

LAKE ERIE GRAPE FARM COST SURVEY 1991-1995



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ABSTRACT

This report is a summary of five years of grape cost data collected from Lake Erie Region grape growers. "Concord" and "Niagara" grapes utilized for juice accounted for over 90 percent of the survey acreage. About three-fourths of the participating growers were from New York and about one-fourth were from Pennsylvania. In the most recent year, the number of participants had increased to 43 and acreage in the survey to more than 4,300.

Labor accounted for one-third of total costs per acre (22 percent for paid labor and 11 percent for unpaid family labor). Yield per acre tended to be closely related to total cost per ton, and hence, to profitability. The five-year average yield was 6.7 tons per acre. High yields (7+ tons per acre) are needed to generate profits and provide funds for family living expenditures.

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INTRODUCTION

The grape industry located along the eastern shore of Lake Erie has a long history. Competitive pressure and changing consumer preferences pose significant challenges for the future of the industry. Growers have responded with increased mechanization and other cost cutting measures.

The Lake Erie Grape Farm Cost Survey (LEGFCS) was started in 1993 to;

1. Track costs and profitability for commercial grape producers;
2. Establish benchmark data for comparisons between farms; and to
3. Identify production factors associated with varying levels of profitability.

Concord and Niagara grapes utilized for juice remain the base of the New York industry and is concentrated in the Lake Erie Grape Belt. Over 90 percent of surveyed acreage is in these two varieties. Grapes are being grown primarily on three different trellis systems: Umbrella Kniffen (UK), Hudson River Umbrella (HRU), and Geneva Double Curtain (GDC).

METHODS

In the summer of 1993, the authors met with a panel of two lenders, one Cooperative Extension Agent, and one agribusiness representative to design a data collection form. It was decided to use tax information from growers' Schedule F of their federal income tax returns since all growers would have that information. Normally growers use cash accounting instead of accrual accounting for tax purposes. An analysis of accrual financial statements could give a better picture of each farm. The panel decided that increasing the number of farms sampled was more important than a more detailed analyses of fewer farms. Over time, cash accounting of expenses and receipts can give an accurate measure of economic performance.

Other information collected included trellis system percentages, bearing acreage, tonnage produced, grape receipts, other farm operating receipts, paid and unpaid farm labor, and form of business organization.

The panel decided to limit the selection of survey participants to those having a minimum of 80 percent of crop receipts from grapes. Many of the growers in the study get 100 percent of their crop receipts from grapes! Growers in the Grape Belt are now specialized grape growers. Farm size ranged from 20 acres to over 300 acres. Yearly averages were weighted by acreage for computing average costs and returns.

Acreage in the survey was roughly two thirds in New York and one third in Pennsylvania. About three-fourths of the participating growers were from New York and about one-fourth were from Pennsylvania.

The results were tabulated by tax year (usually calendar year). Multiple year averages were computed for individual farms that participated for more than one year. It would have been desirable to collect balance sheet data to present a more complete analysis of financial performance; however, time and data availability precluded the collection of assets and liabilities information. In the summer of 1993, data were collected for growing seasons 1991 and 1992, so this publication summarizes five years of data.

Since Schedule F does not normally result in the growers' or other unpaid family labor being counted as an expense, we valued this unpaid family labor at \$1,400 per month (about \$6.75 per hour) and added it to give more complete total cost data.

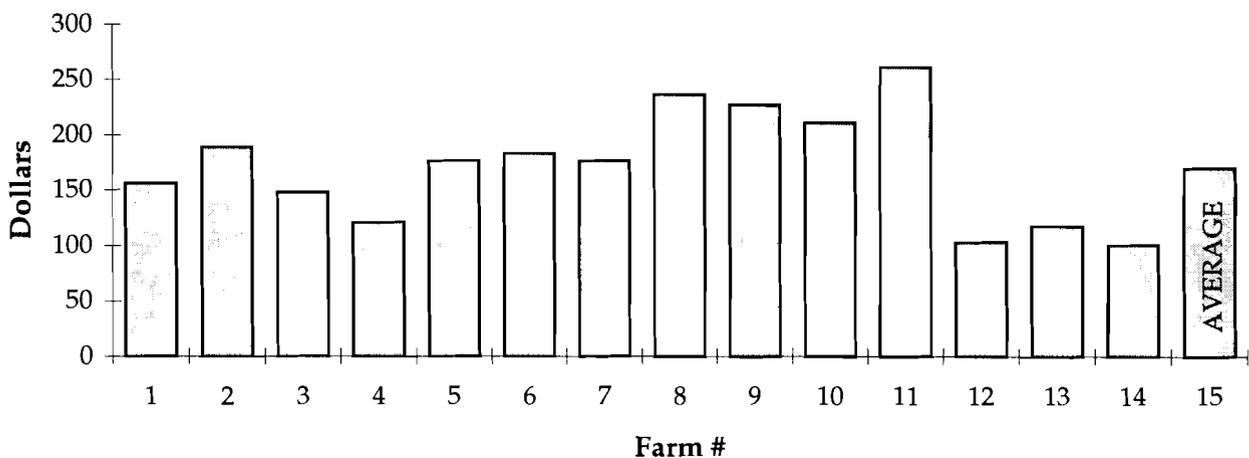
RESULTS

1991

Lake Erie Region grape growers remember the 1991 growing season fondly. The weather was warm and dry. Bloom and harvest were early. Tonnage was high but with good quality. For 1991, the study was conducted with 14 growers and a total of 1,028 acres of grapes. Yields ranged from 5.8 to 11.3 tons per acre with a weighted average of 8.3 tons per acre. Cost per acre ranged from \$717 to \$1,825, and averaged \$1,351. The average cost per ton was \$170. Individual grower costs per ton were as follows:

Chart 1.

1991 SCHEDULE F COST PER TON



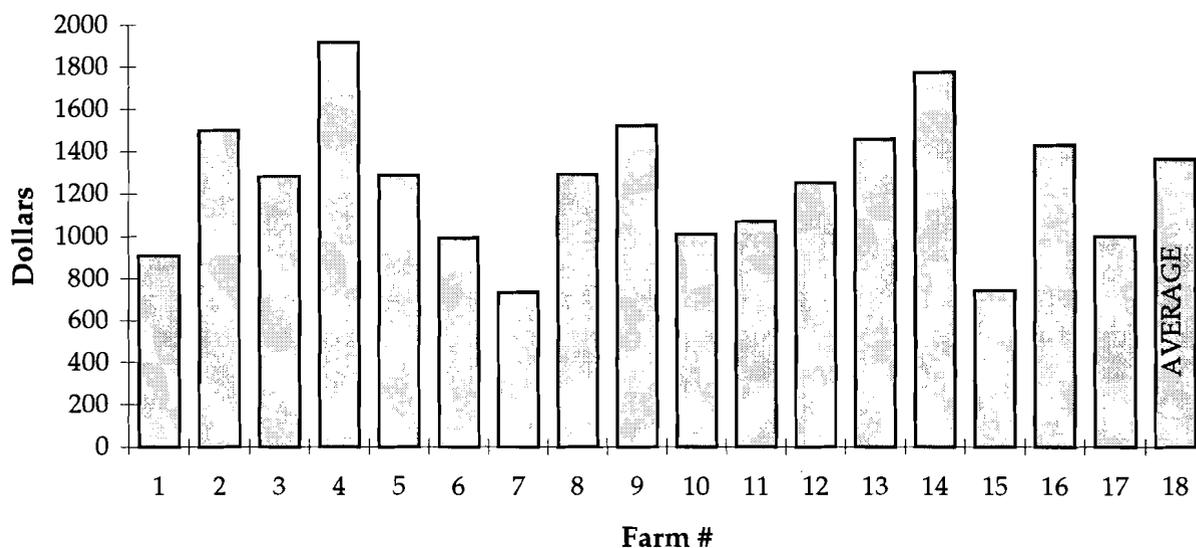
Returns per acre averaged \$1,740, the highest for the five year period surveyed. The average Schedule F profit per acre was \$389 with a range from a \$247/acre loss to \$1,509/acre profit.

1992

Growers experienced a much more difficult growing season in 1992. High rainfall and below average temperatures combined with above average crops made ripening the crop difficult. Growers surveyed increased to 17 with 1505 acres. Yields ranged from .1 (crop failure due to frost) to 9.3 tons per acre, with the average dropping to 6.8 tons per acre. Cost per acre was similar at \$1,364 average; there was less than 1 percent difference between 1991 and 1992.

Chart 2.

1992 SCHEDULE F COST PER ACRE



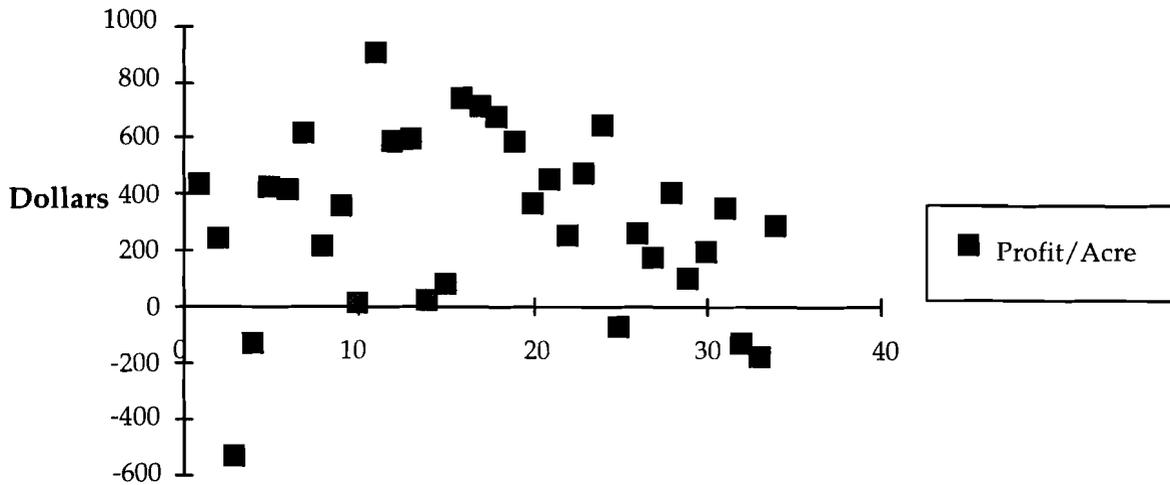
Due to lower yields, the Schedule F average cost per ton increased to \$201. Schedule F profit per acre declined to \$330.

1993

Weather conditions were about average for the 1993 growing season. Yields were down considerably due primarily to stress from the previous year. Some growers experienced problems ripening grapes in the Lake Erie Grape Belt in 1993. Surveyed growers increased to 33 with a total acreage of 2469. Yields ranged from 1.5 to 8.0 tons per acre with 4.8 tons per acre being average. Costs per acre were cut to an average of \$1,134, but costs per ton ballooned up to \$245 due to lower yields. Average Schedule F profit per acre declined to \$286:

Chart 3.

PROFITS BETTER THAN MANY EXPECTED!



Only 5 out of 33 farms showed a Schedule F (tax) loss. Other farm income sources including custom harvesting and crop insurance helped to prop up farm income for 1993.

1994

Going into 1994, growers had high bud fruitfulness from good growing conditions and a light crop from 1993. This was tempered by bud damage caused by cold weather in January 1994. Early estimates of 20-30 percent bud mortality were overstated. Many growers had excessive crops and some tried mechanical thinning after fruit set. Going into Labor Day 1994, many growers thought they would have a difficult time making processor minimum sugar standards. Good weather in September and October, combined with field blending of grapes allowed nearly all grapes to be sold.

The LEGFCS expanded to 40 growers with a total of 3,558 acres. Average yields rebounded to 7.9 tons per acre. The average Schedule F cost per acre edged up to \$1,187, but cost per ton dropped to \$161.25. Acres per worker equivalent jumped to 40.8 up from the mid-30's in previous years. Average Schedule F profit per acre rose to \$328 with a range of over \$1,200 (from \$1,022 profit to \$210 loss per acre). Over half of the growers used Section 179 expensing to accelerate depreciation and reduce profits.

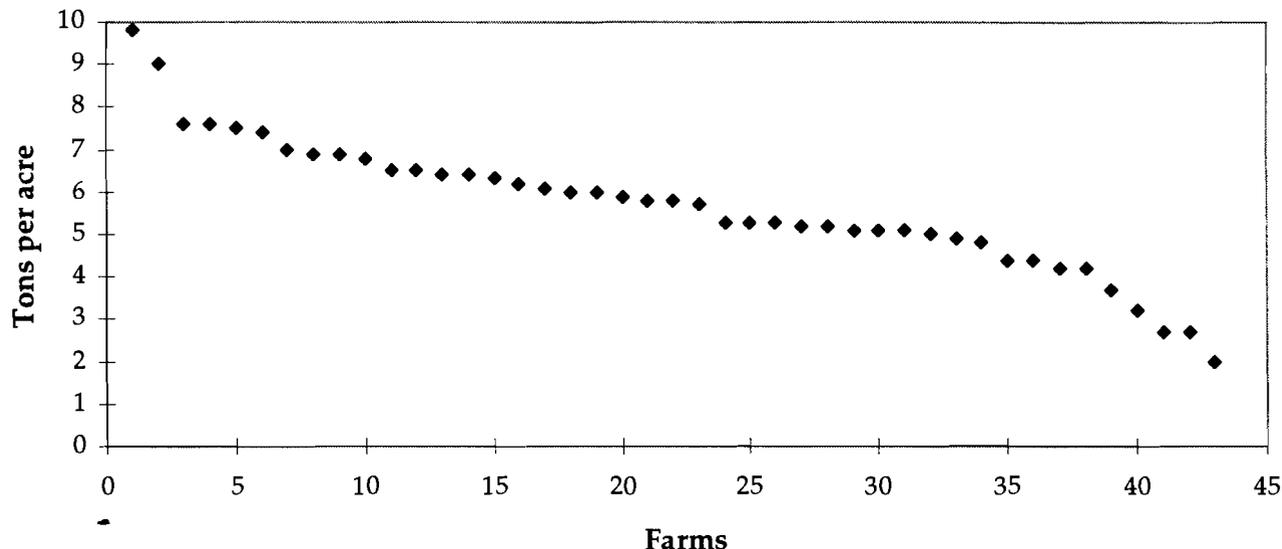
1995

Hot and dry weather contributed to high insect pressure and low disease pressure for growers. Crop ripening generally was not a problem except where water stress slowed the vines down. Millerandage, a fruit set disorder, affected more than 1,000 acres beltwide this year. Some acreage in the survey was affected by millerandage. Cash market prices dropped to around \$165 per ton. The LEGFCS grew to 43 growers and over 4,300 vineyard acres. LEGFCS

growers averaged 5.5 tons per acre. Yields in 1995 more closely resembled an average year than any of the four preceding years. Yields still were variable, as the following graph shows:

Chart 4.

1995 FARMWIDE YIELDS AVERAGED 5.5 TONS PER ACRE



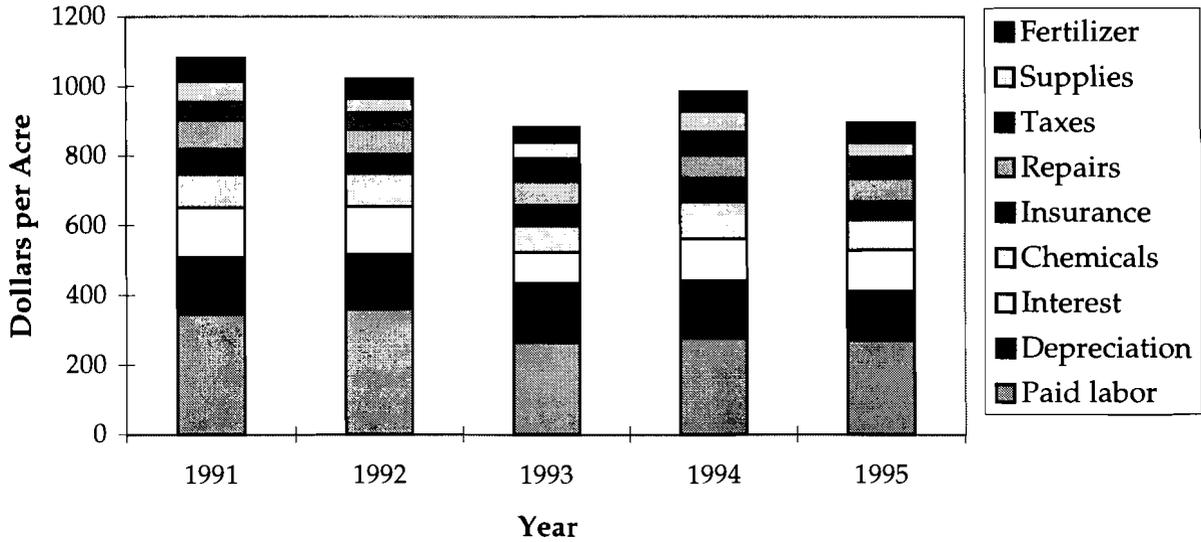
Schedule F cost per acre averaged \$1,138 or \$209 per ton. Acres per worker again jumped to 46. Average Schedule F profit per acre fell to \$51 and total profit plummeted to a negative \$88 per acre! Most growers eked out a profit, but some large growers with low yields showed substantial losses.

COMPARISONS AMONG YEARS

Schedule F costs per acre were highest for 1991. There were two main reasons for this; first growers were trying to do some tax planning to reduce profits (primarily prepaying expenses for 1992), and second, the beginning group of growers tended to be higher cost growers than subsequent participants.

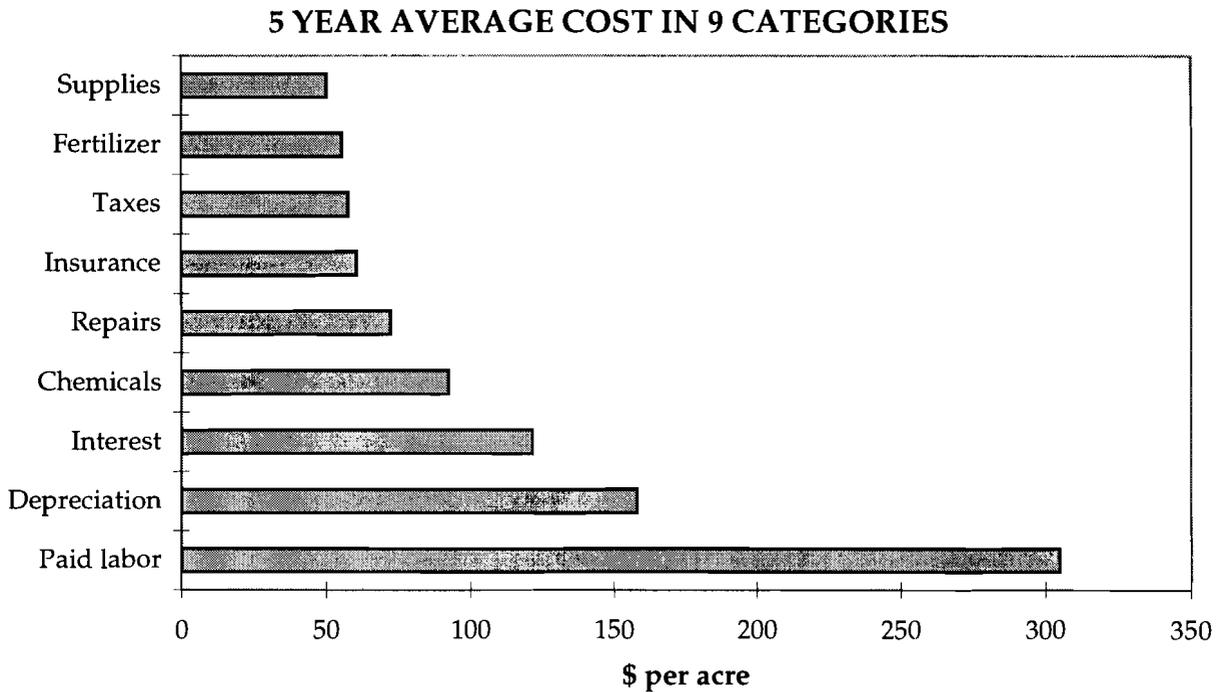
Chart 5.

COSTS PER ACRE VARIES SLIGHTLY FROM YEAR TO YEAR



Many growers are concerned by crop chemical and fertilizer costs; however, more attention should be given to reducing costs in the largest categories such as labor and interest. Here are comparisons between average costs in nine categories:

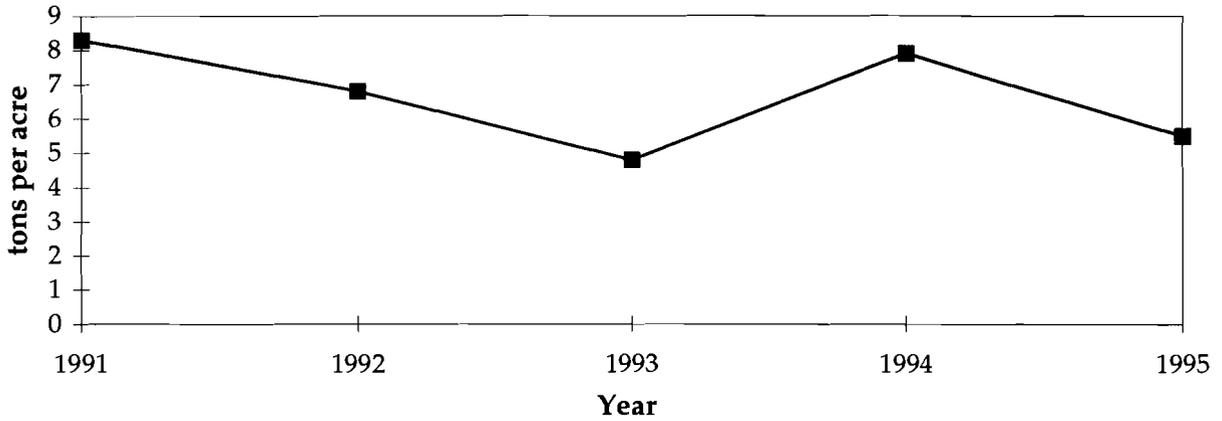
Chart 6.



Yields for LEGFCS growers averaged higher than grape belt wide averages, but followed similar trends. The 5 year average of the LEGFCS farms is similar to 1992's yields;

Chart 7.

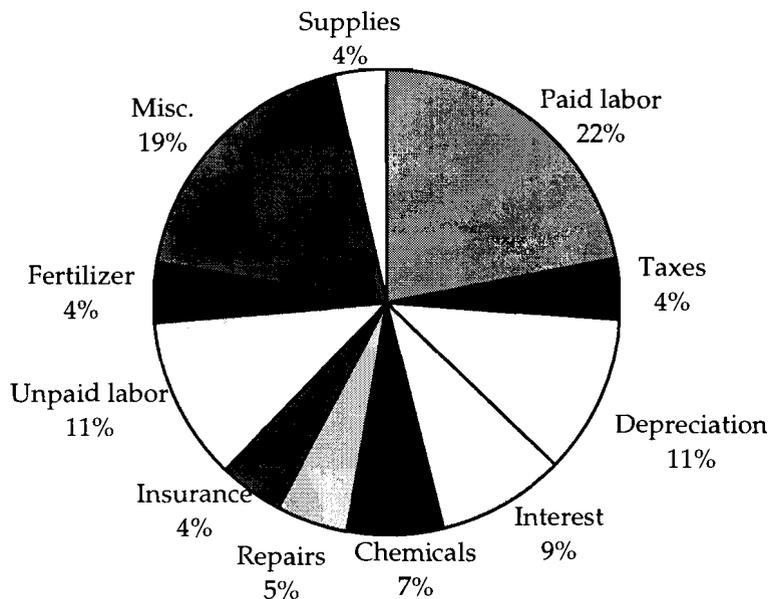
THE 5 YEAR AVERAGE YIELD IS 6.7 TONS PER ACRE



Operators' labor and unpaid family labor were valued at \$1,400 per month (roughly \$6.75/hr.) and were added to Schedule F (tax) cost to give a more complete cost per acre and per ton. Returns above Schedule F costs plus unpaid owner and family labor (total cost) would be considered returns to management and equity. Adding unpaid labor costs gives a slightly different breakdown of average costs:

Chart 8.

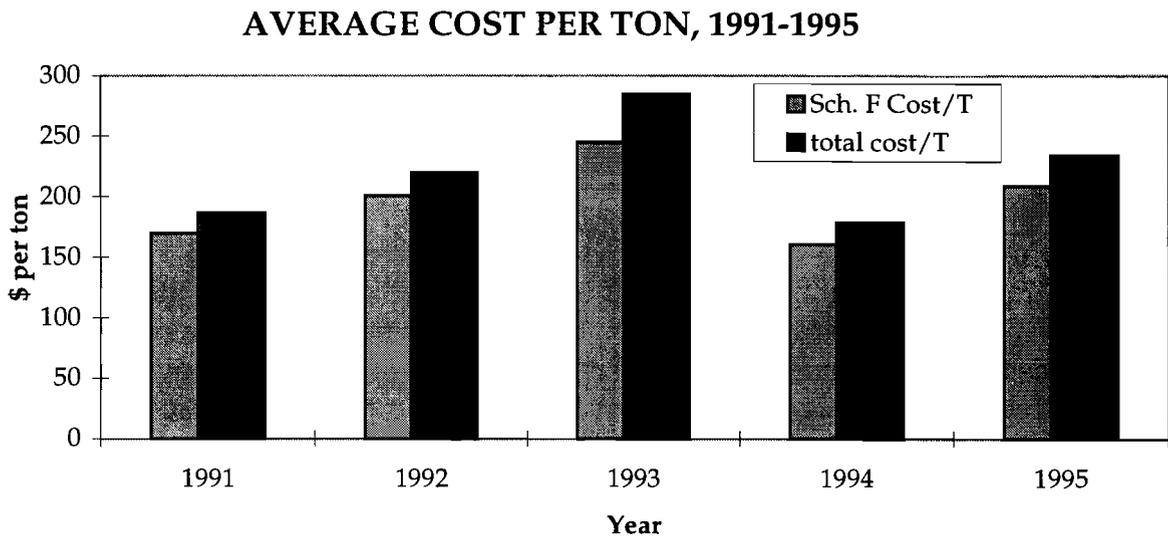
AVERAGE TOTAL COSTS PER ACRE INCLUDING OPERATOR LABOR



Yields tended to be the number one determinant of profitability. Juice grape prices have been sliding downward during the years reflected in the survey, but good yields have mitigated the impact of lower prices. Profits were lowest in 1995, when yields were average and prices were at the bottom of the five years of the study.

Cost per ton is key. Maintaining profit levels in the face of lower prices, means growers need to reduce cost per ton. Growers responded in 1994 with the lowest cost per ton. This cannot be attributed totally to better management and cost cutting, since the composition of growers has changed in each of the five years of the project and the weather also affected costs.

Chart 9.

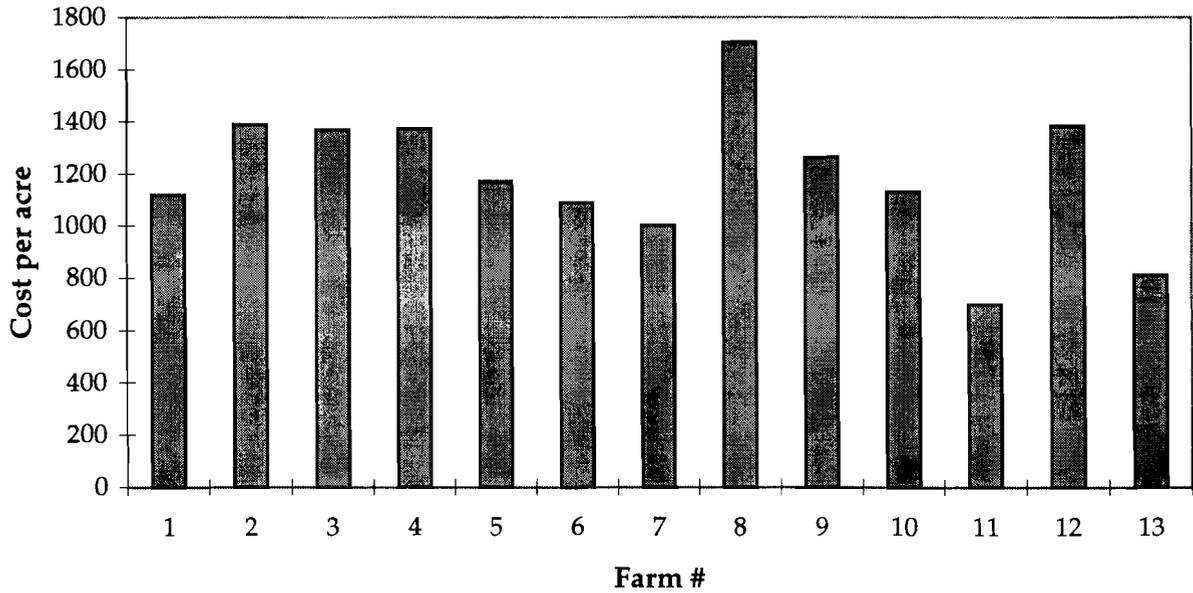


FIVE YEAR AVERAGES BY FARM

Thirteen growers participated all five years. We can see definite differences in the cost structure of the individual farms. This graph shows average costs per acre for these thirteen farms:

Chart 10.

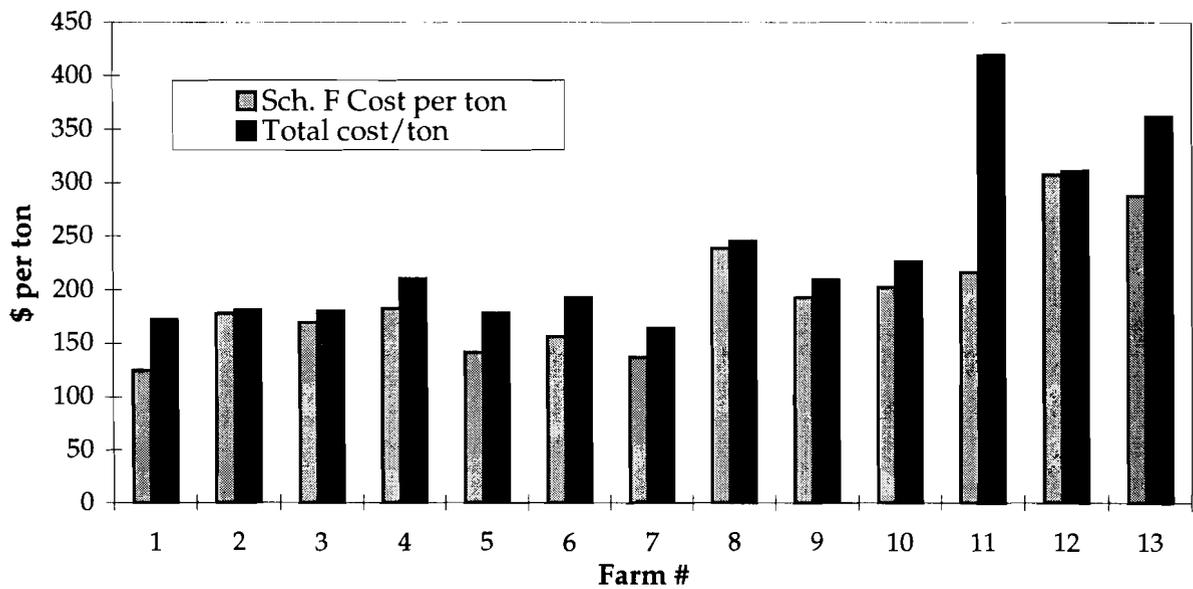
AVERAGE COST PER ACRE, 1991-1995, 13 GROWERS



Five year average yields per acre ranged from 2.8 to 9 tons. Five year average cost per ton by grower is:

Chart 11.

AVERAGE COST PER TON, 1991-1995, 13 GROWERS

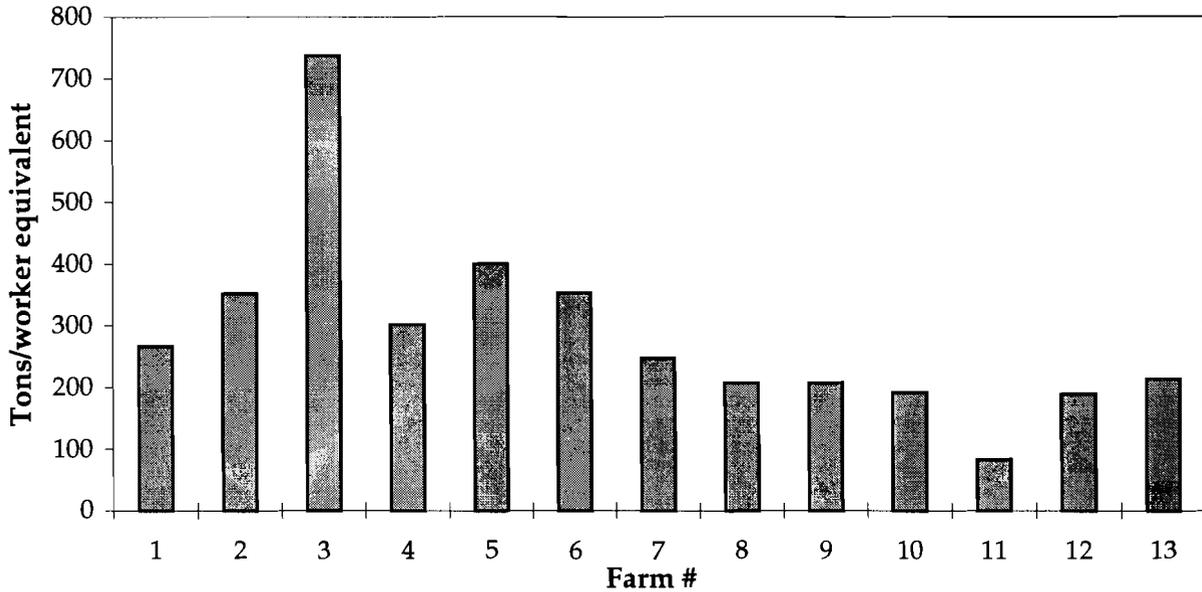


Total cost per ton is a more meaningful way to compare growers of differing sizes.

The biggest single category of costs was labor. Labor efficiency can be calculated by acres per worker or, taking into account yields, tons produced per worker equivalent. Much of Farm 11's high total costs per ton could be explained by low tons produced per worker.

Chart 12.

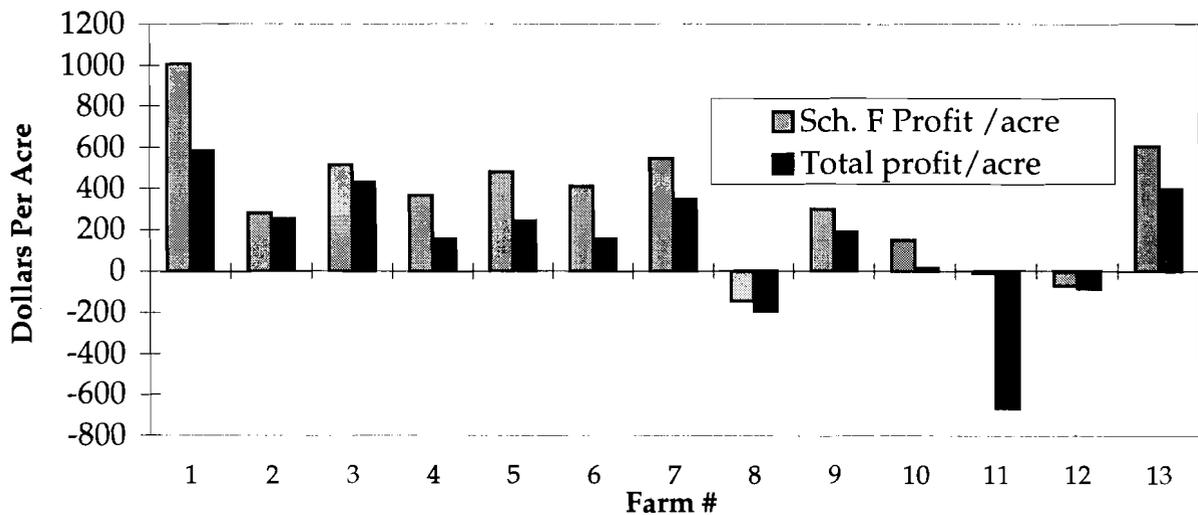
AVERAGE LABOR EFFICIENCY, 1991-1995, 13 FARMS



Profits should be related to costs per ton since market prices have not differed much in the years surveyed. Five year average profits per acre for the 13 farms were as follows:

Chart 13.

PROFITS ARE RELATED TO YIELDS



Even with three high yielding years out of five surveyed, three growers lost money overall. Other growers were profitable every year (farms 1, 3, 5 and 7). Total profit per acre

shows returns above "wages" for growers since the value of unpaid labor has been added to costs.

Farm 1 was the most profitable due to high yields and average costs per acre. Farm 1 happened to be the only 100 percent GDC trellis grower in the survey. Properly managed GDC vineyards can produce more tonnage than most single curtain systems. **Yield** is the single biggest determinant of costs per ton and profitability. Farm 11 does not have any paid labor but has the lowest total returns! Factors which negatively affected returns for Farm 11 were the following: yields were below average, there was a high percentage of nonbearing vineyards, and labor efficiency as expressed in tons per worker equivalent was low.

CONCLUSIONS

Five years of data were sufficient for differences in vineyard and financial management performance to emerge. Some growers will usually make positive returns above the value of their labor. Other growers usually will not make enough to pay themselves for their labor. Still others follow with the general trend of the industry, usually with variable crop sizes.

Yields fluctuated more than per acre costs. Custom harvesting operations were generally profitable. High yields (7+ tons/acre) are needed to generate profits and provide funds for family living expenditures. Growers had more consistently high yields with mechanically pruned and hand pruned GDC vineyards. GDC acres probably have been shrinking in the Lake Erie Grape Belt. Results point towards well managed GDC vineyards having lower costs per ton. Growers may want to reevaluate replacing GDC trellis with single curtain trellis.

Income and profitability have trended downward over the five years surveyed. Growers face a challenge to stay profitable and many have met the challenge. Unprofitable growers may need to sell assets and/or change practices. Vineyard sites or practices that average 5 tons/acre will not be sustainable in today's market. In 1995, cash prices for juice grapes bottomed out. With prices rising and decent yields, growers can stay profitable. Growers should strive to reduce their costs per ton in order to stay profitable if and when prices decline again.

OTHER A.R.M.E. EXTENSION BULLETINS

EB No	Title	Author(s)
97-17	LEAP, Lease Analysis Program -- A Computer Program for Economic Analysis of Capital Leases	LaDue, E.L.
97-16	Analyzing Capital Leases	LaDue, E.L.
97-15	Dairy Farm Business Summary, Eastern New York Renter Summary, 1996	Knoblauch, W.A. and L.D. Putnam
97-14	Dairy Farm Business Summary, Intensive Grazing Farms, New York, 1996	Conneman, G., C.Crispell, J. Grace, K. Parsons and L. Putnam
97-13	Fruit Farm Business Summary, Lake Ontario Region, New York, 1996	White, G.B., A.M. DeMarree and L.D. Putnam
97-12	Dairy Farm Business Summary, Northern New York Region, 1996	Milligan, R.A., L.D. Putnam, P. Beyer, A. Deming, T. Teegerstrom, C. Trowbridge and G. Yarnall
97-11	Dairy Farm Business Summary, Central Valleys Region, 1996	LaDue, E.L., S.F. Smith, L.D. Putnam, D. Bowne, Z. Kurdich, C. Mentis, T. Wengert and C.Z. Radick
97-10	"Maximizing the Environmental Benefits per Dollar Expended": An Economic Interpretation and Review of Agricultural Environmental Benefits and Costs	Poe, G.
97-09	Dairy Farm Business Summary, Northern Hudson Region, 1996	Smith, S.F., L.D. Putnam, C.S. Wickswat, S. Buxton and D.R. Wood
97-08	Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 1996	Karszes, J., W.A. Knoblauch and L.D. Putnam
97-07	Dairy Farm Business Summary, Southeastern New York Region, 1996	Knoblauch, W.A., L.D. Putnam, S.E. Hadcock, L.R. Hulle, M. Kiraly, C.A. McKeon
97-06	Dairy Farm Business Summary, Western and Central Plateau Region, 1996	Knoblauch, W.A., L.D. Putnam, C.A. Crispell, J.S. Petzen, J.W. Grace, A.N. Dufresne and G. Albrecht
97-05	Dairy Farm Business Summary: Western and Central Plain Region, 1996	Knoblauch, W.A., L.D. Putnam, J. Karszes, M. Stratton, C. Mentis and George Allhusen