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GREAT LAKES REGION GRAPE FARM BUSINESS SUMMARY 1978

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GREAT LAKES REGION GRAPE FARM BUSINESS
SUMMARY AND ANALYSIS, 1978

This is a summary and analysis of the 1978 farm business records from thirteen commercial grape farms in the Great Lakes Region of New York. The summary was prepared by Gerald B. White, Department of Agricultural Economics, Cornell University and Trenholm D. Jordan, Regional Extension Grape Specialist.

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 Western New York. This publication, therefore, should not be used as an exact representation of the entire Great 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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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
13 Great Lakes Region Grape Farms, 1978

Item	My Farm	Average	Range
Labor:			
Number of operators	_____	1.0	1 - 1
Months of:			
Operator's	_____	9.5	1.0 - 12.0
Family paid	_____	.9	0 - 6.0
Family unpaid	_____	1.9	0 - 6.0
Regular hired	_____	10.9	0 - 36.0
Seasonal hired	_____	22.9	1.0 - 118.0
Other	_____	.5	0 - 3.0
Total		46.6	11 - 145
Man equivalent (total months + 12)	_____	3.9	.9 - 12.1
Land and Crops (acres)			
Bearing grapes:			
Harvested	_____	86.0	20 - 230
Not harvested	_____	1.2	0 - 15
Total acres bearing grapes	_____	87.2	20 - 230
Nonbearing grapes	_____	.4	0 - 6
Total Acres in Grapes	_____	87.6	20 - 230
Total Crop Acres	_____	109.8	24 - 323
Crop Acres rented	_____	23.7	0 - 128
Total Crop Acres owned	_____	86.1	26 - 323
Total Acres owned	_____	125.1	45.5 - 250

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
13 Great Lakes Region Grape Farms

Item	My Farm 1/78	My Farm 1/79	Average per Farm 1/78	Average per Farm 1/79
Land & buildings	$_____	$_____	$215,181	$229,338
Machinery & equipment	_____	_____	40,648	45,218
Supplies & crops	_____	_____	2,185	3,840
TOTAL FARM INVENTORIES	$_____	$_____	$258,014	$278,396

The average end inventory was eight percent higher than the average beginning inventory. Three of the 13 farms purchased land and/or made improvements. The value added to real estate by these investments and some related appreciation accounts for most of the increase in farm inventories.

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

INVESTMENT ANALYSIS
13 Great Lakes Region Grape Farms, January 1979

Item	My Farm	Average per Farm
Total investment/man equivalent	$_____	$71,384
Total investment/crop acre	$_____	$ 2,535
Total investment/acre of bearing grapes	$_____	$ 3,193
Machinery investment/crop acre	$_____	$ 412
Land & buildings/total acres owned	$_____	$ 1,833
Capital Turnover*	_____yrs.	2.6 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
13 Great Lakes Region Grape Farms, 1978

Item	My Farm	Average per Farm	Percent of Total
Grapes:			
Primary market	$_____	$ 90,083	83
Distress market	_____	129	0
Total 1978 Payments Received	$_____	$ 90,212	
Previous year's payments, certificates	_____	10,249	9
Machine work and trucking	_____	406	0
Other crop receipts	_____	5,096	5
Work off farm	_____	231	0
Livestock & livestock product sales	_____	910	1
Rent	_____	954	1
Other	_____	1,058	1
Total Cash Receipts	$_____	$109,116	100
Total Cash Receipts	$_____	$109,116	
Less previous year's payments	- _____	- 10,249	
Plus anticipated 1978 payments	+ _____	+ 25,142	
Increase in crop and supply inventory	_____	1,860	
Total Farm Receipts	$_____	$125,868	

Grape income accounted for 92 percent of the cash receipts on these farms in 1978. An average of 525 tons of grapes per farm were harvested and sold in 1978. Cash grape receipts for the 1978 crop totaled $172 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
13 Great Lakes Region Grape Farms, 1978

Item	My Farm	Average per Farm	Expense per Acre of Grapes (total)
Hired labor	$_____	$34,696	$396
Machine hire	_____	5,535	63
Machine repair & farm share of auto expense	_____	3,407	39
Gasoline and oil	_____	2,035	23
Spray	_____	3,239	37
Fertilizer	_____	3,256	37
Seeds & grape roots (replacements)	_____	256	3
Posts and wire	_____	1,545	18
Other crop expense	_____	1,948	22
Real estate upkeep	_____	1,254	14
Taxes	_____	4,245	48
Insurance	_____	2,843	34
Rent	_____	676	8
Utilities	_____	811	9
Interest paid	_____	7,353	84
Miscellaneous	_____	1,847	21
TOTAL CASH & OPERATING EXPENSES	$_____	$74,946	$856
Machinery depreciation*	_____	3,525	
Building depreciation	_____	923	
Decrease in supply inventory	_____	282	
Unpaid family labor	_____	752	
Interest on equity capital @ 7%	_____	17,178	
TOTAL FARM EXPENSES	$_____	$97,606	$1,114

* Does not include depreciation for custom harvesting operations. See page 15 for the custom harvesting enterprise.

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 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
13 Great Lakes Region Grape Farms, 1978

Item	Machinery		Real Estate	
	My Farm	Average	My Farm	Average
Beginning inventory	$_____	$40,648	$_____	$215,181
Purchases	_____	7,667	_____	8,212
Total (A)	$_____	$48,315	$_____	$223,393
End inventory	$_____	$45,218	$_____	$229,338
Sales	_____	104	_____	-0-
Total (B)	$_____	$45,322	$_____	$229,338
DEPRECIATION (A minus B) or	$_____	$ 3,550*		
APPRECIATION (B minus A)			$_____	$ 6,868**

* A minus B is adjusted for machinery appreciation (+$557) and includes depreciation on equipment used for custom harvesting.

** B minus A is adjusted for building depreciation (+$923).

The average machinery depreciation of $3,550 is 7 percent of the beginning inventory plus machinery purchased. This low depreciation reflects growers' estimates that considerable inflation occurred in used machinery prices.

Four farms reported no change in the value of real estate from the beginning to the end of the year. Seven farms showed net appreciation, one reported depreciation, and seven farms increased the value of real estate by purchases or improvements.

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
13 Great Lakes Region Grape Farms, 1978

Item	My Farm	Average per Farm
Total Cash Receipts	$_____	$109,116
Total Cash + Operating Expenses	_____	74,946
NET CASH FARM INCOME	$_____	$ 34,170
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 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; 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 1978 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 1977 crop.

LABOR AND MANAGEMENT INCOME
13 Great Lakes Region Grape Farms, 1978

Item	My Farm	Average per Farm [Method 1]	Average per Farm [Method 2]
Total Farm Receipts	$_____	$125,868	$110,976
Total Farm Expenses	_____	97,606	97,606
LABOR & MANAGEMENT INCOME PER FARM	$_____	$ 28,262	$ 13,370

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; therefore labor and management income per operator was $28,262 and $13,370 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 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.

The growers who participated in this summary submitted balance sheets and net worth or equity capital was computed. Average equity capital was estimated as $245,398 per farm.

LABOR, MANAGEMENT AND OWNERSHIP INCOME
13 Great Lakes Region Grape Farms, 1978

Item	My Farm	Average per Farm [Method 1]	Average per Farm [Method 2]
Labor & Management Income Per Farm	$_____	$ 28,262	$ 13,370
Add: Real Estate Appreciation	_____	6,868	6,868
Add: Interest on Equity Capital @ 7%	_____	17,178	17,178
LABOR MANAGEMENT & OWNERSHIP INCOME PER FARM	$_____	$ 52,308	$ 37,416

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
13 Great Lakes Region Grape Farms, 1978

Item	My Farm	Average per Farm [Method 1]	Average per Farm [Method 2]
Labor & Management & Ownership Income	$_____	$52,308	$37,416
Less: Value of Operator's Labor & Management*	_____	11,426	11,426
Return on Equity Capital	$_____	$40,882	$25,990
Rate of Return on Equity Capital (equity capital = $245,398)	_____%	16.7%	10.6%

* Values estimated at $650 per month for labor and 5 percent of cash receipts for management. The Value of Operator's Labor is $5,970 (which excludes value of operator's labor for custom harvesting enterprises). Cash receipts of $109,116 x 5% = 5456.

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 on an average of 13 farms is provided below.

FARM FAMILY FINANCIAL SITUATION
13 Great Lakes Region Grape Farms, January 1, 1979

Item	My Farm	Average per Farm
Assets		
Total farm inventory	$_____	$278,395
Accounts receivable	_____	11,240
Co-op investment	_____	19,553
Cash and checking account	_____	11,130
Cash value of life insurance	_____	3,077
TOTAL FARM ASSETS	$_____	$323,395
Liabilities		
Real estate mortgage	$_____	$ 63,816
Liens and secured loans	_____	5,827
Installment contracts	_____	958
Other farm debt	_____	7,396
TOTAL FARM LIABILITIES	$_____	$ 77,997
FARM NET WORTH (Farm assets less liabilities)	$_____	$245,398
Percent Equity (Farm net worth + total farm assets)	_____%	76%
Farm Debt per Man Equivalent	$_____	$ 19,999
Farm Debt per Bearing Acre of Grapes	$_____	$ 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 living expenses and to make debt payments. The average farm in this study had a 1978 net cash flow, excluding interest paid of $41,523. This amount was available to live on, and to make debt payments and cash investments during the year.

Analysis of the Farm Business

An analysis of the records of these farms shows that among the farm 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 with the averages of these factors for other farms provides valuable clues to the strong and weak points of an individual grape farm business.

SELECTED FARM BUSINESS MEASURES
13 Great Lakes Region Grape Farms, 1978

Item	Average per Farm	My Farm
Measures of Size		
1. Acres in bearing grapes	87.2	_____
2. Acres of grapes harvested	86.0	_____
3. Acres in nonbearing grapes	.4	_____
4. Man equivalent	3.9	_____
5. Tons of grapes harvested	471	_____
6. Tons of grapes grown	472	_____
Labor Efficiency		
1. Acres in grapes harvested per man	22.1	_____
2. Tons of grapes harvested per man	121	_____
Production Factors		
1. Grape yield per acre (tons) of bearing grapes	5.5	
2. Grape receipts* per acre of bearing grapes	$1,323	$_____
Price		
1. Average price per ton of grapes sold	$ 191	$_____

* Receipts from sale of grapes plus anticipated payments from 1978 grape crop.

Capital and Capital Efficiency Factors

The average investment in the farm business was $278,396. Eighty-three percent of this total is represented by vineyards and buildings.

CAPITAL INVESTMENT AND CAPITAL EFFICIENCY FACTORS
13 Great Lakes Region Grape Farms, January 1979

Item	Average per Farm	Percent of Total	My Farm
Land and buildings	$229,338	83	$_____
Machinery and equipment	45,218	16	_____
Supplies	3,840	1	_____
Total Farm Inventories	$278,396	100	$_____
Man equivalent	3.9		_____
Investment per man	$ 71,383		$_____
Acres of bearing grapes	87.2		_____
Machinery and equipment investment per acre of bearing grapes	$ 519		$_____
Land and building investment per acre of owned cropland	$ 2,630		$_____
Total farm investment per acre of bearing grapes	$ 3,193		$_____
Total farm investment per ton of grapes sold	$ 530		$_____
Capital turnover (years for cash receipts to equal capital)	2.6		_____

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 guage the soundness of his capital investment. On these farms, investment per farm ranged from $89,770 to $645,574; investment per man ranged from $41,692 to $201,609; and investment per acre of bearing grapes ranged from $2,112 to $9,072.

1978 Production and Marketings

ACRES IN VINES AND 1978 MARKETINGS
13 Great Lakes Region Grape Farms

Item	Number of Growers Reporting	Average of All Growers
		(Acres)
Bearing Vines:		
Harvested, sold in primary market	13	85.9
Harvested, sold in distress market	2	.1
Not harvested	1	1.2
Total Bearing	13	87.2
Nonbearing Vines	1	.4
Total Acres in Vines	13	87.6

Total acres in vines averaged 87.6 acre per farm. Ninty-eight percent of this total acreage produced a crop which was harvested and sold in the growers' primary or usual markets in 1978. Almost no acreage was sold in the distress market, but an average of 1.2 acres were not harvested (as reported by one grower).

GRAPES HARVESTED & SOLD IN PRIMARY OR USUAL MARKETS
13 Great Lakes Region Grape Farms, 1978

Variety	Acres	Tons	Average Yield/Acre
Concord	64.4	376	5.84 Tn.
All other varieties	21.5	95	4.41 Tn.
Total	85.9	471	5.48 Tn.

Concords were the most important variety on all farms. This variety accounted for 75 percent of the acreage harvested and 80 percent of the tonnage. The average yield of Concords was 5.84 tons per acre, compared with 4.41 tons per acre for all other varieties. Among the higher yielding other varieties were Deleware and Niagara.

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
13 Great Lakes Region Grape Farms, 1978

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

Acres of Bearing Grapes	Man Equiv-alents	Tons of Grapes Harvested Per Man	Tons of Grapes Harv. Bearing Acre	Investment Per Acre of Bearing Grapes	Grape $ Per Acre Harvested	Total Cash Operating Exp./Acre Harvested
230	12.1	294	8.6	$9,072	$2,057	$1,153
182	6.8	180	7.9	5,505	1,984	1,123
135	5.7	165	7.0	4,687	1,646	1,100
126	5.3	160	6.4	4,590	1,500	972
106	4.0	154	5.9	4,080	1,450	934
76	3.4	134	5.5	3,783	1,401	920
70	2.7	126	5.5	2,970	1,335	745
51	2.5	122	5.2	2,864	1,290	716
45	2.3	115	5.1	2,830	1,272	696
40	2.1	106	5.0	2,807	1,236	631
31	1.5	106	4.7	2,414	1,053	620
22	1.2	104	4.4	2,112	908	590
20	.9	55	2.9	2,025	795	581

Custom Harvesting Enterprise

Five of the farms in this summary had custom harvesting operations. The receipts, expenses, and machinery used were allocated to this enterprise, and are not included in the computations in the preceeding pages. The custom harvesting operations are summarized below:

CUSTOM HARVESTING ENTERPRISE
5 Chautauqua County Grape Farms

		Average per Farm	Range
Receipts		$13,394	$4,812 - 23,608
Expenses			
Hired labor	3,529		
Machine hire	1,958		
Machine repair & farm share of auto expense	1,341		
Gasoline and oil	552		
Real estate upkeep	0		
Insurance	355		
Utilities	28		
Interest paid	171		
Miscellaneous	0		
TOTAL CASH EXPENSES	7,934		
Machinery depreciation	66		
TOTAL EXPENSES		$ 8,000	
Net Income for Enterprise		$ 5,394	$ 317 - 10,108

The average net income for the 5 operators was $5,394. These growers had investments in machinery of $26,213 allocated to custom harvesting. This is not the full value of all machinery used in custom harvesting, but rather it reflects these growers' estimation of what percentage of their machinery should be allocated to the enterprise. The same principle is used for the allocation of other expenses.