $742 to $17,230.

1981 Production and Marketings

ACRES IN VINES AND MARKETINGS
17 Finger Lakes Region Grape Farms, 1981

Item	Number of Growers Reporting	Average of All Growers
Bearing vines:		
Harvested, sold in primary market	17	40.7
Harvested, sold in distress market	9	5.6
Not harvested	2	1.2
Total Bearing	17	47.6
Nonbearing Vines	9	3.8
Total Acres in Vines		51.3

Total acres in vines averaged 51.3 acres per farm. Seventy-nine percent of this total acreage produced a crop which was harvested and sold in the growers' primary or usual markets. The growers reported about 11 percent of the acreage in vines was harvested and sold in the open market. Nine growers had sales in the open market.

GRAPES HARVESTED & SOLD IN THE USUAL MARKETS
17 Finger Lakes Region Grape Farms, 1981

Variety	Acres	Tons	Average Yield/Acre
Concord	11.9	58.2	4.9 Tn.
All other varieties	28.8	108.8	3.8 Tn.
Total	40.7	167.0	4.0 Tn.

Concords were an important variety on all farms. This variety accounted for 29 percent of the acreage harvested and 35 percent of the tonnage. The average yield of Concords was 4.9 tons per acre, compared with 3.8 tons per acre for all other varieties.

Array of Business Factors

Vineyardists in the management program can determine how their business stands relative to the others in the summary by encircling the factor measurement for their farm in each column of the table below.

AN ARRAY OF SELECTED BUSINESS FACTORS
17 Finger Lakes Region Grape Farms, 1981

Note: each column is independent of the others. Do not read across.

Acres	Tons of Grapes Harv.	Worker Equiv.	Tons Per Worker Equiv.	Tons Per Acre	Invest. Per Acre	Grape Rec./ Acre	Op. Exp. Per Acre
98	481	5.4	122	6.6	$17,230	$2,010	$1,854
95	394	4.8	110	4.9	10,732	1,617	1,675
80	330	4.7	106	4.5	7,836	1,503	1,463
67	273	4.2	100	4.3	6,548	1,483	1,432
60	238	3.1	84	4.3	6,265	1,274	1,414
57	203	2.9	83	4.2	5,890	1,250	1,327
50	199	2.2	82	4.1	5,758	1,238	1,202
47	175	2.1	81	3.9	5,224	1,178	971
41	163	2.0	80	3.5	5,050	1,134	926
33	134	1.8	73	3.5	4,816	1,101	896
33	130	1.7	65	3.4	4,776	1,087	874
32	105	1.7	64	3.4	4,395	1,024	806
32	94	1.6	61	3.2	3,949	976	789
32	91	1.6	55	3.1	3,833	932	748
20	84	1.3	49	3.0	3,785	931	738
18	61	1.1	48	2.9	3,645	764	724
15	47	0.4	40	2.6	742	692	654